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The Acquisition of the Get-Passive

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ABSTRACT OF THE THESIS

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This thesis addresses children's comprehension of the *get*-passive, examining (i) how early *get*-passives are acquired in development, (ii) how children perform with *get*-passives relative to *be*-passives, and (iii) what structure children initially assume for the *get*-passive. These questions are addressed through two different experimental methodologies, a Picture-Selection Task and an Act-out Task, with children ages 3 to 6. Results from the Picture-Matching Task suggest 3-year-olds initially assume a control/causative analysis of the *get*-passive, enabling them to perform above chance with only those that have animate subjects. Around the age of 4, however, children understand all (actional) *get*- and *be*-passives. The Act-Out Task additionally confirms that those 4;06 and older interpret the *by*-phrase as containing the agent, like adults. These results suggest there is no "advantage" to the get-passive after the age of 4. Children, rather, acquire a raising analysis of actional passives around the same time, contra previous claims.

The thesis of Megan Kathryn Gotowski is approved.

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1.0 Introduction

It has been well-documented in the literature that children have difficulties with the *be*-passive (1); they rarely produce them in natural (i.e. spontaneous) speech (Harwood 1959; Horgan 1978; Wells 1979) or in elicited production tasks (Hayhurst 1967; Pinker et al. 1987; among others).

(1) The dog was chased (by the cat).

Children also have difficulties with comprehending *be*-passives; it has been reported that even 9-year olds having trouble with them (see Maratsos et al. 1985; Gordon & Chafetz 1990; Hirsch & Wexler 2006b; Orfitelli 2012; among others).

However, these same difficulties have been claimed not to extend to the *get*-passive (2) in child English. This form is found early in production (see Marchman et al. 1991), and children perform well with *get*-passives in comprehension tasks (see Fox & Grodzinsky 1998; Harris & Flora 1982).

(2) The dog got chased (by the cat).

While the *be*-passive has been the subject of much research, comparatively little has been done to systemically *compare* the acquisition of the *be*- and *get*-passive in child English. In this thesis I expand on previous work on the *get*-passive by addressing when it is acquired, if it is acquired earlier than the *be*-passive, and what structure children may be assigning to the *get*-passive.

This paper is organized as follows: in Section 2, I will briefly outline how the *get*-passive and *be*-passive have been analyzed in the adult grammar. In Section 3, I provide an overview of previous research on the acquisition of the passive, and then discuss a corpus-based study on the production of passives in child English in Section 4. Then, in Sections 5 and 6, I describe two experimental studies conducted to address children's comprehension of the *get*-passive. Lastly in Section 7, I will outline how this research may be extended in the future.

2.0 The Syntax of the Passive in Adult Grammar

Although English has two types of passives (exemplified in 1-2), they differ in systematic ways; in this chapter I will review syntactic analyses of both types of passives.

2.1 Be-Passive

Chomsky's 1981 analysis derived the passive via NP-movement, where the object moves to the matrix subject position, whereas the subject is base-generated in the *by*-phrase (if there is one), or absent.

(3) John was pushed (by Bill) ~~John~~.

Jaeggli (1986) argues that the external theta-role is absorbed by the passive morphology, and then transmitted to the argument in the *by*-phrase. Jaeggli also assumes that the external argument is implicit in the structure when there is no overt argument in a *by*-phrase (following Manzini 1983). In this case, the external theta-role is retained by the passive morphology.

Baker, Johnson & Roberts (1989) propose that the *by*-phrase is always projected, if only implicitly. For instance, it is possible to use agent-oriented adverbials (see 4) with short passives (i.e. those without a *by*-phrase) and long passives, indicating that there is an understood agent.

(4) The vase was broken on purpose.

This assumption of an implicit *by*-phrase is not uncontroversial (see Bhatt & Pancheva 2006); however, as will be discussed in Section 3, there is support for this notion from child grammar (cf. Orfitelli 2012). I will be assuming that the *by*-phrase is implicit, and hence functions as an intervening argument that the object must move around in order to get to the subject position (cf. Collins 2005). I will return to this issue in Section 3.

Nevertheless, while the exact structure and derivation of the *be*-passive may still be a matter of debate, all current analyses of the passive consider the subject to be derived, or "raised" from its initial position as the object of the verb.

2.2 Get-Passive

Early analyses of the *get*-passive compared it directly to the *be*-passive. Quirk et al. (1975) and Stein (1979) claimed that they were analogous structures, and that the only difference between them was the choice of auxiliary verb. They argued that both are verb raising constructions, with *be* and *get* undergoing V-to-T movement. The patient-subject raises from its base position as the object of the verb to the canonical subject position.

Haegeman (1985) challenges this particular analysis for the *get*-passive. She provides several reasons to suggest that *get* is not an auxiliary and is thus not located in T. For instance, unlike modals, *get* does not allow negative contraction (compare 5a and 5b). It also needs *do*-support, as lexical verbs (but not auxiliaries) in English require, (see (6)). It also fails to exhibit inversion (7). Lastly it cannot be stranded under VP-deletion; (8a) is possible, but (8b) is not.

(5) a. John wasn't caught.

b. *John gotn't caught.

(6) John didn't get caught.

(7) a. Was John caught?

b. *Got John caught?

(8) a. John was caught and Tom was ~~caught~~ too.

b. *John got caught and Tom got ~~caught~~ too.

For Haegeman, *get* is a lexical verb, specifically an unaccusative verb that takes a small clause (SC) complement. She provides the example in (9), with an underlying structure as in (10). The

passive morphology suppresses the external thematic role, and also blocks case assignment to the object.

(9) His girlfriend got invited.

(10) [____ [got [$_{SC}$ invited his girlfriend]]]

Haegeman argues that the NP moves cyclically, first from its base object position in the SC to the empty subject position within the SC (11a). She argues that this is parallel with ECM 'get' as in (11b), also from Haegeman), where the NP moves only once from its base position.

(11) a. [___ [got [$_{SC}$ his girlfriend invited *t*]]]

b. George [got [$_{SC}$[his girlfriend] invited *t*]]

However, the NP must then move again to the specifier of TP to receive nominative case, as the subject of the SC is not a case-marked position.

(12) [His girlfriend [got [*t* invited *t*]]]

Support for the availability of a raising analysis comes from the fact that *get* passes traditional diagnostics for raising: (i) *get*-passives may take expletive subjects (13), and (ii) they are compatible with idiom chunks (14) (examples from Fox &Grodzinsky 1998).

(13) **There** finally got to be enough water to take a bath.

(14) Tabs got kept on foreigners in the USA.

Additionally, the subject of a *get*-passive is not constrained by selectional restrictions, in contrast to control verbs. For example, raising predicates are compatible with either animate or inanimate subjects, because the subject has no thematic relation with the matrix verb. For example, (15a) is acceptable (raising verb), but (15b) is not (control verb).

(15) a. The rock seems to be purple.

b. #The rock wants to be purple.

Although corpora studies (on adult English) have found that *get*-passives are more common with animate subjects (cf. Arce-Arenales et al. 1994; Kim 2012), inanimate subjects are nevertheless compatible with them as well. The following sentences (16a-b) are both judged to be acceptable, and numerous examples may be found in corpora such as Corpus of Contemporary American English (CoCA).[1]

(16) a. John got caught.

b. The vase got broken.

For these reasons, I will assume a raising analysis of the *get*-passive. However, other analyses have been proposed, including a control analysis (cf. Lasnik & Fiengo 1974; Butler & Tsoulas 2006) and an adjectival analysis (cf. Fox & Grodzinsky 1998); at the end of the next section I will address these alternatives, and how they relate to acquisition specifically.

3.0 Acquisition

Children's production and comprehension of passives has been a topic of much research in language acquisition. However, most work has either focused on the *be*-passive to the exclusion of the *get*-passive, or has not systematically distinguished between *be*-passives and *get*-passives. The general finding has been that children have difficulties with *be*-passives until after age 4 for actional verbs and at least age 6 for non-actional verbs (de Villiers & de Villiers 1985; Maratsos et al. 1985; Borer & Wexler 1987; Orfitelli 2012; among others). The only studies that have looked at the *get*-passive have reported that children comprehend long *get*-passives earlier, as young as three years (Harris & Flora 1982; Fox & Grodzinsky 1998), and produce *get*-passives more often than *be*-passives (cf. Harris & Flora 1982; Marchman et al. 1991). I will first briefly discuss studies that have looked at the *be*-passive, or that have examined passive acquisition in

[1] In a separate study on Amazon Mechanical Turk, adult participants judged as natural/acceptable *get*-passives with both animate and inanimate subjects (Gotowski in progress).

general (*be* and *get* conflated) and then I will turn to the work that has been done specifically on *get* in Section 3.2.

3.1 Acquisition of Be-Passives

Previous research has found that children have delays in both the production and comprehension of the *be*-passive. For example, Horgan (1978) analyzed speech from 234 children (2;0-13;11), looking for long passives (i.e. those with a *by*-phrase, see (17) from Horgan). She found that the youngest children (2;0-4;0) produced only 32 tokens. It is not clear if these were *be*-passives or *get*-passives, as the two types were conflated in the counts.

(17) The dog was chased by the girl.

Harwood (1959) conducted a similar corpus study, examining naturalistic data produced by twenty-four 4- to 5-year old children; she analyzed more than 12,000 utterances and did not find any examples of full passives; it is not clear if she included *get*-passives in this analysis.[2] It has been pointed out by Horgan and others that the relative scarcity of passives in child English is not necessarily indicative of their knowledge, as passives are also rare in adult speech (cf. Brown 1973; Demuth 1989). Nevertheless, poor performance with passives has also been reported in elicited production (cf. Hayhurst 1967). [3]

Maratsos et al. (1985) researched children's comprehension of passives. They conducted two experiments; in the first, children (4-5 years old) were given a sentence in the active or passive voice (e.g. Ernie was washed by Grover.) and then asked "who did it?". Various actional (e.g. *wash, hold*), non-actional (e.g. *like, watch*), and nonce (e.g. *mell, zick*) verbs were used in

[2] This study was on Australian English.

[3] However, there have been more recent studies studying the effect of priming on production, with the finding that passive primes cause children to produce more passives (cf. Messenger et al. 2012, among others). This suggests that earlier studies may not be a true indicator of children's knowledge.

the experiment. While children did fairly well with action verbs (67% correct), they did not do as well with non-action verbs (40%) or with nonce verbs (47%). Performance with active controls for each verb type ranged from 88-91% correct, suggesting that the difficulty was related to the passive structure and not to the verbs themselves. They then conducted a second comprehension task; this time they used a picture-matching selection task with children from 4 to 11 years. Overall, the found better results; all children were above chance with actional verbs (percentage correct: 85% or better), but they found the same kind of split between actional and non-actional verbs. Children were not as successful with the latter; the 3-year olds (34%) and the 7-year olds (62%) were at or below chance. The 9-year old and 11-year old groups were significantly above chance ($p < 0.001$). Performance with actives was around ceiling for all age groups (92-100% correct). Therefore, it seems that passives with actional verbs are acquired/comprehended early, but non-actional verbs cause difficulties.

This same general split in performance between actional and non-actional verbs has been found in multiple studies and with various methodologies. For example, Gordon & Chafetz (1990) conducted an experiment in which they told children (ages: 3-5 years old) stories and then asked them questions to evaluate their comprehension. After each story they received one question in the active voice and one in the passive. Children performed significantly better with actional verbs than with non-actional (67% vs. 39%). Hirsch & Wexler (2006) and Orfitelli (2012) found this same divide using picture-matching.

The findings that children rarely produce passives, and that they perform better with actional verbs led Borer & Wexler (henceforth B&W) (1987) to propose the A-Chain Deficit Hypothesis (ACDH). They argued that children initially have trouble with A-movement because their grammar does not allow for the formation of A-chains; this ability must mature (just as

certain biological processes do) over time. B&W claim that the child grammar is initially non-adult-like, and suggest that there are two stages of development: one that is characterized by the lack of all A-movement, followed by a later (adult-like) stage, around age 6, characterized by the emergence of A-chains.

B&W argue that the passives that children are able to produce/comprehend are actually adjectival structures, and not true verbal passives, as these constructions are often homophonous in English (18). They also note that in general actional verbs make good adjectives (18b), whereas non-actional verbs often do not (19b).

(18) a. The toy was broken. verbal/adjectival

b. The broken toy.

(19) a. The toy was seen. verbal only

b. *The seen toy.

Interestingly, while *be*-passives are compatible with both actional and non-actional verbs, the *get*-passive is only possible with actional verbs.

(20) a. The toy got broken.

b. *The toy got seen.[4]

As noted above and further detailed in Section 3.2, it has been claimed that children produce and comprehend *get*-passives early. This observation is amenable to the adjectival analysis because of the restriction to actional verbs. I return to this when I discuss experimental results comparing children's comprehension of *get*- and *be*-passives.

B&W also pointed to production studies that found that children's early passives are short passives (Horgan 1975). Passives with a *by*-phrase have generally been assumed to be

[4] Although there are examples of *get*-passives with non-actional verbs, these passives take on an actional meaning, e.g. John got seen by the doctor (= the doctor examined John).

verbal (following most analyses, but I will return to this point in Section 6)), but short passives are (often) ambiguous between verbal and adjectival structures (cf. Wasow 1977).

(21) a. The doll was broken. verbal/adjectival

b. The doll was broken by the girl. verbal

However, despite the finding that children *produce* short passives more often than long passives, several studies have compared children's comprehension of short and long passives (cf. Maratsos & Abramovich 1975; Gordon & Chafetz 1990; Hirsch & Wexler 2006a; Orfitelli 2012; among others) and have found no significant effect of the *by*-phrase on comprehension; this is *consistent* with a verbal analysis. In addition, Crain & Fodor (1993) argue that there are pragmatic factors that condition the acceptability of the *by*-phrase. They claim that the *by*-phrase is licensed when there is more than one possible agent, and specifying the agent is informative, e.g. *Alex was found by Joe (not Tim),* if both Joe and Tim were searching for Alex). O'Brien et al. (2006) conducted a Truth-Value Judgment Task (TVJT) with 3-year-old children and found that they performed better with long passives when the *by*-phrase was felicitous. Nevertheless, this does not rule out the possibility children may be interpreting the *by*-phrase in a non-adult-like manner, as has been argued by Hirsch & Wexler (2006a), or that they are ignoring the *by*-phrase. I will return to this possibility in Section 6 with the results of an experimental study.

Nevertheless, several problems with the ACDH have been pointed out, including the fact that children are able to move the subject from its VP-internal position to its position in Spec, TP, which requires an A-chain (Stromswold 1996). A more recent formulation of the ACDH is the Universal Phase Requirement (UPR) by Wexler (2004), which does not encounter the same problem with respect to VP-internal subject raising. In Minimalist theories, movement or extraction of an XP is only possible at the edge of a "phase boundary." Material at the edge of a

phase may escape from its domain and move to a higher domain in the structure; material that is not at the edge is considered "frozen" and movement is blocked. This is known as the Phase Impenetrability Condition (PIC): "When working at a phase, the edge (the head and any specifiers) of the next lower phase is available for analysis, but nothing lower than the edge. In particular, the complement is not available" (Wexler 2004). If the complement is not available to move, this is a problem for passives and raising/A-movement in general. Chomsky (2000, 2001) proposes that for adults *v* is defective in passives (as well as in unaccusatives and subject-to-subject raising (StSR) constructions), which means that it does not function as a phase boundary, allowing A-movement. Wexler (2004) proposes that children have difficulties with passives because their grammars lack defective phases. Thus, unlike the ACDH, the UPR crucially does not claim that A-movement as a whole is problematic. For example, VP-internal subjects can move because they are at the edge of a phase.

The UPR, however, fails to explain findings that show that children as young as 3-4 comprehend (a type of) subject-to-subject raising (StSR) (cf. Becker 2009; Orfitelli 2012), which involves movement of the subject from inside the embedded TP to the matrix subject position (cf. Collins 2005). The UPR also predicts unaccusatives to be problematic for children, which is not supported (Snyder, Hyams & Crisma 1995; Friedmann 2007; Hyams & Snyder 2007).[5] In addition, it should also be noted that while children's difficulties with the (*be*)-passive has been reported in several different languages (including, but not limited to, Chinese (Chang 1986), Spanish (Pierce 1992), Russian (Babyonyshev & Brun 2004), Greek (Terzi & Wexler 2002), and Japanese (Sugisaki 1998, Sano 2000)) there is evidence that children have knowledge of the

[5] An exception to this comes from Babyonyshev et al. (2001), who report that Russian-speaking children (3;0-6;6) have a non-adult-like representation of unaccusatives (and analyze them as unergatives).

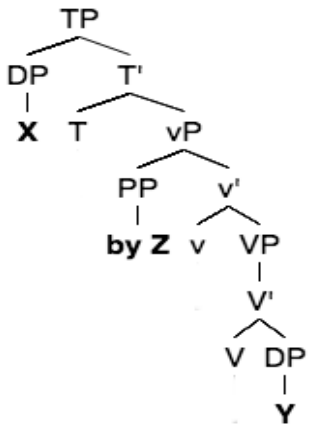
passive early in other languages, such as Sesotho (cf. Demuth 1989, Demuth et al. 2010), Zulu (Suzman 1985), and Quiche Mayan (Pye & Poz 1988).

Another explanation for children's difficulties with the passive is connected to Collins' (2005) "smuggling" account. In his analysis, the *by*-phrase originates in the same position as in the active (Spec vP) and is an intervening argument. He argues that previous syntactic accounts of the passive are problematic because (i) assuming that theta-roles are assigned via a different mechanism in the passive than in the active violates the Uniformity of Theta-Role Assignment Hypothesis (UTAH) (Baker 1988) and (ii) these analyses do not respect Relativized Minimality (cf. Rizzi 2001, 2004), which is a condition on locality:

(22) Relativized Minimality:
In ... X… Z…Y, a local relation cannot hold between X and Y if Z belongs to the same structural type as X.

In terms of the passive, the external argument (Z) should block movement because it can serve as the subject (X) and is more local than the internal argument (Y) is (see 23).

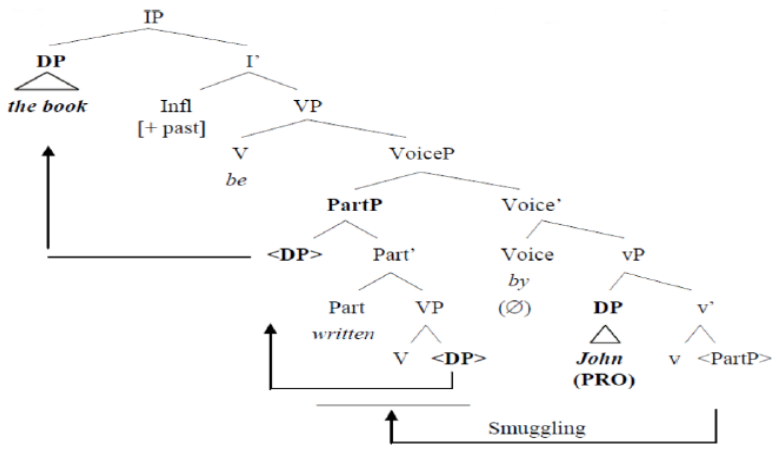
(23)



Collins (2005) argues that it is possible to avoid these problems if it is assumed the entire PartP containing the object raises to the Specifier of VoiceP. From there, the object can raise to the Specifier of PartP and again to the Specifier of TP/IP (see 24 taken from Collins). It is important

to note that his analysis relies on the assumption that smuggling is exempt from the Freezing Principle (cf. Wexler & Culicover 1980; Müller 1998), which prohibits (further) movement of an XP out of a constituent that has already undergone movement.

(24)



By "smuggling" the object inside the PartP, which constitutes phrasal movement, the subsequent extraction of the object to Spec IP does not incur an RM violation that would otherwise result from movement across an intervening argument. The object becomes the most local argument in its position within the VoiceP.

Orfitelli (2012) (following Hyams & Snyder 2006, Snyder & Hyams 2015) argues that children have difficulty with intervention. That is, children do not initially have whatever process (whether it be smuggling, or another mechanism) that adults use to circumvent intervention. She frames this as the Argument Intervention Hypothesis (AIH): Children are delayed in acquiring those structures which require A-movement across an intervening argument (whether this argument is overt or covert). Orfitelli conducted a series of experiments comparing children's comprehension of different raising constructions (StSR and *be*-passives), comparing those that take an intervening argument (25) and those that do not (26).

(25) Bill seems/appears (to Karen) to be eating cake.

(26) Bill is about (*to Karen) to eat cake.

Orfitelli conducted Truth Value Judgment Tasks (TVJTs) with children 4-6 years old comparing their comprehension of StSR verbs; she included the verbs *seem*, *tend*, *be about,* and *be going*. Importantly, only *seem* takes an intervening argument. She found that while the 4 and 5-year-old children performed poorly with raised *seem* (see 27a) (4-year-olds were correct only 10% of the time, 5-year-olds, only 22% of the time), they had no difficulty with this same verb in the unraised construction (27b).

(27) a. The dog really seems to be purple.

b. It really seems that the dog is purple.

They also had no trouble with *tend*, *be about*, and *be going*, and perform above chance with each of these. This suggests that the problem is not A-movement in general, but rather A-movement across an intervening argument (see also Hirsch et al. 2007 for similar results with *seem*). These findings support the AIH, and the claim that the intervening argument may be implicit.

In the case of the passive, the intervening argument is the *by*-phrase (which has been argued to always project, even if it is not phonologically realized, cf. Baker, Johnson & Roberts 1989). In a picture-matching task with 4-6 year-old children, examining comprehension of the *be*-passive, Orfitelli (2012) found that children performed significantly better with actional verbs than non-actional verbs, consistent with earlier studies. Of note, however, is her finding of a within-subject correlation between difficulty with StSR (with *seem*) and difficulty with the non-actional passive. Individual children who did well with *seem* also did well with the (*be*)-passive

with non-actional verbs (those that cannot be analyzed as adjectival). This supports the hypothesis that intervention is responsible for delays with A-movement, beyond StSR.[6]

Snyder & Hyams (2015) propose the Universal Freezing Hypothesis (UFH) in line with Collins' smuggling analysis: "For the immature child (at least until age 4), the Freezing Principle always applies: No subpart from a moved phrase can ever be extracted." In other words, they argue that young children do not have recourse to smuggling and are thus completely "frozen". Snyder & Hyams argue that it is this mechanism that needs to mature, and that this matures in stages. First, around the age of 4, the child acquires smuggling with actional verbs. Around age 6 or 7, the child acquires smuggling with non-actional verbs, but only after he is able to semantically coerce the non-actional predicate into an eventive one. Here Snyder & Hyams follow Gehrke & Grillo (G&G) (2008) in assuming an analysis similar to Collins (2005), but one that is based off of information structure. G&G argue that the passive is only possible with predicates that have a BECOME-operator (i.e. eventive predicates). With these predicates, there are two VP-shells, and thus a container for smuggling. In order to form a passive with a non-eventive predicate, an extra process of semantic coercion is needed. Snyder & Hyams argue that it is this additional process of coercion that causes the stage-wise acquisition of passive and children's early difficulty with non-actional passives.[7]

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[6] Orfitelli (2012) follows B&W (1987) in assuming that children's earlier success with actional passives is because they are analyzed as adjectival.

[7] Snyder & Hyams (2015) argue that the only way for young children to perform well with the passive before they have acquired smuggling and semantic coercion is if the object and the intervening argument do not share the same set of features; movement of the object across the subject does not constitute a violation of Relativized Minimality, iff the object has a (discourse) feature that the intervener does not have (as described by Rizzi 2004). Thus, in these cases, smuggling would not be necessary. Their account also explains why passives are acquired earlier in languages like Sesotho where the subject is + Topic. See S&H for discussion.

3.2 Acquisition of Get-Passives

As previously mentioned, children's production and comprehension of *get*-passives has largely been ignored, but there have been a few studies that have highlighted what seems to be an earlier acquisition of *get*-passives.

Marchman et al. (1991) looked at both *get* and *be* in child language. They conducted an elicited production task in which children (3;01-11;11) could respond with either a *be* or *get* passive or an active. In the first study children watched videos depicting various characters and/or objects and were then prompted to tell the experimenter about what was happening from the point of view of every character. Then, in the second experiment, this same procedure was followed, except that children were asked to only describe the event from the point of view of the most "patient-like" character. Marchman et al. (1991) displayed intransitive actions (e.g. frog hops), as well as what she refers to as transitive actions with two or more animate actors (e.g. *kangaroo* hits *zebra*), and transitive actions with animate and inanimate actors (e.g. *man* gives *flower* to the *lady*). The videos depicted actional predicates (as opposed to psychological, or non-actional predicates). The passives that children did produce were almost always *get*-passives; the rate of *get*-passives was 80% of all passives produced for all age groups (and 100% for the 5-6 year-olds), whereas the rate of *get*-passives for the adults was only 8%. Similarly, Crain et al. (2009), although not conducting a systematic comparison of *get* and *be*-passives, also note the high frequency of *get*-passives found in an elicited production experiment that they conducted with preschool children (mean age 4;04). Almost all of the examples provided have *get*, although exact percentages are not provided. Turner & Rommetveit (1967) report the same finding, that is, children often produced *get*-passives more than *be*-passives, causing them to claim that children acquire the former before the latter.

However, it should be noted that the early, more frequent use of *get* may be influenced by dialectal factors. Meints (2003) conducted an elicited production task with British children (ages 2-4 years), as a follow up to Marchman et al. (1991), and found that they hardly produced any *get*-passives; only 4.8% of children's passives in their first experiment were formed with *get* and only two *get*-passives were produced in her second experiment. Meints manipulated animacy and various semantic factors (e.g. affectedness of the patient-subject, etc.), but this had little effect on eliciting *get*-passives. She reports that *get*-passives are more marginal in adult British English, and suggests that perhaps frequency/usage differences in the use of *get*-passives in British and American English could be responsible for these findings.

Harris & Flora (henceforth H&F) (1982) compared the acquisition of *get*-passives to *be*-passives; they conducted production, imitation, and comprehension (act-out) tasks with three groups of children (mean ages 4;6, 6;1, and 8;5), a total of 58 children overall. H&F used four different actional verbs; two in reversible passives and two in non-reversible passives. They found that children performed significantly better with *get* in all tasks and at each age. Children produced 423 *get*-passives, and about half of these (204) were produced after the *be*-passive was modeled; only 6 total *be*-passives were produced. All of the age groups provided more correct responses with *get* than with *be* prompts for both the imitation and the comprehension tasks (see Table 1, modified from H&F 1982).

Table 1. Results from Harris & Flora (1982): *Get* vs. *Be*

Task*	Verb	
	Get	Be
Imitation		
M	7.48	6.81
SD	0.98	1.66
Comprehension		
M	7.39	7.07
SD	0.88	1.12
Production		
M	3.78	0.05
SD	2.81	0.22

*maximum score for each verb per task is 8/8

Fox & Grodzinsky (F&G) (1998) also conducted a study comparing the comprehension of *get-* and *be*-passives. F&G argue that children's difficulty with the passive is connected to theta-role transmission; here they follow an account of the passive in Jaeggli (1986), in which the passive morphology absorbs the external theta-role and transmits it to the object in the *by*-phrase (see Section 2.1). In Jaeggli's analysis, without the *by*-phrase there is no theta-transmission. On their account, moreover, theta-role transmission is only needed with non-actional passives (i.e. *John was loved by Jane*), where the object of the *by*-phrase is not an "affector". F&G (1998) assume that actional *be*-passives and all *get*-passives (the latter only compatible with actional verbs) have direct (affector) theta-role assignment via the preposition. They claim that children assume default agent assignment with all actional passives, but are unable to transmit the theta-role in non-actional *be*-passives.

F&G (1998) conducted a TVJT to evaluate their hypothesis. They tested 13 children ages 3;06-5;05. Two children demonstrated adult-like performance with all types of passives. The remaining children did well with long (actional) *get*-passives and long actional *be*-passives, as expected. They had trouble with long non-actional passives, also as expected (and consistent with previous research, see Section 3.1). Three children also had difficulties with short non-

actional passives (see Table 2, from F&G), which is not predicted, as there is no *by*-phrase and therefore no theta-role transmission. This is consistent, however, with previous studies that have found no effect of the *by*-phrase on comprehension, but rather a divide between actional and non-actional verbs.

Table 2. Results from F&G (1998)

	% correct	
	group 2 (8 children)	*group 3 (3 children)*
actional *be*-passives (long)	100%	100%
get passives (long)	100%	100%
actional actives (control)	100%	100%
non-actional actives (control)	100%	100%
non-actional *be*-passives (long)	**40.6%**	**25%**
non-actional *be*-passives (short)	**100%**	**41.6%** (not predicted)

While F&G claim that children do have *get*- and *be*-passives early on (modulo their difficulty with theta-role transmission), their results are based on only 8 children. Additionally, Hirsch & Wexler (2006a) question whether children have default agent assignment, which is a crucial component in Fox & Grodzinsky's analysis. In nominals there is direct agent assignment via the preposition (no theta-role transmission) (cf. Jaeggli 1986). They found that children (3;0-5;10) analyzed the *by*-phrase as an *about*-phrase (with a theme theta-role). This suggests that children are not simply biased to interpret the *by*-phrase as agentive.

In contrast to Haegeman (see Section 2.2), F&G analyze the *get*-passives as adjectival, with a predicative adjective embedded under the raising verb 'get'; the matrix subject begins as the thematic subject of the adjective in the Small Clause and raises to the matrix subject position (as in 28). There is no implicit internal argument. The *by*-phrase is argued to be equivalent to that which is found in nominalizations, with default agent-*by* (cf. Jaeggli 1986).

(28) [John got [$_{AdjP}$ [~~John~~ caught].

This differs from Haegeman's verbal analysis, which assumes that the subject of a *get*-passive begins as the *object* of the Small Clause and raises to the subject position of the SC before finally moving to the matrix TP position (as in 29).

(29) [John got [$_{SC}$ [~~John~~ caught ~~John~~]]].

The crucial difference between the analyses of the embedded clause in (28) and in (29) is based on whether the *get*-passive is analyzed as verbal (Haegeman) or adjectival (F&G). The adjectival analysis (28) is based mostly on judgments such as in (30-31); they claim that *get*-passives fail standard diagnostics for implicit agents (e.g. compatibility with purpose clauses, rationale clauses, etc.).

(30) *The book got torn on purpose.

(31) *The ship got sunk [PRO to collect the insurance money].

However, there is disagreement on some of these judgments (see Butler & Tsoulas 2006). Also Reed (2011) points out several flaws in the traditional diagnostics for detecting agents. For example, changing the adverb results in a grammatical *get*-passive in (32). For a more complete discussion of why some passives (with *get* or *be*) may fail certain diagnostics but not others, see Reed (2011).

(32) The book accidentally got torn in the move. (Reed 2011)

Elsewhere the *get*-passive has been analyzed as a control structure (cf. Lasnik & Fiengo 1974; Butler & Tsoulas (B&T) 2006). B&T follow Huang (1999), who proposes that the subject of a *get*-passive is not derived, and that the subject always functions as the agent in the matrix clause. The direct object is a null anaphor (PRO, cf. Chomsky 1981), which raises to subject position of the embedded clause (33). In this respect, the subject of the matrix clause is both the subject and the direct object, via co-indexation.

(33) a. John$_i$ got [PRO$_i$ caught ~~PRO~~].

This analysis is motivated primarily by the "responsibility" reading that (some) speakers are able to access, where (34a) (below) has an interpretation like the ECM/causative construction in (34b)), viz. the subject is causing or somehow helping to bring about the action in the lower predicate.[8]

(34) a. John got caught.

b. John got himself caught.

In other words, the subject is acting as an additional agent, or "secondary agent" viz. Roeper (1987).[9] The notion that the *get*-passive is associated with responsibility on the part of the patient-subject has been proposed by other linguists over the years (Arce-Arenales et al. 1994; Collins 1996; Downing 1996; Huddleston 1984; among many others). B&T argue that adding an overt reflexive pronoun makes this reading explicit (34b). This differs from the *be*-passive, which does not allow for a causative reading; the reflexive in (35b) seems to merely emphasize that it was *John* who was caught.

(35) a. John was caught.

b. John was himself caught.

However, it should be noted that the responsibility reading is highly flexible and sensitive to context, and thus seems to be a pragmatic effect (as has also been argued by Collins 1996) and not a syntactic one. That is, it is *always* possible to analyze the DP in the *by*-phrase as the agent

[8] This seems to be a dialectal issue. Not all speakers are able to access this "responsibility" reading with *get* when there is no reflexive (34a). For some speakers, the reflexive must be included (as in 34b) for the reading to surface.

[9] Roeper (1987) does not discuss the *get*-passive in particular, but he argues that secondary agents are possible in *be*-passives (e.g. *King was arrested to prove a point,* where the subject may (but need not) control into the rationale clause). This differs from Butler & Tsoulas (2006) who argue that the subject of a *be*-passive cannot be interpreted as an agent. Gotowski (in progress) reports that adults significantly prefer the *get*-passive (over the *be*-passive) when the subject could be construed as an agent.

(as in *be*-passives), but it is also possible to analyze the DP in subject position as an additional agent- but only if the context allows it. For instance, in the sentence in (36), the argument that is interpreted as responsible for "causing" the action denoted in the lower predicate is strongly influenced by what we know about baseball.

(36) The runner got tagged out by the first baseman (on purpose).

It is the job of the first baseman to tag out the runner, but it is possible to imagine a situation in which the runner purposefully allows himself to become tagged out in order to let someone else score a run or get to base safely. For this reason, the "responsibility" reading (i.e. the runner gets himself tagged out) is accessible to some speakers. In (37), however, the responsibility reading is not as easily accessible, again based on what we know about baseball.

(37) The batter got struck out by the pitcher (on purpose).

The batter does not want to strike out- as this serves no purpose. The causative reading is not possible, at least not without providing additional context where, for example, the batter wants to be traded to another team and is playing poorly so that he gets his wish.

Given that the "responsibility" reading (for those who have it in their grammar) is easily manipulated by real world knowledge, it does not seem to be the case that this interpretation is syntactically encoded. Nothing *excludes* interpreting the argument in the *by*-phrase (i.e. the first baseman, the pitcher) as the agent; it seems that some speakers are simply able to interpret two agents, the one causing the action and the one responsible for the action coming about. The control analysis, furthermore, does not explain the facts offered in support of a raising analysis given in Section 2 (idioms, etc.).

Due to the aforementioned problems with the adjectival and causative/control analyses, and the support for the availability of a raising analysis (outlined in Section 2), I will assume that

the *get*-passive is a verbal passive. I argue that both passives are amendable to a Collins-style "smuggling" analysis. Collins (2005) assumes that the *get*-passive (just like the *be*-passive) involves a VoiceP, although he does not outline an analysis for 'get' specifically (see fn. 6, pg. 91). If there is a VoiceP in *get*-passives as well, then by extension the object could be smuggled across the *by*-phrase in Spec vP into this VoiceP. The object would then be able to move to the canonical subject position (just as in the *be*-passive, see example 24). In other words, I am extending Collins' analysis by assuming that both the *get*- and *be*-passive have an intervening argument (in the *by*-phrase), and that both are formed via A-movement across that argument.

Nevertheless, it is possible that children (unlike adults) assume a control analysis for the *get*-passive. It could be that the reason for the apparent asymmetry in the comprehension of *get*- and *be*-passives is because children are analyzing *get*-passives as control or causative structures, with direct theta-role assignment to the matrix subject position, and are thus interpreting them as they would actives (following the structure in (33)). This analysis might be expected if children do not have A-chains/A-movement in their early grammar (viz. Borer & Wexler 1987). This possibility would also be an option available within UG; there are languages with a *get*-passive equivalent that require a thematic subject (such as French *se faire*) (see Gaatone 1998; Reed 2011). I will follow up on this possibility of a control analysis in Section 5, when I present the experimental studies that I conducted to address the structure of the *get*-passive in children's grammar. First, however, I will discuss data that I collected from CHILDES in this next section, to compare children's use of *get*- and *be*-passives in their spontaneous production.

4.0 CHILDES Study

To further explore the reported asymmetry between *get-* and *be*-passives in child language, as reported in elicited production (cf. Marchman et al. 1991; Crain et al. 2009), I analyzed several corpora on CHILDES (MacWhinney 2000) in order to (i) determine how early children produce *get*-passives in spontaneous speech, (ii) compare their production of both *get-* and *be*-passives, and (iii) compare children's production (the output) to the input that they receive.

For this analysis, I counted unambiguous verbal passives, including those with a *by*-phrase and/or those with a verbal past participle that is distinct from its adjectival past participle (38).

(38) a. The door was/got opened. (verbal)

b. The door was/got open. (adjectival)

In other, less transparent cases, I followed the following criteria to determine whether to include a given *get/be*-passive as verbal:

1) It has an active paraphrase, e.g. for 38a), *Someone opened the door*.

2) It cannot take *very*-modification,[10] e.g. **John was very pushed/hugged/noticed*.

I discarded any ambiguous constructions that did not pass these diagnostics.[11] I also excluded certain verbal phrases like "get married", "get dressed"; these are typically reflexive/reciprocal in nature. If the context specified that this was not reflexive, however, then I included such verbs.

I included the following North American English corpora on CHILDES: the Weist corpus (Weist & Zevenbergen 2008; six children, ages 2;01-5;00), the Providence corpus (Demuth et al.

[10] Chappell (1980) argues that only adjectival constructions allow adverbial modification as in (a). Verbal passives never allow adverbial modification as in (b).

(a) *John got/was very arrested.

(b) John got/was very interested in the game.

However, this does not seem to be true for all adjectives (e.g. *The car was completely destroyed by John*.)

[11] In this sense, the results from this study may be on the more conservative side.

2006; six children, ages 0;11-3;11), the Suppes corpus (Suppes 1974; one child, age 1;11-3;03), and the Braunwald corpus (Braunwald 1997; one child, age 1;05-7;00). There were 14 children included in this analysis overall. I searched for variants of the *get*-passive with *got*, *get*, and *gets* and variants of the *be*-passive with *was* and *were*. I analyzed the CHI (target child) tiers and MOT (mother) tiers in each corpus, in order to compare input and output.

4.1 Results

Table 3 reports the age of first occurrence of a *get*-passive and *be*-passive in each corpus, and the total number of each type of passive produced. For age of first utterance, I followed the criteria in Snyder & Stromswold (1997) in counting the first novel, clearly articulated passive.

Table 3. Frequency of Passives in Spontaneous Child Production

Corpus	**Get-passives**		**Be-passives**	
	Age of First occurrence	**Number of Tokens**	**Age of First occurrence**	**Number of Tokens**
Weist	2;06	36	--	0
Providence	1;11	16	2;04	6
Suppes	3;00	1	--	0
Braunwald	2;06	3	--	0
Total	**--**	**56**	**--**	**6**

These results indicate that overall children spontaneously produce very few passives, but also that they produce many more *get*-passives (n= 56) than *be*-passives (n= 6). This finding is consistent with Marchman et al. (1991) and Crain et al. (2009), who reported that children produced more *get*-passives in elicited production. Based on the Providence corpus, I also found that children produce *get*-passives (age 1;11) before *be*-passives (age 2;04).

At first glance this might support previous claims that the *get*-passive is acquired earlier. However, Table 4 shows that this same production asymmetry is found in child-directed speech (in American English). Comparing the number of *get*-passives to *be*-passives in the input (from

the children's mothers), we see in Table 4, that adults produced more of the former type than the latter (n= 93 vs. n= 17).

Table 4. Frequency of *Get* vs. Be-Passives in Spontaneous Production by Adults and Children

Corpus	**Get-passives**		**Be-passives**	
	Number of Tokens (Adult)	**Number of Tokens (Child)**	**Number of Tokens (Adult)**	**Number of Tokens (Child)**
Weist	34	36	1	0
Providence	31	16	12	6
Suppes	15	1	1	0
Braunwald	13	3	3	0
Total	**93**	**56**	**17**	**6**

It cannot be the case that adults fail to comprehend the passive, so there must be another reason behind this preference for the *get*-passive. Importantly, this suggests that children's early and (relatively) more frequent *get*-passive production may simply be an effect of the input, and/or that the same reasons (whatever they may be) behind a preference for the *get*-passive in the adult grammar may be responsible for this preference in the child grammar as well. In other words, we cannot conclude from the frequency of *get*-passives in child speech alone that children comprehend *either* type of passive earlier than the other, as children actually seem to be patterning like adults.

Although both children and adults produce more *get*-passives than *be*-passives, it is possible that the kinds of *get*-passives that they are producing are different in some way. A more detailed analysis of the Weist corpus (six children, ages 2;01-5;00) provides some additional insight into production. I categorized *get*-passive production by both subject type (animate vs. inanimate) and passive type (short vs. long). If children have a control bias because they do not have A-chains, then it is expected that they may not produce *get*-passives with inanimate

subjects. An adjectival analysis might also predict that children would produce more short passives than long passives. The results are summarized in Table 5.

Table 5. Frequency of Passive Type (Short, Long) and Subject Type (Animate, Inanimate) in Child and Adult Language

	No. of Get-Passives	Animate		Inanimate	
		No By-Phrase (Short)	By-Phrase (Long)	No By-Phrase (Short)	By-Phrase (Long)
Children	36	20	9	7	0
Mother	34	15	5	14	0

These children are behaving like adults in that they produce short passives more often than long passives (children: 27 short vs. 9 long, adults: 29 vs. 5). However, unlike adults, children show an effect of animacy; that is, they produce *get*-passives with animate subjects (29) more often than with inanimate subjects (7), whereas the adult produces about an equal number of both (20 vs. 14). Nevertheless, spontaneous production alone does not allow us to conclude that children have a non-adult-like representation of the *get*-passive. It should also be noted that these passives were produced by young children; all 36 passives came from children ages 2;07 to 4;06. It could be that animacy has less of an effect on older children's production.

In the following sections, I will discuss two experiments using different methodologies (a picture-matching task and an act-out task) with which I tested children's comprehension of the *get*-passive. The purpose of these experiments was to (i) see how early children understand *get*-passives, (ii) compare their comprehension of *get*-passives relative to *be*-passives, and (iii) explore what kind of structure children may be assuming for the *get*-passive.

5.0 Experiment 1: Picture-Selection Task

In order to determine if the *get*-passive has an "advantage" in acquisition as compared to the *be*-passive (as suggested by elicited production data in previous studies, see Section 3), and to see

how early children acquire both passive types, I conducted a picture selection task. If there is an asymmetry in children's comprehension of passives (Harris &Flora 1982), it is expected that children will perform better with *get*-passives than with *be*-passives.

Another purpose of this study was to determine what kind of structure children assign to the *get*-passive. If children perform better with 'get', this could be because they assume a non-adult-like structure in their grammar, for example a control structure (Butler &Tsoulas 2006), as noted earlier. In order to address this possibility, I manipulated the animacy of the agent and the patient. Raising verbs, unlike control verbs, do not place selectional restrictions on the subject; both animate and inanimate subjects are compatible (as in 39a and 40a) because there is no thematic relation with the verb (as mentioned in Section 2).

(39) a. John seems to be happy. (raising)

b. John wants to be happy. (control)

(40) a. The rock seems to be purple. (raising)

b. #The rock wants to be purple. (control)

Moreover, it is known that children are sensitive to these animacy restrictions (cf. Becker 2006, 2009, 2014).[12] If children are assigning a control structure to *get*-passives, inanimate subjects should not be possible. In contrast, if children have a raising analysis (like adults), there should be no effect of animacy on their comprehension of the passive.

5.1 Participants

Forty-four monolingual English-speaking children were included in this study; none of them had any known linguistic or cognitive impairments. Participants were recruited in Los Angeles and in

[12] Becker (2014) conducted several experiments with children aged 3-4 years on their comprehension of Subject-to-Subject Raising where she manipulated the animacy of the subject, and found that children relied on animacy as a cue in analyzing a given nonce verb as raising or control. Becker (2005) found that adults also rely on animacy of the subject in analyzing a given sentence frame.

the Greater Philadelphia area, and testing took place in schools or in the Language Lab at UCLA. Children were grouped by age, from three to six years (see Table 6). An additional 15 children were excluded because they did not pass enough experimental controls, one child was also excluded as a result of parental interference, as well as two for not wanting to complete the task (not included below). There were also 10 adult controls, for comparison.

Table 6. Experiment 1 Participants

Group	Age Range	N
3-year olds	3;00-3;11	11
4-year olds	4;01-4;10	11
5-year olds	5;01-5;10	11
6-year olds	6;00-6;09	11
Adults	23-29	10

5.2 Procedure and Materials

Children were presented with a pair of pictures as they listened to a short story/description of the picture. This was followed by a prompt to point to one of the pictures. Three "pre-test" items (not scored) were included in order to familiarize children with the methodology.

The experiment had a block design, with the experimental controls (actives) presented in one block and test items (with fillers) in a separate block. The "experimental block," consisted of a total of 12 stories/prompts with a passive; 6 with animate subjects (as in 41) and 6 with inanimate subjects (as in 42).

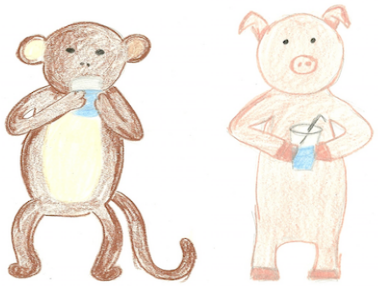
(41) Elmo and the Count were playing tag, and they each took turns being "it." Can you show me the picture where **Elmo got/was chased by the Count**?

(42) It looks like there is a flower and a rock, with one on top of the other! Can you show me the picture where **the flower got/was covered by the rock**?

The subject and the object always matched in animacy (i.e. there was never an animate subject with an inanimate patient, or vice versa); all of the stories were semantically reversible. This was again to avoid any confound in which children could rely on extralinguistic information to arrive at the correct answer, as in non-reversible passives there is only one logical agent. All 12 stories had a version with a *get*-passive prompt and a version with a *be*-passive prompt for a total of 24 items. However, the items were divided into two sets (A and B), so that each child received only 12 test items (6 passives with *get* and 6 with *be*); these sets were counterbalanced so that half of the *get*-passives had animate subjects (as in (41)) and half had inanimate subjects (as in (42)); the same procedure was followed for the *be*-passives.

There were a total of 6 fillers included in this experiment, which were interspersed with the test items. For these, children again saw two pictures, but each picture had a different animal performing an intransitive action. They were then instructed to point to one of the pictures with a prompt in as in (43). In this case, the child would simply have to identify the correct animal to answer correctly. These were included to ensure that the child was paying attention.

(43) The pig and the monkey were thirsty, so they decided to drink a glass of water. Can you show me the picture where the monkey is drinking water?



In order to be included in the analysis, participants had to pass 5/6 control items; the controls were stories with prompts (6 total) in the active voice (44). The two pictures were the same except for the identity of the agent of the action. Unlike the fillers, in order to respond to these correctly the child had to understand the agent and the patient.

(44) Big Bird and Elmo were both playing outside, and when they came in they had to get cleaned up. **Can you show me the picture where Big Bird washed Elmo?**

In total, children received 27 different sentence/story pairs (3 pre-test items + 6 active controls + 12 test items + 6 fillers). The presentation of test items was pseudo-randomized, so that children never received two of the same type of prompt in a row (e.g. *get*-passive with an animate subject followed by another *get*-passive with an animate subject).

5.3 Results and Discussion

As mentioned, children had to get 5/6 active controls correct to be included; 15 children did not pass enough of the controls and had to be excluded. All children who were included (N= 44),

performed well with the active sentences, group performance ranging from 92%- 95% correct (adult performed at 100%). Children also had no difficulties with the fillers; only one child participant missed one filler. All other responses (263/264) were correct.

As previously mentioned, this experiment is an attempt to answer the following three questions: (ii) How early do children acquire both types? (ii) How do children perform with *get*-passives relative to be-passives? (iii) What kind of structure are children potentially assuming for *get*-passives? I will discuss the results in the context of these questions.

How early do they acquire both types of passives?

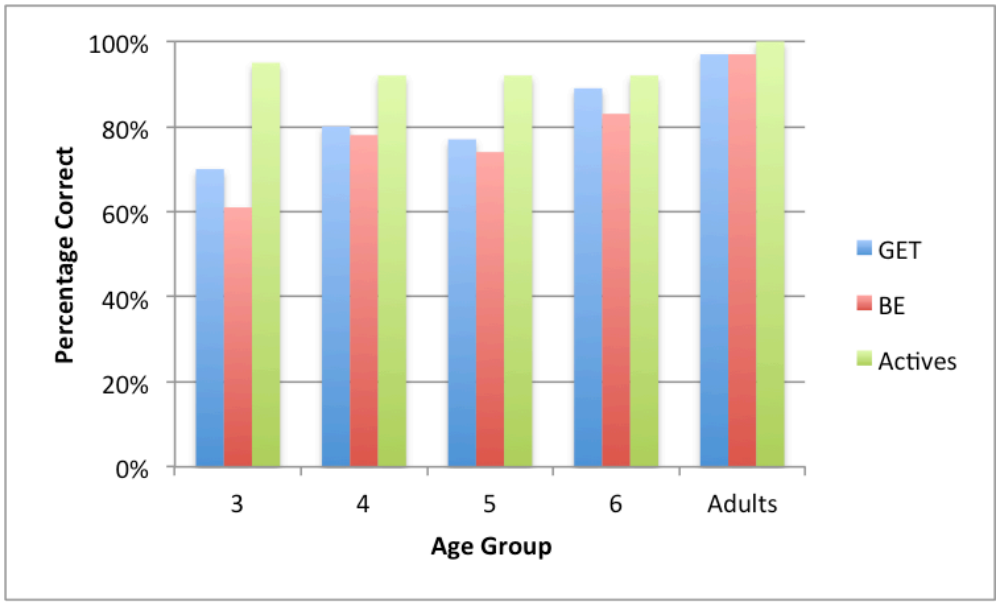
The raw results for *get*-passives compared to *be*-passives are in Table 7 and Figure 1 below. Performance is comparable for both, although overall children perform somewhat better with *get*-passives. The biggest difference comes from the 3-year-old group (70% correct for *get* and 61% correct for *be*). As there are 66 trials (items) per age group, and each trial had a probability of 0.5 (a binary outcome), a two-tailed binomial test indicates that chance performance- where the probability of obtaining X number of successes is non-significant- would be between 25 and 41 correct responses out of 66 trials with a 95% confidence interval. The binomial test shows that the 3-year-olds as a group are performing at chance ($p = 0.10$) with *be*-passives, but they are above chance with *get*-passives ($p < 0.05$). This would suggest that children have *get*-passives, but not *be*-passives, by the age of 3. The 4-6-year old groups are performing above chance ($p < 0.05$) with both *get*- and *be*-passives, indicating that they have both in their grammar.

Table 7. Get-Passives vs. Be-Passives

Age	GET	BE	Active
3	46/66 (70%)	40/66 (61%)[c]	63/66 (95%)
4	53/66 (80%)	51/65 (78%)	61/66 (92%)
5	51/66 (77%)	49/66 (74%)	61/66 (92%)
6	59/66 (89%)	55/66 (83%)	61/66 (92%)
Adults	58/60 (97%)	58/60 (97%)	60/60 (100%)

c = chance performance ($p \geq 0.05$)

Figure 1. Get-Passives vs. Be-Passives (Percentage Correct)



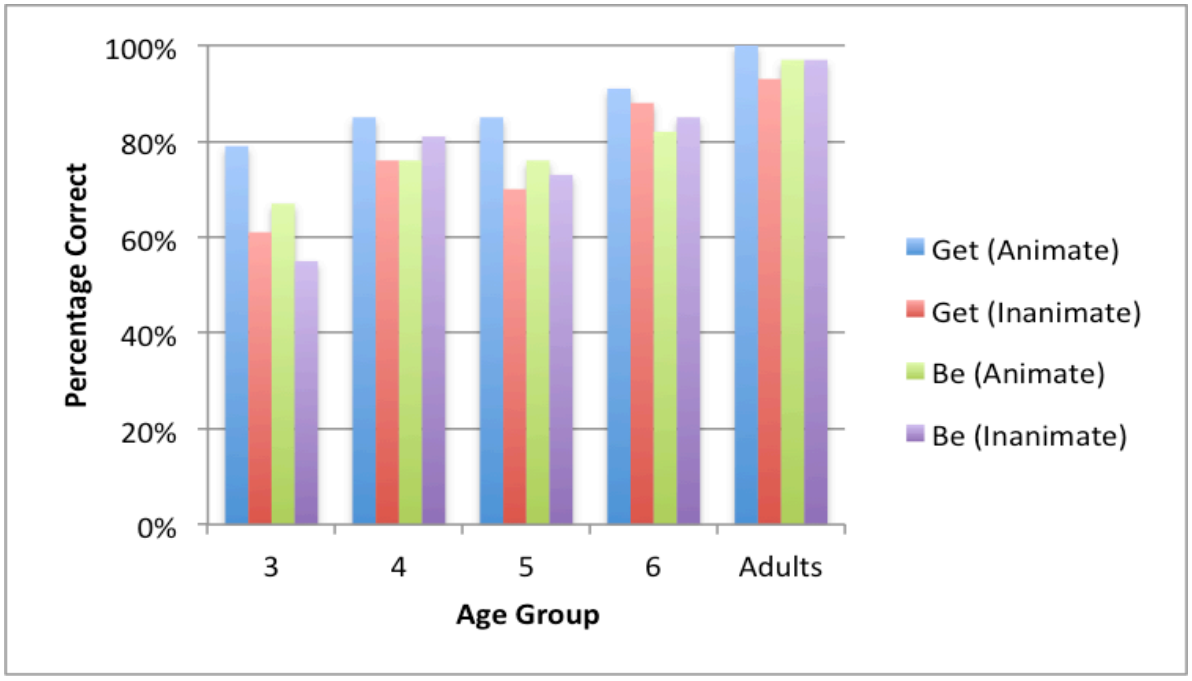
In Table 8 the results are broken down by animacy of the subject and of passive type. There were 33 trials per condition (4 different conditions); with a probability of 0.5, a two-tailed binomial test indicates that scoring between 11 and 22 out of 33 would be considered chance performance (with a 95% confidence interval). This shows that the 3-year-olds are at chance with *get*-passives with inanimate subjects and all *be*-passives (as previously stated). All of the other age groups are performing above chance ($p < 0.05$) on both passive types, with animate and inanimate subjects.

Table 8. Animate Subjects vs. Inanimate Subjects

Age	Get-Passives		Be-Passives	
	Animate	Inanimate	Animate	Inanimate
3	26/33 79%	20/33 61%[c]	22/33 67%[c]	18/33 55%[c]
4	28/33 85%	25/33 76%	25/33 76%	26/32* 81%
5	28/33 85%	23/33 70%	25/33 76%	24/33 73%
6	30/33 91%	29/33 88%	27/33 82%	28/33 85%
Adults	30/30 100%	28/30 93%	29/30 97%	29/30 97%

* one response missing, c = chance performance

Figure 2. Animate vs. Inanimate Subjects (Percentage Correct)



These results indicate that *get*-passives are acquired earlier than *be*-passives (which is consistent with previous claims in the literature), but crucially only *get*-passives with *animate* subjects. The prediction was that if children assume a control or causative analysis of the *get*-passive, they will only comprehend those with animate subjects (as control verbs are generally only compatible

with animate subjects); this is exactly what was found with the 3-year-old group, who performed above chance with 'get' with animate subjects alone. Their performance with all other conditions at that age indicates that these children might be guessing. This response pattern is not consistent with either a raising or an adjectival analysis (in which case both animate and inanimate subjects should be possible for both verbs). Thus, the results of Experiment 1 importantly suggest that children's early *get*- "passives" may not really passives at all, but rather causative constructions. Around age 4, however, something happens in their grammar that allows them to do well with all passive types (those with *get* and *be*, and those with animate and inanimate subjects).

How do children perform with *get*-passives relative to *be*-passives?

The results were further analyzed with a mixed logistic effects regression model. The categorical between-subjects variables included Verb (*get* or *be*), Animacy (animate or inanimate subjects) and Age (3, 4, 5, and 6). Responses were coded as either "correct" or "incorrect" (i.e. the child pointed to the reverse image), thus this was modeled as a binary outcome. There was a random intercept for Item. Removing the random intercept Item revealed a significant decrease in fit, $\chi^2(1) = 41.065$, $p < 0.05$. Removing the random intercept Child had no significant effect, however (that is, children's performance was more or less uniform), so it was dropped from the model, $\chi^2(1) = 0.991$, $p = 0.32$.

Adding all of the two- and three-way interactions (Age*Animacy*Verb) into the model revealed no significant interactions. This indicates that there are no significant correlations among the main variables; comparing the model with and without interactions did not reveal a significant decrease in fit ($p > 0.05$), so the interactions were not included.

The final model (in Table 9) revealed a significant main effect of Age (4), Age (5), and Age (6) ($p < 0.05$). What this indicates is that the 4 to 6-year-olds are performing significantly

better than the 3-year-olds, represented by the Intercept (the 4 to 6-year-olds are again above chance with all types of passives, confirmed by changing the Intercept). None of the other variables in the mixed effects model (Verb, Animacy) reached significance, which illustrates that Age alone is a significant predicator of performance with both passives.

Table 9. Results from Logistic Mixed Effects Regression Model
with 527 Observations, 44 Child Subjects

Fixed Effects	**Estimate**	**SE**	**z value**	**p (> |z|)**
(Intercept)	1.063	0.439	2.421	0.015*
Verb (BE)	-0.371	0.225	-1.420	0.155
Animacy (I)	-0.320	0.551	-0.674	0.500
Age (4)	0.835	0.304	2.746	0.006**
Age (5)	0.600	0.294	2.043	0.041*
Age (6)	1.408	0.335	4.198	0.000***

. $p < 0.1$, * $p < 0.05$, *** $p = 0$

What kind of structure might children be assuming?

These results of the logistic regression model indicate that Verb and Animacy are *not* significant predictors of children's performance, but testing the Intercept confirms that the 3-year-olds are behaving differently than the 4-6-year-olds. They are significantly above chance with animate *get*-passives alone ($p < 0.05$), as opposed to all other age groups, who are above chance with all passive types. This suggests an apparent advantage to *get* in development, with the "*get*-passive" being acquired earlier. However, recall that this advantage crucially only extends to *get*-passives with animate subjects, which is consistent with the hypothesis that 3-year-olds do not have a raising analysis of passives. This suggests that in their grammar *get* selects an agent, which almost always has to be animate.

As mentioned, while (some) adults are able to interpret the subject of a *get*-passive as a "responsible" agent (see Section 3.2), the subject does not need to be analyzed as responsible or agentive in the adult grammar (and for some speakers it can never be without an overt reflexive).

It is possible that for the 3-year-old child, however, this reading is the only one available in his grammar. In other words, for young children, the *get*-passive could have a covert reflexive (or PRO viz. Huang 1999, Butler & Tsoulas 2006) (as in 45).

(45) Elmo_i got [himself_i/PRO_i chased].

Nevertheless, it should be noted that while we predict young children have this responsibility reading, this experiment was not designed to determine the semantics of the *get*-passive in child grammar, i.e. if children *require* the subject to be "responsible."

In sum, 3-year-olds' earlier comprehension of *get*-passives in this study is consistent with a control or a causative analysis; what is driving the 3-year-olds' above chance performance with *get*-passives in Table 7 is their comprehension of *get*-passives with animate subjects.

Children between 4-6 years of age, however, are above chance with *both* passive types, regardless of the animacy of the subject. That is, contra the findings of Harris & Flora (1982), who claim that children perform better with 'get' at each age group, we found that by age 4 there is no statistical "advantage" to the *get*-passive in their comprehension; there is no effect of Verb on children's performance. We assume that this is the point at which children acquire raising and when they do they seem to acquire it across the board, with both types of passives; neither *get*-passives nor *be*-passives are "easier" for them. These findings are also in line with Snyder & Hyams (2015): before age 4, children do not have smuggling. Around age 4, they acquire the ability to smuggle, but only with actional verbs (recall that all of the verbs included here were actional, as only actional verbs are compatible with *get*-passives). These results are *consistent* with a raising analysis for *get*-passives, and are also consistent with previous studies showing that children comprehend actional *be*-passives from around the age of 4 (see Section 3.1).

6.0 Experiment 2: Act Out Task

However, an adjectival analysis cannot be ruled out by these results alone. As mentioned in Section 3.1, Borer & Wexler (1987) and Hirsch & Wexler (2006) proposed that children's early passives are adjectival, and that it is for this reason that children are able to perform well with passives with actional verbs (which generally make good adjectives) and perform poorly with those with non-actional verbs (which tend not to make good adjectives). It has long been claimed that the *by*-phrase is only compatible with verbal passives (cf. Baker et al. 1989), which is why children's performance with passives with and without the *by*-phrase has been compared in numerous studies (see references in Section 3). Experiment 1 included passives with a *by*-phrase, and prima facie children's good performance could be taken as evidence that children have a verbal analysis in their grammar. However, it is still possible that children are ignoring the *by*-phrase or interpreting it in a non-adult-like fashion. To this end, Hirsch & Wexler (H&W) (2006a) have argued that children do not interpret the *by*-phrase as agentive, and are thus are not assuming default agent assignment (see Section 3.2).

H&W (2006b) instead speculate that children may analyze verbal passives as resultative passives (cf. Embick 2004). That is, they may analyze passives as adjectival constructions, but ones that describe events (e.g. *The door was opened*) as opposed to states (e.g. *The door was open*). According to Embick (2004), resultatives are not compatible with *by*-phrases (only verbal passives), which leads to the prediction that, if children have a "resultative strategy", then they will analyze the *by*-phrase as being semantically-contentful. For instance, they may interpret it as locative-*by* (e.g. *The door was opened [by Joe] = The door was opened near Joe*).[13] In other

[13] In the passive, 'by' is considered to be semantically-vacuous as it is the verb that determines which theta-role is assigned to the complement of the *by*-phrase.

words, children's comprehension of passives with *by*-phrases alone does not necessarily entail that they interpret the DP in the *by*-phrase as the agent.

The following Act-Out task was conducted in order to determine how children interpret the *by*-phrase, in order to determine if they have an agentive analysis in their grammar. Adults may in principle analyze the *by*-phrase as agentive (46a) or locative (46b).

(46) Alex was/got caught by Joe.

a. = Joe caught Alex.

b. = Someone caught Alex *near* Joe.

If children do not interpret the passive as having an agentive *by*-phrase, then they may provide exclusively locative interpretations. If children do have an agentive *by*-phrase, then this would be consistent with a verbal analysis.

6.1 Participants

There were a total of 20 monolingual English-speaking children between the ages of 3;6 and 6;10, without any known linguistic or cognitive impairment, who participated in this experiment (see Table 10).[14] As before, participants were from Los Angeles and the Greater Philadelphia area, and testing was done either in the Language Lab at UCLA, or at a local school/daycare. Nine children were excluded for not passing enough experimental controls, four for not being monolingual English speakers, two for not wanting to complete the task, and four due to an experimental error. As in the previous experiments, there were also adult controls.

[14] Originally children younger than 3;6 were included, but the task proved to be too demanding for them; some failed to act out stories when prompted, and all struggled with controls as well. A total of seven children (including some who refused to do the task at all) were later dropped due to changing the inclusion criteria for this experiment to children 3;6 or older.

Table 10. Experiment 2 Participants

Group	Age Range	N
Younger	3;08-4;10	10
Older	5;03-6;10	10
Adults	23-24	5

6.2 Design

This study was designed as an Act-Out Task. Children were presented with various Sesame Street figurines and other props, and asked to act out a story told to them by the experimenter; each story ended with the target phrase (a passive), and children were prompted to act out the target (as in 47). Children could interpret the *by*-phrase as agentive (a) or as locative, as in (b).

(47) This is a story about Elmo, Bert, Oscar. They were pretending to be hair dressers! Bert tried to comb Oscar's hair, and then Elmo got combed by Bert.
Can you show me, "Elmo got combed by Bert?"

(a) Bert combed Elmo.

(b) Oscar combed Elmo (while standing) near Bert.

Crucially, each of the stories involved three characters. This was to ensure that the *by*-phrase was felicitous and, most importantly, to create a scenario where the locative interpretation was plausible; this was done by having all three characters involved in the story/action in some capacity. Otherwise the third character (e.g. Oscar) may have been ignored entirely; that is, if Oscar is not mentioned in the story in (47), there would be no reason for children to assume that he is participating in the action. If the story contained only two characters, this could have biased the child to interpret the one as the agent and the one as the patient by default.

The children were first asked to identify each of the characters, to ensure that they knew them.[15] At the beginning of each story, most children would grab the correct character as he was being named (i.e. *This is a story about Elmo*…), but if they did not, they were reminded of the identity of the characters again.

There were a total of eight passive prompts with 'get' and eight with 'be', divided into two sets (A and B), so that each child only heard four of each. All of the verbs were amenable to a resultative interpretation (see Embick (2004) for discussion of various diagnostics for resultatives). The following verbs were included: *found, caught, tagged, washed, dried, held, combed*, and *fed*. A given response counted as a passive with an agentive *by*-phrase if the child analyzed the subject as the patient and had the character in the *by*-phrase performing the action. A response counted as a passive with a locative *by*-phrase if they had either (i) the third character performing the action (e.g. in 47, Oscar combing Elmo), (ii) they had the subject performing a reflexive action (e.g. Elmo combing himself) or (iii) they were performing the action on the patient-subject themselves (e.g. Child combs Elmo).

There were two pre-test items to familiarize children with the methodology; these were in the active voice (48). These were not scored.

(48) This is a story about Elmo, Cookie Monster, and Bert. Cookie Monster looked sad, so first Elmo gave him a hug, and then Bert hugged Cookie Monster!
Can you show me, "Bert hugged Cookie Monster"?

There were also four control items (two with 'get' and two with 'be') to ensure that children could access the locative reading. These were passive prompts with the preposition 'near', which only has a locative interpretation (see 49).

[15] There were only three apparent instances of children confusing characters, out of all trials/participants. In these particular cases, it was still discernable the interpretation children were assuming (e.g. confusing Bert and Ernie in *Bert got washed near Ernie,* but nevertheless providing a locative response by having the third character doing the washing). With the exception of these few cases, there is no reason to believe that children simply confused the characters in this task.

(49) This is a story about Oscar, Elmo, and Grover. All three of them were playing in the water. After they came out of the water, Oscar dried Grover, and Elmo got dried near Grover.
Can you act show me, "Elmo got dried near Grover"?

In this control condition, most children had the other (third) character perform the action in this case. Some of the children indicated that he or she was the one performing the action (not the other character), or had the character performing the action on themselves; all such readings are possible with a locative analysis. Children had to respond to at least three out of four controls to be included in the task. As mentioned, there were nine children excluded based on this criterion.

It is important to note that most of the errors on the control items (by children who were included *and* excluded) consisted of children interpreting them as passives with an agentive *by*-phrase ('near' was interpreted as 'by'). This (albeit unintentional) finding is consistent with previous research conducted by Maratsos & Abramovich (1975); they had carried out a series of act out tasks with children (ages 3-5 years) in which they manipulated the structure of the passive to see if this had an impact on their performance. They tested children on passives in which the preposition 'by' was switched with 'of' (e.g. **The cat is licked of the dog*), as well as passives without any preposition (e.g. *The cat is licked the dog*). They found that while children acted out few passive responses when 'by' was missing, the 'of' items elicited as many passive responses from the children as "normal" passives. As Maratsos & Abramovich (1975) explain it, children "mediate the passive schema". In this way children seem to coerce the preposition to take on a different meaning given the passive syntactic frame (i.e. was/got V-ed…DP). However, at the moment this is still a bit speculative, and to this end I am currently conducting research to further address the effect of manipulating the frame has on children's responses.

6.3 Results

All of the participant groups (children and adult controls) did well with the controls. The adults, as well as the 5-6-year-old group, were around ceiling (93% or more correct). The younger children (3-4 years) did not do as well in comparison (80%) correct (see previous discussion).

Table 11. Act Out Task Results (by Group)[16]

Group	Interpretations for Test Items*				Controls (% Correct)
	Passive-Agentive By	Passive-Locative By	Active	Other	
Younger (3-4 years)	43/78 (55%)	3/78 (4%)	17/78 (22%)	15/78 (19%)	32/40 (80%)
Older (5-6 years)	76/79 (96%)	2/79 (3%)	0/79 (0%)	1/79 (1%)	37/40 (93%)
Adults	38/40 (95%)	2/40 (5%)	0/40 (0%)	0/40 (0%)	19/20 (95%)

*two responses missing from the younger group, one from the older group (3 total)

The adult controls overwhelmingly preferred an agentive reading for *by*-phrase; they interpreted the *by*-phrase as agentive 95% of the time. Only two locative responses were recorded. The children in the older group behaved like adults in interpreting the *by*-phrase as agentive 96% of the time; they also provided only two locative responses. They did not give any active interpretations, indicating that 5-6 year olds have the passive construction.

The younger children produced more non-target responses (41%) to the prompts than the older group and the adults. These responses were mostly active interpretations (n= 17), i.e. where they interpreted the patient-subject as the agent, but also included some random responses (e.g. no response, an ambiguous response, etc.). They only provided passive interpretations (with either an agentive or a locative *by*-phrase) 59% of the time. However, if this younger group is

[16] There were no noticeable effects of verb. Children provided around an equal number of interpretations of each type (agentive, locative, etc.) with *get* and with *be*.

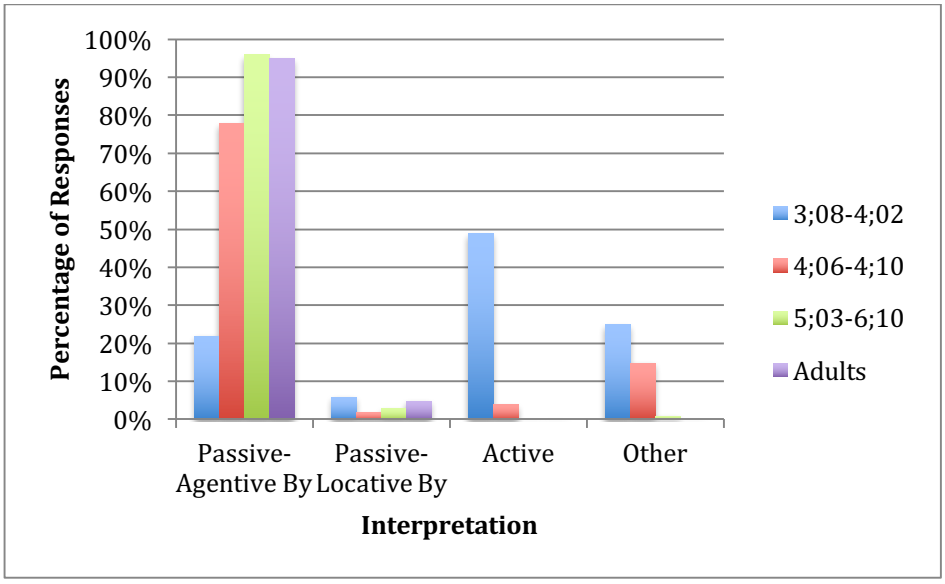
further subdivided and the performance of those younger than 4;02 is compared to that of those older than 4;06 a distinct pattern emerges (see Table 12).

Table 12. Interpretations from Younger and Older Children

Ages	N	Interpretations for Test Items*				Controls (% Correct)
		Passive-Agentive By	Passive-Locative By	Active	Other	
3;08-4;02 (Mean = 3;09)	4	7/32 (22%)	2/32 (6%)	15/32 (47%)	8/32 (25%)	12/16 (75%)
4;06-4;10 (Mean = 4;06)	6	36/46 (78%)	1/46 (2%)	2/46 (4%)	7/46 (15%)	20/24 (83%)
5;03-6;10 (Mean = 6;00)	10	76/79 (96%)	2/79 (3%)	0/79 (0%)	1/79 (1%)	37/40 (93%)

The children younger than 4;2 provided mostly active responses (49% of all responses); that is, almost half of their responses were incorrect, suggesting that they map the first argument as the agent and ignore the passive structure and morphology. Those who are 4;06 or older, however, provided mostly passive interpretations (80% or more of all responses), behaving much more adult-like in comparison (see Figure 3) and performing above chance, $p < 0.05$.

Figure 3. Act Out Task Results: Frequency of Interpretations



Overall, the results from Experiment 2 suggest first, that children younger than 4;02 incorrectly analyze *get*-passives and *be*-passives as actives, and second, that around 4;06 something happens in their grammar that allows them to correctly interpret passives. Moreover, all children 4;06-6;10 prefer to interpret the *by*-phrase as agentive, just like adults, consistent with a verbal passive analysis.

In contrast to Experiment 1, the youngest children in this task (3;08-4;02) did not do well with any of the passive prompts, regardless of the verb (*get* or *be*). This is surprising given that all prompts had animate subjects, and the 3-year-olds in the picture-matching task (Experiment 1) were performing above chance with *get*-passives with animate subjects. One possibility is that this is related to the type of task. Crain et al. (2009) studied preschool children's (mean age 4;04) comprehension of the passive also found that children performed worse with an act-out task (percentage correct around 70%) than with a picture-matching task (90%). It is thus possible that the act-out task is masking children's early comprehension of the *get*- "passive." The results

from Experiment 1 and Experiment 2, however, confirm that it is not until around age 4 that children demonstrate an understanding of the passive (*be* and *get*) (under a raising analysis).

6.4 Discussion

In Experiment 1, the picture-matching task, we found that overall children performed well with both long *get*- and *be*-passives. The exception to this finding was the 3-year-old group, who only performed above chance with *get*-passives with animate subjects. From the results, we concluded that (i) the 3-year-olds have a different grammar from the older children, possibly analyzing the get passive as a control or causative structure, And that (ii) performance from the 4-6-year-olds was consistent with a raising analysis for both *get* and *be*-passives, as in the adult grammar. However, we still could not rule out the possibility that even at this stage the children have a non-adult-like interpretation of the *by*-phrase (in line with Hirsch & Wexler 2006a), and may not analyze the DP in the *by*-phrase as the external argument. However, the findings in Experiment 2, the act-out task, indicate that children 4;06 and older do have an agentive analysis of the *by*-phrase (on average 90% of the time), consistent with a verbal analysis.

While the *by*-phrase results strongly suggest a verbal analysis, it has been argued that, contrary to the traditional analysis that has considered the *by*-phrase to be a diagnostic for verbal passives (cf. Baker et al. 1989) – a subset of adjectival passives also permit *by*-phrases (cf. Bruening 2014, McIntyre 2012, Meltzer 2011), as in (50a-b) from Bruening.

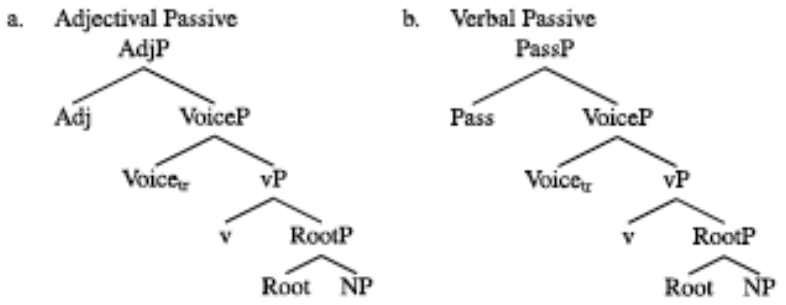
(50) a. …for 300 years these gardens were unseen, except by the favored few.

b. …there are others I would call saints more than theologians, since they seem taught by God more than by men.

The main claim is that adjectival passives formed with transitive verbs have an implicit external argument (agent), just as in verbal passives. Bruening (2014) specifically argues that verbal

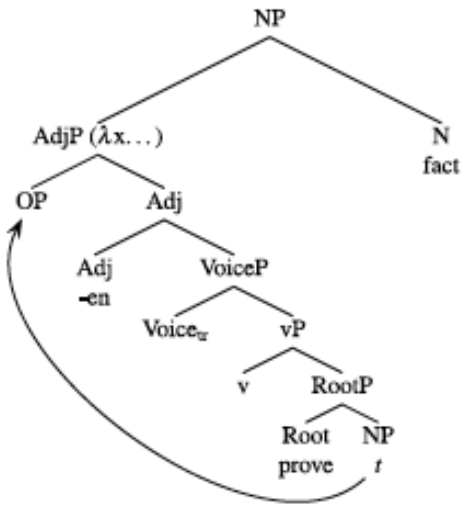
passives (labeled as PassP) and adjectival passives (AdjP) are syntactically similar; he assumes the structures in (51).[17] He assumes VoiceP introduces the external argument, and that the argument can either be implicit (as below) or spelled out with a *by*-phrase.

(51)



Bruening claims both Adj and Pass force the internal argument to move to the specifier position of AdjP/PassP; in adjectival passives, however, the internal argument is a lambda-abstractor (the modified N is outside the AdjP).

(52)



[17] This is not to say that verbal and adjectival passives are *equivalent*; see Bruening 2014 for details of his analysis.

Note that if this analysis is correct it means that the results of Experiment 2 cannot be taken as unambiguous support for a verbal analysis of passives. At the same time, however, this approach to adjectival passives entails A-movement across an intervening argument (i.e. the *by*-phrase), and hence if correct, it implies that regardless of whether children analyze passives as verbal or adjectival, they have A-movement as well as the means to circumvent intervention. .

Nevertheless, this particular analysis of adjectival passives is not uncontroversial; the exact structural properties of adjectival passives and how they are formed is still a matter of debate. Bruening (2014) claims that there is no difference between the type of external argument in adjectival and verbal passives, that the *by*-phrase is the same. On the other hand, Gehrke (2013) argues that the *by*-phrase differs (at least in German).[18] Gehrke (2013), as opposed to Bruening (2014), also does not commit to a VoiceP for adjectival passives.

As the nature and the exact position of the *by*-phrase in adjectival passives is still a matter of debate, I will remain somewhat agnostic as to which specific analysis of adjectival passives is most appropriate. Depending on which approach to adjectival passives that is assumed, however, there are different consequences for acquisition:

(i) If there is no A-movement across the *by*-phrase, and/or the *by*-phrase functions as an adjunct, then it is possible that children are relying on an adjectival strategy and do not have A-movement until around age 6, as first suggested by Borer & Wexler (1987). However, if this is the case, then why are children not relying on an adjectival strategy earlier, if it is available? That is, why do children often fail to comprehend the passive before the age of 4;06? Children ages 3;08 to 4;02 provided mostly *active* responses in this experiment.

[18] Gehrke (to appear) also argues that the *by*-phrase to (pseudo)-incorporate into the participle. She does not discuss the issue of intervention specifically.

(ii) If there is in fact A-movement across an intervening *by*-phrase (viz. Bruening 2014), then there is no argument against a raising analysis, as both involve A-movement. There would be no motivation for children to assume an adjectival/resultative "strategy" (cf. Borer & Wexler 1987; Hirsh & Wexler 2006b). This would also consequently suggest that children as young as 4 are able to escape intervention effects, regardless of their analysis of the passive.

The results from Experiment 2 could be explained if children are interpreting the passive as verbal, and the Universal Freezing Hypothesis (UFH) in Snyder & Hyams (2015) is adopted (refer to Section 3.1). Snyder & Hyams argue that the mechanism needed to "smuggle" with (actional) passives is not acquired until around the age of 4. Indeed, the youngest children (3;08-4;02) interpret passives correctly only 22% of the time in this study; as mentioned, they often interpreted passives as actives, which would be predicted if their grammar does not allow them a method to escape intervention effects. However, those 4;06 and older provided mostly passive interpretations, and analyzed the *by*-phrase as containing an agent. This is again compatible with the timeline in Snyder & Hyams (2015). The ability to smuggle would presumably allow them to not only correctly act out the passive, but also to interpret the *by*-phrase as agentive (as opposed to being constrained to interpreting the *by*-phrase as a locative adjunct, which is not found here).

In other words, the results of both experiments are consistent with a verbal analysis viz. Snyder & Hyams (2015), but depending on the analysis of adjectival passives that is assumed, children may have A-movement regardless. The results from Experiment 2 also indicate that children around age 4;06 are in fact analyzing the *by*-phrase, contra Hirsch & Wexler (2006a). Moreover, like adults, these children almost always analyze the *by*-phrase as agentive, despite a locative interpretation being possible (and felicitous).

7. Conclusions and Directions for Future Research

The goals of this research were to determine (i) how early children acquire the *get*-passive, (ii) how children perform with get-passives relative to *be*-passives to see if the former are acquired earlier than the latter, and (iii) what kind of structure children are assuming for the passive. The results from Experiment 1 indicate that there is a difference between 3-year-olds and children 4-years and older with respect to their comprehension of the passive. Prior claims in the literature that children comprehend *get*-passives earlier than *be*-passives is confirmed in this study, which systemically compared the two types. Importantly however, this study controlled for animacy, and found that 3-year-olds are *only* above chance with *get*-passives with *animate* subjects. This is consistent with the claim that there is a control/causative analysis in children's early grammar, in which 'get' is interpreted as 'get himself'. Around age 4, children seem to acquire a movement analysis of passive formation, and at this point there is no longer any advantage to 'get' in their comprehension; contra Harris & Flora (1982), children did not perform better with *get*-passives at each age. There is no effect of verb.

Importantly, while Experiment 1 did not exclude the possibility that children have a non-adult-like analysis of the *by*-phrase, the results from Experiment 2 indicate that children (by around 4;06) who have passives in their grammar interpret the *by*-phrase as agentive, which is predicted if they interpret the DP in the *by*-phrase as containing an external argument. This is consistent with a verbal analysis, and specifically Snyder & Hyams' (2015) claim that children acquire smuggling with actional passives around age 4. Recent research indicating that adjectival passives allow *by*-phrases does not allow us to rule out an adjectival strategy entirely; however, if adjectival passives involve A-movement across an intervening argument (viz. Bruening 2014 and others), this would not be a "strategy" to avoid A-movement (cf. Borer & Wexler 1987). The

results from Experiment 2 suggest that children (3;08-4;02) who do not yet have smuggling in their grammar ignore *by* all together, and possibly passive morphology, as they interpret passives as actives. Alternatively, as suggested in Experiment 1, young children may adopt a control or causative strategy for *get*-passives with *animate* subjects. What these two strategies importantly have in common in that in both cases the matrix subject seems to receive its theta-role locally.

Nevertheless, there are questions that remain in regard to children's comprehension of passives, including what to make of the distinction between actional and non-actional passives. If children have a raising analysis of passives with actional verbs, as suggested by the results of this research, then more research is needed to determine what allows children to "smuggle", or to otherwise escape intervention effects, with these verbs but not others. As noted earlier, Snyder & Hyams (2015) claim that children are particularly delayed with passives with non-actional verbs, as these crucially involve an additional process of semantic coercion (cf. Gehrke & Grillo 2008).

If children are initially unable to coerce non-actional verbs, causing difficulties with non-actional passives, then we might expect them to have difficulties with semantic coercion that extend beyond the passive. In English, for example, a non-actional verb (as in (53a) can be coerced to have an actional meaning with the addition of 'got to' (or 'came to') (53b).

(53) a. John knew Mary.

b. John got to/came to know Mary.

As a follow up to this research, I would like to determine if children have difficulties with these types of constructions with 'get' that involve semantic coercion of a stative verb. Preliminary research using CHILDES indicates that, although rare, these constructions are found early (from around age 4); however, more data, from both corpora and experimental research, is needed to

address this issue. Further analysis is necessary to decide between (and experimentally test) theories for why children comprehend certain verbal passives (with *get* or with *be*) before others.

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