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Polarity-item *anything* in L3 English: where does transfer come from when the L1 is Catalan and the L2 is Spanish?

Eloi Puig Mayenco
University of Reading, UK

Heather Marsden
University of York, UK

Abstract

This study explores the source of transfer in L3 English by two distinct groups of Catalan–Spanish bilinguals, simultaneous bilinguals and late bilinguals. Our study adressesses two research questions: (1) Does transfer come from the L1, the L2, or both?; and (2), Does age of acquisition of the L2 affect how transfer occurs? We compare beginner and advanced English speakers from both L3 groups with beginner and advanced L1-Spanish L2-English speakers, and find that, on an acceptablity judgment task that investigates knowledge of the distribution of polarity item *anything*, the two L3 groups demonstrate a different response pattern from the L2 group. The results suggest that both L3 groups transfer from Catalan, and not from their L2, Spanish. Additionally, the cross-sectional nature of the study shows that negative transfer from the initial stages of acquisition is overcome to different extents by the L3 versus the L2 groups. We conclude that the results show strong evidence against the L2 Status Factor (Bardel and Falk 2007, 2012) and the Cumulative Enhancement (Flynn et al., 2004) models of L3 acquisition, while they can be accounted for by the Typological Primacy Model (Rothman, 2010, 2011, 2015); although other models that predict L1 transfer in L3 acquisition are not ruled out. Further, our findings show no effect of age of acquisition of the L2 on L3 development.

Introduction

Research into interlanguage development in third language (L3) acquisition is a recent growth area within non-native language acquisition research. Of particular interest is the question of how the grammars of previously learned languages—both the first language (L1) and second (L2)—affect the development of a subsequently acquired L3. There are four logical possibilities for transfer from previously learned languages (as others have already indicated, e.g., García Mayo and Rothman, 2012; Rothman, 2015): namely, absolute L1 transfer, where only the L1 influences L3 development; absolute L2 transfer, where only the L2 influences the L3; transfer from both the L1 and the L2; and no transfer. The latter possibility has not been supported by empirical findings (unsurprisingly, since L1 transfer has been widely attested in L2 acquisition research). However, the first three have all found degrees of empirical support, leading to the proposal of several models of transfer in L3 acquisition.

Briefly, absolute L1 transfer is argued for by Hermas (2010) and Na Ranong and Leung (2009) on the basis of data on adverb placement in L3 English by L1-Arabic, L2-French speakers, and on null objects in L3 Chinese by L1-Thai, L2-English speakers, respectively. Contrasting evidence suggesting that the L2 is the dominant source of transfer

comes from the findings of Bardel and Falk (2007, 2012) and Falk and Bardel (2011) on the

L3 acquisition of verb-second (V2) syntax in Swedish or Dutch by learners whose L1 and L2

include another Germanic V2 language and a non-V2 language. Bardel and Falk (2007, 2012)

proposed the L2 Status Factor model based on this data. Turning to transfer from both the L1

and the L2, a number of models have been proposed. The Cumulative Enhancement Model

(CEM) (Flynn et al., 2004) predicts that transfer is exclusively facilitative and occurs

selectively (depending on potential facilitation) from both the L1 and the L2, based on

research on L3 Russian, by L1-Kazakh L2-English speakers. Three further models predict

both facilitative and non-facilitative transfer: the Typological Primacy Model (TPM)

(Rothman, 2010, 2011, 2015), the Scalpel Model (Slabakova, 2016), and the Linguistic

Proximity Model (LPM; Westergaard et al., 2016). The TPM is characterised by the proposal

that transfer involves wholesale transfer of either the L1 or the L2 grammar at the initial state

of L3 acquisition, depending on which is unconsciously perceived by the learner to be

structurally closer to the L3. It is supported in Rothman (2010) by evidence from L3 Brazilian

Portuguese with Spanish or English as the L1 or L2. Further evidence comes from other

studies of an L3 Romance language with speakers whose L1 and L2 include a Romance and

English (e.g., Giancaspro et al., 2015; Rothman and Cabrelli Amaro, 2010). The Scalpel

Model and the LPM both argue against initial state wholesale transfer and instead propose

transfer from either the L1 or the L2 on a structure-by-structure basis, throughout the course

of L3 development. The LPM draws on evidence from L3 acquisition of two different

structures in English by simultaneous bilingual speakers of Russian and Norwegian, and

argues that the data provide evidence for transfer—including nonfacilitative transfer—from

both previously acquired languages, with the source of transfer for each structure being

determined by structural similarity. Structural similarity is acknowledged as a key trigger for

transfer in the Scalpel Model, but this model also appeals to factors such as frequency of use

and misleading input.

In sum, there is considerable evidence that the grammar of previously learned

languages influences L3 development. However, findings so far are inconclusive about

precisely how that influence manifests itself. Indeed, some L3 research, particularly from

studies that look at combinations of three typologically distinct languages, provide evidence

that is compatible both with structural similarity accounts and with the CEM (García Mayo

and Slabakova, 2015: L1/L2 Basque/Spanish; Kulundary and Gabriele, 2012: L1 Tuvan L2

Russian L3 English). As García Mayo and Slabakova (2015) conclude, there is a need for

further research that includes different linguistic properties and language combinations.

The present paper responds to this call by reporting on an investigation of L3 English

by L1-Catalan L2-Spanish speakers with reference to knowledge of the properties of the

polarity-sensitive existential quantifier *any*. Since both of the previously acquired languages

belong to the same typological family (Romance), the study offers a perspective that differs

from that of the studies cited above. Moreover, the distribution of *any* has not been

investigated in prior L3 acquisition research, to our knowledge. *Any* is a potentially

informative focus of research because, as detailed in the following section, its behaviour

differs subtly from that of its counterparts in Catalan and Spanish, which in turn differ from

each other at a microparametric level. Our investigation compares L3 English by Catalan-

Spanish speakers with L2 English by L1-Spanish speakers. The L2 group provides a

benchmark measure of transfer from Spanish, which allows for the degree of influence from

Catalan in the L3 speakers to be identified.

In addition to the question of what transfers in L3 acquisition, there are also questions

about factors that could affect transfer. One such question, articulated by Rothman (2015),

concerns whether transfer in L3 acquisition is different for different types of bilinguals:

specifically for those who acquire two languages from birth compared with those who acquire

an L1 monolingually before a subsequent L2. Rothman proposes that there are arguments

from a processing efficiency perspective for two possible predictions. Transfer in early

bilinguals could differ from transfer in late bilinguals due to greater inhibitory control in early

bilinguals (e.g., Bialystok and Shapero, 2015) which may allow them to inhibit both L1 and

L2 during the early stages of L3 acquisition, resulting in delayed transfer compared with a late

bilingual group. Such a delay could even result in early and late bilinguals with the same L1-

L2-L3 combination differing in their selection of language to transfer from. On the other

hand, if, as Rothman argues in relation to the TPM, there is a processing efficiency in transfer

at the earliest stage of acquisition, then both early and late bilinguals may transfer early, and

may consequently show exactly the same transfer effects. He cites preliminary evidence from

Iverson (2009; 2010) on L3 Brazilian Portuguese by early bilingual English/Spanish speakers and by L1-English late L2-Spanish speakers that suggests no difference in patterns of transfer between the two groups, but calls for further research designed to test this question. The present study addresses this call, by comparing two groups of L3 learners: those who were consistently exposed to both Catalan and Spanish from birth, and those whose first consistent exposure to Spanish was at primary school, from age 7. Our study thus addresses two main research questions: (1) in L3 acquisition, does transfer come from the L1, the L2 or both?; and, (2) does the age of acquisition of the L2 (bilingual from birth v. child L2 acquirer) affect how transfer occurs in an L3?

In order to identify how transfer might manifest itself in the specific context of *any* by Catalan-Spanish speakers and Spanish speakers, the next section describes the behaviour of *any* and of counterparts in Spanish and Catalan, and then provides an overview of Tubau's (2008) Minimalist syntactic account of the relevant properties in the three languages. In line with the models of L3 acquisition outlined above (and following the influential non-native language acquisition theory of Schwartz and Sprouse (1994, 1996), Lardiere (2008), and others), we assume that transfer involves adoption of the abstract properties of the L1 or L2, and that development involves reconfiguration of the resulting L1- and/or L2-influenced grammar in response to L3 input that the transfer-based grammar fails to parse. We make use of Tubau's thoeretical analysis to set out the acquisition problem facing our two learner groups in terms of the relevant abstract features that could transfer from Spanish or Catalan.

We review the small body of existing research into non-native acquisition of polarity items, then state predictions based on different L3 acquisition. Our experimental study follows, and the paper concludes with discussion of the experimental results in light of the predictions.

Polarity-sensitive *any*, and Catalan and Spanish n-words

The English indefinite quantifier *any* and its compounds (*anything*, *anyone*, etc.) are often described as negative polarity items, because they are generally grammatical in negated contexts (1) but not in affirmative (2):

1. I haven't bought anything.

2. *I have bought anything. (Cf. I have bought something.)

Similarly, the Catalan form *res* and the Spanish *nada*, which correspond to the sense of *anything* in a context such as (1), are also grammatical following negation but ungrammatical in affirmative contexts equivalent to (2), as illustrated in (3-4):[1]

3. a. No   he   comprat   res.   (Catalan)

   b. No   he   comprado   nada.   (Spanish)

   not   have   bought   n-thing.

   'I haven't bought anything.'

4. a. *He   comprat   res.   (Catalan)

    b. *He   comprado   nada.   (Spanish)

        have   bought   n-thing.

However, this initial similarity is superficial. English *any* is part of a three-way system of indefinite quantifiers (*any-*, *some-*, and *no-*), while Catalan and Spanish have two-way systems comprising the negative forms, known as n-words, (e.g., *res/nada* 'n-thing', *ningú/nadie* 'n-one')[2] and positive forms (e.g., *alguna cosa/algo* 'something'). Further, the distribution of *any* differs in key ways from Catalan and Spanish n-words, which in turn differ from each other (Déprez, et al., 2015; Espinal, 2002; Tubau, 2008). This section sets out the properties of *anything*, *res* and *nada* that are exploited in our study, and provides an overview of a feature-based account of these items, drawing on Tubau (2008).

English

The idiosyncratic distribution of English *any* has been a topic of linguistic research for decades (e.g., Chierchia, 2013; Giannakidou, 1998, 2001, 2011; Klima, 1964; Ladusaw, 1979; Zwarts, 1995). While negative polarity sensitivity is a key feature of *any*, existential *any* can also occur in certain non-negated contexts. These include questions (5), conditionals (6), and the scope of implicitly negative verbs and adverbs (7–8).[3]

5. Do you want anything?

6. Maria will call me if she sees anything.

7. James denied having said anything.

8. Elaine hardly said anything.

Giannakidou (1998, 2001, 2011) argues that *any* is licensed by nonveridicality, which is broader than negation, in that a nonveridical context is a situation that does not correspond to an actual event. In nonveridical sentences, such as (1) and (5–8), *any* is c-commanded by, and thus licensed by, a nonveridical operator. However, *any* cannot be licensed as the subject of a negated sentence (9), because it is not c-commanded by the negator in this position.

9. *Anything doesn't frighten them.

Instead, a *no-* form is used (10). Moreover, the *no-* form is incompatible with negation (11) in standard English.[4]

10. Nothing frightens them.
11. *Nothing doesn't frighten them.

Spanish

As mentioned above, Spanish can be categorised as a negative concord language. Within this classification are two subcategories: strict negative concord languages such as Romanian, Polish and Greek, in which all n-words obligatorily co-occur with negation; and non-strict negative concord languages, in which post-verbal n-words must co-occur with a negative element but pre-verbal n-words cannot co-occur with negation (Giannkidou, 1998; Penka, 2011). Spanish falls into the non-strict class, as illustrated by the grammaticality contrast between (3b) (post-verbal *nada*) above, and (12) (pre-verbal *nada*) (from Tubau, 2008: 224).

12. Nada   (*no) les   asusta.

    n-thing (not) them   frightens

    'Nothing frightens them.'

Furthermore, Spanish n-words are compatible only with antiveridical contexts (a subset of nonveridical contexts). Consequently, they are not permitted in the contexts of questions (13a) and conditionals (14), which are nonveridical but not antiveridical. Grammatical alternatives to (13a) are (13b), where *nada* is under the scope of negation, and (13c), where *nada* is replaced by the non-negative indefinite *algo* 'something/anything'.

13. a.　*¿Quieres nada?

　　　want.2sg　n-thing?

　　b.　¿No　quieres　nada?

　　　not want.2sg　n-thing?

　　　'Don't you want anything?'

　　c　¿Quieres　algo?

　　　want.2sg　something?

　　　'Do you want something/anything?'

14. *María　me　llamará　si　ve　nada.

　María　me　will.call　if　sees　n-thing.

Catalan

Catalan is not readily defined either as a strict or non-strict negative concord language
(Tubau, 2008). It demonstrates hallmarks of both types, by virtue of negation being optional
when an n-word occurs pre-verbally (15). This optionality occurs within individual speakers
as well as between different speakers, and it appears to be unconstrained (Tubau & Espinal,
2012; Tubau, 2008).

15. Res   (no)   els   fa por.

    n-thing   (not)   them   frightens.

    'Nothing frightens them.'

Catalan also differs from Spanish, but patterns with English, in that Catalan n-words are licensed in nonveridical contexts such as questions and conditionals (Vallduví 1994).

16. Vols   res?

    want.2sg   n-thing?

    'Do you want anything?'

17. La Maria   em   trucarà   si   veu   res.

    Maria   me   will.call if   sees n-thing.

    'Mary will call me if she sees anything.'

An account of any and n-words

Table 1 summarises the distributional differences between English, Spanish and Catalan, described above.

Table 1. Summary of distribution of *anything, nada* and *res*

Language	Occurs in		
	... NEG V __	**__ (NEG) V**	**question/ conditional**
English (*anything*)	Yes	No	Yes
Spanish (*nada*)	Yes	No (NEG must be omitted)	No
Catalan (*res*)	Yes	Yes (NEG is optional)	Yes

Note. NEG = negation morpheme, i.e., *not* in English *no* in Spanish/Catalan

The question of how to account for the behaviour of n-words has also been the topic of much

research (e.g., Bosque, 1980; Espinal 2000; Giannakidou, 2000; Laka, 1990; Tubau, 2008;

Vallduví, 1994; Zeijlstra, 2004; among others). Among these, the proposal by Tubau (2008) is

particularly useful for the present study, because it extends to include English *any*. We adopt

the key insights from Tubau's proposal, although for space reasons, our overview simplifies a

number of technical details.[5]

Essentially, within Tubau's account, English *anything* and Catalan *res* are assumed to

bear an unvalued polarity feature [uPol:___], which agrees with and is valued by an

interpretable polarity feature borne by an antiveridical operator (e.g., *not*) or a nonveridical

operator (e.g., *if*). Contrastingly, Spanish *nada* has a polarity feature that is valued as

negative: [uPol:neg].[6] This means it can only agree with a negative operator. Thus the incompatibility of Spanish n-words with questions is accounted for.

Turning to *any* and n-words in preverbal positions, Tubau appeals to post-syntactic spell-out rules. In Minimalist syntactic theory, spell-out refers to the point at which an abstract syntactic representation interacts with phonological form (PF). Tubau argues—for all three languages—that a filter applies at spell-out that prohibits accidental co-occurrence of two negative features. Considering Spanish first, the string in (18) is prohibited because both *nada* and *no* bear a negative feature. This violates the filter, and triggers application of a PF operation, termed obliteration, which deletes the syntactic node bearing a [+neg] feature if it is adjacent to a [polarity:negative] element, schematised in (19) (adapted from Tubau 2008: 126). This amounts to deletion of *no* in (18), yielding a grammatical sentence.

18. *Nada   no   les   asusta.

    n-thing   not   them frightens

19. $[+neg] \rightarrow \emptyset \ \{\underline{\quad\quad}[+polarity:negative]\}_{Spell\text{-}Out}$

If this proposal is correct, one might ask why it does not apply when n-words occur post-verbally (20, previously 3b):

20. No he   comprado   nada.

    not have   bought   n-thing.

    'I haven't bought anything.'

Tubau argues that this is due to *no* and *nada* being in different spell-out domains when *nada*

occurs post-verbally. Following Phase Theory (Chomsky 2000, 2005), spell-out domains

correspond to syntactically defined "phases" (e.g., vP, CP), which are transferred to spell-out

once their syntactic derivation is complete. Assuming bottom-up syntactic derivation, this

means that a phase representing the lower part of a syntactic tree reaches spell-out before

higher phases. There is cross-linguistic variation with regard to exactly what syntactic

structures count as a phase in a given language. Following Gallego's (2007) application of

Phase Theory to Romance languages, Tubau assumes that when an n-word occurs post-

verbally it is in an earlier phase than the negation marker, but when it occurs pre-verbally

(18), it is in the same phase. Hence the filter prohibiting co-occurrence of two negative

morphemes applies with pre-verbal n-words.

  Turning to Catalan, the optionality of the negation marker with a pre-verbal n-word

represents in a single language the two permutations that distinguish a non-strict negative

concord language from a strict negative concord language. Zeijlstra (2004) captured this

distinction with a proposal that while the negation marker in non-strict negative concord

languages bears an interpretable negation feature [iNEG], in strict negative concord languages

it is uninterpretable [uNeg] and the negative interpretation in this case comes from a negative

operator. Thus when a pre-verbal n-word co-occurs with the negation marker in strict NC

languages, there is no violation of any filter against the co-occurrence of two negative

morphemes, because the negation marker itself does not bear an interpretable negation

feature. Tubau (2008) and Espinal and Tubau (2016) apply this proposal to Catalan and

suggest that Catalan has two lexical variants of its negation marker, one with an interpretable

negation feature and one uninterpretable. Thus, even within a single individual, the negation

marker may pass an interpretable negative feature to spell-out, or it may not, depending on the

individual's lexical choice.

Finally, returning to English, one might ask why obliteration at PF could not apply to

the English case of (21) (previously 9).

21. *Anything doesn't frighten them.

The reason in Tubau's acccount is that *any* is only inserted as an "elsewhere" option,

according to the following rule (Tubau 2008: 121):

22. a.   [+polarity: negative] <–> /nəʊ/ (or /nʌ/)

b.   [+polarity: assertive] <–> /sʌm/

b.   Elsewhere [+polarity] <–> /ɛnɪ/

Therefore, if the output of the syntax calls for an indefinite with a negative feature, then *no-* (*nothing*, *no-one* etc.) will be inserted rather than *any*. Then obliteration would apply to the negation marker, yielding the grammatical *Nothing frightens them*. However, this raises the question of why *any* co-occurs with negation at all. Specifically, it appears to call into question the classic example of *any* as a negative polarity item in post-verbal position of a negated sentence (23, previously 1). Moreover, if we draw an analogy with Spanish, the fact that English *nothing* cannot co-occur with negation post-verbally also seems puzzling (24).

23. I haven't bought anything.

24. I have (*not) bought nothing.

Tubau argues that English differs from Spanish in two ways. First, post-verbal indefinites are argued to be in the same phase as the negation marker. Such a phase would thus include two negative morphemes, violating the filter against this at spell-out. Consequently, obliteration could be triggered, resulting in the grammatical version of (24). Tubau argues that an alternative PF operation is also available in English to avoid violation of the filter, known as impoverishment, which can delete a feature value. The impoverishment operation is schematised (25) (Tubau 2008: 126):

25. [+polarity: negative] $\to$ [+polarity] / {[+Neg] _____}$_{\text{Spell-Out}}$

Thus, (23) results if the negative value on the indefinite is deleted, allowing insertion of /ɛnɪ/

in accordance with the insertion rule in (22).

The key morphosyntactic properties that play a role in the distribution of *anything,*

nada and *res* are summarised in Table 2.

Table 2. Morphosyntactic properties that contribute to distribution of *anything, nada* and *res*

Language	Feature on indefinite	Feature on NEG marker (*not*/*no*/*no*)	NEG marker and postverbal indefinite in same phase?	PF operations
English (*anything*)	[uPol:_]	[iNeg]	Yes	Obliteration Impoverishment
Spanish (*nada*)	[uPol:neg]	[iNeg]	No	Obliteration
Catalan (*res*)	[uPol:_]	[iNeg] *OR* [uNeg]	No	Obliteration

These will be exploited when we consider the acquisition task facing Catalan- and Spanish-

speaking learners of English, with respect to the distribution of *any*. Before that, the following

section gives a brief review of previous acquisition research.

Transfer in the non-native acquisition of polarity items

This section begins with consideration of why we might posit transfer from n-words to *any* in the first place, given that, as the preceding section has shown, they are not direct equivalents. We then briefly report on evidence of transfer in the small body of previous studies on the non-native acquisition of polarity sensitive items.

The premise underlying our experimental hypotheses (detailed in the following section) is that learners of English whose previously acquired languages are Catalan and/or Spanish may transfer the properties of Catalan/Spanish n-words to English *any*. This would entail that the learners perceive, for example, Catalan *res* or Spanish *nada* to be the closest morpholexical equivalent of *anything*. As we saw above, although *nada*/*res* correspond to English *anything* under the scope of negation, they also correspond to *nothing* in other contexts, while *anything* corresponds to *alguna cosa*/*algo* in yet other contexts. This raises the question of whether n-words might be targeted at all when learners seek an equivalent for *any*, since meaning-based cues may be equivocal. We argue, however, that grammar-based cues could motivate such a mapping. Despite the morphosyntactic differences between n-words and *any*, they share a defining grammatical property, namely their sensitivity to negation. This property is highlighted in the instruction on *any* in English language teaching materials, which, as shown in a textbook survey by Gil et al. (2017), typically give a rule along the lines of "use *any* with negation and in questions". Further, the limited existing research on the L1 acquisition of English *any* shows, based on corpus investigation, that when children start to use *any*, the majority of occurrences are in the scope of negation, and, moreover, there are

very few instances of *any* in unlicensed environments (Tieu 2010). This suggests that

licensing by negation is a salient grammatical property of *any*. As such it could presumably

motivate association of *any* in the L2/L3 input with the feature sets of L1/L2 n-words.

Moreover, even if transfer occurs between Spanish/Catalan n-words and English *nothing/no-*

one etc., the n-word feature sets could presumably still also transfer to *any*.

There is some evidence of transfer in the acquisition of polarity items from the small

body of previous non-native/bilingual language acquisition research in this area: Austin et al.

(2011), Agçam (2008), Can and Agçam (2011) and Gil et al. (2011).[7] First, Austin et al.

(2011) investigated whether attrition occurs in the Spanish of Spanish-English bilingual 5–6-

year-old children growing up in the US. They used an elicitation task to elicit a range of

constructions, including n-words, and one finding was the use of Spanish n-words in

postverbal position without a negation marker, such as (26) (adapted from Austin et al., 2013:

558):

26. *Le   gust-a   ningún   pastel.

    CL   like.3sg.   none   cake

    'He likes no cake.'

For *ningún* 'none' to be grammatical in Spanish, the sentence should include the negator *no*

'not'. By contrast, an English sentence containing *none* or *no* in postverbal position is

incompatible with negation. This suggests influence of English on Spanish in the domain of existential quantifiers.

Gil et al. (2011) used acceptability judgement tasks to investigate L2 knowledge of the distribution of *any*. They compared data from Arabic- and Chinese-speaking learners of English with previous data from Korean-speaking learners of English (Gil and Marsden, 2010). The Korean speakers, but not the Arabic or Chinese speakers, tended to accept *any* in affirmative declaratives such as (27):

27. *Anyone is playing a musical instrument.

Gil et al. argue that this difference is an L1 transfer effect, because existential quantifiers in Korean are not sensitive to negation and can therefore occur in any environment, whereas Chinese and Arabic counterparts of *any* are negative polarity items, and consequently, like *any*, are not licensed in affirmative declaratives.

Finally, Agçam (2008) and Can and Agçam (2011) report on an investigation of L2 acquisition of *any* by adult Turkish-speaking learners of English. They elicited *any* using a task in which participants completed a partial sentence such as (28a). Contextualised within a dialogue and with an accompanying picture, the target continuation for (28a) should contain *anything*, as shown in (28b).

28. a.   The rabbit doesn't think that …

    b.   … the monkey is chasing anything.

However, the researchers report a high rate of use of a negative quantifier, *nothing*, in the continuation. They ascribe this to transfer from Turkish, in which a single morpheme, *hiç* serves as the counterpart of both *any* (under negation) and *no*, and is subject to strict negative concord. Thus *hiç* always occurs with negation. Transfer of this property to English existential and negative quantifiers would result in both *nothing* and *anything* being allowed in (28), as attested by the learners' performance.

In short, although Catalan and Spanish n-words are not directly equivalent to English *any*, there is reason to suppose that transfer of the relevant properties of Catalan and Spanish n-words could affect acquisition of the distribution of *any*.

Acquisition tasks and predictions

Our first research question asks whether transfer in L3 acquisition comes from the L1, the L2, or both. The experiment we use to address this focuses on knowledge of the grammaticality of *any* in questions, conditionals and the scope of negation, and on the ungrammaticality of *any* when it precedes negation. Following the linguistic account presented above, the features required for target-like performance in these contexts are the unvalued [*u*Pol:__] feature on *any* and the interpretable feature on *not*.[8] Assuming transfer at the morpholexical level (e.g.,

Lardiere, 2009), if transfer occurs from Spanish, then a valued [uPol:neg] feature will transfer from the n-word paradigm, and the acquisition task will be to delete the neg value. The Spanish negation marker already bears the same [iNEG] feature as English, therefore no reconfiguration is required. The initial state grammar following transfer from Spanish thus predicts target-like acceptance of *any* following negation and rejection of *any* preceding negation; but non-target-like rejection of *any* in questions and conditionals. Restructuring of this initial state grammar could be motivated when learners process exemplars in the input of *any* in questions and conditionals, with which the [uPol:neg] feature from Spanish will be incompatible. Since such evidence will be available in the input, it seems likely that even if transfer from Spanish is detectable in lower proficiency learners, by higher proficiency such effects vanish due to successful grammar restructuring.

If transfer occurs from Catalan, on the other hand, *any* will bear the target unvalued [uPol:__] feature from the outset, but the possibility of creating two lexical entries for *not* will arise: one with the target [iNEG] feature and one with a non-target [uNEG] feature. Assuming that both are created, the acquisition task will be determine that the lexical entry bearing [uNEG] is ungrammatical. The initial state grammar following transfer from Catalan predicts target-like acceptance of *any* in questions, conditionals and the scope of negation, but also non-target-like acceptance of *any* preceding negation. In this case, the evidence to motivate deletion of *not*[uNEG] seems less obvious, since this would require noticing that *any* and *no* do not precede negation. The input is likely to contain evidence of English negative quantifiers

used without negation (e.g., *Nothing frightens me*), but although these are compatible with

not[iNEG], they would not necessarily motivate deletion of *not*[uNEG]. Consequently, if transfer

comes from Catalan, both lower and higher proficiency L3 English speakers may allow *any*

outside the scope of negation.

In terms of models of L3 acquisition, if transfer is found solely from the L1, this could

provide evidence for an absolute L1 transfer account, and if solely from the L2, for the L2

Status Factor model. However, the TPM also predicts transfer from just one previously

acquired language, namely the one that is perceived by the learner to be structurally closer to

the L3. In the language configurations under investigation, it is not obvious which of Catalan

or Spanish might be perceived as structurally closer to English, given that these two languages

are phonologically, syntactically, and lexically very similar. We leave further exploration of

this for our Discussion section, but note that evidence for just L1 or just L2 transfer could

potentially be evidence for the TPM. Alternatively, the CEM allows for transfer from the L1

and the L2, predicting facilitative transfer from all previously acquired languages. Under this

scenario, our L3 group should be target-like on all four sentence types even at the lower

proficiency level. The different predictions for lower proficiency L3 English learners (who are

assumed to be closest to the initial state) are summarised in Table 3.[9]

Table 3: Predicted acceptance of *any* by lower proficiency L3 group in each condition, under different L3 acquisition models

	Transfer from Catalan (Absolute L1 Transfer, or TPM)	Transfer from Spanish (L2 Status Factor, or TPM)	CEM
Questions	ACCEPT	*REJECT*	ACCEPT
Conditionals	ACCEPT	*REJECT*	ACCEPT
Neg ... *any*	ACCEPT	ACCEPT	ACCEPT
*Any ... neg	ACCEPT	*REJECT*	*REJECT*

Taking all of the above into account, and incorporating comparison with an L2 English group whose L1 is Spanish, our hypotheses for the L3 learners are as follows:[10]

- H1: Transfer from L2 Spanish

  Lower proficiency L3 learners will accept *any* only in the NEG...*any* condition, and will not differ in this from lower proficiency L2 learners. Higher proficiency L2 and L3 learners will additionally accept *any* in questions and conditionals.

- H2: Transfer from L1 Catalan

Lower proficiency L3 learners will accept *any* in all four conditions, in contrast to lower proficiency L2 learners. Higher proficiency L3 learners will continue to accept *any* in the ungrammatical **Any*…NEG condition.

- H3: Facilitative transfer from both Catalan and Spanish

Lower (and higher) proficiency L3 learners will demonstrate target-like behaviour, accepting *any* in all grammatical conditions (questions, conditionals, NEG…*any*) and rejecting *any* when it precedes negation (**Any*…NEG).

Our second research question asks whether the type of bilingualism (bilingual from birth v. child L2 acquirer) affects transfer in L3 acquisition. We investigate this by comparing two groups of L3 learners: those who were consistently exposed to both Catalan and Spanish from birth ("early" Spanish acquirers), and those whose first consistent exposure to Spanish was at primary school ("late" Spanish acquirers). In line with preliminary findings about the effects of different types of bilinguals reported in Rothman (2015), we test the null hypothesis in relation to this question:

- H4: Effect of type of bilingualism on L3 transfer and development

The early and late L3 groups will show the same transfer and development patterns.

The experimental study[11]

Participants

Our two main experimental groups comprised 47 adult L1-Spanish learners of English as L2

and 90 adult L1-Catalan L2-Spanish learners of English as L3. The L3 learners of English

were recruited in Osona (Catalonia), located in the north east of Spain. This region is highly

Catalan dominant with Spanish being the minority language of use (Illamola i Gómez, 2015).

All the participants in the L3 group were recruited in two adult language schools subsidised

by the Catalan government. The L2 participants were recruited from private language schools

in monolingual areas of Spain (Madrid, Granada). Most of the participants were young

professionals and they were not language specialists (such as English language teachers or

linguistics graduates).

In order to determine levels of proficiency, the web-based Cambridge English for

Speakers of Other Languages test was used (Cambridge English Language Assessment,

2014). It consists of 25 multiple choice questions, which participants completed at their own

pace. Cambridge English Language Assessment provides a mapping from this test to the

Common European Framework of Reference for Languages (CEFR; Council of Europe,

2001) levels. A total of 190 participants took the test and were divided, accordingly, into three

levels: Beginner (CEFR levels A1-B1.1; n = 63); Intermediate (CEFR B1.2–B2.2; n = 53);

Advanced (CEFR C1.1–C2.2; n = 74). The present paper reports only on the Beginner and

Advanced groups, so as to make a clear comparison between lower and higher proficiency

learners as per our hypotheses. The L3 learners' proficiency in Spanish was not measured. We

assume that these speakers are very advanced in Spanish, as suggested by research on similar

bilinguals by Perpiñán (2017).

In relation to Hypothesis 4 about the effect of type of bilingualism, the L3 particiapnts

were divided into two groups based on a language background questionnaire. Those who

reported exposure to Spanish and Catalan from birth were labelled as 'early bilinguals' (beg,

n=18; adv, n=22) and those who reported speaking Catalan at home and being exposed to

Spanish only from age 7 at school were classified as 'late bilinguals (beg, n=23; adv, n=27).

Table 4 summarises the learner participant groups.[12]

Table 4: Participants' mean proficiency scores

Group	N.	Proficiency score out of 25, M (SD)
Early bilinguals (beg)	18	10.3 (2.6)
Early bilinguals (adv)	22	22.7 (1.4)
Late bilinguals (beg)	23	9.0 (3.2)
Late bilinguals (adv)	27	23.1 (1.1)
L2 learners (beg)	22	9.4 (3.1)
L2 learners (adv)	25	22.9 (1.1)

Two independent one-way ANOVAs were run on the beginner and advanced level

proficiency scores, respectively, to establish whether there were differences amongst the three

groups within each level. The results showed that the effect of group (i.e., L3 Early, L3 Late,

L2) was not significant at either level (Beginner: F (18.4, 2) = 1.005, p =. 372; Advanced: F

(1.85, 2) = 0.57, p =.568).

In addition to the experimental groups, we introduced a control group for each of the languages in the study. The English native speakers (n=31) completed the same test as the L2/L3 learners of English. The Catalan (n=22) and Spanish (n=25) control groups, completed Catalan and Spanish versions of the test, respectively.

Test instruments and procedure

Data was collected by means of a web-based Acceptability Judgement Task (AJT). The AJT was method was selected because it allows investigation of knowledge of ungrammaticality as well as of what is grammatical, which is essential to fully address our research questions about the source of transfer.

The AJT included eight different syntactic conditions with four tokens each. Of these, four are critical conditions for addressing the hypotheses given in the previous section, thus the present paper focuses just on these four, illustrated in Table 5.[13] [14]

Table 5. Key experimental conditions and example items

Condition	Example	N.
Questions	Do you want anything?	4 (3)
Conditionals	Mary will call me if she sees anything.	4
Negation + *anything*	She has not read anything.	4
Anything + negation	*Anything was not written down.	4

In addition the test battery contained 12 fillers that did not contain *anything* or *nothing*, and whose sentence structures included questions and negation, and both monoclausal and

biclausal tokens, thereby blending in with the structures of the experimental items. Altogether, there were 44 items and they were presented in a random order.

Participants were asked to rate the acceptability of each token by using radio buttons to select one of four options: "The sentence sounds... *very natural, natural, not natural* or *not natural at all*". They also had a separate "not sure" option. The range of four response options rather than a binary "natural" versus "not natural" scale was used with a view to facilitating selection of an informative response in the case where a participant might have a subtle feeling that a test item is (un)acceptable but may hestiate to choose one of the options on a binary scale and thus may end up choosing the uninformative "not sure" option instead. Each test item appeared individually on the screen, and selection of a response option triggered the next item.

Ethical approval was obtained from the authors' university department ethics committee. Participants were not reumnerated but they were offered the chance to enter a modest prize draw. In terms of procedure, after completing a consent form, the participants completed the sociolinguistic questionnaire, followed by the proficiency test. They were invited to take a break before proceeding to the AJT. After the AJT, they completed a translation task, which is not reported in the present paper (see Puig-Mayenco, 2014). All the instructions were written in English, in order to minimise activation of the other two languages. There was no time constraint on finishing the task battery, and participants were

aware of this. All parts of the task battery were completed on the same day. The background questionnaire and AJT is archived on the IRIS database (www.iris-database.org/).

Analysis

To analyse the AJT responses, we first counted the raw numbers of each response option for each condition. We then coded responses of *very natural* and *natural* as acceptance of the given item, and responses of *not natural* and *not natural at all* as rejection.[15] Raw counts and rates of acceptance for each condition within each group, are descriptively in the following section. For the learner groups, the rates of acceptance are further analysed by means of generalized linear mixed effects logistic regression analyses and group comparisons for each condition, described in detail below. As already noted (note 14), an error was discovered in one of the tokens in the Question condition, so this was excluded from the analysis, resulting in a total of three tokens per type for that condition compared with four for the other conditions. This accounts for the lower raw counts in the Question conditions in Tables 6–8, below, than in the other conditions.

Results

We present the results of the native control groups first, in order to verify whether the theoretical assumptions about the three languages are borne out. The learner results follow.

Native data. Raw numbers of each response option, and percentages of acceptance, for *anything*, *nada* and *res* in the four syntactic conditions are presented in Table 6.

Table 6. Raw counts of selection of each response option, and perentage acceptance, for each condition, by native control group

Condition	Response type	Group					
		English (31)		Spanish (25)		Catalan (22)	
		N	% acc	N	% acc	N	% acc
Question	Very natural	66	91.40	0	2.67	24	87.88
	Natural	19		2		34	
	Not natural	7		14		5	
	Not natural at all	1		58		0	
	Not sure	0		1		3	
Conditional	Very natural	103	99.19	8	8.93	49	88.64
	Natural	20		2		29	
	Not natural	1		12		8	
	Not natural at all	0		89		2	
	Not sure	0		1		0	
NEG ... *any/nada/res*	Very natural	85	94.35	80	89.29	61	96.59
	Natural	32		20		24	
	Not natural	7		6		3	
	Not natural at all	0		6		0	
	Not sure	0		0		0	
Any/nada/res … NEG	Very natural	0	2.42	1	3.57	35	78.41
	Natural	3		3		34	
	Not natural	32		23		15	
	Not natural at all	89		83		4	
	Not sure	0		2		0	

Note. "% acc" = percentage acceptance, calculated on the basis of the raw counts for "very natural" and "natural"

Taking selection of very natural or natural to indicate acceptance of the given condition, the English group demontrated low acceptance of *Any*...NEG and high acceptance in the other three conditions. The Spanish group similarly had low acceptance on *Nada*...NEG, but they also had low acceptance in the Question and Conditional conditions. The Catalan group had high acceptance in all the condtions, though it is worth noting that, among these, the 78.41% acceptance of *Res*...NEG represents the greatest degree of indeterminacy across all conditions by all groups. The remaining one fifth of the Catalan group's responses on this condition were indeed rejection, with 12 of the 22 participants rejecting one, two or three of the four items in the condition. This is the condition where Catalan allows optionality: the lexical negator *no* may or may not be realised phonologically, depending on which lexical entry for this item is selected. The slightly increased indeterminacy on this condition by the Catalan group is thus not unexpected. Overall, the results provide quantitative verification of the claims in the theoretical literature: the three control groups behaved as expected from the syntactic literature presented above.

Learner data. The learner groups' raw numbers of each response option, and percentages of acceptance, are presented for each condition in Tables 7 and 8.

Table 7. Raw counts of selection of each response option, and perentage acceptance, for each condition, by beginner groups.

Condition	Response type	Group					
		L3 Early (18)		L3 Late (23)		L2 (22)	
		N	% acc	N	% acc	N	% acc
Question	Very natural	26	85.18	32	86.96	25	80.30
	Natural	20		28		28	
	Not natural	5		9		7	
	Not natural at all	3		0		3	
	Not sure	0		0		3	
Conditional	Very natural	32	72.22	23	68.47	9	39.77
	Natural	20		40		26	
	Not natural	9		20		32	
	Not natural at all	11		8		16	
	Not sure	0		1		5	
NEG ... *any*	Very natural	39	80.55	36	84.78	26	67.05
	Natural	19		42		33	
	Not natural	11		9		20	
	Not natural at all	3		5		9	
	Not sure	0		0		0	
Any … NEG	Very natural	12	66.66	14	61.96	3	17.04
	Natural	36		43		12	
	Not natural	14		24		37	
	Not natural at all	10		6		30	
	Not sure	0		5		6	

Note. "% acc" = percentage acceptance, calculated on the basis of the raw counts for "very natural" and "natural"

Table 8. Raw counts of selection of each response option, and perentage acceptance, for each condition, by advanced groups.

Condition	Response type	Group					
		L3 Early (22)		L3 Late (27)		L2 (25)	
		N	% acc	N	% acc	N	% acc
Question	Very natural	35	85.36	39	87.65	49	94.66
	Natural	22		32		22	
	Not natural	7		9		3	
	Not natural at all	2		1		1	
	Not sure	0		0		0	
Conditional	Very natural	41	85.22	41	70.37	62	86.01
	Natural	34		35		24	
	Not natural	10		21		7	
	Not natural at all	3		11		7	
	Not sure	0		0		0	
NEG ... *any*	Very natural	40	73.86	50	81.48	63	90.00
	Natural	25		38		27	
	Not natural	17		14		6	
	Not natural at all	6		6		4	
	Not sure	0		0		0	
Any … NEG	Very natural	9	35.23	7	25.92	0	06.00
	Natural	22		21		6	
	Not natural	30		38		38	
	Not natural at all	27		42		56	
	Not sure	0		0		0	

Note. "% acc" = percentage acceptance, calculated on the basis of the raw counts for "very natural" and "natural"

The descriptive data show some clear group-specific patterns. Most notably, in the beginner

data, the L2 group has low rates of acceptance in the Conditional and *Any* …NEG conditions

(39.77%, 17.04%), whereas the two L3 groups have relatively high percentages of acceptance

on all four conditions. Thus the L2 group's response pattern is clearly non-target-like on the

Conditional condition, while the L3 groups' patterns are non-target-like on the *Any...NEG

condition. At advanced level, all three groups have response patterns that are more similar to

that of the native English group, with high percentages on the three grammatical conditions

and lower acceptance on the ungrammatical *Any...NEG condition, but in the latter condition.

The L2 group's mean acceptance percentage is considerably lower than that of the two L3

groups.

Regarding the L2 beginner group, which is included as a comparison group for

establishing what transfer from Spanish could look like, the expected transfer pattern of non-

target-like low acceptance in both the Question and Conditional conditions (as well as target-

like acceptance of NEG…*any* and rejection of **Any*…NEG) is not attested in full, due to high

acceptance in the Question condition. We explore reasons for this specific pattern in the

Discussion. As a whole, the descriptive results from the learners point towards some trends

with respect to transfer and development: acceptance patterns by the L3 groups are different

from the L2 groups, while within the L3 groups, there appears to be little difference between

the early and late groups. To explore these findings further we conducted generalized linear

mixed effects logistic regression analyses of the learner data, using the lme4 package (Bates,

Maechler, Bolker & Walker, 2015) in the R environment (R Core Team, 2016). We analysed

the beginner data and advanced data separately, because it is clear from the descriptive

statistcs that the two levels differ from each other. Each model tested the effects and

interaction of Condition (Question, Conditional, NEG...*any*, and *Any*...NEG) and Background

(L2, L3 Early, L3 Late) on the learners' acceptance judgements (coded 1 for "accept" and 0

for "reject"). We included random by-participant and by-item intercepts, and participant-by-

condition random slopes.[16] We set NEG...*any* and L2 as the reference levels for the omnibus

models, and ran simultaneous multiple comparisons of the different levels in order to produce

those comparisons not provided in the output of the omnibus model. We used the multcomp

package (Hothorn, Bretz & Westfall, 2008) to run between-group comparisons for each

condition. Details of the statistical analysis in the omnibus models are provided in Table 9.

Table 10 summarises the between-group comparisons by condition.

Table 9. Generalized mixed effects models for beginner and advanced levels

	Beginner Level			Advanced Level		
	Odds ratio	CI: LL, UL	*p*	Odds ratio	CI: LL, UL	*p*
(Intercept) (NEG...*any*–L2)	3.44	1.87, 6.32	<0.001	2.06	5.75, 7.39	<0.001
Any...NEG	0.11	0.04, 0.24	<0.001	9.46	0.01, 7.47	<0.001
Conditional	0.15	0.06, 0.04	<0.001	3.85	0.08, 1.69	0.206
Question	2.51	0.88, 7.04	0.083	3.03	0.29, 3.11	0.350
Early L3	0.65	0.31, 1.41	0.282	2.89	0.08, 1.69	0.062
Late L3	0.87	0.41, 1.85	0.725	5.85	0.16, 2.09	0.411
Any...NEG:Early L3	7.44	2.55, 21.69	<0.001	7.87	8.51, 7.29	<0.001
Conditional:Early L3	5.68	1.95, 16.48	0.001	4.88	1.14, 2.07	0.032
Question:Early L3	0.75	0.21, 2.65	0.657	6.11	0.08, 4.64	0.632
Any...NEG:Late L3	8.09	2.83, 23.13	<0.001	2.99	3.51, 2.56	0.002
Conditional:Late L3	4.39	1.56, 12.32	0.005	1.28	0.32, 5.05	0.726
Question:Late L3	1.11	0.31, 4.04	0.874	1.39	0.17, 1.12	0.755

Note. CI = confidence interval, LL = lower limit, UL = upper limit.

Table 10. Between-group comparisons by condition

	Beginner		Advanced	
	Odds ratio	*p*	Odds ratio	*p*
Question				
L2 vs. L3 Early	0.93	0.195	0.17	0.070
L2 vs. L3 Late	0.91	0.957	0.81	0.836
L3 Early vs. L3 Late	1.97	0.200	1.53	0.108
Conditional				
L2 vs. L3 Early	3.71	<0.001	1.41	0.260
L2 vs. L3 Late	3.86	<0.001	0.75	0.549
L3 Early vs. L3 Late	1.03	0.932	0.53	0.586
NEG…*any*				
L2 vs. L3 Early	0.66	0.282	0.28	0.062
L2 vs. L3 Late	0.87	0.725	0.58	0.411
L3 Early vs. L3 Late	1.34	0.444	2.03	0.247
***Any*..NEG**				
L2 vs. L3 Early	4.85	<0.001	22.62	<0.001
L2 vs. L3 Late	8.01	<0.001	17.46	0.002
L3 Early vs. L3 Late	1.44	0.283	0.77	0.696

Note. Shading highlights significant p-values (alpha <.05). The p-values reported are not corrected for multiple comparisons.

Table 10 shows that, between the L3 groups, there were no significant differences on any condition at beginner or advanced level. However, the differences between the L3 and L2 groups already noted in the descriptive results are significant. Specifically, in the Conditional condition, the beginner L3 groups' odds of acceptance are 3.71and 3.86 times higher than the L2 group; while at advanced level there is no difference between L2 and L3. In the *Any*...NEG condition, the L3 groups show less target-like perfomance at both beginner and advanced level. Their odds of acceptance for the L3 beginner groups in this condition are at least 4.85 times higher than for the L2 beginner group. In the advanced groups, the odds of acceptance are at least 17.46 higher than the L2 group.

Summary

Three key findings emerge from the results. First, a different response pattern was found in the L2 beginner group compared with the two L3 beginner groups. Specifically, the L2 beginners had target-like acceptance patterns on all but the grammatical Conditonal condition, whereas the L3 groups had target-like acceptance on all but the ungrammatical *Any*…NEG condition. Second, the advanced L2 group attained a target-like high level of acceptance on the grammatical Conditional, whereas in the L3 group, non-target-like acceptance of the

ungrammatical *Any…NEG condition persisted in over one third of the responses. Finally,

the early and late L3 groups demonstrated virtually indistinguishable response patterns within

each proficiency level.

Discussion

In this section, we discuss our results in relation to the hypotheses, and then build on this to

view them in the broader context of L3 acquisition.

Transfer at the initial stages

Hypothesis 1 proposed transfer from Spanish, predicting that the lower proficiency L2

and L3 groups would accept *any* only in the NEG...*any* condition. Further, it predicted that

higher proficiency learners would additionally show acceptance of *any* in questions and

conditionals. As already observed, our beginner L2 group demonstrated the predicted pattern

on three of the conditions (NEG…*any* *Any…*NEG, and Conditional). However, the group

demonstrated target-like high acceptance of *any* in questions, which is not predicted by

transfer from Spanish. We account for this success in the Question condition as an effect of

classroom instruction about *any*. As already noted, textbook instruction on *any* typically

points out that *any* should be used in questions and negated sentences. A comprehensive

review of English language instruction materials (including some used in the language

schools where our L3 participants were tested) by Gil et al. (2017) found no instruction on, or

examples of, *any* in conditionals in printed textbooks, and just one example on an online

English grammar website. However, all textbooks included instruction about *any* in questions and negation, along with practice exercises. Taking this into account, we assume that the beginner L2 group's pattern across the four conditions is indeed a reflection of L1 transfer along with knowledge from instruction.[17] This means that Hypothesis 1—and consequently the L2 Status Factor model—is not supported: both the early and late beginner L3 groups had strikingly, and statistically signficantly, higher acceptance of the Conditional condition and the ungrammatical *Any*...NEG condition than the beginner L2 group (L3: > 68%; L2: <40%).[18] The L3 groups' acceptance rates thus do not appear to come from transfer from their L2 Spanish. This renders the Hypothesis 1 prediction for higher proficiency learners irrelevant to the L3 groups because it assumes transfer from Spanish. However, for the advanced L2 group, the prediction that they will accept (questions and) conditionals—in contrast to the beginners—is upheld: the advanced L2 group has 86.01% acceptance of conditionals compared with only 39.77% by the beginner group.

Hypothesis 2 is based on transfer from Catalan. The lower proficiency L3 learners are predicted to accept all four conditions including the ungrammatical *Any*...NEG condition due to transfer from Catalan. Further, the non-target-like acceptance of *Any*...NEG is predicted to persist in the higher proficiency group. This hypothesis is supported. The beginner L3 groups both had acceptance rates of >68% for all four types, and, as already noted above, these rates were significantly higher than those of the L2 beginners on the Conditional and *Any*...NEG conditions—as predicted if the L2 group's performance reflects

transfer from Spanish and the L3 group's reflects transfer from Catalan. Turning to the advanced L3 groups: their acceptance rates on the *Any*...NEG condition are considerably more target-like (i.e., lower) than those of the beginner group, at 25.92% (late) and 35.23% (early). However, these rates are signficantly higher than that of the advanced L2 group (6%), and they are the only acceptance rates that differ significantly between advanced L3 and advanced L2. Persistence of an effect of transfer from Catalan is a plausible explanation of ths difference.

Hypothesis 3 tested the CEM, predicting that the beginner L3 learners would demonstrate target-like performance on all four conditions. As already noted, the beginner L3 group had a high rate of non-target-like acceptance of *Any*...NEG, therefore the CEM hypothesis is not supported.

Taken together, the results of Hypotheses 1–3 support an L1-transfer account of our L3 data. They are compatible with either an absolute L1 transfer account, or with the TPM if there are grounds for proposing that learners might perceive Catalan, rather than Spanish, as structurally closer to English. Rothman (2013, 2015) proposes a hierarchy of linguistic cues that might trigger transfer of one previously acquired grammar to the L3 interlanguage (29):

    29. Lexicon → Phonological/Phonotactic Cues → Functional Morphology → Syntactic
         Structure

Although Catalan and Spanish are similar to each other on all the measures in (29) due to being closely related Romance languages, we speculate that phonological and phonotactic cues could lead to perception of Catalan as closer to English than Spanish. Catalan has more monosyllabic words and a wider range of word-final consonants than Spanish, making it more similar to English in this respect. In terms of rhythm properties, Catalan has been classified as an "intermediate" language (Nespor, 1990) due to it exhibiting properties of both stress-timed languages (such as English) and syllable-timed languages (such as Spanish). Prieto et al. (2011) conducted an acoustic analysis of Catalan, Spanish and English in order to identify how Catalan's intermediate status manifests itself, and a key result was that, phonotactically, Spanish and Catalan are in fact similar to each other and different from English, but phonologically, Catalan has a vowel reduction process not found in Spanish. English also has vowel reduction, although Prieto et al. find that the vowel reduction in Catalan is unlike that of English. They point out, however, that there are no perceptual studies of how acoustic cues map onto auditory impressions. Such research would help to determine whether the subtle phonotactic and phonological differences among Catalan, Spanish and English could really result in learners perceiving English as more similar to Catalan than to Spanish. At present, we can conclude that there is suggestive evidence of phonology as a potential cue to motivate transfer of Catalan to the L3-English interlanguage of L1-Catalan L2-Spanish speakers, though empirical testing is needed to find out whether the perceptual differences are really attested. If so, our data are would support the TPM.

Turning to Hypothesis 4, the prediction here aimed to shed light on whether the age of

onset of acquisition of the L2 has an effect on transfer into the L3. The null hypothesis was

confirmed: no significant difference was found at beginner (or advanced) level on any

condition, between the early and late L3 groups. Specifically, both early and late beginner

groups appeared to demonstrate transfer from Catalan. This suggests that, at least as far as

acquisition of the distribution of *any* in the present L3 population is concerned, transfer in L3

acquisition is not qualitatively affected by whether the L2 is begun before or after age 7.

However, we note that we have tested an L3 population from a country where the L2

(Spanish) is the majority language, even if it is the minortity language in the specific location

of our L3 data collection. Therefore we cannot rule out that our late L3 particpants could have

had passive exposure to Spanish even before age 7. If they did, this would blur the Early/Late

distinction, and would render the lack of difference between the two groups unsurprising.

Further research that contrasts a bilingual-from-birth group with a group whose "late" L2 is

not a local language, could shed light on whether this finding applies more generally.

Development

We focus now on the development seen between beginner and advanced level in the

conditions where the groups had to overcome non-facilitative transfer: *Any*...NEG for the L3

groups and Conditional for the L2 group. In the advanced L2 group, the level of acceptance of

the Conditional condition (86.01%) has increased to close to the levels of acceptance of the

other two grammatical conditions (Question, 85.22%, NEG…*any*, 70.37%). However, in the

advanced L3 groups, while non-target acceptance of *Any…NEG is considerably lower than in the beginner L3 groups, it still amounts to just over a third of the responses on this condition. Moreover, this condition was the only one in which the advanced L3 groups were signficantly different from the advanced L2 groups: specifically, the L3 groups' acceptance rates on *Any…NEG were signficantly higher than that of the L2 group. It seems that acquisition of target acceptance on *any* in conditionals is easier for L1-Spanish L2-English speakers than rejection of *Any…NEG for L3 English speakers. This is as predicted under our feature based account of the acquisition tasks assuming transfer from Spanish in the L2 group and transfer from Catalan in the L3 group. Recall that when the Spanish grammar is transferred, the acquisition task involves deletion of the negative value of the [uPol:neg] feature transferred from Spanish n-words. We argued that evidence to motivate such restructuring should be plentiful via instances of *any* in questions and other non-negated structures. However, if transfer occurs from Catalan, the feature specification transferred from *res* to *any* will yield the target, unspecified [uPol:__] feature, but in addition, transfer of the two lexical entries for the Catalan negation morpheme *no* may yield a target and a non-target representation of English *not*, bearing [iNEG] and [uNEG] features, respectively The acquisition task here involves deleteing $not_{[uNEG]}$ from the interlanguage grammar. As argued above, evidence to motivate such restructuring is likely to be considerably less salient than in the transfer-from-Spanish case. The relevant evidence would involve noticing that *any* and the negative quantifer *no* do not precede negation. Such negative evidence cannot occur in regular

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input; nor is it covered in instructional materials, although it could arise via error correction. In short, the evidence to motivate the proposed reconfiguration of the Catalan-influenced interlanguage grammar is considerably less abundant than in the Spanish–English case. That the difference betweeen the advanced L2 and L3 groups is as predicted under our account of the respective acquisition tasks when transfer is from Spanish in the L2 group but Catalan in the L3 further supports the proposal that transfer occurred from Catalan in the L3 group.

Concluding remarks

The key contribution of this paper is to provide evidence about the source of transfer in L3 acquisition from a rarely researched perspective: namely one in which the L1 and L2 are typologically very similar. Our findings are compatible with either an absolute L1 transfer account or with the TPM, with the caveat, in the latter case, that the tentative argument for perception of Catalan rather than Spanish as structurally closer to English requires further testing. They provide evidence against the L2 Status Factor account and against the CEM. Given considerable evidence from other studies (cited in the introduction) that transfer in L3 acquisition can also occur from the L2, we suggest that an account along the lines of the TPM, that allows for transfer from any previously acquired language, is more feasible across the full range of L3 data than the strong claim of an absolute L1 transfer approach. However, as noted in the introduction, two very recent L3 models offer additional possibilities for transfer from both L1 and L2: Slabakova's (2016) Scalpel Model and Westergaard et al's (2016) LPM.

Both argue, contra the TPM, that transfer does not occur wholesale from a single previously

acquired language at the initial state, but rather may occur from either the L1 or the L2 or

both, on a property-by-property basis during the course of L3 acquisition. Our experiment

does not allow us to differentiate between the TPM and the Scalpel Model or the LPM. An

extension of the current study that could help to shed light on the issue would be to investigate

other properties that differ between Catalan and Spanish, with the same L1-Catalan L2-

Spanish L3-English population. If transfer on any given property occurs from Spanish rather

than from Catalan, then, taken together with the evidence of transfer from Catalan in the

present study, this would support an account along the lines of the LPM or the Scalpel Model,

rather than the TPM.

Finally, our comparison of early versus late bilinguals yielded no effect of age of

acquisition of the L2 on L3 development. This corroborates Rothman's (2015) preliminary

findings in this regard, but further research on different language combinations, different

linguistic phenomena, and with L2 acquisition occurring at different ages will shed light on

whether the timing of L2 acquisition is always neutral with regard to transfer in L3

acquisition.

Notes

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[1] We follow Tubau (2008) in glossing Catalan *res* and Spanish *nada* as "n-thing" rather than "nothing" or "anything" since these words can have either English translation, depending on the context.
[2] Laka (1990: 150) coined the term "n-word" to describe words that behave both as negative polarity items and as universal negative quantifiers.

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[3] *Any* can also function as a "free choice item" with a universal quantifier sense as in *Anyone can learn to do this*, where *anyone* has the interpretation of "every person" (Dayal 2005; among others). Investigation of this free choice use is excluded from the present paper.

[4] However, double negation is common in non-standard varieties of English, where an utterance such as *I didn't say nothing* means "I didn't say anything". This has long been attested and is a topic of ongoing research (Labov, 1972; Tubau 2008, 2016).

[5] In particular, Tubau's proposal makes extensive use of Embick and Noyer's (2007) Distributed Morphology framework, which we do not discuss here. We refer the reader to Tubau (2008) for details.

[6] Tubau (2008) suggests that in certain contexts such as a subjunctive dependent one the [uPol:_] can also be valued as [uPol: Modal] by the Polarity head of the matrix clause.

[7] Another study that investigates non-native acquisition of *any* is Marsden et al. (2017), but this study does not investigate transfer, therefore the findings do not bear on this issue.

[8] Table 2 showed that Catalan and Spanish also differ from English in terms of phase structure and PF operations. However, to test for these two properties would require evidence from English negative quantifiers as well as from *any*. The present experiment focused only on *any*, therefore we leave these properties aside.

[9] We do not include predictions based on the Scalpel Model or LPM, outlined in the Introduction, as these models had not been proposed at the time of designing the present study. We return briefly to these models in the discussion.

[10] No L1-Catalan L2-English group is included because such a population does not exist due to L1-Catalan speakers all learning Spanish as their L2.

[11] The experiment reported here is an expansion of one part of a larger project by Puig-Mayenco (2014).

[12] A question about age was omitted from the background questionnaire, by error. From the language schools, we know that all participants were adults (age 18+) and the L3 learners were age 18–35. Our mixed effects model analysis of the results, reported below, incorporates random effects for participants, therefore effects of age should be accounted for in the model.

[13] The other four conditions comprised four tokens each of *any* in a declarative (e.g., **I have already eaten anything today*), *any* with an implicitly negative verb (e.g., *I doubt he will say anything*) and a nonfactive verb (**Peter believes that John knew anything about it*), and *nothing* with negation (*If you arrive late you will not see nothing*).

[14] In the Question condition, one of the four tokens was included twice, by error, resulting in just three unique tokens. Responses to the second instance of the duplicated token were not included in the analysis.

[15] This method means that we do not retain a measure of the difference between *very natural* and *natural* or *not natural* and *not natural at all*. As noted above, these options were included as a means of facilitating selection of informative responses in the learners. We assume that, whether a participant selects "natural" or "very natural", the instinct to accept the item is based on the same underlying linguistic knowledge, and the differentiation between the two options is due to extralinguistic factors such as confidence. For our hypotheses, we require a measure of acceptance or rejection, regardless of the strength of such an instinct.

[16] We attempted to fit item-by-condition random slopes but could not achieve model convergence. The model reported is the closest to a maximal model that we could obtain.

[17] This raises the complex question of how exactly knowledge from instruction can interact with unconsciously acquired knowledge. It is beyond the scope of this paper to go into this question here. See Marsden et al (2017) for relevant discussion relating to L2 acquisition of *any*.

[18] A reviewer queried whether our results could, in fact, be interpreted as L2 transfer, if the L2 Spanish of our participants were influenced by their Catalan, so that their Spanish-interlanguage n-words behaved the same as Catalan n-words. Since we did not test the L3 learners' L2 Spanish, we cannot rule this possibility out. However, in two separate investigations of n-words in Catalan and Spanish, similar Catalan-Spanish bilinguals are shown

to have distinct, language-specific representations for n-words, measured through processing tests. (Puig-Mayenco et al., under review) and interpretation tests (Puig-Mayenco, in progress).

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