Inversion Study Experiment Bank

From Cornell University Virtual Linguistics Laboratory's Research Methods Manual: Scientific Methods for The Study of Language Acquisition Experiment Bank Outline

A. Background

1. Experiment name: Inversion Study

2. Date:

Data Collection: 1994-1996

Publication: 2002

3. Topic of the Experiment: Subject-verb inversion in Yes/No questions

4. Experiment's Principle Investigators:

Primary Investigators: Lynn Santelmann, Stephanie Berk

Secondary Investigators: Shamitha Somashekar, Jennifer Austin, Barbara Lust

5. Assisting Investigators:

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    - Doctoral/Post-doctoral:
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6. Publications:

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B. Experiment Banked Information:

• Purpose of Experiment:

To investigate if 2-5-year-old English-speaking children were able to invert the subject and verb positions when asking yes/no questions.

The design compares declaratives and questions in a manner which dissociates the syntax of inversion from other aspects of grammar that may interact with inversion in English, namely verb type and presence of modal. These factors interact with English-specific grammar, including its inflectional system.

Main questions:

1. Do children have the basic competence for inversion in English?
2. What is the effect of different verb types on inversion

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2. Leading Hypothesis:

We are taking as our null hypothesis the Strong Continuity hypothesis, which claims that the phrase structure principles and movement mechanisms found in UG are available to the child from the earliest ages. This predicts that the phrase structure, and the ability to move to this phrase structure [sic], should be present in children's early grammars. Combined with this hypothesis, we are also assuming the Grammatical Mapping Hypothesis (Lust (in prep), Boser, Santelmann, Barbier and Lust (1995)), which hypothesizes that development should take place in integrating language specific factors.

(1) Children's grammars initially contain knowledge of inversion.

Under this hypothesis, development does not occur in the grammar of inversion itself, although it may occur in other areas that interact with inversion. The rationale for the hypothesis in (1) comes from the observation that the grammar of inversion is only one of the elements necessary for question formation in English and the recognition that

Universal Grammar is not identical to Specific Language Grammar (SLG).

What is involved in subject-aux inversion in English?

1. Universals:
   a. phrase structure principles (functional as well as lexical categories).
   b. movement mechanisms.
   c. operators (triggers for I to C in English).

2. Language specifics that will affect subject-aux inversion:
   a. English restricts verb movement to I to C. Only verbs that originate in I (modals, auxiliary *do*) or can move to I (copula *be*, *have*) can move to C.
   b. English restricts I to C movement to contexts with operators in Spec, CP (questions, negative topics).
   c. In clauses with overt finiteness features, English does not always manifest overt [sic] these features in I, i.e. in clauses that contain only a main verb and no auxiliary (e.g., *he bakes cookies on Saturdays*), there is no overt element I.
   d. English does not always overtly mark tense/finiteness (e.g., the finite verb *go* in: *do you go to Tops on Mondays?*).
   e. English must invoke the language specific mechanisms of *do*-support to handle I to C movement in clauses without over auxiliaries.

General predictions made by the SCH and GMH:

1. Evidence for movement to this phrase structure should be found as soon as children have acquired the lexicon and language-specific triggers for subject-aux inversion.
2. There should be no development in the *ability* to perform subject-aux inversion once the lexicon is acquired. (This does not mean that the lexicon associated with verb movement will not develop, just that there should be early, consistent ability to perform the movement.)

Predictions made by the SCH:

1. Early and consistent movement of elements that originate in I (i.e. auxiliaries).

2. Early and consistent movement of all auxiliaries when they are present.

Predictions made by the GMH:

Development in subject aux-inversion should be found in:

1. The need to learn when and how the tense/finiteness features need to be made overt (e.g., *is* running, *does* he *bake* vs. he *bakes*). This will include:
    a. Learning *do*-support (see point 2).
    b. Learning that –*ing* forms in present progressive are not sufficient in and of themselves to express the verbal features, but require an accompanying *be* auxiliary in all contexts.
    c. Learning that copulas must be overt in English (see point 3).
2. The need to learn the language-specific mechanisms for I to C movement when there is no overt element in I (*do*-support).
3. The need to learn that c and that copulas, even though they are a main verb, are allowed to invert.

Data that would confirm the SCH and GMH from our study:

1. Maintaining inverted orders. This will show that they have the phrase structure and the mechanisms for maintaining this order.
2. Converted non-inverted structures to inverted structures, especially converting declaratives with main verbs (*Mickey mouse opens a present*) to inverted structures (*does Mickey Mouse open…*). This will show they have

Data that would refute these hypotheses:

1. Consistent reordering of auxiliaries to the pre-subject position.

3. Method

- Type: Production
- Task: Elicited Imitation task.

4. Experimental Design

Our design involved 10 declarative and 10 question sentences wherein each declarative had a lexically-matched question. There were 5 test conditions with a replication item for each, for both declaratives and questions, providing 20 test stimuli.

Table 1: Design of the Yes/No Inversion study.

Verb type	emantic Content/Modality	+/-Q
Main	+/- *can* +/- *do*	+/- +/-
Copula *be*	+/- *can* *be*	+/- +/-
Aux *be*	*be*	+/-

Table 2: Range of Overt Inflection Instantiations in English Question Formation

	Auxiliary	Main Verb
a. i. Kermit is eating a cookie. ii. Is Kermit eating a cookie?	+	+
b. Bugs Bunny touches a carrot	-	+
c. Does Bugs Bunny touch a carrot?	+	-
d. i. Ariel can be a princess. ii. Can Ariel be a princess?	-	-

5. Experimental Sentences by factor

Factors:

1. Inversion (in question) or no inversion.
2. Main verb (verbs that require *do*-support) vs. verbs that move themselves.
3. Modality and/or Semantic Content of auxiliary.

Controls:

1. Each sentence is presented in both declarative and question form. Half of each the sentences in each battery are questions, half declaratives. If the test item is a question in the first battery, it is a declarative in the second, and vice versa.
2. Sentences are 8-9 syllables long.

3. Sentences are in present tense.
4. Sentences contain only indefinite objects (Aladdin is a prince), since indefinites are most felicitous in copular sentences (vs. Aladdin is the prince).

Pretraining

1. Pretraining sentences were designed to reach the same length in a single clause as the test sentences.
2. Pretraining sentences were also designed to train the children to *imitate* (not answer) questions. The questions presented for pretraining are subject questions, so that they do not train the children on inverted structures.
3. The pretraining ended with a question so that the researchers were sure they children know they can imitate a question before going onto the test batteries.
4. A reminder training question was included (subject question) at the beginning of the second battery, to make sure that children remember questions can be imitated.

6. Sentence Batteries:

Sentences by factor

Table 3: Sample Stimuli Sentences

Declarative	uestion
	Main Verb
A3. Mickey Mouse opens a present B1 Bigs Bunny touches a carrot.	B4 Does Mickey Mouse open a present? A2 Does Bugs Bunny touch a carrot?
Main Verb + *can*	
A9 Aladdin can draw a picture B7 Jasmine can hug a teedy bear.	B2 Can Aladdin draw a picture? A6 Can Jasmine hug a teedy bear?
Copula *be*	
A7 Miss Piggy is a movie star. B7 Mufasa is a lion king.	B8 Is Miss Piggy a movie star? A10 Is Mufasa a lion king?
Copula *be* + *can*	
A5 Donald Duck can be a teacher. B5 Ariel can be a princess.	B10 Can Donald Duck be a teacher? A8 Can Ariel be a princess?
Auxiliary *be*	
A1 Kermit is eating a cookie. B9 Minnie Mouse is petting a dog.	B6 Is Kermit eating a cookie. A4 Is Minnie Mouse petting a dog.

Sentences as presented to the children

Pretraining

Sentences in larger font were done first, sentences in smaller font were presented to the child only if needed.

Mickey Mouse jumps.
Ariel runs.
Donald Duck swims.

Aladdin kicks the football.
Jasmine pets the bunny rabbit.

Who runs?
Who jumps?

Who opens the birthday present?
Who pets the doggie?

Bugs Bunny hugs the teddy bear.
Aladdin operns the birthday present.

Who eats the cookies?

Battery A

Reminder: Do only if Battery B was administered first:
Who drinks the juice?

Battery A
1. Kermit is eating a cookie.
2. Does Bugs Bunny touch a carrot?
3. Mickey Mouse opens a present.
4. Is Minnie Mouse petting a dog?
5. Donald Duck can be a teacher.
6. Can Jasmine hug a teddy bear?
7. Miss Piggy is a movie star.
8. Can Ariel be a princess?
9. Aladdin can draw a picture
10. .Is Mufasa a lion king?

Battery B

Reminder, do only if Battery A was first:
Who drinks the juice?

Battery B
1. Bugs Bunny touches a carrot.
2. Can Aladdin draw a picture?
3. Mufasa is a lion king.
4. Does Mickey Mouse open a present?
5. Ariel can be a princess.
6. Is Kermit eating a cookie?
7. Jasmine can hug a teddy bear.
8. Is Miss Piggy a movie star?
9. Minnie Mouse is petting a dog.
10. Can Donald Duck be a teacher?

Alternate Battery A

Reminder, do only if Battery B was first:
Who drinks the juice?

Battery A

1. Simba is telling a story.
2. Does Perdita chase a puppy?
3. Peter Pan carries a sword.
4. Is Mica baking a cookie?
5. Donald Duck can be a teacher.
6. Can Nala touch a teddy bear?
7. Daffy Duck is a magician.
8. Can Tinkerbell be a fairy?
9. Bugs Bunny can drive a school bus.
10. Is Aladdin a movie star?

Alternate Battery B

Reminder, do only if Battery A was first:
Who drinks the juice?

Battery B:

1. Perdita chases a puppy.
2. Can Bugs Bunny drive a school bus?
3. Aladdin is a movie star.
4. Does Peter Pan carry a sword?
5. Tinkerbell can be a fairy.
6. Is Simba telling a story?
7. Nala can touch a teddy bear.
8. Is Daffy Duck a magician?
9. Mica is baking a cookie.
10. Can Donald Duck be a teacher?

Other documents

- Inversion batts-bigger
- Inversion Design
- Inversion Design - follow along
- Inversion Design/Batteries(plus Alternate Batteries)
- pretraining, inversion
- Test Batteries dbl spaced

7. Subjects:

From Santelmann et al. 2002

Subject Table

Group	n	Age Range	Mean Age
	18 (13 F; 5 M)	2;01 - 3;00	2;08
II	25(11 F; 14 M)	3;01 - 4;00	3;06
III	22(12 F; 10 M)	4;01 - 5;03	4;06
Total	65(36 F; 29 M)	2;01 - 5;03	3;07

Subjects: by Subject Make a table of the ids of the children. The ID consists of the child's initial and birthday e.g. MB012468e. A list of the children can be found on the

server: CLAL Databank > Experimental Bank > Inversion > Subj Info> ˝Inversion Prog. Sheet 11/15/96˝

8. Procedures

9. Transcription Sheet

(from Inversion Transcription doc in Clal Databank>Exp Dat>Inversion> Design)

Pretraining Inversion Study

Mickey Mouse jumps. Repetitions

_____

Intonation

Ariel runs. Donald Duck swims.

Q D U

_____

_____

_____

_____

_____

_____

Aladdin kicks the football. Repetitions

_____

Intonation

Jasmine pets the bunny rabbit.

Q D U

Who runs?

Repetitions

Intonation

Who jumps?

Q

D U

Who opens the birthday present? Repetitions

Intonation

Who pets the doggie?

Q D U

Bugs Bunny hugs the teddy bear. Repetitions

Intonation

Aladdin operns the birthday present.

Q D U

Who eats the cookies?

Repetitions

Intonation

Q D U

Battery A

Done only if Battery B done first: Who drinks the juice?

Intonation

Q D U

1. Kermit is eating a cookie.

Repetitions _____

Intonation

Q D U

2. Does Bugs Bunny touch a carrot? Repetitions

_____ Intonation

Q D U

3. Mickey Mouse opens a present. Repetitions

Intonation

Q D U

4. Is Minnie Mouse petting a dog? Repetitions

Intonation

Q D U

5. Donald Duck can be a teacher.

Repetitions

Intonation

Q D U

6. Can Jasmine hug a teddy bear?

Repetitions

Intonation

Q D U

7. Miss Piggy is a movie star.

Repetitions

Intonation

Q D U

8. Can Ariel be a princess?

Repetitions

Intonation

Q D U

9. Aladdin can draw a picture.

Repetitions

Intonation

Q D U

10. .Is Mufasa a lion king?

Repetitions

Intonation

Q D U

Q D U

Battery B

Done only if Battery A done first: Who drinks the juice?

Intonation

Q D U

Q D U

1. Bugs Bunny touches a carrot.

Repetitions

Intonation

Q D U

2. Can Aladdin draw a picture?

Repetitions

Intonation

Q D U

3. Mufasa is a lion king.

Repetitions

Intonation

Q D U

4. Does Mickey Mouse open a present?

Repetitions

Intonation

Q D U

5. Ariel can be a princess.

Repetitions

Intonation

Q D U

6. Is Kermit eating a cookie?

Repetitions

Intonation

Q D U

7. Jasmine can hug a teddy bear.

Repetitions

Intonation

Q D U

8. Is Miss Piggy a movie star?

Repetitions

Intonation

Q D U

9. Minnie Mouse is petting a dog. Repetitions

Intonation

Q D U

10. Can Donald Duck be a teacher? Repetitions

Intonation

Q D U

ALTERNATE BATTERIES:

Battery A:

Done only if Battery B done first: Who drinks the juice?

Intonation

Q D U

1. Simba is telling a story.

Repetitions

Intonation

Q D U

2. Does Perdita chase a puppy?

Repetitions

Intonation

Q D U

3. Peter Pan carries a sword.

Repetitions

Intonation

Q D U

4. Is Mica baking a cookie?

Repetitions

_____ Intonation

Q D U

5. Donald Duck can be a teacher.

Repetitions

_____ Intonation

Q D U

6. Can Nala touch a teddy bear?

Repetitions

_____ Intonation

Q D U

7. Daffy Duck is a magician.

Repetitions

Intonation

Q D U

8. Can Tinkerbell be a fairy?

Repetitions

Intonation

Q D U

9. Bugs Bunny can drive a school bus. Repetitions

Intonation

Q D U

10. Is Aladdin a movie star?

Repetitions _____

Intonation

Q D U

Battery B:

Done only if Battery A done first: Who drinks the juice?

Intonation

Q D U

1. Perdita chases a puppy.

Repetitions

Intonation

Q D U

2. Can Bugs Bunny drive a school bus?

Repetitions

Intonation

Q D U

3. Aladdin is a movie star.

Repetitions

Intonation

Q D U

4. Does Peter Pan carry a sword?

Repetitions

Intonation

Q D U

5. Tinkerbell can be a fairy.

Repetitions

Intonation

Q D U

6. Is Simba telling a story?

Repetitions

Intonation

Q D U

7. Nala can touch a teddy bear.

Repetitions

Intonation

Q D U

8. Is Daffy Duck a magician?

Repetitions

Intonation

Q D U

9. Mica is baking a cookie.

Repetitions

_____ Intonation

_____

_____

_____

Q D U

_____

_____

_____

10. Can Donald Duck be a teacher? Repetitions

_____ Intonation

_____

_____

_____

Q D U

_____

_____

_____

Other documents:

- Inver. Transcr. old

10. Scoring Criteria

(from Scoring Criteria rev-.doc (this is a version that María Blume did, adding the handwritten notes found in the original) in Clal Databank>Exp Dat>Inversion> Design)

Updated: 4/9/03

Criteria for Scoring the Data for the Inversion Elicited Imitation Study (Begun Summer 1994)[1]

Sentence Column:

In this column make sure that you write in the child's actual response (obtained from the final transcription sheet) underneath the stimulus sentence. ***Please*** *be accurate and careful in transferring this data*. We know that it is time consuming and dull. It is extremely important for us to have all this data in one spot, and if we do not have the child's ***exact*** response, we cannot score it correctly.

**What to score: Score the first response longer than one word which is relevant to the stimulus sentence. That is, if a child responds to "Miss Piggy is a movie star" by first discussing his/her recent birthday party and imitating only after the experimenter has given encouragement, then the birthday party utterances are not scored incorrect. Instead, score the child utterance which corresponds to the test sentence.
If a child obviously *answers* a question (i.e. Test Question: "Is Miss Piggy a movie star?" Child: "Yes. Miss Piggy is a movie star.") then the experimenter is allowed to repeat the test sentence once. Score the utterance following the repetition.

Column 1: correct/incorrect

This is intended to tell us if they do our test factors correctly or incorrectly, or if they have major problems with the sentences of other types.

Correct = 1: A response is considered correct if the only changes to the target sentence are phonetic things, like *Ronald* for *Donald* or *pwesent* for *present*, or an addition that in now way changes the meaning, e.g., *bunny rabbit* for bunny.

Lexical items (i.e. words)

- "Bunny" for Bugs Bunny is still correct.

[1] Note: This version was updated by María Blume.from a version with hand-writen corrections. Changes are dated 12/96.

- "Froggie" for Kermit the Frog is still correct.
- Mickey Mouse for Minnie Mouse is still correct.

If the child corrects him/herself, only count the correction, e.g., "Ariel um Miss Piggy is a movie star", count it as correct.

Count as CORRECT if the only mistake in the sentence is an omission or change in the article on the object noun phrase (e.g., Miss Piggy is a movie star -- > Miss Piggy is movie star; or Jasmine can hug a teddy bear --> Jasmine can hug *the* teddy bear.)

Incorrect = 0. If any other changes are produced or if the child gives a one word response.

Unanalyzable = 9: This score is given for no response, battery sentences that were omitted by the experimenter, and totally or partially unintelligible answers.

Column 2: Lexical Substitution:

This column is only marked *if nothing else is wrong with the utterance.* If everything else in the child utterance is correct, but there has been lexical substitution in the subject NP, object NP, or VP, mark this column with a 1. Then, record the change also in the specific column where the substitution occurred. The scoring would follow this pattern:

Subject NP lexical substitution: **1** in column 2 and **3** in column 8
Object NP lexical substitution: **1** in column 2 and **3** in column 9
Main verb lexical substitution: **1** in column 2 and **3** in column 6

**If changes other than just lexical substitution occurred, mark this *within* each specific column, but not in column 2.

Column 3: Intonation

This information can be obtained from the intonation "column" on the transcription sheet. (For some of the older data, this will have been written in on the side by hand.)

1 = declarative intonation (statement intonation) = D on the sheets
2 = question intonation = Q on the sheets
3 = "unknown" or "can't tell" intonation = U on the sheets.

For all subsequent columns, mark only if there is a mistake involving that particular column. If there is no mistake, do not write anything.

Columns 4 & 5: Conversion:

Column 4: Exact Conversion

Fill in this column with a 1 only if the child correctly converts a question to a statement or vice versa.

There are several criteria for judging an exact conversion:

1. The word order is converted from question word order: auxiliary-subject to statement word order: subject-auxiliary, e.g., conversion from: Can Jasmine hug a teddy bear? to Jasmine can hug a teddy bear.

2. For sentences with *do es*, e.g., Does Mickey Mouse open a present?, an exact conversion to a statement involves deleting the auxiliary *does* and adding the -s ending onto the main verb, i.e. resulting in: Mickey Mouse opens a present.

3. Exact conversion of a statement without an auxiliary, e.g., Mickey Mouse opens a present, to a question, will involve inserting the auxiliary *does* and deleting the -s ending on the verb, resulting in: Does Mickey Mouse open a present.

NOTE: If any word is missing, this is *not* an exact conversion.
Example: Is Miss Piggy a movie star? --> Miss Piggy a movie star. (with clear declarative intonation) is *not* an exact conversion.

Column 5: Non-Exact Conversion:

Mark this column with a 1 if a child converts a statement to a question or a question to a statement in such a way that it does not conform to the criteria given for column 4. That is, if conversion occurs but is not exact, mark this column. Then, mark any other columns required by the errors that occurred when the child converted.

ex.
Stimulus:Does Mickey Mouse open a present?

Child:
Mickey Mouse is open a present.

Columns 6 & 7:

These are errors relating to the verbs in the sentence. When marking errors, always refer to the column called for by the stimulus sentence. For example:

Stimulus: Bugs Bunny touches a carrot.
Child: Bugs Bunny is touching a carrot.

Because the stimulus sentence has only a main verb (as opposed to a main verb + auxiliary), *scoring should only occur for column 6* even though an auxiliary has been added. Using the criteria given below, this utterance would be scored in this manner:

Column 6: 8(touches --> touching) & 2 (addition of "is")

Column 6: Main Verb/Copula (copula is the verb *to be*)

Fill in only if there is an error relating to the main verb or the copula.

main verb/copula

inflection sub-heading

1 = omission

6 = omission of inflection

2 = addition

7 = addition of inflection

3 = substitution

8 = substitution/change in inflection

4 = movement

9 = movement of inflection

5 = other

10 = inflection other

Examples:

- Count as omission (1): Miss Piggy is a movie star → Miss Piggy a movie star.
- Count as addition (2): "do" insertion: Bugs Bunny touches a carrot.→ Bugs Bunny does touch a carrot.
- Count as substitution (3): lexical substitution
- Count as movement (4): Minnie Mouse pets a dog → Pets a dog Minnie Mouse.
- Count as other (5): Bugs Bunny touches a carrot.→ Bugs Bunny to touch a carrot. (conversion to the infinitive)
- Count as omission of inflection (6): Bugs Bunny touches a carrot → Bugs Bunny touch a carrot.
- Count as addition of inflection (7): Jasmine can hug a teddy bear → Jasmine can hugs a teddy bear
- Count as substitution/change in inflection (8): Miss Piggy is a movie star → Miss Piggy be a movie star.
- Count as movement of inflection (9): Jasmine hugs a teddy bear → Jasmine's hug a teddy bear.

- Count as other (10):

NOTE: (3) and (4) should not be coded as inflection errors but as conversions.

Column 7: Auxiliary/Modal Errors

Fill in only if there is an error relating to the auxiliaries

aux/modal

inflection sub-heading

1 = omission

6 = omission of inflection

2 = change

7 = addition of inflection

3 = addition

8 = substitution/change in inflection

4 = movement

9 = movement of inflection

5 = other

10 = inflection other

Examples:

- Count as omission (1): Jasmine can hug a teddy bear→ Jasmine hug a teddy bear.
- Count as change (2): Does Minnie Mouse hug a teddy bear? → Can Minnie Mouse hug a teddy bear?

  *Also: any unacceptable phonological changes — see list on page 5 for oft-encountered approximations

  ***can --> could is NOT counted wrong

- Count as addition (3): Kermit is eating a cookie.→ Kermit can be eating a cookie.
- Count as movement (4): Is Mufasa a lion king? → Mufasa is a lion king. (also counted in conversion)
- Count as omission of infl (6): Does Bugs Bunny touch a carrot? → Do Bugs Bunny touch a carrot?
- Count as addition of infl (7): Jasmine can hug a teddy bear → Jasmine cans hug a teddy bear
- Count as substitution/change in infl (8): Miss Piggy is petting a dog → Miss Piggy be petting a dog.

Column 8-10: NP Errors

1 = omission
2 = change
3 = lexical substitution
4 = other

- Count as omission (1): Miss Piggy is a movie star → Is a movie star.
- Count as change (2): Aladdin can draw a picture → Aladdin can draw pictures.

  mark in this column errors that include a **sg → pl or pl → sg change as well as phonological changes that are not acceptable approximations or substitutions

- Count as lexical substitution (3): Minnie Mouse pets a dog → Minnie Mouse pets a cat.

These criteria can be applied to subject NP, object NP and object Det errors.

<u>Common Phonological Approximations:</u>

Acceptable:

- Can → c'n, kay, 'n, na, [kija]
- Is → miza, ih,

Common Lexical Substitutions:

Acceptable:

princess → person
hug → pet
Mickey Mouse ←→ Minnie Mouse
hug → touch

Other documents:

- Inversion Scoring Criteria
- Inversion Scoring2
- Questions.

11. Scoring Sheet

(from ˝inversion scoring˝ and ˝Alternate INV Scoring Sheet˝ in Clal Databank>Exp Dat>Inversion> Design)

12. Results:

- Inversion_data_summary.xls
- INVupdated.XLS (only inflection errors itemized)
- INVERS~1.XLS

Tabled by factor

- Table 2a
- Table 1
- Within two factor tables
- Within factor tables
-

13. Conclusions from experimental results

Contrary to many previous accounts (e.g., Klima & Bellugi, 1966, Radford, 1994), results from this study showed that knowledge of inversion, i.e., I to C movement, a UG component, was not deficited in early language acquisition. Rather, the majority of ostensible 'errors' reflected aspects of inflection.

Children imitated sentences as in (9), in both declarative and inverted question form. Two replications of each condition provided 20 sentences for each child. Children's overall success ranged from about a mean percent of 50% in group 1 to 94% in group 3, with variation by verb type. Two major results came out of this study: (1) For those verb forms (auxiliary *be* and both modal conditions) where question formation requires only I to C movement, none of the age groups made significantly more errors on the question forms than they do on the declarative forms. This indicates that I to C movement, a UG given option, is not deficited. (2) Overall, approximately 69% of children's errors on these sentences involved inflection errors. Furthermore, many of these errors that were seen, occurred both in declarative and question form. This suggests a general development of inflection, rather than development specific to questions.

C. Related Forms

1. Subject Sheets

No blank subject sheets could be found on the server- instead look for hard copies in the Inversion file.

2. Group Summary Sheets:

Inversion_data_summary.xls

3. Transcripts

- MH
- Inversion Prog. Sheet (11/15/96)

D. Audio/Video Samples

1. **Video:** EF

2. **Audio:**

3. **Transcripts:**

E. Statistics

- AUG97.CMD
- INVCOM.CMD
- INV.CMD
- INV.CMD
- LYNN.CMD
- LYNN.CMD
- LYNN2.CMD
- RESULTS.DOC
- INV71997.TXT
- INVOUTPT.TXT
- INVERT2.TXT
- INVERT2.TXT
- INVERT3.TXT
- INVERT3.TXT
- INVOUTPT.TXT
- NEW.TXT
- INVNOAB.SYS
- INVNOAB.SYS
- INVERTNW.SYS
- INVERTNW.SYS
- OLDINV.SYS
- Inversion_data_summary.xls

- INVmac.XLS
- Within two factor tables
- Within factor tables
- table1
- group means
- Table 2a