

Learnability and Triggers: Obligatory versus Optional Triggers for the Passive in Two Dialects of English and in Language Impairment

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Can optional elements work as triggers? And more generally, how is the grammar constrained to guarantee that the child will have reliable triggers?

The passive rule in English is an ideal domain for this inquiry because it has both obligatory and optional elements, and they are deployed differently in two major dialects of English, African American English (AAE) and mainstream American English (MAE). Both dialects have the passive construction, and children of both dialect groups take a relatively long time in learning it. The effect of the optional or obligatory nature of the cues on learning the passive for the two dialect groups may shed light on the status of optional elements as triggers. Furthermore, both obligatory and optional elements of the passive are often compromised in language impairment, so learning of the construction by that population provides another avenue where the facts of acquisition may bear on the question of adequate triggers.

1. Features of the passive and potential triggers

The passive construction represents a complex learning problem (Bever, 1970; Borer & Wexler, 1987; Bresnan, 1982; Maratsos & Abramovitch, 1975). In addition to the recognition of the core feature of the passive--the movement of object to subject, (*Someone pushed the elephant* → *The elephant was pushed* (by someone))-- children must become aware of information not directly expressed in the sentence either lexically or grammatically, but which must be inferred from the passive (morpho)syntax. For example, in *The bear was being washed*, the presence of *was being* means 1) that *washed* is not an adjective (as it could be in *it was washed*), 2) that the action is ongoing, not completed, and 3) that there is “disjoint reference,” that is, an implied agent different from the bear (Fox & Grodzinsky, 1998; Teng, 1991; Terada, 1991; Verrips, 2000).

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It should also be noted that in other languages middle constructions are much closer to passives (e.g. *bureaucrats bribe easily*), so children must keep the two structures separate in building up the properties of each.

In addition, the presence of a by-phrase, which often encodes the agent of an action expressed in the passive, is a very salient, but not reliable cue for the construction. The by-phrase in *The book was dropped by the boy* is ambiguous between “by” for the agent (the boy dropped the book) or a location (as in *right by the boy*, someone else dropped it near him). Without the adverb *right* to force the adverbial reading, many listeners will assume the agent reading, even without the passive morphology, as in *The book was dropping by John*. Children must recognize that “by” is not a cue to the passive and they must pay attention to the verb endings instead.

Thus, there are multiple (morpho)syntactic elements to signal the passive:

- transitive verb with movement of the object to subject position,
- passive morphology (-ed or past participle and *be* auxiliary), and
- an argument by-phrase.

Are they all potential triggers? Are all of the elements optional for recognizing and/or acquiring the passive? Is any one of them necessary, or is it only that some combination of them is necessary?

Syntacticians sometimes assume that structural factors alone serve as triggers. Word order often seems sufficient as, for example, when it distinguishes an exclamation (*What he can sing!*) from a question (*What can he sing?*). Weissenborn & Roeper (1990) and Roeper & deVilliers (1992) argued for the strong notion that there is a unique structural trigger for each construction. This view has also been advocated in recent work by Fodor (1998) on unambiguous triggers. Chomsky (1975) uses the term “triggering experience” more broadly and includes a role for semantics and pragmatics. In this essay, we assume that obligatory elements are the primary syntactic anchor for a construction to which optional elements are added and semantic/pragmatic factors serve as confirmation. This claim has particular force when we consider the passive, which has only one obligatory feature (movement) and at least three optional ones (-ed, being, by). Do the optional features also play a part in the triggering experience?

We begin by considering whether the passive presents a case where several optional elements can together serve as triggers.

2. Can there be a construction of all optional elements?

Some theorists have proposed that there must be “unique triggers” that unambiguously point to the presence of an operation or a construction in a particular grammar (Weissenborn & Roeper, 1990; de Villiers & Roeper, 1992; Fodor, 1998). Stated differently:

- (1) Every construction in the grammar that entails an operation is linked to an obligatory operation.

In cases where there appears to be an optional rule, such as subject-verb inversion (*I can sing --> can I sing?*), modern versions of grammar would stipulate that there is a “yes/no” feature in the CP position which is satisfied by the movement of the auxiliary to CP.

[CP + yes/no [IP subj aux ...]]
< ===== [+yes/no F]

Therefore, if the yes/no feature is present, then this is an obligatory operation, not an optional one.

However, African American English suggests the possibility of truly optional elements. In AAE, optionality is a very salient property in many parts of the grammar, (eg. optional present tense auxiliaries, *It raining* alternates with *It is raining*; or optional past tense *-ed*, *he played yesterday* and *he play yesterday*). It is certainly possible that semantic constraints govern the appearance or not of the auxiliary or the *-ed* in these structures, but it is also possible that they are truly optional: ie. the sentences are well-formed with them or without them, and thus occur both ways in the target language.

In fact, it might be considered that all of the elements of the passive indicated above can be optional.

- By-phrase is optional in both AAE and MAE.
 - *-ed* and *be* auxiliary (in present tense) are obligatory parts of the passive in MAE, but both are optional in AAE.
- (2) (eg. AAE: *we locked out [=are locked out]; the clothes bein' wash*)
- Movement of object of a transitive verb to subject position is usually considered obligatory, but other passive forms, like *-able*, seem to allow optional movement (see below). Also pre-nominal forms entail a passive without evident movement, e.g. *the dropped plant*. Such an expression requires a child to reconstruct a passive with a relative, *the plant that was dropped (by someone)*.

The potential optionality of movement is easiest to see in nominalization, as discussed by Roeper and van Hout (2001):

- (3) *Tenure was denied* (by the dean)-has movement, no optional by-phrase.
the denial of tenure by the dean -no movement, but has by-phrase.

If there are truly optional features and if the construction is formed by different combinations of optional features, might we hypothesize a corollary:

- (4) C1. A construction can be marked by either of two equivalent optional rules.

(Note: If an option of this kind is excluded by UG, then the child never has to consider it. BUT whether this is possible or excluded is an empirical question for which we are seeking evidence.)

Such a corollary might be realized in the following way: One feature has to be satisfied (obligatorily), but either of two different optional operations could occur for it to be satisfied. For example, one might propose, as C1 in (4) suggests, that the passive is marked EITHER by object ==> subject movement OR by the presence of a by-phrase. Then we would allow:

- (5) a. **it pushed the wagon by Bill*, or.
b. *the wagon was pushed*

But one could not have a passive where both forms are missing:

- c. **it pushed the wagon* (to mean *someone pushed the wagon*).

However, (a) is not a passive. The wagon cannot remain in object position, but must move to subject. It is not a passive without MOVEMENT. The by-phrase may or may not be there, but without movement, (or patient as subject) there is no passive.

This might seem to be contradicted by the nominalization example above, (*the denial of tenure by the dean*) which can be considered “passive without movement.” However, this nominalization is actually ambiguous between active and passive. It could be based on *the dean denied tenure* (active) or *tenure was denied* (passive). The un-moved “passive” might thus be active, and hence not an “un-moved passive.” We suggest that there is an invisible movement in the nominalization, which makes itself known by blocking the movement of other elements into the subject position.

To show this better, we can use instead a non-ambiguous expression: *the deniability of tenure by the dean*. The dean cannot be “deniable,” so it is the tenure that must be the underlying object. In fact, we claim that *the deniability of tenure by the dean* is based on the passive alternative. Further evidence is that one cannot get: *last year’s deniability of tenure by the dean*. That is, the subject node is already filled by an invisible object. Predictably, only a real object (6a), not a subject, can occupy the possessive position. 6b is blocked by the invisible movement of *grammar* to the subject position.

- (6) Cf. *The learnability of grammar by children*
a) *grammar’s learnability*
NOT b) **children’s learnability of grammar*.

We note that, like the nominalization above, Germanic languages which allow it-insertion reveal by number agreement that movement has invisibly applied:

- (7) a. *Es wurden drei Kaiser begraben in Prague*
 [it were 3 kings buried in Prague—from popular song]

Therefore, nominalization does not provide an example of a passive without movement, and we are led back to the initial formulation, namely:

- (8) Movement is obligatory for the passive.

Optional elements may help the child recognize (and understand) that a sentence is a passive. They are useful, for example, to distinguish an adjective from a verbal passive as in

- (9) *John was hurt* (ambiguous)
John was hurt by the ball (not ambiguous).

They do not constitute the passive (as movement does), but there is clearly a disambiguating role for optional elements.

3. The predicted acquisition sequence

We argue that the child must learn a complex form like the passive in stages. She therefore begins with seeking an obligatory form, namely the object-to-subject rule, then adds optional variations as they are recognized. The optional elements may assist in disambiguation (adjective from passive, passive from middle), but the initial anchor for the construction must be obligatory, as we argue above. This immediately predicts that children will learn the agentless passive first, followed by recognition of the implicit information encoded in various forms of the passive. The last learned will be the optional by-phrase (although the implicit agent is not optional. See Verrips, 2000.)

To test the role of optional elements in children’s developing grammars, we compared the acquisition of passives in dialects which differ with respect to optional elements.

Table 1. (Possible) TRIGGERS for PASSIVE by Dialect

	AAE	MAE
1. Transitive verb w/o object	OBLIG	OBLIG
2. Adjunct by-phrase for agent	OPT	OPT
3. Affix <i>-ed</i> on main verb	OPT*	OBLIG
4. Auxiliary <i>be</i>	OPT*	OBLIG

- (10) * eg. “*they lock out = they are locked out*” / “*he be push(ed)*”

As indicated in (10), the verbal morphology is less consistently used by the target dialect of AAE learners. Therefore, AAE learners may have less access to

the morphological features and might thus depend more heavily on the verb's transitivity and the by-phrase to identify passive structures.

4. The Passive in Language Impairment (LI)

The passive represents a particular difficulty for children with language impairments (LI) as well. Tense marking (Rice & Wexler, 1996) and unstressed elements in general (Leonard *et al.*, 1997) have been identified as specific weaknesses in their language processing and production. In addition to their inconsistent use of the verbal morphology, it has been suggested that LI children have a general difficulty with complex movement operations (Bishop, 1979; van der Lely, 1996). Thus for an LI population, both obligatory and optional elements of the passive may be weakened.

5. Hypotheses

We hypothesize that cues to the passive that appear obligatorily in the grammar are initial; optional elements do not contribute to the original projection of the passive. This leads to several testable predictions.

5.1. a) If the optional elements do not function as initial cues, then both dialect groups will have equal access to the one obligatory element: the object of a transitive verb appearing in subject position. In that case, there will not be a time difference by dialect group in when basic passives are acquired. b) By contrast, AAE learners will be slower learning complex passives which encode more optional elements.

5.2. If the level of usage of the verbal morphology is related to the learning of the passive, children who can be shown to be high users of *-ed* and *to be* will have recognized the optional features of passive and therefore will use them as additional cues. This should lead to more reliable recognition of "complex" passives in all environments where they are present.

5.3. Understanding of the by-phrase, because it is optional and often misleading, will be established later than the understanding of other aspects of the passive construction in both dialect groups. Mastery of locative non-passives will not be related to the child's use of the *-ed* or auxiliary *to be*.

5.4. Language-impaired children (of both dialect groups) will have greater difficulty with the passive because the numerous optional elements will make it harder for all children to recognize the obligatory feature, and presumably even harder for children with disorders.

6. A Natural Experiment

Clearly, children cannot be randomly assigned to dialect or language impairment groups. However, existing groups can be enlisted for a “natural experiment.” Children were recruited from different language communities, principally AAE and MAE learners, and their dialect status was confirmed with a dialect screener (Seymour, Roper, & de Villiers, 2003). Within the language groups, subsets of children who showed language delay in prior testing and were receiving services in their schools were identified. Each child was tested individually on 12 passive comprehension items and 9 elicited production morphosyntax items.¹

6.1 Method

Subjects: There were 861 typically-developing and 397 language-impaired children, ages 4 to 12 in a nationwide sample. About 55% of the children were from the South, 27% from the “north Central” (midwest), and the others from the “West” and Northeast. Children were 87% low-SES, per Parent Education Level, (“Low-SES” representing parents with high school diplomas or less).

Table 2. Subject Demographics

	AAE	MAE	Total
Typically Developing	541	320	861
Language Impaired	242	155	397
Total	783	475	1258

Procedures: Stimuli were designed to probe different levels of passive knowledge through comprehension, and to elicit production of *-ed* and several forms of present tense *to be*. Multivariate analyses determined the effect of dialect and language impairment status on different levels of passive mastery. Correlations between the morphological production measures and the passive comprehension measures were obtained. Finally, the dependent measures were re-coded as categorical variables (“masterers” and “non-masterers”) and chi-squares were done to determine the reliability of the group differences on those measures.

Materials:

Passive Stimuli: The experimental comprehension items included ten reversible passive sentences without by-phrases and two active prompts with by-phrases. The child heard the sentence and was to indicate which one of three pictured events was described by the sentence. Five were designated “basic” passives, and in both dialects were signaled by the change in word order.

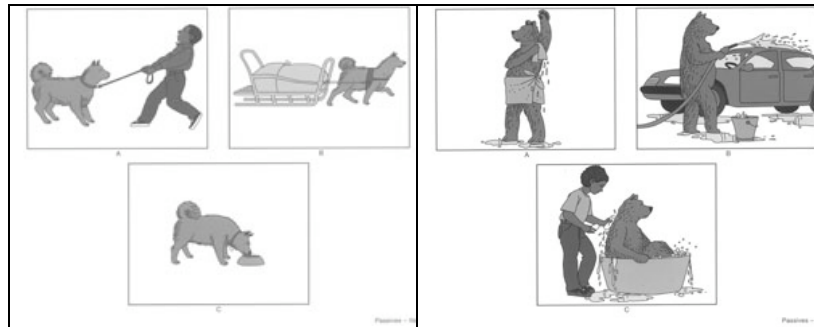
(11) Ex. *The dog was pulled.*

The pictures (in Figure 1) showed one dog being pulled, one active distractor (ie. a dog pulling a sled) and one neutral distractor (a dog eating).

For five “complex” passives, children had to use the passive morphology to make distinctions between ongoing versus completed actions and/or disjoint reference.

(12) Ex. *The bear was being washed.*

For these items, the child had to choose between two passive alternatives, for example in Figure 2, one disjoint, ongoing action (someone washing the bear), one completed and/or reflexive passive action (here, a bear washing himself), and one either neutral or active scene (a bear washing something).



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Figures 1 and 2

The other two stimuli presented the child with a locative by-phrase in an active sentence.

(13) Ex. *The book was dropping by the boy.*

The corresponding pictures included one active reading with the correct locative relationship, one passive, for the agent reading of the by-phrase (the book being dropped by the boy), and one neutral or “result” distractor (the book on the ground). These required the child to ignore the more salient by-phrase in adjunct position and pay attention to whether the verb ended in *-ed* or *-ing*. Preliminary piloting with adults showed near ceiling performance on the 10 passives and about 80% correct on the locatives (11 of 14 adults got 2 of 2 correct).

Morphosyntax Elicitation Items

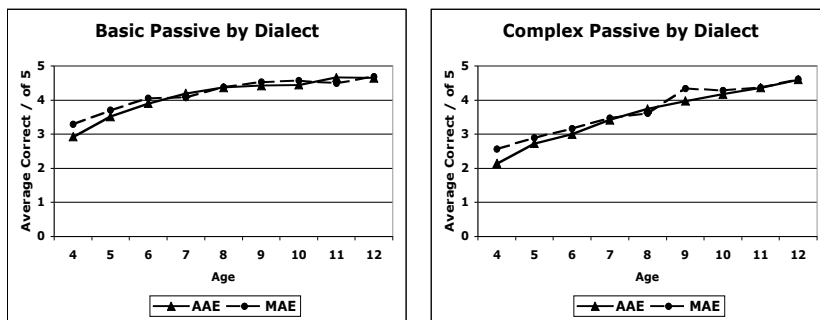
The children’s own use of the morphemes *-ed* and *be* copula and auxiliary was probed (in non-passive contexts) with an elicited production task. For *-ed*, the items showed two pictures side-by-side, both of a dog barking at the moon with different other animals in the scene to show different times. The child was told, “I see a dog barking. The dog barks at something *every* night,” and then is prompted to finish the sentence: “*Last night the dog....*” (barked at a cat). The

present tense *be* items showed, for example, a girl climbing in a tree. The examiner said, “The girl breaks a branch while climbing the tree. What’s soon going to happen?” (*She gonna* or *she’s gonna* fall.)

6.2 Results

All of our predictions, except two, were upheld. There was less difference than anticipated 1) between the dialect groups on the complex passives and 2) between the TD and LI (clinical) groups on the basic passives.

Hypothesis 5.1. The basic and complex passives were learned by both dialect groups on a similar schedule (although the AAE 4s lagged slightly, but not reliably behind their MAE peers). As shown in Figure 3, the basic passives were at mastery level (4 of 5 correct) at around age 6 for both groups; the complex passives (Figure 4) reached mastery level (4 of 5 correct) at around age 8 or 9. Thus, the two dialect groups appeared to acquire the two types of passive on approximately the same schedule despite differences in the rates of usage of the morphology; for basic passives. Results of a multivariate linear analysis were as follows: Age: $F(7, 1240) = 49.678, p < .0001$; **Dialect: $F(1, 1240) = 1.703; p = .192$** ; Age by Dialect: $F(7, 1240) = .921, p = .498$; for complex passives, Age: $F(7, 1240) = 55.383, p < .0001$; **Dialect: $F(1, 1240) = 2.678; p = .102$** ; Age by Dialect: $F(7, 1240) = .651, p = .735$.



Figures 3 and 4.

The proposed sequence of acquisition was observed. Complex passives were more difficult than basic passives, and locative non-passives were the most difficult of all, never quite reaching the 80% level during the age range.

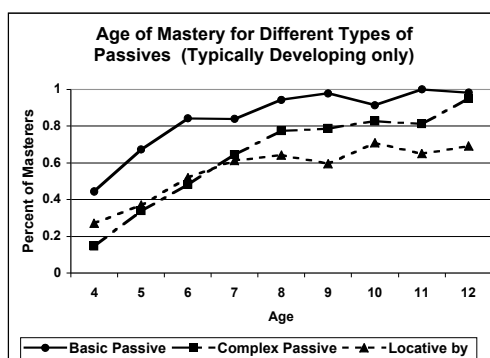


Figure 5.

H5.2. Was children’s mastery of the different aspects of the passive related to their use of the morphology associated with the passive?

The following correlations reflect a statistically significant, but objectively rather weak relationship between children’s scores on the passives and scores on the morphosyntax items.

Table 3. Correlation between passive scores and morphosyntax scores

	-ed use	auxiliary use	-ed + auxiliary
Passive Score	.385**	.301**	.395**

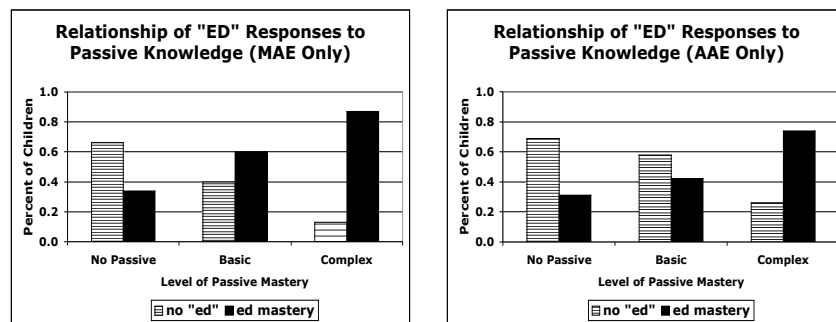
** $p = .01$.

When broken down by dialect, clinical status, or passive question type, the figures change slightly, but the correlations are lower in every case than what is reported in Table 3. In only one group, language impaired MAE speakers, was the auxiliary more highly associated with passive scores (in that case, complex passive scores) than the *-ed* ($r = .115$ n.s. versus $r = .210$, $p < .01$). Therefore for the sake of clarity, in the following analyses we make the comparisons only with *-ed* use and the different passive question types. Similar patterns can be observed with *be* auxiliaries and with the two factors combined.

Although the correlations are very modest, there nevertheless appears to be some association between *-ed* use in a production task and comprehension of complex passives in speakers of both dialects. As one can see in Figures 6 and 7, children who demonstrated no knowledge of the passive were more than twice as likely to be the children who did not use *-ed* in their own speech. By contrast, children who demonstrated mastery of the complex passives were many times more likely to be those who also used *-ed* (chi-square value 112.65, $p < .0001$). The chi-square test was also significant for the AAE group alone, even though the level of *-ed* usage was lower in general among AAE speaking children, as predicted by the dialect. Still the contrast between those with “no

passive” mastery (on the left in the charts) and “complex” passive mastery (on the right) is very striking.

The two dialect groups differed most at the *basic* mastery level (the bars in the middle of each chart). There were many children in both groups who demonstrated passive mastery but did not consistently produce *-ed* in their own speech (or at least in their test performance). MAE basic masterers nonetheless were more likely to produce the *-ed* than not produce it. Most importantly, the pattern was opposite between the basic masterers and those with no passive mastery. By contrast, among the AAE speakers, the pattern did not “switch” until the next level. That is, the AAE basic level masterers, like those with no passive mastery, were more likely not to use *-ed*. The stronger association between *-ed* usage and passive was not observed for the AAE speakers until the level of complex passives.

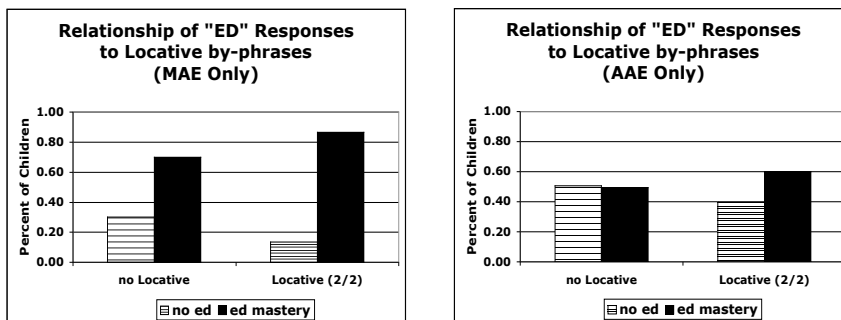


Figures 6 and 7.

H5.3. Locative by-phrases: It would seem that at the level of the basic passives, the knowledge of the passive exerts only a small influence on each group’s tendency to use or not use *-ed* according to its prevalence in the two dialects. This is again seen clearly in the relationship of the locative sentences to the *-ed* (where of course there is no reason to expect a relationship and in fact, none was found ($r = .111$, n.s.). In Figure 9 one can see that the AAE speakers who showed mastery on the locative items had nearly the same percentage of *-ed* mastery as those who missed the locative items. Among the MAE speakers (Figure 8), it was also the case that the locative masterers and non-masterers showed almost the same pattern of *-ed* usage, except in this case, as would be predicted by its prevalence in their dialect, they were all more likely to produce *-ed*.

As we mention above, there was no reason to expect that one would see a close relationship here, but its absence highlights the fact that the association between using *-ed* and understanding the passive items observed with the other question types cannot be accounted for as a general effect of maturation. In that case, we would have expected *-ed* usage to be high only for locative masterers

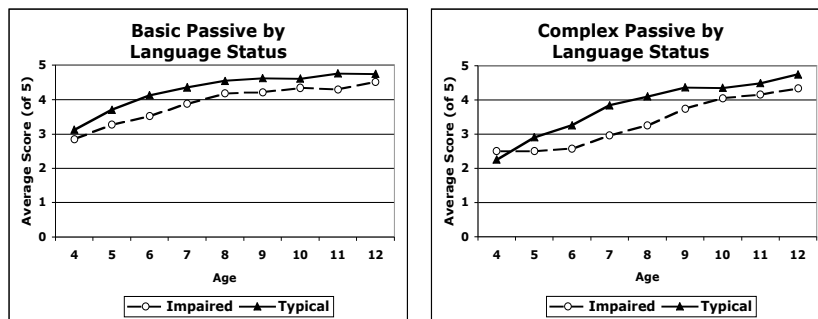
for both dialect groups, whereas the tendency for *-ed* usage to be higher for locative masters was very slight.



Figures 8 and 9.

H5.4. Did Language Impaired children show difficulty with all question types?

Similar patterns of difference between SAE and AAE LI and TD children's level of mastery were seen for all item types from age 5. As shown in Figures 10 and 11, the LI children were slower to acquire both basic and complex passives; (for basic passives, Clinical: $F(1, 1240) = 40.905; p < .0001$; for complex passives, Clinical $F(1, 1240) = 33.512, p < .0001$).



Figures 10 and 11.

As seen in Figure 12, although levels of *-ed* mastery were relatively lower, the LI children showed the same pattern of association of *-ed* use with passive knowledge as the TD children. Those whose passive mastery was higher were also more likely to show higher levels of morpheme production than their peers who did not show passive mastery.

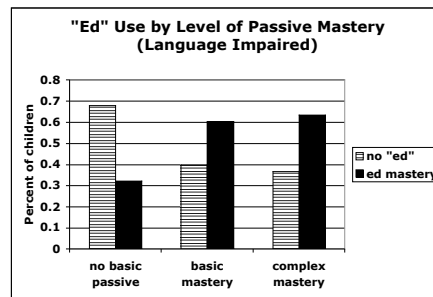


Figure 12

7. Conclusion.

These data support the view that optional elements are not satisfactory triggers in the acquisition process. It appears that the optional features are analyzed independently and become a part of the passive only after the obligatory movement rule has been identified. This conclusion seems like common sense, but it is implicitly denied if we treat all features of passive as identical in the acquisition process.

1. This “experiment” was part of a larger project to establish developmental milestones on a large number of language skills for children who speak a non-mainstream dialect of English. More information can be obtained from the UMass Working Groups on AAE, Barbara Pearson, Project Manager bpearson@comdis.umass.edu or <http://www.umass.edu/aae/>

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