The Acquisition of the Passive Voice in German as a First Language

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This study was designed to determine the age at which German children acquire the ability to comprehend, imitate and produce the passive voice, and to determine the strategies and structures used in lieu of passive constructions prior to their acquisition. The study as described below was conducted in East Berlin in April and May, 1990.

The subjects ranged in age from three to nine, with representatives from each age group in between. There were 10 subjects from each age group from four to nine years of age. Nine three-year olds were included, but difficulty in finding a suitable tenth three-year old resulted in the participation of two very lively two year-olds. Though this study was not intended to extend below the age of three, the data of these two-year olds was included, making the total 71: 38 girls and 33 boys.

Baldis (1976) subjects for the study described in chapter two ranged in age from three to eight years. He strongly suggested, however, expanding the ages in both directions (Baldis, 1976, p. 338):

It is unfortunate that this investigation did not go beyond both the 3;0 and 8;0 boundaries, for much interesting material would appear to be present outside this range. ...it did not initially appear necessary to go below the age of 3;0. For a full report on imitation and comprehension in the future an extension of the age range studied would appear to be needed. In a similar manner the rapidly increasing ability to produce the passive could be better accounted for if the years beyond 8;0 were investigated.

Due to the challenge of getting even the three-year olds involved to complete the study, no attempt was made to include two year olds, with the exception of the pair mentioned above, both of whom were nearly three.

Approximately ten of the subjects, from various age groups, were children of personal acquaintances. The remainder of the three to six year-olds attended one of three day care centers, all located in East Berlin, and the remaining seven to nine year-old subjects attended the Wilhelm-Pieck Oberschule (college preparatory school), also in East Berlin. Subjects from these schools were selected by their teachers, who had been instructed to choose the children based only on the desired age categories, not according to which children they thought would perform best. Permission of school officials or parents was obtained in advance in all cases. It is of interest to note that one of the interviewers and several other individuals were convinced that it would not have been possible to conduct this study in East Berlin under the socialist regime. In any case, the dramatic political changes in the German Democratic Republic in 1989 and 1990 most definitely abolished the bureaucracy and government intervention which long existed, thus clearing the road for the completion of this research.

The actual research design closely paralleled that of Baldis. Subjects were tested on their ability to comprehend, imitate and produce the passive voice, with sentences representing the categories of reversible active, reversible passive, non-reversible passive and agentless passive. Three sentences were designed for each category; one used to test comprehension (C), one imitation (I), and one production (P), thus making a total of twelve sentences for each subject.

The form of sentences used in Baldis’s study was followed as closely as possible when translating them into German. Modification was necessary for many of the sentences. It was not considered possible to parallel German sentences to the English and
to have a universal morpheme count across all sentences, as was the case in Baldie's study. Adjectives were included in the agentless passive and reversible active to equate the German sentences with the English sentences, though this resulted in unequal morpheme counts and, in one case, in a sentence which was somewhat unnatural. (*Die schöne, kleine, blaue Tasse ist zerbrochen.* 'The beautiful, small, blue cup is broken.) Sentences used in Baldie's study, along with their German counterparts (including translations) from this study are as follows:

Reversible Passive

(C) The boy was chased by the girl. *Der Junge wird vom Mädchen gefangen.* (The boy is chased/caught by the girl.)

(I) The man was helped by the boy. *Der Mann wird vom Jungen gegrußt.* (The man is greeted by the boy.)

(P) The girl was lifted by the boy. *Das Mädchen wird vom Jungen hochgehoben.* (The girl is lifted [up] by the boy.)

Non-Reversible Passive

(C) The shoe was hosed by the monkey. *Die Schuhe werden vom Affen getragen.* (The shoes are worn by the monkey.)

(I) The house was painted by the man. *Der Zaun wird vom Mann gestrichen.* (The fence is painted by the man.)

(P) The balloon was inflated by the boy. *Der Luftballoon wird vom Jungen aufgeblasen.* (The balloon is blown up by the boy.)

Agentless Passive

(C) The short thick metal nail was bent. *Die schöne, kleine, blaue Tasse ist zerbrochen.* (The beautiful, small, blue cup is broken.)

(I) The large block of ice was melted. *Die große Kugel Eis ist geschmolzen.* (The big scoop of ice cream is melted.)

(P) The boy was hosed. *Der Junge wird bespritzt.* (The boy is sprayed.)

The following reversible active sentences were also used throughout the study:

Reversible Active

(C) The large dog chased the small cat. *Die große Katze fängt die kleine/kleinere/tote* Maus. (The big mouse chases/catches the small/smaller/dead mouse.)

(I) The old man pushed the black dog. *Der alte Mann streicht den schwarzen Hund.* (The old man pets the black dog.)

(P) The boy chased the dog. *Der Junge fängt die Schmetterlinge.* (The boy chases/catches butterflies.)

All of the German sentences used in this study, except for the comprehension and imitation sentences under agentless passive, were in the Vorgangspassiv. The two mentioned were in the Zustandspassiv (statal passive). Unfortunately, a poor choice of verbs was made for these sentences. Zerbrechen (‘to break to pieces’) and schmelzen (‘to melt’) could be either transitive or intransitive. Intransitive verbs which also indicate a change of state (as both of these verbs do in the contexts used here) use the auxiliary sein (‘to be’) and the past participle when forming the active present perfect tense. This means that the statal passive present tense and the active present perfect tense of such verbs are identical. In other words Die große Kugel Eis ist geschmolzen could mean either ‘The big scoop of ice cream is melted...’ (...by the sun, etc.) in the agentless statal passive present tense, or ‘The big scoop of ice cream has melted.’ in the active present perfect tense. Either past participle could also be understood as an adjective. The effect this confusion may have had on subjects’ responses is considered in the discussion section.

Sentences originally written by the researcher were checked and modified in some instances by Mrs. Angelika Ober, a German native, and instructor of English at the Karl Marx University in Leipzig, German Democratic Republic. She also made suggestions for improvement of the distractor pictures used in the comprehension portion of the
test. The linguistic and particularly the cultural insight she provided proved to be invaluable, as she was able to point out several items with which an East German child would have no contact, due to limited travel and exposure to life outside the German Democratic Republic.

All of Baldie’s sentences were in the past tense. It was felt however, that the use of present tense would be simplest for this study in German, since such young subjects were tested, and their acquisition of the present tense was relatively certain, while that of past tense forms was not. A more in-depth discussion of the problems experienced with each sentence is included in chapter four.

As in Baldie’s study, the comprehension task was performed with the help of pictures, from which the subjects were required to identify the one described by the model sentence. Pictures were 4x4" black and white drawings, mounted in series of five on poster board. Only one picture in each series corresponded to the sentence modeled by the examiner. The other four pictures served as distractors. Subjects were instructed simply to point to the picture which matched the model sentence.

The imitation task was performed by having the subjects simply repeat the model sentence, unaided by pictures.

For the production task, subjects were shown pictures, drawn on 9x13 1/2" white cardboard. The drawings were done in black and white. As in Baldie’s study however, “...colour and size were used to emphasize the grammatical subject of the passive construction while the object was de-emphasized by using only black ink...” (Baldie, 1976, p. 333) After viewing the picture, children were asked to respond to the question “Was passiert dem..?” (What’s happening to the ...?) in an attempt to elicit a passive response beginning with the patient.

As in Baldie’s study, (1976, p. 334) the order of the tasks of comprehension, imitation and production was rotational, with the first subject given the order C/I/P, the second, P/C/I, the third C/I/P and then back to the first order. As Baldie states:

This procedure was adopted with full knowledge that the practice gained in such tasks as imitating or comprehending passive forms may aid the subject in producing a passive form and thus have a slight inflationary effect upon all results, but not produce biased results in any one particular area.

The sentence categories were always presented in the same order: reversible passive, non-reversible passive, agentless passive and reversible active. It must further be explained that the order of tasks described above was carried out within each sentence-type category. In other words, if the order C/I/P was used with a subject, that entire sequence was carried out within the reversible passive category, then repeated for non-reversible passive, etc. This represents an unintentional deviation from Baldie’s study, as all comprehension sentences from all four sentence-type categories were presented together, then all imitation, production, etc. This deviation could have had a slight inflationary effect on results, as all subjects heard comprehension and imitation sentences of one type before moving on to the next sentence type, and could thus have been primed, so to speak, toward the desired results. Since it is difficult to determine what, if any effect this deviation had on the results, it will be not be considered further in the evaluation of responses.

All artwork was done by Captain Drew Holliday, by profession a German linguist for the United States Army, and by hobby a talented artist. His linguistic background proved most helpful, as an understanding of the study made the explanation of pictures needed for the study much clearer.

All testing was done with the subjects individually and was tape recorded. An attempt was made with each child to establish a light-hearted, gamelike atmosphere, in order to minimize anxiety. In the cases of a small number of the very youngest subjects, a parent or pre-school teacher was also present.

A native German-speaking woman conducted each oral interview. Two different interviewers assisted, neither of whom had linguistic training. Each was briefed in detail regarding the desired method of conducting the interviews and eliciting responses. Many problems occurred despite the briefings. These are discussed in chapter four. One of the interviewers was director at the pre-school where she assisted, and thus knew each subject she interviewed. The other was a nurse by profession. She knew only a few children she interviewed.
Subjects were given two chances to provide the desired response for each question or situation. If a child provided no response at all during the first two elicitation attempts, additional requests for response were attempted until some response was forthcoming, or until it was obvious that the subject was unable or unwilling to respond.

Extensive written notes were taken during each session by the researcher, a fluent, non-native German speaker, who sat in a position where the subject’s face was visible, for most effective notation of responses, but several feet farther away from the child than the actual interviewer, to minimize distraction. Written notes were compared with the tape-recorded information.

A hand-sized tape recorder was used for all recording. It was placed on the table directly in front of the subjects for optimal recording. A few of the youngest subjects were momentarily distracted by the recorder at the outset of the interview, but in each case the pictures redirected their attention as soon as the study began, so that the position of the recorder caused no problems. Quality of recording was poor in a few cases. Use of a lapel microphone would no doubt have provided superior recordings. Nonetheless, written notes were extensive and satisfactorily augmented those few instances where a recording was unclear.

A “concept inventory”, as Baldie termed it (1976, p. 332) was performed with each child prior to the actual testing to determine that the subjects could identify each of the nouns and verbs in the test sentences. Pictures of several items not used in the actual test sentences were also included for variety. This inventory consisted of a stack of black ink drawings on 4x4” cards. In Baldie’s study, these were mounted on a larger piece of cardboard in groups of five. In this study, however, cards were simply placed on the table in front of the subjects in random order. Subjects were instructed to name each pictured item as quickly as possible. In the cases of many of the three- to five-year olds, several pictures at a time were put on the table and subjects were simply asked to point to the item indicated. In some cases, the children were asked to provide another name for a pictured object if they did not produce the label used in the study. Those subjects who were unable to identify each item contained in the study were not selected for further participation.

The entire test, minus the concept inventory, was piloted on ten German adults, five women and five men, in order to determine that the responses desired of the children were ones which would naturally be produced by native adults. All adults were interviewed by a fluent, non-native German speaker. Due to cost and time restrictions, it was not possible to modify pictures after the pilot, but the responses given by the adults were used as a helpful basis for analysis of the responses provided by the children.

Statistical analyses of the data were performed as follows: percentage of correct sentences of each type for each age group, divided by the three tasks, with a total also given for each sentence type/age group category are displayed. In addition, two matched t-tests were performed to determine 1) the correlation of responses in the categories of reversible and non-reversible, and 2) the correlation of responses on the imitation and comprehension tasks.

Finally, a qualitative analysis of the quantitative information gathered will attempt to gain further insight into the errors made.

RESULTS

ADULTS: PILOT STUDY

All adults were tested with the same task order, namely P/C/I. As with the children subjects, if an adult subject was able to correctly complete even one task within a sentence-type category, he or she was considered competent in that task. In this light, each of the ten adults tested was able to produce, comprehend and imitate the passive constructions presented them. The specific results achieved with each structural form are included in Table 1 below.

Table 1. Adult responses according to task and structural form

<table>
<thead>
<tr>
<th>Structural form</th>
<th>Reversible</th>
<th>Non-Reversible</th>
<th>Reversible</th>
<th>Agentless</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task</td>
<td>Active</td>
<td>Passive</td>
<td>Passive</td>
<td>Passive</td>
<td>Passives</td>
</tr>
<tr>
<td>P</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>9</td>
<td>29</td>
</tr>
<tr>
<td>C</td>
<td>9</td>
<td>10</td>
<td>9</td>
<td>10</td>
<td>29</td>
</tr>
<tr>
<td>I</td>
<td>9*</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td>T</td>
<td>28</td>
<td>30</td>
<td>29</td>
<td>29</td>
<td>88</td>
</tr>
</tbody>
</table>

*this imitation task was omitted unintentionally with one subject

P=production; C=comprehension; I=imitation
As can be seen from Table 1, only two of the 90 passive responses were counted as incorrect. These “errors,” as well as the comments made by the adult subjects, shed interesting light on the possible weakness of several of the sentences used in the study.

The single incorrect response under agentless passive was possibly just a case of a truncated separable prefix verb. The subject produced the following sentence when ask to describe what was happening to the boy: Er wird naß. (‘He’s getting wet.’) When asked to attempt the sentence a second time, she responded: Er steht im Wasser. (‘He’s standing in water.’) This is an accurate description of the picture, as there is water at the boy’s feet. Out of curiosity, the examiner prompted a third response by repeating the subject’s initial response and then asking her to continue it. Er wird naß...weiter... (‘He’s getting wet...go on...’) The subject then immediately provided the past participle gespritzt (‘sprayed’), leading to the belief that though she had originally only stated Er wird naß, she was actually thinking was Er wird naßgespritzt. (‘He is being sprayed wet.’) The verb spritzzen can be combined with any number of prefixes, such as naß (‘wet’), voll (‘completely’) or strahl (‘in a stream’). These prefixes are separable, and when used in the past participle form the morpheme ge- separates them from the verb itself.

One other adult subject responded to this same task correctly the second time, but initially responded Er bricht ein. (‘He’s breaking through.’) This perplexed the examiner who then asked what she meant. Er bricht zusammen auf Eis, oder war. (‘He’s breaking through the ice or something.’) was her response. The examiner then pointed to the hose and the puddle of water, mistaken for ice. The subject immediately responded with this passive form: Ah, er wird bespritzt. (‘Ah, he’s being sprayed.’) The elements of the drawing itself were apparently not clear enough. Several of the children also showed difficulty identifying the elements of this particular picture, despite the fact that they had correctly identified the term spritzen (‘to spray’) in the concept inventory.

It is also of interest to note that six of the ten adult subjects included an agent in their production response in this category, despite the fact that it was termed ‘agentless’ and a human agent was intentionally not pictured. The hose (instrument) simply protrudes from the side of the picture. The adults who included an agent used water or the hose as the thing doing the spraying. As indicated in the results which follow, however, many of the children “made up” a human agent, as it was apparently illogical to them that a hose would come from nowhere to spray a boy.

The only other passive response counted as incorrect was a comprehension task in the reversible passive category. The subject was to choose the picture corresponding to the sentence Der Junge wird vom Mädchen gefangen. (‘The boy is [being] chased/caught by the girl.’) The verb fangen generally means ‘to catch’ but the children’s game of tag is also called Fangen, and when one child wants another to play this with him, he or she will say Fang mich! (‘Catch me!’ or ‘Chase me!’) In discussing this sentence with Mrs. Ober from Karl Marx University, the selection of distractor pictures was carefully discussed so as to make the choice a clear one, and not cause confusion between the two possible meanings of the verb.

Confusion did occur, unfortunately, with many of the children, as with this adult subject. His first response when asked to identify the picture where the boy was being chased by the girl was Es gibt keines. (‘There is no such picture.’) His second response was similar. The correct picture was then pointed out by the examiner and the subject was asked “And this picture here?” He responded that the boy was being touched by the girl. “And what does gefangen mean then?” he was asked. His response was that it meant ‘seized’ or ‘held fast’. In other words, the picture did not clearly enough indicate to him that the boy was caught.

Another adult subject responded incorrectly the first time, pointing to the picture of the boy and girl running together. When asked to respond again, she pointed to the correct picture, but stated Der Junge ist vom Mädchen gefangen! (‘The boy is [already] caught by the girl!’) She used the statal passive to indicate that the picture showed the action already completed. Her hesitation was apparently for the opposite reason as that of the subject described above. The action for him was not concrete enough.

For her, it was too concrete, too final to fit the
model sentence. One other subject hesitated at first request, pointing to nothing, before identifying the correct picture on second request.

These examples show a definite lack of clarity in this series of pictures and help to explain the difficulty experienced by many of the children.

Several other responses merit analysis. In the category of non-reversible passives, (the production task), one adult subject, on first request, said of the large, red balloon, *Er ist kurz davor zu zerplatzen.* ('It's about to pop.') The interviewer then asked, *Was passiert mit dem Luftballoon davor?* ('What happens to the balloon prior to that?') The subject then immediately responded with the passive construction *Er wird aufgeblasen.* ('It's being/getting blown up.') A relatively large number of the children interviewed initially said something about the balloon popping. The balloon was intentionally made colorful and disproportionately large so that subjects would focus on the balloon, not the boy, and thus hopefully begin their sentences with *Der Luftballoon...* and complete it with a passive form. Apparently, however, the size of the balloon caused adults as well as children to focus on the fact that it was so large it would surely burst at any moment, rather than on the action being performed on it.

With the comprehension task for reversible active, several adults hesitated or showed frustration with the picture when the adjective *kleine* ('small') was used to describe the mouse, since the mouse was nearly as big as the cat. Using the comparative form *kleinere* ('smaller') apparently helped. One adult subject, however, responded incorrectly, choosing the picture where the cat and mouse are running toward one another. When asked how he would describe the correct picture, he said, *Hat sie schon gefangen.* ('He's already caught it.') This is again an indication of the differences in perception of the verb *fangen.* With the children, even this distinction from 'small' to 'smaller' did not always help, and the adjective *tote* 'dead' was adopted. (The mouse was lying on its back.) This aided comprehension in every case. This inconsistency is of little significance, since only passive sentences were used in the analyses.

Finally, though no adult subjects gave incorrect responses under the non-reversible passive comprehension task *Die Schuhe werden vom Affen getragen,* ('The shoes are worn by the monkey.'), several of them looked at the picture of the monkey wearing the shoes and then were clearly looking for another picture, ostensibly one where the monkey was carrying the shoes. *Tragen* can mean either 'to wear' or 'to carry.' In discussing the sentences with Mrs. Ober, it was felt that the distractor pictures would make the intended meaning clear enough. Apparently, however, as perhaps indicated in the children's responses as well, the sentence and accompanying pictures were puzzling enough to cause confusion. One child, in fact, folded her arms and firmly stated, *Affen tragen doch keine Schuhe!* ('Monkeys do not wear shoes!') and refused to identify any of the five pictures.

**Children's Data**

As in Baldie’s study, one point was given for a correct response, and zero points for an incorrect one. The following criteria were used in determining the scoring procedure:

1) Imitation of a passive structure was considered correct if verbatim, or if differing from the model only in the omission or alteration of an article or adjective. Several subjects repeated articles, such as *Der Zaun, der wird vom Mann gestrichen.* ('The fence, it is painted by the man.') These were scored as correct. Some flexibility in word order was allowed, such as *Der Mann vom Jungen wird gegrüßt.* ('The man by the boy is greeted') for the desired *Der Mann wird vom Jungen gegrüßt.* ('The man is greeted by the boy.') Such word order is grammatically incorrect, but such responses were nonetheless counted as correct since all passive elements were present and subject and object were correctly placed. Finally, responses of subjects who separated the contraction *vom* into its components *von* and *dem* ('by, the') were also scored as correct.

2) Imitation of a passive structure was scored as incorrect if the auxiliary was missing, or if the auxiliaries *werden* ('to become') and *sein* ('to be') were incorrectly used, if the past participle morpheme *ge-* was missing or if the subject and object were inverted or omitted.
3) Production of a passive form was scored as correct if it contained appropriately placed subject and object, a form of the auxiliary werden and a past participle, including the morpheme ge-. In some cases children provided an incorrect, but ostensibly "overregularized" (Bowerman, 1982) past participle, such as hochgehebt for hochgehoben ("lifted"). If heben ('to lift') were a weak verb, this formation would be correct. Such responses were scored as correct. In many cases the interviewer began the sentence for the child with the desired passive subject. If a child correctly produced a passive form after this prompt, it was counted as correct. In the cases where a child stated no subject but produced the remainder of what would have been a complete passive sentence, responses were also counted as correct, since the child was responding to a question in which the desired passive subject had just been mentioned. Inclusion or omission of an agent was not considered when scoring responses as correct or incorrect, since the elicitation technique used "What is happening to the...?" was a request for information about the action and did not necessarily lead to inclusion of the agent. Further justification lies in the fact that 90% of all actional (Vorgangs) passives found in German (written) are agentless (Drosdowski, 1984, pp. 181-182).

4) Pointing at the appropriate picture was considered a correct response in the comprehension category.

Table 2 shows total number of correct responses by subjects in all age groups for reversible actives, reversible passives, non-reversible passives and agentless passives. Percentages of correct responses for each group was calculated to the nearest whole percentage by dividing the number of correct responses by the total number of responses, i.e. each subject produced one response for each category.

Figure 1 shows the differential performance for each 12-month age bracket for production (P), imitation (I), comprehension (C), as well as the average total (T) of the three (in percentages).
Table 2. Total Number and Percentage of Correct Responses by Age, Task and Structural Form

<table>
<thead>
<tr>
<th>Age</th>
<th>Task</th>
<th>Reversible</th>
<th>Reversible</th>
<th>Non-Reversible</th>
<th>Agentless</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Active</td>
<td>Passive</td>
<td>Passive</td>
<td>Passive</td>
<td>Passives</td>
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<tr>
<td>2</td>
<td>Production</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Comprehension</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Imitation</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>4-(67%)</td>
<td>0</td>
<td>0</td>
<td>4-(67%)</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>Production</td>
<td>5</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Comprehension</td>
<td>6</td>
<td>2</td>
<td>2</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Imitation</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>16-(59%)</td>
<td>8-(30%)</td>
<td>7-(26%)</td>
<td>13-(48%)</td>
<td>28</td>
</tr>
<tr>
<td>4</td>
<td>Production</td>
<td>10</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Comprehension</td>
<td>8</td>
<td>7</td>
<td>5</td>
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<td>21</td>
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<tr>
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<td>8</td>
<td>7</td>
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<tr>
<td></td>
<td>Total</td>
<td>27-(90%)</td>
<td>16-(53%)</td>
<td>15-(50%)</td>
<td>19-(63%)</td>
<td>50</td>
</tr>
<tr>
<td>5</td>
<td>Production</td>
<td>10</td>
<td>1</td>
<td>3</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Comprehension</td>
<td>7</td>
<td>8</td>
<td>7</td>
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<td>24</td>
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<tr>
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<td>Imitation</td>
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<td>10</td>
<td>9</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>26-(87%)</td>
<td>18-(60%)</td>
<td>20-(67%)</td>
<td>25-(83%)</td>
<td>63</td>
</tr>
<tr>
<td>6</td>
<td>Production</td>
<td>10</td>
<td>7</td>
<td>7</td>
<td>8</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Comprehension</td>
<td>10</td>
<td>8</td>
<td>7</td>
<td>10</td>
<td>25</td>
</tr>
<tr>
<td></td>
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<td>10</td>
<td>9</td>
<td>10</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>30-(100%)</td>
<td>25-(83%)</td>
<td>23-(77%)</td>
<td>28-(93%)</td>
<td>76</td>
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<tr>
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<td>26-(87%)</td>
<td>27-(90%)</td>
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<td>29-(97%)</td>
<td>27-(90%)</td>
<td>26-(87%)</td>
<td>29-(97%)</td>
<td>82</td>
</tr>
<tr>
<td>9</td>
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<td>7</td>
<td>9</td>
<td>21</td>
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<tr>
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<td>Comprehension</td>
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<tr>
<td></td>
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<td>10</td>
<td>10</td>
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<td>30</td>
</tr>
<tr>
<td></td>
<td>Total</td>
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<td>22-(73%)</td>
<td>25-(83%)</td>
<td>29-(97%)</td>
<td>76</td>
</tr>
<tr>
<td>TOTALS</td>
<td></td>
<td>192-(90%)</td>
<td>142-(67%)</td>
<td>143-(67%)</td>
<td>176-(83%)</td>
<td>461</td>
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</tbody>
</table>

Notice that for all age groups except for the two and three year-olds, the subjects performed best on the imitation task, next best on the comprehension task and worst on the production task. These findings are consistent with those of Baldie (1976) and Fraser, et al., (1963). Also, the fact that the differences between numbers of correct responses on the imitation and the comprehension tasks were small as compared with the difference between both of these and the production task percentages, and the fact that the youngest age groups performed best on the comprehension task are consistent with Baldie's findings.

As in Baldie's study, children also were scored as "producers, comprehenders and imitators of the passive if they scored at least one correct response in each area" (1976, p. 335). Table 3 shows these scores, displayed as percentages.

Table 3. Percentage of Subjects Correctly Using at Least One Passive Form in the Performance of Production, Comprehension and Imitation Tasks

<table>
<thead>
<tr>
<th>TASK</th>
<th>Production</th>
<th>Comprehension</th>
<th>Imitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>3</td>
<td>22</td>
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<tr>
<td>4</td>
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<td>7</td>
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<td>8</td>
<td>90</td>
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</tr>
<tr>
<td>9</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Mean</td>
<td>64</td>
<td>98.75</td>
<td>94.38</td>
</tr>
</tbody>
</table>

These percentages are important in that they reveal even the minutest proficiency of the subjects and also show proficiency which might not other-
wise come to light due to weakness of several of the items, as explained in the discussion of adult responses.

This table shows that nearly all subjects, from age two on, could correctly imitate and comprehend at least one passive form. The 55% on the imitation task for three year-olds is most likely an aberration. At age four, production is still significantly behind, at 40%. Already by age five, however, production proficiency has doubled to eighty percent and 100% of subjects could both comprehend and imitate at least one passive construction. This differs significantly from results gained in Baldie's study. Such proficiency was not achieved by his English-speaking subjects until between the ages of 7;6 and 7;11.

Figure 2 shows results according to each type of passive, which were achieved by summing C, I and P for each form.

Six through eight year-old subjects all showed 90% proficiency in being able to produce at least one passive form, while all subjects from five years of age could comprehend and imitate at least one passive. The study's nine year-olds could produce, comprehend and imitate at least one passive.

For the total population, 64% could produce, 98.75% could comprehend and 94.38% could imitate at least one passive form. These statistics show only a small difference between the ability to comprehend and imitate, with comprehension just slightly above imitation and with production far below both. This production total is, however, significantly higher than the 45% found in Baldie's study. Both comprehension and imitation are also slightly higher than the same results in Baldie's study, but results agree in that there was a slightly higher percentage of subjects in both which could comprehend than could imitate at least one passive form. These percentage results reveal that proficiency with each task — production, comprehension and imitation — increases with age.

A matched t-test was performed with scores (percentages) on total passives for all age groups on the comprehension and imitation tasks. The resulting t-value of 2.618 is significant at the .05 level of significance, indicating that subjects perform somewhat better statistically on the imitation task than on comprehension. This may appear to be a contradiction to the statistics presented in the preceding paragraph. It should be kept in mind, however, that
this t-test was based on overall responses (see Table 2), rather than on one correct response per task.

Results shown in Table 2 for each particular type of passive sentence indicate that subjects in all age groups scored highest for all tasks (except on imitation for four and five year-olds) on agentless passive and that proficiency increased with age. The exception to this latter generalization were the two year-olds, who scored unexpectedly high on imitation and comprehension of agentless passives. Since there were only two two year-olds included in the study, both of whom were rather precocious, their data should be considered cautiously. No age group scored perfectly on any of the passive forms, but subjects by age seven had achieved nearly 97% accuracy in the agentless passive.

Subjects' responses on items involving reversible and non-reversible passives were very similar (see Table 2 and Figure 2). Some age groups performed slightly better on the reversible items while others performed better on non-reversible items. Results presented in Table 4 show that there were no overall differences in the groups’ performance on the two. A matched t-test confirmed this, as results were far below any level of significance. This finding is significantly different from Baldie’s results. In his study, all subjects (except three-year-olds, who scored zero on both) scored better on reversible or non-reversible passive. As discussed in following paragraphs, there is reason to believe that children do not perceive the agentless passive as a passive at all, thus possibly rendering these data for the two year-olds meaningless. However, several three year-olds were able to imitate and comprehend at least one passive, including reversible and non-reversible. Finally, paralleling Baldie’s results, comes proficiency in producing passive constructions, which was non-existent for the two year-olds, commenced at age 3;1 and then nearly or exactly doubles each year through age five. Production ability increases again by age six, remains constant through age eight, then increases again, to 100% by age nine, as Baldie (1976, p. 138) predicted. “...Nearly perfect performance of the passive might be achieved by children by 9;0-9;5.”

Results obtained with the agentless passive are somewhat similar to those in Baldie’s study, in that agentless forms were correctly produced by subjects more often than any of the other forms (83%). This is notably lower than the 95% correct agentless responses in the Baldie study, but might be considered similarly significant in relation to percentage of correct responses in the reversible category (67% in this study, 72% in Baldie). Hayhurst’s (1967, p. 634) findings that “omission of the actor generally aids construction of the passive...” seem to be supported by the agentless passive statistics above for this study. However, the following points should also be considered.

These findings of the relative ease in the performance of agentless passive make it difficult, as
Baldie points out, "...to strongly support...the fact that the retrieval of deep structure is necessary to interpret an utterance." (1976, p. 347) Or in other words, the competence of the subjects with the agentless passive ("...requiring an additional transformation to delete the agent." p. 347), at least in the imitation and comprehension tasks, does not reflect its relative syntactic complexity. Some research steers away from this transformational grammar view of passive derivation from actives, as explained below. Subjects may have interpreted the following sentences as present indicative (past participle serving as an adjective) or as conversational past indicative (The verb sein is used as a helping verb with intransitive/change of state verbs, as in the following sentences.)

Die große Kugel Eis ist geschmolzen.
("The big scoop of ice cream is melted.")

Die schöne, kleine, blaue Tasse ist zerbrochen.
("The beautiful, small blue cup is broken.")

As Baldie formulated, "...it would appear...that an utterance is easier to perceive if more than one syntactic path is available" (1976, p. 347).

A study conducted with German children by Grimm (1973) revealed only agentless passives in all data collected for subjects through age 6;0. Similarly in this study, all subjects, by age six, were able to comprehend and imitate agentless passive forms. The German statal passive in these cases is identical to the present perfect active form and may also have been understood as an adjective, equivalent to 'The cup is big' or 'The scoop of ice cream is pink.' Stromswold, et al. (1985, p. 125), in their study of passive cues, showed that presence of the preposition 'by' made children "...more likely to interpret a sentence as passive..." Horgan (1978) excluded passives without an agent (truncated or agentless passives) from her study because of their grammatical distinctiveness from passives. More succinctly explained, "if the things we call 'verbs' are really statives (and thus adjectives) to children, then the...sentences we call truncated passives are not passives at all" (p. 69).

A large difference is found between the studies in the percentage of correct responses in the non-reversible category. Reversible passives proved significantly easier overall than non-reversible passives for Baldie's subjects. This is not the case in the present study, as the overall percentage of correct responses in both categories is identical (67%).

The effect of reversibility is an interesting factor. Table 4 shows the percentage of correct responses for reversible and non-reversible passive constructions. Percentages of correct responses of the two forms flip-flop as subject age increases, in contrast to consistently higher percentages for reversible constructions in Baldie's study. Findings in this study also only partially support the findings of Hayhurst (1967, p. 634) who stated that "...variations in the effect of non-reversibility will be found with age, such that the youngest children will find non-reversible and reversible sentences equally difficult, whereas for older children non-reversibility will assist sentence production."

<table>
<thead>
<tr>
<th>Age</th>
<th>Reversible passive</th>
<th>Non-reversible passive</th>
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<tbody>
<tr>
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<td>0</td>
</tr>
<tr>
<td>3</td>
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<tr>
<td>4</td>
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<td>9</td>
<td>73</td>
<td>83</td>
</tr>
<tr>
<td>Total</td>
<td>67</td>
<td>67</td>
</tr>
</tbody>
</table>

Subjects in the present study through age seven demonstrated only small differences in their abilities with reversible versus non-reversible passive constructions. Beginning at age seven, however, scores with non-reversible passives decreased and only the nine year-olds showed any significant superiority of non-reversibles over reversibles. For subjects age 8;0-8;11 the percentage of correct non-reversible responses was in fact lower than of reversible responses. Non-reversibility did in fact not seem to "...assist sentence production." (Hayhurst 1967, p. 634)

Lexical problems may be a great part of the reason for this lack of difference between reversible and non-reversible on the comprehension sentences, and make it therefore very difficult to interpret the results as true indicators of passive comprehension. The comprehension sentence for reversible passive...
Der Junge wird vom Mädchen gefangen. ('The boy is chased/caught by the girl.') contained the verb fangen, which, as discussed with the adult data, can mean either 'to catch' or 'to chase'. Had the verb chosen been clearer, responses may have shown up in a different configuration, one which more accurately reflected the comprehension of passive. As it is, the confusion over the verb may have made some subjects guess, and thus score higher on reversibles than they would have with another verb.

There was also some lexical confusion with the comprehension sentence for non-reversible passive: Die Schuhe werden vom Affen getragen. ('The shoes are worn by the monkey.') Tragen can mean 'to wear' or 'to carry' and subjects, including adults, often looked at the picture of the monkey wearing shoes, then looked elsewhere, as mentioned previously, probably for a monkey carrying shoes. One of the pictures showed the monkey sitting on the floor with one shoe in his hand, resting on the ground and the other in his mouth. Several children chose this picture. If they were thinking of tragen as 'to carry' this would have been the only logical picture. Such responses were counted as incorrect, and results for non-reversible may thus have been lower than normal, perhaps accounting for the small difference between the two types.

An analysis of the errors made with imitation sentences reveals one most common type of error, namely the reversal of subject and object. This same error was detected by Baldie. Such errors were most common with the non-reversible passive. The model sentence Der Zaun wird vom Mann gestrichen. ('The fence is painted by the man') brought forth the following responses:

Der Mann wird vom Zaun gestrichen.
'The man is painted by the fence.'
Miriam, 4;9; Sebastian, 3;6; Andreas 2;11;

Der Mann...vom Zaun der wird gestrichen.
'The man...by the fence...he is painted.'
Johanna, 3;5

Der Mann der wird gestrichen.
'The man, he is painted.'
Christine, 3;8

Der Mann...Der Zaun wird vom Mann gestrichen.
'The man...the fence is painted by the man.'
Sebastian, 3;10

Der Mann wird mit dem Zaun gestrichen.
'The man is painted with the fence.'
Stefan, 5;10

These responses strongly support the findings of Angiolillo and Goldin-Meadow (1982, p. 627) in their study of nine native English-speaking two year-olds which show that the children relied on word order, rather than animate- or inanimateness, to define the role to be played in a sentence by an entity and that agent-object word order is favored (p. 631). Similar findings were revealed in a study conducted with German children between the ages of 3;0 and 7;12 by Grimm, et. al. (1975). The youngest of these subjects relied heavily on agent-object word order, even in irreversible sentences.

All of the above responses from the present study begin with Der Mann... It can be hypothesized that there was no error in logic in these constructions, but rather that they reveal a thought process which requires that the agent, or thing doing the action, be mentioned first, and that the object of the action be placed in post-verbal position. Using such logic, any non-reversible passive construction would be impossible to the child, and would come out as the above constructions did.

Several of the production responses likewise indicate a lack of the passive transformation and a "...heavy commitment to an S-V-O pattern" (Baldie, 1976, p. 344), such as in the following examples where the target sentence was Das Mädchen wird vom Jungen hochgehoben. ('The girl is [being] lifted up by the boy').

Die springt da hoch.
'She is jumping up there.'
Annette, 2;10

Der Junge ist den Mädchern fangen.
'The boy is the (incorrect case) to catch.'
Sebastian L., 3;6

Die tanzen.
'They're dancing.'
Anna, 3;7

Die fällt um.
'She is falling over.'
Nadin, 4;4
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Der tanzt.
‘He’s dancing.’
Karsten, 4;4

Der Mann schmeißt die hoch.
‘The man is tossing her up.’
Sascha, 5;2

It is interesting to note here again, as discussed under imitation, the strong tendency toward agent-object word order. The boy in this particular picture was very small, and only sketched in black ink, whereas the girl was colorful, much larger, and in the foreground. Nonetheless, many of the subjects began their sentences with Der Junge (‘the boy’) or der/er (masculine nominative article/ demonstrative pronoun), presumably because he was the agent. These constructions were all active. It is difficult to know if these subjects would have produced passive forms had the elicitation technique been different.

Many of the subjects hesitated or seemed confused or unsure when presented with this picture, even, and in some cases especially, when the interviewer prompted them with Das Mädchen... (‘The girl...’). In some cases this prompt was of no help at all, and perhaps even more confusing than none, and some of the youngest subjects simply gave no answer. This likely indicates that since the girl is the object, she did not belong, in the logic of the children, in sentence initial position, particularly for those who did not possess the passive transformation. Hence the lack of response. Those who did respond with the girl as the subject of the sentence used active constructions.

A finding in this study which differs significantly from Baldie’s is the omission of the past participle morpheme ge- from a number of the imitation responses. In no case was the past tense morpheme omitted in the imitation task in the Baldie study, leading him to hypothesize that “...imitation tasks are performed on a word-by-word basis rather than being related to the underlying structure...” since “...only whole words [such as the auxiliary or ‘by’] were omitted...not bound morphemes” (1976, p. 345). As in Baldie’s study, whole words (articles, adjectives, the preposition von, the passive auxiliary werden) were left out. Some responses from this study such as the following, however, seem to indicate that imitation may indeed be related to the underlying structure, since in all cases the past participle is either incomplete or replaced by another form of the verb, despite the fact that the passive auxiliary is in place:

Der Mann wird grüssen.
‘The man is [being] to greet.’
Konstanze, 4;0

Die große Kugel Eis ist molzen. (geschmolzen correct participle)
‘The big scoop of ice cream is...’
Jakob, 4;4

Der Mann wird vom Jungen grüßt. (gegrüßt correct participle)
‘The man is... by the boy.’
Sascha, 5;2

Bloom (1989) presents a contrasting viewpoint by indicating that this inability to imitate may be related not to their grammars, but “...to a general inability to utter long strings of words.” (p. 58) Unfortunately, since an analysis of the mean length of utterance (MLU) of each subject was not conducted, it is impossible to look more closely at this possibility. The errors displayed could also be the effect of dialect. Keller (1961) indicates that several German dialects drop the past participle morpheme ge- and the past participle in others resembles an infinitive. It is possible that the parents of these children speak dialects at home where this is the case, and thus the children may not be making “errors” at all.

If imitation is indeed related to the underlying structure, as may be indicated by the errors above, then it is difficult to explain why imitation would be statistically easier than comprehension. However, the previously discussed lexical difficulties, particularly with the comprehension tasks of reversible and non-reversible passives (containing the ambiguous verbs fangen [‘to chase/catch’] and tragen [‘to wear/carry’]) could, have lowered the overall comprehension scores significantly.

No convincing explanation has been found for the overall earlier acquisition for German children than English-speaking children of the ability to imitate, comprehend and produce passive forms (see
Table 3). The following idea could be considered, however. Certain aspects of German grammar are more complex than English grammar. English has both gender and case, for example, but German has more. German passive, as described in detail in Chapter 2, is also more extensive in its construction, and seems to be more frequent in its usage than is English passive, although no statistics were found supporting this intuition. If German children are thus confronted from birth with a more extensive set of possibilities or, as mentioned at the conclusion of the review of literature, increased “opportunities” (Demuth, 1990, p. 71) for passive use than are English-speaking children, it is possible to assume that they might begin acquiring proficiency with more forms earlier.

In summary, German children appear to acquire the passive somewhat earlier than did the English-speaking children in Baldie’s study. Results from this study also show that production is acquired after both comprehension and imitation, with near perfect performance achieved on the latter two tasks among subjects in all age groups. There appears to be little difference in difficulty of reversible and non-reversible passive forms. Subjects who did not appear to possess the passive transformation seemed to favor word order (agent-patient) to express the semantics involved. All of these results should be considered in light of the many weaknesses discussed in detail within this study.

Additional research on this topic should perhaps be augmented in the following ways from the current study: 1) more two year-old subjects should be included in the study. The two included here showed relatively high proficiency, in some cases higher than that of three year-olds, and a more accurate view of the onset of acquisition as well as pre-acquisition strategies might be revealed with more younger subjects. In addition, 2) free samples of speech might be collected and analyzed for MLU to use as a basis for implicational scaling. Also, 3) it is wise to select subjects so that an equal number would fall into each six-month, rather than 12-month age category. This was done in Baldie’s study, but unfortunately not in the current study. This shorter age span would also make points of acquisition more identifiable. In addition, 4) it would be useful to conduct any similar study longitudinally, perhaps testing subjects three separate times at one- to two-month intervals. This would more clearly show individual development and proficiency and would lessen the possible effects of varied attention spans, as discussed by Sudhalter, et al. (1985, p. 463) “...the subjects’ ability to sustain attention is no doubt far from perfect, so it could be that on some trials they notice the cues to passivity in the sentence and on others they do not.”

Finally, 5) it appears that a clearer view of the passive in the speech of German children would be augmented by studying “experiential” (know, like, believe, etc.) as well as “actional” (chase, spray, paint, etc.) verbs, since evidence points to the fact that the passive is differentially comprehended depending on the type of verb used in construction.” (Sudhalter, et al., 1985, p. 462) Actional passives are the most common in speech to and from children, but, according to Maratsos et al (1979, p. 24) “...evidence from non-actional passives is required or at least very useful for the child in discerning that the construction is not bound to the semantics of action and causality.” Thus, since all verbs used in this study were actional verbs, it is not possible to state that the subjects possess “...knowledge of the true active/passive relationship...” (Maratsos et al., 1979, p. 22).

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