TRIGGERS IN L2 ACQUISITION: THE CASE OF SPANISH N-N COMPOUNDS*

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ABSTRACT

Spanish has left-headed compounds which are not as productive as their left-headed counterparts in other languages. This presence or absence of productivity has been attributed to a binary parameter according to which N-N compounding, as opposed to nominal constructions in which the head noun takes a complement as in "the destruction *of the city"*, would be the superset or marked option. Furthermore, the idiosyncratic nature of Spanish N-N compounding has been attributed to the make-up of Spanish Nouns. Specifically, it has been proposed that Spanish Nouns have a 'word marker' which triggers L1 acquisition of these constructions. Based on the results of two picture tests intended to elicit actual command of N-N compounding strategies, as well as word order patterns and gender marking patterns, we argue that: 1) N-N compounding is not a marked construction; 2) adult L2 acquisition of Spanish N-N compounds is triggered by head directionality (a processing trigger) rather than by the 'word marker' (a representational trigger) which is supposed to trigger L1 acquisition of these compounds.

1.   Triggers and learnability in L2 acquisition

Determination of what can act as a trigger is important for acquisition theory because it will indirectly shed light on the relationship between 'nature' (the innate principles of the Language Acquisition Device) and 'nurture' (the contribution provided by the linguistic environment). Defining triggers is also important for L2 acquisition theory because it can serve as a point of reference for the identification of actual L2 triggers.

Within the Chomskian framework, formal analyses intended to account for language variation provide specific proposals as to what may be the elements —abstract features (White 1992; Eubank 1996; Epstein, Flynn and Martohardjono 1996; Sprouse 1998) or overtly realized morphemes (Zobl and Liceras 1994; Meisel 1997; Müller 1998; Vainikka & Young-Scholten 1998) needed for projecting a grammar. It is these abstract or explicit elements that are supposed to act as triggers for language acquisition.

In this paper, we would like to propose that acquisition of N-N compounds is related to two different types of triggers: (a) a 'representational trigger' which stems from the properties of words; and (b) a 'processing trigger' which is based on head directionality. Based on two recent proposals intended to explain the different nature of N-N compounding in English and Spanish, we discuss Spanish IL data elicited from speakers of various language groups. We argue that it is mainly head directionality that plays a role in adult L2 acquisition of Spanish N-N compounds.

2.   N-N Compounding

N-N compounding is not a very productive construction in Spanish and it is usually left headed, as illustrated in examples (1) to (3).

(1)   **Hombre** araña
        Spider man
(2)   **Perro** policía
        Police dog
(3)   **Mujer** pulpo
        Octopus woman

In fact, in languages such as English, in V2 languages and in languages such as Chinese, Japanese or Korean, N-N compounding is a highly productive strategy whereas Spanish-like languages prefer a derivational strategy, as illustrated in (4), a 'case marking' strategy —PP modifiers as in (5)—, or adjectival modification as in (6).

(4)   Manzano
        Apple tree
(5)   Caja de herramientas
        Tool box
(6)   Vaca lechera
        Dairy cow

This typological difference led Snyder (1995) to propose a 'Compounding Parameter' which differentiates languages according to whether their substantive categories (Nouns, Adjectives, Verbs, Prepositions) are plus or minus affixal. This implies that in languages such as English whose referential categories share the [+affixal] property with morphemes, N-N compounding, as in the English examples of (1) – (3), and complex predication of the type illustrated in (7) and (8) are highly productive grammatical constructions.

(7)   **Run up** the bill
(8)   **Blow** one's hair **dry**

However, in languages such as Spanish, whose referential categories do not share the [+affixal] property with morphemes, N-N compounding or complex predication are NOT productive grammatical constructions. Thus, the property [+/- affixal] is assumed to be the trigger for the acquisition of these constructions.

Piera (1995) provides an alternative account of the differences between English-like and Spanish-like compounds. He proposes that it is the actual make up of Spanish Nouns that is at the core of the distinction. Following Harris (1991a, 1991b), he maintains that the structure of Spanish Nouns, unlike the structure of English Nouns, has a word marker (WM), as shown in (9a) - (9b):

(9) a. $_N$[[perr] **o**]
(9) b. $_N$ [dog]

This [+/- WM] property, an alternative to Snyder's [+/-affixal] proposal, constitutes the trigger for N-N compounding. According to Piera (1995), the double-bracketed structure of *perro* in (9a) prevents adjunction of an N to the left of any given N, as shown in (10a), whereas the English counterpart in (10b) shows that it is not the case in English:

(10) a. $_N$ [*policía **[[** perr] **o**]
(10) b. $_N$ [police [dog]

This explains why the right-headed equivalents of examples (1) – (3) are ungrammatical, as shown in (11) - (13):

(11)   *Araña hombre[i]
         Spider man
(12)   *Policía perro
         Police dog
(13)   *Pulpo mujer
         Octopus woman

It is only the head that carries gender and plural marking morphemes, as well as derivational morphemes, as shown in (14) to (15)[ii]:

		Plural	*Diminutive*
(14)	Hombre araña	hombre**S** araña	hombre**cito** araña
	Spider man	spider men	little spider man
(15)	Perro policía	perro**S** policía	perr**ito** policía
	Police dog	police dogs	little police dog
(16)	Mujer pulpo	mujere**S** pulpo	mujerc**ita** pulpo
	Octopus woman	octopus women	little octopus woman

3.   Triggers and learnability in L1 acquisition

3.1. Parameters and the subset principle. The 'compounding parameter' as defined by Snyder (1995) respects the subset principle (Berwick 1985) in that English represents the superset language because both the [+affixal] and the [-affixal] constructions are productive options. On the other hand, languages such as Spanish represent the subset option of the parameter because only the [-affixal] option is productive. This implies that N-N compounding is the marked option. As already stated, the parameter does not make any predictions in terms of head directionality.

Based on the above, we hypothesize that: 1) N-N compounding will be difficult to acquire because it is a marked construction. Consequently production of N-N compounds will be very limited at the early stages. 2) No predictions can be made in terms of head directionality. 3) In terms of L1 transfer, if the L1 does not play a role, N-N compounding will be a difficult option for all learners. However, if the superset option is transferred, there will be differences between the French group (French pairs with Spanish) and the other groups.

3.2. [+/- word marker]. Piera's (1995) analysis implies that the WM triggers the acquisition of N-N compounding and that head directionality (adjunction to the left) will be linked to the presence versus absence of this WM. Based on the claim that the WM is a trigger for adult L2 acquisition of Spanish N-N compounds, we make the following predictions: 1) There will be a limited production of Spanish N-N compounds until learners are exposed to a considerable amount of positive input. 2) When compounds are produced they will be left-headed (Spanish-like) because presence of the proposed WM prevents adjunction to the left. 3) Gender marking of compounds will be Spanish-like (only marked on the head of the compound).

If the WM does not trigger the acquisition of Spanish N-N compounds, production may depend on the role of the L1. Therefore we predict that: 1) Only subjects from English-like languages will produce a large number of N-N compounds from the early stages. 2) Most of the N-N compounds will be right headed. 3) Gender marking will not follow the Spanish N-N pattern.

4.   The study

We report here on a subset of the data that we are in the process of collecting as part of a large research project being conducted in Ottawa (Canada) and Barcelona (Spain). We discuss the results of two different tests administered to 68 students whose first languages were Indo-European (French, English, German, Russian, Polish, Danish, Swedish) and Non Indo-European (Chinese,

Japanese and Korean). The subjects were studying Spanish in Canada (institutional setting) and Spain (natural setting).

These two different tests are part of a Picture Task Experiment designed to elicit information concerning the acquisition of 'compounding strategies' in Spanish[iii]. Test #1 was intended to find out whether learners of Spanish were aware of the specific characteristics and the low degree of productivity of the N-N compounding strategy in Spanish. We provided pictures of beings and objects (see Appendix) which can normally be labeled as N-N compounds as in examples (1) to (3) above. We also provided pictures which cannot be labeled as N-N compounds, as indicated in (4) to (6) above. In Test #2 we provided a set of pictures of possible N-N compounds paired as masculine and feminine (see Appendix), so that there was an 'octopus man' and an 'octopus woman' or a 'pirate ship' (masculine) contrasted with a 'pirate bicycle' (feminine). Each picture was only shown once and subjects were given enough time to name them.

In order to avoid non-production of N-N compounds due to lack of actual vocabulary, students were shown pictures (with their names) of the isolated Nouns which could form the N-N compounds (see Appendix).

Students were classified as Beginners, Intermediate or Advanced depending on their performance on the placement test 'SGEL'[iv].

All examples in (17) - (21) were considered acceptable, but only cases such as (17) were counted as N-N compounds.

(17)   barco pirata
         ship pirate
(18)   barco de piratas
         ship of pirates
(19)   llavero
         key-'er' (key chain)
(20)   vaca de leche
         cow of milk (dairy cow)
(21)   lleva llaves (deverbal)
         hold keys (key holder)

Examples such as (22) - (25) were considered unacceptable because they were either ungrammatical —(22)— or did not reflect any possible compounding strategy in Spanish.

(22)   *pirata barco
         pirate ship
(23)   perro largo
         long dog (wiener dog
(24)   pulpo

octopus

(25)   sofá con cama
         sofa with bed

6.   Results

Results are presented in Tables 1 to 5. Table 1 shows that all groups but the B-Spain group produce a substantial amount of N-N compounds. Therefore, the hypothesis that compounding as a general strategy is marked is not confirmed. The fact that the B-Canada group produces a high number of English-like N-N compounds confirms the hypothesis that the WM does not act as a trigger for these learners.

INSERT TABLE 1 HERE

The two Beginner groups provide opposite trends in terms of their choices of N-N versus N-PP constructions. In fact, the figures seem to indicate that the B-Spain group performs as well as the advanced groups. However, as we will show below, these results are misleading because this group does not favor the N-N strategy but rather a different type of strategy.

These data also indicate that Spanish compounding becomes a preferred strategy at the intermediate and advanced levels, which we take as an indication that learning has taken effect via positive input.

Table 2 contains the results for test #2 in relation to head directionality. In this table we have split the B-Spain group into two: the Indo-European B-Spain group and the Non Indo-European B-Spain group. The results are consistent with the ones presented in Table 1 in that, it would seem that neither the Indo-European nor the Non Indo-European group have problems with word order when it comes to choosing the N-N compounding strategy. Namely, they produce few N-N Spanish compounds but when they do, these compounds are left headed as in Spanish. This does not happen in the case of the B-Canada group, which we take as evidence that the latter group has not received enough input to realize that N-N compounding as such is not productive in Spanish.

INSERT TABLE 2 HERE

The results in Table 2 also show that the Advanced French/Spain group seems to have more problems with word order than the other Advanced groups, even than the Intermediate French/Canada group. However, the results are due to the uneven distribution of the right- headed

constructions, since most of them were produced by one of the subjects. Thus, for some learners, directionality seems to be a problem up to the advanced levels.

Table 3 shows the choice of native options —N-N as in (17) or N-PP as in (18)—. These results are also consistent with the previous ones in that choice of Spanish-like N-N compounds increases with level. Also, the Indo-European/Spain group produces less N-N compounds than the other groups but more N-PP constructions. This may be due to the fact that they have been in contact with a richer input than the B-Canada group but, having L1s that are typologically more distant from Spanish than the L1s of the Indo-European group, they are not yet aware of the fact that the pictures in this test favor actual N-N choices in native Spanish.

INSERT TABLE 3 HERE

The choice of non-Spanish options is illustrated in Table 4. It shows that, within levels, the F-Canada students perform better than the E-Canada students. This was predicted on the basis of L1 transfer.

INSERT TABLE 4 HERE

It also shows that the choice of the N-P-N strategy —as in (26) - (28)— is only used at the early stages and it is mostly favored by the non Indo-European speakers.

(26)   araña de hombre
         spider of man
(27)   carta de bomba
         letter of bomb
(28)   perro de largo
         dog of long

Thus, directionality (word order) constitutes a problem for all beginners because this is a right-headed option. Therefore, these data suggest that transfer of L1 word order guides the production of N-N compounds at the early stage. We interpret this as evidence that directionality is the key to adult L2 acquisition of Spanish N-N compounds.

In terms of Gender marking, subjects produced instances of both Spanish and non-Spanish options, as shown in (29) to (32).

(29)   mujer pulpo
         octopus woman
(30)   hombre araña
         spider man
(31)   *arañ**o** hombre
         man spider (masculine)
(32)   *mujer pulp**a**
         octopus (feminine) mujer

The results in table 4 indicate that even though there are very few non-Spanish options they do not disappear with level. Furthermore, these results have to be interpreted differently. Namely, since all Spanish nouns have intrinsic gender —hombre 'man' (masculine); mujer 'woman' (feminine); araña 'spider' (masculine and femenine) - the production of instances of non-Spanish gender marking with the total items included in the test does not provide an account of the rule-governed behavior which would indicate knowledge of Spanish gender marking for compounds. In fact, we should only count the six items with differentiated **o/a** markings associated with masculine or feminine respectively. Therefore in terms of actual choices, the percentages on 'gender' in table 4 should be multiplied by three, which represents a rather high percentage of non-Spanish gender marking for the advanced levels. We take this as an indication that adult L2 learners do not access the WM to acquire Spanish N-N compounds.

In terms of setting our data show that compounding strategies are linked to setting as follows: N-N is favored in the institutional setting (Canada) while N-P-N is favored in Spain, mainly by the Non Indo-European group. In fact, we believe that this strategy, which looks like an interlanguage strategy (or construction) in terms of its surface realization, corresponds to two different mental representations. In the case of the Indo-European group, learners produce an N (the modifier) and then a PP which happens to contain the head and results in a non-interpretable Spanish sequence, as indicated in (33):

(33) $_N[_N$ araña $_{PP}$ [de hombre]]
      spider / of man

In the case of the Non Indo-European group, learners transfer the PP right headed option from their L1s, so that the modifier is followed by the preposition forming a PP, and the head follows as in (34):

(34) $_N[_{PP}$[araña de] $_N$hombre]]
      spider of / man

Thus, in both cases, these constructions indicate that learners are struggling with head directionality, which we take as evidence for the triggering role of word order in the acquisition of Spanish N-N compounds.

6.   Conclusions

In this paper we have investigated three main hypotheses: 1) that N-N Compounding is a marked strategy; 2) that the 'word marker' of Spanish Nouns acts as a trigger for the acquisition of

Spanish N-N compounds; 3) that the 'word marker' does not act as a trigger. We have not found confirmation that N-N compounding is a marked option because all learners but the B-Spain group produce many instances of N-N compounds. We attribute the lower production of N-N compounds by the B-Spain group to the fact that they have been exposed to enough Spanish input to realize that N-N compounding is not salient in Spanish. However, they have not had enough exposure to incorporate Spanish N-N compounds into their interlanguage.

With respect to the triggering effect of the WM, it could be argued that it does not show at the early stage but that it does at the later stages because there is a large production of left-headed Spanish compounds at the advanced level. However, based on the pattern shown by the N-P-N strategy and Gender marking we would like to argue that it is not the WM but directionality (changing from a right headed to a left headed word order) that triggers the acquisition of Spanish N-N compounds. Namely, while there is a correlation between the increase in the production of N-N compounds and the disappearance of the N-P-N strategy, the status of Gender marking is not equally affected by the level of competence. We take this as an indication that adult L2 learners do not have access to the proposed WM. In other words, this marker (realized or abstract) does not seem to constitute a trigger for adult acquisition of N-N compounds.

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FOOTNOTES

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[1]While these constructions are ungrammatical because they are right headed, as their corresponding English equivalents provided below, some of them would be interpretable Spanish examples if they were left-headed constructions. For instance, a '**araña** hombre' would be a 'man spider'. In the case of '**bomba** carta', it would be a type of bomb, rather than a letter with a bomb, which is the Spanish interpretation of '**carta** bomba'.

[2]Unlike it is the case with word order, which is also left-headed (Lardiere1998), there is no correlation between syntactic agreement (between Noun and Adjective) as shown in (i) and (ii) and the internal structure of compounding —no agreement takes place as shown in examples (14) – (16)—in the text.

(i)   <u>la</u> arañ<u>a</u> negr<u>a</u>/the black spider

fem. singular
(ii)   l<u>as</u> arañ<u>as</u> negr<u>as</u>/the black spiders
fem. Plural

[3]We will refer to the various types of constructions in which a N is modified as instances of a 'compounding strategy'.

[4]This is a standardized placement test published in Madrid by the Sociedad General Española de Librería (SGEL).

TABLES

TABLE 1. Test #1. Total production of N-N compounds

Level / L1 Setting #Items/Subj.	B Spain 8x20	B-E Canada 8x10	I-E Canada 8x5	I-F Canada 8x10	A-E Canada 8x7	A-F Canada 8x8	A-V2 Spain 8x4	A-F Spain 8x4
Spanish N-N	(36/160) 0.22	(21/80) 0.26	(15/40) 0.37	(43/80) 0.53	(34/56) 0.60	(36/64) 0.56	(26/32) 0.81	(22/32) 0.68
Non-Spanish N-N	(11/160) 0.06	(37/80) 0.46	(10/40) 0.25	(11/80) 0.13	(6/56) 0.10	(6/64) 0.09	(1/31) 0.03	(2/32) 0.06
Total of N-N	(47/160) **0.29**	(58/80) 0.72	(25/40) 0.62	(54/80) 0.67	(40/56) 0.71	(42/64) 0.65	(27/32) 0.84	(24/32) 0.75

B= beginners; I = intermediate; A = advanced
E = L1 English; F = L1 French; V2 = L1 German & Danish

TABLE 2. Test #2. Total production of N-N compounds

Level / L1 Setting #Items/Subj.	B-Non/Ind Spain 16x9	B-Ind Spain 16x11	B-E Canada 16x10	I-E Canada 16x5	I-F Canada 16x10	A-E Canada 16x7	A-F Canada 16x8	A-V2 Spain 16x4	A-F Spain 16x4
Spanish N-N	(24/132) **0.18**	(19/166) **0.11**	(54/160) **0.33**	(28/79) 0.35	(75/160) 0.46	(53/109) 0.48	(73/126) 0.57	(58/64) 0.90	(41/62) 0.66
NonSpanish N-N (w.o)	(7/132) **0.05**	(14/166) **0.08**	(71/160) **0.44**	(22/79) 0.27	(20/160) 0.12	(23/109) 0.21	(20/126) 0.15	(3/64) 0.04	(16/62) **0.25**
Total N-N	(31/132) 0.23	(33/166) 0.19	(125/160) 0.78	(50/79) 0.63	(95/160) 0.59	(76/109) 0.69	(93/126) 0.73	(61/64) 0.95	(57/62) 0.91)

B= beginners; I = intermediate; A = advanced
E = L1 English; F = L1 French; V2 = L1 German & Danish; Ind = Indo-European; Non/Ind = Non Indo European

TABLE 3. Test #2. 'Compounding strategies': Native options

Level L1 Setting #Items/Subj.	B-Non/Ind Spain 16x9	B-Ind Spain 16x11	B-E Canada 16x10	I-E Canada 16x5	I-F Canada 16x10	A-E Canada 16x7	A-F Canada 16x8	A-V2 Spain 16x4	A-F Spain 16x4
Spanish N-N	(24/132) 0.18	(19/166) 0.11	(54/160) 0.33	(28/79) 0.35	(75/160) 0.46	(53/109) 0.48	(73/126) 0.57	(58/64) 0.90	(41/62) 0.66

Spanish N-PP	(1/132) 0.007	(19/166) 0.11	(6/160) 0.03	(4/79) 0.05	(16/160) 0.10	(6/109) 0.05	(18/126) 0.14	0	0
Total Native-like	(25/132) 0.18	(36/166) 0.21	(60/160) 0.37	(32/79) 0.40	(91/160) 0.56	(59/109) 0.54	(91/126) 0.72	(58/64) 0.90	(41/62) 0.66

B= beginners; I = intermediate; A = advanced
E = L1 English; F = L1 French; V2 = L1 German & Danish; Ind = Indo-European; Non/Ind = Non Indo-European

TABLE 4. Test #2. 'Compounding strategies': Non-native options

Level / L1 Setting #Items/Subj.	B-Non/Ind Spain 16x9	B-Ind Spain 16x11	B-E Canada 16x10	I-E Canada 16x5	I-F Canada 16x10	A-E Canada 16x7	A-F Canada 16x8	A-V2 Spain 16x4	A-F Spain 16x4
N-N word order	(7/132) 0.05	(14/166) 0.08	(71/160) 0.44	(22/79) 0.27	(20/160) 0.12	(23/109) 0.21	(20/126) 0.15	(3/64) 0.04	(16/62) 0.25
N-P-N	(26/132) 0.19	(19/166) 0.11	(16/160) 0.10	(2/79) 0.02	**0**	**0**	**0**	**0**	**0**
Gender	(2/132) **0.015**	(10/166) **0.06**	(9/160) **0.05**	(7/79) **0.08**	(6/160) **0.03**	(5/109) **0.04**	(7/126) **0.05**	(1/64) **0.01**	**0**
Other	(74/132) 0.56	(85/166) 0.51	(3/160) 0.01	(16/79) 0.20	(43/160) 0.26	(22/109) 0.20	(7/126) 0.05	(2/64) 0.03	(5/62) 0.08
Total non-native	(109/132) 0.82	(128/166) 0.77	(99/160) 0.61	(47/79) 0.59	(69/160) 0.43	(50/109) 0.45	(34/126) 0.26	(6/64) 0.09	(21/62) 0.33

B= beginners; I = intermediate; A = advanced
E = L1 English; F = L1 French; V2 = L1 German & Danish; Ind = Indo-European; Non/Ind = Non Indo-European

APPENDIX

─Test #1. Pictures: N-N Compounding Options
PERRO POLICIA   HOMBRE ARAÑA   MANZANO
[police dog]   [spider man]   [apple tree]

─Test #2. Pictures: N-N Compounding and Gender Marking
Este es …   [**hombre pulpo**]   y   ésta …   [**mujer pulpo**]
This is   octopus man   and this one   octopus woman

—Picture Dictionary
      pulpo   **policía**