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The Compounding Parameter in Second Language Acquisition*

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Abstract
This article presents an experimental study investigating the Compounding Parameter in the L2 Spanish interlanguage of English and French native speakers in the light of the Subset Principle (SP) and its predictions for the L2 development process. The Compounding Parameter (Snyder 1995, 2001) argues that languages permit complex predicate constructions like verb-particles, resultatives, and double objects if and only if they can productively form N-N compounds. English exhibits the plus value of the parameter, allowing N-N compounds and the related constructions, while in Spanish and French these compounds and constructions are ungrammatical. Since English also allows periphrastic constructions of the same meaning, which are the only option in French and Spanish, English represents the superset parameter value to the Spanish/French subset value. At issue is whether L2 learners are able to acquire the subset value of the Compounding Parameter based on the naturalistic input they receive. In this case, the learning task involves realizing that some L1 constructions are unavailable in the L2. Results indicate that the learners initially transfer the L1 (superset) value, and do not start with the subset value of the parameter. Findings also inform the debate of whether negative evidence can engage UG-related acquisition or not. 10 of the 26 advanced subjects were able to successfully reset the whole parameter based on negative data for only two of the four constructions in the cluster. This fact suggests that it is not impossible for negative evidence to be utilized in grammar reorganization.

Introduction

Within the generative approach to language acquisition (Borer & Wexler, 1987; Hyams, 1986; Pinker, 1984), it is generally accepted that there are three components, each of them necessary for attaining a steady-state grammatical system:

1. Universal Grammar
2. Meaningful input
3. Learning principles.

The latter are needed to ensure that native language acquisition can proceed and be successful, based entirely on positive evidence, the primary linguistic data to which the learner is exposed.

The unavailability of negative evidence (i.e., explicit information as to what is ungrammatical in a language) in child language (L1) development has been well-documented (Brown & Hanlon, 1970; Braine, 1971). Researchers have argued that negative evidence can and should be eliminated from the process of language acquisition (Pinker, 1984, 1989; Crain & Thornton, 1998; White, 1989b). Universal Grammar (UG) provides a blueprint of what is a possible parameter setting in language, and learning principles ensure that learners are maximally conservative in the sense of Baker (1979), i.e., they do not hypothesize parameter settings from which they could not retract based on positive evidence alone. Examples of such learning principles are the Uniqueness Principle (Pinker, 1984; Berwick, 1985; Wexler, 1981) which states that any semantic unit will have only one morpho-syntactic realization, and the Subset Principle (Berwick, 1985; Wexler & Manzini, 1987; Manzini & Wexler, 1987) which hypothesizes that learners will start with the maximally restrictive subset grammar.

Let us illustrate how the Subset Principle (SP) works in L1 acquisition in terms of properties of the sets of sentences associated with a parameter. The principle is only applicable when two parameter values generate two grammatical systems in a subset-superset relationship. That is, one value generates a set A of possible sentences, while the other generates these same sentences in set A plus others, for a superset B. For example, the pro-drop parameter, presumably part of UG, supplies the child with two possible values: sentences can surface only if they have an overt subject (the value generating the proper subset A) or they can surface optionally without an overt subject (the value generating superset B).[1] A child acquiring this parameter should initially hypothesize that she is learning a subset grammar, since she can safely retract from this hypothesis, should it happen to be the wrong hypothesis, on the evidence of sentences without subjects in the input. If she had wrongly started with the superset grammar, however, and hypothesized that both sentences with and without subjects are part of her grammar, while the input contained only sentences with subject, it would be impossible to learn that subjectless sentences are ungrammatical (provided that absence of evidence is not considered evidence of absence.) Thus, the SP would ensure that "the learner selects the grammar that generates the smallest possible language that is compatible with the data" (Manzini & Wexler, 1987: 425.)

Research investigating the role of Universal Grammar in second language acquisition has looked at whether the SP is available to L2 learners (Hirakawa, 1990; Finer, 1991; Finer & Broselow, 1986; Thomas, 1991; White, 1989a; Zobl, 1988). White (1989b) summarizes the findings of this research and concludes that " … the Subset Principle does not operate effectively in second language acquisition, that the learners do not start out with the most restricted parameter setting compatible with the L2 data but adopt settings with overgeneral consequences, in some cases based on the L1 (1989b: 164)."

More recent work has questioned whether the conditions for engaging the SP have been met in the various studies that deny SP availability in L2 acquisition. For example, Berent (1994) argues that there are design and methodological problems with some of the above-mentioned studies, so that the L2 data offered as evidence for the unavailability of the SP do not accurately represent the knowledge under investigation. Going even further, Hermon (1992) and MacLaughlin (1995) argue that the SP is untestable because there are no parameters in current theory that present a subset—superset problem. MacLaughlin discusses the Case Adjacency parameter, the pro-drop parameter, the Bounding Node parameter, and the Governing Category parameter, concluding in each case that either the parameters are empirically inadequate, or the phenomena themselves do not involve subset—superset relations.[2]

However, the SP is not without its supporters. Berent (1994) and Berent, Samar, Gass, & Plough (1994) argue that the principle is indeed operative in adult L2 acquisition. Berent (1994) tests its operation on the basis of the Relative Clause parameter, a reworking of Keenan & Comrie's (1977) Noun Phrase Accessibility Hierarchy in parametric terms. Ayoun (1996) investigates the L2 acquisition of the Oblique Case parameter (Kayne, 1984), subsuming preposition stranding, Exceptional Case Marking, the double object—dative alternation, and dative passive. She concludes that the SP is at least partially operative in the interlanguage grammars of her English learners of French. To summarize, there are currently three different positions regarding the operation of the SP:

1. The SP is not operative in adult L2 acquisition (Hirakawa, 1990; Finer, 1991; Finer & Broselow, 1986; Thomas, 1991; White, 1989a; Zobl, 1988).

2. The SP is untestable since no existing parameter values truly exhibit the subset-superset relationship (Hermon, 1992; MacLaughlin, 1995).

3. The SP is operative in adult L2 acquisition (Berent, 1994, Berent et al., 1994).

Clearly, the SP debate is far from over. The radically different views existing in the literature suggest that the evidence is conflicting and inconclusive at best. The question of whether the SP is operative in L2 acquisition is still awaiting its conclusive answer and further research involving fresh parameters is indeed warranted.

One more reason to return to the SP is the fact that, combined with L1 transfer, it yields interesting and testable predictions concerning the long-standing debate on the usefulness of negative evidence in the process of L2 acquisition (Krashen, 1981, 1982, 1985; Lightbown & Spada, 1993; Long, 1983, 1988, 1991; Pienemann, 1985, 1988; Schwartz & Gubala-Ryzak, 1992; Schwartz, 1986, 1988, 1993; Sharwood Smith, 1993; Trahey & White, 1993; White 1989a, 1989b, 1990, 1991a, 1991b, 1992; White, Spada, Lightbown, & Ranta, 1991; VanPatten & Cadierno, 1993.) Very generally speaking, the existing views can be divided into two positions. One position suggests that form-focused instruction and corrective feedback (in other words, negative and explicit positive evidence) lead only to temporary and superficial changes in the learners' performance. This is so because underlying, systematic changes in interlanguage competence can only be achieved on the basis of positive linguistic data (Krashen, 1981, 1982, 1985). Schwartz (1996, 1993), following Fodor's (1983) theory of mind, proposes to explain this claim by evoking the mechanism of information encapsulation between the different modules of human cognition. In the case of the language module, information that is not part of the module is unavailable for its computational operation. In other words, form-focused language instruction and corrective feedback lie outside of the language module and cannot be utilized by the language learner in building her linguistic competence. Schwartz (1993) contrasts underlying linguistic competence (giving rise to linguistic performance) with learned linguistic knowledge, capable of outputting learned linguistic behavior, and argues that negative evidence and explicit positive evidence can only affect the latter type of knowledge but never linguistic competence. I call this position the No Negative Evidence position.

On the other hand, the multitude of positions representing the other side in this debate are unified very loosely around the claim that the conscious, metalinguistic type of knowledge provided by negative data may in fact play a role in the building of linguistic competence (Long, 1983, 1988, 1991; Pienemann & Johnston, 1987; Pienemann, 1985, 1988; Rutherford & Sharwood Smith, 1985; Sharwood Smith 1981, 1991, 1993; White 1987, 1990, 1992). The very different views of these researchers share a basic premise that can tentatively be termed the Negative Evidence position.

The No Negative Evidence position would predict that, in the case of the L1 exhibiting a superset value and the L2 exhibiting a subset value of some parameter, learners who transfer the superset value would not be able to retract from their incorrect analysis of the data, because neither positive linguistic data nor negative data will be available to them, and thus their interlanguage grammar will fossilize at the un-target-like, native language value (Schwartz & Gubala-Ryzak, 1992; Schwartz, 1993). Any evidence of grammar restructuring in the form of parameter resetting would militate against this position. It is precisely this prediction, together with the SP, that the present article attempts to test experimentally.

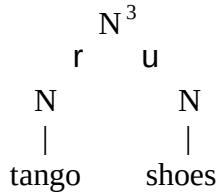
To the best of my knowledge, White's adverb studies and their follow-ups (White, 1991a,b; Trahey & White, 1993; Trahey, 1996) investigating the acquisition of the verb movement parameter in the interlanguage grammar of adolescent francophone learners of English, are the only studies that have experimentally tested the No Negative Evidence hypothesis in the operation of a UG parameter. Their results indicate that both explicit negative evidence and exposure to a flood of primary linguistic data, while effecting some changes in the participants' linguistic behavior, did not cause them to learn how to use adverbs in a target-like manner in English. While the correct English adverb placement (SAVO) was acquired, the ungrammatical French-like adverb placement (SVAO) was not pre-empted (Trahey & White, 1993). White (1992: 136) concedes that the negative evidence supplied to the learners probably did not engage UG at all and concludes that "[t]his remains an empirical (not just a conceptual) issue." The present study is an attempt to revive and continue this debate with new data from another parameter that arguably does not allow UG to interact successfully with primary linguistic data.

The study was designed to test the pre-emption of a certain cluster of constructions (N-N compounds, double objects, verb-particles, and resultatives), unified by an underlying parameter value, on the basis of positive evidence only. However, in the course of the experiment it was discovered that some negative evidence was indeed available to the learners, in the form of explanation and drills on two of the four constructions under investigation. This fact appears to play a decisive role in the participants' accuracy on the constructions by breaking the cluster into two: those constructions that received explicit form-based instruction in the classroom (N-N compounds and double objects), and those that did not (verb-particles and resultatives). To anticipate the coming discussion, learners were significantly more accurate on the constructions for which they received explicit negative evidence, than on the constructions that were not taught. This finding would support the No Negative Evidence position, since most learners fail to reset the parameter value based on negative evidence for part of the cluster, and seem to demonstrate learned linguistic behavior only. However, a number of individual learners were found who were able to reset the parameter, or demonstrated knowledge of the whole cluster, based on negative evidence for only two of the constructions. This suggests that the No Negative Evidence postulate is too strong, and in need of reconsideration. In the next sections, I discuss the parameter under investigation, and the L1 and the L2 acquisition of the purported cluster.

Compounds in English and Spanish and the Compounding Parameter

This section introduces the parameter that is investigated in the study. The structure of an English compound like tango shoes is widely accepted to be of the following type (Chomsky & Halle 1968:16 and passim, Lieber 1992: 54, Andersen 1992: 297):

(1)



Both Andersen (1992) and Lieber (1992) agree that the English compound is formed in the syntax by the modifying noun left-adjoining to the head noun. Left-adjunction is an operation typically used in the syntax for the organization of phrases. Importantly, the whole adjunction structure is still of the category N, and the compound enters syntactic composition just as any other mono- or polymorphemic lexical item. Note that we are not referring to ready-made "chunk" N-N compounds like shoe lace that are arguably learnable as chunks by L2 learners, but only to entirely productive N-N compounds (see also Liceras & Valenzuela 1998, Liceras & Díaz 2000). The process of N-N compounding in English is described as "productive" in the sense that compounds are made up on-the-go by speakers of the language, and are always understandable. For example, the novel compound salamander jar, is not an entry in any existing dictionary, but if produced, will be understood as a jar that has some association with salamanders; either a jar in the form of a salamander, or a jar in which someone keeps their salamanders, etc. Many similar novel compounds are produced and comprehended by English speakers every day.

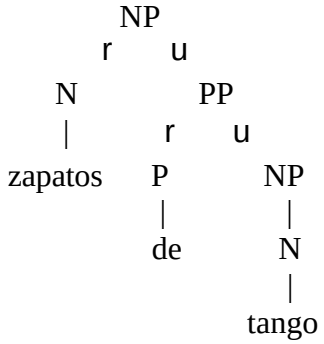
Piera (1995: 305) discusses two main differences between English and Spanish compounds:

(i) English compounds are right-headed (e.g. police dog), whereas (the few existing) Spanish compounds are left-headed (e.g. perro policía 'police dog').

(ii) English compounding is recursive (eg. DEA police dog) whereas Spanish is not (*perro policía Departamento de Narcóticos 'DEA police dog').

The productive Spanish equivalent in (2) has phrasal structure, with an obligatory preposition, often de.

(2)



Support for this phrasal structure comes from the following fact (Paula Kempchinsky, pc). The head noun of any NP containing a PP, which is arguably syntactic in nature, can be deleted under identity (see example in (3)). The same is true of the compounds in question (see example of noun drop in (4)).

(3) No conozco a la profesora de química, pero sí la _____ de linguística.
NEG I-know OBJ the professor of chemistry, but yes the Ø of linguistics
'I don't know the professor of chemistry but I know the one of linguistics.'

(4) No tengo los zapatos de tango, pero sí los ____ de ballet
NEG I-have the shoes of tango but yes the Ø of ballet
'I don't have the tango shoes but I have the ballet ones.'

It is important to notice that, unlike in Spanish, both N-N compounds (e.g., tango shoes) and their phrasal equivalents (e.g., shoes for tango) are grammatical in English.

Theoretical syntactic research has argued that complex predicate constructions of the type exemplified in (5) – (7) below usually form a cluster, in the sense that languages either have the three of them, or none of them (Kayne 1984; Larson 1988, 1990; Hale & Keyser 1993).[4]

(5) Valeria thought through the problem. VERB-PARTICLE
(6) Rosina nailed the windows shut. RESULTATIVE
(7) Amanda promised Billy a new car. DOUBLE OBJECT

Snyder (1995) takes up the presence or absence of productive N-N compounding and relates it to comparative syntactic analysis and language acquisition data. He argues that languages permit the complex predicate constructions if and only if they can productively form N-N compounds of the English type as in (1) above.

In each of the complex predicate constructions, (verb-particle, resultative, double object) there are two syntactic predicates (e.g., nailed and shut in (6) above) that jointly characterize a single argument, the Theme (the windows in this example). In order for these predicates to be able to function jointly in the syntax, their heads must form a single word (X° category) at the point of semantic interpretation. In other words, in order to be interpreted as jointly modifying the Theme, the verb and the resultative predicate need to be combined into a single unit. The compounding parameter, then, allows languages with the plus value such as English to freely mark open-class non-affixal items as [+Affixal], while languages with the minus value such as Romance and Slavic, do not allow that (Snyder 1995: 27). Essentially, the same process which allows [$_N$ tango] to freely attach to [$_N$ shoes] also allows the particle [through] to attach to [$_V$ think] at another level of interpretation.[5] Thus the N-N compounds and the Complex predicate constructions are both a consequence of English roots being ready to enter syntactic combinations.

Snyder's claim is supported with two types of evidence: a cross-linguistic typological generalization and data from child language acquisition. Snyder (1995:31) illustrates the cross-linguistic claim with the following table:

Table 1: Resultatives and N-N compounding across languages

Language	Resultatives	N-N compounding
English	YES	YES
Dutch	YES	YES
German	YES	YES
Khmer	YES	YES
Hungarian	YES	YES
French	NO	NO
Spanish	NO	NO
Russian	NO	NO
Serbo-Croatian	NO	NO
Japanese	NO	NO
ASL	NO	NO
Mandarin	NO	NO
Modern Hebrew	NO	NO
Palestinian Arabic	NO	NO

The table shows that languages like English, Dutch, etc. exhibit both productive N-N compounding and the Resultative construction (as representative of the whole cluster of Complex predicate constructions). On the other hand, languages such as French, Spanish, etc. which lack productive N-N compounding also lack the Resultative construction.

The second type of evidence for the Compounding Parameter comes from first language acquisition. Snyder (1995) and Snyder & Stromswold (1997) argue that the various Complex predicate constructions and N-N compounding appear at the same time in the grammar of children acquiring English as their L1. The authors studied the spontaneous production data of 12 English-speaking children from the CHILDES database (see McWhinney 1996). Snyder and Stromswold found that the ages of acquisition for double object constructions such as (7) were significantly correlated with the ages of acquisition for V-NP-particle constructions such as (5), ($r = .82$, $t(10) = 4.45$, $p = .0012$).[6]

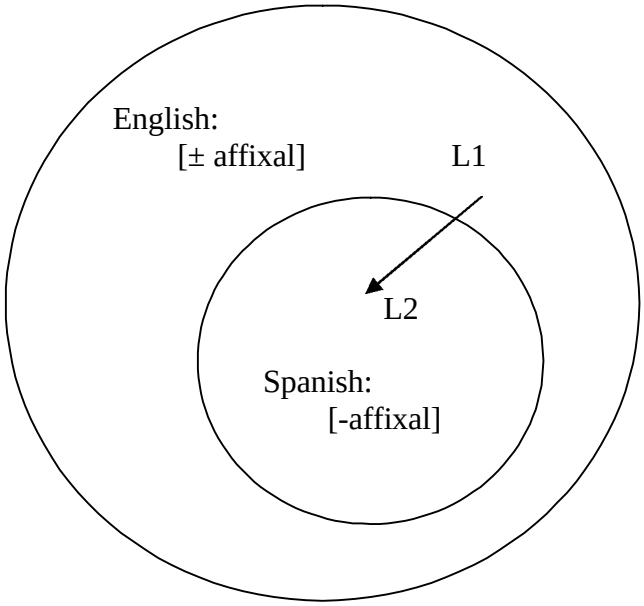
As predicted by the cross-linguistic generalization in Table 1, all of the complex predicate constructions are ungrammatical in Spanish (see 8b-10b), while the same meanings are given with periphrastic PPs and V-NP-PP construction, in the case of the DO equivalent (8a-10a). Note also that all the English glosses in (8a)-(10a) are entirely grammatical.

(8) a. Los nativos esperaron hasta el final de la crisis. PERIPHRASTIC PP
the natives waited until the end of the crisis
'The natives waited until the end of the crisis.'

b. *Los nativos esperaron la crisis para afuera. VERB-PARTICLE
the natives waited the crisis out
'The natives waited out the crisis.'

(9)	a.	Ben lavó las ventanas hasta que quedaron limpias. Ben wiped the windows until they were clean Ben wiped the windows until they were clean.'	PERIPHRASTIC PP
	b.	*Ben lavó las ventanas limpias. Ben wiped the windows clean 'Ben wiped the windows clean.'	RESULTATIVES
(10)	a.	Simon dio una motocicleta roja a Eugenia. Simon gave a motorcycle red to Eugenia 'Simon gave a red scooter to Jenny.'	V-NP-PP
	b.	*Simon dio Eugenia una motocicleta roja. Simon gave Eugenia a motorcycle red 'Simon gave Jenny a red scooter.'	DOUBLE OBJECT

To summarize the main point of this section, N-N compounds have been proposed to cluster with complex predicate constructions in the grammatical system. The whole cluster is available in English but unavailable in Spanish. What is more, English can generate N-N compounds and complex predicate constructions AS WELL AS phrasal compounds and the periphrastic versions of the complex predicate constructions. Thus the English grammar utilizes both the [+ affixal] and the [– affixal] options of the Compounding Parameter while Spanish allows only the [– affixal] value (see also Liceras & Díaz 2000). This state of affairs makes English the superset language and Spanish the subset language as far as the Compounding Parameter is concerned, as exemplified below.



Second Language Acquisition of the Cluster

Recently, Liceras and colleagues have turned to investigating the L2 acquisition of Spanish N-N compounds and the related cluster of complex predicate constructions (Liceras & Díaz 2000, Liceras & Valenzuela 1998). Liceras & Díaz (2000) concentrates on the acquisition of the very limited, unproductive N-N compounds in Spanish (e.g., perro policía 'police dog', mujer pulpo

'octopus woman') as well as on the delearning (or learning the ungrammaticality) of the English-type ones. As mentioned above, the few existing Spanish compounds are left-headed, as opposed to the right-headed English ones (e.g., police dog, octopus woman). 68 students of Spanish participated in the experiment, whose first languages were French, English, German, Russian, Polish, Danish, Swedish, Chinese, Japanese, and Korean. Participants had to complete two naming tasks with pictures, where they were expected to produce Spanish compounds using different compounding strategies. The main research question of the study is whether acquisition of compounds would be more susceptible to "processing triggers" or to "representational triggers". Essentially, two properties distinguishing English from Spanish N-N compounds are investigated. The first property is the reversed order of nouns in compounds, since in English the head of the compound is on the left while in Spanish it is on the right: This is what the researchers designate as the processing trigger. The second property stems from the morphological properties of the nouns themselves: Spanish nouns, unlike English nouns, have word markers (Harris 1991a, 1991b, Piera 1995) (e.g., -o in (11a) below). These word markers are considered to be the representational, morphological, trigger.

(11) a. $_{N}$[[perr] –o] (L&D's example (9))
b. $_{N}$[dog]

Since the existing Spanish N-N compounds are unproductive and rare, as the authors submit, their acquisition by English native speakers must be based on extremely limited positive evidence. That is why it is not very surprising that even the advanced learners produced them only in about 60 per cent of obligatory contexts (see Table 1, pp. 203). More important for our purposes in this study is the fact that English beginners produced non-Spanish compounds 46% of the time, intermediate learners reduced this incorrect production to 25%, and advanced learners were only incorrect in 9% of the produced compounds. This developmental sequence suggests that the lack of English-type N-N compounds is indeed learnable in Spanish interlanguage. The researchers do not discuss whether their participants had access to negative evidence, a potential factor in the successful delearning (in other words, noticing the ungrammaticality) of English-type N-N compounds. The authors conclude that the processing trigger (head directionality) seems to be more salient and more effective than the representational trigger (the word marker) in the acquisition of Spanish compounds.

Liceras & Valenzuela (1998) also investigates the Compounding Parameter, this time in the interlanguage of 12 English and 10 French learners of Spanish. Participants had to translate some sentences into Spanish and to judge the acceptability of grammatical and ungrammatical sentences containing compounds and resultatives. I will summarize here the results of the GJ task, since it indicates the participants' acceptance of the ungrammatical in Spanish, but grammatical in English, resultatives and compounds. All English-speaking learners, including beginning, advanced, and near-native learners, seem to be fossilized at below 40% correct rejection rate of resultatives (Figure 10, p. 11). On ungrammatical English-type compounds, beginners perform with about 70% accuracy, while advanced and near-native learners reach above 90% accuracy (Figure 3, p. 7). Thus the accuracy of all English learners at every level of proficiency on resultatives seems to differ markedly from their accuracy on compounds. In anticipation of what is to follow, the findings of the present study confirm the findings of Liceras & Valenzuela (1998) with a remarkable degree of similarity. More generally speaking, the latter study also found support for L1 transfer in comparing the performance of the English and French

learners, significantly more accurate performance on grammatical constructions than on ungrammatical ones, as well as an uneven pattern of acquisition in the purported cluster of compounds and resultatives. The present experiment builds on the studies presented above and extends the cluster under investigation with two more complex predicate constructions (i.e., double objects and verb-particles). In addition, it brings forward the theoretically-intriguing issue of negative evidence in the L2.

Hypotheses for SLA

The learning task is as follows: the learner has to notice that Spanish does not allow free lexical items to be marked as [+Affixal] (in other words, that free lexical items do not combine into X^o heads in the syntax but form XP-type phrases) and consequently has to deduct the unavailability of the Complex predicate constructions since they are crucially dependent on this property. The experiment to be discussed attempts to investigate how successfully is this learning task achieved by French and English learners of Spanish.

The first research question juxtaposes L1 transfer (White 1985, 1989b, Schwartz & Sprouse 1994, 1996, see Gass 1996 for an overview) and the Subset Principle. The SP predicts that learners will be maximally conservative, regardless of the L1, and will start out with the subset parameter value. In our case, specifically, English as well as French learners will initially demonstrate the Spanish parameter value by correctly rejecting N-N compounds and complex predicates. L1 transfer, on the other hand, predicts that English native speakers acquiring Spanish will initially exhibit the English value of the parameter and fail to reject N-N compounds and complex predicates. At the same time, French native speakers of comparable proficiency in Spanish will demonstrate greater accuracy in rejecting N-N compounds and complex predicates.

The second research question concerns the learnability issue raised by the subset—superset relationship between the two parameter values under investigation. As is well-established, the process of L1 acquisition proceeds largely without recourse to negative evidence (Baker 1979, Hornstein & Lightfoot 1981, Pinker 1989). If the process of L2 acquisition is essentially similar to child language development, then restructuring of the interlanguage grammar in the case of an L1-L2 parameter value mismatch should be attained solely on the basis of primary linguistic input. In fact, as Schwartz & Gubala-Ryzak (1992) and Schwartz (1993) argue, negative evidence does not engage UG in L2 acquisition. But in the case of the L1 superset – L2 subset learning direction, primary linguistic data is not going to be sufficient for grammar restructuring. The constructions, whose ungrammaticality learners have to deduct, will not occur in the naturalistic input. Presumably, a learner can never be certain whether a construction does not appear in her input simply by chance, or because it is in fact ungrammatical. In other words, a learner should not deduce ungrammaticality based on unavailability of a construction in some input. The prediction, then, is that successful resetting is impossible and the interlanguage grammar of every individual learner will fossilize at the un-target-like value.

Assuming that the constructions are related in native and child language grammars, the third research question addresses the issue of whether N-N compounds, double objects, verb-particles, and resultative constructions are underlyingly related in the linguistic competence of L2 learners. They would be predicted, therefore, to be either available or not available in the language of individual learners, but, essentially, to pattern as a cluster.

The Experiment

Participants

Eighty-six English-speaking and 25 French-speaking learners of Spanish took part in the experiment, as well as 15 native speakers of Spanish as controls. The native speakers were tested in Mar del Plata, Argentina and Iowa City, IA, while the non-native speakers were recruited among students at McGill, University of Montreal, and Concordia Universities in Montreal, Canada (The French group), and at the University of Iowa, USA (the English group). The participants' background information is summarized in Table 2.

Table 2: Participant Information

Group	Mean age at testing	Mean age of exposure	Mean years studied
Control	35.4	–	–
English	26.5	12.7	4.5
French	25.9	11.5	2.4

Tasks and Materials

A cloze test and a multiple choice vocabulary test, adapted from DELE (Diploma de Español como Lengua Extranjera, Embassy of Spain, Washington DC) served as an independent measure of proficiency. The cloze contained 20 blanks and the vocabulary test contained 30 sentences, for a total of 50.

There were two experimental tasks: a Forced Choice Task and a Grammaticality Judgement task. Knowledge of N-N compounds was assessed with the Forced Choice task. Participants had to choose which complex nominal (of three choices given) better matched an object or a person described in a story. What follows is an actual example from the test.

(12) Susana va a tomar clases de tango. Necesita comprarse unos zapatos especiales. Son unos:
'Susan is going to take tango lessons. She needs to buy herself some special shoes. They are called:
☐ * tango zapatos (tango shoes)
☐ * zapatos tango (shoes tango)
☐ zap atos de tango (shoes for tango)

The first choice of compound nominal in this experimental task was tango zapatos 'tango shoes', which corresponds exactly to the word order of the English compound, and is ungrammatical in Spanish. The second choice, also ungrammatical in Spanish, offered the correct word order for Spanish but omitted the crucial preposition de. Since there are two differences between English and Spanish compounds: noun order and internal preposition, this choice was included in order to check whether learners have acquired correctly the noun headedness but perhaps have not acquired the obligatoriness of the preposition. The third choice

was the correct Spanish compound. Ten story-compound combinations were tested, in which the order of the three choices was randomized.

The second experimental task was a Grammaticality Judgement (GJ) task. The participants had to judge the acceptability of 56 sentences: 7 grammatical and 7 ungrammatical sentences for a total of 14 in each one of four conditions: verb-particles, resultatives, double objects, and N-N compounds. Ungrammatical sentences involved a literal translation of the English as the ones in (8b-10b) above. No fillers were included in this task since the four conditions were considered sufficiently different for the participants not to be able to develop an answering strategy of some sort. Two different versions of the test were administered, with the order of sentences of the first version reversed in the second. A list of all test sentences is included in Appendix A.

Results

Proficiency Test

The proficiency test scores were used to divide the subjects into groups, and also to compare the French and English Low groups. Table 3 summarizes the results.

Table 3: Results of Proficency Test (max = 50)

	E.Advanced (n = 26)	E. Intermediate (n = 27)	E. Low (n = 33)	Fr. Low (n = 25)
Mean	38.9	24.4	16.7	15.4
SD	5.4	2.5	3.07	4.2
Range	32-49	21-30	7-20	6-20

One factor ANOVA on the scores of the English-speaking learners indicates that the means of the three proficiency groups are significantly different ($F(85,2) = 251$, $p < .0001$). In order to meaningfully compare the competence of French and English beginning learners of Spanish, the two groups have to be at a comparable level of proficiency in Spanish. Thus the differences in the performance of the subjects on the experimental conditions can safely be attributed to their different interlanguage competence. To find out whether the French NSs and English NSs learning Spanish were at a similar level of development, one factor ANOVA on the proficiency scores of the French and the English Low groups was performed. It showed that the groups' proficiency was not significantly different ($F(57,1) = 1.3$, $p = .45$).

Forced Choice Task

Next, I turn to the results of the first main task in the experiment: the Forced Choice task. Table 4 summarizes the accuracy of the subjects.

Table 4: Accuracy Scores and Standard Deviations across Participant Groups

Group	Accuracy (in %)	SD
Spanish Control	100	0
English Advanced	95	9
English Intermediate	78.5	21
English Low	60	26
French Low	87	22

Two comparisons are worth mentioning here: the French Low group is significantly better at choosing the correct compound in Spanish than the English Low group ($F(57,1) = 7.65$, $p < .001$), although they are at a comparable proficiency level. This finding is relevant to the study's first research question. What is more, accuracy means on the Forced Choice task and on the GJ task on compounds (to be discussed immediately below) are not significantly different by one-factor ANOVA ($F(65,1) = .67$, $p = .41$), suggesting a lack of task effect.

Table 4 offers the overall accuracy percentages of the learner groups; however, the three choices in the task allow us a more precise picture of the learners' interlanguage competence. The percentage of errors can be divided into two since the stimuli contained two wrong choices. Let us designate the English compound order as N_1-N_2 (e.g., tango shoes) and the Spanish choices as follows: *N_1-N_2 (e.g., tango zapatos), *N_2-N_1 (e.g., zapatos tango), and N_2-de-N_1 (e.g., zapatos de tango). The first choice above reflects the English N order, while the second choice reflects the correct Spanish N order but is missing the preposition de.

Table 5: Percentage of Error Types across Participant Groups

Group	*N_1-N_2 (in %) tango zapatos	*N_2-N_1 (in %) zapatos tango
Spanish Control	0	0
English Advanced	0	5
English Intermediate	5.6	15.9
English Low	17	23
French Low	3	10

The above distribution of error types suggests that the English speakers' acquisition of Spanish compounds possibly goes through two different stages. At the beginning the correct order of nouns (noun headedness) is acquired but not the obligatory presence of the preposition de. After learners notice that their L1 noun order is reversed, they acquire the necessity of the preposition for the phrasal structure of Spanish compounds. The proposed acquisition sequence is implied by the fact that the advanced learners only make mistakes of the second type (omitting the preposition). These findings are compatible with the results of Liceras & Díaz (2000), who found that in acquiring the grammaticality of some limited number of Spanish N-N compounds, English learners were influenced by what these authors call "a processing trigger", the noun

order within the compound, rather than by "a representational trigger", edge-of-word marking morphology (see the section on the L2 acquisition of the cluster).

Grammaticality Judgement Task

The mean accuracy scores on the GJ task will be discussed for the two low groups of English and French Native speakers first. The comparison of primary interest here is how the two groups differ in their judgements of the ungrammatical constructions. It was hypothesized that if the L1 value of the parameter transfers, then French learners will be more accurate in their judgements than English learners at the same low proficiency level. The SP predicts equal behavior. Results for the ungrammatical conditions are discussed first.

Figure 1: Acceptance of the Grammatical Constructions for French and English Low Learners (in per cent)

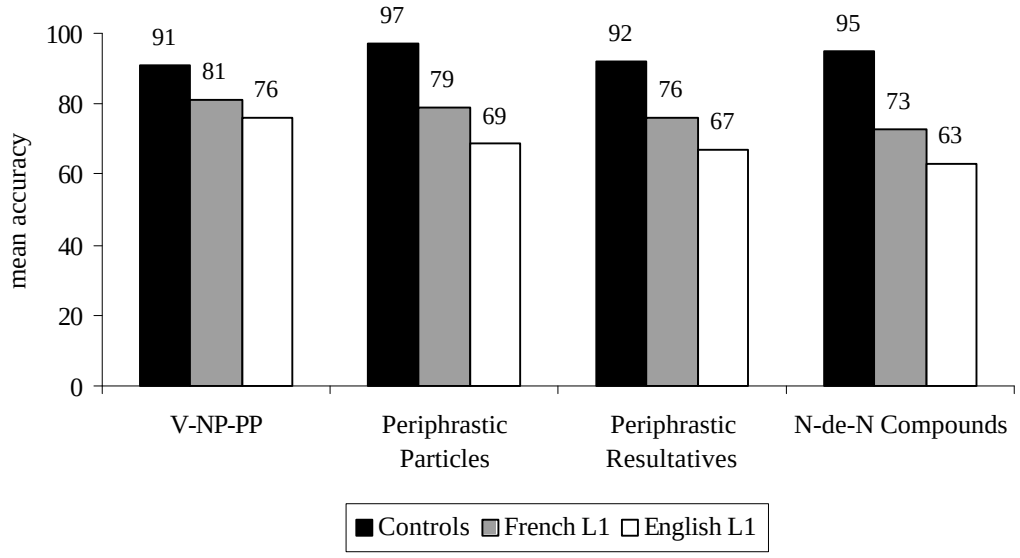
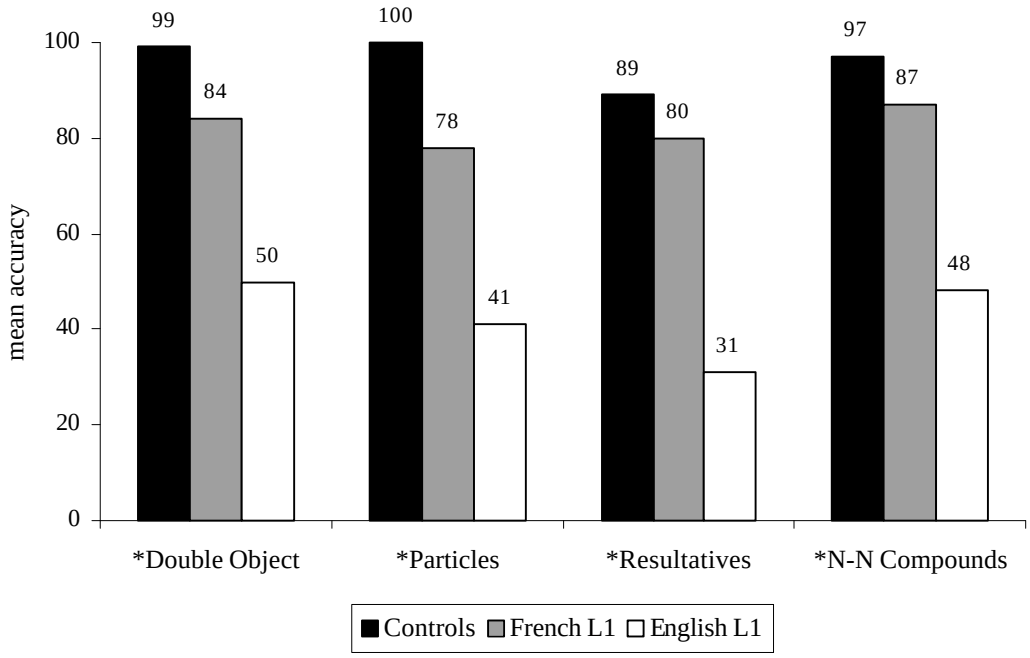


Figure 1 presents the mean accuracy of French and English low proficiency learners in rejecting the ungrammatical in Spanish complex predicate constructions and N-N compounds. Recall that all these constructions are grammatical in English but ungrammatical in French. The figure shows that the control group correctly rejects ungrammatical double objects 99% of the time, the French learners do so 84% of the time, while the English beginning learners reject double objects only half the time. As Figure 1 illustrates, the French speakers are much more accurate in rejecting the test items than the English speakers for all conditions. As expected, all comparisons between the French and the English Low proficiency group are highly significant (($\underline{F}(57, 1) = 64.4$, $\underline{p} < .0001$ for the double object condition; $\underline{F}(57, 1) = 123$, $\underline{p} < .0001$ for the particle condition; $\underline{F}(57, 1) = 251$, $\underline{p} < .0001$ for the resultative condition, and $\underline{F}(57, 1) = 147$, $\underline{p} < .0001$ for the N-N compounds).

In order to ascertain whether these low proficiency participants are capable of making grammaticality judgements, the results on the grammatical constructions will be presented next. Figure 2 compares English and French learners' performance in accepting the periphrastic constructions and compounds. Recall that these constructions are acceptable both in English and

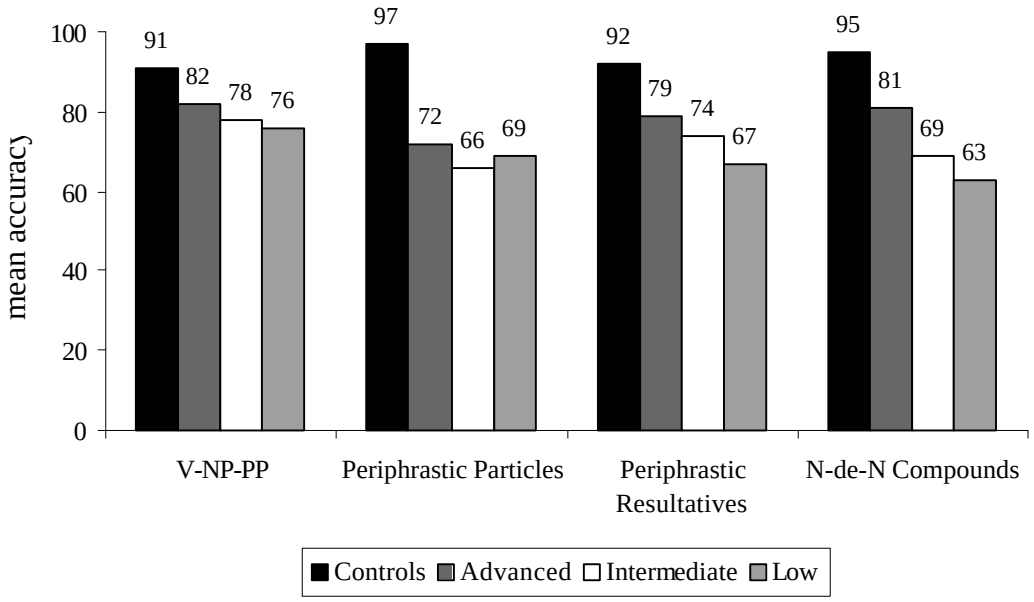
in French. One-factor ANOVAs reveal that the mean accuracy of the French and English groups are not significantly different for the periphrastic complex predicates ((F(57, 1) = 2.04, p = .1 for the V-NP-PP condition; F(57, 1) = 3.02, p = .07 for the periphrastic particle condition; F(57, 1) = 2.76, p = .08 for the periphrastic resultative condition). The English Low learners are significantly less accurate on the periphrastic compounds (F(57, 1) = 3.77, p = .04). In general, it is clear that even if the lowest proficiency English learners are not very good at rejecting ungrammatical sentences (see Figure 1), they are still not accepting them as much as equivalent grammatical sentences (see Figure 2).

Figure 2: Rejection of the Ungrammatical Constructions by French and English Low Groups (in per cent)



Our main interest in this study is twofold: one side is the comparison between English and French learners of Spanish at comparably low level of proficiency; the other side is the performance of English native speakers at different proficiency levels in Spanish. In this latter comparison, we are attempting to gauge the development of the parametric knowledge. It was hypothesized that English native speakers will not be able to retreat from their initial hypothesis that N-N compounds and complex predicates exist in Spanish, because no negative evidence will be available to them to indicate that these constructions are ungrammatical, and the positive evidence available to them is by definition not sufficient. Again, the accuracy in rejection of the ungrammatical constructions will be discussed first.

Figure 3: Acceptance of the Grammatical Constructions by English-speaking Learners (in per cent)



Let us illustrate how the figure should be interpreted: the fourth column in the third group of columns (*Resultatives) indicates that the Low proficiency group correctly rejects ungrammatical in Spanish resultatives 31% of the time. In other words, this group incorrectly accepts resultatives 69% of the time. Advanced learners are accurate between 56% and 87% of the time. It is immediately obvious that the respective accuracy is quite different for the three proficiency groups. Statistical analyses (one-factor ANOVA with group as the between factor) confirm the observation: ($F(85, 2) = 10.9$, $p < .0001$ for the double object condition; $F(85, 2) = 7.57$, $p < .0001$ for the particle condition; $F(85, 2) = 5.86$, $p < .0001$ for the resultative condition, and $F(85, 2) = 12.3$, $p < .0001$ for the N-N compound condition. These results are relevant to the second research question in showing that (some) restructuring of the grammar has indeed occurred, even though positive evidence is not available for that restructuring. Rejecting resultatives seems to have been the most problematic for the English-speaking learners: even the Advanced group reached only 56% accuracy. Next in difficulty seems to be the particle construction, which the advanced group rejected accurately only 68% of the time.

Individual results

In order to establish a possible association between knowledge of compounding and knowledge of complex predicates and test the prediction of clustering, it is important to consider individual results, since it is only within the interlanguage grammar of individual learners that this association is meaningful. Individual results are also relevant to the learnability issue.

Table 6 presents accuracy correlations, all of them significant at $p < .001$. Correlations between N-N compounds and complex predicates are strong (with Pearson r values around .5) while correlations among the complex predicates themselves are moderate ($r = .33$ to $r = .45$). These correlations offer a first indication that the constructions under investigation may be

related in the interlanguage grammar. Of course, as the truism goes, significant correlation does not imply causation, and so it will be wise to approach these results with caution.

Table 6: Pearson *r* Values for Individual Subjects' Accuracy on N-N Compounds and Complex Predicate Constructions (significant at $p < .05$)

	DO	N-N	Resultatives	Particles
DO	1			
N-N	0.55	1		
Resultatives	0.38	0.51	1	
Particles	0.45	0.46	0.33	1

To calculate a second measure, accuracy scores were converted to categorical measures. Each learner was assigned one point if s/he had acquired compounding and one point if s/he had acquired complex predicates, zero if she had not. The arbitrary but frequently used cut-off point for acquisition was 70% accuracy (5 out of 7, actually 71%). Table 7 compares the number and percentage of subjects who have successfully acquired the unacceptability of the constructions under investigation.

Table 7: Number and Percentage of Subjects who have Realized the Ungrammaticality of N-N Compounds and Complex Predicate Constructions

Group	DO	Particles	Resultatives	N-N compounds
Advanced	20	17	10	23
(n=26)	77%	65%	39%	88%
Intermediate	18	9	2	21
(n=27)	67%	33%	7%	78%
Low	7	7	0	8
(n=33)	21%	21%	0%	24%

As with the group results, we are asking whether it is possible for English native speakers to delearn the ungrammatical in Spanish constructions, thereby resetting their value of the Compounding Parameter in the absence of negative evidence (see the second research question on learnability). The individual results in Table 7 attest to a strong developmental curve in the case of double objects, and N-N compounds, although less strong for particles: starting from around 20% among low proficiency learners, the success rate increases progressively in the Intermediate and the Advanced groups. The number of subjects who have acquired resultatives also increases, but only from 0 to 10, or 39%. The categorical individual results are largely in support of the picture presented by the group results. Both the group and individual results attest to a split of the cluster in interlanguage grammar, with resultatives being delearned much less than N-N compounds and double objects, and even particles. This finding is relevant to the third research question on clustering.

Finally, in order to establish whether there is a significant connection between knowledge of each complex predicate construction and knowledge of compounding, it is pertinent to utilize contingency tables as a statistical test. The contingency table test examines independence between two categorical measures. The null hypothesis in our case is that the two properties of interlanguage we are interested in (e.g. knowledge of double objects and knowledge of N-N compounds) are independent.

Table 8: Contingency of Acquisition between N-N Compounds and Complex Predicates (Ungrammatical in Spanish)

Type of Complex Predicate	Yes N-N Compounds	No N-N Compounds
Yes Double Object	36	9
No Double Object	16	25
	p .001, $X^2 = 15.95$	
Yes Particles	25	8
No Particles	27	26
	p .025, $X^2 = 5.24$	
Yes Resultatives	10	2
No Resultatives	42	32
	p .1, $X^2 = 3.29$ (3.84 necessary for significance)	

Table 8 presents three contingency tables on the categorical scores (Yes or No) of the English speaking subjects' knowledge that complex predicates and N-N compounds are ungrammatical in Spanish. The bottom part of the table, for example, indicates that 10 individual subjects have acquired the fact that both resultatives and N-N compounds are ungrammatical in Spanish; 32 subjects have not acquired the ungrammaticality of either construction; 2 subjects have demonstrated knowledge that resultatives are ungrammatical but no knowledge that N-N compounds are ungrammatical; and 42 subjects have acquired the ungrammaticality of N-N compounds but not of resultatives. The Chi-square statistic is 3.29, and the probability that these two constructions are statistically independent in the learners' grammar is not significant at p .1. In other words, the probability of obtaining the observed accuracy in a random sample of 86 subjects is .1. The null hypothesis is thus retained and it is concluded that the two constructions are independent. Table 8 shows that the same conclusion is not warranted for double objects and N-N compounds ($p < .001$) and for particles and N-N compounds ($p < .025$). The acquisition of these pairs of constructions is not independent of each other. In short, knowledge that double objects and verb-particles do not exist in Spanish is contingent upon knowledge of N-N compounds, while knowledge of the ungrammaticality of resultatives is independent of knowledge of N-N compounds.

Discussion and Conclusions

To summarize the results, low proficiency English-speaking learners of Spanish are significantly less accurate than French-speaking learners at the same low proficiency level in recognizing the ungrammaticality of complex predicates and N-N compounds. At higher proficiency levels, however, English participants indicate that delearning these constructions is possible, quite sussessfully for N-N compounds and double objects, less so for particles, and much less so for resultatives. I turn now to discussing what these results imply for the research questions of this study.

First, the study attempts to evaluate two conflicting sets of predictions: those of the SP versus those of L1 transfer. The SP suggests that learners will start out with a maximally restricted grammar, since going from the superset to the subset value of a parameter (or "shrinking the grammar") should be otherwise impossible without negative evidence. In our concrete case, this would entail that French as well as English low proficiency learners will reject ungrammatical complex predicates and N-N compounds from the start. In doing this, they will turn out to be conservative learners. L1 transfer, on the other hand, predicts that the French learners will be much more accurate than the English ones in their rejection of the ungrammatical constructions, simply because in French the constructions are unavailable while in English they are fine. The results of the present study point unquestionably in the direction of L1 transfer. French learners are significantly more accurate than English learners in rejecting N-N compounds and complex predicates. Thus, we have to agree with White 1989b and many others that the SP does not seem to be operative in L2 acquisition.

Although inoperative as a learning principle, the SP interacts with L1 transfer to highlight another learnability issue: that of positive and negative evidence in L2 acquisition. Let's assume, as our experimental evidence suggests, that English learners transfer the grammaticality of both the periphrastic constructions and the complex predicates into their initial Spanish interlanguage grammars. How are they going to retract from this over-generating hypothesis of the L2 grammar? Primary linguistic data in the form of naturalistic discourse will give them positive evidence of the periphrastic constructions; they may never hear complex predicates and N-N compounds, but this fact need not imply that the latter constructions are ungrammatical – they may simply be missing from the input. In order to securely rule out complex predicates and N-N compounds from the interlanguage grammar, negative evidence will be necessary. However, negative evidence, or the "information about the impossibility of a form or utterance" (Schwartz & Gubala-Ryzak 1992: 2) has been argued not to engage UG-related acquisition (Schwartz 1986, 1988, 1993). Following a theory of mind discussed in Fodor (1983), Schwartz argues that there exists no mechanism to 'translate' the knowledge about ungrammaticality into knowledge that feeds the language faculty and results in grammar restructuring. If we assume this to be the case, then English learners of Spanish are predicted to be unable to discover the ungrammaticality of N-N compounds and complex predicates. This prediction, however, is not uniformly supported by the results of this study. 88% of individual advanced learners successfully reject N-N compounds in Spanish; 77% correctly reject double objects; 65% know that verb-particles are ungrammatical; and only 39% consider resultative secondary predicates to be unavailable in Spanish. Group results show the same general tendency. We can safely assume that the majority of advanced learners have fossilized at an untargetlike state as far as knowledge of resultatives is concerned. There is clearly, however, not much evidence of fossilization in the case of N-N-

compounds and double objects. On the contrary, successful restructuring of the grammar has occurred in the case of these constructions. How is this possible?

One possibility to consider is the potential availability of negative evidence.[7] The majority of learners participating in the experiment are instructed learners. It could be the case that some of those learners have received explicit instruction about the ungrammaticality of some of the constructions but not of others. An informal interview was conducted with several teaching assistants and the Spanish language co-ordinator at the University of Iowa, where the anglophone subjects were studying at the time of testing. It turns out that while the lack of N-N compounds and double objects in Spanish is subject to explicit instruction and correction in the language classroom, the lack of verb-particle constructions and resultatives is not. This fact can go a long way towards explaining the English subjects' significantly higher accuracy on compounds and double objects.

Note that it will be impossible to resort to frequency in the input in order to explain the differential accuracy on N-N compounds and double objects versus particles and resultatives. None of these occur in the naturalistic input to the learners, since they are ungrammatical in Spanish. It is quite impossible, then, to give a principled reason why one part of the cluster will fossilize and another will not. In fact, the availability of explicit positive and negative evidence in the classroom appears to be the only plausible explanation of the experimental results.

A related explanation has to be considered, however. Maybe what our learners are demonstrating for two out of the four constructions is learned linguistic behavior based on learned linguistic knowledge (LLK). As Schwartz (1993) has argued, this explicit knowledge cannot engage UG parameters and restructure a learner's interlanguage grammar. She proposes an ideal way to test for LLK, combining the idea of clustering of properties in an UG parameter with the idea that only negative data should be sufficient for grammar reorganization. "Abstractly, the situation would look like this: In the L1, constructions X and Y are both possible and—crucially—both follow from the same specific property of the grammar, [+P]; in the T(arget) L(anguage), however, [+P] does not obtain and, hence, both X and Y are ungrammatical. The experiment would then focus on providing L2ers with N(egative) D(ata) on one construction (X) and then test whether knowledge about the impossibility of the other (Y) automatically follows. (Schwartz 1993: 154)" The present experiment, although far from the ideal experiment delineated above, nevertheless has some design characteristics that allow us to test Schwartz's prediction. Recall that providing negative input to our learner groups for some of the cluster constructions and not for others was not part of the original research design. However, in the course of the investigation it was discovered that Schwartz's condition of supplying negative data for part of a cluster may actually have been met. At the University of Iowa, where the English-speaking participants were tested, classroom instruction includes explicit discussion of the impossibility of double objects and N-N compounds in Spanish. It was argued above that this fact seems to explain our participants' better performance on those constructions. They are simply generalizing the selective instruction provided in class into learned linguistic knowledge for part of the cluster. The next step, then, is to consider whether the negative evidence has led to resetting of the whole parameter, and to affecting all the four cluster constructions. The relevant data here are from Table 8, the contingency tests for acquisition of complex predicates and N-N compounds. We are interested in the following question: How many individual learners who, based on negative data, had learned that N-N compounds are ungrammatical (Schwartz's construction X) did or did not acquire the impossibility of particles or resultatives (Schwartz's construction Y).

Table 8: Contingency of Acquisition between N-N Compounds and Complex Predicates (Ungrammatical in Spanish) (repeated in part)

Type of Complex Predicate	Yes N-N Compounds	No N-N Compounds
Yes Particles	25	8
No Particles	27	26
Yes Resultatives	10	2
No Resultatives	42	32

As Table 8, partially repeated here for ease of reference shows, in the case of particles, 27 participants were not able to restructure the grammar while 25 were successful in restructuring. In the case of resultatives, 42 learners did not manage to acquire the ungrammaticality of the construction but 10 learners did. These 10 are also among the 25 who have acquired knowledge of particles.[8] Thus, these 10 learners, or 39 per cent of the advanced group, demonstrate knowledge of the whole cluster. This number is too high to be ignored, if we assume a standard 5 per cent margin of error. Hence, we have to conclude that it is not impossible for individual learners to reset a UG parameter based on negative data on part of a cluster, although most of the learners did not do so. Schwartz's (1993) prediction that negative evidence is not in a position to affect L2 grammars is proven to be too strong indeed, although the prediction is correct for the majority of individual learners. Since the original claim is about impossibility of grammar reorganization, every individual learner that has managed to overcome "the information encapsulation of the language module" (Schwartz 1993: 157) constitutes a counterexample to that claim.[9] Our findings are in agreement with the conclusions of Trahey & White (1993), Trahey (1996), White (1992) that negative evidence may in some restricted cases be necessary for pre-empting an L1 parameter value. Assuming the underlying relationship between the cluster constructions, our findings also suggest that UG is fully accessible to some individuals in adulthood. If it is the case that UG is in some sense operative in L2A, these results are also consistent with the hypothesis that a fundamental difference exists between child language development and L2 acquisition (Bley-Vroman, 1989) in the utilizing of negative evidence (see also Schwartz 1993: 155 and endnote 9). While negative data can supplement positive linguistic data in L2 acquisition, this is argued to be impossible in L1 acquisition. The question remains as to precisely what (cognitive neurolinguistic) mechanisms allow adult L2 learners to successfully use negative data for grammar restructuring.

I turn now to the study's third research question. Based on syntactic analysis and the L1 acquisition of the constructions, it was predicted that N-N compounds and the three complex predicate constructions would pattern as a cluster. That is, they would either all be part of the learners' interlanguage grammar (which would be incorrect); or they would all be missing (which would be target-like). Although the correlations in learners' accuracy on the four constructions are significant, the prediction of clustering does not seem to be strongly supported by the group and individual results. The purported cluster seems to be breaking into two parts, with double objects and N-N compounds easier to delearn, resultatives very difficult to delearn, and verb-particles somewhere in between. In fact, acquisition of the whole cluster was achieved

by only 10 learners (representing 39 per cent of advanced learners and 12 per cent of all participants). Therefore, we have to conclude that the constructions did not cluster in the majority of the learners' grammars. However, this situation is not entirely surprising, since the development of the cluster has not been dependent on positive, naturalistic input alone. As mentioned above, two of the constructions received explicit discussion and negative evidence in the classroom, exactly these two constructions that learners appear to have delearned successfully. The research question of constructions clustering in the grammar should ideally be decided if acquisition can in principle be accomplished on the basis of positive evidence: learners noticing a salient trigger in the primary linguistic data. In this case, we would expect learners to notice the fact that Spanish does not allow open-class lexical items to function as affixal, and delearn N-N compounds and complex predicate constructions. Since the conditions for testing acquisition of a cluster have not been properly met in this study, our negative conclusion remains only tentative.[10]

In summary, in this experimental study the Compounding Parameter was investigated in the interlanguage of English and French learners of Spanish. It was argued that the constructions exemplifying this parameter fall into a superset-subset relationship in the L1 and L2 of the learners. The SP, however, was not confirmed to be the learning principle guiding the L2 acquisition process. Rather, learners initially transferred the L1 parameter value into their L2. The most important finding concerns the utility of negative evidence in the L2 acquisition process. Group and individual results suggest that explicit classroom discussion on N-N compound and double object unavailability in Spanish can be translated into higher accuracy in rejecting these constructions on a GJ task and accepting the correct periphrastic compounds on a forced choice task. In addition, 10 of the 26 advanced learners were able to successfully reset the whole parameter, based on negative data for two of the four cluster constructions. In the light of these findings, then, the postulate that negative evidence is not in a position to trigger UG-type knowledge seems to be too strong and in need of qualification. Further research should concentrate on the exact mechanisms, which make such limited restructuring possible. It remains to be investigated whether negative evidence effects are only temporary or long-lasting, and what individual faculties allow some learners to be more successful than others in grammar restructuring.

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Endnotes

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[1] However, see MacLaughlin (1995) for arguments that the pro-drop parameter does not really present a subset problem.

[2] Note that, as White (1996: 100, footnote 9) points out, these authors do not refute the SP on principled grounds, and it is possible in fact that such parameters be discovered that would warrant its operation.

[3] We are abstracting away from the fact that the plural inflection has to come outside the derivation in the structure. The correct structure is something like this:

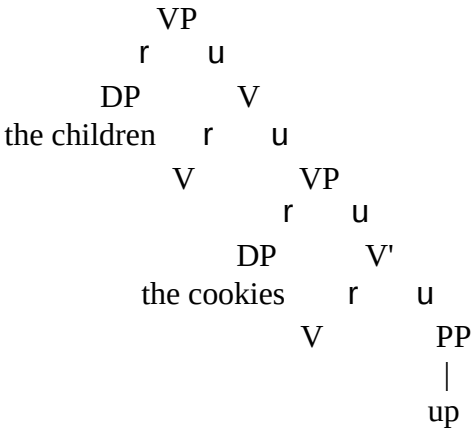
$[_N\ [_N\ [_N$ tango] $[_N$ shoe]] –s]

[4] Kayne (1984) noticed that double object constructions and verb-particle pattern together in the sense that languages either have both of them or have neither.

(i) a. John gave Mary a book.
b. The children ate the cookies up.
c. The children ate up the cookies.

Larson (1990), building on ideas from Larson (1988) suggests that verb-particle constructions like *look up, throw out* and *smash in* should be treated on a par with other resultative secondary predicates, essentially applying the same analysis as the one for the double object construction (see the structure in (ii)).

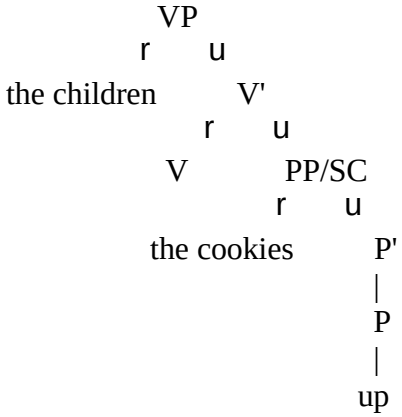
(ii)



The verb and particle can be viewed as constituting a basic V', harboring the object DP in its specifier. The analysis has to account for the two possible positions of the particle in English: the "outer particle construction" as in (i-b) and the "inner particle construction" as in (i-c). The structure in (ii) allows for this optionality of particle positions. When the verb moves to the head of the VP-shell, the outer particle position is straightforwardly achieved. The alternative inner particle position can then be obtained from (ii) by optionally reanalyzing V' as V^o and raising this complex V^o to the higher V position. A similar approach, unifying particles, resultatives, and double objects as "complex predicates" is pursued in Hale and Keyser (1993), Marantz (1993), Pesetsky (1995) and Snyder (1995), among others.

An alternative approach to the same constructions is the small clause (SC) approach, initiated by Kayne (1984) for Particles and extended to all Resultatives in Hoekstra (1988) (see also Den Dikken 1995, Sybesma 1992, Carrier and Randall 1992).The analysis is along the following lines:

(iii)



The well-known empirical argument supporting this type of analysis, due to Kayne (1984), is that subextraction from the object DP in particle constructions like (iv-a), resultatives like (iv-b), and double objects like (iv-c) is ungrammatical just as subextraction from SC subjects is ungrammatical in (iv-d). Resultatives, particles, and double objects also pattern with small clauses with respect to the impossibility of nominalization as in (v).

(iv) a. *What did they look [[the information about t] up]?

b. *What did they paint [[the door of t] black]?
c. *Who did they give [[the brother of t] an idea?
d. *Who do they consider [[the brother of t] a fool]?

(v) a. *our looking of [[the information] up]
b. *our painting of [[the door] black]
c. *our giving of [[John's brother] an idea]
d. *our consideration of [[John's brother] a fool]

I will not go here into the arguments for one approach against the other. For the purposes of this study it is crucial to notice that both lines of research unify the same three constructions in a cluster on the basis of a common analysis.

[5] The same parameter has been recently restated in Minimalist terms (Chomsky 1998; Snyder, Roeper, Hiramatsu, Tybursky, and Saccoman 1999). Chomsky (1998) distinguishes two subtypes of Merge, a generalized transformation combining two autonomous subtrees as daughters of a single node (definition from Chomsky 1995). Set-merger is the basis for the head-complement relationship, or substitution, where the lexical items A and B form a set {A,B}. Pair-merger is the basis for movement of a phrase into a specifier position, or adjunction. The lexical items A and B are organized as an ordered pair <A,B>.

Snyder et al (1999) restates the Root Compounding Parameter in terms of set-merger as follows:

i. The language does / does not permit set-merger of heads.

Their assumption is that Pair-merger of heads is available universally, and is driven by feature-checking. It provides the basis for normal head-to-head movement. The authors propose that heads combined by set-merger are interpreted semantically as a complex word, related as modifier and head, or head-complement (p.2 of handout)."

[6] Snyder and Stromswold's cluster of constructions acquired at the same time by the children also includes put-locatives as in John put the book on the table, causative and perceptual constructions as Mary made / saw John leave, and to-datives such as John sent the book to Mary. However, the acquisition of these constructions was not investigated in the present experiment, since they are grammatical in Spanish and in English. Thus, if knowledge of these constructions was detected, it would be impossible to tease apart the possible sources of that knowledge: UG or the native language. On the other hand, resultatives such as Mary wiped the table clean were not part of the L1 acquisition cluster. Their addition to the cluster is for syntax-theoretical reasons (see Kayne 1984, Larson 1990, among many others).

[7] In this discussion, I bracket together negative evidence, i.e., information about ungrammaticality, with explicit positive evidence, i.e., overt discussion of linguistic structures as in a language classroom. Both these types of evidence are crucially different from primary linguistic data (see White 1989b).

[8] This fact is interesting in itself. 25 advanced learners have acquired verb-particles (i.e., part of the cluster) and only 10 of them have acquired verb-particles as well as resultatives (i.e., the

whole cluster). This pattern suggests that cluster acquisition can proceed in (developmental) stages, at least in L2 acquisition. In this respect, my findings are far from unique. Previous work, for example on the pro-drop parameter (White 1985, Liceras 1989), has also established a hierarchy of difficulty, as well as a one-way implication, for the various properties comprised by the parameter.

[9] Of course, the logical possibility remains that these 10 learners, in addition to being exposed to negative evidence on N-N compounds and double objects, have also been exposed to negative evidence on verb-particles and resultatives. However, this possibility is considered highly unlikely in the concrete learning situation of the participants: undergraduate courses in Spanish.

[10] But see Slabakova (2001) for different findings of a similar parameter.

Appendix A

Sentences used in the Grammaticality Judgment task

In each group of 3 sentences below, the ungrammatical Spanish sentence, marked (U), is a literal translation of the English sentence.

Verb-Particle construction

1. Los nativos esperaron la crisis para afuera (U)
   Los nativos esperaron hasta el final de la crisis. (G)
   The native men and women waited out the crisis.
2. El gerente cerró la planta de producción para abajo. (U)
   El gerente cerró definitivamente la planta de producción (G)
   The management closed the truck plant down.
3. Mi amiga Juana pensó a través el problema. (U)
   Mi amiga Juana pensó el problema cuidadosamente. (G)
   My friend Janet thought through the problem.
4. Marta secó sus medias y blusa blanca para afuera (U)
   Marta secó sus medias y blusa blanca completamente. (G)
   Martha dried her socks and white blouse out.
5. Los excursionistas consumieron para arriba sus alimentos el primer día. (U)
   Los excursionistas consumieron por completo sus alimentos el primer día (G)
   The hikers used up their supplies on the first day.
6. Diana tomó para abajo el jugo de la jarra roja. (U)
   Diana se tomó todo el jugo de la jarra roja. (G)
   Diana drank down the juice from the red jug.
7. Carlitos escribió para arriba la versión final del informe (U).
   Carlitos completó la versión final del informe escrito (G)
   Charlie wrote up the final version of the report.

Resultatives

1. El sol fuerte cocinó los campos completamente secos. (U)
   El sol fuerte cocinó los campos secándolos por completo (G)

The strong sun baked the fields completely dry.

2. Pablo fregó todos los pisos del apartamento limpios. (U)
   Pablo fregó todos los pisos del apartamento hasta dejarlos limpios. (G)
   Kenny scrubbed all the apartment floors clean.
3. Esteban clavó todas las ventanas de arriba cerradas. (U)
   Esteban cerró con clavos todas las ventanas de arriba (G)
   Steven nailed all the top floor windows shut.
4. Nuestros invitados tomaron la tetera seca. (U)
   Nuestros invitados tomaron té hasta dejar la tetera seca. (G)
   Our guests drank the teapot dry.
5. Rebeca peinó el cabello de Juancito bastante liso. (U)
   Rebeca peinó el cabello de Juancito hasta dejarlo bastante liso. (G)
   Rebecca combed little Johnny's hair quite smooth.
6. Mi padre cortó la jugosa sandía abierta
   Mi padre abrió la jugosa sandía cortándola/ con un cuchillo.
   My father cut the big juicy watermelon open.
7. Cecilia regó los tulipanes planos. (U)
   Cecilia aplastó los tulipanes con el agua. (G)
   Cecilia watered the tulips flat.

Double Objects

1. El arquitecto famoso construyó mis padres una casa hermosa. (U)
   El arquitecto famoso construyó una casa hermosa para mis padres (G)
   The famous architect built them a beautiful house.
2. Susana mandó su madre en Florida un regalo de cumpleaños. (U)
   Susana mandó un regalo de cumpleaños a su madre en Florida. (G)
   Sue sent her mother in Florida a birthday present.
3. Sam hizo Ana unas preguntas realmente difíciles. (U)
   Sam hizo unas preguntas realmente difíciles a Ana. (G)
   Sean asked Molly some really tough questions.
4. Unos peatones mostraron María la oficina de correos. (U)
   Unos peatones mostraron la oficina de correo a María. (G)
   Passers-by showed Mary the post-office on the corner.
5. Isabel contó su hermano Roberto un cuento de terror (U)
   Isabel contó un cuento de terror a su hermano Robert. (G)
   Isabel told her brother Bob a rather scary story.
6. Cleo tiró su hermana en lágimas otro Kleenex (U)
   Cleo tiró otro Kleenex a su hermana en lágrimas. (G)
   Chloe threw her weeping sister another Kleenex.
7. Betty prometió Guillermo todo el dinero del mundo. (U)
   Betty prometió todo el dinero del mundo a Guillermo. (G)
   Becky promised Bill all the money in the world.

N-N Compounds

1. Todos los niños disfrutaron del televisión drama. (U)
   Todos los niños disfrutaron del drama de televisión. (G)
   All the children enjoyed the television play.

2. Tus calcetines están en el baño lavabo. (U)
   Tus calcetines están en el lavabo del baño. (G)
   Your socks are in the bathroom sink.
3. Pedro ganó el pintura concurso el viernes. (U)
   Pedro ganó el concurso de pintura el viernes. (G)
   Pedro won the painting contest on Friday.
4. A mi hermana le gusta leer viaje revistas. (U)
   A mi hermana le gusta leer revistas de viaje. (G)
   My sister enjoys reading travel magazines.
5. Jenny se fue a comprar un verano vestido. (U)
   Jenny se fue a comprar un vestido de verano. (G)
   Jenny went out to buy a summer dress.
6. Nuestra garaje puerta no sirve. (U)
   Nuestra puerta del garaje no sirve. (G)
   Our garage door is broken.
7. Me gusta mi desayuno huevo con salsa. (U)
   Me gusta mi huevo para el desayuno con salsa. (G)
   I like my breakfast egg with sauce.

Stories and Compounds used in the Forced Choice task

1.Mi tío Antonio trabaja en una fábrica. En la fábrica se hacen muñecas. Mi tío Antonio es un
   fabricante muñecas.
   fabricante de muñecas.
   muñeca fabricante.

2. Anoche tuve un sueño muy extraño. Yo estaba dentro de este laberinto con paredes espejads y no podía salir. Soñé con un
   laberinto de espejos.
   espejo laberinto.
   laberinto espejo.

3. Mi trabajo consiste en ir a restaurantes nuevos, probar los platos principales y luego escribir mi opinión del restaurante. Mi crítica se publica en el periódico local. Yo soy un
   restaurante crítico.
   crítico restaurante.
   crítico de restaurantes.

4. Mi primo Roberto siempre va a la cancha de fútbol los domingos. No sabe jugar muy bien, pero le encanta dirigir el partido. Mi primo es
   referí de fútbol.
   fútbol referí.
   referí fútbol.

5. Cuando era niño, mi padre siempre doblaba papel y hacía barcos. Yo jugaba con estos:
   papel barcos.
   barcos de papel.
   barcos papel.

6. El profesor Suárez enseña literatura. Su especialidad es la poesía española del siglo de Oro. Ahora estamos leyendo un

Renacimiento poema
poema Renacimiento
poema del Renacimiento

7. Fui al museo de civilización asiática. En el área de arte chino vi una canoa de más de 1000 años hecha de bambú. Lo que más me impresionó de la exhibición fue la

canoa de bambú.
bambú canoa.
canoa bambú.

8. Susana va a tomar clases de tango. Necesita comprarse unos zapatos especiales. Son unos

zapatos de tango.
tango zapatos.
zapatos tango.

9. Mi hermanito tiene muchos juguetes: trenes, camiones, aviones, barcos y pelotas. Su juguete preferido es un auto que anda muy rápido y juega carreras con otros autos. A mi hermanito le encanta su:

auto de carrera.
carrera auto.
auto carrera.

10. A mi madre le gusta mucho cocinar y es muy organizada. En su cocina tiene un estante especial para poner todas las especias que utiliza. Es su

estante especias
especias estante.
estante de especias.