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The acquisition of English active and passive monotransitive constructions by English-Spanish simultaneous bilingual children

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Abstract

Aims and Objectives/Purpose/Research Questions
We examine the acquisition of English active and passive monotransitives by English-Spanish bilingual children. These data are compared to English monolinguals from previous studies (e.g., Stromswold, 2005). We explore whether bilinguals and monolinguals show similar onset patterns given the shared grammatical properties of actives in the bilinguals' two languages; and whether they differ in the onset of passives given the grammatical properties in English (canonical DP-movement) and Spanish (canonical DP-movement and *se*-passives). We also investigate the role played by adult input in child output.

Design/Methodology/Approach
We analyze the spontaneous production data from eight English-Spanish bilinguals (ages: 1;01 to 6;11), and the adults that interact with them.

Data and Analysis
We perform a double analysis: (i) the onset of these structures in the spontaneous production of bilinguals to determine whether emergence patterns differ from those of monolinguals; and (ii) their incidence through language development to focus on production frequency.

Findings/Conclusions
Bilinguals start producing passives at the age of 3, later than actives that emerge at the age of 2, akin to English monolinguals (e.g., Marinis, 2007). This acquisition order effect is also seen in the lower incidence of passives when compared to actives in the two child groups. The distributional properties of the two passive types do not seem to have interfered in the bilinguals' acquisition of the English passive type, causing delay. These data suggest that the emergence and the incidence of the two constructions in bilinguals and monolinguals could be explained by the DP-movement maturation (Borer & Wexler, 1987) and/or adult input effects given the adults' lower frequency of exposure to passives with respect to actives.

Originality
This is the first study that addresses bilingual acquisition data and compares child output to adult input.

Significance/Implications
It contributes to elucidate how the bilinguals' two languages interact in the acquisition and incidence of English actives and passives.

Key words: active, passive, monotransitive, DP-movement, adult input, English-Spanish bilinguals

1. Introduction

The present study is concerned with the acquisition of English active (1) and passive (2) monotransitive structures, as examined in the longitudinal spontaneous data of English-Spanish bilingual children available in the CHIld Language Data Exchange System database (CHILDES, MacWhinney, 2000). These data are compared to English

monolinguals, as reported by previous studies (e.g., Akhtar, 1999 in active monotransitives; Stromswold, 2005 in passives). In particular, this study explores two main issues: potential crosslinguistic effects from Spanish into English (or lack thereof) in the acquisition of English active and passive monotransitive constructions; and adult input effects in the children's incidence of the two structures under analysis.

(1) I had it [active monotransitive; Leo, 6;03, the FerFuLice corpus][1]

(2) They$_i$ got picked t_i [passive monotransitive; Leo, 3;03, the FerFuLice corpus]

According to this framework, the present study adopts the generative grammar approach (Chomsky, 1981, 1986), both as far as the syntactic analysis of English active and passive monotransitive constructions (see section 2) and the acquisition of passives in the child grammar with regards to the Maturational Hypothesis (Borer & Wexler, 1987) (see section 3).

In the active monotransitive (1), the verbal head 'had' selects an internal argument, the direct object 'it', and the external argument 'I'. Both arguments adopt a determiner phrase (DP) form. In the formation of the passive monotransitive (2), the DP 'they' base-generates in post-verbal position and undergoes DP-movement (also known as object-to-subject Argument-movement to preverbal-subject position to satisfy Case filter requirements (Chomsky, 1981; Riddle & Sheintuch, 1983). More specifically, the past participle 'picked' is not able to assign Case to its adjacent DP 'they'. Thus, in order to avoid Case filter violations, 'they' undergoes movement to subject position so that it can receive nominative Case from the inflected verb 'got'. This movement also conforms to the Extended Projection Principle[2] (Chomsky, 1981) so as to guarantee the overt realization of DPs in subject position.[2] As will be discussed in section 3, DP-movement has been hypothesized to be the syntactic mechanism that causes delay in the acquisition of English passives when compared to active monotransitives, complying with the Maturational Hypothesis (Borer & Wexler, 1987).

Considering these bilingual children's two grammars, while the grammatical properties of active monotransitive constructions are shared by English and Spanish, the syntactic properties of passive constructions differ across the bilinguals' two languages. In the case of Spanish, as it is so for English in (1), in the active monotransitive in (3a), the DP 'esta reunión' ('this meeting') undergoes movement from a post-verbal position to a pre-verbal position to satisfy Case filter conditions (Chomsky, 1981).

(3) a. El presidente convocó esta reunión
the president call out.3p.sg.past this meeting
'The president called out this meeting' [active monotransitive]

b. [Esta reunión]$_i$ fue convocada t_i por el presidente
This meeting was call out.3p.sg.past. by the president
'This meeting was called out by the president' *[passive monotransitive]*

In spite of the apparent similarity between English passives (2) and Spanish passives (3b), two important differences appear: Spanish passives are not as productive as English ones; and Spanish exhibits alternative constructions that are absent in English and that are favored over passives per se (e.g., impersonal *se*-passives; Snyder et al., 1995; Snyder & Hyams, 2015). In Spanish impersonal *se*-passives (4), the DP 'esta reunión' ('this meeting') does not occupy the subject position but a left-peripheral topic position. These constructions, however, are not a case of object-to-subject movement since the superficial order of the pre-verbal DP denotes specific informational properties of the topicalized subject (Snyder & Hyams, 2015). Furthermore, the verb bears active morphology as opposed to the passive one that English exhibits and that infrequent real passives have in Spanish (examples 1 and 3b above).

(4) Esta reunión se convocó por el presidente
this meeting se.pron. call out.3p.sg.past by the president
'This meeting was called out by the president'

Se-passives could constitute a locus of delay as they constitute a divergent point across the two languages of the bilingual: while in English, the bilingual has to learn just one construction (DP-movement passives), in Spanish the bilingual has to learn not only two constructions (DP-movement passives and *se*-passives) but also their respective distributional properties.

In this context of crosslinguistic differences and similarities, the first issue that we explore is whether English-Spanish bilingual children reflect analogous patterns to English monolinguals with regards to the acquisition of English active and passive monotransitive constructions; or, whether English-Spanish bilinguals differ from their English monolingual peers in the emergence of the two structures under analysis. If

English-Spanish bilingual children follow monolingual-like emergence patterns (e.g., Akhtar, 1999; Akhtar & Tomasello, 1997 in active monotransitives; Marinis, 2007; Stromswold, 2005 in passives), they are expected to show a similar order in the ages of first occurrence of the two constructions at stake, namely, both child groups will show a later onset of passives when compared to active monotransitives as a result of maturation of the former when compared to the latter, conforming to the Maturational Hypothesis (Borer & Wexler, 1987). Such a maturational process will be determined by the higher syntactic complexity that passive constructions present when compared to active monotransitive structures, as triggered by DP-movement (Chomsky, 1981). The syntactic formation of active monotransitive constructions is not determined by DP-movement and, thus, their acquisition is expected to occur earlier than passive structures. This outcome will be in line with that found for their English monolingual peers (Akhtar & Tomasello, 1997; Meints et al., 2008), as per the Autonomous Development Hypothesis (Paradis, 2001; Paradis & Genesee, 1996; Yip & Matthews, 2007).

Alternatively, the interaction of the English-Spanish bilingual children's two grammars could also interfere in the acquisition of the two constructions under investigation as a result of the potential crosslinguistic influence from Spanish into English. Hence, two scenarios could emerge in this respect. In the case of English active monotransitive constructions, English-Spanish bilinguals are expected to show a pattern similar to English monolinguals in the concurrent acquisition of these constructions given the analogous grammatical properties across English and Spanish; therefore, crosslinguistic influence is not expected to occur from Spanish into English in the bilinguals' acquisition of English active monotransitives. However, and in line with the Interdependent Development Hypothesis (Meisel, 2004; Paradis & Genesee, 1996), the acquisition of English passive constructions is expected to be delayed in the English-Spanish bilinguals when compared to their English monolingual peers since the grammatical properties of these structures differ across the bilinguals' two languages. This would be the case since English-Spanish bilinguals have to learn the new grammatical rules that underlie the use of English passive constructions, some of which do not correspond to the passive constructions in Spanish, as will be discussed in section 2.

The second issue that the present study explores is whether the English-Spanish bilingual children's incidence of the two target constructions through language development is determined by adult input effects. Considering that the English-Spanish

bilinguals are exposed to an input that follows the one-parent one-language strategy (Ronjat, 1913), the children's output is predicted to be in line with the adults' speech regarding the lower use of passives and the higher use of active monotransitives, akin to English monolinguals (Abbot-Smith & Tomasello, 2006; Bybee & Hopper, 2001; Tomasello, 2003). Nonetheless, the simultaneous exposure to two languages from birth could interfere in the English-Spanish bilingual children's incidence of English active and passive monotransitive constructions. Based on this scenario, the one-parent one-language strategy might not be playing a role in the child output, making bilinguals differ from monolinguals. Rather, the English-Spanish bilingual children's other language (namely, Spanish) could be the source of interference in the incidence of the two constructions. This is so specifically with regards to the production of passives given the differences in the use of Spanish passives (less productive) and English passives (highly productive (e.g., Snyder & Hyams, 2015) these children are exposed to in the adult input.

The acquisition patterns observed in the English-Spanish bilingual children examined in the present study will then be compared to those in English monolingual ones, as analyzed by previous acquisition studies in the field (Abbot-Smith & Tomasello, 2006; Borer & Wexler, 1987; Stromswold, 2005). In other words, this study compares the analysis carried out on the English-Spanish bilingual children selected from CHILDES to the results from monolinguals as reported in the literature (see section 3).

Our study will shed light on how the two languages of the English-Spanish bilingual children interact in the case of the acquisition and incidence of English active and passive monotransitive structures. To our knowledge, it is the first empirical study that addresses bilingual acquisition data, compares child output to adult input and considers the developmental stages regarding English-Spanish bilingual child production.

The present paper is organized as follows. Section 2 discusses earlier formal studies on active and passive monotransitive structures. Section 3 reviews previous empirical studies on the emergence of the two constructions under investigation. Section 4 presents the study and formulates the research questions that will guide the data analysis (section 4.1), the selection of participants (section 4.2), the data extraction and the codification criteria of the target structures (section 4.3), the findings obtained from English active and passive monotransitive in English-Spanish bilingual child data (section 4.4) and the discussion of the main results in light of the research questions formulated (section 4.5). The conclusions and the suggestions for further study are presented in section 5.

2. Formal studies on active and passive monotransitive constructions

Within the framework of generative grammar (Chomsky, 1981, 1986), passive monotransitive structures are argued to derive from their active monotransitive counterparts via a syntactic mechanism known as DP-movement. Thus, the remainder of this section is concerned with the transformational rule that accounts for passive movement.

From a semantic approach, DP-movement or passive movement imply that theta roles are rearranged when compared to their distribution in the active monotransitive structure (Klammer et al., 2010), conforming to the Uniformity of Theta Assignment Hypothesis (Baker, 1988).[3] As in (5a), the agent theta role 'someone', functioning as the subject in the active monotransitive structure, is moved to an adjunct position in (5b), headed by the preposition 'by'. Furthermore, the patient theta role 'them', functioning as the direct object in the active monotransitive structure (5a) becomes the subject patient in the passive (5b). In other words, while the subject is an actor that performs the verbal action in the active monotransitive structure, the subject passively undergoes the verbal action in the passive monotransitive construction, hence, the performer of the action is de-emphasized as a by-phrase (Klammer et al., 2010). Therefore, although the syntactic arguments are rearranged in the formation of the active monotransitive constructions (namely, subject+verb+direct object) and of the passive constructions (namely, subject+verb+by-phrase), they are assigned analogous theta roles in the two constructions. That is, the direct object in the active construction is the same constituent as the subject in the passive and, given that the semantic relationship in the two constructions is the same, the object receives a shared theta role (namely, patient) in the active and in the passive.

(5) *a.*	*Someone*	*picked*	*them*	[active monotransitive]
	agent		patient	[thematic role]
	subject		direct object	[grammatical function]
	nom.		acc.	[syntactic case]
b.	*They$_i$*	*got picked*	*t_i* *(by someone)*	[passive monotransitive]
	patient		agent	[thematic role]
	subject		adjunct	[grammatical function]
	nom.		dat.	[syntactic case]

DP-movement and, therefore, the derivation of passive from active monotransitive constructions is motivated by Case theory (Comrie, 1988; Haegeman & Guerón, 1999).[4]

While in languages such as German and Japanese Case is morphologically overt by means of inflections and particles, respectively, in the case of English, Case morphology of DPs is not typically visible. However, nominal arguments in English meet the Case filter conditions to ensure the distribution of overt DPs in a phrase or in a clause domain (Chomsky, 1986).

Case is assigned to DPs under government conditions.[5] This guarantees that nominal arguments are marked by their corresponding syntactic functions such as subject, direct object and adjunct in active and in passive monotransitive structures. In other words, a DP 'A' governs a DP 'B' if, and only if, (a) A is a head; (b) A c-commands B (namely, if a head A is an immediate adjacent complement to B); (c) there is no intervening governor of B such that A c-commands the governor of B; and (d) A is a governor, namely, prepositions, tense, verbs and verbal inflections.

As for the structures examined in the present study, and as illustrated in (6) and (7), the direct object 'them' in the active monotransitive structure (6) base-generates as the internal argument of the verbal head in the passive monotransitive construction (7). Given that the verbal inflection 'picked' is not able to assign accusative Case to its adjacent argument 'they', the DP 'they' undergoes movement to subject position so that it can receive nominative Case from the inflection 'got'. As a result of this DP-movement, 'they' leaves a trace 't_i' in its base position. In turn, the preposition 'by' assigns dative Case to its adjacent argument 'someone'. Therefore, both constituents, namely, the subject and the adjunct, meet the Case filter conditions in the passive monotransitive structure (Chomsky, 1986). To put it differently, DP-movement is Case- and theta role-driven under locality[6] and government requirements.

While the agent-subject in the active monotransitive is obligatory, the agent passive (that is, the by-phrase) is optional in passive monotransitive structures (6) and does not render the structure ungrammatical (Comrie, 1988).

(6) They got picked

Therefore, the syntactic complexity between active and passive monotransitive structures is measured in terms of the DP-movement and the Case-marking properties that characterize and differentiate the verbal subcategorization framework of the latter when compared to the former, as well as the rearrangement of theta roles in the derivation of passive monotransitive constructions from their active counterparts. The present study

aims to elucidate how the two constructions are acquired, as analyzed in the longitudinal spontaneous production of English-Spanish bilingual children by comparing the age of first use[7] and the incidence through language development across the two participant groups (child output and adult input).

3. Empirical studies on the acquisition of active and passive monotransitive constructions

As previously discussed in the introduction of this paper, the English-Spanish bilinguals' acquisition of active and passive monotransitive constructions is compared to English monolinguals by examining the results reported by earlier empirical studies. Although these previous studies have not investigated the English monolinguals' acquisition of active and passive constructions in longitudinal spontaneous production data (except for Pinker et al., 1987), the elicited experimental and comprehension data available in earlier studies (Akhtar & Tomasello, 1997; Meints et al., 2008) will serve as the basis of comparison with the English bilingual children's data analyzed. Our aim is to shed light on whether English-Spanish bilingual children exhibit an analogous acquisition pattern to English monolinguals; or whether their other first language (namely, Spanish) plays a role in the acquisition of the two constructions under investigation making bilinguals differ from monolinguals. Our study will contribute to fill the gap in bilingual acquisition research since there are no studies that have examined how (English-Spanish) bilingual children acquire English active monotransitive structures when compared to passive monotransitive constructions and, therefore, the data reported in previous English monolingual studies have not been compared to English-Spanish bilingual data. The following paragraphs provide a review of the findings reported in previous experimental studies on the English monolingual children's age of first occurrence of active and passive constructions, which opens a dialog between the literature and the English-Spanish bilingual corpora analyzed in the present study.

As shown in Table 1, previous experimental studies on the age of onset of active monotransitive constructions have reported that English monolingual children do not start producing these constructions until the ages of 3;00 or 4;00 (Matthews et al., 2005; Pinker et al., 1987).

Table 1. *Mean age of the onset of English monotransitives in monolingual experimental studies*

Empirical studies	Age of onset
Abbot-Smith et al. (2001)	4;00
Akhtar (1999)	4;00
Akhtar and Tomasello (1997)	3;05
Chan et al. (2010)	2;09–3;05
Matthews et al. (2005)	3;09
Meints et al. (2008)	3;00
Pinker et al. (1987)	3;00–4;00

All the experimental studies summarized in Table 1 observe that active monotransitive constructions emerge gradually in the English monolingual child's language development and the frequency of exposure to these structures in the adult input facilitates their access in the child's grammar (Matthews et al., 2005). There are no empirical studies that have investigated the onset of English active monotransitive constructions in child spontaneous production data.

Similar to the results discussed above with elicited production data, Slobin and Bever (1982) also confirm that the English monolinguals' onset of active monotransitives does not occur before the age of 3;00, as analyzed in comprehension data. More specifically, they observe that English monolingual children do not comprehend the subject-verb-direct object constituent order at the age of 2;00. These findings suggest that the acquisition of these constructions depends on how the child interprets and integrates the semantic cues so that these constructions can become productive in the child's speech.

As illustrated in Table 1, previous English monolingual experimental studies have reported that an adult-like grammatical use of active monotransitive constructions has not been attested until the English monolingual child becomes between 2;09 and 4;00 years old (Abbot-Smith et al., 2001; Akhtar, 1999; Chan et al., 2010; Matthews et al., 2005; Meints et al., 2008; among others). In the case of Akhtar and Tomasello's (1997) study, while English monolingual children who are younger than 3;05 do not use new (or novel) monotransitive verbs (namely, 'meek' and 'tam') in a monotransitive pattern, children aged 3;05 and older use them transitively.

In Matthews et al.'s (2005) study, 96 English monolingual children, aged 2;09 and 3;09, are asked to watch videos that display events modelled in the ungrammatical subject-verb-direct object constituent order (push, ram, shove) and they are later elicited to describe the event shown. Results reflect that English monolingual children aged 2;09 who do not receive a higher exposure to these verbs adopt the ungrammatical monotransitive pattern when compared to high frequency verbs ($X^2 = 14$, $d.f. = 2$, $p < 0.001$). Contrastingly, children aged 3;09 show a preference for the use of the subject-

verb-direct object pattern, regardless of the verbal frequency of exposure ($X^2 = 1.2$, *d.f.* = 2, $p < 0.056$).

Analogous results to those reported by Matthews et al. (2005) are seen in Akhtar's (1999) experimental study on the productivity of English active monotransitive constructions with novel verbs. In this study, English monolingual children aged 2;00, 3;00 and 4;00 are introduced to three novel verbs, namely, dacking, gopping and taming, and are asked to model them in three syntactic constituent orders, namely, subject-verb-direct object (7a), subject-direct object-verb (7b) and verb-subject-direct object (7c). The older group shows the adult-like subject-verb-direct object pattern in their speech when compared to the two younger groups where ungrammatical constructions (namely, subject-direct object-verb and verb-subject-direct object) are highly present in their output.

(7) a. Elmo dacking the car
b. Elmo the car gopping
c. Tamming Elmo the car

[Akhtar, 1999, p. 344]

As for the acquisition of passive monotransitive constructions, the Maturational Hypothesis (Borer & Wexler, 1987) predicts that certain grammatical properties of linguistic principles that are common to all human languages (Universal Grammar, UG) are subject to maturation and, therefore, they require time to develop. This is the case of Argument-chains that link an argument (typically, a DP) that has moved via Argument-movement into an argument position. Such a DP-movement (see section 1) results in the formation of passive constructions (8).

(8) John$_i$ was hit t_i

[Borer & Wexler, 1987, p. 144]

Therefore, the Maturational Hypothesis claims that children possess innate difficulties (as per UG constructs) related to the acquisition of DP-movement constructions and that causes passive constructions not to be available to the child from early on as a result of a maturational process. In other words, Borer and Wexler (1987) argue that children's grammar lacks the mechanism to process the operations required to form an Argument-chain between the underlying direct object and the subject position from the early

acquisition stages and, once the syntactic mechanism that triggers the formation of passives matures, children will be able to form passive constructions.

With regards to experimental studies on the acquisition of passive constructions by English monolinguals (Marinis, 2007; Messenger et al., 2012; Stromswold, 2005), the data reflect that English monolingual children experience a delay in the onset of passive structures until the age of 6;00 as a result of the maturation of the DP-movement, as per the Maturational Hypothesis (Borer & Wexler, 1987). Indeed, Chomsky (1957) claims that transformations such as Argument-movement are hard to comprehend and develop.

Nevertheless, other experimental studies (Crain et al., 2009) and spontaneous production studies (Pinker et al., 1987) do not lend support to the Maturational Hypothesis and argue that English passive constructions are available in the monolinguals' grammar before the age of 6;00. This is reported by Crain et al. (2009) who observe that English monolingual children are able to produce passive monotransitive utterances at 3;04 via an elicitation production task, earlier than the age put forward by the above-mentioned hypothesis. A similar age of first occurrence is observed in child spontaneous production data selected from the CHILDES dataset (MacWhinney, 2000), as evidenced in the study conducted by Pinker et al. (1987). In particular, the results derived from their study reveal opposing findings to the Maturational Hypothesis in that the English monolingual children also begin to produce passives at around the age of 3;00. These results are reported to be the case albeit the children overgeneralize the regular past participle form, as in (9). Therefore, the emergence of passive monotransitives examined in Pinker et al.'s (1987) study involves adult-like utterances and non-adult-like utterances (9), in contrast to the passive structures analyzed in the present study that chiefly focus on the former, as will be discussed in section 4.3.

(9) It's broked

[Pinker et al., 1987, p. 203]

A second dialog this study opens with the English monolingual acquisition literature is whether English-Spanish bilinguals' emergence of English passive and active monotransitive structures is related to adult input effects. Following usage-based models to language acquisition, the higher or the lower relative frequency of exposure to syntactic patterns in the adult input could facilitate or delay their emergence and, in turn, have an impact on their use in the child's output (Abbot-Smith & Tomasello, 2006; Bybee &

Hopper, 2001; Tomasello, 2003). While previous studies have mainly focused on the adult input-child output patterns of active and passive monotransitive constructions in English monolinguals, as will be presented in the following paragraphs, there are no studies, to date, that consider bilingual English. Therefore, the results analyzed in the present study (see section 4.4) are compared against the findings reported by the English monolingual empirical studies discussed below.

Previous studies have reported that English active monotransitive constructions are highly frequent in the adult input and this pattern of use has been observed in the child output. This is seen in Cameron-Faulkner et al.'s (2003) results on the British mother's use of 70 declarative monotransitive syntactic utterances with pronominal forms on average per hour and these rates of use are seen in the English monolingual children's output. Therefore, the higher exposure to these constructions in the adult input has aided their use in the child output when compared to the lower exposure to active monotransitive utterances with full DP forms (Akhtar, 1999). Similar results are observed in Akhtar's (1999) study since English monolingual children aged 4;00 use Case-marked pronouns around 50% of the times when they correct the ungrammatical verb-direct object-subject and verb-subject-direct object constituent patterns to the grammatical subject-verb-direct object pattern with real verbs, when compared to the production of full DPs with a novel ungrammatical active monotransitive pattern. Thus, the frequency of exposure to syntactic constructions in the child-directed speech facilitates the higher use and the early emergence in the children's speech. Adult input also plays a role in Matthews et al.'s (2005) study given that English monolingual children aged 2;09 use the verbs pull and push in subject-verb-direct object constituent order since they are highly frequent in the adult input, when compared to other verbs that show medium frequency (drag and shove) and low frequency (run and tug) of exposure in the adults' speech.

English passive monotransitive constructions have been attested to reflect a low relative frequency of use (Marín Arrese, 1993; Svartvik, 1966; among others) and are rare in the adult input (Demuth, 1989). For example, Svartvik (1966) observes in a corpus of written texts that scientific texts use 32% passive and 5%–7% of these constructions are reflected in novels. Other corpora have also reported that passive constructions are less frequently used than active monotransitive structures, as in the case of Dusková's (1971) study (11.96% passive constructions; 88.04% active constructions) and Givón's (1979) study (9.23% passive and 90.76% active in novels; 18.33% passive and 81.66% active in informative texts). Therefore, the lower exposure to passive constructions in the child-

directed speech may contribute to delays in the acquisition of these structures (Borer & Wexler, 1987). In the present study, we compare the results reported by these previous English monolingual empirical studies to the English bilingual spontaneous production data available in CHILDES (MacWhinney, 2000).

4. The methodology

4.1 Research questions

Considering earlier formal accounts (section 2) and previous empirical studies (section 3) on English active and passive monotransitive constructions and their acquisition, two research questions have been formulated. These research questions aim to shed light on the two main objectives under analysis, namely, how English-Spanish bilingual children's acquisition of the two target structures can be accounted for by crosslinguistic and adult input effects.

The first question addresses the potential crosslinguistic influence from Spanish into English (or lack thereof) in the English-Spanish bilingual children's acquisition of English active and passive monotransitive constructions, as examined in the ages of first occurrence, and explores potential differences or analogous acquisition patterns with English monolinguals. The second question examines the role played by adult input in the English-Spanish bilinguals' output regarding the incidence of the two constructions under investigation and compares the production patterns to their corresponding English monolingual peers.

In order to compare participants, two measures are used so as to elucidate the issues formulated in research questions 1 and 2, respectively: age of first occurrence and amount of production (both overall and developmentally). Age of first occurrence has previously been used as a sensitive measure of grammatical competence when analyzing child production data (Snyder & Stromswold, 1997).[7]

- Research question 1. Is there crosslinguistic influence from Spanish into English (or lack thereof) in the acquisition of English active and passive monotransitive constructions by English-Spanish bilingual children, when compared to English monolinguals?

Two scenarios can occur in this case, both linked in one way or another to the potential effect of crosslinguistic influence from the bilinguals' other first language (namely, Spanish). On the one hand, if the acquisition pattern of bilinguals coincides with that of monolinguals, as per the Autonomous Development Hypothesis (e.g., Paradis, 2001), it could be attributed to the lack of crosslinguistic influence with an interfering effect from Spanish. In this context, the acquisition of English passives is expected to occur later than the emergence of their active monotransitive counterparts in both child groups. That is to say, the order effect in the acquisition of English passive and active monotransitive constructions would be predicted to occur at concurrent ages of onset in bilinguals and monolinguals alike. This would be attributed to the Maturational Hypothesis (Borer & Wexler, 1987) that predicts that certain properties of UG linguistic principles, as it is in the case of DP-movement passive constructions, take time to be acquired in a biological sense given that Argument-chains from object-to-subject position are subject to maturation. This contrasts to the acquisition of English active monotransitive structures that are not formed via DP-movement and, thus, they are acquired earlier than their passive counterparts.

Alternatively, if crosslinguistic influence from Spanish into English occurs in the English-Spanish bilingual children's acquisition of English active and passive monotransitives, we would expect different acquisition patterns from their English monolingual peers. Although the acquisition of English active monotransitive constructions is not predicted to exhibit crosslinguistic influence from the English-Spanish bilingual children's other language (namely, Spanish) given that these constructions share the same grammatical properties in the bilinguals' two grammars, a delay in the English-Spanish bilinguals' acquisition of passives is expected with respect to English monolinguals as a result of the crosslinguistic influence from Spanish into English. These acquisition patterns would be manifested in the concurrent emergence of active monotransitive constructions in bilinguals and monolinguals. However, although bilinguals and monolinguals start producing English passive constructions later than their active counterparts, a significant delay in the ages of first occurrence in the bilinguals' acquisition of passives would be predicted from English monolinguals in this respect. Such a crosslinguistic influence would be caused by two potential factors, one in which the distributional properties that passive structures present in the bilinguals' two languages could pose a learnability issue in such a delayed acquisition, namely, bilinguals have to learn two passive types in Spanish (DP-movement and *se*-passives) and one

passive type in English (DP-movement), in contrast to English monolinguals. Along with the structural complexity, given that passive constructions are even less productive in Spanish than in English (Snyder et al., 1995; Snyder & Hyams, 2015), adult input effects could also disentangle the bilinguals' learnability issue of passives when compared to English monolinguals. In the case of the acquisition of English active monotransitives, bilinguals are, in a way, learning 'the same' structure in the two languages (Snyder et al., 1995; Snyder & Hyams, 2015) and, therefore, the acquisition of these structures would not be expected to pose a learnability issue in English-Spanish bilinguals and English monolinguals.

Nonetheless, the differences between bilinguals and monolinguals in the delay regarding the acquisition of English passives could be caused by the structural differences that passive constructions present in the bilinguals' two languages, namely, Spanish shows *se*-passives that are absent in English (Snyder et al., 1995; Snyder & Hyams, 2015). That is, the non-prominent role of pure DP-movement passives in Spanish could play a role in delaying the English-Spanish bilingual children's acquisition of pure DP-movement passives in English when compared to English monolinguals. Considering this scenario, the absence of a monolingual-like pattern in the acquisition of the two constructions at stake would conform to the Interdependent Development Hypothesis (Meisel, 2004; Paradis & Genesee, 1996), as determined by the interference of the distributional properties that characterize passive constructions, in particular, across English and Spanish.

- Research question 2. Does the relative frequency of exposure to English active and passive monotransitive constructions in the adult input play a role in the English-Spanish bilinguals' incidence of these structures in their output (overall and through language development), as is the case in English monolinguals?

In the analysis of the English-Spanish bilingual children's incidence of the two constructions under investigation, we aim to shed light on whether the production patterns of these constructions are influenced by adult input conditions. In particular, we investigate whether the amount of exposure to English active and passive monotransitive constructions in the adults' speech, following the one-parent one-language strategy (Ronjat, 1913), plays a role in the bilinguals' use of these structures overall and through language development, as analyzed per age stages. This scenario would imply that the

amount of exposure to English active and passive constructions in the adults' speech is expected to have an effect on the bilinguals' output (Sampson, 2002; Yang, 2002, 2011, 2016; among others). This entails that the lower relative frequency rates in the adults' use of English passives would be reflected in the English-Spanish bilinguals' output in favor of active monotransitive structures which are more frequently used in the adults' speech. While adult input-child output patterns have been attested in English monolingual child data with regards to the incidence of active monotransitive constructions (e.g., Cameron-Faulkner et al., 2003), the lower frequency rates in the use of English passives have been reported in written corpora (for instance, novels, scientific and informative texts) (e.g., Dusková, 1971; Givón, 1979; Svartvik, 1966).

However, the differences in the use of passive constructions in the bilinguals' two languages (highly productive in English, less productive in Spanish) could interfere in the production patterns of English active and passive constructions. This means that the dual exposure to two languages from birth would make bilinguals differ from monolinguals in the incidence patterns of the two constructions at stake. In the light of this scenario, adult input is not expected to go hand in hand with the English-Spanish bilingual children's output, as opposed to the adult input-child output patterns in their corresponding English monolingual peers.

4.2 The participants

As in Table 2, eight English-Spanish bilingual children's longitudinal spontaneous production data are selected from three corpora available in CHILDES (MacWhinney, 2000), a free online database (childes.talkbank.org). In particular, three girls and five boys have been selected whose ages range from 1;01 to 6;11.

Table 2. *English-Spanish bilingual children selected*

Corpora	# files examined	Child	Gender	Age range	Social context in which the children were raised
Deuchar	11	Manuela	F	1;03–3;03	English (UK)
FerFuLice	115	Leo and Simon	M	1;01–6;11	Spanish (Spain)
Pérez	16	Alberto	M	1;08–3;00	English (USA)
	3	Antonio	M	2;11–3;02	
	21	Carla	F	2;00–3;03	
	6	John	M	2;00–3;03	
	2	Sheila	F	2;02–2;11	

With regards to the social context in which the English-Spanish bilingual children were raised, Manuela was born and raised in Brighton (England), Simon and Leo were born and raised in Valladolid (Spain) and the five children that conform to the Pérez corpus lived in Michigan (USA). Thus, all the children lived in a monolingual area without support for the minority language (Spanish in Manuela and the five children in the Pérez corpus; English in Simon and Leo). However, this language imbalance was compensated at home since the children developed as balanced bilinguals when they were exposed to the minority language input from the parents at home.

The English-Spanish bilingual children receive language exposure mainly from their parents, as well as from other caregivers such as grandparents, uncles, aunts and investigators. In the case of parental input, all the English-Spanish bilingual children selected have been exposed to the one-parent one-language strategy, also known as the *Grammont'*s rule (Ronjat, 1913). This means that parents address the children in their corresponding first languages, namely, English and Spanish. More specifically, Manuela's mother is a British English speaker and learned Spanish in early adulthood and her father was born in Cuba, where he lived until he was 7;00 years old, after which he lived in the Dominican Republic and Panama until early adulthood when he moved to the UK. Manuela's father learned English as a second language at secondary school. During the data collection period, Manuela was exposed to Spanish from both parents in the home and to English from caretakers in the crèche and from her maternal grandmother. At 1;03, Manuela was exposed to English 48% of the time and Spanish 52% of the time (calculated based on 12 waking hours per day, 7 days per week).

The FerFuLice corpus involves a set of English-Spanish bilingual twins (Simon and Leo) (Fernández Fuertes & Liceras, 2010). Their father is a Peninsular Spanish speaker and their mother is an American English speaker. While the father addressed the children in Spanish, the mother spoke to them in English. The parents communicated in Spanish with each other, except on summers when they travelled to the USA for approximately two months or when an English speaker was present. Until the twins were 1;00 year old, the mother was the main caretaker and the father was present all day at weekends and less on weekdays. At 1;10, the twins started going to a crèche where the language of the staff and other children was Spanish. Apart from the mother, further contact with English was provided by the maternal grandparents and during the two-month visits to the USA every summer.

The five children's language background and linguistic practices at home in the Pérez corpus are summarized in Table 3. Although they were born in an English-speaking environment, they received at least 90% regular Spanish input from both parents at home. Some parents addressed their children in both their first languages and their second language, namely, English or Spanish, depending on the parents' mother tongue. This is the case of Alberto's mother (an English speaker), John's father (a Spanish speaker) and Carla's mother (a Spanish speaker).

Table 3. *Adult input in the English-Spanish bilingual children selected from the Pérez corpus*

Adult input		Alberto	Antonio	Carla	John	Sheila
Mother	First language	EN	SP	SP	EN	EN and SP
	Child-interaction	EN or SP	SP	SP or EN	EN	SP
Father	First language	EN	Arabic	EN	SP	Indonesian
	Child-interaction	EN	SP or EN	EN	SP or EN	EN

EN=English; SP=Spanish

Given the data available in CHILDES, the criteria that have been followed to select the participants of the present study are presented next and they are meant to ensure homogeneity across children. In all cases, the production of English active and passive monotransitive structures comes from spontaneous naturalistic data, as transcribed in the CHAT (Codes for the Human Analysis of Transcripts) written format. The type of data is longitudinal so that the children's use of the target structures could be seen along development and, in particular, from the early stages. None of the participants present language delay, speech or hearing disabilities. In all cases, child-directed speech or adult input has also been examined.

From the data selected, the English active and passive monotransitive utterances produced by both the target children as well as their parents and caregivers have been analyzed.

4.3 Data extraction and codification criteria

The utterances considered in our data analyses include English active and passive monotransitive constructions. In the case of active monotransitive structures, we have examined utterances based on whether they have an active monotransitive counterpart. Further details on the rationale behind the data extraction and classification criteria of the structures under investigation are provided below.

The two utterance types (active and passive monotransitive) have been extracted by combining manual extraction with automatic extraction via KWAL (Key And Line), one of the CLAN (Computerized Language ANalysis) programs. Automatic extraction has been carried out for those corpora selected that have a morphology-dependent tier (that is, +t%) in their transcripts data, as available in the CHAT written format.

The KWAL program has been run to search for the contexts in which verbs are produced in the English-Spanish bilingual children's and in the adults' morphology-dependent tier, facilitating the selection of English target utterances in the main line. Since KWAL does not output utterances based on the verbal subcategorization framework, the KWAL output must be manually trimmed for the data analysis of active and passive monotransitive structures.

In the case of those selected corpora that do not display the +t% in the CHAT transcripts, manual search has been implemented instead. The manual data extraction has been done through a thorough reading of the corpora files selected.

The data selection criteria of English active declarative monotransitive utterances involve the subcategorization of a verbal head subject and a direct object. To set an example, in (10a), the verb 'wants' selects the internal direct object 'juice'. Regarding imperative monotransitive utterances, the verbal head also subcategorizes for a direct object-DP; however, although they do not exhibit an overtly realized subject, as it is the case of typical declarative active monotransitive constructions, there is a null subject in the syntactic configuration of these constructions, complying with the Extended Projection Principle (Chomsky, 1981). In (10b), the verb 'open' selects a direct object 'that' as well as a non-overtly realized subject-DP 'you'.

(10) a. Mum wants juice

[declarative monotransitive; Manuela; 2;01; the Deuchar corpus]

b. Open that

[imperative monotransitive; Leo; 2;07; the FerFuLice corpus]

The selection of passive monotransitive structures includes inflected *be*-verbs (11) or *get*-verbs (12) followed by a past participle. The verbal head subcategorizes for a subject as well as an optional adjunct or by-phrase. For instance, in (11), the verb 'to be' in the present tense is followed by the regular past participle of the verb 'lock' and selects the subject 'you'. The optional 'by-phrase' in this utterance is not overtly realized. In (12),

the verb ‘get, followed by the past participle ‘dressed’ selects the external argument ‘this girl’.

(11) You are locked

[passive monotransitive; Carla; 2;08; the Pérez corpus]

(12) This girl can’t get dressed

[passive monotransitive; Nancy (grandmother); the Deuchar corpus]

We have excluded English interrogative monotransitive utterances in the active form (13a) or in the passive form (13b) given that the movement of the auxiliary ‘can’ from tense to complementizer position could interfere with the issue under analysis, namely, whether passive monotransitive constructions are delayed in their onset when compared to active monotransitive structures as a result of movement.

(13) a. Can$_i$ you t_i read that?

[interrogative active monotransitive; Manuela; 2;01, the Deuchar corpus]

b. Can$_i$ that t_i be read (by you)?

[interrogative passive monotransitive]

In order to address research question 2, that is, the role played by adult input in the English-Spanish bilingual children’s output (overall and developmentally), we have examined the incidence of English active and passive monotransitive constructions longitudinally. As depicted in Table 3, we have taken five developmental stages in child language acquisition as a starting point and designed a more fine-grained division of these stages for our data analyses (Brown, 1973). More specifically, we have considered twelve stages[8] so as to capture the bilinguals’ development in a more detailed way regarding the spontaneous production of English active and passive monotransitive constructions.

Table 3. *Age stages for the study of English active and passive monotransitives*

Stage	Age range	Stage	Age range
1	1;00–1;06	7	4;00–4;06
2	1;07–1;11	8	4;07–4;11
3	2;00–2;06	9	5;00–5;06
4	2;07–2;11	10	5;07–5;11
5	3;00–3;06	11	6;00–6;06
6	3;07–3;11	12	6;07–6;11

Given that the ages at which linguistic features emerge vary across children in each of the five developmental stages (see footnote 8), the present study has considered intervals of 6 and 5 months that range from 1;00–1;06 (stage 1) to 6;07–6;11 (stage 12) by taking into account the English-Spanish bilingual children's age ranges (see Table 2). The production of the target constructions has been analyzed by examining all the data available in the corpora selected from CHILDES. This entails that stages 6 to 12 will correspond to Simon and Leo's output since, to date, the FerFuLice corpus is the only English-Spanish bilingual corpus in CHILDES that covers this age range. The analysis of Simon and Leo's production of active and passive monotransitive structures between 3;00 and 6;00, which is not available in the recordings of the other children selected, will elucidate the production patterns of the two constructions at subsequent developmental stages.

Besides the longitudinal incidence of English active and passive monotransitive constructions, the present study is also concerned with two further variables of analysis, namely, (a) the ages of first occurrence to analyze whether the emergence of the two target constructions can elucidate whether the syntactic derivational status of passive monotransitive from their active counterparts delays the emergence of the former when compared to the latter; and (b) the adults' production of the target structures so as to examine whether the amount of exposure to these constructions goes hand in hand with the children's output.

4.4 Data analysis

This section presents the English-Spanish bilingual children's data that we have analyzed and that come from the corpora selected from the CHILDES database (MacWhinney, 2000). In order to provide an answer to the research questions formulated in section 4.1, the English-Spanish bilingual data are compared to the English monolingual child data as they appear in previous monolingual acquisition studies.

As depicted in Table 4, English active monotransitive constructions emerge earlier (mean age: 1;11) than passive monotransitive structures (mean age: 2;01), as observed in the English-Spanish bilingual children's data. Indeed, there is an order effect in the age of first occurrence of the two constructions under investigation, and it is statistically significant, as evidenced by the Wilcoxon Signed Ranked test (z = -2.201, p = .028).

Table 4. *English-Spanish bilinguals' age of onset of active and passive monotransitive constructions*

Child	Active monotransitive	Passive monotransitive
Alberto	1;08	2;07
Antonio	2;11	n/a
Carla	2;03	2;08
John	2;00	2;04
Leo	1;05	2;07
Manuela	1;09	2;01
Sheila	2;02	2;02
Simon	1;05	2;08
Mean	1;11	2;01

English-Spanish bilingual children's onset of active monotransitive structures appears between 1;05 and 2;11. In the case of passive monotransitive constructions, the ages of first occurrence range between 2;01 and 2;08. More specifically, six English-Spanish bilingual children begin to produce active monotransitive utterances earlier than their passive counterparts; one child shows a concurrent onset of the two target constructions at 2;02 and one child produces only one of the two types of constructions under investigation, namely, active monotransitive structures.

The overall use of English active and passive monotransitive constructions in the English-Spanish bilingual children's data and in their corresponding child-directed speech (that is, in the adult input) is illustrated in Table 5. The production of the two target structures is calculated based on the relative frequency of use of both constructions (100%) for the child output and for the adults' data.

Table 5. *Child and adult overall production (# of cases (%))*

	Active	Passive	Total
Children	10,393 (95.2%)	525 (4.8%)	**10,918 (100%)**
Adults	2,370 (94.6%)	135 (5.4%)	**2,505 (100%)**
Total	12,763 (95.1%)	660 (4.9%)	**13,423 (100%)**

Table 5 shows that the English-Spanish bilingual children and the adults reflect relative higher frequency rates in the production of English active monotransitive structures when compared to their passive counterparts. These incidence patterns regarding the English-Spanish bilingual children's order of use of English active and passive monotransitive

constructions are also seen through language development, as statistically evidenced by the Wilcoxon Signed Ranked test (z = -2.934, p = .003). As displayed in Figure 1 and in Table 6, the English-Spanish bilingual children's use of active monotransitive constructions increases gradually from the age range of onset at 1;00–1;06 (1 case, 0.04%) until 3;00–3;06 (524 cases, 20.92%), from which these structures gradually decrease until 6;07–6;11 (98 cases, 3.91%). As for English passive monotransitive constructions, the English-Spanish bilingual children reflect a low and constant use from the age range of onset at 2;00–2;06 (6 cases, 0.24%) to 6;07–6;11 (7 cases, 0.28%).

[Insert Figure 1 here]

Table 6. *English-Spanish bilingual child production through age stages (# of tokens)*

Age range	Active monotransitive	Passive monotransitive
1;00–1;06	1	-
1;07–1;11	12	-
2;00–2;06	192	6
2;07–2;11	196	8
3;00–3;06	524	36
3;07–3;11	395	18
4;00–4;06	448	24
4;07–4;11	151	7
5;00–5;06	116	13
5;07–5;11	50	4
6;00–6;06	187	12
6;07–6;11	98	7

The relative frequency of exposure to English active and passive monotransitive constructions in the adult input seems to reflect analogous patterns in the English-Spanish bilingual children's speech, as shown in Figure 2.

[Insert Figure 2 here]

Adults prefer the use of active monotransitive constructions (10,393 cases, 95.2%) when compared to passive monotransitive structures (525 occurrences, 4.8%). These production patterns are also seen in the English-Spanish bilingual children's output (2,370 active monotransitive > 135 passive monotransitive, 94.6% > 5.4%). Therefore, the

exposure to the two structures under investigation in the child-directed speech mirrors the preference production patterns in the English-Spanish bilingual children's English output.

4.5 Discussion

Considering the data examined in section 4.4, and in response to research question 1, the English-Spanish bilingual children begin to produce English active monotransitive constructions at around the age of 2;00 (mean age: 1;11), earlier than the age of first occurrence of English passive monotransitives (mean age: 2;01). Such an order effect in the acquisition of the two structures at stake is also reflected in English monolinguals, as reported by earlier studies. In particular, previous English monolingual experimental studies have observed that English monolingual children start producing active monotransitive structures at a mean age of 2;09, earlier than their passive counterparts whose onset has been reported before the age of 6;00 (e.g., Abbot-Smith et al., 2001; Chan et al., 2010; Matthews et al., 2005 in active monotransitives; Crain et al., 2009 in passives).[9] Although Pinker et al. (1987) investigate the English monolingual children's acquisition of passive structures, their findings cannot be compared to the results observed in the present study since, despite the fact that both studies examine child spontaneous production data, Pinker et al. (1987) analyze adult-like passive utterances and non-adult-like passive utterances in which the past participle is overgeneralized (for instance, it's broked). Thus, Pinker et al. (1987) attest the English monolinguals' emergence of passive structures at around the age of 3;00; nonetheless, this age of first occurrence entails a non-adult-like use of these constructions, which contrasts to the structures analyzed in our study, namely, the production of adult-like utterances.

The comparability between the English-Spanish bilingual children's spontaneous production data examined in this study and the English monolinguals' findings reported by previous studies should be viewed with caution. This is because although bilinguals and monolinguals reflect an analogous order in the emergence of the two constructions at stake, we cannot disentangle whether the onset of English active and passive monotransitive constructions occurs at a concurrent stage given that the data analyzed are not analogous, namely, spontaneous production data in the case of English-Spanish bilinguals and elicited production data in the case of English monolinguals. Therefore, further research is needed so as to explore the English monolingual children's ages of first occurrence of the two structures at stake, as opposed to the data analyzed by Pinker et al. (1987).

The similar order effect in the emergence of English active and passive monotransitive constructions in English-Spanish bilinguals and in English monolinguals could be explained by two factors. On the one hand, these data could lend support to the acquisition of the UG principles (Chomsky, 1981, 1986) hypothesized in the Maturational Hypothesis (Borer & Wexler, 1987). Evidence shows that English passive constructions are inaccessible in the English-Spanish bilingual and in the English monolingual children's grammar from early on, in contrast to the earlier availability of English active monotransitive utterances in the child grammar of both groups (bilinguals and monolinguals). This means that DP-movement (which is absent in the formation of English active monotransitives) matures in a biological sense in both child groups until it is developed in the formation of passives. Alternatively, and as it will be discussed in response to research question 2, these findings could also be related to adult input factors. That is, the lower frequency of exposure to English passives when compared to their active monotransitive constructions could have influenced the delayed onset of the former and the early emergence of the latter.

Furthermore, the monolingual-like patterns observed in the English-Spanish bilingual children's acquisition order effect of the two constructions under analysis reveal that the differences with regards to the grammatical properties that passive constructions exhibit in the bilinguals' two languages do not seem to have interfered in the delayed acquisition of English passive constructions. This is the case since, as discussed earlier, analogous acquisition patterns in the later emergence of passive constructions when compared to their active monotransitive counterparts have also been reported in earlier empirical works. These structural properties related to the syntactic formation of passives following the generative theoretical framework (Chomsky, 1981, 1986) are seen in the fact that English presents one structure type (namely, canonical DP-movement passives) as opposed to Spanish where two structure types are exhibited (namely, canonical DP-movement passives and *se*-passives) (Snyder et al., 1995; Snyder & Hyams, 2015). In other words, the grammatical properties that underlie passive monotransitives in the bilinguals' two languages could have triggered a learnability issue when compared to English monolinguals who only have to learn one passive structure type. As for the acquisition of English active monotransitives, learnability issues were not predicted for both child groups (bilinguals and monolinguals) given their shared grammatical properties in the bilinguals' two languages (see section 2). Therefore, crosslinguistic influence from Spanish into English was not observed in the English-Spanish bilinguals'

acquisition of English active monotransitive constructions since, similar to English monolinguals, they also started producing these structures earlier than their passive counterparts.

Broadly speaking, the data analyzed reveal that the English-Spanish bilinguals' order effect regarding the timing of acquisition of English active and passive monotransitive constructions is akin to the one observed in English monolinguals (Abbot-Smith & Tomasello, 2006; Bybee & Hopper, 2001; Chan et al., 2010; Matthews et al., 2005; Meints et al., 2008; Pinker et al., 1987). These findings comply with the Autonomous Development Hypothesis (Paradis, 2001; Paradis & Genesee, 1996; Yip & Matthews, 2007) given that crosslinguistic influence from Spanish into English as a result of the simultaneous exposure to these two languages from birth, nor the distributional grammatical properties that passives present in the bilinguals' two languages have caused differences in the acquisition patterns of English active and passive monotransitive constructions when compared to their English monolingual peers.

In response to research question 2, when the incidence of English active monotransitives is compared to passives in the English-Spanish bilingual children's data, differences in the use of the two constructions are reflected both overall and through language development. In particular, English-Spanish bilingual children exhibit lower frequency rates in the production of passives when compared to their active counterparts. This order effect in the preference of active monotransitives over passives is in line with the order of acquisition of the two target constructions, as discussed earlier in response to research question 1. Therefore, the order of use and acquisition of these structures could also be attributed to adult input effects, as similar production patterns are also reflected in the adults' speech analyzed. This means that the simultaneous exposure to English and Spanish does not appear to have played a negative role in the English-Spanish bilingual children's incidence and emergence of the two target constructions and, particularly, given the differences in the use of passive constructions across English (highly productive) and Spanish (less productive) (Riddle & Sheintuch, 1983; Snyder & Hyams, 2015). This outcome has been aided by the one-parent one-language strategy (Ronjat, 1913) followed from birth, that is, the exposure to English (and Spanish) that stems from each of the bilinguals' parents (see section 4.2) has led to the development of monolingual-like production patterns in the English-Spanish bilingual children's incidence of English active and passive monotransitive constructions. These adult input-child output patterns have also been reported in earlier English monolingual empirical

studies (Abbot-Smith & Tomasello, 2006; Bybee & Hopper, 2001; Chan et al., 2010; Matthews et al., 2005).

More specifically, differences in the frequency rates regarding the English-Spanish bilingual children's use of English active and passive monotransitive constructions appear in the adult input, which is the reflection of the grammar of the language and the linguistic properties that the child is exposed to and needs to acquire. That is, the higher exposure to English monotransitive constructions when compared to passives in the adult input has played a role in the bilinguals' output and developmentally through the age stages, as reflected in the preference in the use of actives over passives. These findings are in line with earlier studies on the role played by adult input in child output (e.g., Sampson, 2002; Yang, 2002, 2011, 2016; among others).

Therefore, the results derived from research questions 1 and 2 above evidence that a maturational process of the DP-movement and/or adult input effects could have been responsible for the delayed acquisition of English passive monotransitives when compared to their active ones in the child grammar of English-Spanish bilinguals and English monolinguals.

5. Conclusion

In this study we have examined the English-Spanish bilingual children's acquisition of English active and passive monotransitive constructions so as to elucidate whether crosslinguistic effects from Spanish into English (or lack thereof), as evidenced by the grammatical properties that underlie the two constructions at stake and/or adult input conditions, as a result of the frequency of exposure to these structures, can account for their acquisition. We have compared this process to that followed by English monolinguals as analyzed in previous empirical studies.

As for the analysis of the potential crosslinguistic influence from Spanish into English (or lack thereof), we have explored two possible scenarios. On the one hand, whether the two constructions under investigation are acquired autonomously, and thus, passives are expected to show a later emergence than active monotransitives as a result of the maturation of the UG principle of DP-movement (Borer & Wexler, 1987). This scenario would predict English-Spanish bilinguals to follow analogous and concurrent developmental patterns to their respective English monolingual counterparts, as per the Autonomous Development Hypothesis. On the other hand, we investigate whether the two constructions at stake are acquired interdependently, and therefore, the English-

Spanish bilingual children would show different emergence patterns from those of their English monolingual peers, as per the Interdependent Development Hypothesis. This scenario is expected to show that the bilinguals' pattern is closer to that of monolinguals in the later onset of English passives when compared to their active monotransitive counterparts; however, due to the distributional properties that passive constructions present across the bilinguals' two languages (one structure type in English; two structure types in Spanish), a delayed timing of acquisition of passives is predicted in English-Spanish bilinguals when compared to English monolinguals.

Regarding adult input effects, we investigate whether the English-Spanish bilingual children's incidence of English active and passive monotransitives overall and through language development is determined by adult input factors.

Taking as a point of departure the assumption that the one-parent one-language strategy (Ronjat, 1913) provides bilingual children with a balanced amount of adult input exposure where parents and other caretakers address bilinguals in each of their first languages (e.g., Fernández Fuertes & Liceras, 2010; Paradis & Genesee, 1996; Paradis, 2010), English-Spanish bilinguals are expected to show similar incidence patterns to their corresponding English monolingual peers. Alternatively, the simultaneous exposure to two languages from birth could also make bilinguals differ from monolinguals in the patterns of use of the two target constructions. This last scenario would be triggered by the differences reflected in the adults' use of passive constructions, in particular, across the two languages, that is, while they are highly frequent in English they are less productive in Spanish (Snyder et al., 1995; Snyder & Hyams, 2015).

Our findings have shown that English-Spanish bilinguals exhibit an order effect regarding the earlier emergence of English active monotransitives (mean age: 1;11) when compared to the acquisition of their passive counterparts (mean age: 2;01). These results have also been reported for English monolinguals in previous empirical works (e.g., Pinker et al., 1987 in actives; Marinis, 2007 in passives). Therefore, these data indicate that two factors are potentially responsible for the English-Spanish bilingual and English monolingual children's order effect in the ages of first occurrence of the two target structures (namely, active monotransitives > passives). The first factor that can account for the delayed acquisition of passives is the biological maturation of the syntactic mechanism that allows the formation of these structures (namely, DP-movement) and that is not present in active monotransitives. This means that these data conform to the Maturational Hypothesis (Borer & Wexler, 1987) given that the underlying syntactic

mechanism that forms passives and, more specifically, the movement of the object-DP into the subject-DP position in light of the generative grammar approach has not developed in the child grammar from early on. This entails that the absence of DP-movement in active monotransitives enables these constructions to be available in the English-Spanish bilingual and the English monolingual children's grammar from the early stages of language acquisition. The monolingual-like emergence patterns reflected in the English-Spanish bilingual children's earlier occurrence of English actives and later onset of passive monotransitive constructions suggests that the Autonomous Development Hypothesis is confirmed (Paradis, 2001; Paradis & Genesee, 1996; Yip & Matthews, 2007). Thus, the emergence of the two target constructions and, more specifically, that of passives, does not appear to be determined by the influence from the grammatical properties that characterize English-Spanish bilingual children to learn two types of passive constructions in their other language (namely, Spanish), as opposed to the learning of one passive type in English. Rather, as also observed in English monolingual children (e.g., Messenger et al., 2012; Stromswold, 2005), this order effect appears to be caused by the fact that English-Spanish bilingual children are unable to form Argument-chains until they reach a maturational point and, therefore, such a linguistic principle that is innately endowed in all human languages takes time to develop when compared to the acquisition of the distributional properties that underlie English active monotransitives (Borer & Wexler, 1987). Nevertheless, as previously discussed in section 4.5, the nature of the data analyzed in earlier English monolingual empirical studies (namely, elicited production) and that of the present study (spontaneous production) cannot determine whether English-Spanish bilingual children reflect a concurrent age in the acquisition of the two target constructions to English monolinguals. This means that further investigation is required to explore whether the spontaneous use of English active and passive monotransitive constructions by monolingual children can shed light on potential correlational ages of onset (or lack thereof) to those observed in the English-Spanish bilinguals analyzed in this study.

The second factor that could explain the delayed emergence of passives when compared to active monotransitives is adult input. When the incidence of the two structures under analysis is compared in the two child groups (bilinguals and monolinguals), a similar pattern emerges. The English-Spanish bilinguals exhibit a lower incidence of passive monotransitive structures when compared to their active counterparts both overall and through language development, as analyzed per age stages. This

production pattern mirrors the acquisition patterns of the two constructions at stake and the relative frequency of exposure to these structures in the adult input. This is also the case in the input-output patterns found in the analyses done on English monolinguals' data (Abbot-Smith et al., 2006; Chan et al., 2010; Matthews et al., 2005; Meints et al., 2008, among others). Hence, the bilingual upbringing regarding the one-parent one-language strategy followed from birth in the English-Spanish bilingual children analyzed seems to have played a crucial role in the child English output. This is the case given that the English-Spanish bilingual children show a preference for the use and an earlier emergence of English active monotransitives in relation to passives as a result of the amount of exposure to these constructions in their parents' speech. This entails that the bilingual input the English-Spanish bilingual children are exposed to has not interfered in the children's order effect regarding the incidence and the emergence of the two target constructions, as evidenced by the monolingual-like production and acquisition patterns reported in previous works discussed earlier.

This study leaves the door open to investigate the other language of the bilinguals, namely, Spanish. This will provide information as to whether the English-Spanish bilingual children's onset of active and passive monotransitive structures in Spanish follows similar developmental paths to those of their respective Spanish monolingual peers. Furthermore, it will give way to an interlinguistic analysis whereby the potential directionality of crosslinguistic influence could be studied. Another avenue to explore is the consideration of the two types of English passives, namely, *be*-passives and *get*-passives in terms of their emergence and production patterns. All this could help complete the picture of how bilinguals and monolinguals acquire voice and whether, and if so how, interlinguistic differences play a role when two languages are in contact.

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Endnotes

[1] Children's years and months are displayed based on CHILDES annotation form (MacWhinney, 2000, pp. 34–35): years; months.

[2] The Extended Projection Principle was proposed by Noam Chomsky in 1981. It states that every clause must have a DP in the subject position which is located in the specifier of an inflectional phase or a tense phrase domain.

[3] The Uniformity of Theta Assignment Hypothesis states that analogous theta role relationships among syntactic constituents are represented by identical structural relationships among these constituents at the level of the underlying structure (Baker, 1988).

[4] Case theory addresses a grammatical property that links DPs to either verbs or prepositions under government conditions (Chomsky, 1981, 1986).

[5] Government refers to the abstract syntactic relations that are established between two elements, for instance, between a verb and its subject (Chomsky, 1981, 1986).

[6] Locality refers to the adjacency or the proximity of DP constituents to their governors in a syntactic structure (Chomsky, 1981, 1986).

[7] The ages of onset of active and passive monotransitive constructions have been used as a measure of grammatical competence in English-Spanish bilingual children's data. Following Snyder and Stromswold (1997, p. 287), 'in order for an utterance to count as the first use of a construction, the utterance had to be a novel utterance (i.e., not an unanalyzed routine or imitated utterance) and it had to be spoken clearly (i.e., not mumbled, stuttered, etc.) […] Age of first use is the most sensitive measure of grammatical competence available from production data. As such, it should be less affected by production constraints than measures of acquisition that require repeated, regular, or reliable use of a construction.'

[8] The five linguistic stages in child language acquisition are (a) the one-word stage or the holophrastic stage (1;00–1;06); (b) the two-word stage (1;06–1;08); (c) the telegraphic speech stage (1;09–2;02); (d) the multiple-word speech stage (2;00–3;05); and (e) the multiple-clause speech stage (3;05–4;00) (Bel & Rosado, 2009; Clark, 2009; Yule, 1996, among others).

[9] Note that the English monolingual children's delay in the acquisition of passive monotransitives when compared to active ones has been reported to be much greater in previous empirical studies than in the present study. This could be attributed to the type of data analyzed, that is, experimental data in the former and spontaneous production data in the latter. As discussed in section 3, to date, the English monolingual children's emergence of the two constructions at stake remains unexplored in spontaneous production data. Thus, further studies will shed light on whether the order effect and the time of acquisition in the English-Spanish bilingual children's emergence of English active and passive monotransitives observed in the present study is mirrored in the case of the spontaneous production of English monolingual children.

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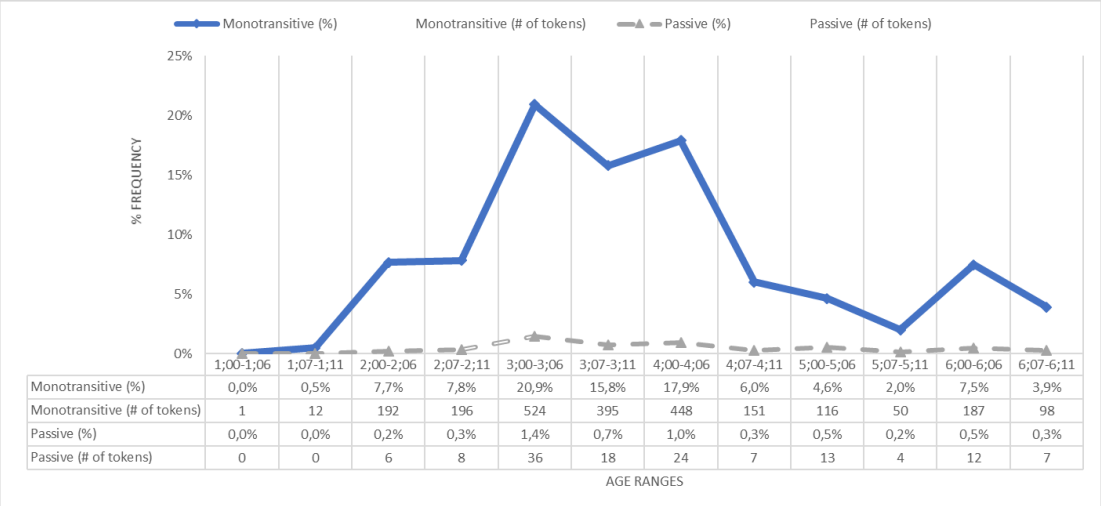
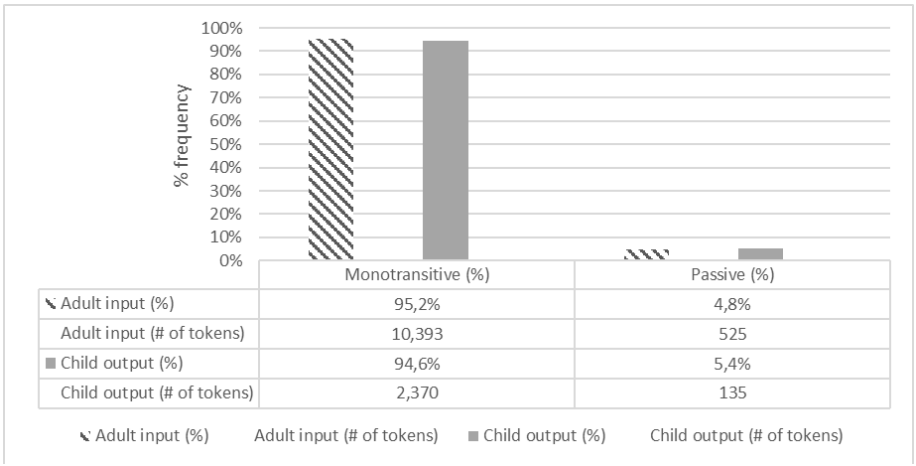
Figure 1. *English production of active and passive monotransitive through age stages by English-Spanish bilinguals*



	1;00-1;06	1;07-1;11	2;00-2;06	2;07-2;11	3;00-3;06	3;07-3;11	4;00-4;06	4;07-4;11	5;00-5;06	5;07-5;11	6;00-6;06	6;07-6;11
Monotransitive (%)	0,0%	0,5%	7,7%	7,8%	20,9%	15,8%	17,9%	6,0%	4,6%	2,0%	7,5%	3,9%
Monotransitive (# of tokens)	1	12	192	196	524	395	448	151	116	50	187	98
Passive (%)	0,0%	0,0%	0,2%	0,3%	1,4%	0,7%	1,0%	0,3%	0,5%	0,2%	0,5%	0,3%
Passive (# of tokens)	0	0	6	8	36	18	24	7	13	4	12	7

Figure 2. *Adult input and English-Spanish bilingual child output in the production of English active and passive monotransitive structures*



	Monotransitive (%)	Passive (%)
Adult input (%)	95,2%	4,8%
Adult input (# of tokens)	10,393	525
Child output (%)	94,6%	5,4%
Child output (# of tokens)	2,370	135