THE ACQUISITION AND SYNTAX OF THE PASSIVE IN ENGLISH

By

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A THESIS

Submitted to Michigan State University in partial fulfillment of the requirements for the degree of

Linguistics – Master of Arts

2016

ABSTRACT

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Children have been found to acquire passives of "actional" verbs prior to passives of "nonactional" verbs. This has come to be known as the Maratsos Effect (ME) and has been widely replicated (Sudhalter & Braine 1985, Gordon & Chafetz 1990, Fox & Grodzinsky 1998, Hirsch & Wexler 2006).

I present two experiments that further investigate the ME. Researchers have not always been careful about using linguistic diagnostics for categorizing a verb as "actional" or "nonactional". In the experiments reported here, verbs are split into three categories based on linguistic diagnostics for eventivity and agentivity. In Exp. 1, eventive agentive verbs (*paint, fix,* and *wash*) are tested against eventive nonagentive verbs (*forget, find,* and *spot*). In Exp. 2, the same eventive nonagentive verbs are tested against noneventive nonagentive verbs (*hate, know,* and *love*). I find evidence for a three-way distinction in the Englishacquiring child's acquisition path, rather than the two-day distinction which has classically been reported as the ME. Children learn the passives of eventive agentive verbs before the passives of eventive nonagentive verbs, which are in turn learned before the passives of noneventive nonagentive verbs.

I then explore possible accounts of this three-way distinction. I explore the intuition that children initially posit a structure for the eventive nonagentive verbs and the noneventive nonagentive verbs where both arguments of the eventive nonagentive and noneventive nonagentive verbs are projected internally to the VP. If one adopts Collins' (2005) analysis of the passive, then an account of the acquisition facts emerges on the basis of this intuition. However, this intuition cannot account for the facts if one adopts either Bruening's (2013) analysis of the passive or Legate's (2014) analysis of the passive.

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ACKNOWLEDGEMENTS

For me, it's been a long and interesting journey at Michigan State. I arrived as an undergraduate in the fall semester of 2010. At the time, I had no idea that I would stay to complete an M.A. degree. Looking back on my time here, I'm not sure that I can imagine a better place to have completed a B.A. and M.A. degree in linguistics. I will forever be indebted to many of the people in the department here.

Before I get to that, however, there are some non-linguists I would like to acknowledge. Without the friendship of Elle Abeles-Allison, Laura Bailey, Jenny Carmichael, Natalie Davenport, Zoe Jackson, Jordan Lindsay, Jim Lucas, Quinn McLeese, Noah Saperstein, Tabitha Skervin, Tabor Vits, and Alex Whitlow, Michigan State would have been a lonelier place. I'm grateful to all of these folks for many things.

And my apologies for constantly extolling the virtues of becoming a linguist to you, Jenny. (But really, you should become a linguist.)

Laura Bailey and Tabitha Skervin in particular have had a significant impact on my life. I'm lucky to have met them and cannot imagine life without having met either of them.

In addition to these non-linguists from my time at Michigan State, it would seem remiss to not also mention my non-linguist friends from high school. Though it now seems so long ago, the group of friends I had in high school was unbelievably close. Without their support, friendship, and the intellectual environment that seemed to be part and parcel of our friend group, I would not be who I am today. Thank you for everything, Brett Beutell, Charlie Crocker, Andy Engstrom, Shannon Evans, Shannon Fletcher, Katie Froehle, Tanay Mehta, Amanda Ling, Tim Liu, Tanay Mehta, Dongwoo Suh, Quintin Walker, and Julia Wang. I love and miss you all. And, for the record, we all knew you'd be the first to marry, Schmandy and Shevans. :p On to the linguists! Kenneth Hanson, Mina Hirzel, and Elliot Selkirk were the best fellow undergraduate linguists that one could ask for. I only hope that we all stay in touch over the years. This last year at MSU without you all has not been the same.

Though I mostly got to know Tess Huelskamp and Susima Weerakoon when I was more or less officially a graduate student and no longer a nebulous (under?)graduate, it has been a pleasure working with them. Without both of them, the work in this thesis would not have happened. Both have been great friends and colleagues. And I'm glad that I've been able to geek out over all things tech related with Tess.

Chris Heffner deserves special mention. In my first semester as an undergaduate, I started working as a Professorial Assistant in the MSU Language Acquisition Lab. I ended up working with Chris, another undergraduate in linguistics, who, as he's fond of saying, is from a place that is functionally equivalent to the place that I'm from. If you know Chris, then you know that saying that Chris's enthusiasm for linguistics and scientific research outshines ten thousand suns is incontrovertibly the largest understatement that has been or ever will be uttered. Even when the thought of anything to do with another artificial language experiment sounded worse than most anything imaginable, working with Chris has always been a pleasure.

In addition to the friendship and support of undergraduate linguists, I'm also grateful to the graduate students in the department over the years who warmly welcomed an (under?)graduate in their midst. Curt Anderson, Cara Feldscher, Hannah Forsythe, Jessica Gamache, Joe Jalbert, Greg Johnson, Amaresh Joshi, Ni-La Lê, Kali Morris, Alicia Parrish, Curt Sebastian, and Ai Taniguchi have all been wonderful friends and colleagues. Greg and Jess, you've been missed in the department these last few years.

As much as Chris's enthusiasm was one of the first major points of contact I had with linguistics, I really owe my beginnings as a linguist to Cristina Schmitt. Somehow, in my very first linguistics course, I found myself reading Carlson (1977) for an Honors Option in Cristina's class. Trying to read the appendix to chapter IV was quite possibly worse than trying to read Chomsky (1981) in high school with no linguistics background whatsoever. Nonetheless, I somehow found myself wanting to understand it. Cristina's penchant for involving students in research is unparalleled. The amount of service that she does for the field and department here at Michigan State is unbelievable. So many of us in this department owe so much to her.

Thank you for all that you have done for me over the years, Cristina. From all the support and encouragement with qUALMS to all of the constructive feedback and help in designing experiments and doing good linguistics, I cannot thank you enough for everything. And I'm sorry that, in return, I've subjected you to the use of IAT_EX in our most recent collaboration. :p

In finding myself wanting to understand that atrocious appendix, I soon got to know Marcin Morzycki, the local semanticist. If you ever have the opportunity to take an introductory semantics class with Marcin, do it. Watching Marcin teach an introductory semantics course is a work of art. I would have never imagined that teaching semantics almost exclusively with the Socratic method could actually work, but apparently it's quite possible (at least for people who have always wanted to be able to pull off a fedora but have never felt that they could). :p

Giving each other a bunch of shit has made my time at Michigan State more entertaining. If Marcin happens to read the acknowledgements before I defend my thesis, he'll inevitably spend a bunch of time during the defense making fun of the vests that I sometimes wear. It would also be remiss of me not to mention how entertaining some of Marcin's emails can be. If you're not a local and have never had the pleasure of reading one of Marcin's emails, as a pale substitute, I would recommend the final paragraph of the Acknowledgments chapter in Morzycki (2015) and the second paragraph in §5.3.4 in the same work. Thanks for being a great teacher and making my time (and everyone's time) here at Michigan State fun and lively, Marcin. (Someone has to be the straight man in Alan's comedy act.) After catching my breath with the artificial language experiments a little bit, I somehow found myself working on another such project. A phonology experiment, no less! Karthik Durvasula has been a great collaborator, colleague, and friend. First and foremost, thanks for putting up with my quirks as your collarborator, Karthik. :p

I've greatly enjoyed and benefited from discussions about philosophy of science with Karthik, and everyone in the department here is familiar with how generous Karthik is with his time and willingness to help students and colleagues, myself included. Thanks for everything over the years, Karthik. I promise I'll get better at best practices for R if you get better at best practices for LAT_{FX} . :p

Cristina might tell you that it's Alan's fault that she's being forced into using LATEX in a collaboration with me. In my opinion, I'm quite grateful to have had the opportunity to learn LATEX in a department with Alan Munn, who you undoubtedly know if you're a linguist who uses LATEX. In addition to geeking out about tech stuff with Tess, it has been nice to be able to do so with Alan as well.

While Alan's puns are notorious in the department, I think the crowning comedic moment of my time here goes to Grover Hudson, when he gratuitously coined the nickname "Munnsie" for Alan during the middle of a colloquium talk. Here's to hoping that Acknowledgment chapters in theses are like emails for Alan so that he doesn't realize I put that in print. :p

But more seriously and most importantly, I'm quite grateful to Alan for being a wonderful advisor and a great teacher. Alan's depth and breadth of knowledge of syntactic phenomena, analyses, and theories always greatly improves everyone's research at Michigan State, my own included. Thanks for everything over the years, Alan.

I'd like to briefly return to some non-linguists. Without my family, I would not be where I am today, and none of this would be possible. My mom, my dad, and my brother have always been incredibly supportive of me. (My mom even went so far as to get in touch with Greg Carlson in order to get me a print copy of Carlson (1977). That must have been weird!) Thank you for all your support and love over the years, Jackie, Jeff, and JJ. It means a lot to me. And thanks again to you as well, Laura, for everything. I love you all.

Lastly, I would like to hereby publicly acknowledge that I believe there is a special place in hell for linguists who use plural agreement with *data*.

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CHAPTER 1

INTRODUCTION

This thesis will explore the acquisition and syntax of passives, particularly in English. In chapter 2, I report two experiments investigating the Maratsos Effect. As will be explained in more detail in §2.1.1, the Maratsos Effect is the finding that children perform better on passives of "actional" verbs compared to passives of "nonactional" verbs. The two experiments reported in chapter 2 will show that what has classically been thought to be a two-way distinction in an English-acquiring child's acquisition path is actually a three-way distinction. Specifically, the experiments in this chapter will show that children acquire the passives of eventive agentive verbs before the passives of eventive nonagentive verbs, which are in turn acquired before noneventive nonagentive verbs.

In light of this, chapter 3 will then explore possible accounts of this three-way distinction amongst verb types that arises in an English-acquiring child's acquisition path toward mastering the passive. I will pursue an intuition that children initially (incorrectly) posit that both arguments to eventive nonagentive verbs and noneventive nonagentive verbs are projected internally to the VP. It will be shown that this hypothesis, in conjunction with Collins' (2005) analysis of the passive can account for the acquisition path documented in chapter 2. On the other hand, this hypothesis about English-acquiring children's state of knowledge will be shown to fail to account for the acquisition path if one adopts the framework of two other contemporary analyses of the passive—namely, those of Bruening (2013) and Legate (2014). While I will not show that it is impossible to develop an account of the acquisition facts if one adopts either of their theories—something that is notoriously difficult to do—I will take this as tentative evidence in favor of Collins' analysis of the passive, at least until such a time as an account of these facts in the framework of either Bruening's or Legate's analysis of the passive is forthcoming. Moreover, this chapter also demonstrates the efficacy of using knowledge about the acquisition path that a child takes in acquiring their grammar as a means for discriminating between analytical and theoretical choices about what that target grammar ultimately looks like.

CHAPTER 2

REEVALUATING THE MARATSOS EFFECT

2.1 Introduction

There is robust evidence for children's delayed acquisition of passives in English (Slobin 1966, Turner & Rommetveit 1967, Maratsos & Abramovitch 1975, Maratsos et al. 1985, Gordon & Chafetz 1990, Fox & Grodzinsky 1998, Hirsch & Wexler 2006). A number of accounts have been proposed in order to account for this delay, some of which are given in (1).

- (1) a. A-Chain Deficit Hypothesis (Borer & Wexler 1987, 1992)
 - b. Theta Transmission Hypothesis (Fox & Grodzinsky 1998)
 - c. Universal Phase Requirement (Wexler 2004)
 - d. Smuggling, Universal Freezing, and semantic coercion (Snyder & Hyams 2015)

Before discussing these theories further, it is worth considering one further fact about the acquisition of passives in English, a fact which has come to be called the Maratsos Effect.

2.1.1 The Maratsos Effect

Maratsos et al. (1985) found that children perform significantly better in a comprehension task involving passives of actional verbs than one involving passives of nonactional verbs. This finding has been robustly replicated in the literature (Sudhalter & Braine 1985, Gordon & Chafetz 1990, Fox & Grodzinsky 1998, Hirsch & Wexler 2006) and has since come to be known as the Maratsos Effect.

In one of the more recent replications, Hirsch & Wexler (2006) tested 60 different children across 6 different age groups, as shown in Table 2.1. The results from this study are shown in Table 2.2. As is highlighted in the table, it is not until the age range of

Group	n	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
	60	3;0-5;11	4;5

Table 2.1 Children tested in Hirsch & Wexler's (2006) study

5;1-5;5 (*i.e.*, 5-) that children perform above chance on the actional passives.¹ As far as nonactional passives go (which Hirsch & Wexler and some others in the literature call psychological passives), children's performance is still at chance even by the age range of 5;7-5;11 (*i.e.*, 5+).

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%	33.8%	40.0%
4 +	90.0%	65.0%	76.2%	97.5%	45.0%	50.0%
5 -	96.3%	$\mathbf{88.7\%}$	$\mathbf{87.5\%}$	97.5%	38.8%	47.5%
5 +	96.3%	78.7%	92.5%	98.8%	$\mathbf{43.8\%}$	$\mathbf{55.0\%}$
	94.2%	71.0%	80.8%	96.9%	39.2%	42.9%

Table 2.2 Results from Hirsch & Wexler's (2006) study

This study provides insight into when the Maratsos Effect seems to occur. Specifically, it shows that the Maratsos Effect occurs roughly in the age range of 4;0–6;0. It also shows that full mastery of the passive by English-acquiring children does not occur until at least

¹It's possible that the performance by the children in both the 4;1–4;5 (*i.e.*, 4–) and the 4;6–4;11 (*i.e.*, 4+) age ranges is above chance; however, this cannot be determined from the mean alone, which is all that is reported in Hirsch & Wexler (2006) for these age groups. However, it definitely seems to be the case that the children in the 5;1–5;5 (*i.e.*, 5–) age range are above chance.

the age of 6;0, if not a bit later. With this in mind, let's return to the different accounts of children's acquisition of the passive.

2.1.2 Evaluating the accounts of children's acquisition of the passive

All of the accounts given in (1) are maturational accounts of passive acquisition. In other words, they all assume that some cognitive mechanism matures, which is what then allows children to comprehend passives. A maturational account of the passive delay is perhaps appealing given that the general passive delay—though not necessarily the Maratsos Effect—has been shown to exist in a number of languages including German (Bartke 2004), Danish (Diderichsen 2001), Dutch (Verrips 1996), French (Sinclair et al. 1971), Spanish (Pierce 1992), Catalan (Parramon Chocarro 2009), Brazilian Portuguese (Gabriel & Plunkett 2000), Russian (Babyonyshev & Brun 2004), Serbian (Djurkovic 2007), Greek (Terzi & Wexler 2002), Hebrew (Berman 1985), Japanese (Sugisaki 1999), and K'iche' (Pye 1992).²

In this thesis, I will not be concerned with the (universal) passive delay but rather the Maratsos Effect and the accounts of the Maratsos Effect. With regard to how these accounts explain the Maratsos Effect (not the passive delay), it is possible to break the theories into two types of theories by abstracting away from the details of the cognitive mechanism that matures. Adopting a term from Babyonyshev et al. (2001), the theories given in (2) can be called syntactic homophone accounts of the Maratsos Effect (or shomophone accounts, for short). The other class of theories, given in (3), could be called non-syntactic homophone accounts. Given the size of this class, however, it is perhaps more reasonable to simply refer to this class as 'Snyder & Hyams (2015)'.

- (2) S-homophone accounts
 - a. A-Chain Deficit Hypothesis (Borer & Wexler 1987, 1992)
 - b. Theta Transmission Hypothesis (Fox & Grodzinsky 1998)

 $^{^{2}}$ One notable purported exception to there being a universal passive delay is the language of Sesotho (Demuth et al. 2010), but see Crawford (2012) for some reexamination of the Sesotho case.

- c. Universal Phase Requirement (Wexler 2004)
- (3) Smuggling, Universal Freezing, and semantic coercion (Snyder & Hyams 2015)

2.1.2.1 S-homophone accounts of the Maratsos Effect

S-homophone accounts explain the Maratsos Effect in a counterintuitive way. Specifically, the above-chance performance on actional passives that occurs when there is still at-chance performance on nonactional passives is *not* a result of the children knowing how to form the syntax for actional passives but is instead an accidental result of actional passives being syntactically homophonous with predicate adjective constructions. In other words, children can understand *the monkey was chased* in the same way that they understand *the monkey was brown*. They do not actually understand the passive, but they can understand actional passives to the extent that the participles make good adjectives. According to these accounts, children do not understand the passive at all until the relevant cognitive mechanism matures, which is sometime after 6;0 when they perform above chance on nonactional passives.

To reiterate, the above-chance performance on actional passives prior to maturation is only due to the fact that passive participles of actional verbs make good adjectives. Note that in order for these types of accounts to correctly capture the Maratsos Effect, it must be the case that passive participles of actional verbs make good adjectives, and it must also be the case that passive participles of nonactional verbs do not make good adjectives. However, if one looks at the verbs that have been tested in the literature, there are some exceptions to both of these requirements. In (4), I've given some examples of actional verbs that have been tested in the literature that make bad adjectives, and in (5) I've given some examples of nonactional verbs that have been tested in the literature that make good adjectives.³

³Borer & Wexler (1987: 139) do address the fact that there are at least some actional passive participles that seem to be marginal as adjectives (*e.g.*, *kicked* and *hit*). They claim

(4)	a.	* the bumped child
	b.	* the carried child
	c.	* the licked spoon
(5)	a.	the known suspect
	b.	the forgotten movie
	с.	the hated man

Given that there are some exceptions to what must be the case for s-homophone theories if they are to explain the Maratsos Effect, it is worth considering alternative explanations.

2.1.2.2 Snyder & Hyams (2015)

One alternative explanation of the Maratsos Effect is Snyder & Hyams's (2015) account. Their account does not rely on children only accidentally being able to understand actional passives because the participles supposedly make good adjectives. Instead, they account for the two-way distinction in English-acquiring children's acquisition of passives via a combination of Collins' (2005) smuggling analysis of the passive, the Universal Freezing Hypothesis, and semantic coercion.

Snyder & Hyams (2015) adopt Collins' smuggling analysis of the passive, which is given in full detail in (6c); this shows the structure for (6a). Collins' analysis of the passive is motivated by wanting to retain a strict interpretation of UTAH (cf. Baker 1988: 46, 1997: 74). Specifically, Collins wants to retain the Merger of the external argument in spec, vP, even in the passive. This is accomplished by assuming that the passive involves a Voice phrase, which is Merged above vP and assigns case to the external argument, which is still Merged in spec, vP.⁴ In order to account for the fact that the internal argument ultimately ends up in subject position, it is assumed that a Part projection, which is headed by

that these are grammatical adjectives for the child, however. But this raises the question of how the child would ever learn that these are not grammatical adjectives in the adult grammar if there is no negative evidence.

⁴In the case of short passives, Voice is null and also assigns null case to PRO_{ARB} in spec, vP.

the passive morpheme, intervenes between V and v. This functional projection is what "smuggles" the internal argument past the external argument so that it can be moved to spec,TP without inducing a Minimality violation. Specifically, PartP moves to spec,VoiceP, as Voice requires PartP to move to its specifier position. The state of the derivation in which PartP has not yet moved to spec,VoiceP is illustrated in (6b). After PartP has moved to spec,VoiceP, the internal argument then moves to subject position via the left edge of PartP, as can be seen in (6c).





Given such an analysis of the passive, Snyder & Hyams claim that children have a strict Universal Freezing Hypothesis until age 4;0 (regarding the Universal Freezing Hypothesis, see Wexler & Culicover 1980: 119, Müller 1998: 124). In other words, children cannot extract anything out of a moved constituent until they relax the Universal Freezing Hypothesis at age 4;0.⁵ However, children are claimed to only relax the Universal Freezing Hypothesis to the extent that extraction out of an eventive verbal shell—but not a noneventive one—becomes possible. Modifying ideas from Grillo (2008) and Gehrke & Grillo (2009), Snyder & Hyams claim that children (and adults) cannot extract anything out of a noneventive verbal shell. Adults are only able to passivize noneventive verbs because they can coerce noneventive verbs into having an eventive meaning. Thus, what the child acquires sometime after 6;0 is the ability to coerce noneventive verbs into eventive predicates. This then allows children to extract the internal argument out of a noneventive verbal shell.

⁵To me, it seems odd to think that a relaxation of the Universal Freezing Hypothesis is something that could mature, so I think it is odd that Snyder & Hyams bill their account as a maturational one. However, perhaps Universal Freezing is cognitively implemented in such a way that it makes sense to think it could mature.

If Snyder & Hyams are correct, this means that the terms standardly used in the literature, "actional" and "nonactional", must mean eventive and noneventive, respectively. Unfortunately, these terms have never been precisely defined in the literature, and researchers have instead seemingly relied on the intuitive notions of what it means to be "actional" and "nonactional". If there ever was a linguistic basis for the distinction between actional and nonactional verbs, it was based on thematic roles. Maratsos et al. (1985: 170) originally made a distinction between actional passives and mental passives, in which "the underlying subject and object [of the mental passives] are always experiencer and stimulus, respectively". This is perhaps why some researchers (*e.g.*, Hirsch & Wexler 2006) use the term "psychological" instead of "nonactional".⁶

Nonetheless, other researchers (*e.g.*, Fox & Grodzinsky 1998) have adopted the terminology "actional" and "nonactional" without discussing the linguistic basis for this distinction. The pre-theoretic notions of "actional" and "nonactional" might indeed line up with being eventive and being noneventive, which is what must be the case if Snyder & Hyams's account is correct. To see whether this is the case, I conducted a post-hoc examination of the verbal properties of the verbs that have been tested in the literature.

2.1.3 Reexamining the verbs that have been tested

To the extent that there is any homogeneity in the classes of verbs that have been tested in the literature on the Maratsos Effect, it seems that the "actional" verbs are agentive, and the "nonactional" verbs are nonagentive. To help visualize the different verbal properties of the list of verbs that have been tested, I will use different symbols throughout the thesis to identify each verb type. Specifically, we can break verbs into three classes based on eventivity and agentivity: verbs that are both eventive and agentive will be marked with the symbol '*', verbs that are both eventive and nonagentive will be marked with the

 $^{^{6}}$ Another term that has been used instead of "nonactional" and "psychological" is "experiential" (Sudhalter & Braine 1985).

symbol ^{,†}, and verbs that are both noneventive and nonagentive will be marked with the symbol ^{,†}.

Verbs were split into these three categories using standard linguistic diagnostics. Specifically, a verb is considered agentive if it can appear with *deliberately*, and a verb is considered eventive if it cannot appear in the simple present (unless it has a special meaning, such as a generic or "play-by-play" meaning). Examples are given in (7), (8), and (9).

- (7) eventive agentive^{*}
 - a. Grover deliberately watched Elmo.
 - b. * Grover watches Elmo.
- (8) eventive nonagentive^{\dagger}
 - a. * Grover deliberately saw Elmo.
 - b. * Grover sees Elmo.
- (9) noneventive nonagentive (stative)^{\ddagger}
 - a. * Grover deliberately liked Elmo.
 - b. Grover likes Elmo.

Given these linguistic diagnostics for categorizing verbs, we can see that all of the verbs that have been tested as "actional" in the literature are eventive agentive verbs, with the exception of *find* (Table 2.3). As far as the verbs that have been tested as "nonactional" (or "psychological") go, they are quite heterogenous, consisting of both eventive nonagentive verbs and noneventive nonagentive verbs (Table 2.4). To the extent that there is uniformity here, all of the verbs that have been tested as "nonactional" are nonagentive, with the exception of *watch*. Recall that this is not what is required by Snyder & Hyams's (2015) account if it is to be correct. For their account, it must be the case that the "actional" verbs are all eventive and the "nonactional" verbs are all noneventive.

This is not yet reason to discount their explanation of the Maratsos Effect, however. As can be seen in Table 2.4, the verbs tested as nonactional are quite heterogenous both across and within studies. Given that even within any given study there were usually at

Study	"Actional" verbs tested	
de Villiers & de Villiers (1973) Exp. 1	$\mathrm{bite}^*, \mathrm{push}^*, \mathrm{touch}^*, \mathrm{bump}^*, \mathrm{hit}^*, \mathrm{kiss}^*$	
Maratsos & Abramovitch (1975) Exp. 1	bump^* , kick [*] , kiss [*] , tickle [*] , hit [*] , push [*] , bite [*] , touch [*]	
Maratsos et al. (1985) Exp. 1	$\operatorname{find}^{\dagger}, \operatorname{hold}^{*}, \operatorname{wash}^{*}, \operatorname{shake}^{*}$	
Maratsos et al. (1985) Exp. 2	$\operatorname{wash}^*, \operatorname{kiss}^*, \operatorname{push}^*, \operatorname{kick}^*, \operatorname{find}^{\dagger}, \operatorname{hold}^*$	
Gordon & Chafetz (1990) Exp. 2	$drop^*, eat^*, carry^*, kiss^*, hold^*, wash^*, shake^*, hug^*, kick^*$	
Fox & Grodzinsky (1998)	$\operatorname{touch}^*, \operatorname{chase}^*$	
Hirsch & Wexler (2006)	push [*] , kiss [*] , kick [*] , hold [*]	
O'Brien et al. (2006) Exp. 1	$\mathrm{chase}^*,\mathrm{hug}^*$	
O'Brien et al. (2006) Exp. 2	$\mathrm{chase}^*,\mathrm{hug}^*$	
Crain et al. (1987, 2009)	${ m kick}^*, { m kiss}^*, { m push}^*$	
Orfitelli (2012) Exp. 3	push^* , kick^* , kiss^* , carry^*	

*Eventive agentive verbs.

[†]Eventive nonagentive verbs.

Table 2.3 Verbs that have been tested as "actional" verbs in previous studies

least some noneventive verbs classified as "nonactional", then it might be the case that what is actually driving the Maratsos Effect is indeed whether or not a verb is eventive.

Given the heterogenous nature of the verbs that were tested as nonactional within a single study, a study that carefully controls the verbal types would be useful for determining what is the relevant verbal property when it comes to the Maratsos Effect and for determining whether or not Snyder & Hyams's (2015) account is viable. This thesis reports two experiments aimed at doing exactly this.

Study	"Nonactional" verbs tested
Maratsos et al. (1985) Exp. 1	watch [*] , know [‡] , hear [†] , like [‡] , remember [‡] , see [†] , forget [†] , miss [‡]
Maratsos et al. (1985) Exp. 2	$\operatorname{see}^{\dagger}$, $\operatorname{hear}^{\dagger}$, $\operatorname{like}^{\ddagger}$, $\operatorname{love}^{\ddagger}$, $\operatorname{hate}^{\ddagger}$, $\operatorname{remember}^{\ddagger}$
Gordon & Chafetz (1990) Exp. 2	watch [*] , forget [†] , hear [†] , know [‡] , remember [‡] , believe [‡] , like [‡] , see [†] , hate [‡]
Fox & Grodzinsky (1998)	$hear^{\dagger}, see^{\dagger}$
O'Brien et al. (2006) Exp. 1	see [†]
Hirsch & Wexler (2006)	$remember^{\ddagger}, love^{\ddagger}, hate^{\ddagger}, see^{\dagger}$
O'Brien et al. (2006) Exp. 2	$\mathrm{see}^{\dagger},\mathrm{like}^{\ddagger}$
Orfitelli (2012) Exp. 3	$remember^{\ddagger}, love^{\ddagger}, hear^{\dagger}, see^{\dagger}$

 * Eventive agentive verbs.

[†]Eventive nonagentive verbs.

[‡]Noneventive nonagentive verbs.

Table 2.4 Verbs that have been tested as "nonactional" in previous studies

2.2 The experiments

In order to determine whether it is agentivity or eventivity (or perhaps both) that drive the Maratsos Effect, two experiments were conducted. In the first experiment, agentivity was manipulated by testing eventive agentive verbs against eventive nonagentive verbs. In the second experiment, eventivity was manipulated by testing the same eventive nonagentive verbs from Experiment 1 against some noneventive nonagentive verbs. This is all summarized in Table 2.5.

Before discussing the results from both experiments, I will briefly review the predictions that the various accounts of the Maratsos Effect make, including the s-homophone accounts.

Expe	eriment 1 Expe	riment 2
eventive agentive	eventive nonagentive	noneventive nonagentive
paint	forget	know
fix	find	hate
wash	spot	love

Table 2.5 Manipulating agentivity and eventivity in the two experiments that were conducted

2.2.1 Predictions

The s-homophone accounts of the Maratsos Effect predict that children should perform above chance only on those verbs whose passive participles make good adjectives; they should be at chance on those verbs whose passive participles do not make good adjectives.⁷ Specifically, in the case of Experiment 1, children should demonstrate better performance on { $paint^*$, fix^* , $wash^*$, and $forget^{\dagger}$ } than on { $find^{\dagger}$ and $spot^{\dagger}$ }. In the case of Experiment 2, children should demonstrate better performance on { $forget^{\dagger}$, $know^{\ddagger}$, and $hate^{\ddagger}$ }

Even if one wanted to make this move, I think there are independent grounds for thinking s-homophone accounts are suspect. Specifically, it's not clear why we don't see abovechance performance on passives much earlier. If children are just interpreting *the monkey was chased* in the same way that they interpret *the monkey was brown*, it's not clear why we don't see passive comprehension at an earlier age as soon as children understand predicate adjective constructions. For exmaple, it's been demonstrated by Booth & Waxman (2003) that infants as young as 14 months are capable of understanding at least some types of novel adjectives in predicate position.

⁷As noted in fn. 3, Borer & Wexler (1987: 139) do say that children might have a different grammar than adults with respect to which passive participles make good adjectives. As also noted in fn. 3, this claim seems suspect because it is not clear what would ever cause children to converge on the adult grammar since there would then be no negative evidence that would cause them to think a passive participle no longer makes a good adjective. However, if one does accept what Borer & Wexler (1987: 139) say, then it's not clear that these are necessarily the predictions that the s-homophone accounts make. In fact, it's not clear that the s-homophone accounts would then make any predictions. In other words, it would be impossible to falsify these class of explanations of the Maratsos Effect because one could always just say that the verbs that exhibit above-chance performance in the passive are exactly those verbs that children take to make good adjectives and vice-versa.

than on { $find^{\dagger}$, $spot^{\dagger}$, and $love^{\ddagger}$ }. In both cases, the former set of verbs are verbs whose passive participles make good adjectives, and the latter set of verbs are verbs whose passive participles do not make good adjectives.

As for Snyder & Hyams's (2015) account of the Maratsos Effect, they only predict there to be a difference between eventive and noneventive verbs. Recall from §2.1.2.2 that this is because they posit that it is only possible to extract out of an eventive verbal shell for children under the age of 6;0 (the ability to coerce an eventive predicate into a noneventive one does not become available until after 6;0). Therefore, in Experiment 1, they predict that { $paint^*$, fix^* , $wash^*$, $forget^{\dagger}$, $find^{\dagger}$, and $spot^{\dagger}$ } should be above chance and undifferentiated since only agentivity—not eventivity—is manipulated in this experiment. In Experiment 2, on the other hand, they predict that children should demonstrate better performance on { $forget^{\dagger}$, $find^{\dagger}$, and $spot^{\dagger}$ } than on { $know^{\ddagger}$, $hate^{\ddagger}$, and $love^{\ddagger}$ }. In this case, the former set of verbs are eventive, and the latter set of verbs are noneventive (or stative).

With these predictions in mind, let us turn to the experiments themselves.

2.2.2 Experiment 1

2.2.2.1 Methods

Materials In Experiment 1, a Truth Value Judgment Task (Crain & Thornton 1998) was used to test three eventive agentive verbs (*paint, fix, and wash*) against three eventive nonagentive verbs (*forget, find, and spot*). Each verb had four trials where the voice (passive vs. active) was crossed with the sentence's truth value (true vs. false). There were also four training trials where the target sentence was an intransitive sentence. This made for a total of 28 trials. The trial sentences were pseudorandomized for the experiment and then presented in the same order for each participant.

All of the subjects and objects in the sentences were reversible so that children could

not work out the meaning of the sentence from real-world knowledge. This was done to ensure that I was testing children's comprehension of the passive construction and not what they know about the world.

Additionally, I also had the target sentences introduced by I know Q where Q was set up as the Question Under Discussion and made the following target sentence felicitous. By default, the introductory sentences were I know what happened; an example is given in (10).

(10) I know what happened! The orange car was fixed by the green car!

However, in some cases, *I know what happened* didn't make the following sentence felicitous in the discourse by failing to set up an appropriate Question Under Discussion. In these cases, a suitable alternative was used instead; one example is given in (11) and a complete list of all experimental materials can be found in Appendix.

(11) I know how they found Andy! Andy was spotted by Natalie!

Controlling for discourse felicity makes it more likely that my results are driven by children's comprehension of the passive construction (or lack thereof) and not sensitivity to the discourse structure.

Participants In Experiment 1, I tested 17 native English-speaking adults. I tested 18 children whose first language was English. 4 of these children were not above chance on the active trials in the experiment. Because of this, their data is not considered in what follows. Using the active trials as control trials ensures that (i) children know the verbs and (ii) children are doing the task correctly. Therefore, I only report the results for 14 children; their age range was 4;05,10 - 6;02,08, and their mean age was 5;01,07.

Procedure Each child was tested in an individual session that lasted between 20 and 25 minutes. The child sat across from two experimenters at a child-sized table. At the

beginning of the experiment, children were introduced to a puppet, a dog named Rex. Children were told that Rex thought he was smart enough to understand the stories being read without listening to the stories. Earmuffs were placed over Rex's ears so that he couldn't hear the stories being read aloud. The earmuffs were used to make Rex appear more fallible to the children, thereby hopefully precluding a yes bias in children's responses.

Experimenter A would read the stories aloud and display the pictures accompanying them on a computer screen. At the conclusion of each story, Experimenter B would voice the puppet, uttering the target sentence after uttering I know Q (in order to set up an appropriate Question Under Discussion for the target sentence; see immediately above for why this was done). Experimenter A would then ask the child whether Rex got it right.

During the training trials, children were given explicit feedback on any training trials that they got wrong. This was aimed at ensuring children understood the task and were doing it correctly.

Adults were tested en masse in a computer lab. The stories, illustrations, and target sentences were presented using PsychoPy (Peirce 2007, 2009). Adults were not given feedback on the training trials. The adults received extra credit in their classes for their participation in the experiment.

2.2.2.2 Results

Figure 2.1 plots the average accuracy on trials for both adults and children, split by voice (active vs. passive) and verb type (eventive agentive vs. eventive nonagentive). Voice is on the x-axis, and verb type is indicated by different colored bars. As can be seen in Figure 2.1, the adults were largely at ceiling on all trial types. Children, while above chance on passives of eventive agentive verbs (t(13) = 6.869, p < 0.01) and above chance on eventive nonagentive verbs (t(13) = 4.505, p < 0.01), nonetheless still performed significantly better on passives of eventive agentive verbs than passives of eventive nonagentive verbs (t(13) = 3.606, p < 0.01).



Figure 2.1 Results from Experiment 1

Moreover, if one plots the child results based on whether the passive participle makes a good adjective, the data looks as in Figure 2.2. Recall that, in Experiment 1, the verbs whose passive participles make good adjectives are { $paint^*$, fix^* , $wash^*$, and $forget^{\dagger}$ }, and the verbs whose passive participles do not make good adjectives are { $find^{\dagger}$ and $spot^{\dagger}$ }. As can be seen in Figure 2.2, there is no difference in performance on those verbs whose passive participles make good adjectives and those whose passive participles do not. If anything, the verbs whose passive participles make bad adjectives are slightly better.

2.2.2.3 Discussion

The results from Experiment 1 are not predicted by any of the extant explanations of the Maratsos Effect. Snyder & Hyams's (2015) account predicted that all of the verbs



Figure 2.2 Child results from the passive trials in Experiment 1, plotted by whether the passive participle makes a good adjective

should be undifferentiated since only agentivity—and not eventivity—was manipulated in this experiment. This prediction was not borne out since children performed significantly better on eventive agentive passives compared to eventive nonagentive passives.

Moreover, the predictions of the s-homophone explanations of the Maratsos Effect were also not borne out since children's performance on the passives where the participle makes a good adjective was indistinguishable from their performance on the passives where the participle does not make a good adjective.

Let us now turn to Experiment 2 in order to see if eventivity plays any role in the Maratsos Effect.

2.2.3 Experiment 2

2.2.3.1 Methods

Materials The materials in Experiment 2 were constructed in exactly the same way as the materials from Experiment 1. I used the same eventive nonagentive verbs (*forget, find*,

and *spot*), and I tested them against three noneventive nonagentive verbs (*hate*, *know*, and *love*). There were again 28 total trials (4 training trials, 24 target trials) that were presented in a pseudorandomized order.

Participants In Experiment 2, I tested 16 native English speaking adults. I also tested 6 children in a pilot of Experiment 2. 5 of the 6 children tested in this pilot had an overwhelming yes bias. I think this is because of the fact that, in this pilot, the items were pseudorandomized in such a way so that there were 6 trials in a row where the answer was "yes". Because of this, I redid the pseudorandomization so that there was not a large number of trials in a row with "yes" as the correct answer.

With the items in a different order, I tested 26 children whose first language was English. 14 of these children were not above chance on the active trials in the experiment. Because of this, their data is not considered below. Therefore, I only report the results for 12 children;⁸ their age range was 3;09,11 - 5;10,07, and their mean age was 4;11,21.

Procedure The procedure for Experiment 2 was identical to the procedure from Experiment 1.

2.2.3.2 Results

Figure 2.3 plots the average accuracy on trials for both adults and children, split by voice (active vs. passive) and verb type (eventive nonagentive vs. noneventive nonagentive). As can be seen in Figure 2.3, the adults were largely at ceiling on all trial types. Children

⁸Though it might look concerning that so many children were thrown out in Experiment 2, I think it is ultimately a good thing to do this. We want to ensure that children know the verbs that we are testing them on, and we also want to ensure that the children are doing the task correctly. Controlling for these things increases confidence that the results we are interpreting are being driven by children's comprehension (or lack thereof) of the passive construction and not something else. As for why there were so many more children not above chance on the active trials in Experiment 2 to compared to Experiment 1, I am not sure.



Figure 2.3 Results from Experiment 2

demonstrated comprehension that was above chance on the passives of eventive nonagentive verbs (t(11) = 5.702, p < 0.01), but they did not demonstrate above chance performance on the passives of noneventive nonagentive verbs (t(11) = 0.938, p = 0.184). Moreover, children also performed significantly better on passives of eventive nonagentive verbs than passives of noneventive nonagentive verbs (t(11) = 2.117, p = 0.029).

As with Experiment 1, we can also plot the child results based on whether or not the passive participle makes a good adjective. This is done in Figure 2.4. In Experiment 2, the verbs whose passive participles make good adjectives are { $forget^{\dagger}$, $know^{\ddagger}$, and $hate^{\ddagger}$ }, and the verbs whose passive participles do not are { $find^{\dagger}$, $spot^{\dagger}$, and $love^{\ddagger}$ }. As can be seen in Figure 2.4, there is no difference in performance on those verbs whose passive participles make good adjectives and those whose passive participles do not. If anything, the verbs



Figure 2.4 Child results from the passive trials in Experiment 2, plotted by whether the passive participle makes a good adjective

whose passive participles make bad adjectives are slightly better.

2.2.3.3 Discussion

The results from Experiment 2 actually are predicted by Snyder & Hyams's (2015) account of the Maratsos Effect. Experiment 2 manipulated eventivity, and recall that, according to Snyder & Hyams's (2015) account, children between the ages of 4;0 and 6;0 are able to extract out of a moved eventive verbal shell because they have relaxed the Universal Freezing Hypothesis. However, they have not yet gained the ability to coerce a noneventive verb into an eventive one so that they can passivize it. Thus, Snyder & Hyams did predict that children in the age range that I tested would perform significantly better on passives of eventive nonagentive verbs than passives of noneventive nonagentive verbs.

On the other hand, the predictions of the s-homophone explanations of the Maratsos Effect were not borne out in Experiment 2. Children's performance on the passives where the participle makes a good adjective was indistinguishable from their performance on the passives where the participle does not make a good adjective.

2.3 General discussion

Based on the results from Experiment 1 and Experiment 2, there is evidence that both agentivity and eventivity play a role in the Maratsos Effect. More specifically, there is evidence for a three-way distinction in the acquisition of passives in English, rather than the classical two-way distinction that has heretofore been described in the literature as the Maratsos Effect. Children acquire the ability to passivize eventive agentive verbs before they acquire the ability to passivize eventive nonagentive verbs, which is in turn acquired before the ability to passivize noneventive nonagentive verbs.

Furthermore, such a three-way distinction in the English-acquiring children's acquisition path is not predicted by any of the extant accounts of the Maratsos Effect. The predictions of the s-homophone accounts of the Maratsos Effect seem to be pretty clearly falsified in the results presented here. As for Snyder & Hyams's (2015) explanation of the Maratsos Effect, what their account predicts for Experiment 2 was borne out, but the results from Experiment 1 are not compatible with their account.

Nonetheless, one might reasonably ask whether it is possible to amend their explanation of the Maratsos Effect in order to account for the effect of agentivity observed in Experiment 1. However, I think there are several problems with Snyder & Hyams's account that make this move unappealing. First, Snyder & Hyams allow that children can somtimes violate the Extension Condition. Snyder & Hyams seek to explain away above-chance performance on actional passives by children under the age of 4;0 found in some studies. They closely examine the materials from these studies (Pinker et al. 1987, O'Brien et al. 2006, Crain et al. 2009), and they find that, in all of these cases, the materials were constructed in such a way that the internal argument always had some discourse feature, such as +Topic or +WH, that would allow it to move to spec,TP over the external argument without inducing a Minimality violation (so long as one assumes Relativized Minimality (Rizzi 2001), of course). However, in order for this to work on their account, it must be the case that movement to spec, TP occurs prior to movement of PartP to spec, VoiceP since children prior to age 4;0 have a strict version of the Universal Freezing Hypothesis. Specifically, the child will have to generate the structure in (12a) before doing the movement depicted in the structure in (12b).



(13) * The monkey was by the human chased.
Again, this movement of PartP to spec,VoiceP must occur after the entire TP has already been built up because, according to Snyder & Hyams, children prior to age 4;0 have a strong Universal Freezing Hypothesis and cannot move anything out of a moved constituent. If the child simply failed to do the movement depicted in (12b), then the child would be expected to have the word order in (13). Since the child does not have this word order, then the child must be violating the Extension Condition in order to get the correct word order.

A second reason to perhaps not want to extend Snyder & Hyams's (2015) account to account for the data reported here is because their account seems rather *ad hoc*. It's not exactly clear how or why the Universal Freezing Hypothesis would be relaxed enough so as to allow extraction out of moved eventive verbal shells but not out of moved noneventive verbal shells.⁹ This seems to largely be a stipulation of the acquisition facts. It's furthermore not clear how children come to acquire the ability to coerce noneventive verbs into eventive ones. Is this something that matures? If so, how and why? If not, why is it that this ability becomes available sometime after 6;0? In other words, this also seems to just be a stipulation of the acquisition facts.

Third, it's not clear that it actually is the case that noneventive verbs in the passive in English have been coerced into eventive predicates. One would want an actual linguistic diagnostic for determining whether a stative verb has been coerced into an eventive one, but it seems really unlikely that either of the sentences in (14) have eventive properties.

- (14) a. Minnesota is bordered by Wisconsin.
 - b. The castle is surrounded by a moat.

This seems unlikely for several reasons. First, as can be seen in (14), the passives of these two stative verbs, *border* and *surround*, can occur in the simple present, which is a standard

 $^{^{9}}$ As noted in fn. 5, it also seems odd to me to think that a relaxation of the Universal Freezing Hypothesis would be something that matures, but this is how Snyder & Hyams characterize their account.

diagnostic for stativity.¹⁰ Moreover, two other diagnostics for stativity (or noneventivity) are the progressive and *what happened was*. For the first test, a predicate is noneventive if it cannot appear in the progressive. For the second test, a predicate that cannot appear with *what happened was* is also noneventive. Indeed, the sentences from (14) are not particularly good with either of these tests, as can be seen in (15) and (16).

(15) a. * Minnesota was being bordered by Wisconsin.
b. * What happened was Minnesota was bordered by Wisconsin.
(16) a. * The castle was being surrounded by a moat.
b. * What happened was the castle was surrounded by a moat.

Perhaps these are not good diagnostics for coerced eventivity, but then one would want to know why not and also have an alternative diagnostic for coerced eventivity.

Given that amending Snyder & Hyams's account seems unappealing for a variety of reasons, it is worth exploring alternative accounts of this three-way distinction. This will be done in the next chapter, where I will take a closer look at the syntax of passives.

 $^{^{10}}$ Compare this to the unacceptability of (i).

⁽i) * John is arrested by the police.

CHAPTER 3

THE SYNTAX OF PASSIVES

In this chapter, I will take a closer look at the syntax of passives. In particular, I will consider three of the most recent accounts of the syntax of passives—namely, Collins (2005), Bruening (2013), and Legate (2014)—in order to determine whether these theories are amenable to (straightforwardly) accounting for the acquisition facts discussed in chapter 2.

As point of departure, I will begin with a discussion of the non-passivizability of stative object experiencer verbs. In brief, the intuition that will be pursued in this chapter is that English-acquiring children might be entertaining a structure for eventive nonagentive verbs and noneventive nonagentive verbs that is somewhat similar to the structure that Landau (2010) proposes for stative object experiencers. His proposal derives the non-passivizability of these verbs. Thus, if children are entertaining a structure that is similar to the structure for stative object experiencer verbs, they would not be able to passivize those verbs.

Let us therefore consider what Landau (2010) says about stative object experiencer verbs.

3.1 On the non-passivizability of stative object experiencer verbs

In Landau's (2010: 5–6) treatment of the syntax of experiencer verbs, a distinction between three types of experiencer predicates is made, following Belletti & Rizzi (1988).

(17)	a.	Class I: Nominative experiencer, accusative theme
		i. John loves Mary.
	b.	$Class \ II$: Nominative theme, accusative experiencer
		i. The show amused Bill.
	с.	Class III: Nominative theme, dative experiencer
		i. The idea appealed to Julie.

In brief, the analysis that Landau develops of experiencer verbs is that the Experiencer θ -role of Class II and Class III verbs is introduced by a preposition. That is, these arguments receive inherent case from some prepositional element. In the case of Class II, this preposition is null (in English), whereas the preposition is overt in the case of Class III. For example, the structure of an eventive Class II verb is given in (18).¹



Now, specifically with regard to passivizability, Landau (2010: 47) notes that there has been much debate in the literature about whether Class II verbs can passivize.² Some argue that Class II verbs cannot form a verbal passive at all (*e.g.*, Belletti & Rizzi 1988, Legendre 1989, 1993, Grimshaw 1990, Roberts 1991, Herschensohn 1992, 1999), and some argue that Class II verbs do form verbal passives (*e.g.*, Mulder 1992, Legendre & Akimova 1994, Pesetsky 1995, Bouchard 1995, Iwata 1995, Slabakova 1996, Tenny 1998, Pylkkänen 2000). Landau goes on to argue that there are actually two types of languages: languages where only eventive verbs of Class II passivize, and languages where verbs of Class II do not passivize at all. Landau's claimed typology is given in (19).

¹As we will see below, in (29), the structure that Landau proposes for a stative Class II verb is slightly different.

 $^{^{2}}$ Class I verbs seem to always passivize (if a language has the passive), and Class III verbs seem to never passivize.

(19) Psych Passives Type A Languages: Only eventive (nonstative) Class II verbs have verbal passive (English, Dutch, Finnish). Type B Languages: Class II verbs have no verbal passive (Italian, French, Hebrew). (Landau 2010: 47, ex. (90))

As noted in (19), English is a language where stative Class II verbs do not passivize, but eventive Class II verbs do. In (20), we see some examples of stative Class II verbs that do not passivize, and (21) shows some examples of eventive Class II verbs that do passivize.

(20)	a.	\ast John was escaped by the solution.
	b.	* Mary was eluded by the answer.

(21) a. Mary was amused by the show.b. Bill was frightened by the spider.

The verbs in (20) are indeed stative, since they can appear in the simple present without a generic or "play-by-play" interpretation, as can be seen in the following examples.

(22) a. The solution escapes John.b. The answer eludes Mary.

On the other hand, the verbs in (21) have two readings: an eventive one and a stative one. This can be seen because they can both appear in the simple present without a generic or "play-by-play" interpretation and because they can both appear in the progressive and with *what happened was*, as can be seen in the following examples.

- (23) a. The show amuses Mary.
 - b. The spider frightens Bill.
- (24) a. The show is amusing Mary.
 - b. The spider is frightening Bill.
- (25) a. What happened was the show amused Mary.
 - b. What happened was the spider frightened Bill.

Moreover, when these verbs appear in the passive, they are both fine with the progressive and *what happened was* tests, suggesting that they are indeed eventive in the passive. This suggests that the relevant difference between the verbs of Class II that do passivize and the verbs of Class II that do not passivize is eventivity (for further arguments that this is indeed the case, see Landau 2010: 49–51).

- (26) a. Mary was being amused by the show.
 - b. Bill was being frightened by the spider.
- (27) a. What happened was Mary was amused by the show.
 - b. What happened was Bill was frightened by the spider.

Landau sketches the following account of these facts. Following Pesetsky (1995: 59, ex. (166)), Landau assumes (28) as part of the thematic hierarchy.

(28) Causer > Experiencer > Target/Subject Matter

In other words, it is assumed that arguments in the syntax must project in a hierarchical order that conforms to the thematic hierarchy. Causer arguments project in positions higher than Experiencer arguments whenever the two co-occur. Similarly, Experiencer arguments project in positions higher than Target/Subject Matter arguments whenever the two co-occur.

Stative Class II verbs are claimed to involve Experiencer and Target/Subject Matter arguments. Moreover, there is a universal generalization that inherent case is only assigned to arguments internal to VP. Recall from above that Landau (2010) claims that all Experiencer arguments in Class II (and Class III) are introduced by a prepositional element (*i.e.*, they receive inherent case). From this universal generalization and the thematic hierarchy in (28), it follows that the structure for stative Class II verbs must be as given in (29).



This follows, because, according to (28), the Experiencer argument must be projected higher than the Target/Subject Matter argument. Furthermore, since the Experiencer argument receives inherent case, it must be projected within the VP. Therefore, both of the arguments must be projected inside of the VP, and so, as can be seen in (29), stative Class II verbs do not project an external argument. In virtue of lacking an external argument, Landau argues that they cannot be passivized because passivization is an operation on external arguments.

As stated above, the intuition that I will pursue in this chapter in order to account for the acquisition facts that were reported in chapter 2 is that English-acquiring children initially entertain a structure somewhat similar to (29) for both eventive nonagentive verbs and noneventive nonagentive verbs. Over the course of this chapter, I will cash out this intuition in terms of three different contemporary syntactic analyses of the passive—namely, those of Collins (2005), Bruening (2013), and Legate (2014). The hope is twofold: (i) to develop an account of the acquisition facts from chapter 2, and (ii) to determine whether the acquisition facts might inform our choice as to the correct analysis of the passive (in English). With this in mind, I will start with Collins' (2005) analysis of the passive.

3.2 Collins (2005) and the acquisition of the passive

3.2.1 Collins' analysis of the passive

The analysis of the passive that is proposed in Collins (2005) was already briefly discussed in §2.1.2.2 when explaining the account of the Maratsos Effect proposed by Snyder & Hyams (2015) since their account relies on Collins' analysis of the passive. To reiterate, (6c), repeated here as (30), is the analysis of the passive that Collins proposes.



This analysis is motivated by a strict interpretation of UTAH (cf. Baker 1988: 46, 1997: 74). Specifically, Collins develops this analysis of the passive in order to retain the Merger of the external argument in spec, vP. The Voice head, which is the locus of the passive (and only present in passives), is Merged above vP. In passives with a by-phrase (*i.e.*, long passives), Voice is headed by by. In passives without a by-phrase (*i.e.*, short passives), Voice is null. In both cases, Voice assigns case to the external argument.³

With this understanding of Collins' analysis of the passive, let's turn to the nonpassivizability of stative object experiencers discussed above.

³In short passives, the external argument is PRO_{ARB} and the null Voice head assigns null case instead of accusative case (Collins 2005: 104).

3.2.2 Collins (2005) and the non-passivizability of stative object experiencers

Recall from above that Landau (2010) derives the non-passivizability of stative object experiencers in virtue of all arguments being projected internally to VP; that is, there is no external argument. This follows nicely from the framework of Collins' analysis of the passive. As can be seen in (32), if one tries to derive the passive of *The answer eludes Mary*, it is not possible to derive the correct word order, given the strucutre of Class II stative verbs that Landau (2010) motivates. In other words, (20b), repeated here as (31), is impossible to derive.

- (31) * Mary was eluded by the answer.
- (32)



Instead, one derives the answer was eluded Mary by. Because Mary is inside the PP, it has already received case from \emptyset_{Ψ} , and so it cannot move to spec, TP once the movement of PartP to spec, VoiceP smuggles the VP. When T is introduced, the only DP eligible for movement to spec, TP is the Target/Subject Matter argument, which is the answer in this case. Thus, assuming Collins' analysis of the passive and Landau's analysis of Class II stative verbs, the non-passivizability of these verbs is derived in virtue of the correct

surface order being impossible to generate.

From the discussion above, it looks like we can derive the answer was eluded Mary by. This is unacceptable, as can be seen in (33).⁴

(33) * The answer was eluded Mary (by).

Since this sentence is unacceptable, we need a way of ruling out (33) on Collins' analysis in order to take the proposal seriously. Upon closer inspection, it turns out that this sentence is indeed ruled out; it is ruled out for case reasons. We can see this if we focus on an earlier part of the derivation, as shown in (34).



Voice is a case assigning—or checking, if you prefer—head, so when it is introduced into the derivation, it finds a DP to assign case to. As shown in (34), it will assign accusative case to *the answer*. Eventually, as shown above in (32), PartP will move to spec, VoiceP. However, this time when T is introduced into the derivation, *the answer* will not be able to move to spec, TP since it has already been assigned case. Thus, Collins's analysis of the passive in conjunction with Landau's structure for Class II stative verbs correctly accounts

 $^{^{4}}$ The sentence with the null version of Voice is also unacceptable.

for $(33).^5$

3.2.3 Collins (2005) and English-acquiring children's acquisition of the passive

As noted above, the intuition pursued in this chapter is that children might be entertaining a structure for eventive nonagentive verbs and noneventive nonagentive verbs that is somewhat similar to Landau's structure for stative Class II verbs. Specifically, children might be entertaining the hypothesis that the structure for a sentence such as *John loves Mary* is as given in (35).



Both arguments are projected internal to the VP. However, in this case, there is no null preposition since the Experiencer argument must ultimately receive nominative case when it moves to subject position. The argument *Mary* receives accusative case from v, and so

⁵The sentence there was an answer eluded Mary by—which is unacceptable—is ruled out if one adopts Deal's (2009) analysis of expletive insertion. For Deal (2009: 287–290, 302–312), there must be merged low; it cannot be base generated in spec, TP. Moreover, there must also agree in case with its associate (see especially 2009: 311, ex. (47)). In the case of there was an answer eluded Mary by, both possible associates—an answer and Mary—will have been assigned accusative case—by Voice and \emptyset_{Ψ} , respectively—which will lead to a clash in case when T tries to assign nominative case to there, thereby causing the derivation to crash.

it is ineligible for movement when T is introduced into the derivation. Instead, *John* moves to spec, TP, where it receives nominative case.

Such a structure would allow for children to produce and comprehend active versions of these subject experiencer verbs. However, when it comes to the passive, children would be incapable of generating a structure that matches the surface word order in the same way that *Mary was eluded by the answer* is not possible to generate, as we saw above in (32). This is shown in (36).



Instead, the derivation would generate the surface string order of Mary was loved John $by.^6$ To reiterate, because both of the arguments are projected internally to the VP, it is

⁶Interestingly, if this intuition is correct, Mary was loved John by should be a grammatical string for English-acquiring children. This seems unlikely, so it would be nice if there were a way of ruling this out. One possibility is that these sentences are ruled out for selectional reasons. Specifically, it could be the case that Voice only selects for a vP that assigns a θ -role. This would correctly rule out Mary was loved John by for the child. And the passives of stative Class II verbs would also be ruled out. They would be ruled out for selectional reasons rather than structural/case reasons, however. I find the structural/case account of the facts more appealing and less stipulative than a selectional account of the facts, but unless it is possible to rule out Mary was loved John by for the child in some other way, then this selectional account of the facts might be preferable.

impossible to generate the surface string order of *Mary was loved by John*. As a result, children would not be able to assign a grammatical parse to the string *Mary was loved by John*, and so one might expect them to demonstrate at-chance performance when asked to try to comprehend such sentences.

Below, in §3.6, I will return to more detailed discussion of this intuition that children have the incorrect hypothesis for the structure of eventive nonagentive verbs and noneventive nonagentive verbs given in (35). For the moment, I would like to turn to a discussion of Bruening's (2013) analysis of the passive to see if it is possible, using the same intuition, to develop an account of the acquisition facts from chapter 2 on his analysis of the passive, like we just have using Collins' analysis of the passive.

3.3 Bruening (2013) and the acquisition of the passive

3.3.1 Bruening's analysis of the passive

The analysis of the passive that is developed in Bruening (2013) is given in (37).



For Bruening, unlike for Collins, Voice is the functional head that introduces the external argument. However, there is also a version of Voice that does not project a specificer position. The functional head Pass, which is the locus of the passive, only selects for the version of Voice that does not project a specifier position.⁷

Bruening accounts for the non-passivizability of unaccusatives in virtue of unaccusatives involving a different functional projection, v, instead of Voice. The structure of an unaccusative, according to Bruening is given in (38). Since Pass only selects for Voice, not v, unaccusatives do not passivize.

(38) vP v VP V DP (adapted from Bruening 2013: 28, ex. (95))

With this understanding of Bruening's analysis of the passive, let us now turn once again to the non-passivizability of stative object experiencers.

3.3.2 Bruening (2013) and the non-passivizability of stative object experiencers

Recall again from above that Landau's analysis of the stative verbs in Class II has both arguments projected internally to the VP, with the Experiencer argument being dominated by a PP. Since there is no external argument, it is reasonable to assume that this VP will then be dominated by Bruening's vP, as is shown in (40). Because there is no VoiceP in the structure for Pass to select for, the non-passivizability of stative object experiencers also follows on Bruening's analysis of the passive. In other words, this correctly derives the fact in (31), repeated here once more as (39).

⁷Technically, for Bruening, it is the Voice label that projects after Pass and VoiceP merge. His analysis is cashed out in a framework that he develops in the paper involving slightly non-standard assumptions about how selection and projection work. For the sake of exposition, I have chosen to avoid explicating his new framework and have translated it into a framework with slightly more standard assumptions. For the purposes of the discussion in this thesis, I do not think this does harm to the analysis that he proposes.

(39) * Mary was eluded by the answer.



With this in mind, let us now turn return to the acquisition facts from chapter 2 in order to see if Bruening's analysis of the passive, in conjunction with the intuition being pursued in this thesis, can account for these facts.

3.3.3 Bruening (2013) and English-acquiring children's acquisition of the passive

Recall from above in §3.2.3 that the intuition being purused in this thesis is that children initially adopt the hypothesis that eventive nonagentive verbs and noneventive nonagentive verbs project both arguments internally to the VP. On Bruening's analysis, the structure that English-acquiring children would have for such verbs is given in (41).



Given such a hypothesis on the part of the English-acquiring child, it is correctly predicted that the child would not be able to passivize the structure because Pass only selects for VoiceP. Thus, this would explain children's performance on the passives of eventive nonagentive verbs and noneventive nonagentive verbs discussed above in chapter 2. However, this incorrectly predicts that children should not be able to comprehend the actives of such sentences as well. If (41) were the hypothesis that children were entertaining for the structure of such verbs, it would also be impossible to derive the active version of the sentence for case reasons. This can be seen in a full version of the derivation, given in (42).



(42) is supposed to be a derivation for John loves Mary, but, as can be seen, the surface string order that one ends up with is Mary loves John. This is because there is only one case-assigning head in the derivation—namely, T. For Bruening, Voice, and not v, is the other case-assigning head in a transitive active sentence. Because of this, John has unvalued case, and so the derivation for the active version of the sentence crashes.

While it is true that there were some children in the experiments reported in chapter 2 who did not perform well on the active trials involving eventive nonagentive verbs and noneventive nonagentive verbs, this still would leave unexplained the data from the children who were above chance on the active trials involving these verbs but at chance on the passive trials involving these verbs. Moreover, this seems a very unlikely account of the data from those children who were at chance on the active trials involving these verbs because it is not clear what would ever lead a child to adopt the hypothesis in (41) since such a hypothesis is incapable of generating any observable string in the Primary Linguistic Data. Thus, it seems that it is not possible to develop an account of the acquisition facts from chapter 2 on Bruening's analysis of the passive and pursuing the intuition discussed here. Next, I turn to a discussion of Legate's (2014) analysis of the passive and the relevant acquisition facts.

3.4 Legate (2014) and the acquisition of the passive

3.4.1 Legate's analysis of the passive

Legate's (2014) syntactic analysis decomposes the verbal layer external to the VP into two functional domains. vP dominates VP, and VoiceP dominates vP. v is the locus of CAUS (cf. Pylkkänen 2002, 2008), and Voice introduces the external argument. Unaccusative verbs are taken to not have the Voice functional projection because they do not have an external argument and because of morphological evidence from Acehnese. In Acehnese there is a verbal prefix—which Legate argues is the head of Voice (Legate 2014: 28–33)—that is present in transitives and unergatives but necessarily absent in unaccusatives, as shown in $(43c).^8$

 (43) a. Transitive (Legate 2014: 30, ex. (52a))
 Lôn ka lôn-jôk boh mamplam keu ureueng inong nyan 1SG PFV 1SG-give CLF mango to person female DEM
 'I already gave the mango to the woman'

⁸The glosses used in this thesis are: 1 = first person, ACC = accusative, CAUS = causative, CLF = classifier, DEM = demonstrative, NOM = nominative, PFV = perfective, SG = singular.

b. Unergative (Legate 2014: 30, ex. (53a))
Lôn lôn-duek ateueh kursi 1SG 1SG-sit above chair
'I sat on the chair'
c. Unaccusative (Legate 2014: 30, ex. (54a))
Lôn ka (*lôn)-reubah 1SG PFV 1SG-fall
'I fell'

For Legate, Voice is also the locus of the passive. In other words, there are two different flavors of the Voice head, $Voice_{Act}$ and $Voice_{Pass}$.⁹ Because unaccusatives do not have the Voice functional projection, they cannot passivize.

The Voice_{Pass} version of the functional head does not introduce an external argument. The structure of a short passive is given in (44), and that of a long passive is given in (45).



⁹For Legate, there is also Voice_{Obj} for object voice (2014: 47–84) and Voice_{Appl} for causativized transitive constructions (2014: 125–137).

With this understanding of Legate's analysis of the passive, let's turn to the nonpassivizability of stative object experiencers discussed above.

3.4.2 Legate (2014) and the non-passivizability of stative object experiencers

Recall from above that Landau (2010) derives the non-passivizability of stative object experiencers in virtue of all arguments being projected internally to VP; that is, there is no external argument. This account can be implemented within the framework of Legate's analysis of the passive by assuming that stative object experiencers, like unaccusatives, do not have a Voice functional projection. In other words, the structure for *the answer eludes Mary* is as in (47). Because there is no Voice projection, it is impossible to passivize the structure in (47). This correctly accounts for (39), repeated here yet again as (46).

(46) * Mary was eluded by the answer.

(47)

TP DP T'Т the answer vPVP v \mathbf{V}' V PP veludes V DP DP \emptyset_{Ψ} $\langle \text{eludes} \rangle$ Mary $\langle \text{the answer} \rangle$

With an understanding of how the non-passivizability of stative object experiencers is cached out in terms of Legate's analysis of the passive, let us now return to the acquisition facts from chapter 2.

3.4.3 Legate (2014) and English-acquiring children's acquisition of the passive

Recall once more from above in §3.2.3 that the intuition being purused in this thesis is that children initially adopt the hypothesis that eventive nonagentive verbs and noneventive nonagentive verbs project both arguments internally to the VP. On Legate's analysis, the structure that English-acquiring children would have for such verbs is given in (48).



This correctly predicts these verbs cannot passivize, and so, because children would not be able to generate a grammatical parse for passive versions of these sentences, one would expect that they would demonstrate at-chance performance on comprehension tasks involving these verbs, just as was reported in chapter 2. However, such an account of the acquisition facts suffers from the same problem that Bruening's account, in conjunction with this intuition, suffered from. As discussed in §3.3.3, there is only one case-assigning head in the derivation. This is the same problem for Legate's analysis in conjunction with this intuition. Specifically, the accusative case-assigning head for Legate is Voice, which is absent from (48). Thus, such a structure would make it impossible to generate a grammatical parse for the active version of this sentence because *John* would have unvalued case, as is shown in (49).



To recapitulate some of the discussion from §3.3.3, it is thus unclear why a child would ever entertain the hypothesis in (48) since it does not generate a single string observed in the Primary Linguistic Data. Thus, even though this account would correctly predict at-chance performance on passive versions of these verbs, the account seems untenable when one takes into account the performance on active trials as well.

3.5 Taking stock of the different proposals

As a brief interim summary, let us take stock of what we have learned from pursuing this intuition and three different contemporary analyses of the passive. All of these three accounts of the passive—Collins (2005), Bruening (2013), and Legate (2014)—straightforwardly account for the non-passivizability of stative object experiencers, as discussed in Landau (2010). However, in pursuing the intuition that children initially posit a structure for subject experiencers that is somewhat similar to Landau's structure for stative object experiencers, we discovered two things. One of the things that we discovered is that it seems unlikely children would ever adopt this hypothesis if they had a Bruening-stlye or Legatestyle syntax. To reiterate, it is quite unlikely that children would adopt this hypothesis because such a hypothesis would not be able to produce a single grammatical parse for any data in the Primary Linguistic Data, given the lack of an accusative case-assigning head. Thus, if this intuition about the hypothesis that children have for the structure of subject experiencers is correct, it seems unlikely that Bruening's analysis of the passive or Legate's analysis of the passive can be correct (for English).¹⁰ The second thing that we learned is that if children do have this hypothesis about the structure of subject experiencers and if they have a Collins-style syntax, then one would predict to see precisely the path of acquisition that was found in the experiments reported in chapter 2.

3.6 On the plausability of the intuition

So far in the discussion in this chapter, I have lumped the eventive nonagentive verbs and the noneventive nonagentive verbs into a single category. However, as we know from the results of the two experiments reported in chapter 2, the two verb types pattern differently with respect to children's ability to comprehend passives of these verbs. Specifically, children in roughly the 4;0-6;0 age range demonstrate above-chance performance when it comes to comprehending eventive nonagentive verbs. Nonetheless, this performance is significantly worse than their performance on comprehending passives of eventive agentive verbs. However, when it comes to the passives of noneventive nonagentive verbs, children demonstrate at-chance performance. In other words, the eventive nonagentive verbs and the noneventive nonagentive verbs don't exactly pattern together with children in this age range.

To reiterate, the intuition purused in this thesis is that children are entertaining the hypothesis that the structure for eventive nonagentive verbs and noneventive nonagentive

 $^{^{10}}$ I will return to the plausability of this intuition momentarily, in §3.6.

verbs is as given in (50).



So how does this intuition account for the difference in performance between the passives of eventive nonagentive verbs and the passives of noneventive nonagentive verbs reported in chapter 2? The version of v that introduces an external argument is most often associated with both agentivity and eventivity (cf. Bowers 1993, Chomsky 1995, Harley 1995, Kratzer 1996, Embick 2004). In the case of eventive agentive verbs, children would have the most evidence that the v in the structure for these verbs is the one that introduces an external argument. However, in the case of eventive nonagentive verbs, there is only the property of eventivity to cue English-acquiring children to posit a v that introduces an external argument. As a result, children might be slow to adopt the adult-like structure for eventive nonagentive verbs with a v that introduces an external argument. Instead, they might posit a structure for these verbs like the structure in (50). Furthermore, in the case of noneventive nonagentive verbs, neither the properties of eventivity nor agentivity are present to cue English-acquiring children to posit a v in the structure that introduces an external argument. As a result, children will be even slower in adopting the adult-like strucuture for noneventive nonagentive verbs than for eventive nonagentive verbs; they will retain the (incorrect) hypothesis that the structure of noneventive nonagentive verbs is the structure in (50) even longer than they retain the (incorrect) hypothesis that the structure of eventive nonagentive verbs is the structure in (50).

This then accounts for the difference between performance on passives of eventive nonagentive verbs and passives of noneventive nonagentive verbs reported in chapter 2. Moreover, if this is correct, one would expect to find at-chance performance on passives of eventive nonagentive verbs with children between 3;0 and 4;0. I leave the testing of this prediction for future work.

Overall, given the classical properties associated with the v that introduces an external argument, I think the intuition that has been pursued in this chapter is quite reasonable. Moreover, there is a straightforward explanation as to why passives of eventive nonagentive verbs pattern differently from passives of noneventive nonagentive verbs for children in the 4;0 - 6;0 age range. To reiterate, because eventive nonagentive verbs have one of the classical properties associated with the external-argument-introducing v, children are able to arrive at the correct structure for eventive nonagentive verbs.

Having motivated the intuition purused in this chapter, I turn to some final discussion about the implications of this intuition.

3.7 Discussion

As noted immediately above in §3.6, the intuition that was purused in this chapter lead to an account of the acquisition facts reported in chapter 2, so long as one adopts Collins' (2005) analysis of the passive. On the other hand, it is not possible to account for these facts with this intuition in the framework of either Bruening's (2013) analysis of the passive or Legate's (2014) analysis of the passive. All things being equal, this constitutes an argument in favor of Collins' analysis of the passive. Of course, it is notoriously difficult to prove a negative, and I have certainly not done so in this thesis; thus, it might be possible to develop an account of the acquisition facts reported in chapter 2 in the framework of either Bruening's analysis of the passive or Legate's if one pursues an intuition different from the one purused in this chapter. Nonetheless, in the absence of such an account, I take this as reason to prefer Collins' analysis of the passive (at least for English).¹¹

 $^{^{11}{\}rm See},$ for example, Legate (2014: 66–70) for arguments that Collins' analysis of the passive is not the correct analysis of the passive in Acehnese, Indonesian, and Balinese.

CHAPTER 4

CONCLUSION

4.1 The Maratsos Effect reevaluated

In this thesis, I have shown that the Maratsos Effect, which has generally been thought to be a two-way distinction in the acquisition path that children take with respect to the passive between "actional" and "nonactional" verbs, is actually a three-way distinction between eventive agentive verbs, eventive nonagentive verbs, and noneventive nonagentive verbs. From the data of the two experiments reported in chapter 2, I found that children seem to acquire the passives of those verbs in precisely that order—namely, children comprehend passives of eventive agentive verbs before the passives of eventive nonagentive verbs and then, in turn, comprehend passives of eventive nonagentive verbs before passives of noneventive nonagentive verbs.

The results from these two experiments have also demonstrated the necessity of being careful in designing experimental materials. As discussed in §2.1.2.2, some researchers have not been careful about using linguistic tests to categorize verbs as "actional" or "nonactional". Presumably the fact that the Maratsos Effect actually involves a three-way distinction and not a two-way distinction would have been discovered sooner had researchers been more careful about differentiating the verbs they were testing with actual linguistic diagnostics for various verbal properties, as was done in the experiments reported in chapter 2.

4.2 The syntax of passives

Moreover, in light of discovering that the Maratsos Effect actually involves a three-way distinction and not a two-way distinction, I explored possible accounts of this fact in chapter 3. Specifically, I pursued the intuition that children initially posit that both arguments of eventive nonagentive verbs and noneventive nonagentive verbs are projected internally to the VP, similar to the structure that Landau (2010) motivates for stative experiencer verbs of Class II. It was shown that this intuition, in conjunction with Collins' (2005) analysis of the passive accounts for the three-way distinction discovered in chapter 2. The same cannot be said of Bruening's (2013) analysis of the passive.

While it might be possible to develop some other account of the three-way distinction in the framework of either Bruening's (2013) analysis or Legate's (2014) analysis if one pursues another intuition about the English-acquiring child's state of knowledge, until such an account is forthcoming, I think this is reason to prefer Collins' analysis of the passive. This chapter therefore also demonstrated how knowledge about the acquisition path that a child takes in acquiring their target grammar can be useful for discriminating among analytical and theoretical choices about what that target grammar looks like. APPENDIX

APPENDIX

EXPERIMENTAL MATERIALS

This appendix contains a complete list of all of the experimental materials used in both experiments. As discussed in the main body of this thesis, three of the verbs were the same from Experiment 1 to Experiment 2. The materials are thus presented by verb type to as to avoid redundancy. First, I list the materials for the eventive agentive verbs, and then I list the materials for the eventive nonagentive verbs; together, these two sets of materials made up the complete list of materials used in Experiment 1. Lastly, I list the materials for the noneventive nonagentive (*i.e.*, stative) verbs; this set of materials in addition to the set of materials for the eventive nonagentive verbs made up the complete list of materials used in Experiment 1. Lastly is addition to the set of materials for the eventive nonagentive verbs made up the complete list of materials used in Experiment 2.

A.1 Eventive agentive verbs

A.1.1 Active trials

- (51) $fix \sim False$
 - **Experimenter:** A red robot and a blue robot are moving boxes. The blue robot's arm falls off and it is now broken. The red robot decides to help the blue robot so they can continue working, so he repairs the blue robot.

Puppet: I know what happened! The blue robot fixed the red robot

- (52) $fix \sim \text{True}$
 - **Experimenter:** Teddy Bear and Pony were stuffed animals in Andy's room. When Andy left for school they would talk and play with each other. One day, Teddy and Pony were playing too rough and Teddy's arm ripped and some stuffing came out! Pony was so worried for his friend and said, "I'm sorry Teddy! Let me help you get your stuffing back inside!" Pony gently put the stuffing back into Teddy's arm and sewed it shut. "Thanks, Pony! You're the best!" said Teddy. From then on they played gently with each other so no one would get hurt.

Puppet: I know what happened! Pony fixed Teddy.

(53) $paint \sim False$

Experimenter: Way up high in the sky were two clouds. Fluffy was a grey cloud, and Bumpy was a white cloud. Bumpy didn't like being a white cloud. She wanted to be a grey cloud like Fluffy because grey clouds can make rain! So one day, Fluffy and Bumpy found a cup of grey paint. Bumpy was so excited because they could use the paint to make Bumpy grey like Fluffy! They were so excited when it was all done! Now Bumpy looks just like Fluffy!

Puppet: I know what happened! Bumpy painted Fluffy.

- (54) $paint \sim True$
 - **Experimenter:** At a school carnival, Sarah decided that she really wants a flower drawn on her face. Mark the guy working at the face painting booth decided to help her out.

Puppet: I know what happened! Mark painted Sarah.

- (55) $wash \sim False$
 - **Experimenter:** The cat and dog were walking to the movies and the dog fell into some mud and became very dirty. They wouldn't be allowed into the movies if they were dirty. The cat helped the dog wash up so they could go see a movie.

Puppet: I know what happened! The dog washed the cat.

- (56) $wash \sim \text{True}$
 - **Experimenter:** Brother bear and sister bear were really hungry. They went into the forest looking for some honey to eat. When they finally found some honey, sister bear got all sticky from the honey. Brother bear and sister bear went to the river. Brother bear helped clean all of the sticky honey off of sister bear.

Puppet: I know what happened! Brother bear washed sister bear.

A.1.2 Passive trials

- (57) $fix \sim False$
 - **Experimenter:** The green car and the orange car were really great friends, but one day, when the two were on a roadtrip, the green car got a flat tire. Thankfully, the orange car knew how to change a flat tire and was able to help the green car out so they were still able to get where they were going on time.

Puppet: I know what happened! The orange car was fixed by the green car.

- (58) $fix \sim \text{True}$
 - **Experimenter:** Two robots really like to have competitions. Today they decided to have a weight carrying competition. The short robot tried to carry as much weight as the tall robot, but the short robot's arm broke off when he tried to do this! Poor robot. Luckily, the tall robot is a good mechanic and repaired the short robot right away.

Puppet: I know what happened! The short robot was fixed by the tall robot.

(59) $paint \sim True$

Experimenter: Frank decided that he wants to get a tattoo! But before he gets it done, he wants to test it out beforehand. His friend Amy said he would draw one on him using paint to see if he liked how it looked. Look! There he is.

Puppet: I know what happened! Frank was painted by Amy.

- (60) $paint \sim False$
 - **Experimenter:** The horse really wants to dress up like a zebra because he thinks zebras are really cool looking! The lion is the horse's friend and is going to help him do it. They decide to use paint for the stripes.

Puppet: I know what happened! The lion was painted by the horse.

- (61) $wash \sim False$
 - **Experimenter:** Jared and Amy were getting food at lunch. While they were walking to get a table, Bobby ran into them and his food went everywhere! Both Jared and Amy got really messy. Bobby helped wipe the food off of Jared, and Jared helped wipe the food off of Amy.

Puppet: I know who helped Jared! Jared was washed by Amy.

(62) $wash \sim \text{True}$

Experimenter: The tiger and the lion were playing outside. The lion has gotten really dirty. The tiger decided to help the lion wash up so they can go inside.

Puppet: I know what happened! The lion was washed by the tiger.

A.2 Eventive nonagentive verbs

A.2.1 Active trials

- (63) find \sim False
 - **Experimenter:** Marley and Ben were looking for each other. Ben called Marley on the phone and said, "where are you?" Marley said I'm next to the big tree. Ben looked around and saw the big tree. He walked closer and then he saw Marley!

Puppet: I know what happened! Marley found Ben.

- (64) find \sim True
 - **Experimenter:** It's Sarah's first day at a new school and the only other person that she knows there is her cousin Albert. At recess, Sarah was looking for someone to play with. She decided to look for Albert because they really like playing hopscotch together! After looking and looking, Sarah eventually saw Albert by the slide.

Puppet: I know what happened! Sarah found Albert.

- (65) forget \sim True
 - **Experimenter:** The cat and the dog are planning to go on a walk together in the afternoon. But the cat is pretty forgetful, and when the afternoon comes the cat leaves for the walk without the dog.

Puppet: I know what happened! The cat forgot the dog.

- (66) forget \sim False
 - **Experimenter:** Charlie and Ashley are really good friends but they never get to see each other. They decide that on Wednesday they're going to go to a movie together. But when Wedesnday rolled around, Ashley was really busy, and she didn't remember to meet Charlie at the movie theater. Poor Charlie. He waited all by himself outside the movie theater but Ashley never showed up.

Puppet: I know what happened! Charlie forgot Ashley.

- (67) $spot \sim True$
 - **Experimenter:** Everybody in the neighborhood was playing capture the flag. The kids split into two teams, and each team tried to get the other team's flag in order to win. John was guarding the fort with the flag to make sure nobody from the other team got the flag. Mary was on the other team, and she was trying to sneak past John. She tried sneaking around the back of the fort, but John saw her and stopped her before she could get inside.

Puppet: I know why Mary didn't get the flag! John spotted Mary.

- (68) $spot \sim False$
 - **Experimenter:** There were lots of people playing on the playground outside. Jack was looking for Sandy, but it was hard to find Sandy because there were so many people outside. Jack looked by the swings and didn't see Sandy. Next he looked by the seesaw, where he finally saw Sandy! Sandy had her back turned to Jack.

Puppet: I know what happened! Sandy spotted Jack.

A.2.2 Passive trials

- (69) find \sim True
 - **Experimenter:** Mark and Cindy said that they would meet Cristina when they went outside for recess. Mark and Cindy's class got to recess late, so they had to go looking for Cristina. When Mark and Cindy finally got outside, they were wondering where Cristina was. Cindy looked by the monkey bars and didn't see her. Then Mark checked by the swings and saw her!

Puppet: I know what happened! Cristina was found by Mark.

(70) find \sim False

Experimenter: The deer, the moose, and the bear were playing hide and seek. The deer went to hide, and the bear and the moose were the seekers. The deer chose to hide behind the bushes. The bear went looking by the river, but the moose went looking in the bushes. The moose immediately saw the deer behind the bushes!

Puppet: I know what happened! The moose was found by the deer.

- (71) forget \sim False
 - **Experimenter:** The octopus and the fish are friends, and they made a plan to meet by the coral reef the next day to play. But the next day, the octopus was so busy that she didn't remember to go to the coral reef. The fish waited all by herself at the coral reef for a long time. Poor fish!

Puppet: I know what happened! The octopus was forgotten by the fish.

- (72) forget \sim True
 - **Experimenter:** Harry and Jackie drove to the store together. Jackie wanted candy and Harry wanted chocolate milk. They went different to different parts of the store to get the things they wanted. Then, Harry went back to the car and started to go home. Jackie called him on the phone and said, "Stop! You left me at the store!" Harry said, "oops! I'm sorry I'll come back to get you".

Puppet: I know what happened! Jackie was forgotten by Harry.

- (73) $spot \sim False$
 - **Experimenter:** The deer and the porcupine want to find the rabbit because they have something really important to tell him! So the deer went to the rabbit's home, but the rabbit wasn't there. The porcupine decided to walk through the woods to see if she could find the rabbit. After searching and searching, the porcupine finally saw the rabbit lying down next to the river. The rabbit had his eyes closed. He was relaxing and enjoying the sound of the water rushing by! Now the porcupine can tell the rabbit exciting news!
 - **Puppet:** I know how they found the rabbit! The porcupine was spotted by the rabbit.
- (74) $spot \sim True$
 - **Experimenter:** Andy got lost in the woods when he was playing outside. His entire family went looking for him. They were looking and looking for two whole hours, but nobody could find Andy. Andy's sister Natalie didn't give up, though! After another 20 minutes of searching, Natalie saw Andy's back through some very thick branches! Andy was sitting down with his head in his hands. Andy's family was really happy to have found him!

Puppet: I know how they found Andy! Andy was spotted by Natalie.

A.3 Noneventive nonagentive (*i.e.*, stative) verbs

A.3.1 Active trials

(75) $hate \sim True$

Experimenter: A red fish and a blue fish live in the same fish tank. The red fish is mean to the blue fish and always eats all the blue fish's food because the red fish does not like the blue fish. But the blue fish doesn't mind and lets the red fish eat all of its food because the blue fish really likes the red fish.

Puppet: I know something about the red fish! The red fish hated the blue fish.

- (76) $hate \sim False$
 - **Experimenter:** The goat really liked to scare the rabbit who lived near him. The goat actually really liked the rabbit and just thought that it was great fun to scare the rabbit, but the rabbit didn't find the situation funny at all. She didn't like the goat at all because she thought it was really mean of the goat to scare her. So she tried to avoid him as much as possible.

Puppet: I know something about the goat! The goat hated the rabbit.

- (77) $know \sim \text{True}$
 - **Experimenter:** Tim was really excited for his first day of school. He had to choose between being in the red classroom with Ms. Daisy or the blue classroom with Mr. Mark. Mr. Mark was a brand new teacher, but Tim's sister Rosie had had Ms. Daisy before. Rosie always talked about how great of a teacher she was. So Tim chose to be in the red classroom with Ms. Daisy!

Puppet: I know why Tim chose the red classroom! Tim knew Ms. Daisy.

- (78) $know \sim False$
 - **Experimenter:** Bill and all of his class mates get to meet the president! The teacher sent pictures of everyone in the class to the president in advance so that the president could learn all the names and faces of the kids that he was meeting. But when Mrs. Smith sent all of the pictures to the president, she forgot to include Bill's picture! So when the president met the kids, he recognized everyone except Bill. Bill started crying!

Puppet: I know why Bill started crying! The president knew Bill.

- (79) $love \sim True$
 - **Experimenter:** There was a very lonely skunk that lived in the woods. He had no friends because he was so stinky. Until, one day he found a stink bug! The stink bug was just as stinky as the skunk. They became friends. The skunk liked the stink bug so much that she eventually asked her to marry him. But the stink bug wanted to marry another stink bug, not the skunk.

Puppet: I know something about the skunk! The skunk loved the stink bug.

(80) $love \sim False$

Experimenter: A shark and a dolphin swim in the same place every day. They are very good friends and play games together. The dolphin wants to marry the shark but the shark doesn't want to marry the dolphin. The shark only wants to be friends with the dolphin because the shark wants to marry a whale instead.

Puppet: I know something about the shark! The shark loves the dolphin.

A.3.2 Passive trials

- (81) $hate \sim False$
 - **Experimenter:** The cat and the dog are both pets of the same family. The cat really doesn't like the dog and always does mean things to the dog. The cat hides his food and sleeps in his bed, even though the dog treats the cat like its best friend.

Puppet: I know something about the cat! The cat was hated by the dog.

- (82) $hate \sim True$
 - **Experimenter:** Two squirrels are storing acorns for the winter. The black squirrel worked really hard to find a bunch of acorns, but the brown squirrel didn't do anything at all. The brown squirrel stole all of the black squirrel's acorns and made the black squirrel very angry. From then on, the black squirrel really didn't like the brown squirrel!

Puppet: I know something about the brown squirrel! The brown squirrel was hated by the black squirrel.

- (83) $know \sim \text{True}$
 - **Experimenter:** The deer and the squirrel both live in the forest. The squirrel lives high in the trees, and the deer lives down on the ground. The squirrel looks down and sees the deer all the time, but the deer has never seen the little squirrel high in the trees.

Puppet: I know something about the deer! The deer was known by the squirrel.

- (84) $know \sim False$
 - **Experimenter:** Sarah was really excited to go to a Justin Bieber concert because Justin Bieber is Sarah's favorite singer. Sarah got to meet Justin after the concert and she was really excited. Justin wasn't excited though because he had no idea who she was.

Puppet: I know something about Sarah! Sarah was known by Justin.

- (85) $love \sim False$
 - **Experimenter:** There is a red turtle, a blue turtle, and a green turtle that all live in the same pond. The red turtle really likes the blue turtle because it thinks blue is a pretty color. She likes the blue turtle so much that she wants

to marry the blue turtle! But the blue turtle doesn't like the red turtle because he wants to marry the green turtle instead!

- **Puppet:** I know something about the red turtle! The red turtle was loved by the blue turtle.
- (86) $love \sim True$
 - **Experimenter:** The parrot and the seagull live in the same tree. They see each other all the time, and they are good friends. The parrot really likes the seagull and wants to marry the seagull, but the seagull doesn't want to marry the parrot. The seagull wants to marry an eagle instead.

Puppet: I know something about the seagull! The seagull was loved by the parrot.
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