

# Children's Passives and Their *Resulting* Interpretation\*

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All studies that have examined children's comprehension of passives using both actional (e.g. *wash*) and psychological (e.g. *see*) verbs in English have found a significant interaction of voice (active vs. passive) and verb type (actional vs. psychological), with psychological passives being answered most poorly. Accounts differ as to whether a grammatical impairment with passive syntax underlies these difficulties. We present experimental evidence supporting delayed syntactic knowledge of the passive construction in young children (including actional and psychological short passives), the lack of processing accounts for this delay, and children's resultative analysis of passives.

## 1. Introduction

Much evidence exists that children, until at least five years of age, have great difficulty producing and comprehending sentences in the passive voice. Such difficulties were originally reported for English by Bever (1970) and have been replicated numerous times in English (Maratsos et al. 1985, Gordon & Chafetz 1990, Fox & Grodzinsky 1998, Stromswold et al. 2002), as well as in a diverse set of other languages: Spanish (Pierce 1992), Japanese (Sugisaki 1998, Sano 2000), German (Bartke 2004), Russian (Babyonyshev & Brun 2003), and Greek (Terzi & Wexler 2002).<sup>1</sup>

It remains unclear, however, how to account for difficulties with passives. Accounts differ with respect to the underlying causal explanation. Some attribute the problem to general difficulties with non-canonical word orders (Bever 1970). Others attribute the trouble to children's inability to compute the necessary grammatical operations associated with passive syntax (Borer & Wexler 1987, Wexler 2004). Other accounts isolate the problem to the *by*-phrase, hypothesizing that no difficulties exist with deriving passives *per se* (Fox & Grodzinsky 1998). Finally, some theories attribute the problems with passives to their relative scarcity in child-directed input (Gordon & Chafetz 1990). We address these varying accounts in the following pages.

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\*We would like to thank Alex Perovic, Gabe Romero, Kat Hung, Nadya Modyanova, Danny Fox, Alec Marantz, Ted Gibson, David Pesetsky, the entire Wexler ab/Normal Language Lab, and audiences at MIT Cog Lunch 2004 and GALANA 2004. The preparation of this article was supported in part by an NSF Graduate Fellowship awarded to the first author.

<sup>1</sup> Early acquisition of passives has been argued for in a small number of languages: Sesotho (Demuth 1989), Inuktitut (Allen & Crago 1996), and K'iche' Maya (Pye & Quixtan Poz 1988). These studies reporting early passive acquisition should be interpreted judiciously. All rely exclusively on natural production data, and while this may provide a rich dataset, it is unclear what syntactic and semantic interpretation children are applying to the various productions (see Crawford (2005) for a forceful critique of Demuth's data). The one study to include a comprehension test for a language argued to demonstrate early passive acquisition on the basis of child productions found *poor* comprehension of passives (Pye 1992). For these reasons, we take comprehension tests to be the gold standard for our field. We eagerly await such tests for the languages mentioned above.

## 2. Children's Problems with Passives: ACDH

One early attempt to synthesize much of the data concerning children's early use and comprehension of passives was that of Borer & Wexler (1987). According to these authors, children's difficulties with passives stem from their inability to form an A(argument)-chain between the underlying object and subject position. Unable to represent this A-chain, children cannot correctly assign the thematic-role to the displaced object. Borer & Wexler called the proposal that children's grammar lacks the mechanism for forming A-chains the *A-chain Deficit Hypothesis (ACDH)*. They hypothesized that this inability to form A-chains is genetically determined, developing only sometime after the age of five.

Borer and Wexler argue that even with ACDH, children are still able to give passives some grammatical parse. Namely, they believe children analyze what for the adult are verbal passives as adjectival passives, where the latter are argued not to contain the crucial A-chain. In English, the verbal passive and adjectival passive are homophonous (e.g. *The door was closed* is ambiguous between a verbal (eventive) reading, wherein someone closed the door, and an adjectival (stative) reading, whereby the door was simply in the state of being closed). Borer and Wexler note that much of what is known about children's passives is compatible with an adjectival analysis.

First, it has been observed that in English, children produce almost exclusively short (i.e. without a *by*-phrase) passives (Horgan 1978). For the most part, adjectives are incompatible with *by*-phrases (e.g. *\*the door was open by the man*, on a non-locative reading). Horgan also noted that these early passives tend to have stative meaning, which is also compatible with them being adjectival and not verbal (i.e. denoting events). In a study of the acquisition of passives in Hebrew, Bergman and Sagi (1981) found that children produce adjectival passives before verbal passives, where the adjectival passive is not homophonous with the verbal passives in Hebrew, unlike in English. Maratsos et al. (1985) demonstrate that English learners produce and comprehend passives with actional verbs (e.g. *comb, scratch, touch*) better than passives with psychological verbs (e.g. *see, hear, fear*), while showing no such deficit for psychological verbs in the active voice. As Borer and Wexler note, actional verbs tend to make better adjectives (e.g. *the combed doll*) than psychological verbs (e.g. *the seen doll*). We will return to this account later in the paper.

An advantage of ACDH over other theories is that it straightforwardly predicts problems with other constructions involving A-chains. This prediction is borne out: children of the relevant age also have problems with raising constructions involving the verb *seem* (Hirsch & Wexler 2004, Froud, Wexler, & Tsakali in prep) and unaccusatives (Miyamoto et al. 1999, Babyonyshev, Ganger, Pesetsky, & Wexler 2001, Lee & Wexler 2001, Ito & Wexler 2002).

## 3. Problems for ACDH

A number of issues, both theoretical and empirical, have been noted that raise questions about the validity of ACDH. Borer and Wexler themselves noted one such problem (Borer & Wexler 1992). Advances in syntactic theory suggest that the subject is base generated within the verb phrase, from which it raises to a position outside of the verb phrase (Koopman & Sportiche 1991). This movement forms an A-chain, and thus ACDH should rule it out for the child. It is known, however, that children have no trouble raising the subject; subjects do not remain behind negation or auxiliaries in declarative sentences (Stromswold 1996).

Fox & Grodzinsky (1998) list three purported empirical problems for ACDH, the first two of which are discussed in this section. First, they note that children correctly comprehend *get*-passives (e.g. *The girl got pushed by the boy*), which they argue involve an A-chain (though as they note, not likely an A-

chain linking object and subject position, but rather, an A-chain from the right of *get* to subject position). If A-chains are truly ungrammatical for children, Fox and Grodzinsky reason that children should be impaired in their comprehension of *get*-passives, which they are not. Their second criticism involves post-verbal passives in Spanish. Fox and Grodzinsky point out that post-verbal passives probably do not involve an A-chain at S-Structure, yet children have just as much difficulty with these passives as they do with pre-verbal passives (Pierce 1992). The third issue raised for ACDH is discussed in Section 5.

#### **4. Universal Phase Requirement**

As described in Section 2, ACDH correctly, and straightforwardly, accounts for children's problems with passives, raising constructions, and unaccusatives (since these all contain an A-chain). As described in Section 3, however, ACDH appears untenable for numerous reasons. A desirable theory would be one that both captured children's problems with passives, raising constructions, and unaccusatives, while obviating the problems of VP-internal subjects, *get*-passives, and post-verbal passives. Wexler (2004) offers just such a theory, couched within the Minimalist framework (Chomsky 2001).

Chomsky's (2001) Phase Impenetrability Condition (PIC) states that when working at a phase ( $vP$  or CP), only the edge (head and any specifiers) of the next lower phase is visible. Passives, unaccusatives, and raising structures are grammatical because the relevant  $vP$  does not define a strong phase. Wexler (2004) proposes that there is one important difference for the child: children take *all*  $vP$  and CP to define strong phases, rendering passives, unaccusatives, and raising structures ungrammatical. This *Universal Phase Requirement* (UPR) is taken to hold of children until at least the age of five.

Passives are ruled ungrammatical under UPR for immature children because at the CP cycle, when Tense probes to check its phi-features, it may not access the DP in object position, since for the child, the intervening  $vP$  is a strong phase, and its complement (i.e. the VP) is invisible to syntactic operations at the higher CP phase due to PIC. VP-internal subjects, however, pose no problem for the child. The subject is base generated in the specifier of  $vP$ . From this edge position, it remains visible to the next higher phase. In this case, the defective nature of the  $vP$  has no consequence for the child's ability to compute a grammatical derivation.

As argued in Wexler (2004), UPR may be compatible with children's comprehension of *get*-passives. While the status of *get*-passives within syntactic theory remains unclear, unpublished work by Andrew Nevins suggests that they may be auxiliary-small clause structures containing no relevant *v*. If this analysis is correct, then UPR would predict no problems for the child, since child and adult grammar would not diverge. As for the Spanish post-verbal passives, UPR has no trouble. While no surface movement occurs in this construction, a covert agreement relation does obtain for the adult between the object and the higher tense projection. UPR (and ACDH for that matter) is not constrained to cases of overt movement (see Babyonyshev et al. (2001) that this is empirically correct).

#### **5. A Lingering Problem(?): Short Psychological Passives**

We turn our focus to the third piece of evidence that Fox and Grodzinsky present against ACDH. While UPR effectively addresses the issues that proved problematic for ACDH, Fox & Grodzinsky note one additional problem with ACDH that appears to be equally problematic for UPR. They (correctly) point out that ACDH predicts that children should have difficulty comprehending short psychological passives, since they contain an A-chain and

should not make good adjectival passives due to their non-actionality. UPR, augmented with an adjectival analysis for actional passives only, would likewise predict poor performance for psychological short passives.

Fox and Grodzinsky present evidence demonstrating that a subgroup of the children they tested performed perfectly on psychological short passives, while being at chance for psychological long passives. From these data, they conclude that children *can* form A-chains, but are unable to implement theta-transmission. Their basic idea is that while children are able to mediate the movement of the object to subject position, allowing them to deduce the correct thematic-role for the derived subject, they lack the mechanism (presumably for maturational reasons) to transfer the thematic-role assigned to the subject in the active alternation to the *by*-phrase. Fox and Grodzinsky believe that children will nonetheless be able to provide an agent analysis to the *by*-phrase due to the intuition that children know the preposition *by* may assign an “affecter/agent” thematic-role to its complement in nominals (e.g. *the book by Stendhal*).<sup>2</sup> This “always agentive” *by*-phrase would therefore be (coincidentally) compatible with actional passives, but incompatible with the semantics of psychological passives that assign an experiencer thematic-role to their *by*-phrase in the adult grammar.

There are reasons, however, to question the Fox and Grodzinsky account. First, since the time their paper was published, we know of no confirming replication. Given the importance of such findings for theories of acquisition, replication seems rather desirable. Second, only eight of Fox and Grodzinsky’s children manifested the pattern demonstrating good performance on short psychological passives. A second group of three children performed exactly as predicted by Borer and Wexler (and by Wexler 2004), at chance for both long and short psychological passives. Regardless of the proportion of children in each of these two groups, the group showing good performance for psychological short passives is quite small. Third, Fox & Grodzinsky used very few items per condition (only four). The paucity of subjects and items raises the possibility of statistical artifact playing a role in their unexpected (from the standpoint of ACDH and UPR) result. Fourth, it turns out that there already existed a paper in the literature that had tested these same constructions, and found chance performance for psychological short passives (Gordon & Chafetz 1990). This study included more children (30) and more items per condition (6) as compared with that of Fox and Grodzinsky.

We attempted to address these issues by testing even more children, with even more items per condition, using a different methodology from that used in the previous two studies.

## 6. A New Study: Children

We tested the same six conditions as in Gordon and Chafetz (1990) and Fox and Grodzinsky (1998), crossing voice (active vs. passive), verb type (actional vs. psychological), and passive length (long vs. short). Four actional verbs (*push, kiss, kick, hold*) and four psychological verbs (*remember, love, hate, see*) were tested. Eight items were constructed for each condition, using each verb twice. All sentences were semantically reversible. In order to assess children’s comprehension of these sentence types, we conducted a two-choice sentence-picture matching task in which children were shown two pictures

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<sup>2</sup> Our examination of child-directed speech for 1051 English-speaking children in the CHILDES corpus weakens the proposed Fox & Grodzinsky nominal *by*-phrase analysis. Not a single such nominal was found (out of 755,454 unique utterances), nor was one produced by any child (414,014 unique utterances). While the lack of such input is suggestive of problems with this account, it is by no means definitive. Ultimately, Fox and Grodzinsky’s account predicts that children comprehend *by*-phrases in nominals in an adult manner. We are currently conducting such tests.

depicting opposite events side-by-side on a laptop screen, and asked to choose the picture that best matched the sentence they were read, whereby the child's answer was logged on the computer before continuing to the next item. The actional pictures had the two characters clearly engaged in a non-reciprocal relation. For most of the psychological verbs (except *see*), thought-bubbles were used to depict the semantic relation between the two characters, similar to Maratsos et al. (1985). All sentences were read twice before the children were allowed to respond. The location of the correct picture (left or right side) was balanced across the individual verbs, conditions, and the entire experiment. Items were presented in a randomized order to each child. To help minimize task difficulty, only four characters, to which the children were familiarized during the introduction, were used in the experiment. The notion of thought bubbles and pictures of all the verbs to be tested were also introduced in the introduction.

Data is presented for sixty children in total, with ten children included in every six-month interval from three years to six years. Details on the groups appear in Table 1.

Table 1

Group	NUMBER	AGE RANGE	MEAN AGE
3-	10	3;0-3;5	3;3
3+	10	3;6-3;10	3;8
4-	10	4;1-4;5	4;3
4+	10	4;6-4;11	4;8
5-	10	5;1-5;5	5;3
5+	10	5;7-5;11	5;9
Total	60	3;0-5;11	4;5

The experimental results are summarized below in Table 2. Overall, children performed quite well on both actional and psychological actives (every child scored at least 80% correct on the actives). While it is conceivable that the psychological items might have been more difficult (e.g. due to implied reciprocity, difficult imageability, problems with thought bubbles), children's near perfect performance on the psychological actives demonstrates that the psychological items were no more difficult than the actional items. In fact, across all the children, we found a small advantage for the psychological actives (96.9% correct) versus the actional actives (94.2% correct). It is important to note that since the same pictures were used for the active and passive conditions, any difference between actional passives and psychological passives must be due solely to children's understanding of the constructions themselves, and not to the items used to test comprehension. Ignoring the short passives momentarily, we replicated previous studies that found a significant main effect of voice ( $F(1,59) = 169.59, p < 0.0001$ ;  $F(1,28) = 298.87, p < 0.0001$ ), passives being answered less accurately than actives, a significant main effect of verb type ( $F(1,59) = 53.05, p < 0.0001$ ;  $F(1,28) = 38.91, p < 0.0001$ ), sentences with psychological verbs being answered less accurately than sentences with actional verbs, and importantly, a significant interaction of voice and verb type ( $F(1,59) = 85.01, p < 0.0001$ ;  $F(1,28) = 54.71, p < 0.0001$ ), psychological passives being answered worst of all [ $F(1,59)$  = subjects analysis,  $F(1,28)$  = items analysis].

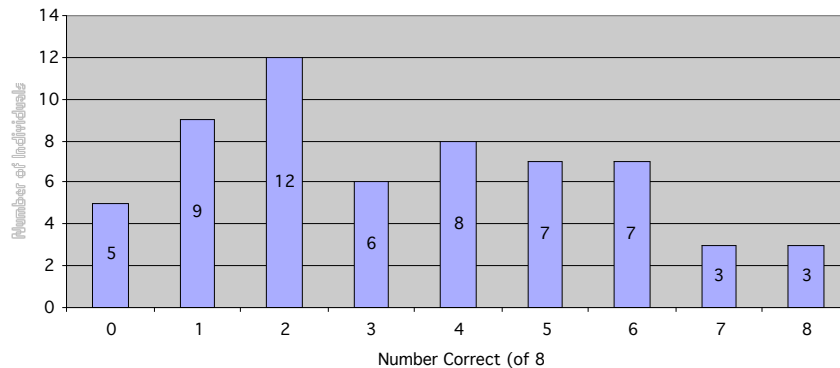
Table 2

Group	Actional Actives	Actional Long Passives	Actional Short Passives	Psych Actives	Psych Long Passives	Psych Short Passives
3-	93.8%	66.2%	72.5%	97.5%	35.0%	30.0%
3+	93.8%	53.7%	76.2%	95.0%	33.8%	35.0%
4-	95.0%	73.8%	80.0%	95.0%	38.8%	40.0%
4+	90.0%	65.0%	76.2%	97.5%	45.0%	50.0%
5-	96.3%	88.7%	87.5%	97.5%	38.8%	47.5%
5+	96.3%	78.7%	92.5%	98.8%	43.8%	55.0%
Total	94.2%	71.0%	80.8%	96.9%	39.2%	42.9%

Turning to the short psychological passives, in line with Gordon and Chafetz, and contra Fox and Grodzinsky, we found that psychological short passives did not differ significantly from chance level ( $t(59) = 1.99, ns$ ). As a group, the children did not score significantly different on psychological short passives compared to psychological long passives ( $F1(59) = 2.87, ns$ ;  $F2(14) = 1.15, ns$ ), while they did score significantly different on psychological short passives as compared to actional short passives ( $F1(59) = 89.99, p < 0.0001$ ;  $F2(14) = 35.33, p < 0.0001$ ). Across the various age groups, accuracy on the psychological short passives never exceeded 55%. As seen in the frequency distribution of how individual children scored on the psychological short passives in Chart 1, the data are centered about the lower to mid numbers. Furthermore, the data appear unimodal, without much of a hint of a second group clustering around the higher numbers where Fox and Grodzinsky predict all children should fall.

Chart 1

Frequencies of Number Correct for Psychological Short Passives (All children)



It remains unclear what explanation is needed to account for the subgroup of eight children manifesting good performance for psychological short passives in the Fox and Grodzinsky study. We note that in two studies using more children and more items, children do not perform well on this construction, evidence that children do *not* comprehend psychological short passives. The only obvious difference between the three studies involves the methodologies used to test for comprehension. While it is unclear why the methodologies would converge in five of the six conditions, perhaps the only conclusive way to determine if methodology plays an important factor would be to test the same children on the same items using all three methodologies.

In the remainder of this paper, we will concern ourselves with (two) explanations for the noted interaction of voice and verb type: a processing theory and a grammatical theory making use of an adjectival strategy.<sup>3</sup>

## 7. A New Study: Adults

One possible explanation for the interaction of voice and verb type is that there is simply something inherently more difficult in the processing of psychological passives than the other sentence types. If this were true, we might expect this interaction to manifest itself in adults as well. That is, if we were to find evidence of an interaction of voice and verb type in adults, this could reasonably be taken as evidence for a general processing difficulty with psychological passives, which might be driving the children's comprehension problems, assuming children had access to less syntactic processing resources than adults (which is not at all obvious).

We tested this hypothesis by having twenty adult subjects (18-37 years, mean age 21;4) complete the same test as administered to the children, with two small changes. First, the sentences appeared at the bottom of the screen for the adults to read, and thus were not read to the subject by the experimenter. Subjects were free to respond at any time once the pictures and sentence were presented. Second, in addition to accuracy, subjects' reaction times (RTs) were also recorded from the time that the pictures were first presented to when the subject pressed the key to choose the picture matching the sentence. The task was therefore completely self-paced, other than the introduction, which was identical for the children and adults.

In order to ensure that no outlying RTs drove the data, we eliminated all responses falling three SDs above or below the mean response time (calculated with respect to each subject's mean), resulting in a loss of only 0.5% of the total data. We also eliminated these responses from counts for the accuracies, since it is unclear what to make of any sentences answered extremely quickly or slowly. The same inclusion criterion of at least 80% accuracy for the actives applied to the adults, resulting in no subjects having to be replaced. The adult data is summarized in Table 3.

Table 3

CONDITION	ACCURACY (% CORRECT)	RT (MS)
Actional Actives	98.1	2219
Actional Long Passives	94.9	2562
Actional Short Passives	97.5	1857
Psychological Actives	98.1	2129
Psychological Long Passives	94.3	2552
Psychological Short Passives	97.5	2056

Across all six conditions, the adults performed extremely well, scoring above 94% correct for every condition. A two-factor ANOVA comparing voice and verb type (ignoring short passives) showed a significant main effect of voice ( $F(1,19) = 4.579$ ,  $p = 0.046$ ;  $F(1,28) = 4.724$ ,  $p = 0.038$ ), with passives answered less accurately than actives. No main effect of verb type was noted ( $F(1,19) = 0.018$ ,  $p = ns$ ;  $F(1,28) = 0.031$ ,  $p = ns$ ). Importantly, unlike what was seen in the children, no significant interaction was noted ( $F(1,19) = 0.031$ ,

<sup>3</sup> A third type of theory attributes children's particular difficulty with psychological passives to their relative infrequency in the input compared with actional passives (Gordon & Chafetz 1990). See Hirsch, Hartman, & Wexler (in prep) for a discussion arguing against such frequency accounts.

$p = ns$ ;  $F2(1,28) = 0.031$ ,  $p = ns$ ). This suggests that a processing account, at least as outlined here, might not be on the right track. That said, all accuracies were quite high, and perhaps a ceiling effect of sorts masked any interaction and thus the RT data might be more telling.

Subjects in general responded quite quickly. To assess the processing theory, the same two-factor ANOVA was computed for the RTs. Again, a significant main effect for voice was noted ( $F1(1,19) = 23.477$ ,  $p < 0.0001$ ;  $F2(1,28) = 28.546$ ,  $p < 0.0001$ ), with passives taking longer to answer than actives. There was no significant main effect of verb type ( $F1(1,19) = 0.631$ ,  $p = ns$ ;  $F2(1,28) = 0.492$ ,  $p = ns$ ). Once more, the interaction in the adults did not approach significance ( $F1(1,19) = 0.319$ ,  $p = ns$ ;  $F2(1,28) = 0.297$ ,  $p = ns$ ). Accuracy scores and reaction times from twenty adults, therefore, do not support a processing account of children's difficulties with psychological passives. We take this as support for the adjectival analysis originally presented in Borer & Wexler (1987) to account for such an interaction in children's comprehension.

## 8. Children's Resulting Analysis

We interpret the preceding data as demonstrating that children *do* have a problem deriving (all) verbal passives, in line with UPR. Passive comprehension should then, *ceteris paribus*, be equally poor regardless of verb type. Yet, all evidence demonstrates that psychological passives are harder for children to comprehend than actional passives. This advantage for actional over psychological passives must be addressed. Borer and Wexler (1987) originally claimed that this was due to children providing an adjectival analysis for actional passives, but not psychological passives, given that (i) adjectival passives lack the relevant A-chain, and (ii) actional verbs tend to make better adjectives than psychological verbs.

Recent acquisition work supports an adjectival analysis of child passives. Babyonyshev and Brun (2003) present some relevant evidence from Russian, a language where different verb forms are used for imperfective and perfective aspect. Babyonyshev and Brun note that in the natural child-directed speech for the eight children (2;6-3;9 years) they studied, there was no significant difference between the use of perfective and imperfective aspect in active sentences. For passives, the children heard the perfective form a minority of the time (44.2%). Yet, of the 212 passives spontaneously produced by the children, 193 (91%) were perfective. The authors account for this striking asymmetry in the passive voice in terms of an adjectival analysis. They note that the perfective passive, but not the imperfective passives, is homophonous in Russian with the adjectival passive form, and thus Russian children might be substituting the adjectival form in lieu of perfective passives. Terzi & Wexler (2002) provide data for a language (Greek) in which adjectival passives and verbal passives are *not* homophonous. The prediction they set out to test is that in such a language, children should do very poorly even on actional passives, since there is no (adjectival) strategy to serve as a crutch for comprehension. They show that even at the age of five, Greek children are at chance for actional passives (44% correct). At this same age, children in our study were 84% correct in comprehending actional passives. The lack of a homophone for the Greek verbal passive and subsequent poor performance even on actional verbal passives supports UPR and the adjectival strategy.

The adjectival account, as described by Borer and Wexler, however, does face a number of issues. First, there are possible syntactic problems for their adjectival theory, which is couched in a Lexicalist framework wherein adjectival passives are derived in the lexicon and hence require no A-chain (Wasow 1977). Lexicalist accounts are incompatible with recent work arguing that syntactic structure building is the only mode of structure building in natural language (e.g. Borer 2001, Pyllkänen 2002). Second, there are conceptual



questions given that their account implies that children's representation of verbal passives does not involve an event. While we know of no relevant empirical data, it seems questionable whether children believe a passive sentence picks out mere states. Finally, there are empirical issues, such as the fact that some actional verbs do not make very good adjectives (e.g. *??a held letter*), while some psychological verbs make better adjectives (e.g. *a remembered poem*).

Embick (2004) provides a new analysis of adjectival passives, arguing that there are (at least) two readings for what have traditionally been called "adjectival" passives. He distinguishes stative passives (e.g. *The door is open*) from resultative passives (e.g. *The tank is filled*). Importantly, resultative passives entail an event, whereas the stative passives do not. Thus, resultative passives, but not stative passives, are compatible with manner adverbials (e.g. *The carefully filled/\*full tank*).<sup>4</sup> The meaning of the resultative passive here is that the tank has entered a "target" state that resulted from an event of filling.

We hypothesize that premature children subject to UPR interpret verbal passives as resultative passives. This would be compatible with children taking passives to describe events. A resultative analysis of verbal passives is also quite reasonable since the verbal passives and resultative passives seem to imply each other; they have the same truth-values. If we consider immature children to interpret verbal passives as resultatives, we also have a clear reason to predict that psychological passives will be delayed longer than actional passives. Actional verbs allow a resultative reading since they involve a target state. Psychological verbs for the most part do not involve such a target state. Those actional verbs that do not clearly involve a target state are those that make poorer adjectives (e.g. *held*), assuming no salient context, while those psychological verbs making better adjectives tend to involve such a target state (e.g. *remembered*). The prediction, in need of confirmation, is that children will perform worse on actional passives that make poor resultative passives, and score better on psychological passives that make good resultative passives.

Importantly, the syntactic theory Embick sketches for resultative passives does not prove problematic for children governed by UPR. Embick argues that the DP that must raise to subject position is originally merged at the edge of *v*P. Regardless of the defectivity of this *v*, the DP is accessible for movement since it is on the edge of the *v*P. Thus, UPR does not affect the derivation of a resultative passive for children.

## 9. Conclusions

New experimental evidence is presented that demonstrates that children do have difficulties with short psychological passives, suggesting a general impairment with passives. These data are compatible with the *Universal Phase Requirement*, a new theory of late syntactic development in children. The noted interaction of voice and verb type is shown to be incompatible with a simple processing theory, and is argued instead to follow from children's resultative analysis of verbal passives.

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<sup>4</sup> Embick offers many other diagnostics for differentiating statives and resultatives. For example, he shows that after verbs of creation (e.g. *make*, *build*), only statives may obtain, since the event introduced in the resultative would be incompatible with the creation event entailed by the creation verb (e.g. *The tank was built full/\*filled*).

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