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Materialien aus der Bildungsforschung

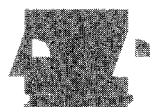
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The Development of Syllogistic Reasoning

A Manual Including Measurement Procedures and
Descriptive Analyses

Study „Individual Development and Social Structure“
Data Handbooks Part 3

Berlin 2000





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Materialien aus der Bildungsforschung

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0. Introduction

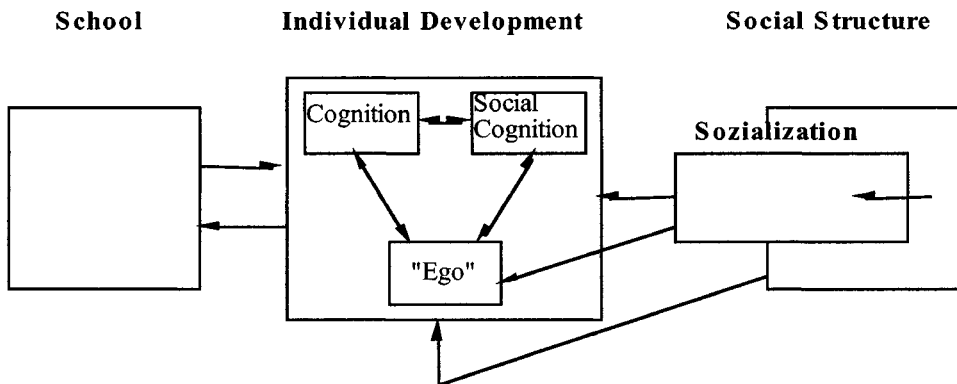
0.1. Background of the study

The data of this handbook are part of the longitudinal study "Individual Development and Social Structure" (IDSS), that was taken up in 1976 (Edelstein, Keller & Schröder, 1990).

The aim of the study was to analyze the developmental trajectories of Icelandic children in cognition (Schröder, 1989) and social cognition (Keller & Edelstein, 1991; Keller & Edelstein, 1993) and to investigate personality dimensions and ego resources (Hofmann, 1991) against the background of socialstructural constraints in a society undergoing an accelerated modernization process (Björnsson, Edelstein & Kreppner, 1977).

Figure A specifies the hypothetical relationships between the psychological and the sociological dimensions.

Figure A Hypothetical model of developmental relationships



0.2. Measurement Design of the 'IDSS'- Study

The first wave of data collection took place in 1976/77 in Reykjavik. The children attended the first grade of primary school and were between 7 and 8 years old. The following measurement occasions including the Reykjavik sample took place at the ages of 8, 9, 12, 15, 17, 19 and 22 years.

A sample from three rural communities was measured two years after the investigation of the urban sample (Tab. A) successively.

Table A Measurement occasions in the IDSS-Study

	Urban Sample	Rural sample	Age	Grade
Wave 1	1976/77	1978	7	1
Wave 2	1977/78	-	8	2
Wave 3	1978/79	1980	9	3
Wave 4	1981/82	1983	12	6
Wave 5	1984/85	1986	15	9
Wave 6	1986/87	-	17	-
Wave 7	1988/89	-	19	-
Wave 8	1991/92	1991/92	20 (rur) 22 (urb)	-

0.3. Sampling Design

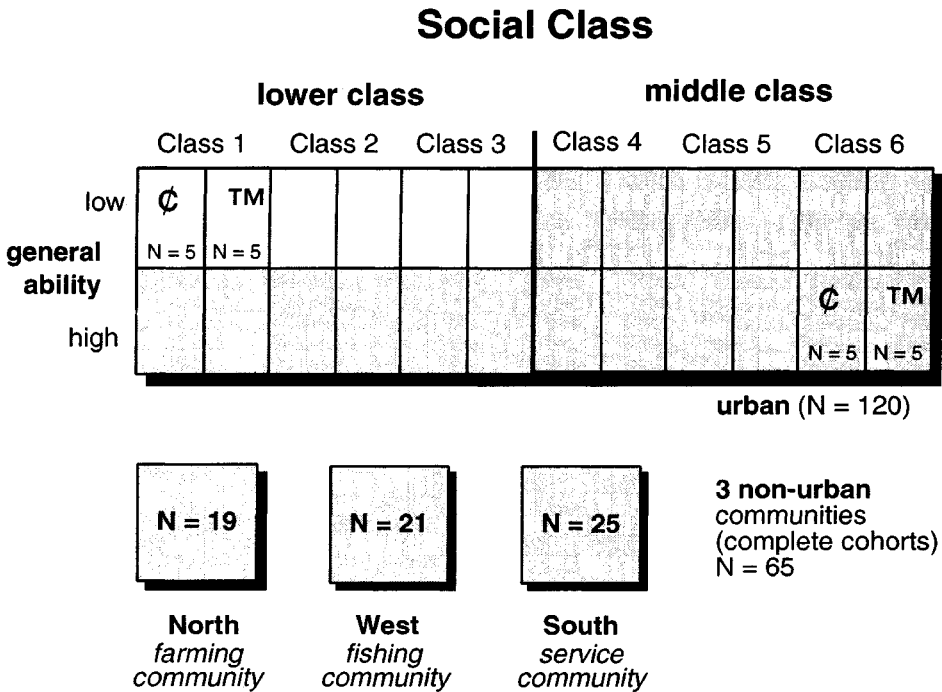
The population, from which the Reykjavik sample (N=121) was selected, had been stratified according to three analytically relevant dimensions:

- 1) according to the children's sex;
- 2) according to the social status of the parents as an indicator for developmentally advantageous or disadvantageous socialization and lifeworlds of children and
- 3) according to general ability level (as assessed by teachers) at the onset of schooling.

An additional sample (N = 65) includes the entire birth cohorts of three rural communities in Iceland, assumed to represent different contexts of socialization and modernization in three typical lifeworlds within the Icelandic culture: (1) a rural stray settlement, (2) a farming and service village and (3) a fishing village. This second sample should make it possible to investigate individual development against the background of different ecologies.

Figure B Sampling Design of the longitudinal study

Project IDSS - Sampling Design



The sampling design of the longitudinal study was introduced with the aim of maximizing interindividual variance. Individual differences are taken to derive from competence level at the onset of school, to children's sex, to socio-economic status of parents and to the social and cognitive ecologies of different lifeworlds.

The three dimensions according to which the urban sample was stratified were treated as factors in a quasi-experimental design. Although general ability level constituted a systematic stratifying dimension in the urban sample only, it could be derived retrodictively also for the rural children. Because the rural samples formed entire birth cohorts, the socio-economic status of parents is not equally distributed.

Competence level

During the first two weeks after school entrance teachers in all first grades of the city of Reykjavik were asked to nominate three children in the upper third, three children in the middle third and three children in the lower third of the general ability distribution in their particular classes. Subsequently, the middle third was discarded from the study. In the absence of

information about the school entrants, the teachers grounded their assessments on the cognitive, verbal and social competencies of the children, as an informal inquiry showed. The children were assigned for each of the social classes to either "high competence" or "low competence".

The teachers' judgments can be considered as a global rating of the subjects' competence level at the onset of the longitudinal study, which was cross-validated with the cognitive and socio-cognitive data of Wave 1. The predictive power of the teacher rating proved considerable. The regression on a summary measure of cognitive competence about six month later produced a correlation coefficient of $r = .74$.

The 'competence level' was introduced to contrast differential impacts of this variable on the individual trajectories of the children and - supposing decelerated developmental speed within the 'lower competence' sample - to focus developmental processes with a finer grade.

Social class

To determine the social class of the parents the status measures of Björnsson, Edelstein & Kreppner (1977, S. 29ff.) were used. Six classes were distinguished, whose relative proportions of the Icelandic population are shown in brackets:

- 1) Unskilled workers (26,1%);
- 2) Skilled workers and craftsmen (31,3%);
- 3) unskilled and skilled clerical workers and civil servants (10,0%);
- 4) technical or teaching professions, lower managerial (14,8%);
- 5) employers, businessmen or higher managerial professions (9,9%);
- 6) academic professions including secondary teachers, artists and leading occupations in the political or administrative system (7,8%)¹.

Attrition rate: Despite the wide long time range of the study (8 years from the first to the fifth wave) the drop out rate is rather small; it amounts to less than 10 % for the urban and less than 5 % for the rural sample.

¹ Population percentages from census data in the Handbook of statistics of Iceland.

0.4. Material and Measures

In order to measure the development of formal operations, four 'classical' concepts - multiple compensation (conservation of volume, Inhelder & Piaget, 1958), syllogistic reasoning, the pendulum task (Inhelder & Piaget, 1958), and isolation of variables (Kuhn & Brannock, 1977) - were investigated at the ages of nine, twelve and fifteen years. At the age of seventeen, the urban sample was reassessed with the task battery used at age 15 two years earlier.

Further, three additional formal operational tasks - correlation, combination and proportion - were administered in Wave 5 and Wave 6 (urban sample only).

In the following, only the task material, investigation procedure and descriptive statistics for the measurement of syllogistic reasoning are documented, information about the further three concepts – multiple compensation, pendulum and the isolation of variables - is included in a separate volume of the Data Handbook. Within the framework of the present measurement design, the development of formal operational reasoning can be reconstructed across a time span of six years for the rural and across eight years for the urban sample.

In Table B, the instruments mentioned above are ordered according to measurement occasions. For every task both judgment and justification were assessed.

The tasks for repeated measurement were selected for age adequate application. Wherever possible contextual variations (variations in presentation, in content, in application contexts or in the procedure) were introduced. Tasks were coded dichotomously or structurally (Lou, 1986). Thus, task performance was coded in agreement with theory, making the data generated in the study directly amenable to statistical analyses instead of using dichotomization at the median.

Table B Overview of formal operational concepts investigated

<i>Formal operational concepts</i>	<i>Number of tasks administered at the age of</i>			
	<i>9</i>	<i>12</i>	<i>15</i>	<i>17¹</i>
Multiple compensation	5	6	4	4
Syllogism	36 / 16 ²	12	12	12
Pendulum	1 ³	1	1	1
Isolation of variables	0	4	4	4

²Only one section of the syllogistic task battery was administered to the rural children.

³ Only the urban sample was measured.

Table C Measures and sources of variance within concepts

Concepts	Sources of Variance
Multiple compensation	Presentation, Performance modalities
Syllogism	Content
Pendulum	--
Isolation of variables	Content

0.5. Aim of the Data Handbook

The data handbook describes the cognitive concepts and the instruments included in the longitudinal study, documents the measurement procedure and the method applied as well as the results of statistical analyses.

The data handbook provides a quick and systematic overview in the domain of formal operations for those interested in the IDSS-project. Further, it provides an orientation for the planning of investigations and makes a descriptive comparison of different studies focussing on Piagetian concepts.

0.6. Contents of the Data Handbook

This is the second of three data handbooks covering formal operations. It includes the concept of syllogistic reasoning.

Every chapter starts with a introduction to the specific concept, then describes measures, materials and the scoring procedures utilized in the study; finally a description of the testing procedure and the instructions is presented .

Information concerning the electronic storage of the data is limited to a listing of the English variable names and their labels.

Results are documented separately for each measurement occasion: only descriptive statistics (cell frequencies) are reported.

1. Syllogistic reasoning

1.1. Description of the concept

Syllogistic conclusions with verbal material rely on the propositional thought of formal operations, in particular on the binary operation of implication (see Table 1). The philosophical discussion of this form of propositional thought usually draws on the example of the following reasoning:

- All people are mortal.
- Socrates is a person.
- Is Socrates mortal?

One can select one of the following answers: "yes," "no," or "maybe."

This conclusion is a problem derived from quantification theory since it refers to the relations among extensions of classes of objects, and is logically equivalent to the propositional form outlined below. This form is concerned with the propositional logical relations among classes of events.

Four different kinds of propositions can be formed as listed in table 1.

Table 1 : Syllogistic Forms of Inference**Premise**

$p \Rightarrow q$ (p= Antecedent, q= Consequent)

Example: If there is a fire alarm at school, the bell rings.

I. Affirmation of Antecedent/ Modus Ponens (AA)

$p \Rightarrow q$

p There is a fire alarm at school.

q Does the bell ring?

Correct answer: Yes.

II. Negation of Antecedent (NA)

$p \Rightarrow q$

$\neg p$ There is no fire alarm at school.

q Does the bell ring?

Correct answer: Maybe.

III. Affirmation of Consequent (AC)

$p \Rightarrow q$

q The bell rings.

p Is there a fire alarm at school?

Correct answer: Maybe.

IV. Negation of Consequent/Modus Tollens (NC)

$p \Rightarrow q$

$\neg q$ The bell doesn't ring.

p Is there a fire alarm at school?

Correct answer: No.

It has been shown that the following types of inferences, the negation of the antecedent and the affirmation of the consequent are more difficult to solve than modus ponens and modus tollens (Haars & Mason, 1986). Both tasks are usually first mastered in adolescence, or even later. On the other hand, children can respond adequately to modus ponens and modus tollens, probably because the latter propositional forms are also mastered by transductive reasoning - a way of ordering two events (see Piaget 1972b, Kuhn 1977). However adequate responses to the two other types of inferences, however, require the application of combinatory propositional logic, as can be seen in the propositional logical determination of the four fundamental propositional forms.

The psychological literature differs widely on the question of the developmental-theoretical status of syllogistic thinking (Kuhn 1977, Kodroff & Roberge 1975, Revlis 1976, Roberge & Paulus 1971, Staudenmeyer 1976, Taplin, Staudenmeyer & Taddonio 1974, Wason & Johnson-Laird 1972). At the same time, Inhelder and Piaget (1958) indicate that the ability to solve the kind of syllogistic problems described above first appears in the developmental stage of formal operations, that is, with the acquisition of combinatory operations.

1.2. Description of the measures

The tasks used to investigate syllogistic thinking were taken from propositional logic and from quantification theory. Thus, the children were tested both in classification and in conditional reasoning. The four types of inferences shown in Table 1 above were presented, so that subjects had to solve 8 different types of logical tasks altogether. Furthermore, the premises varied in familiarity of content, in abstractness and in the type of evidence adduced.

Syllogistic thinking was investigated at the ages of 9,12 and 15 years both in the urban and in the rural samples at age 17 only the urban subjects were tested. Except from task display for the

nine year old's presentation in both samples didn't differ. The syllogisms used at the age of 9 differed from the items used at measurement occasion 4, 5 and 6, so they will be presented separately in the following section

1.2.1. Material used at age nine (third measurement occasion)

At the age of nine 36 tasks were presented altogether. Task presentation proceeded in two parts: **In section I** the children had to solve 2 preliminary items of a non-syllogistic form and 16 test items. The latter were based on 10 different premises of concrete and familiar content. Test section I comprised 4x4 types of inferences, one half of which required conditional reasoning (Co), one half demanding class reasoning (Cl). The tasks were presented verbally and pictorially, the pictures are listed in the appendix.

Item list of section I:*Preliminary Items*

A. Imagine two boys living in Reykjavik. Their names are Gisli and Petur. Gisli is tall and Petur is short.

- Is Petur tall?

B. Now, I'll tell you something about two other boys, whose names are Siggí and Ingi. Yesterday Siggí was wearing a white shirt and Ingi was wearing a blue shirt.

- Does Ingi have a red shirt at home?

*Test Items***1. BICYCLE: All children who get a bicycle from their parents feel happy.**

1.1. AA, CI

There is a child, called Siggí, who gets a bicycle from his parents. Does Siggí feel happy?

1.2. NA, CI

Another child, Inga, doesn't get a bicycle. Does Inga feel happy?

1.3. AC, CI

Another child, Gisli, feels happy. Did Gisli get a bicycle?

1.4. NC, CI

Another child, Petur, doesn't feel happy. Did Petur get a bicycle?

2. HELLO: All friends who meet in the street say hello to each other.

AA, CI

Siggí and Gisli are two friends meeting in the street one day.

Do they say hello to each other?

3. BALL: All children like to play with a ball.

NA, CI

Jon is not a child, but an adult person. Does Jon like to play with a ball?

4. GLASSES: Every time, when Inga's father drives his car, he puts on his glasses.

NC, Co

Yesterday, Inga's father didn't wear his glasses throughout the day. Did Inga's father drive his car yesterday?

5. ILL: All children, who lie ill in bed are bored.

AC, CI

Now imagine Siggi, who is bored. Is Siggi ill in bed?

6. WET: Always when the snow melts, the ground is wet

AA, Co

Last spring the snow melted. Did the ground become wet?

7.FOOTBALL: When Siggi and Gisli are together on the playground, they always play football.

NA, Co

Yesterday Siggi did not meet Gisli on the playground. Did Siggi play football yesterday?

8.TOY: All children who lose their nicest toy feel bad.

NC, CI

Ingi is a child who didn't feel bad yesterday. Did Ingi lose his nicest toy yesterday?

9. CAKE: When Siggi's grandmother comes to visit, his mother always bakes a cake.

AC, Co

Yesterday Siggi's mother baked a cake. Did Siggi's grandmother come to visit yesterday?

10.FIRE: If there is a fire alarm in the school, the school bell will ring.

10.1. AA, Co

There is a fire alarm in the school. Will the school bell ring?

10.2. NA, Co

There is no fire alarm in the school. Will the school bell ring?

10.3. AC, Co

Imagine that the school bell rings. Is there a fire alarm in the school?

10.4. NC, Co

What if the bell doesn't ring? Is there a fire alarm in the school?

In section II of task presentation further 20 inferences had to be solved. 5 different premises were used, for each of which the four fundamental types of inference were constructed and presented to the children one after another. 12 of the 20 inferences required class reasoning, the further eight tasks demanded conditional reasoning. Additionally the premises differed in abstractness, in experiential relevance and in evidential support. One premise presented was of abstract content, one premise was counter-intuitive and for two of them experiential relevance was expected to differ depending on the children's level of achievement.

Item list of Section II

At first, the preliminary item B of section I was repeated.

Then the following syllogisms had to be solved:

11. Concrete content, more meaningful to high achieving children:

WORK: All children who do their homework get good grades.

11.1. AA, CI

Jon is a boy who always does his homework. Will Jon get good grades?

11.2. AC, CI

Alli got good grades. Did Alli do his homework?

11.3. NA, CI

Gunna is a girl who does not do her homework. Will Gunna get good grades?

11.4. NC, CI

Erna did not get good grades. Did Erna do her homework?

12. Concrete content, more meaningful to low achieving children:

BORED: All children who are bored in school, enjoy playing

12.1. NC, CI

Anna is bored in school. Does Anna enjoy playing?

12.2. AC, CI

Stina enjoys playing. Is Stina bored in school?

12.3. NC, CI

Palli does not enjoy playing. Is Palli bored in school?

12.4. AA, CI

Peter is not bored in school. Does Peter enjoy playing?

13. Concrete, but counterfactual content:

SNOW: In Iceland it snows constantly during the summer.

13.1. NC, Co

When Jon came to Iceland it was not snowing. Was it summer, when Jon came to Iceland?

13.2. NA, Co

When Disa came to Iceland it was not summer. Did it snow, when Disa came to Iceland?

13.3. AC, Co

When Bjarni's friend stayed in Iceland it snowed constantly. Was it summer when Bjarni's friend stayed in Iceland?

13.4. AA, Co

A foreign woman visited Iceland during one summer. Did it snow then constantly?

14. Concrete content/ equally meaningful to all children:

RICE: All Chinese men eat rice

14.1. AC, CI

A man I know eats rice. Is this man I know Chinese?

14.2. AA, CI

Lao is a Chinese man. Does Lao eat rice?

14.3. NA , CI

Andri is not a Chinese. Does Andri eat rice?

14.4. NC, CI

I know a man who does not eat rice. Is this man I know Chinese?

15. Abstract content/ equally non- meaningful to all children:

TRAVEL: If I go to A, I travel by B.

15.1. NA, Co

I did not go to A yesterday. Did I travel by B yesterday?

15.2. NC, Co

I did not travel by B the day before yesterday. Did I go to A the day before yesterday?

15.3. AC, Co

I traveled by B today. Did I go to A today?

15.4. AA, Co

I went to A this week. Did I travel by B?

In section II presentation proceeded verbally, no pictures were used. To investigate whether the children's wrong answers were caused by false reasoning or by mistakes in the coding information about the subjects' understanding of the syllogisms was requested: After the interviewer's reading the premises in tasks 11.1, 12.1, 13.1, 14.1 and 15.1 the children were asked to repeat the propositions, which were tape-recorded. If the repetition was wrong, the interviewer reread the premise and asked the child to repeat it again. The second repetition was

also taped. Thereafter the syllogistic questions were asked regardless of the necessity of the second repetition.

Both repetitions were noted on the scoring sheet. After the children answered 11.1, 12.1, 13.1, 14.1 and 15.1 they were asked to justify their solutions. These explanations were taped, recorded and later written on the scoring sheet.

In the rural sample, only section I was presented.

1.2.2. Material used at age 12, 15 and 17 (measurement occasion=4, 5, 6)

For the later examinations only three of the premises from section I and II presented above were used, for each of which the four fundamental types of inferences were created and presented to the children one after the other. The premises differed in experiential relevance, in evidential support and in concreteness. After presenting preliminary item B, the following tasks had to be solved:

10. Concrete content/ equally meaningful to all children:

FIRE: If there is a fire exercise at the school, the schoolbell rings.

10.1. AA, Co

Now there is a fire- exercise at the school. Does the schoolbell ring?

10.2. NA, Co

Now there is not a fire- exercise at the school. Does the school- bell ring?

10.3. AC, Co

The schoolbell rings. Is there a fire- exercise at the school?

10.4. NC, Co

The schoolbell does not ring. Is there a fire- exercise at the school?

13. Counterfactual content, equally meaningful to all children:

SNOW: In Iceland it snows constantly during the summer.

13.1. NC, Co

When John came to Iceland it did not snow. Was it summer when Jon came to Iceland?

13.2. NA, Co

When Disa came to Iceland it was not summer. Did it snow when Disa came to Iceland?

13.3. AC, Co

When Bjarni's friend stayed in Iceland it snowed constantly. Was it summer when Bjarni's friend stayed in Iceland?

13.4. AA, Co

A foreign man visited Iceland during the summer. Did it snow constantly then?

15. Abstract content, equally non- meaningful to all children:

TRAVEL: If I go to A, I travel by B.

15.1. NA, Co

I did not go to A yesterday. Did I travel by B yesterday?

15.2. NC, Co

I did not travel by B the day before yesterday. Did I go to A the day before yesterday?

15.3. AC, Co

I traveled by B today. Did I go to A today?

15.4. AA, Co

I went to A this week. Did I travel by B this week?

Item presentation was merely verbal, no pictures were used.

After the I's reading of the premises 10.1., 13.1. and 15.1, these had to be repeated by the children. In case the repetition was , I read the premises again, and the children had to tell them once more. Both repetitions were noted on the scoring sheet. Then the task started regardless of the ness of the second answer. If the children answered inly, they were asked to give an explanation, which was also noted on the scoring sheet. The experimental designs for the rural and for the urban sample did not differ, but at measurement occasion 6 only the urban children were tested.

1.3. Investigation procedures and instructions

At first, the child was introduced to the examination as follows:

"The next task is similar to what you have done before. I read a sentence, then I ask a question and you are to answer either yes, no or maybe. Some sentences are a bit strange or improbable, but in this task we have to imagine that they are true. Sometimes I ask you, why you answer like you do. Let's now try once before we start. Remember that you are to answer yes, no or maybe."

Before testing, the preliminary items listed above were presented to help the child becoming familiar with the task. In order to make the three types of responses ("yes," "no," and "maybe") as clear as possible, preliminary item B required the response "maybe", which was then discussed in detail: After the child had answered I asked: "How do you know?". If the child didn't understand or if his/her solution was in, the I explained the answer.

Both the presentation sequence of premises/ the test questions and the arrangement of the tasks responded to the modality displayed in the list above. The following approach was selected: First, the premise, consisting of antecedent and consequence, was read to the child, followed by a presupposition for the conclusion; drawing on this presupposition, the child was then to answer the test question.

- 1) Premise: When I go to point A, I travel through point B."
- 2) Presupposition: "I go to point A."

3) Test question: "Do I travel through point B?"

4) Test answer: "Yes."

In Section II of the 9-years old investigation and in the further examinations the child was asked to repeat the premise, read by the I before solving the first task following the presentation of the premises. Thus, having read both premisses the I asked the child: "Would you repeat this?", before the test question was introduced. As described above the child's answer was fixed on the scoring sheet and additionally in section II of the 9- years-old investigation it was tape-recorded. If the child's repetition was mistaken, the premisses were reread and the child had to repeat them once more. The second answer was written down also.

Then, the testing started, regardless of the correctness of the second answer.

Before presenting the second, the third and the fourth inference belonging to a premise, the I repeated the antecedent and the consequent of the premise in question.

In Section II of the nine-years-old measurement the child had to justify the solution of the first syllogism of each premise, the explanations were both tape-recorded and fixed on the scoring sheet. In the further examinations except in section I the child was asked to give reasons only in case of a mistaken answer.

1.4. Scoring instructions and coding rules

The solution of the children were recorded in two ways:

First, the types of the children's solutions were coded, i.e. it was noted, how they actually answered ("Yes" "No" "Maybe"). This information was stored under variable name SCA.

Second, the type of response was coded as to whether being or in. Information concerning adequacy of judgment was stored under variable name SCB.

Furthermore the children's repetitions of the premises were written on the scoring sheet and their correctness was recorded. Information about the adequacy of the repetition of the premises were coded under the variable names SPA (First repetition) and SPB (Second repetition).

The children's justifications were fixed likewise, but without being coded under a variable, i.e. they were not evaluated further.

In addition to the information inquired during the children's testing, further variables were created that based on the response types each subject produced during the testing.

When all four inference types belonging to one premise are taken together per subject, a total of three different types of conclusion configurations emerge (on this point see Schröder, 1987):

1) transductive reasoning (TD): In this connection, the modus ponens and the modus tollens were answered ly; however, responses to both other propositional forms were contradictory.

2) biconditional reasoning (BC): In this case, all inferences were solved as if the conditional sentence had been interpreted in the sense of a biconditional proposition.

3) conditional reasoning (CN): All four syllogistic forms were answered adequately. This form of conditional reasoning corresponds to the formal-operational form of thinking identified by Piaget as a propositional-logical implication. The remaining patterns of response were

4) contradictory or impossible to categorize (CD). Three conclusion configurations were computed per subject. The first one indicated the children's response pattern in solving the syllogisms of the concrete and experiential premise, the second one included the pattern resulting from the responses of the counter-intuitive syllogisms and the last one rendered the configuration emerging from solving the abstract tasks.

The aggregation of the four propositional forms to specific patterns of response could be validated by means of a configuration frequency analysis. An aggregation of the single values has the advantage that possible positive mistakes in answering the syllogisms can be identified by comparing them to the responses to the other three propositional forms.

1.5. List of Variables

1.5.1. Variables at age nine (third measurement occasion):

Section I:

Type of judgment

SCA 301	Bicycle	concrete	AA	Cl
SCA 302	Bicycle	concrete	NA	Cl
SCA 303	Bicycle	concrete	AC	Cl
SCA 304	Bicycle	concrete	NC	Cl
SCA 305	Hello	concrete	AA	Cl
SCA 306	Ball	concrete	NA	Cl
SCA 307	Glasses	concrete	NC	Co
SCA 308	Ill	concrete	AC	Cl
SCA 309	Wet	concrete	AA	Co
SCA 310	Football	concrete	NA	Co
SCA 311	Toy	concrete	NC	Cl
SCA 312	Cake	concrete	AC	Co
SCA 313	Fire	concrete	AA	Co
SCA 314	Fire	concrete	NA	Co
SCA 315	Fire	concrete	AC	Co
SCA 316	Fire	concrete	NC	Co

Adequacy of judgment

SCB 301	Bicycle	concrete	AA	Cl
SCB 302	Bicycle	concrete	NA	Cl
SCB 303	Bicycle	concrete	AC	Cl
SCB 304	Bicycle	concrete	NC	Cl
SCB 305	Hello	concrete	AA	Cl
SCB 306	Ball	concrete	NA	Cl
SCB 307	Glasses	concrete	NC	Co
SCB 308	Ill	concrete	AC	Cl
SCB 309	Wet	concrete	AA	Co
SCB 310	Football	concrete	NA	Co
SCB 311	Toy	concrete	NC	Cl
SCB 312	Cake	concrete	AC	Co
SCB 313	Fire	concrete	AA	Co
SCB 314	Fire	concrete	NA	Co
SCB 315	Fire	concrete	AC	Co
SCB 316	Fire	concrete	NC	Co

Section II

Type of judgment

SCA 317	Work	unequally meaning	AA	Cl
SCA 318	Work	unequally meaning	AC	Cl
SCA 319	Work	unequally meaning	NA	Cl
SCA 320	Work	unequally meaning	NC	Cl
SCA 321	Bored	unequally meaning	AA	Cl
SCA 322	Bored	unequally meaning	AC	Cl
SCA 323	Bored	unequally meaning	NC	Cl
SCA 324	Bored	unequally meaning	NA	Cl
SCA 325	Snow	counterfactual	NC	Co
SCA 326	Snow	counterfactual	NA	Co
SCA 327	Snow	counterfactual	AC	Co
SCA 328	Snow	counterfactual	AA	Co
SCA 329	Rice	concrete	AC	Cl
SCA 330	Rice	concrete	AA	Cl
SCA 331	Rice	concrete	NA	Cl
SCA 332	Rice	concrete	NC	Cl
SCA 333	Travel	abstract	NA	Co
SCA 334	Travel	abstract	NC	Co
SCA 335	Travel	abstract	AC	Co
SCA 336	Travel	abstract	AA	Co

Adequacy of judgment

SCB 317	Work	unequally meaningful	AA	Cl
SCB 318	Work	unequally meaningful	AC	Cl
SCB 319	Work	unequally meaningful	NA	Cl
SCB 320	Work	unequally meaningful	NC	Cl
SCB 321	Bored	unequally meaningful	AA	Cl
SCB 322	Bored	unequally meaningful	AC	Cl
SCB 323	Bored	unequally meaningful	NC	Cl
SCB 324	Bored	unequally meaningful	NA	Cl
SCB 325	Snow	counterfactual	NC	Co
SCB 326	Snow	counterfactual	NA	Co
SCB 327	Snow	counterfactual	AC	Co
SCB 328	Snow	counterfactual	AA	Co
SCB 329	Rice	concrete	AC	Cl
SCB 330	Rice	concrete	AA	Cl
SCB 331	Rice	concrete	NA	Cl
SCB 332	Rice	concrete	NC	Cl
SCB 333	Travel	abstract	NA	Co
SCB 334	Travel	abstract	NC	Co
SCB 335	Travel	abstract	AC	Co
SCB 336	Travel	abstract	AA	Co

First repetition

SPA 317	Work	unequally meaningful
SPA 321	Bored	unequally meaningful
SPA 325	Snow	Counterfactual
SPA 329	Rice	concrete
SPA 333	Travel	abstract

Second repetition

SPB 317	Work	unequally meaningful
SPB 321	Bored	unequally meaningful
SPB 325	Snow	Counterfactual
SPB 329	Rice	concrete
SPB 333	Travel	abstract

Conclusion patterns

STAGEFE 3	Fire	concrete
STAGESS 3	Snow	counterfactual
STAGEAB 3	Travel	abstract

1.5.2. Variables at age twelve (fourth measurement occasion)**Type of judgment**

SCA 413	Fire	concrete	AA	Co
SCA 414	Fire	concrete	NA	Co
SCA 415	Fire	concrete	AC	Co
SCA 416	Fire	concrete	NC	Co
SCA 425	Snow	counterfactual	NC	Co
SCA 426	Snow	counterfactual	NA	Co
SCA 427	Snow	counterfactual	AC	Co
SCA 428	Snow	counterfactual	AA	Co
SCA 333	Travel	abstract	NA	Co
SCA 334	Travel	abstract	NC	Co
SCA 335	Travel	abstract	AC	Co
SCA 336	Travel	abstract	AA	Co

Adequacy of judgment

SCB 413	Fire	concrete	AA	Co
SCB 414	Fire	concrete	NA	Co
SCB 415	Fire	concrete	AC	Co
SCB 416	Fire	concrete	NC	Co
SCB 425	Snow	counterfactual	NC	Co
SCB 426	Snow	counterfactual	NA	Co
SCB 427	Snow	counterfactual	AC	Co
SCB 428	Snow	counterfactual	AA	Co
SCB 333	Travel	abstract	NA	Co
SCB 334	Travel	abstract	NC	Co
SCB 335	Travel	abstract	AC	Co
SCB 336	Travel	abstract	AA	Co

First repetition

SPA 417	Work	unequally meaningful
SPA 421	Bored	unequally meaningful
SPA 425	Snow	Counterfactual
SPA 429	Rice	concrete
SPA 433	Travel	abstract

Second repetition

SPB 417	Work	unequally meaningful
SPB 421	Bored	unequally meaningful
SPB 425	Snow	Counterfactual
SPB 429	Rice	concrete
SPB 433	Travel	abstract

Conclusion patterns

STAGEFE 4	Fire	concrete
STAGESS 4	Snow	counterfactual
STAGEAB 4	Travel	abstract

1.5.3. Variables at age fifteen (fifth measurement occasion)

Type of judgment

SCA 513	Fire	concrete	AA	Co
SCA 514	Fire	concrete	NA	Co
SCA 515	Fire	concrete	AC	Co
SCA 516	Fire	concrete	NC	Co
SCA 525	Snow	counterfactual	NC	Co
SCA 526	Snow	counterfactual	NA	Co
SCA 527	Snow	counterfactual	AC	Co
SCA 528	Snow	counterfactual	AA	Co
SCA 533	Travel	abstract	NA	Co
SCA 534	Travel	abstract	NC	Co
SCA 535	Travel	abstract	AC	Co
SCA 536	Travel	abstract	AA	Co

Adequacy of judgment

SCB 513	Fire	concrete	AA	Co
SCB 514	Fire	concrete	NA	Co
SCB 515	Fire	concrete	AC	Co
SCB 516	Fire	concrete	NC	Co
SCB 525	Snow	counterfactual	NC	Co
SCB 526	Snow	counterfactual	NA	Co
SCB 527	Snow	counterfactual	AC	Co
SCB 528	Snow	counterfactual	AA	Co
SCB 533	Travel	abstract	NA	Co
SCB 534	Travel	abstract	NC	Co
SCB 535	Travel	abstract	AC	Co
SCB 536	Travel	abstract	AA	Co

First repetition

SPA 517	Work	unequally meaningful
SPA 521	Bored	unequally meaningful
SPA 525	Snow	Counterfactual
SPA 529	Rice	concrete
SPA 533	Travel	abstract

Second repetition

SPB 517	Work	unequally meaningful
SPB 521	Bored	unequally meaningful
SPB 525	Snow	Counterfactual
SPB 529	Rice	concrete
SPB 533	Travel	abstract

Conclusion patterns

Stagefe 5	Fire	concrete
Stagess 5	Snow	counterfactual
Stageab 5	Travel	abstract

1.5.4. Variables at age seventeen (sixth measurement occasion)**Type of judgment**

SCA 613	Fire	concrete	AA	Co
SCA 614	Fire	concrete	NA	Co
SCA 615	Fire	concrete	AC	Co
SCA 616	Fire	concrete	NC	Co
SCA 625	Snow	counterfactual	NC	Co
SCA 626	Snow	counterfactual	NA	Co
SCA 627	Snow	counterfactual	AC	Co
SCA 628	Snow	counterfactual	AA	Co
SCA 633	Travel	abstract	NA	Co
SCA 634	Travel	abstract	NC	Co
SCA 635	Travel	abstract	AC	Co
SCA 636	Travel	abstract	AA	Co

Adequacy of judgment

SCB 613	Fire	concrete	AA	Co
SCB 614	Fire	concrete	NA	Co
SCB 615	Fire	concrete	AC	Co
SCB 616	Fire	concrete	NC	Co
SCB 625	Snow	counterfactual	NC	Co
SCB 626	Snow	counterfactual	NA	Co
SCB 627	Snow	counterfactual	AC	Co
SCB 628	Snow	counterfactual	AA	Co
SCB 633	Travel	abstract	NA	Co
SCB 634	Travel	abstract	NC	Co
SCB 635	Travel	abstract	AC	Co
SCB 636	Travel	abstract	AA	Co

First repetition

SPA 617	Work	unequally meaningful
SPA 621	Bored	unequally meaningful
SPA 625	Snow	Counterfactual
SPA 629	Rice	concrete
SPA 633	Travel	abstract

Second repetition

SPB 617	Work	unequally meaningful
SPB 621	Bored	unequally meaningful
SPB 625	Snow	Counterfactual
SPB 629	Rice	concrete
SPB 633	Travel	abstract

Conclusion patterns

STAGEFE 6	Fire	concrete
STAGESS 6	Snow	counterfactual
STAGEAB 6	Travel	abstract

1.6. Assessment of the nine year old children

Urban sample

Table 1
Syllogistic reasoning:
Solution probabilities at age 9
Urban sample

Section I

1 a). Type of judgment

Variable	Task	Yes	No	Maybe	N
SCA 301	Bicycle/ concrete/ AA/ CI	0.723	0.036	0.241	112
SCA 302	Bicycle/ concrete/ NA/ CI	0.027	0.777	0.196	112
SCA 303	Bicycle/ concrete/ AC/ CI	0.545	0.063	0.393	112
SCA 304	Bicycle/ concrete/ NC/ CI	0.018	0.848	0.134	112
SCA 305	Hello/ concrete/ AA/ CI	0.795	0.018	0.188	112
SCA 306	Ball/ concrete/ NA/ CI	0.098	0.429	0.473	112
SCA 307	Glasses/ concrete/ NC/ Co	0.071	0.795	0.134	112
SCA 308	Ill/ concrete/ AC/ CI	0.616	0.063	0.321	112
SCA 309	Wet/ concrete/ AA/ Co	0.920	0.036	0.045	112
SCA 310	Football/ concrete/ NA/ CI	0.080	0.679	0.241	112
SCA 311	Toy/ concrete/ NC/ CI	0.027	0.902	0.071	112
SCA 312	Cake/ concrete/ AC/ Co	0.688	0.036	0.277	112
SCA 313	Fire/ concrete/ AA/ Co	0.902	0.054	0.045	112
SCA 314	Fire/ concrete/ NA/ Co	0.170	0.554	0.277	112
SCA 315	Fire/ concrete/ AC/ Co	0.545	0.080	0.375	112
SCA 316	Fire/ concrete/ NC/ Co	0.027	0.911	0.063	112

1 b). Adequacy of judgment

Variable	Task		N
SCB 301	Bicycle/ concrete/ AA/ CI	0.723	112
SCB 302	Bicycle/ concrete/ NA/ CI	0.196	112
SCB 303	Bicycle/ concrete/ AC/ CI	0.393	112
SCB 304	Bicycle/ concrete/ NC/ CI	0.848	112
SCB 305	Hello/ concrete/ AA/ CI	0.795	112
SCB 306	Ball/ concrete/ NA/ CI	0.473	112
SCB 307	Glasses/ concrete/ NC/ Co	0.795	112
SCB 308	Ill/ concrete/ AC/ CI	0.321	112
SCB 309	Wet/ concrete/ AA/ Co	0.920	112
SCB 310	Football/ concrete/ NA/ CI	0.241	112
SCB 311	Toy/ concrete/ NC/ CI	0.902	112
SCB 312	Cake/ concrete/ AC/ Co	0.277	112
SCB 313	Fire/ concrete/ AA/ Co	0.902	112
SCB 314	Fire/ concrete/ NA/ Co	0.277	112
SCB 315	Fire/ concrete/ AC/ Co	0.375	112
SCB 316	Fire/ concrete/ NC/ Co	0.911	112

Section II

1 c). Type of judgment

Task	Variable	yes	no	maybe	N
SCA 317	Work/ unequally meaningful/ AA/ CI	0.897	0.000	0.103	107
SCA 318	Work/ unequally meaningful/ AC/ CI	0.832	0.009	0.159	107
SCA 319	Work/ unequally meaningful/ NA/ CI	0.944	0.000	0.056	107
SCA 320	Work/ unequally meaningful/ NC/ CI	0.028	0.785	0.187	107
SCA 321	Bored/ unequally meaningful/ AA/ CI	0.850	0.047	0.103	107
SCA 322	Bored/ unequally meaningful/ AC/ CI	0.579	0.065	0.355	107
SCA 323	Bored/ unequally meaningful/ NC/ CI	0.056	0.720	0.224	107
SCA 324	Bored/ unequally meaningful/ NA/ CI	0.140	0.486	0.374	107
SCA 325	Snow/ counterfactual/ NC/ Co	0.215	0.617	0.168	107
SCA 326	Snow/ counterfactual/ NA/ Co	0.243	0.570	0.187	107
SCA 327	Snow/ counterfactual/ AC/ Co	0.710	0.187	0.103	107
SCA 328	Snow/ counterfactual/ AA/ Co	0.776	0.131	0.093	107
SCA 329	Rice/ concrete/ AC/ CI	0.477	0.037	0.486	107
SCA 330	Rice/ concrete/ AA/ CI	0.935	0.000	0.065	107
SCA 331	Rice/ concrete/ NA/ CI	0.075	0.411	0.514	107
SCA 332	Rice/ concrete/ NC/ CI	0.019	0.794	0.187	107
SCA 333	Travel/ abstract/ NA/ Co	0.336	0.393	0.271	107
SCA 334	Travel/ abstract/ NC/ Co	0.290	0.505	0.206	107
SCA 335	Travel/ abstract/ AC/ Co	0.551	0.243	0.206	107
SCA 336	Travel/ abstract/ AA/ Co	0.664	0.187	0.140	107

1 d). Adequacy of judgment

Variable	Task		N
SCB 317	Work/ unequally meaningful/ AA/ CI	0.897	107
SCB 318	Work/ unequally meaningful/ AC/ CI	0.159	107
SCB 319	Work/ unequally meaningful/ NA/ CI	0.056	107
SCB 320	Work/ unequally meaningful/ NC/CI	0.785	107
SCB 321	Bored/ unequally meaningful/ AA/ CI	0.850	107
SCB 322	Bored/ unequally meaningful/ AC/ CI	0.355	107
SCB 323	Bored/ unequally meaningful/ NC/ CI	0.720	107
SCB 324	Bored/ unequally meaningful/ NA/ CI	0.374	107
SCB 325	Snow/ counterfactual/ NC/ Co	0.617	107
SCB 326	Snow/ counterfactual/ NA/ Co	0.187	107
SCB 327	Snow/ counterfactual/ AC/ Co	0.103	107
SCB 328	Snow/ counterfactual/ AA/ Co	0.776	107
SCB 329	Rice/ concrete/ AC/ CI	0.486	107
SCB 330	Rice/ concrete/ AA/ CI	0.935	107
SCB 331	Rice/ concrete/ NA/ CI	0.514	107
SCB 332	Rice/ concrete/ NC/ CI	0.794	107
SCB 333	Travel/ abstract/ NA/ Co	0.271	107
SCB 334	Travel/ abstract/ NC/ Co	0.505	107
SCB 335	Travel/ abstract/ AC/ Co	0.206	107
SCB 336	Travel/ abstract/ AA/ Co	0.664	107

1 e). First repetition of Premise

Variable	Task		N
SPA 317	Work/ concrete/ unequally meaningful	0.710	107
SPA 321	Bored/ concrete/ unequally meaningful	0.542	107
SPA 325	Snow/ counterfactual	0.729	107
SPA 329	Rice/ concrete	0.860	107
SPA 333	Travel/ abstract	0.402	107

1 f). Second repetition of premise

Variable	Task		N
SPB 317	Work/ concrete/ unequally meaningful	0.963	107
SPB 321	Bored/ concrete/ unequally meaningful	0.869	107
SPB 325	Snow/ counterfactual	0.963	107
SPB 329	Rice/ concrete	0.963	107
SPB 333	Travel/ abstract	0.729	107

1 g). Conclusion pattern

Variable	Task	CD	TD	BC	CN	N
STAGEFE 3	concrete premise	0.143	0.250	0.438	0.170	107
STAGESS 3	counterfactual premise	0.458	0.121	0.421	0.000	107
STAGEAB 3	abstract premise	0.551	0.103	0.280	0.065	107

Table 2
Syllogistic reasoning:
Solution probabilities at age 9
by teacher rating
Urban sample

Section I:

2 a). Type of judgment

Teacher rating	high				low			
	Variable	Yes	No	Maybe	N	Yes	No	Maybe
SCA 301	0.741	0.019	0.241	54	0.707	0.052	0.241	58
SCA 302	0.037	0.667	0.296	54	0.017	0.879	0.103	58
SCA 303	0.426	0.056	0.519	54	0.655	0.069	0.276	58
SCA 304	0.019	0.815	0.167	54	0.017	0.879	0.103	58
SCA 305	0.796	0.019	0.185	54	0.793	0.017	0.190	58
SCA 306	0.019	0.537	0.444	54	0.172	0.414	0.414	58
SCA 307	0.037	0.833	0.130	54	0.103	0.759	0.138	58
SCA 308	0.481	0.056	0.463	54	0.741	0.069	0.190	58
SCA 309	0.944	0.037	0.019	54	0.897	0.034	0.069	58
SCA 310	0.037	0.574	0.389	54	0.121	0.776	0.103	58
SCA 311	0.019	0.907	0.074	54	0.034	0.897	0.069	58
SCA 312	0.593	0.037	0.370	54	0.776	0.034	0.190	58
SCA 313	0.944	0.019	0.037	54	0.862	0.086	0.052	58
SCA 314	0.148	0.444	0.407	54	0.190	0.655	0.155	58
SCA 315	0.481	0.037	0.481	54	0.603	0.121	0.276	58
SCA 316	0.037	0.926	0.037	54	0.017	0.897	0.086	58

2).b). Adequacy of Judgment

Teacher rating		high	low		
Variable	Task		N		N
SCB 301	Bicycle/ concrete/ AA/ CI	0.741	54	0.707	58
SCB 302	Bicycle/ concrete/ NA/ CI	0.296	54	0.103	58
SCB 303	Bicycle/ concrete/ AC/ CI	0.519	54	0.276	58
SCB 304	Bicycle/ concrete/ NC/ CI	0.815	54	0.879	58
SCB 305	Hello/ concrete/ AA/ CI	0.796	54	0.793	58
SCB 306	Ball/ concrete/ NA/ CI	0.537	54	0.414	58
SCB 307	Glasses/ con/ NC/ Co	0.833	54	0.759	58
SCB 308	Ill/ concrete/ AC/ CI	0.463	54	0.190	58
SCB 309	Wet/ concrete/ AA/ Co	0.944	54	0.897	58
SCB 310	Football/ concrete/ NA/ CI	0.389	54	0.103	58
SCB 311	Toy/ concrete/ NC/ CI	0.907	54	0.897	58
SCB 312	Cake/ concrete/ AC/ Co	0.370	54	0.190	58
SCB 313	Fire/ concrete/ AA/ Co	0.944	54	0.862	58
SCB 314	Fire/ concrete/ NA/ Co	0.407	54	0.155	58
SCB 315	Fire/ concrete/ AC/ Co	0.481	54	0.276	58
SCB 316	Fire/ concrete/ NC/ Co	0.926	54	0.897	58

Section II

2 c). Type of judgment

Teacher rating		high			low			
Variable	Yes	No	Maybe	N	Yes	No	Maybe	N
SCA 317	0.885	0.000	0.115	52	0.909	0.000	0.091	55
SCA 318	0.809	0.000	0.192	52	0.855	0.018	0.127	55
SCA 319	0.000	0.904	0.096	52	0.000	0.018	0.982	55
SCA 320	0.000	0.750	0.250	52	0.055	0.818	0.127	55
SCA 321	0.904	0.019	0.077	52	0.800	0.073	0.127	55
SCA 322	0.672	0.019	0.308	52	0.491	0.109	0.400	55
SCA 323	0.019	0.731	0.250	52	0.091	0.709	0.200	55
SCA 324	0.096	0.481	0.423	52	0.182	0.491	0.327	55
SCA 325	0.096	0.692	0.212	52	0.327	0.545	0.127	55
SCA 326	0.077	0.673	0.250	52	0.400	0.473	0.127	55
SCA 327	0.827	0.077	0.096	52	0.600	0.291	0.109	55
SCA 328	0.846	0.058	0.096	52	0.709	0.200	0.091	55
SCA 329	0.404	0.000	0.596	52	0.545	0.073	0.382	55
SCA 330	0.981	0.000	0.019	52	0.891	0.000	0.109	55
SCA 331	0.038	0.327	0.635	52	0.109	0.491	0.400	55
SCA 332	0.019	0.846	0.135	52	0.018	0.745	0.236	55
SCA 333	0.173	0.462	0.365	52	0.491	0.327	0.182	55
SCA 334	0.154	0.635	0.212	52	0.418	0.382	0.200	55
SCA 335	0.615	0.115	0.296	52	0.491	0.364	0.145	55
SCA 336	0.808	0.096	0.096	52	0.527	0.273	0.182	55

2 d).Adequacy of judgment

Teacher rating		high	low	
Variable	Task		N	N
SCB 317	Work/ unequally meaningful/ AA/ CI	0.885	52	0.909 55
SCB 318	Work/ unequally meaningful/ AC/ CI	0.192	52	0.127 55
SCB 319	Work/ unequally meaningful./ NA/ CI	0.096	52	0.018 55
SCB 320	Work/ unequally meaningful/ NC/CI	0.750	52	0.818 55
SCB 321	Bored/ unequally meaningful/ AA/ CI	0.904	52	0.800 55
SCB 322	Bored/ unequally meaningful/ AC/ CI	0.308	52	0.400 55
SCB 323	Bored/ unequally meaningful/ NC/ CI	0.731	52	0.709 55
SCB 324	Bored/ unequally meaningful/ NA/ CI	0.423	52	0.327 55
SCB 325	Snow/ counterfactual/ NC/ Co	0.692	52	0.545 55
SCB 326	Snow/ counterfactual/ NA/ Co	0.250	52	0.127 55
SCB 327	Snow/ counterfactual/ AC/ Co	0.096	52	0.109 55
SCB 328	Snow/counterfactual/ AA/ Co	0.846	52	0.709 55
SCB 329	Rice/ concrete/ AC/ CI	0.596	52	0.382 55
SCB 330	Rice/ concrete/ AA/ CI	0.981	52	0.891 55
SCB 331	Rice/ concrete/ NA/ CI	0.635	52	0.400 55
SCB 332	Rice/ concrete/ NC/ CI	0.846	52	0.745 55
SCB 333	Travel/ abstract/ NA/ Co	0.365	52	0.182 55
SCB 334	Travel/ abstract/ NC/ Co	0.635	52	0.382 55
SCB 335	Travel/ abstract/ AC/ Co	0.269	52	0.145 55
SCB 336	Travel/ abstract/ AA/ Co	0.808	52	0.527 55

2 e). First repetition of Premise

Teacher rating		high		low	
Variable	Task		N		N
SPA 317	Work/ concrete/ unequally meaningful	0.827	52	0.600	55
SPA 321	Bored/ concrete/ unequally meaningful	0.692	52	0.400	55
SPA 325	Snow/ counterfactual	0.808	52	0.655	55
SPA 329	Rice/ concrete	0.981	52	0.745	55
SPA 333	Travel/ abstract	0.538	52	0.273	55

2 f). Second repetition of premise

Teacher rating		high		low	
Variable	Task		N		N
SPB 317	Work/ concrete/ unequally meaningful	1.000	52	0.927	55
SPB 321	Bored/ concrete/ unequally meaningful	0.981	52	0.764	55
SPB 325	Snow/ counterfactual	0.981	52	0.945	55
SPB 329	Rice/ concrete	1.000	52	0.927	55
SPB 333	Travel/ abstract	0.846	52	0.618	55

2 g). Conclusion pattern

Teacher rating	high					low				
	Variable	CD	TD	BC	CN	N	CD	TD	BC	CN
STAGEFE 3	0.093	0.259	0.370	0.278	54	0.190	0.241	0.500	0.069	58
STAGESS 3	0.346	0.115	0.538	0.000	52	0.564	0.127	0.309	0.000	55
STAGEAB 3	0.404	0.115	0.346	0.135	52	0.691	0.091	0.218	0.000	55

Table 3
Syllogistic reasoning:
Solution probabilities at age 9
by gender
Urban sample

Section I

3 a). Type of judgment

Gender	male				female				
	Variable	Yes	No	Maybe	N	Yes	No	Maybe	N
SCA 301	0.797	0.169	0.034	0.169	59	0.642	0.321	0.038	53
SCA 302	0.017	0.169	0.814	0.017	59	0.038	0.226	0.736	53
SCA 303	0.559	0.034	0.407	0.559	59	0.528	0.094	0.377	53
SCA 304	0.017	0.898	0.085	0.017	59	0.019	0.792	0.189	53
SCA 305	0.797	0.034	0.169	0.797	59	0.792	0.000	0.208	53
SCA 306	0.102	0.390	0.508	0.102	59	0.094	0.472	0.434	53
SCA 307	0.051	0.797	0.153	0.051	59	0.094	0.792	0.113	53
SCA 308	0.593	0.051	0.356	0.593	59	0.642	0.075	0.283	53
SCA 309	0.949	0.017	0.034	0.949	59	0.887	0.057	0.057	53
SCA 310	0.085	0.678	0.237	0.085	59	0.075	0.679	0.245	53
SCA 311	0.000	0.932	0.068	0.000	59	0.057	0.868	0.075	53
SCA 312	0.644	0.051	0.305	0.644	59	0.736	0.019	0.245	53
SCA 313	0.932	0.051	0.017	0.932	59	0.868	0.057	0.075	53
SCA 314	0.153	0.525	0.322	0.153	59	0.189	0.585	0.226	53
SCA 315	0.508	0.085	0.407	0.508	59	0.585	0.075	0.340	53
SCA 316	0.017	0.932	0.051	0.017	59	0.038	0.887	0.075	53

3 b).Adequacy of judgment

Gender		male	female	
Variable	Task		N	N
SCB 301	Bicycle/ concrete/ AA/ CI	0.797	59	0.642 53
SCB 302	Bicycle/ concrete/ NA/ CI	0.169	59	0.226 53
SCB 303	Bicycle/ concrete/ AC/ CI	0.407	59	0.377 53
SCB 304	Bicycle/ concrete/ NC/ CI	0.898	59	0.792 53
SCB 305	Hello/ concrete/ AA/ CI	0.831	59	0.755 53
SCB 306	Ball/ concrete/ NA/ CI	0.508	59	0.434 53
SCB 307	Glasses/ con/ NC/ Co	0.797	59	0.792 53
SCB 308	Ill/ concrete/ AC/ CI	0.356	59	0.283 53
SCB 309	Wet/ concrete/ AA/ Co	0.949	59	0.887 53
SCB 310	Football/ concrete/ NA/ CI	0.237	59	0.245 53
SCB 311	Toy/ concrete/ NC/ CI	0.932	59	0.868 53
SCB 312	Cake/ concrete/ AC/ Co	0.305	59	0.245 53
SCB 313	Fire/ concrete/ AA/ Co	0.932	59	0.868 53
SCB 314	Fire/ concrete/ NA/ Co	0.322	59	0.226 53
SCB 315	Fire/ concrete/ AC/ Co	0.407	59	0.340 53
SCB 316	Fire/ concrete/ NC/ Co	0.932	59	0.887 53

Section II

3 c). Type of judgment

Gender	male				female			
	Variable	Yes	No	Maybe	N	Yes	No	Maybe
SCA 317	0.911	0.000	0.089	56	0.882	0.000	0.118	51
SCA 318	0.821	0.000	0.179	56	0.843	0.020	0.137	51
SCA 319	0.000	0.911	0.089	56	0.000	0.980	0.020	51
SCA 320	0.036	0.768	0.196	56	0.020	0.804	0.176	51
SCA 321	0.839	0.071	0.089	56	0.863	0.020	0.118	51
SCA 322	0.571	0.054	0.375	56	0.588	0.078	0.333	51
SCA 323	0.036	0.696	0.268	56	0.078	0.745	0.176	51
SCA 324	0.125	0.482	0.393	56	0.157	0.490	0.353	51
SCA 325	0.232	0.536	0.232	56	0.196	0.706	0.098	51
SCA 326	0.250	0.589	0.161	56	0.235	0.549	0.216	51
SCA 327	0.696	0.196	0.107	56	0.725	0.176	0.098	51
SCA 328	0.821	0.143	0.036	56	0.725	0.118	0.157	51
SCA 329	0.536	0.036	0.429	56	0.412	0.039	0.549	51
SCA 330	0.929	0.000	0.071	56	0.941	0.000	0.059	51
SCA 331	0.036	0.482	0.482	56	0.118	0.333	0.549	51
SCA 332	0.036	0.804	0.161	56	0.000	0.784	0.216	51
SCA 333	0.286	0.393	0.321	56	0.392	0.392	0.216	51
SCA 334	0.268	0.518	0.214	56	0.314	0.490	0.196	51
SCA 335	0.536	0.232	0.232	56	0.569	0.255	0.176	51
SCA 336	0.625	0.179	0.179	56	0.706	0.196	0.098	51

3 d).Adequacy of judgment

Gender		male	female	
Variable	Task		N	N
SCB 317	Work/ unequally meaningful/ AA/ CI	0.911	56	51
SCB 318	Work/ unequally meaningful/ AC/ CI	0.179	56	51
SCB 319	Work/ unequally meaningful/ NA/ CI	0.089	56	51
SCB 320	Work/ unequally meaningful/ NC/CI	0.768	56	51
SCB 321	Bored/ unequally meaningful/ AA/ CI	0.839	56	51
SCB 322	Bored/ unequally meaningful/ AC/ CI	0.375	56	51
SCB 323	Bored/ unequally meaningful/ NC/ CI	0.696	56	51
SCB 324	Bored/ unequally meaningful/ NA/ CI	0.393	56	51
SCB 325	Snow/ counterfactual/ NC/ Co	0.536	56	51
SCB 326	Snow/ counterfactual/ NA/ Co	0.161	56	51
SCB 327	Snow/ counterfactual/ AC/ Co	0.107	56	51
SCB 328	Snow/counterfactual/ AA/ Co	0.821	56	51
SCB 329	Rice/ concrete/ AC/ CI	0.429	56	51
SCB 330	Rice/ concrete/ AA/ CI	0.929	56	51
SCB 331	Rice/ concrete/ NA/ CI	0.482	56	51
SCB 332	Rice/ concrete/ NC/ CI	0.804	56	51
SCB 333	Travel/ abstract/ NA/ Co	0.321	56	51
SCB 334	Travel/ abstract/ NC/ Co	0.518	56	51
SCB 335	Travel/ abstract/ AC/ Co	0.232	56	51
SCB 336	Travel/ abstract/ AA/ Co	0.625	56	51

3 e). First repetition of Premise

Gender		male		female	
Variable	Task		N		N
SPA 317	Work/ concrete/ unequally meaningful	0.750	56	0.667	51
SPA 321	Bored/ concrete/ unequally meaningful	0.536	56	0.549	51
SPA 325	Snow/ counterfactual	0.696	56	0.765	51
SPA 329	Rice/ concrete	0.839	56	0.882	51
SPA 333	Travel/ abstract	0.393	56	0.412	51

3 f). Second repetition of premise

Gender		male		female	
Variable	Task		N		N
SPB 317	Work/ concrete/ unequally meaningful	0.946	56	0.980	51
SPB 321	Bored/ concrete/ unequally meaningful	0.893	56	0.843	51
SPB 325	Snow/ counterfactual	0.964	56	0.961	51
SPB 329	Rice/ concrete	0.964	56	0.961	51
SPB 333	Travel/ abstract	0.732	56	0.725	51

3 g). Conclusion pattern

Gender	male					female				
	Variable	CD	TD	BC	CN	N	CD	TD	BC	CN
STAGEFE 3	0.102	0.220	0.441	0.237	59	0.189	0.283	0.434	0.094	53
STAGESS 3	0.500	0.071	0.429	0.000	56	0.412	0.176	0.412	0.000	51
STAGEAB 3	0.571	0.089	0.268	0.071	56	0.529	0.118	0.294	0.059	51

Table 4
Syllogistic reasoning:
Solution probabilities at age 9
by social class in two categories
Urban sample

Section I

4 a). Type of judgment

SES	high				low			
	Variable	Yes	No	Maybe	N	Yes	No	Maybe
SCA 301	0.698	0.000	0.302	59	0.746	0.068	0.186	53
SCA 302	0.000	0.755	0.245	53	0.051	0.797	0.153	59
SCA 303	0.547	0.038	0.415	59	0.542	0.085	0.373	59
SCA 304	0.019	0.811	0.170	59	0.017	0.881	0.102	59
SCA 305	0.755	0.019	0.226	59	0.831	0.017	0.153	59
SCA 306	0.075	0.283	0.642	53	0.119	0.559	0.322	59
SCA 307	0.057	0.811	0.132	53	0.085	0.780	0.136	59
SCA 308	0.566	0.000	0.434	53	0.661	0.119	0.220	59
SCA 309	0.962	0.000	0.038	53	0.881	0.068	0.051	59
SCA 310	0.019	0.302	0.679	53	0.136	0.678	0.186	59
SCA 311	0.000	0.925	0.075	53	0.051	0.881	0.068	59
SCA 312	0.547	0.019	0.434	53	0.814	0.051	0.136	59
SCA 313	0.943	0.000	0.057	53	0.864	0.102	0.034	59
SCA 314	0.170	0.472	0.358	53	0.169	0.627	0.203	59
SCA 315	0.509	0.038	0.453	53	0.576	0.119	0.305	59
SCA 316	0.000	0.962	0.036	53	0.051	0.864	0.085	59

4 b).Adequacy of judgment

SES		high	low	
Variable	Task		N	N
SCB 301	Bicycle/ concrete/ AA/ CI	0.698	53	59
SCB 302	Bicycle/ concrete/ NA/ CI	0.245	53	59
SCB 303	Bicycle/ concrete/ AC/ CI	0.415	53	59
SCB 304	Bicycle/ concrete/ NC/ CI	0.811	53	59
SCB 305	Hello/ concrete/ AA/ CI	0.755	53	59
SCB 306	Ball/ concrete/ NA/ CI	0.642	53	59
SCB 307	Glasses/ con/ NC/ Co	0.811	53	59
SCB 308	Ill/ concrete/ AC/ CI	0.434	53	59
SCB 309	Wet/ concrete/ AA/ Co	0.962	53	59
SCB 310	Football/ concrete/ NA/ CI	0.302	53	59
SCB 311	Toy/ concrete/ NC/ CI	0.925	53	59
SCB 312	Cake/ concrete/ AC/ Co	0.434	53	59
SCB 313	Fire/ concrete/ AA/ Co	0.943	53	59
SCB 314	Fire/ concrete/ NA/ Co	0.358	53	59
SCB 315	Fire/ concrete/ AC/ Co	0.453	53	59
SCB 316	Fire/ concrete/ NC/ Co	0.962	53	59

Section II

4 c). Type of judgment

SES	high				low			
	Variable	Yes	No	Maybe	N	Yes	No	Maybe
SCA 317	0.840	0.000	0.160	50	0.947	0.000	0.053	57
SCA 318	0.880	0.000	0.120	50	0.789	0.018	0.193	57
SCA 319	0.920	0.000	0.080	50	0.965	0.000	0.035	57
SCA 320	0.000	0.820	0.180	50	0.053	0.754	0.193	57
SCA 321	0.860	0.400	0.100	50	0.842	0.053	0.105	57
SCA 322	0.540	0.040	0.420	50	0.614	0.088	0.298	57
SCA 323	0.000	0.700	0.300	50	0.105	0.737	0.158	57
SCA 324	0.160	0.400	0.440	50	0.123	0.561	0.316	57
SCA 325	0.120	0.700	0.180	50	0.298	0.544	0.158	57
SCA 326	0.140	0.660	0.200	50	0.333	0.491	0.175	57
SCA 327	0.760	0.160	0.080	50	0.667	0.211	0.123	57
SCA 328	0.820	0.140	0.040	50	0.737	0.123	0.140	57
SCA 329	0.500	0.040	0.460	50	0.456	0.035	0.509	57
SCA 330	0.960	0.000	0.040	50	0.912	0.000	0.088	57
SCA 331	0.020	0.380	0.600	50	0.123	0.439	0.439	57
SCA 332	0.000	0.800	0.200	50	0.035	0.789	0.175	57
SCA 333	0.340	0.360	0.300	50	0.333	0.421	0.246	57
SCA 334	0.220	0.540	0.240	50	0.351	0.474	0.175	57
SCA 335	0.460	0.280	0.260	50	0.632	0.211	0.158	57
SCA 336	0.660	0.200	0.140	50	0.667	0.175	0.140	57

4 d).Adequacy of judgment

SES		high	low	
Variable	Task		N	N
SCB 317	Work/ unequally meaningful/ AA/ CI	0.840	50	0.947 57
SCB 318	Work/ unequally meaningful/ AC/ CI	0.120	50	0.193 57
SCB 319	Work/ unequally meaningful/ NA/ CI	0.080	50	0.035 57
SCB 320	Work/ unequally meaningful/ NC/ CI	0.820	50	0.754 57
SCB 321	Bored/ unequally meaningful/ AA/ CI	0.860	50	0.842 57
SCB 322	Bored/ unequally meaningful/ AC/ CI	0.420	50	0.298 57
SCB 323	Bored/ unequally meaningful/ NC/ CI	0.700	50	0.737 57
SCB 324	Bored/ unequally meaningful/ NA/ CI	0.440	50	0.316 57
SCB 325	Snow/ counterfactual/ NC/ Co	0.700	50	0.544 57
SCB 326	Snow/ counterfactual/ NA/ Co	0.200	50	0.175 57
SCB 327	Snow/ counterfactual/ AC/ Co	0.080	50	0.123 57
SCB 328	Snow/counterfactual/ AA/ Co	0.820	50	0.737 57
SCB 329	Rice/ concrete/ AC/ CI	0.460	50	0.509 57
SCB 330	Rice/ concrete/ AA/ CI	0.960	50	0.912 57
SCB 331	Rice/ concrete/ NA/ CI	0.600	50	0.439 57
SCB 332	Rice/ concrete/ NC/ CI	0.800	50	0.789 57
SCB 333	Travel/ abstract/ NA/ Co	0.300	50	0.246 57
SCB 334	Travel/ abstract/ NC/ Co	0.540	50	0.474 57
SCB 335	Travel/ abstract/ AC/ Co	0.260	50	0.158 57
SCB 336	Travel/ abstract/ AA/ Co	0.660	50	0.667 57

4 e). First repetition of Premise

SES		high		low	
Variable	Task		N		N
SPA 317	Work/ concrete/ unequally meaningful	0.680	50	0.737	57
SPA 321	Bored/ concrete/ unequally meaningful	0.560	50	0.526	57
SPA 325	Snow/ counterfactual	0.800	50	0.667	57
SPA 329	Rice/ concrete	0.900	50	0.825	57
SPA 333	Travel/ abstract	0.420	50	0.386	57

4 f). Second repetition of premise

SES		high		low	
Variable	Task		N		N
SPB 317	Work/ concrete/ unequally meaningful	0.980	50	0.947	57
SPB 321	Bored/ concrete/ unequally meaningful	0.860	50	0.877	57
SPB 325	Snow/ counterfactual	0.980	50	0.947	57
SPB 329	Rice/ concrete	1.000	50	0.930	57
SPB 333	Travel/ abstract	0.760	50	0.702	57

4 g). Conclusion pattern

SES	high					low				
	Variable	CD	TD	BC	CN	N	DC	TD	BC	CN
STAGEFE 3	0.075	0.245	0.434	0.245	53	0.203	0.254	0.441	0.102	59
STAGESS 3	0.340	0.100	0.560	0.000	50	0.561	0.140	0.298	0.000	57
STAGEAB 3	0.520	0.120	0.280	0.080	50	0.579	0.088	0.281	0.053	57

Table 5
Syllogistic reasoning:
Solution probabilities at age 9
by social class in six categories
Urban sample

Section I

5 a). Type of judgment

SES	low/low (SES 1)				low/high (SES 2)				
	Variable	Yes	No	Maybe	N	Yes	No	Maybe	N
SCA 301	0.813	0.063	0.125	0.125	16	0.760	0.080	0.160	25
SCA 302	0.000	0.750	0.250	0.250	16	0.000	0.880	0.120	25
SCA 303	0.500	0.125	0.375	0.375	16	0.560	0.080	0.360	25
SCA 304	0.000	0.938	0.063	0.063	16	0.000	0.880	0.120	25
SCA 305	0.750	0.000	0.250	0.250	16	0.880	0.000	0.120	25
SCA 306	0.125	0.625	0.250	0.250	16	0.120	0.480	0.400	25
SCA 307	0.125	0.688	0.188	0.188	16	0.040	0.840	0.120	25
SCA 308	0.625	0.188	0.188	0.188	16	0.680	0.040	0.280	25
SCA 309	0.875	0.063	0.063	0.063	16	0.920	0.040	0.040	25
SCA 310	0.125	0.750	0.125	0.125	16	0.080	0.760	0.160	25
SCA 311	0.125	0.813	0.063	0.063	16	0.000	0.920	0.080	25
SCA 312	0.938	0.063	0.000	0.000	16	0.760	0.040	0.200	25
SCA 313	0.875	0.125	0.000	0.000	16	0.880	0.080	0.040	25
SCA 314	0.125	0.688	0.188	0.188	16	0.200	0.600	0.200	25
SCA 315	0.625	0.125	0.250	0.250	16	0.520	0.120	0.360	25
SCA 316	0.063	0.750	0.188	0.188	16	0.000	0.920	0.080	25

5 a). Type of judgment

SES		middle/low (SES 3)				middle/high (SES 4)			
Variable	Yes	No	Maybe	N	Yes	No	Maybe	N	
SCA 301	0.667	0.056	0.278	18	0.526	0.000	0.474	19	
SCA 302	0.167	0.722	0.111	18	0.000	0.789	0.211	19	
SCA 303	0.556	0.056	0.389	18	0.652	0.053	0.316	19	
SCA 304	0.056	0.833	0.111	18	0.053	0.842	0.105	19	
SCA 305	0.833	0.056	0.111	18	0.789	0.000	0.211	19	
SCA 306	0.111	0.611	0.278	18	0.000	0.474	0.526	19	
SCA 307	0.111	0.778	0.111	18	0.053	0.789	0.158	19	
SCA 308	0.667	0.16	0.167	18	0.579	0.000	0.421	19	
SCA 309	0.833	0.111	0.056	18	0.947	0.000	0.053	19	
SCA 310	0.222	0.500	0.278	18	0.053	0.737	0.211	19	
SCA 311	0.056	0.889	0.056	18	0.000	0.895	0.105	19	
SCA 312	0.778	0.056	0.167	18	0.579	0.000	0.421	19	
SCA 313	0.833	0.111	0.056	18	0.842	0.000	0.158	19	
SCA 314	0.167	0.611	0.222	18	0.158	0.474	0.368	19	
SCA 315	0.611	0.111	0.278	18	0.632	0.053	0.316	19	
SCA 316	0.111	0.889	0.000	18	0.000	0.895	0.105	19	
SES		high/low (SES 5)				high/high (SES 6)			
Variable	Yes	No	Maybe	N	Yes	No	Maybe	N	
SCA 301	0.700	0.000	0.300	20	0.920	0.000	0.071	14	
SCA 302	0.000	0.750	0.250	20	0.000	0.714	0.286	14	
SCA 303	0.550	0.000	0.450	20	0.429	0.071	0.500	14	
SCA 304	0.000	0.750	0.250	20	0.000	0.857	0.143	14	
SCA 305	0.750	0.050	0.200	20	0.714	0.000	0.286	14	
SCA 306	0.150	0.150	0.700	20	0.071	0.214	0.714	14	
SCA 307	0.100	0.850	0.050	20	0.000	0.786	0.214	14	
SCA 308	0.500	0.000	0.500	20	0.643	0.000	0.357	14	
SCA 309	0.950	0.000	0.050	20	1.000	0.000	0.000	14	
SCA 310	0.000	0.700	0.300	20	0.000	0.571	0.429	14	
SCA 311	0.000	1.000	0.000	20	0.000	0.857	0.143	14	
SCA 312	0.500	0.050	0.450	20	0.571	0.000	0.429	14	
SCA 313	1.000	0.000	0.000	20	1.000	0.000	0.000	14	
SCA 314	0.200	0.500	0.300	20	0.143	0.429	0.429	14	
SCA 315	0.450	0.050	0.500	20	0.429	0.000	0.571	14	
SCA 316	0.000	1.000	0.000	20	0.000	1.000	0.000	14	

5 b).Adequacy of judgment

SES	low/low (SES 1)		low/high (SES 2)		middle/low (SES 3)	
Variable		N		N		N
SCB 301	0.813	16	0.760	25	0.667	18
SCB 302	0.250	16	0.120	25	0.111	18
SCB 303	0.375	16	0.360	25	0.389	18
SCB 304	0.938	16	0.880	25	0.833	18
SCB 305	0.750	16	0.880	25	0.833	18
SCB 306	0.250	16	0.400	25	0.278	18
SCB 307	0.688	16	0.840	25	0.778	18
SCB 308	0.188	16	0.280	25	0.167	18
SCB 309	0.875	16	0.920	25	0.833	18
SCB 310	0.125	16	0.160	25	0.278	18
SCB 311	0.813	16	0.920	25	0.889	18
SCB 312	0.000	16	0.200	25	0.167	18
SCB 313	0.875	16	0.880	25	0.833	18
SCB 314	0.188	16	0.200	25	0.222	18
SCB 315	0.250	16	0.360	25	0.278	18
SCB 316	0.750	16	0.920	25	0.889	18
SES	middle/high (SES 4)		high/low (SES 5)		high/high (SES 6)	
Variable		N		N		N
SCB 301	0.526	19	0.700	20	0.929	14
SCB 302	0.211	19	0.250	20	0.286	14
SCB 303	0.316	19	0.550	20	0.500	14
SCB 304	0.842	19	0.750	20	0.857	14
SCB 305	0.789	19	0.750	20	0.714	14
SCB 306	0.526	19	0.700	20	0.714	14
SCB 307	0.789	19	0.850	20	0.786	14
SCB 308	0.421	19	0.500	20	0.357	14
SCB 309	0.947	19	0.950	20	1.000	14
SCB 310	0.211	19	0.300	20	0.429	14
SCB 311	0.895	19	1.000	20	0.857	14
SCB 312	0.421	19	0.450	20	0.429	14
SCB 313	0.842	19	1.000	20	1.000	14
SCB 314	0.368	19	0.300	20	0.429	14
SCB 315	0.316	19	0.500	20	0.571	14
SCB 316	0.8954	19	1.000	20	1.000	14

Section II

5 c). Type of judgment

SES	low/low (SES 1)				low/high (SES 2)			
	Variable	Yes	No	Maybe	N	Yes	No	Maybe
SCA 317	0.933	0.000	0.067	15	1.000	0.000	0.000	25
SCA 318	0.933	0.000	0.067	15	0.680	0.040	0.280	25
SCA 319	1.000	0.000	0.000	15	0.960	0.000	0.040	25
SCA 320	0.000	0.933	0.067	15	0.080	0.680	0.240	25
SCA 321	1.000	0.000	0.000	15	0.800	0.040	0.160	25
SCA 322	0.733	0.000	0.267	15	0.640	0.080	0.280	25
SCA 323	0.133	0.733	0.133	15	0.120	0.760	0.120	25
SCA 324	0.067	0.600	0.333	15	0.080	0.640	0.280	25
SCA 325	0.400	0.467	0.133	15	0.280	0.480	0.240	25
SCA 326	0.467	0.333	0.200	15	0.320	0.520	0.160	25
SCA 327	0.667	0.133	0.200	15	0.640	0.200	0.160	25
SCA 328	0.867	0.067	0.067	15	0.640	0.160	0.200	25
SCA 329	0.600	0.000	0.400	15	0.280	0.080	0.640	25
SCA 330	1.000	0.000	0.000	15	0.880	0.000	0.120	25
SCA 331	0.133	0.400	0.467	15	0.160	0.440	0.400	25
SCA 332	0.000	0.867	0.133	15	0.000	0.800	0.200	25
SCA 333	0.333	0.533	0.133	15	0.360	0.400	0.240	25
SCA 334	0.267	0.600	0.133	15	0.320	0.400	0.280	25
SCA 335	0.667	0.200	0.133	15	0.560	0.240	0.200	25
SCA 336	0.867	0.133	0.000	15	0.560	0.160	0.240	25

5 c). Type of judgment

SES	middle/low (SES 3)				middle/high (SES 4)				
	Variable	Yes	No	Maybe	N	Yes	No	Maybe	N
SCA 317	0.882	0.000	0.118	0.118	17	0.889	0.000	0.111	18
SCA 318	0.824	0.000	0.176	0.176	17	0.944	0.000	0.056	18
SCA 319	0.941	0.000	0.059	0.059	17	1.000	0.000	0.000	18
SCA 320	0.059	0.706	0.235	0.235	17	0.000	0.833	0.167	18
SCA 321	0.765	0.118	0.118	0.118	17	0.833	0.056	0.111	18
SCA 322	0.471	0.176	0.353	0.353	17	0.611	0.000	0.389	18
SCA 323	0.059	0.706	0.235	0.235	17	0.000	0.778	0.222	18
SCA 324	0.235	0.412	0.353	0.353	17	0.222	0.389	0.389	18
SCA 325	0.235	0.706	0.059	0.059	17	0.167	0.722	0.111	18
SCA 326	0.235	0.588	0.176	0.176	17	0.167	0.722	0.111	18
SCA 327	0.706	0.294	0.000	0.000	17	0.778	0.167	0.056	18
SCA 328	0.765	0.118	0.118	0.118	17	0.833	0.111	0.056	18
SCA 329	0.588	0.000	0.412	0.412	17	0.444	0.111	0.444	18
SCA 330	0.882	0.000	0.118	0.118	17	0.889	0.000	0.111	18
SCA 331	0.059	0.471	0.471	0.471	17	0.000	0.222	0.778	18
SCA 332	0.121	0.706	0.176	0.176	17	0.000	0.722	0.278	18
SCA 333	0.294	0.353	0.353	0.353	17	0.333	0.389	0.278	18
SCA 334	0.471	0.471	0.059	0.059	17	0.167	0.444	0.389	18
SCA 335	0.706	0.176	0.118	0.118	17	0.444	0.222	0.333	18
SCA 336	0.647	0.235	0.118	0.118	17	0.556	0.222	0.222	18

5 c). Type of judgment

SES	high/low (SES 5)				high/high (SES 6)			
	Variable	Yes	No	Maybe	N	Yes	No	Maybe
SCA 317	0.789	0.000	0.211	19	0.846	0.000	0.154	13
SCA 318	0.842	0.000	0.158	19	0.846	0.000	0.154	13
SCA 319	0.895	0.000	0.105	19	0.846	0.000	0.154	13
SCA 320	0.000	0.789	0.211	19	0.000	0.846	0.154	13
SCA 321	0.842	0.053	0.105	19	0.923	0.000	0.077	13
SCA 322	0.579	0.053	0.368	19	0.385	0.077	0.538	13
SCA 323	0.000	0.737	0.263	19	0.000	0.538	0.462	13
SCA 324	0.105	0.526	0.368	19	0.154	0.231	0.615	13
SCA 325	0.105	0.737	0.158	19	0.077	0.615	0.308	13
SCA 326	0.105	0.684	0.211	19	0.154	0.538	0.308	13
SCA 327	0.842	0.105	0.053	19	0.615	0.231	0.154	13
SCA 328	0.895	0.053	0.053	19	0.692	0.308	0.000	13
SCA 329	0.632	0.000	0.368	19	0.385	0.000	0.615	13
SCA 330	1.000	0.000	0.000	19	1.000	0.000	0.000	13
SCA 331	0.053	0.474	0.474	19	0.000	0.462	0.538	13
SCA 332	0.000	0.789	0.211	19	0.000	0.923	0.077	13
SCA 333	0.421	0.368	0.211	19	0.231	0.308	0.462	13
SCA 334	0.368	0.526	0.105	19	0.077	0.692	0.231	13
SCA 335	0.474	0.368	0.158	19	0.462	0.231	0.308	13
SCA 336	0.684	0.158	0.158	19	0.769	0.231	0.000	13

5 d).Adequacy of judgment

SES	low/low (SES 1)		low/high (SES 2)		middle/low (SES 3)	
Variable		N		N		N
SCA 317	0.933	15	1.000	25	0.882	17
SCA 318	0.067	15	0.280	25	0.176	17
SCA 319	0.000	15	0.040	25	0.059	17
SCA 320	0.933	15	0.680	25	0.706	17
SCA 321	1.000	15	0.800	25	0.765	17
SCA 322	0.267	15	0.280	25	0.353	17
SCA 323	0.733	15	0.760	25	0.706	17
SCA 324	0.333	15	0.280	25	0.353	17
SCA 325	0.467	15	0.480	25	0.706	17
SCA 326	0.200	15	0.160	25	0.176	17
SCA 327	0.200	15	0.160	25	0.000	17
SCA 328	0.867	15	0.640	25	0.765	17
SCA 329	0.400	15	0.640	25	0.412	17
SCA 330	1.000	15	0.880	25	0.882	17
SCA 331	0.467	15	0.400	25	0.471	17
SCA 332	0.867	15	0.800	25	0.706	17
SCA 333	0.133	15	0.240	25	0.353	17
SCA 334	0.600	15	0.400	25	0.471	17
SCA 335	0.133	15	0.200	25	0.118	17
SCA 336	0.867	15	0.560	25	0.647	17

5 d).Adequacy of judgment

SES	middle/high (SES 4)		high/low (SES 5)		high/high (SES 6)	
Variable		N		N		N
SCA 317	0.889	18	0.789	19	0.846	13
SCA 318	0.056	18	0.158	19	0.154	13
SCA 319	0.000	18	0.105	19	0.154	13
SCA 320	0.833	18	0.789	19	0.846	13
SCA 321	0.833	18	0.842	19	0.923	13
SCA 322	0.389	18	0.368	19	0.538	13
SCA 323	0.778	18	0.737	19	0.538	13
SCA 324	0.389	18	0.368	19	0.615	13
SCA 325	0.722	18	0.737	19	0.615	13
SCA 326	0.111	18	0.211	19	0.308	13
SCA 327	0.056	18	0.053	19	0.154	13
SCA 328	0.833	18	0.895	19	0.692	13
SCA 329	0.444	18	0.368	19	0.615	13
SCA 330	0.889	18	1.000	19	1.000	13
SCA 331	0.778	18	0.474	19	0.538	13
SCA 332	0.722	18	0.789	19	0.923	13
SCA 333	0.278	18	0.211	19	0.462	13
SCA 334	0.444	18	0.526	19	0.692	13
SCA 335	0.333	18	0.158	19	0.308	13
SCA 336	0.556	18	0.684	19	0.769	13

5 e). First repetition of Premise

SES	low/low (SES 1)		low/high (SES 2)		middle/low (SES 3)	
Variable		N		N		N
SPA 317	0.800	15	0.680	25	0.765	17
SPA 321	0.600	15	0.600	25	0.353	17
SPA 325	0.667	15	0.760	25	0.529	17
SPA 329	0.800	15	0.800	25	0.882	17
SPA 333	0.400	15	0.240	25	0.588	17

5 e). First repetition of Premise

SES	middle/high (SES 4)		high/low (SES 5)		high/high (SES 6)	
Variable		N		N		N
SPA 317	0.667	18	0.684	19	0.692	13
SPA 321	0.556	18	0.579	19	0.538	13
SPA 325	0.833	18	0.789	19	0.769	13
SPA 329	0.944	18	0.789	19	1.000	13
SPA 333	0.556	18	0.316	19	0.385	13

5 f). Second repetition of Premise

SES	low/low (SES 1)		low/high (SES 2)		middle/low (SES 3)	
Variable		N		N		N
SPB 317	1.000	15	0.920	25	0.941	17
SPB 321	0.867	15	0.880	25	0.882	17
SPB 325	0.933	15	0.960	25	0.941	17
SPB 329	0.867	15	0.920	25	1.000	17
SPB 333	0.667	15	0.600	25	0.882	17

5 f). Second repetition of Premise

SES	middle/high (SES 4)		high/low (SES 5)		high/high (SES 6)	
Variable		N		N		N
SPB 317	0.944	18	1.000	19	1.000	13
SPB 321	0.889	18	0.789	19	0.923	13
SPB 325	1.000	18	0.947	19	1.000	13
SPB 329	1.000	18	1.000	19	1.000	13
SPB 333	0.833	18	0.789	19	0.615	13

5 g). Conclusion pattern

SES	low/low (SES 1)					low/high (SES 2)				
Variable	CD	TD	BC	CN	N	CD	TD	BC	CN	N
STAGEFE 3	0.313	0.188	0.438	0.063	16	0.120	0.320	0.440	0.120	25
STAGESS 3	0.600	0.133	0.267	0.000	15	0.640	0.080	0.280	0.000	25
STAGEAB 3	0.400	0.200	0.400	0.000	15	0.680	0.040	0.240	0.040	25

5 g). Conclusion pattern

SES	middle/low (SES 3)					middle/high (SES 4)				
	Variable	CD	TD	BC	CN	N	CD	TD	BC	CN
STAGEFE 3	0.222	0.222	0.444	0.111	18	0.211	0.211	0.474	0.105	19
STAGESS 3	0.412	0.235	0.353	0.000	17	0.333	0.056	0.611	0.000	18
STAGEAB 3	0.588	0.059	0.235	0.118	17	0.611	0.056	0.333	0.000	18

5 g). Conclusion pattern

SES	high/low (SES 5)					high/high (SES 6)				
	Variable	CD	TD	BC	CN	N	CD	TD	BC	CN
STAGEFE 3	0.000	0.250	0.450	0.300	20	0.000	0.286	0.357	0.300	14
STAGESS 3	0.263	0.158	0.579	0.000	19	0.462	0.077	0.462	0.000	13
STAGEAB 3	0.526	0.158	0.211	0.105	19	0.385	0.154	0.308	0.154	13

Rural Sample

Table 6
Syllogistic reasoning:
Solution probabilities at age 9
Rural sample

6 a). Type of judgment

Variable	Task	Yes	No	Maybe	N
SCA 301	Bicycle/ concrete/ AA/ CI	0.790	0.016	0.194	62
SCA 302	Bicycle/ concrete/ NA/ CI	0.016	0.742	0.242	62
SCA 303	Bicycle/ concrete/ AC/ CI	0.532	0.065	0.403	62
SCA 304	Bicycle/ concrete/ NC/ CI	0.065	0.839	0.097	62
SCA 305	Hello/ concrete/ AA/ CI	0.726	0.097	0.177	62
SCA 306	Ball/ concrete/ NA/ CI	0.161	0.242	0.597	62
SCA 307	Glasses/ concrete/ NC/ Co	0.081	0.645	0.274	62
SCA 308	Ill/ concrete/ AC/ CI	0.468	0.065	0.468	62
SCA 309	Wet/ concrete/ AA/ Co	0.919	0.000	0.081	62
SCA 310	Football/ concrete/ NA/ CI	0.081	0.613	0.306	62
SCA 311	Toy/ concrete/ NC/ CI	0.048	0.871	0.081	62
SCA 312	Cake/ concrete/ AC/ Co	0.677	0.016	0.306	62
SCA 313	Fire/ concrete/ AA/ Co	0.823	0.097	0.081	62
SCA 314	Fire/ concrete/ NA/ Co	0.161	0.661	0.177	62
SCA 315	Fire/ concrete/ AC/ Co	0.565	0.081	0.355	62
SCA 316	Fire/ concrete/ NC/ Co	0.048	0.871	0.065	62

6 b). Adequacy of judgment

Variable	Task		N
SCB 301	Bicycle/ concrete/ AA/ CI	0.790	62
SCB 302	Bicycle/ concrete/ NA/ CI	0.242	62
SCB 303	Bicycle/ concrete/ AC/ CI	0.403	62
SCB 304	Bicycle/ concrete/ NC/ CI	0.839	62
SCB 305	Hello/ concrete/ AA/ CI	0.726	62
SCB 306	Ball/ concrete/ NA/ CI	0.613	62
SCB 307	Glasses/ concrete/ NC/ Co	0.645	62
SCB 308	Ill/ concrete/ AC/ CI	0.468	62
SCB 309	Wet/ concrete/ AA/ Co	0.919	62
SCB 310	Football/ concrete/ NA/ CI	0.306	62
SCB 311	Toy/ concrete/ NC/ CI	0.871	62
SCB 312	Cake/ concrete/ AC/ Co	0.306	62
SCB 313	Fire/ concrete/ AA/ Co	0.839	62
SCB 314	Fire/ concrete/ NA/ Co	0.177	62
SCB 315	Fire/ concrete/ AC/ Co	0.355	62
SCB 316	Fire/ concrete/ NC/ Co	0.903	62

Table 7
Syllogistic reasoning:
Solution probabilities at age 9
by gender
Rural sample

7 a). Type of judgment

Gender	male				female			
	Variable	Yes	No	Maybe	N	Yes	No	Maybe
SCA 301	0.829	0.029	0.143	35	0.741	0.000	0.259	27
SCA 302	0.029	0.743	0.229	35	0.000	0.741	0.259	27
SCA 303	0.486	0.086	0.429	35	0.593	0.037	0.370	27
SCA 304	0.029	0.914	0.057	35	0.111	0.741	0.148	27
SCA 305	0.657	0.143	0.200	35	0.815	0.037	0.148	27
SCA 306	0.229	0.229	0.543	35	0.074	0.259	0.667	27
SCA 307	0.143	0.543	0.314	35	0.000	0.778	0.222	27
SCA 308	0.486	0.086	0.429	35	0.444	0.037	0.519	27
SCA 309	0.914	0.000	0.086	35	0.926	0.000	0.074	27
SCA 310	0.114	0.600	0.286	35	0.037	0.630	0.333	27
SCA 311	0.029	0.857	0.114	35	0.074	0.889	0.037	27
SCA 312	0.686	0.029	0.286	35	0.667	0.000	0.333	27
SCA 313	0.829	0.114	0.057	35	0.815	0.074	0.111	27
SCA 314	0.143	0.743	0.114	35	0.185	0.556	0.259	27
SCA 315	0.629	0.057	0.314	35	0.481	0.111	0.407	27
SCA 316	0.057	0.857	0.057	35	0.037	0.889	0.074	27

7 b).Adequacy of judgment

Gender		male	female		
Variable	Task		N		N
SCB 301	Bicycle/ concrete/ AA/ CI	0.829	35	0.741	27
SCB 302	Bicycle/ concrete/ NA/ CI	0.229	35	0.259	27
SCB 303	Bicycle/ concrete/ AC/ CI	0.429	35	0.370	27
SCB 304	Bicycle/ concrete/ NC/ CI	0.886	35	0.778	27
SCB 305	Hello/ concrete/ AA/ CI	0.657	35	0.815	27
SCB 306	Ball/ concrete/ NA/ CI	0.543	35	0.704	27
SCB 307	Glasses/ con/ NC/ Co	0.543	35	0.778	27
SCB 308	Ill/ concrete/ AC/ CI	0.429	35	0.519	27
SCB 309	Wet/ concrete/ AA/ Co	0.914	35	0.926	27
SCB 310	Football/ concrete/ NA/ CI	0.286	35	0.333	27
SCB 311	Toy/ concrete/ NC/ CI	0.857	35	0.889	27
SCB 312	Cake/ concrete/ AC/ Co	0.286	35	0.333	27
SCB 313	Fire/ concrete/ AA/ Co	0.857	35	0.815	27
SCB 314	Fire/ concrete/ NA/ Co	0.114	35	0.259	27
SCB 315	Fire/ concrete/ AC/ Co	0.314	35	0.407	27
SCB 316	Fire/ concrete/ NC/ Co	0.886	35	0.926	27

Table 8
Syllogistic reasoning:
Solution probabilities at age 9
by region
Rural sample

8 a). Type of judgment

Region		North			
Variable	Task	Yes	No	Maybe	N
SCA 301	Bicycle/ concrete/ AA/ CI	0.722	0.056	0.222	18
SCA 302	Bicycle/ concrete/ NA/ CI	0.000	0.722	0.278	18
SCA 303	Bicycle/ concrete/ AC/ CI	0.500	0.056	0.444	18
SCA 304	Bicycle/ concrete/ NC/ CI	0.056	0.833	0.111	18
SCA 305	Hello/ concrete/ AA/ CI	0.722	0.222	0.056	18
SCA 306	Ball/ concrete/ NA/ CI	0.222	0.167	0.611	18
SCA 307	Glasses/ concrete/ NC/ Co	0.056	0.611	0.333	18
SCA 308	Ill/ concrete/ AC/ CI	0.389	0.056	0.556	18
SCA 309	Wet/ concrete/ AA/ Co	1.000	0.000	0.000	18
SCA 310	Football/ concrete/ NA/ CI	0.056	0.778	0.167	18
SCA 311	Toy/ concrete/ NC/ CI	0.056	0.833	0.111	18
SCA 312	Cake/ concrete/ AC/ Co	0.667	0.000	0.333	18
SCA 313	Fire/ concrete/ AA/ Co	0.778	0.111	0.111	18
SCA 314	Fire/ concrete/ NA/ Co	0.444	0.333	0.222	18
SCA 315	Fire/ concrete/ AC/ Co	0.500	0.056	0.444	18
SCA 316	Fire/ concrete/ NC/ Co	0.056	0.778	0.167	18

8 a). Type of judgment

Region	West				South			
	Variable	Yes	No	Maybe	N	Yes	No	Maybe
SCA 301	0.900	0.000	0.100	20	0.750	0.000	0.250	24
SCA 302	0.000	0.850	0.150	20	0.042	0.667	0.292	24
SCA 303	0.550	0.000	0.450	20	0.542	0.125	0.333	24
SCA 304	0.050	0.950	0.000	20	0.083	0.750	0.167	24
SCA 305	0.800	0.000	0.200	20	0.667	0.083	0.250	24
SCA 306	0.200	0.250	0.550	20	0.083	0.292	0.625	24
SCA 307	0.150	0.450	0.400	20	0.042	0.833	0.125	24
SCA 308	0.450	0.000	0.550	20	0.542	0.125	0.333	24
SCA 309	0.800	0.200	0.000	20	0.958	0.042	0.000	24
SCA 310	0.150	0.400	0.450	20	0.042	0.667	0.292	24
SCA 311	0.050	0.800	0.150	20	0.042	0.958	0.000	24
SCA 312	0.500	0.050	0.450	20	0.833	0.000	0.167	24
SCA 313	0.800	0.100	0.100	20	0.875	0.083	0.042	24
SCA 314	0.100	0.700	0.200	20	0.000	0.875	0.125	24
SCA 315	0.400	0.050	0.550	20	0.750	0.125	0.125	24
SCA 316	0.050	0.900	0.050	20	0.042	0.917	0.000	24

8 b). Adequacy of judgment

Region	North	West		South		
Variable		N		N	N	
SCB 301	0.722	18	0.900	20	0.750	24
SCB 302	0.278	18	0.150	20	0.292	24
SCB 303	0.444	18	0.450	20	0.333	24
SCB 304	0.833	18	0.950	20	0.750	24
SCB 305	0.722	18	0.800	20	0.667	24
SCB 306	0.667	18	0.550	20	0.625	24
SCB 307	0.611	18	0.450	20	0.833	24
SCB 308	0.556	18	0.550	20	0.333	24
SCB 309	1.000	18	0.800	20	0.958	24
SCB 310	0.167	18	0.450	20	0.292	24
SCB 311	0.833	18	0.800	20	0.958	24
SCB 312	0.333	18	0.450	20	0.167	24
SCB 313	0.778	18	0.800	20	0.917	24
SCB 314	0.222	18	0.200	20	0.125	24
SCB 315	0.444	18	0.550	20	0.125	24
SCB 316	0.778	18	0.950	20	0.958	24

1.7. Assessment of the twelve year old children

Urban sample

Table 9
Syllogistic reasoning:
Solution probabilities at age 12
Urban sample

9 a). Type of judgment

Variable	Task	Yes	No	Maybe	N
SCA 413	Fire/ concrete/ AA/ Co	0.864	0.055	0.082	110
SCA 414	Fire/ concrete/ NA/ Co	0.127	0.491	0.382	110
SCA 415	Fire/ concrete/ AC/ Co	0.382	0.055	0.564	110
SCA 416	Fire/ concrete/ NC/ Co	0.036	0.864	0.100	110
SCA 425	Snow/ counterfactual/ NC/ Co	0.136	0.773	0.091	110
SCA 426	Snow/ counterfactual/ NA/ Co	0.091	0.455	0.455	110
SCA 427	Snow/ counterfactual/ AC/ Co	0.627	0.100	0.273	110
SCA 428	Snow/ counterfactual/ AA/ Co	0.864	0.091	0.045	110
SCA 433	Travel/ abstract/ NA/ Co	0.118	0.418	0.464	110
SCA 434	Travel/ abstract/ NC/ Co	0.064	0.791	0.145	110
SCA 435	Travel/ abstract/ AC/ Co	0.545	0.064	0.391	110
SCA 436	Travel/ abstract/ AA/ Co	0.873	0.073	0.055	110

9 b). Adequacy of judgment

Variable	Task		N
SCB 413	Fire/ concrete/ AA/ Co	0.855	110
SCB 414	Fire/ concrete/ NA/ Co	0.382	110
SCB 415	Fire/ concrete/ AC/ Co	0.582	110
SCB 416	Fire/ concrete/ NC/ Co	0.864	110
SCB 425	Snow/ counterfactual/ NC/ Co	0.782	110
SCB 426	Snow/ counterfactual/ NA/ Co	0.436	110
SCB 427	Snow/ counterfactual/ AC/ Co	0.264	110
SCB 428	Snow/ counterfactual/ AA/ Co	0.864	110
SCB 433	Travel/ abstract/ NA/ Co	0.473	110
SCB 434	Travel/ abstract/ NC/ Co	0.791	110
SCB 435	Travel/ abstract/ AC/ Co	0.400	110
SCB 436	Travel/ abstract/ AA/ Co	0.855	110

9 c). First repetition of Premise

Variable	Task		N
SPA 413	Fire/ concrete	0.655	110
SPA 425	Snow/ counterfactual	0.764	110
SPA 433	Travel/ abstract	0.418	110

9 d). Second repetition of premise

Variable	Task		N
SPB 413	Fire/ concrete	0.845	110
SPB 425	Snow/ counterfactual	0.927	110
SPB 433	Travel/ abstract	0.718	110

9 e). Conclusion pattern

Variable	Task	CD	TD	BC	CN	N
STAGEFE 4	concrete premise	0.209	0.255	0.282	0.255	110
STAGESS 4	counterfactual premise	0.264	0.173	0.382	0.182	110
STAGEAB 4	abstract premise	0.255	0.136	0.336	0.273	110

Table 10
Syllogistic reasoning:
Solution probabilities at age 12
by teacher rating
Urban sample

10 a). Type of judgment

Teacher rating high					low			
Variable	Yes	No	Maybe	N	Yes	No	Maybe	N
SCA 413	0.906	0.019	0.075	53	0.825	0.088	0.088	57
SCA 414	0.019	0.453	0.528	53	0.228	0.526	0.246	57
SCA 415	0.302	0.698	0.000	53	0.456	0.105	0.439	57
SCA 416	0.000	0.887	0.113	53	0.070	0.842	0.088	57
SCA 425	0.000	0.906	0.094	53	0.263	0.649	0.088	57
SCA 426	0.038	0.358	0.604	53	0.140	0.544	0.316	57
SCA 427	0.585	0.038	0.377	53	0.667	0.158	0.175	57
SCA 428	0.925	0.038	0.038	53	0.807	0.140	0.053	57
SCA 433	0.019	0.377	0.604	53	0.211	0.456	0.333	57
SCA 434	0.000	0.906	0.094	53	0.123	0.684	0.193	57
SCA 435	0.472	0.000	0.528	53	0.614	0.123	0.263	57
SCA 436	0.981	0.000	0.019	53	0.772	0.140	0.088	57

10 b).Adequacy of judgment

Teacher rating high			low		
Variable	Task	N	Variable	Task	N
SCB 413	Fire/ concrete/ AA/ Co	0.906	SCB 413	Fire/ concrete/ AA/ Co	0.807
SCB 414	Fire/ concrete/ NA/ Co	0.528	SCB 414	Fire/ concrete/ NA/ Co	0.246
SCB 415	Fire/ concrete/ AC/ Co	0.698	SCB 415	Fire/ concrete/ AC/ Co	0.474
SCB 416	Fire/ concrete/ NC/ Co	0.887	SCB 416	Fire/ concrete/ NC/ Co	0.842
SCB 425	Snow/ counterfactual/ NC/ Co	0.925	SCB 425	Snow/ counterfactual/ NC/ Co	0.649
SCB 426	Snow/ counterfactual/ NA/ Co	0.585	SCB 426	Snow/ counterfactual/ NA/ Co	0.298
SCB 427	Snow/ counterfactual/ AC/ Co	0.358	SCB 427	Snow/ counterfactual/ AC/ Co	0.175
SCB 428	Snow/ counterfactual/ AA/ Co	0.906	SCB 428	Snow/ counterfactual/ AA/ Co	0.825
SCB 433	Travel/ abstract/ NA/ Co	0.604	SCB 433	Travel/ abstract/ NA/ Co	0.351
SCB 434	Travel/ abstract/ NC/ Co	0.906	SCB 434	Travel/ abstract/ NC/ Co	0.684
SCB 435	Travel/ abstract/ AC/ Co	0.528	SCB 435	Travel/ abstract/ AC/ Co	0.281
SCB 436	Travel/ abstract/ AA/ Co	0.981	SCB 436	Travel/ abstract/ AA/ Co	0.737

10 c). First repetition of Premise

Teacher rating		high	low			
Variable	Task		N		N	
SPA 413	Fire/ concrete	0.774	53	0.544	57	
SPA 425	Snow/ counterfactual	0.849	53	0.684	57	
SPA 433	Travel/ abstract	0.660	53	0.193	57	

10 d). Second repetition of premise

Teacher rating		high	low			
Variable	Task		N		N	
SPB 413	Fire/ concrete	0.943	53	0.754	57	
SPB 425	Snow/ counterfactual	1.000	53	0.860	57	
SPB 433	Travel/ abstract	0.792	53	0.649	57	

10 e). Conclusion pattern

Teacher rating		high					low				
Variable		CD	TD	BC	CN	N	CD	TD	BC	CN	N
STAGEFE	4	0.151	0.208	0.245	0.396	53	0.263	0.298	0.316	0.123	57
STAGESS	4	0.113	0.226	0.358	0.302	53	0.404	0.123	0.404	0.070	57
STAGEAB	4	0.094	0.151	0.321	0.434	53	0.404	0.123	0.351	0.123	57

Table 11
Syllogistic reasoning:
Solution probabilities at age 12
by gender
Urban sample

Section I

11 a). Type of judgment

Gender	male				female			
	Variable	Yes	No	Maybe	N	Yes	No	Maybe
SCA 413	0.847	0.102	0.051	59	0.882	0.059	0.059	51
SCA 414	0.153	0.458	0.390	59	0.098	0.529	0.373	51
SCA 415	0.356	0.068	0.576	59	0.412	0.039	0.549	51
SCA 416	0.051	0.847	0.102	59	0.020	0.882	0.098	51
SCA 425	0.136	0.797	0.068	59	0.137	0.745	0.118	51
SCA 426	0.102	0.475	0.425	59	0.078	0.431	0.490	51
SCA 427	0.644	0.102	0.254	59	0.608	0.098	0.294	51
SCA 428	0.797	0.119	0.085	59	0.941	0.059	0.000	51
SCA 433	0.136	0.424	0.441	59	0.098	0.412	0.490	51
SCA 434	0.068	0.814	0.119	59	0.059	0.765	0.176	51
SCA 435	0.559	0.085	0.356	59	0.529	0.039	0.431	51
SCA 436	0.864	0.102	0.034	59	0.882	0.039	0.078	51

11 b). Adequacy of judgment

Gender		male	female		
Variable	Task		N		N
SCB 413	Fire/ concrete/ AA/ Co	0.831	59	0.882	51
SCB 414	Fire/ concrete/ NA/ Co	0.390	59	0.373	51
SCB 415	Fire/ concrete/ AC/ Co	0.610	59	0.549	51
SCB 416	Fire/ concrete/ NC/ Co	0.847	59	0.882	51
SCB 425	Snow/ counterfactual/ NC/ Co	0.797	59	0.765	51
SCB 426	Snow/ counterfactual/ NA/ Co	0.407	59	0.471	51
SCB 427	Snow/ counterfactual/ AC/ Co	0.254	59	0.706	51
SCB 428	Snow/ counterfactual/ AA/ Co	0.797	59	0.941	51
SCB 433	Travel/ abstract/ NA/ Co	0.458	59	0.490	51
SCB 434	Travel/ abstract/ NC/ Co	0.814	59	0.765	51
SCB 435	Travel/ abstract/ AC/ Co	0.356	59	0.451	51
SCB 436	Travel/ abstract/ AA/ Co	0.864	59	0.843	51

11 c). First repetition of Premise

Gender		male	female		
Variable	Task		N		N
SPA 413	Fire/ concrete	0.610	59	0.706	51
SPA 425	Snow/ counterfactual	0.729	59	0.804	51
SPA 433	Travel/ abstract	0.356	59	0.490	51

11 d). Second repetition of premise

Gender		male	female		
Variable	Task		N		N
SPB 413	Fire/ concrete	0.864	59	0.824	51
SPB 425	Snow/ counterfactual	0.932	59	0.078	51
SPB 433	Travel/ abstract	0.661	59	0.784	51

11 e). Conclusion pattern

Gender	male					female				
	Variable	CD	TD	BC	CN	N	CD	TD	BC	CN
STAGEFE 4	0.237	0.237	0.254	0.271	59	0.176	0.275	0.314	0.235	51
STAGESS 4	0.271	0.153	0.407	0.169	59	0.255	0.196	0.353	0.196	51
STAGEAB 4	0.254	0.119	0.373	0.254	59	0.255	0.157	0.294	0.294	51

Table 12
Syllogistic reasoning:
Solution probabilities at age 12
by social class in two categories
urban sample

12 a). Type of judgment

SES	high				low			
	Variable	Yes	No	Maybe	N	Yes	No	Maybe
SCA 413	0.827	0.077	0.096	52	0.897	0.034	0.069	58
SCA 414	0.115	0.481	0.404	52	0.138	0.500	0.362	58
SCA 415	0.365	0.058	0.577	52	0.397	0.052	0.552	58
SCA 416	0.000	0.865	0.135	52	0.069	0.862	0.069	58
SCA 425	0.096	0.808	0.096	52	0.172	0.741	0.086	58
SCA 426	0.058	0.462	0.481	52	0.121	0.448	0.431	58
SCA 427	0.615	0.115	0.269	52	0.638	0.086	0.276	58
SCA 428	0.846	0.096	0.058	52	0.979	0.086	0.034	58
SCA 433	0.096	0.462	0.442	52	0.138	0.379	0.483	58
SCA 434	0.038	0.846	0.115	52	0.086	0.741	0.172	58
SCA 435	0.577	0.058	0.365	52	0.517	0.069	0.414	58
SCA 436	0.923	0.038	0.038	52	0.828	0.103	0.069	58

12 b).Adequacy of judgment

SES		high	low			
Variable	Task		N		N	
SCB 413	Fire/ concrete/ AA/ Co	0.827	52	0.879	58	
SCB 414	Fire/ concrete/ NA/ Co	0.385	52	0.379	58	
SCB 415	Fire/ concrete/ AC/ Co	0.596	52	0.569	58	
SCB 416	Fire/ concrete/ NC/ Co	0.865	52	0.862	58	
SCB 425	Snow/ counterfactual/ NC/ Co	0.808	52	0.759	58	
SCB 426	Snow/ counterfactual/ NA/ Co	0.481	52	0.397	58	
SCB 427	Snow/ counterfactual/ AC/ Co	0.269	52	0.259	58	
SCB 428	Snow/ counterfactual/ AA/ Co	0.865	52	0.862	58	
SCB 433	Travel/ abstract/ NA/ Co	0.462	52	0.483	58	
SCB 434	Travel/ abstract/ NC/ Co	0.846	52	0.741	58	
SCB 435	Travel/ abstract/ AC/ Co	0.385	52	0.414	58	
SCB 436	Travel/ abstract/ AA/ Co	0.904	52	0.810	58	

12 c). First repetition of Premise

SES		high	low			
Variable	Task		N		N	
SPA 413	Fire/ concrete	0.731	52	0.586	58	
SPA 425	Snow/ counterfactual	0.804	51	0.729	59	
SPA 433	Travel/ abstract	0.423	52	0.414	58	

12 d). Second repetition of premise

SES		high	low			
Variable	Task		N		N	
SPB 413	Fire/ concrete	0.885	52	0.810	58	
SPB 425	Snow/ counterfactual	0.962	52	0.897	58	
SPB 433	Travel/ abstract	0.712	52	0.724	58	

12 e). Conclusion pattern

SES	high					low				
	Variable	CD	TD	BC	CN	N	CD	TD	BC	CN
STAGEFE 4	0.231	0.231	0.308	0.231	52	0.190	0.276	0.259	0.276	58
STAGESS 4	0.250	0.173	0.385	0.192	52	0.276	0.172	0.379	0.172	58
STAGEAB 4	0.173	0.154	0.385	0.288	52	0.328	0.121	0.293	0.259	58

Table 13
Syllogistic reasoning:
Solution probabilities at age 12
by social class in six categories
Urban sample

13 a). Type of judgment

SES	low/low (SES 1)				low/high (SES 2)			
	Variable	Yes	No	Maybe	N	Yes	No	Maybe
SCA 413	0.867	0.000	0.133	15	0.885	0.038	0.077	26
SCA 414	0.133	0.533	0.333	15	0.192	0.538	0.269	26
SCA 415	0.333	0.067	0.600	15	0.500	0.000	0.500	26
SCA 416	0.000	1.000	0.000	15	0.154	0.808	0.038	26
SCA 425	0.133	0.800	0.067	15	0.192	0.769	0.038	26
SCA 426	0.200	0.467	0.333	15	0.077	0.423	0.500	26
SCA 427	0.800	0.067	0.133	15	0.577	0.038	0.385	26
SCA 428	1.000	0.000	0.000	15	0.885	0.115	0.000	26
SCA 433	0.133	0.400	0.467	15	0.154	0.385	0.462	26
SCA 434	0.000	0.733	0.267	15	0.115	0.731	0.154	26
SCA 435	0.467	0.067	0.467	15	0.577	0.000	0.423	26
SCA 436	0.867	0.000	0.133	15	0.808	0.115	0.077	26

13 a). Type of judgment

SES	middle/low (SES 3)				middle/high (SES 4)			
	Variable	Yes	No	Maybe	N	Yes	No	Maybe
SCA 413	0.941	0.059	0.000	17	0.789	0.053	0.158	19
SCA 414	0.059	0.412	0.529	17	0.053	0.368	0.579	19
SCA 415	0.294	0.118	0.588	17	0.263	0.000	0.737	19
SCA 416	0.000	0.824	0.176	17	0.000	0.789	0.211	19
SCA 425	0.176	0.647	0.176	17	0.105	0.789	0.105	19
SCA 426	0.118	0.471	0.412	17	0.105	0.368	0.526	19
SCA 427	0.588	0.176	0.235	17	0.632	0.105	0.265	19
SCA 428	0.765	0.118	0.118	17	0.895	0.105	0.000	19
SCA 433	0.118	0.353	0.529	17	0.105	0.421	0.474	19
SCA 434	0.118	0.765	0.118	17	0.053	0.842	0.105	19
SCA 435	0.471	0.176	0.353	17	0.474	0.158	0.368	19
SCA 436	0.824	0.176	0.000	17	0.842	0.105	0.053	19

13 a). Type of judgment

SES	high/low (SES 5)				high/high (SES 6)			
	Variable	Yes	No	Maybe	N	Yes	No	Maybe
SCA 413	0.800	0.100	0.100	20	0.923	0.077	0.000	13
SCA 414	0.200	0.550	0.250	20	0.077	0.538	0.385	13
SCA 415	0.350	0.150	0.500	20	0.538	0.000	0.462	13
SCA 416	0.000	0.850	0.150	20	0.000	0.100	0.000	13
SCA 425	0.150	0.700	0.150	20	0.000	0.100	0.000	13
SCA 426	0.000	0.400	0.600	20	0.077	0.692	0.231	13
SCA 427	0.500	0.150	0.350	20	0.769	0.077	0.154	13
SCA 428	0.800	0.150	0.050	20	0.846	0.000	0.154	13
SCA 433	0.150	0.400	0.450	20	0.000	0.615	0.385	13
SCA 434	0.050	0.800	0.150	20	0.000	0.923	0.077	13
SCA 435	0.650	0.000	0.350	20	0.615	0.000	0.385	13
SCA 436	0.950	0.000	0.050	20	1.000	0.000	0.000	13

13 b).Adequacy of judgment

SES	low/low (SES 1)		low/high (SES 2)		middle/low (SES 3)	
Variable		N		N		N
SCB 413	0.867	15	0.846	26	0.941	17
SCB 414	0.333	15	0.308	26	0.529	17
SCB 415	0.600	15	0.538	26	0.588	17
SCB 416	1.000	15	0.808	26	0.824	17
SCB 425	0.800	15	0.769	26	0.706	17
SCB 426	0.333	15	0.462	26	0.353	17
SCB 427	0.133	15	0.385	26	0.176	17
SCB 428	1.000	15	0.846	26	0.765	17
SCB 433	0.467	15	0.462	26	0.529	17
SCB 434	0.733	15	0.769	26	0.294	17
SCB 435	0.467	15	0.423	26	0.353	17
SCB 436	0.800	15	0.808	26	0.824	17

13 b).Adequacy of judgment

SES	middle/high (SES 4)		high/low (SES 5)		high/high (SES 6)	
Variable		N		N		N
SCB 413	0.789	19	0.800	20	0.923	13
SCB 414	0.579	19	0.200	20	0.385	13
SCB 415	0.737	19	0.550	20	0.462	13
SCB 416	0.789	19	0.850	20	1.000	13
SCB 425	0.789	19	0.700	20	1.000	13
SCB 426	0.526	19	0.600	20	0.231	13
SCB 427	0.263	19	0.350	20	0.154	13
SCB 428	0.895	19	0.850	20	0.846	13
SCB 433	0.474	19	0.500	20	0.385	13
SCB 434	0.842	19	0.800	20	0.923	13
SCB 435	0.421	19	0.350	20	0.385	13
SCB 436	0.789	19	0.950	20	1.000	13

13 c). First repetition of Premise

SES	low/low		low/high		middle/low	
Variable		N		N		N
SPA 413	0.667	15	0.538	26	0.588	17
SPA 425	0.867	15	0.731	26	0.529	17
SPA 433	0.533	15	0.385	26	0.353	17

13 c). First repetition of Premise

SES	middle/high		high/low		high/high	
Variable		N		N		N
SPA 413	0.789	19	0.700	20	0.692	13
SPA 425	0.789	19	0.900	20	0.769	13
SPA 433	0.421	19	0.300	20	0.615	13

13 d). Second repetition of Premise

SES	low/low		low/high		middle/low	
Variable		N		N		N
SPB 413	0.733	15	0.808	26	0.882	17
SPB 425	0.933	15	0.885	26	0.882	17
SPB 433	0.733	15	0.731	26	0.706	17

13 d). Second repetition of Premise

SES	middle/high		high/low		high/high	
Variable		N		N		N
SPB 413	0.789	19	0.900	20	1.000	13
SPB 425	0.947	19	0.950	20	1.000	13
SPB 433	0.684	19	0.700	20	0.769	13

13 e). Conclusion pattern

SES	low/low					low/high				
	Variable	CD	TD	BC	CN	N	CD	TD	BC	CN
STAGEFE 4	0.133	0.333	0.333	0.200	15	0.231	0.269	0.269	0.231	26
STAGESS 4	0.200	0.267	0.400	0.133	15	0.231	0.154	0.346	0.269	26
STAGEAB 4	0.333	0.067	0.333	0.267	15	0.346	0.077	0.308	0.269	26

13 e). Conclusion pattern

SES	middle/low					middle/high				
	Variable	CD	TD	BC	CN	N	CD	TD	BC	CN
STAGEFE 4	0.176	0.235	0.176	0.412	17	0.316	0.105	0.263	0.316	19
STAGESS 4	0.412	0.118	0.412	0.059	17	0.263	0.263	0.263	0.211	19
STAGEAB 4	0.294	0.235	0.235	0.235	17	0.211	0.053	0.368	0.368	19

13 e). Conclusion pattern

SES	high/low					high/high				
	Variable	CD	TD	BC	CN	N	CD	TD	BC	CN
STAGEFE 4	0.250	0.400	0.250	0.100	20	0.077	0.154	0.462	0.308	13
STAGESS 4	0.300	0.150	0.350	0.200	20	0.154	0.077	0.615	0.154	13
STAGEAB 4	0.200	0.250	0.350	0.200	20	0.077	0.154	0.462	0.308	13

Rural sample

Table 14
Syllogistic reasoning:
Solution probabilities at age 12
Rural sample

14 a). Type of judgment

Variable	Task	Yes	No	Maybe	N
SCA 413	Fire/ concrete/ AA/ Co	0.903	0.016	0.081	62
SCA 414	Fire/ concrete/ NA/ Co	0.180	0.574	0.230	61
SCA 415	Fire/ concrete/ AC/ Co	0.484	0.129	0.387	62
SCA 416	Fire/ concrete/ NC/ Co	0.032	0.855	0.097	62
SCA 425	Snow/ counterfactual/ NC/ Co	0.081	0.710	0.194	62
SCA 426	Snow/ counterfactual/ NA/ Co	0.113	0.565	0.323	62
SCA 427	Snow/ counterfactual/ AC/ Co	0.742	0.113	0.145	62
SCA 428	Snow/ counterfactual/ AA/ Co	0.721	0.180	0.098	61
SCA 433	Travel/ abstract/ NA/ Co	0.145	0.468	0.387	62
SCA 434	Travel/ abstract/ NC/ Co	0.129	0.645	0.226	62
SCA 435	Travel/ abstract/ AC/ Co	0.581	0.113	0.306	62
SCA 436	Travel/ abstract/ AA/ Co	0.820	0.098	0.082	61

14 b). Adequacy of judgment

Variable	Task	N
SCB 413	Fire/ concrete/ AA/ Co	0.867
SCB 414	Fire/ concrete/ NA/ Co	0.254
SCB 415	Fire/ concrete/ AC/ Co	0.426
SCB 416	Fire/ concrete/ NC/ Co	0.867
SCB 425	Snow/ counterfactual/ NC/ Co	0.721
SCB 426	Snow/ counterfactual/ NA/ Co	0.344
SCB 427	Snow/ counterfactual/ AC/ Co	0.180
SCB 428	Snow/ counterfactual/ AA/ Co	0.729
SCB 433	Travel/ abstract/ NA/ Co	0.417
SCB 434	Travel/ abstract/ NC/ Co	0.650
SCB 435	Travel/ abstract/ AC/ Co	0.831
SCB 436	Travel/ abstract/ AA/ Co	0.733

14 c). First repetition of Premise

Variable	Task		N
SPA 413	Fire/ concrete	0.733	60
SPA 425	Snow/ counterfactual	0.836	61
SPA 433	Travel/ abstract	0.500	58

14 d). Second repetition of premise

Variable	Task		N
SPB 413	Fire/ concrete	1.000	60
SPB 425	Snow/ counterfactual	0.983	61
SPB 433	Travel/ abstract	0.121	58

14 e). Conclusion pattern

Variable	Task	CD	TD	BC	CN	N
STAGEFE 4	concrete premise	0.164	0.262	0.377	0.197	61
STAGESS 4	counterfactual premise	0.393	0.115	0.443	0.049	61
STAGEAB 4	abstract premise	0.410	0.115	0.295	0.180	61

Table 15
Syllogistic reasoning:
Solution probabilities at age 12
by gender
Rural sample

15 a). Type of judgment

Gender	male				female			
	Yes	No	Maybe	N	Yes	No	Maybe	N
SCA 413	0.912	0.000	0.088	34	0.893	0.036	0.071	28
SCA 414	0.212	0.515	0.242	33	0.143	0.643	0.214	28
SCA 415	0.441	0.176	0.382	34	0.536	0.071	0.393	28
SCA 416	0.029	0.824	0.118	34	0.036	0.893	0.071	28
SCA 425	0.059	0.735	0.206	34	0.107	0.679	0.179	28
SCA 426	0.118	0.588	0.294	34	0.107	0.536	0.357	28
SCA 427	0.824	0.088	0.088	34	0.643	0.143	0.214	28
SCA 428	0.697	0.152	0.152	33	0.750	0.214	0.036	28
SCA 433	0.206	0.529	0.265	34	0.071	0.393	0.536	28
SCA 434	0.147	0.676	0.176	34	0.107	0.607	0.286	28
SCA 435	0.559	0.147	0.294	34	0.607	0.071	0.321	28
SCA 436	0.818	0.121	0.061	33	0.821	0.071	0.107	28

15 b).Adequacy of judgment

Gender		male		female	
Variable	Task		N		N
SCB 413	Fire/ concrete/ AA/ Co	0.848	33	0.889	27
SCB 414	Fire/ concrete/ NA/ Co	0.290	31	0.214	28
SCB 415	Fire/ concrete/ AC/ Co	0.455	33	0.393	28
SCB 416	Fire/ concrete/ NC/ Co	0.879	33	0.852	27
SCB 425	Snow/ counterfactual/ NC/ Co	0.727	33	0.714	28
SCB 426	Snow/ counterfactual/ NA/ Co	0.333	33	0.357	28
SCB 427	Snow/ counterfactual/ AC/ Co	0.152	33	0.214	28
SCB 428	Snow/ counterfactual/ AA/ Co	0.719	32	0.741	27
SCB 433	Travel/ abstract/ NA/ Co	0.303	33	0.556	27
SCB 434	Travel/ abstract/ NC/ Co	0.697	33	0.593	27
SCB 435	Travel/ abstract/ AC/ Co	0.364	33	0.333	27
SCB 436	Travel/ abstract/ AA/ Co	0.844	32	0.815	27

15 c). First repetition of Premise

Gender		male		female	
Variable	Task		N		N
SPA 413	Fire/ concrete	0.697	33	0.778	27
SPA 425	Snow/ counterfactual	0.794	34	0.889	27
SPA 433	Travel/ abstract	0.469	32	0.538	26

15 d). Second repetition of premise

Gender		male		female	
Variable	Task		N		N
SPB 413	Fire/ concrete	1.000	33	1.000	27
SPB 425	Snow/ counterfactual	0.971	34	1.000	27
SPB 433	Travel/ abstract	0.814	32	0.962	26

15 e). Conclusion pattern

Gender	male					female				
	Variable	CD	TD	BC	CN	N	CD	TD	BC	CN
STAGEFE 4	0.182	0.242	0.364	0.212	33	0.143	0.286	0.393	0.179	28
STAGESS 4	0.364	0.121	0.485	0.030	33	0.429	0.107	0.393	0.071	28
STAGEAB 4	0.333	0.182	0.364	0.121	33	0.500	0.036	0.214	0.250	28

Table 16
Syllogistic reasoning:
Solution probabilities at age 12
by Region
Rural sample

16 a). Type of judgment

Region		North			
Variable	Task	Yes	No	Maybe	N
SCA 413	Bicycle/ concrete/ AA/ CI	0.895	0.053	0.053	19
SCA 414	Bicycle/ concrete/ NA/ CI	0.263	0.526	0.211	19
SCA 415	Bicycle/ concrete/ AC/ CI	0.474	0.105	0.421	19
SCA 416	Bicycle/ concrete/ NC/ CI	0.053	0.842	0.105	19
SCA 425	Hello/ concrete/ AA/ CI	0.053	0.737	0.211	19
SCA 426	Ball/ concrete/ NA/ CI	0.105	0.526	0.368	19
SCA 427	Glasses/ concrete/ NC/ Co	0.684	0.105	0.211	19
SCA 428	Ill/ concrete/ AC/ CI	0.737	0.211	0.053	19
SCA 433	Wet/ concrete/ AA/ Co	0.105	0.474	0.421	19
SCA 434	Football/ concrete/ NA/ CI	0.105	0.684	0.211	19
SCA 435	Toy/ concrete/ NC/ CI	0.526	0.105	0.368	19
SCA 436	Cake/ concrete/ AC/ Co	0.895	0.000	0.105	19

16 a). Type of judgment

Region	West				South			
	Variable	Yes	No	Maybe	N	Yes	No	Maybe
SCA 413	0.842	0.000	0.158	19	0.958	0.000	0.042	24
SCA 414	0.316	0.474	0.158	19	0.000	0.696	0.304	23
SCA 415	0.368	0.211	0.421	19	0.583	0.083	0.333	24
SCA 416	0.053	0.842	0.053	19	0.000	0.875	0.125	24
SCA 425	0.211	0.474	0.263	19	0.000	0.875	0.125	24
SCA 426	0.263	0.421	0.316	19	0.000	0.708	0.292	24
SCA 427	0.684	0.211	0.105	19	0.833	0.042	0.125	24
SCA 428	0.526	0.316	0.158	19	0.870	0.043	0.087	23
SCA 433	0.211	0.474	0.316	19	0.125	0.458	0.417	24
SCA 434	0.158	0.526	0.316	19	0.125	0.708	0.167	24
SCA 435	0.579	0.158	0.263	19	0.625	0.083	0.292	24
SCA 436	0.667	0.167	0.167	18	0.875	0.125	0.000	24

16 b). Adequacy of judgment

Region	North		West		South	
	Variable	N	Variable	N	Variable	N
SCB 413	0.824	17	0.789	19	0.958	24
SCB 414	0.235	17	0.211	19	0.304	23
SCB 415	0.500	18	0.579	19	0.375	24
SCB 416	0.882	17	0.842	19	0.875	24
SCB 425	0.722	18	0.526	17	0.875	24
SCB 426	0.389	18	0.368	19	0.292	24
SCB 427	0.278	18	0.158	19	0.125	24
SCB 428	0.765	17	0.526	19	0.870	23
SCB 433	0.529	17	0.316	19	0.417	24
SCB 434	0.765	17	0.474	19	0.708	24
SCB 435	0.412	17	0.368	19	0.292	24
SCB 436	0.941	17	0.667	18	0.875	24

16 c). First repetition of Premise

Region		North		West		South	
Variable	Task		N		N		N
SPA 413	Fire/ concrete	0.824	17	0.474	19	0.875	24
SPA 425	Snow/counterfactual	1.000	18	0.526	19	0.958	24
SPA 433	Travel/ abstract	0.625	16	0.444	18	0.458	24

16 d). Second repetition of premise

Region		North		West		South	
Variable	Task		N		N		N
SPB 413	Fire/ concr	1.000	17	1.000	19	1.000	24
SPB 425	Snow/cfct.	0.944	18	1.000	19	1.000	24
SPB 433	Travel/ ab.	0.875	16	0.889	18	0.875	24

16 e). Conclusion pattern

Region		North				
Variable	Task	CD	TD	BC	CN	N
STAGEFE 4	concrete premise	0.211	0.211	0.368	0.211	19
STAGESS 4	counterfactual premise	0.368	0.053	0.421	0.158	19
STAGEAB 4	abstract premise	0.316	0.105	0.316	0.263	19

16 e). Conclusion pattern

Region		West				South					
Variable		CD	TD	BC	CN	N	CD	TD	BC	CN	N
STAGEFE 4		0.211	0.368	0.263	0.158	19	0.087	0.217	0.478	0.217	23
STAGESS 4		0.684	0.053	0.263	0.000	19	0.174	0.217	0.609	0.000	23
STAGEAB 4		0.667	0.000	0.278	0.056	18	0.292	0.208	0.292	0.208	24

1.8. Assessment of the fifteen year old children

Urban sample

Table 17
Syllogistic reasoning:
Solution probabilities at age 15
urban sample

17 a). Type of judgment

Variable	Task	Yes	No	Maybe	N
SCA 513	Fire/ concrete/ AA/ Co	0.916	0.028	0.056	107
SCA 514	Fire/ concrete/ NA/ Co	0.103	0.449	0.449	107
SCA 515	Fire/ concrete/ AC/ Co	0.358	0.028	0.613	106
SCA 516	Fire/ concrete/ NC/ Co	0.009	0.897	0.093	107
SCA 525	Snow/ counterfactual/ NC/ Co	0.009	0.850	0.140	107
SCA 526	Snow/ counterfactual/ NA/ Co	0.047	0.383	0.570	107
SCA 527	Snow/ counterfactual/ AC/ Co	0.542	0.047	0.411	107
SCA 528	Snow/ counterfactual/ AA/ Co	0.888	0.028	0.084	107
SCA 533	Travel/ abstract/ NA/ Co	0.112	0.467	0.421	107
SCA 534	Travel/ abstract/ NC/ Co	0.093	0.822	0.084	107
SCA 535	Travel/ abstract/ AC/ Co	0.458	0.093	0.449	107
SCA 536	Travel/ abstract/ AA/ Co	0.850	0.065	0.084	107

17 b). Adequacy of judgment

Variable	Task	in	N
SCB 513	Fire/ concrete/ AA/ Co	0.916	107
SCB 514	Fire/ concrete/ NA/ Co	0.449	107
SCB 515	Fire/ concrete/ AC/ Co	0.623	106
SCB 516	Fire/ concrete/ NC/ Co	0.888	107
SCB 525	Snow/ counterfactual/ NC/ Co	0.841	107
SCB 526	Snow/ counterfactual/ NA/ Co	0.589	107
SCB 527	Snow/ counterfactual/ AC/ Co	0.421	107
SCB 528	Snow/ counterfactual/ AA/ Co	0.888	107
SCB 533	Travel/ abstract/ NA/ Co	0.421	107
SCB 534	Travel/ abstract/ NC/ Co	0.822	107
SCB 535	Travel/ abstract/ AC/ Co	0.453	106
SCB 536	Travel/ abstract/ AA/ Co	0.868	106

17 c). First repetition of Premise

Variable	Task		N
SPA 513	Fire/ concrete	0.943	106
SPA 525	Snow/ counterfactual	0.962	106
SPA 533	Travel/ abstract	0.638	105

17 d). Second repetition of premise

Variable	Task		N
SPB 513	Fire/ concrete	0.001	105
SPB 525	Snow/ counterfactual	1.000	104
SPB 533	Travel/ abstract	0.881	101

17 e). Conclusion pattern

Variable	Task	CD	TD	BC	CN	N
STAGEFE 5	concrete premise	0.113	0.170	0.311	0.406	106
STAGESS 5	counterfactual premise	0.178	0.187	0.336	0.296	107
STAGEAB 5	abstract premise	0.215	0.103	0.364	0.318	107

Table 18
Syllogistic reasoning:
Solution probabilities at age 15
by teacher rating
Urban sample

18 a). Type of judgment

Variable	Teacher rating high			N	Teacher rating low			N
	Yes	No	Maybe		Yes	No	Maybe	
SCA 513	0.962	0.000	0.038	53	0.870	0.056	0.074	54
SCA 514	0.057	0.302	0.642	53	0.148	0.593	0.259	54
SCA 515	0.208	0.000	0.792	53	0.509	0.057	0.434	53
SCA 516	0.000	0.981	0.019	53	0.019	0.815	0.167	54
SCA 525	0.000	0.962	0.038	53	0.019	0.741	0.241	54
SCA 526	0.000	0.245	0.755	53	0.093	0.519	0.389	54
SCA 527	0.434	0.000	0.566	53	0.648	0.093	0.259	54
SCA 528	0.962	0.000	0.038	53	0.815	0.056	0.130	54
SCA 533	0.000	0.321	0.679	53	0.222	0.611	0.167	54
SCA 534	0.038	0.925	0.038	53	0.148	0.722	0.130	54
SCA 535	0.283	0.019	0.698	53	0.630	0.167	0.204	54
SCA 536	0.962	0.000	0.038	53	0.741	0.130	0.130	54

18 b).Adequacy of judgment

Teacher rating		high	low		
Variable	Task		N		N
SCB 513	Fire/ concrete/ AA/ Co	0.962	53	0.870	54
SCB 514	Fire/ concrete/ NA/ Co	0.642	53	0.259	54
SCB 515	Fire/ concrete/ AC/ Co	0.792	53	0.453	53
SCB 516	Fire/ concrete/ NC/ Co	0.962	53	0.815	54
SCB 525	Snow/ counterfactual/ NC/ Co	0.943	53	0.741	54
SCB 526	Snow/ counterfactual/ NA/ Co	0.755	53	0.426	54
SCB 527	Snow/ counterfactual/ AC/ Co	0.585	53	0.259	54
SCB 528	Snow/ counterfactual/ AA/ Co	0.962	53	0.815	54
SCB 533	Travel/ abstract/ NA/ Co	0.679	53	0.167	54
SCB 534	Travel/ abstract/ NC/ Co	0.925	53	0.736	53
SCB 535	Travel/ abstract/ AC/ Co	0.698	53	0.208	53
SCB 536	Travel/ abstract/ AA/ Co	0.981	53	0.755	53

18 c). First repetition of Premise

Teacher rating		high	low		
Variable	Task		N		N
SPA 513	Fire/ concrete	0.981	53	0.906	53
SPA 525	Snow/ counterfactual	1.000	52	0.926	54
SPA 533	Travel/ abstract	0.784	51	0.500	54

18 d). Second repetition of premise

Teacher rating		high	low		
Variable	Task		N		N
SPB 513	Fire/ concrete	1.000	52	0.981	53
SPB 525	Snow/ counterfactual	1.000	51	1.000	53
SPB 533	Travel/ abstract	0.979	48	0.792	53

18 e). Conclusion pattern

Teacher rating	high					low				
	Variable	cntrd	trsdc	bend	end	N	cntrd	trsdc	bend	end
STAGEFE 5	0.038	0.151	0.189	0.623	53	0.189	0.189	0.434	0.189	53
STAGESS 5	0.057	0.170	0.245	0.528	53	0.296	0.204	0.426	0.074	54
STAGEAB 5	0.094	0.094	0.226	0.585	53	0.333	0.111	0.500	0.056	54

Table 19
Syllogistic reasoning:
Solution probabilities at age 15
by gender
Urban sample

19 a). Type of judgment

Gender	male				female			
	Variable	Yes	No	Maybe	N	Yes	No	Maybe
SCA 513	0.912	0.018	0.070	57	0.920	0.040	0.040	50
SCA 514	0.123	0.439	0.439	57	0.080	0.460	0.460	50
SCA 515	0.368	0.018	0.614	57	0.347	0.041	0.612	49
SCA 516	0.000	0.8795	0.105	57	0.020	0.900	0.080	50
SCA 525	0.000	0.807	0.193	57	0.020	0.900	0.080	50
SCA 526	0.035	0.404	0.561	57	0.060	0.360	0.580	50
SCA 527	0.491	0.053	0.456	57	0.600	0.040	0.360	50
SCA 528	0.860	0.018	0.123	57	0.920	0.040	0.040	50
SCA 533	0.105	0.456	0.439	57	0.120	0.480	0.400	50
SCA 534	0.070	0.807	0.123	57	0.120	0.840	0.040	50
SCA 535	0.474	0.105	0.421	57	0.440	0.080	0.480	50
SCA 536	0.825	0.070	0.105	57	0.880	0.060	0.060	50

19 b).Adequacy of judgment

Gender		male	female	
Variable	Task		N	N
SCB 513	Fire/ concrete/ AA/ Co	0.912	57	50
SCB 514	Fire/ concrete/ NA/ Co	0.439	57	50
SCB 515	Fire/ concrete/ AC/ Co	0.632	57	49
SCB 516	Fire/ concrete/ NC/ Co	0.895	57	50
SCB 525	Snow/ counterfactual/ NC/ Co	0.789	57	50
SCB 526	Snow/ counterfactual/ NA/ Co	0.579	57	50
SCB 527	Snow/ counterfactual/ AC/ Co	0.456	57	50
SCB 528	Snow/ counterfactual/ AA/ Co	0.860	57	50
SCB 533	Travel/ abstract/ NA/ Co	0.439	57	50
SCB 534	Travel/ abstract/ NC/ Co	0.821	56	50
SCB 535	Travel/ abstract/ AC/ Co	0.429	56	50
SCB 536	Travel/ abstract/ AA/ Co	0.857	56	50

19 c). First repetition of Premise

Gender		male	female	
Variable	Task		N	N
SPA 513	Fire/ concrete	0.964	56	50
SPA 525	Snow/ counterfactual	0.947	57	49
SPA 533	Travel/ abstract	0.636	55	50

19 d). Second repetition of premise

Gender		male	female	
Variable	Task		N	N
SPA 513	Fire/ concrete	1.000	56	49
SPA 525	Snow/ counterfactual	1.000	56	48
SPA 533	Travel/ abstract	0.830	53	48

19 e). Conclusion pattern

Gender	male					female				
	Variable	CD	TD	BC	CN	N	CD	TD	BC	CN
STAGEFE 5	0.105	0.140	0.333	0.421	57	0.122	0.204	0.286	0.388	49
STAGESS 5	0.211	0.158	0.333	0.298	57	0.140	0.220	0.340	0.300	50
STAGEAB 5	0.246	0.053	0.368	0.333	57	0.180	0.160	0.360	0.300	50

Table 20
Syllogistic reasoning:
Solution probabilities at age 15
by social class in two categories
Urban sample

20 a). Type of judgment

SES	high				low			
	Variable	Yes	No	Maybe	N	Yes	No	Maybe
SCA 513	0.902	0.059	0.039	51	0.929	0.000	0.071	56
SCA 514	0.118	0.412	0.471	51	0.089	0.482	0.429	56
SCA 515	0.275	0.059	0.667	51	0.436	0.000	0.564	55
SCA 516	0.000	0.882	0.118	51	0.018	0.911	0.071	56
SCA 525	0.000	0.843	0.157	51	0.018	0.857	0.125	56
SCA 526	0.059	0.333	0.608	51	0.036	0.429	0.536	56
SCA 527	0.490	0.000	0.510	51	0.589	0.089	0.321	56
SCA 528	0.922	0.000	0.078	51	0.857	0.054	0.089	56
SCA 533	0.098	0.412	0.490	51	0.125	0.518	0.357	56
SCA 534	0.078	0.843	0.078	51	0.107	0.804	0.089	56
SCA 535	0.392	0.078	0.529	51	0.518	0.107	0.375	56
SCA 536	0.882	0.020	0.098	51	0.821	0.107	0.071	56

20 b). Adequacy of judgment

SES		high	low		
Variable	Task		N		N
SCB 513	Fire/ concrete/ AA/ Co	0.902	51	0.929	56
SCB 514	Fire/ concrete/ NA/ Co	0.471	51	0.429	56
SCB 515	Fire/ concrete/ AC/ Co	0.667	51	0.582	55
SCB 516	Fire/ concrete/ NC/ Co	0.882	51	0.893	56
SCB 525	Snow/ counterfactual/ NC/ Co	0.824	51	0.857	56
SCB 526	Snow/ counterfactual/ NA/ Co	0.627	51	0.554	56
SCB 527	Snow/ counterfactual/ AC/ Co	0.510	51	0.339	56
SCB 528	Snow/ counterfactual/ AA/ Co	0.982	51	0.857	56
SCB 533	Travel/ abstract/ NA/ Co	0.490	51	0.357	56
SCB 534	Travel/ abstract/ NC/ Co	0.843	51	0.818	55
SCB 535	Travel/ abstract/ AC/ Co	0.529	51	0.382	55
SCB 536	Travel/ abstract/ AA/ Co	0.882	51	0.855	55

20 c). First repetition of Premise

SES		high	low		
Variable	Task		N		N
SPA 513	Fire/ concrete	0.940	50	0.946	56
SPA 525	Snow/ counterfactual	0.980	50	0.946	56
SPA 533	Travel/ abstract	0.720	50	0.564	55

20 d). Second repetition of premise

SES		high	low		
Variable	Task		N		N
SPB 513	Fire/ concrete	1.000	49	0.982	56
SPB 525	Snow/ counterfactual	0.980	49	0.982	55
SPB 533	Travel/ abstract	0.939	49	0.827	52

20 e). Conclusion pattern

SES	low					high				
	Variable	CD	TD	BC	CN	N	CD	TD	BC	CN
STAGEFE 5	0.091	0.145	0.400	0.364	55	0.137	0.196	0.216	0.451	51
STAGESS 5	0.196	0.232	0.357	0.214	56	0.157	0.137	0.314	0.392	51
STAGEAB 5	0.250	0.107	0.411	0.232	56	0.176	0.098	0.314	0.412	51

Table 21
Syllogistic reasoning:
Solution probabilities at age 15
by social class in six categories
Urban sample

21 a). Type of judgment

SES	low/low (SES 1)				low/high (SES 2)			
	Variable	Yes	No	Maybe	N	Yes	No	Maybe
SCA 513	0.786	0.000	0.214	14	0.960	0.000	0.040	25
SCA 514	0.071	0.571	0.357	14	0.160	0.400	0.440	25
SCA 515	0.429	0.000	0.571	14	0.360	0.000	0.640	25
SCA 516	0.000	0.786	0.214	14	0.000	0.960	0.040	25
SCA 525	0.000	0.786	0.214	14	0.000	0.880	0.120	25
SCA 526	0.000	0.357	0.643	14	0.040	0.440	0.520	25
SCA 527	0.714	0.071	0.214	14	0.560	0.080	0.360	25
SCA 528	0.786	0.071	0.143	14	0.880	0.040	0.080	25
SCA 533	0.143	0.643	0.214	14	0.120	0.520	0.360	25
SCA 534	0.071	0.714	0.214	14	0.080	0.840	0.080	25
SCA 535	0.500	0.143	0.357	14	0.560	0.120	0.320	25
SCA 536	0.786	0.071	0.143	14	0.880	0.080	0.040	25

21 a). Type of judgment

SES	middle/low (SES 3)				middle/high (SES 4)				
	Variable	Yes	No	Maybe	N	Yes	No	Maybe	N
SCA 513	1.000	0.000	0.000	0.000	17	1.000	0.000	0.000	18
SCA 514	0.000	0.529	0.471	0.471	17	0.056	0.444	0.500	18
SCA 515	0.563	0.000	0.438	0.438	16	0.278	0.000	0.722	18
SCA 516	0.059	0.941	0.000	0.000	17	0.000	0.889	0.111	18
SCA 525	0.059	0.882	0.059	0.059	17	0.000	0.778	0.222	18
SCA 526	0.059	0.471	0.471	0.471	17	0.167	0.278	0.556	18
SCA 527	0.529	0.118	0.353	0.353	17	0.5090	0.000	0.500	18
SCA 528	0.882	0.059	0.059	0.059	17	0.889	0.000	0.111	18
SCA 533	0.118	0.412	0.471	0.471	17	0.111	0.444	0.444	18
SCA 534	0.176	0.824	0.000	0.000	17	0.111	0.889	0.000	18
SCA 535	0.471	0.059	0.471	0.471	17	0.389	0.111	0.500	18
SCA 536	0.765	0.176	0.059	0.059	17	0.833	0.056	0.111	18

21 a). Type of judgment

SES	high/low (SES 5)				high/high (SES 6)			
	Variable	Yes	No	Maybe	N	Yes	No	Maybe
SCA 513	0.850	0.100	0.050	20	0.846	0.077	0.077	13
SCA 514	0.100	0.350	0.550	20	0.231	0.462	0.308	13
SCA 515	0.250	0.100	0.650	20	0.308	0.077	0.615	13
SCA 516	0.000	0.900	0.100	20	0.000	0.846	0.154	13
SCA 525	0.000	0.850	0.150	20	0.000	0.923	0.077	13
SCA 526	0.000	0.250	0.750	20	0.000	0.538	0.462	13
SCA 527	0.450	0.000	0.550	20	0.538	0.000	0.462	13
SCA 528	0.900	0.000	0.100	20	1.000	0.000	0.000	13
SCA 533	0.050	0.300	0.650	20	0.154	0.538	0.308	13
SCA 534	0.000	0.850	0.150	20	0.154	0.769	0.077	13
SCA 535	0.400	0.000	0.600	20	0.385	0.154	0.462	13
SCA 536	0.900	0.000	0.100	20	0.923	0.000	0.077	13

21 b).Adequacy of judgment

SES	low/low (SES 1)		low/high (SES 2)		middle/low (SES 3)	
Variable		N		N		N
SCB 513	0.786	14	0.960	25	1.000	17
SCB 514	0.357	14	0.440	25	0.471	17
SCB 515	0.643	14	0.640	25	0.438	16
SCB 516	0.786	14	0.960	25	0.882	17
SCB 525	0.786	14	0.880	25	0.882	17
SCB 526	0.643	14	0.560	25	0.471	17
SCB 527	0.286	14	0.360	25	0.353	17
SCB 528	0.786	14	0.880	25	0.882	17
SCB 533	0.214	14	0.360	25	0.471	17
SCB 534	0.714	14	0.875	24	0.824	17
SCB 535	0.357	14	0.333	24	0.471	17
SCB 536	0.786	14	0.917	24	0.824	17

21 b).Adequacy of judgment

SES	middle/high (SES 4)		high/low (SES 5)		high/high (SES 6)	
Variable		N		N		N
SCB 513	1.000	18	0.850	20	0.846	13
SCB 514	0.500	18	0.550	20	0.308	13
SCB 515	0.722	18	0.650	20	0.615	13
SCB 516	0.889	18	0.900	20	0.846	13
SCB 525	0.722	18	0.850	20	0.923	13
SCB 526	0.611	18	0.750	20	0.462	13
SCB 527	0.500	18	0.550	20	0.462	13
SCB 528	0.889	18	0.900	20	1.000	13
SCB 533	0.444	18	0.650	20	0.308	13
SCB 534	0.889	18	0.850	20	0.769	13
SCB 535	0.500	18	0.600	20	0.462	13
SCB 536	0.833	18	0.900	20	0.923	13

21 c). First repetition of Premise

SES	low/low (SES 1)		low/high (SES 2)		middle/low (SES 3)	
Variable		N		N		N
SPA 513	1.000	14	0.960	25	0.882	17
SPA 525	1.000	14	0.880	25	1.000	17
SPA 533	0.571	14	0.583	24	0.529	17

21 c). First repetition of Premise

SES	middle/high (SES 4)		high/low (SES 5)		high/high (SES 6)	
Variable		N		N		N
SPA 513	1.000	18	0.947	19	0.846	13
SPA 525	1.000	18	0.947	19	1.000	13
SPA 533	0.500	18	0.900	20	0.750	12

21 d). Second repetition of Premise

SES	low/low (SES 1)			low/high (SES 2)			middle/low (SES 3)		
Variable		N			N			N	
SPB 513	1.000	14		1.000	25		0.059	17	
SPB 525	1.000	14		1.000	24		1.000	17	
SPB 533	0.923	13		0.708	24		0.933	15	

21 d). Second repetition of Premise

SES	middle/high (SES 4)			high/low (SES 5)			high/high (SES 6)		
Variable		N			N			N	
SPB 513	1.000	18		1.000	18		1.000	18	
SPB 525	1.000	18		1.000	18		1.000	13	
SPB 533	0.899	18		0.947	19		1.000	12	

21 e). Conclusion pattern

SES	low/low (SES 1)					low/high (SES 2)				
Variable	CD	TD	BC	CN	N	CD	TD	BC	CN	N
STAGEFE 5	0.286	0.143	0.357	0.214	14	0.040	0.240	0.320	0.400	25
STAGESS 5	0.286	0.286	0.357	0.071	14	0.160	0.240	0.360	0.240	25
STAGEAB 5	0.357	0.214	0.357	0.071	14	0.160	0.080	0.480	0.280	25

21 e). Conclusion pattern

SES	middle/low (SES 3)					middle/high (SES 4)				
Variable	CD	TD	BC	CN	N	CD	TD	BC	CN	N
STAGEFE 5	0.000	0.000	0.563	0.438	16	0.111	0.167	0.222	0.500	18
STAGESS 5	0.176	0.176	0.353	0.294	17	0.222	0.278	0.222	0.278	18
STAGEAB 5	0.294	0.059	0.353	0.294	17	0.167	0.056	0.333	0.444	18

21 e). Conclusion pattern

SES	high/low (SES 5)					high/high (SES 6)				
	Variable	CD	TD	BC	CN	N	CD	TD	BC	CN
STAGEFE 5	0.150	0.200	0.150	0.500	20	0.154	0.231	0.308	0.308	13
STAGESS 5	0.150	0.100	0.250	0.500	20	0.077	0.000	0.538	0.385	13
STAGEAB 5	0.150	0.100	0.300	0.450	20	0.231	0.154	0.308	0.308	13

Rural sample

Table 22
Syllogistic reasoning:
Solution probabilities at age 12
Rural sample

22 a). Type of judgment

Variable	Task	Yes	No	Maybe	N
SCA 513	Fire/ concrete/ AA/ Co	0.918	0.033	0.049	61
SCA 514	Fire/ concrete/ NA/ Co	0.115	0.623	0.262	61
SCA 515	Fire/ concrete/ AC/ Co	0.459	0.033	0.508	61
SCA 516	Fire/ concrete/ NC/ Co	0.016	0.918	0.066	61
SCA 525	Snow/ counterfactual/ NC/ Co	0.066	0.803	0.131	61
SCA 526	Snow/ counterfactual/ NA/ Co	0.082	0.459	0.459	61
SCA 527	Snow/ counterfactual/ AC/ Co	0.656	0.030	0.311	61
SCA 528	Snow/ counterfactual/ AA/ Co	0.852	0.033	0.115	61
SCA 533	Travel/ abstract/ NA/ Co	0.131	0.426	0.443	61
SCA 534	Travel/ abstract/ NC/ Co	0.148	0.721	0.131	61
SCA 535	Travel/ abstract/ AC/ Co	0.541	0.115	0.344	61
SCA 536	Travel/ abstract/ AA/ Co	0.787	0.066	0.148	61

22 b). Adequacy of judgment

Variable	Task	N
SCB 513	Fire/ concrete/ AA/ Co	0.918
SCB 514	Fire/ concrete/ NA/ Co	0.262
SCB 515	Fire/ concrete/ AC/ Co	0.508
SCB 516	Fire/ concrete/ NC/ Co	0.902
SCB 525	Snow/ counterfactual/ NC/ Co	0.803
SCB 526	Snow/ counterfactual/ NA/ Co	0.459
SCB 527	Snow/ counterfactual/ AC/ Co	0.311
SCB 528	Snow/ counterfactual/ AA/ Co	0.852
SCB 533	Travel/ abstract/ NA/ Co	0.443
SCB 534	Travel/ abstract/ NC/ Co	0.738
SCB 535	Travel/ abstract/ AC/ Co	0.361
SCB 536	Travel/ abstract/ AA/ Co	0.787

22 c). First repetition of Premise

Variable	Task		N
SPA 513	Fire/ concrete	0.820	61
SPA 525	Snow/ counterfactual	0.869	61
SPA 533	Travel/ abstract	0.656	61

22 d). Second repetition of premise

Variable	Task		N
SPB 513	Fire/ concrete	0.967	61
SPB 525	Snow/ counterfactual	0.984	61
SPB 533	Travel/ abstract	0.902	61

22 e). Conclusion pattern

Variable	Task	CD	TD	BC	CN	N
STAGEFE 5	concrete premise	0.131	0.197	0.443	0.230	61
STAGESS 5	counterfactual premise	0.246	0.164	0.393	0.197	61
STAGEAB 5	abstract premise	0.311	0.148	0.311	0.230	61

Table 23
Syllogistic reasoning:
Solution probabilities at age 15
by gender
Rural sample

23 a). Type of judgment

Gender	male				female			
	Variable	Yes	No	Maybe	N	Yes	No	Maybe
SCA 513	0.879	0.061	0.061	33	0.964	0.000	0.036	28
SCA 514	0.091	0.667	0.242	33	0.143	0.571	0.286	28
SCA 515	0.515	0.000	0.485	33	0.393	0.071	0.536	28
SCA 516	0.030	0.879	0.091	33	0.000	0.964	0.036	28
SCA 525	0.091	0.697	0.212	33	0.036	0.929	0.036	28
SCA 526	0.121	0.364	0.515	33	0.036	0.571	0.393	28
SCA 527	0.545	0.061	0.394	33	0.786	0.000	0.214	28
SCA 528	0.788	0.061	0.152	33	0.929	0.000	0.071	28
SCA 533	0.121	0.364	0.515	33	0.143	0.500	0.357	28
SCA 534	0.121	0.697	0.182	33	0.179	0.750	0.071	28
SCA 535	0.545	0.091	0.364	33	0.536	0.143	0.321	28
SCA 536	0.758	0.030	0.212	33	0.821	0.107	0.071	28

23 b).Adequacy of judgment

Gender	male			female	
	Variable	Task	N	N	N
SCB 513	Fire/ concrete/ AA/ Co	0.879	33	0.964	28
SCB 514	Fire/ concrete/ NA/ Co	0.242	33	0.286	28
SCB 515	Fire/ concrete/ AC/ Co	0.485	33	0.536	28
SCB 516	Fire/ concrete/ NC/ Co	0.879	33	0.929	28
SCB 525	Snow/ counterfactual/ NC/ Co	0.697	33	0.929	28
SCB 526	Snow/ counterfactual/ NA/ Co	0.515	33	0.393	28
SCB 527	Snow/ counterfactual/ AC/ Co	0.394	33	0.214	28
SCB 528	Snow/ counterfactual/ AA/ Co	0.788	33	0.929	28
SCB 533	Travel/ abstract/ NA/ Co	0.515	33	0.357	28
SCB 534	Travel/ abstract/ NC/ Co	0.697	33	0.786	28
SCB 535	Travel/ abstract/ AC/ Co	0.394	33	0.321	28
SCB 536	Travel/ abstract/ AA/ Co	0.758	33	0.821	28

23 c). First repetition of Premise

Gender		male			female		
Variable	Task		N		N		N
SPA 513	Fire/ concrete	0.879	33	0.750	28		
SPA 525	Snow/ counterfactual	0.879	33	0.857	28		
SPA 533	Travel/ abstract	0.697	33	0.607	28		

23 d). Second repetition of premise

Gender		male			female		
Variable	Task		N		N		N
SPB 513	Fire/ concrete	0.939	33	1.000	28		
SPB 525	Snow/ counterfactual	1.000	33	0.964	28		
SPB 533	Travel/ abstract	0.939	33	0.857	28		

23 e). Conclusion pattern

Gender		male					female				
Variable		CD	TD	BC	CN	N	CD	TD	BC	CN	N
STAGEFE 5		0.182	0.152	0.485	0.182	33	0.071	0.250	0.393	0.286	28
STAGESS 5		0.364	0.212	0.242	0.182	33	0.107	0.107	0.571	0.214	28
STAGEAB 5		0.364	0.121	0.273	0.242	33	0.250	0.179	0.357	0.214	28

Table 24
Syllogistic reasoning:
Solution probabilities at age 15
by region
Rural sample

24 a). Type of judgment

Region		North			
Variable	Task	Yes	No	Maybe	N
SCA 513	Bicycle/ concrete/ AA/ CI	0.947	0.000	0.053	18
SCA 514	Bicycle/ concrete/ NA/ CI	0.211	0.421	0.368	19
SCA 515	Bicycle/ concrete/ AC/ CI	0.263	0.053	0.684	19
SCA 516	Bicycle/ concrete/ NC/ CI	0.000	0.842	0.158	19
SCA 525	Hello/ concrete/ AA/ CI	0.000	0.895	0.105	19
SCA 526	Ball/ concrete/ NA/ CI	0.053	0.474	0.474	19
SCA 527	Glasses/ concrete/ NC/ Co	0.579	0.000	0.421	19
SCA 528	Ill/ concrete/ AC/ CI	0.895	0.000	0.105	19
SCA 533	Wet/ concrete/ AA/ Co	0.105	0.421	0.474	19
SCA 534	Football/ concrete/ NA/ CI	0.105	0.789	0.105	19
SCA 535	Toy/ concrete/ NC/ CI	0.474	0.053	0.474	19
SCA 536	Cake/ concrete/ AC/ Co	0.842	0.053	0.105	19

24 a). Type of judgment

Region		West				South			
Variable	Yes	No	Maybe	N	Yes	No	Maybe	N	
SCA 513	0.944	0.056	0.000	18	0.875	0.042	0.083	24	
SCA 514	0.000	0.722	0.278	18	0.125	0.708	0.167	24	
SCA 515	0.556	0.056	0.389	18	0.542	0.000	0.458	24	
SCA 516	0.000	0.944	0.056	18	0.042	0.958	0.000	24	
SCA 525	0.222	0.667	0.111	18	0.000	0.833	0.167	24	
SCA 526	0.222	0.389	0.389	18	0.000	0.500	0.500	24	
SCA 527	0.778	0.056	0.167	18	0.625	0.042	0.333	24	
SCA 528	0.778	0.056	0.167	18	0.875	0.042	0.083	24	
SCA 533	0.167	0.444	0.389	18	0.125	0.417	0.458	24	
SCA 534	0.222	0.722	0.056	18	0.125	0.667	0.208	24	
SCA 535	0.667	0.222	0.111	18	0.500	0.083	0.417	24	
SCA 536	0.778	0.111	0.111	18	0.750	0.042	0.208	24	

24 b). Adequacy of judgment

Region	North		West		South	
Variable		N		N		N
SCB 513	0.947	19	0.944	18	0.875	24
SCB 514	0.368	19	0.278	18	0.167	24
SCB 515	0.684	19	0.389	18	0.458	24
SCB 516	0.789	19	0.944	18	0.958	24
SCB 525	0.895	19	0.667	18	0.833	24
SCB 526	0.474	19	0.389	18	0.500	24
SCB 527	0.421	19	0.167	18	0.333	24
SCB 528	0.895	19	0.778	18	0.875	24
SCB 533	0.474	19	0.389	18	0.458	24
SCB 534	0.842	19	0.722	18	0.667	24
SCB 535	0.526	19	0.111	18	0.417	24
SCB 536	0.842	19	0.778	18	0.750	24

24 c). First repetition of Premise

Region		North		West		South	
Variable	Task		N		N		N
SPA 513	Fire/ concr	0.842	19	0.667	18	0.917	24
SPA 525	Snow/cfct.	0.842	19	0.889	18	0.875	24
SPA 533	Travel/ ab.	0.684	19	0.556	18	0.708	24

24 d). Second repetition of premise

Region		North		West		South	
Variable	Task		N		N		N
SPB 513	Fire/ concr	1.000	19	0.944	18	0.958	24
SPB 525	Snow/cfct.	1.000	19	0.944	18	1.000	24
SPB 533	Travel/ ab.	0.947	19	0.167	18	0.917	24

24 e). Conclusion pattern

Region		North				
Variable	Task	CD	TD	BC	CD	N
STAGEFE 5	concrete premise	0.158	0.211	0.263	0.368	19
STAGESS 5	counterfactual premise	0.105	0.158	0.421	0.316	19
STAGEAB 5	abstract premise	0.211	0.211	0.316	0.263	19

24 e). Conclusion pattern

Region		West				South					
Variable		CD	TD	BC	CD	N	CD	TD	BC	CD	N
STAGEFE 5		0.111	0.222	0.500	0.167	18	0.125	0.167	0.542	0.167	24
STAGESS 5		0.444	0.167	0.278	0.111	18	0.208	0.167	0.458	0.167	24
STAGEAB 5		0.389	0.167	0.333	0.111	18	0.333	0.083	0.292	0.292	24

1.9. Assessment of the seventeen year old children

Urban sample

Table 25
Syllogistic reasoning:
Solution probabilities at age 17
Urban sample

25 a). Type of judgment

Variable	Task	Yes	No	Maybe	N
SCA 613	Fire/ concrete/ AA/ Co	0.966	0.017	0.017	59
SCA 614	Fire/ concrete/ NA/ Co	0.051	0.305	0.644	59
SCA 615	Fire/ concrete/ AC/ Co	0.220	0.017	0.763	59
SCA 616	Fire/ concrete/ NC/ Co	0.000	0.966	0.034	59
SCA 625	Snow/ counterfactual/ NC/ Co	0.000	0.915	0.085	59
SCA 626	Snow/ counterfactual/ NA/ Co	0.034	0.305	0.661	59
SCA 627	Snow/ counterfactual/ AC/ Co	0.407	0.017	0.576	59
SCA 628	Snow/ counterfactual/ AA/ Co	0.915	0.017	0.068	59
SCA 633	Travel/ abstract/ NA/ Co	0.034	0.322	0.644	59
SCA 634	Travel/ abstract/ NC/ Co	0.017	0.797	0.186	59
SCA 635	Travel/ abstract/ AC/ Co	0.310	0.034	0.655	58
SCA 636	Travel/ abstract/ AA/ Co	0.915	0.017	0.068	59

25 b). Adequacy of judgment

Variable	Task	N
SCB 613	Fire/ concrete/ AA/ Co	0.966
SCB 614	Fire/ concrete/ NA/ Co	0.627
SCB 615	Fire/ concrete/ AC/ Co	0.763
SCB 616	Fire/ concrete/ NC/ Co	0.966
SCB 625	Snow/ counterfactual/ NC/ Co	0.915
SCB 626	Snow/ counterfactual/ NA/ Co	0.661
SCB 627	Snow/ counterfactual/ AC/ Co	0.576
SCB 628	Snow/ counterfactual/ AA/ Co	0.915
SCB 633	Travel/ abstract/ NA/ Co	0.644
SCB 634	Travel/ abstract/ NC/ Co	0.831
SCB 635	Travel/ abstract/ AC/ Co	0.655
SCB 636	Travel/ abstract/ AA/ Co	0.915

25 c). First repetition of Premise

Variable	Task		N
SPA 613	Fire/ concrete	0.983	59
SPA 625	Snow/ counterfactual	0.915	59
SPA 633	Travel/ abstract	0.746	59

25 d). Second repetition of premise

Variable	Task		N
SPB 613	Fire/ concrete	1.000	59
SPB 625	Snow/ counterfactual	0.983	59
SPB 633	Travel/ abstract	0.983	58

25 e). Conclusion pattern

Variable	Task	CD	TD	BC	CN	N
STAGEFE 6	concrete premise	0.051	0.169	0.186	0.593	59
STAGESS 6	counterfactual premise	0.136	0.102	0.288	0.475	59
STAGEAB 6	abstract premise	0.190	0.034	0.276	0.500	58

Table 26
Syllogistic reasoning:
Solution probabilities at age 17
by teacher rating
Urban sample

26 a). Type of judgment

Variable	Teacher rating high			N	low			N
	Yes	No	Maybe		Yes	No	Maybe	
SCA 613	0.974	0.000	0.026	39	0.950	0.050	0.000	20
SCA 614	0.051	0.154	0.795	39	0.050	0.600	0.350	20
SCA 615	0.103	0.000	0.897	39	0.450	0.050	0.500	20
SCA 616	0.000	0.974	0.026	39	0.000	0.950	0.050	20
SCA 625	0.000	0.923	0.077	39	0.000	0.900	0.100	20
SCA 626	0.051	0.179	0.769	39	0.000	0.550	0.450	20
SCA 627	0.256	0.000	0.744	39	0.700	0.050	0.250	20
SCA 628	0.949	0.000	0.051	39	0.850	0.050	0.100	20
SCA 633	0.000	0.128	0.872	39	0.100	0.700	0.200	20
SCA 634	0.000	0.872	0.128	39	0.050	0.650	0.300	20
SCA 635	0.154	0.000	0.846	39	0.632	0.105	0.263	19
SCA 636	0.974	0.0800	0.026	39	0.800	0.050	0.150	20

26 b). Adequacy of judgment

Teacher rating		high	low		
Variable	Task		N		N
SCB 613	Fire/ concrete/ AA/ Co	0.974	39	0.950	20
SCB 614	Fire/ concrete/ NA/ Co	0.769	39	0.350	20
SCB 615	Fire/ concrete/ AC/ Co	0.897	39	0.500	20
SCB 616	Fire/ concrete/ NC/ Co	0.974	39	0.950	20
SCB 625	Snow/ counterfactual/ NC/ Co	0.923	39	0.900	20
SCB 626	Snow/ counterfactual/ NA/ Co	0.769	39	0.450	20
SCB 627	Snow/ counterfactual/ AC/ Co	0.744	39	0.250	20
SCB 628	Snow/ counterfactual/ AA/ Co	0.949	39	0.850	20
SCB 633	Travel/ abstract/ NA/ Co	0.872	39	0.200	20
SCB 634	Travel/ abstract/ NC/ Co	0.897	39	0.700	20
SCB 635	Travel/ abstract/ AC/ Co	0.846	39	0.263	19
SCB 636	Travel/ abstract/ AA/ Co	0.974	39	0.800	20

26 c). First repetition of Premise

Teacher rating		high	low		
Variable	Task		N		N
SPA 613	Fire/ concrete	1.000	39	0.950	20
SPA 625	Snow/ counterfactual	0.974	39	0.800	20
SPA 633	Travel/ abstract	0.846	39	0.550	20

26 d). Second repetition of premise

Teacher rating		high	low		
Variable	Task		N		N
SPB 613	Fire/ concrete	1.000	39	1.000	20
SPB 625	Snow/ counterfactual	1.000	39	0.950	20
SPB 633	Travel/ abstract	1.000	38	0.950	20

26 e). Conclusion pattern

Teacher rating		high					low				
Variable	CD	TD	BC	CN	N	CD	TD	BC	CN	N	
STAGEFE 6	0.026	0.154	0.077	0.744	39	0.100	0.200	0.400	0.300	20	
STAGESS 6	0.103	0.103	0.154	0.641	39	0.200	0.100	0.550	0.150	20	
STAGEAB 6	0.128	0.000	0.128	0.744	39	0.316	0.105	0.579	0.000	19	

Table 27
Syllogistic reasoning:
Solution probabilities at age 17
by gender
Urban sample

27 a). Type of judgment

Gender	male				female			
	Variable	Yes	No	Maybe	N	Yes	No	Maybe
SCA 613	0.920	0.040	0.040	25	1.000	0.000	0.000	34
SCA 614	0.000	0.320	0.680	25	0.088	0.294	0.618	38
SCA 615	0.120	0.040	0.840	25	0.294	0.000	0.706	34
SCA 616	0.000	0.960	0.040	25	0.000	0.971	0.029	34
SCA 625	0.000	0.880	0.120	25	0.000	0.941	0.059	34
SCA 626	0.080	0.120	0.800	25	0.000	0.441	0.559	34
SCA 627	0.320	0.040	0.640	25	0.471	0.000	0.529	34
SCA 628	0.920	0.040	0.040	25	0.912	0.000	0.088	34
SCA 633	0.040	0.240	0.720	25	0.029	0.382	0.588	34
SCA 634	0.040	0.840	0.120	25	0.000	0.765	0.235	34
SCA 635	0.292	0.000	0.708	24	0.324	0.059	0.618	34
SCA 636	0.960	0.000	0.040	25	0.882	0.029	0.088	34

27 b). Adequacy of judgment

Gender	Variable	Task	male		female	
				N		N
SCB 613	Fire/ concrete/ AA/ Co		0.920	25	1.000	34
SCB 614	Fire/ concrete/ NA/ Co		0.640	25	0.618	34
SCB 615	Fire/ concrete/ AC/ Co		0.840	25	0.706	34
SCB 616	Fire/ concrete/ NC/ Co		0.960	25	0.971	34
SCB 625	Snow/ counterfactual/ NC/ Co		0.880	25	0.941	34
SCB 626	Snow/ counterfactual/ NA/ Co		0.800	25	0.559	34
SCB 627	Snow/ counterfactual/ AC/ Co		0.640	25	0.529	34
SCB 628	Snow/ counterfactual/ AA/ Co		0.920	25	0.912	34
SCB 633	Travel/ abstract/ NA/ Co		0.720	25	0.588	34
SCB 634	Travel/ abstract/ NC/ Co		0.840	25	0.824	34
SCB 635	Travel/ abstract/ AC/ Co		0.708	24	0.618	34
SCB 636	Travel/ abstract/ AA/ Co		0.960	25	0.882	34

27 c). First repetition of Premise

Gender		male		female	
Variable	Task		N		N
SPA 613	Fire/ concrete	1.000	25	0.971	34
SPA 625	Snow/ counterfactual	0.960	25	0.882	34
SPA 633	Travel/ abstract	0.800	25	0.706	34

27 d). Second repetition of premise

Gender		male		female	
Variable	Task		N		N
SPB 613	Fire/ concrete	1.000	25	1.000	34
SPB 625	Snow/ counterfactual	1.000	25	0.971	34
SPB 633	Travel/ abstract	1.000	24	0.971	34

27 e). Conclusion pattern

Gender		male					female				
Variable	CD	TD	BC	CN	N	CD	TD	BC	CN	N	
STAGEFE 6	0.080	0.200	0.080	0.640	25	0.029	0.147	0.265	0.559	34	
STAGESS 6	0.160	0.200	0.120	0.520	25	0.118	0.029	0.412	0.441	34	
STAGEAB 6	0.125	0.000	0.250	0.625	24	0.235	0.059	0.294	0.412	34	

Table 28
Syllogistic reasoning:
Solution probabilities at age 17
by social class in two categories
Urban sample

28 a). Type of judgment

SES	high				low			
	Variable	Yes	No	Maybe	N	Yes	No	Maybe
SCA 613	0.971	0.000	0.029	34	0.960	0.040	0.000	25
SCA 614	0.059	0.235	0.706	34	0.040	0.400	0.560	25
SCA 615	0.176	0.000	0.824	34	0.280	0.040	0.680	25
SCA 616	0.000	0.971	0.029	34	0.000	0.960	0.040	25
SCA 625	0.000	0.853	0.147	34	0.000	1.000	0.000	25
SCA 626	0.029	0.294	0.676	34	0.040	0.320	0.640	25
SCA 627	0.324	0.000	0.676	34	0.520	0.040	0.440	25
SCA 628	0.941	0.000	0.059	34	0.880	0.040	0.080	25
SCA 633	0.029	0.235	0.735	34	0.040	0.440	0.520	25
SCA 634	0.029	0.794	0.176	34	0.000	0.800	0.200	25
SCA 635	0.303	0.030	0.667	33	0.320	0.040	0.640	25
SCA 636	0.880	0.040	0.080	25	0.941	0.000	0.059	34

28 b). Adequacy of judgment

SES	Variable	Task	high		low	
				N		N
SCB 613	Fire/ concrete/ AA/ Co		0.971	34	0.960	25
SCB 614	Fire/ concrete/ NA/ Co		0.676	34	0.560	25
SCB 615	Fire/ concrete/ AC/ Co		0.824	34	0.680	25
SCB 616	Fire/ concrete/ NC/ Co		0.971	34	0.960	25
SCB 625	Snow/ counterfactual/ NC/ Co		0.853	34	1.000	25
SCB 626	Snow/ counterfactual/ NA/ Co		0.676	34	0.640	25
SCB 627	Snow/ counterfactual/ AC/ Co		0.676	34	0.440	25
SCB 628	Snow/ counterfactual/ AA/ Co		0.941	34	0.880	25
SCB 633	Travel/ abstract/ NA/ Co		0.735	34	0.520	25
SCB 634	Travel/ abstract/ NC/ Co		0.824	34	0.840	25
SCB 635	Travel/ abstract/ AC/ Co		0.667	33	0.640	25
SCB 636	Travel/ abstract/ AA/ Co		0.941	34	0.880	25

28 c). First repetition of Premise

SES		high		low	
Variable	Task		N		N
SPA 613	Fire/ concrete	1.000	34	0.960	25
SPA 625	Snow/ counterfactual	0.941	34	0.880	25
SPA 633	Travel/ abstract	0.794	34	0.680	25

28 d). Second repetition of premise

SES		high		low	
Variable	Task		N		N
SPB 613	Fire/ concrete	1.000	34	1.000	25
SPB 625	Snow/ counterfactual	1.000	34	0.960	25
SPB 633	Travel/ abstract	1.000	34	0.958	25

28 e). Conclusion pattern

SES	high					low				
	Variable	CD	TD	BC	CN	N	CD	TD	BC	CN
STAGEFE 6	0.029	0.118	0.176	0.676	34	0.080	0.240	0.200	0.480	25
STAGESS 6	0.147	0.059	0.265	0.529	34	0.120	0.160	0.320	0.400	25
STAGEAB 6	0.182	0.030	0.242	0.545	33	0.200	0.040	0.320	0.440	25

Table 29
Syllogistic reasoning:
Solution probabilities at age 17
by social class in six categories
Urban sample

29 a). Type of judgment

SES	low/low (SES 1)				low/high (SES 2)			
	Variable	Yes	No	Maybe	N	Yes	No	Maybe
SCA 613	1.000	0.000	0.000	7	1.000	0.000	0.000	9
SCA 614	0.000	0.571	0.429	7	0.111	0.111	0.778	9
SCA 615	0.286	0.143	0.571	7	0.111	0.000	0.889	9
SCA 616	0.000	0.857	0.143	7	0.000	1.000	0.000	9
SCA 625	0.000	1.000	0.000	7	0.000	1.000	0.000	9
SCA 626	0.000	0.286	0.714	7	0.000	0.222	0.778	9
SCA 627	0.714	0.000	0.286	7	0.333	0.000	0.667	9
SCA 628	0.857	0.000	0.143	7	0.889	0.000	0.111	9
SCA 633	0.143	0.571	0.286	7	0.000	0.111	0.889	9
SCA 634	0.000	0.714	0.286	7	0.000	0.889	0.111	9
SCA 635	0.286	0.143	0.571	7	0.111	0.000	0.889	9
SCA 636	0.714	0.000	0.286	7	1.000	0.000	0.000	9

29 a). Type of judgment

SES	middle/low (SES 3)				middle/high (SES 4)			
	Variable	Yes	No	Maybe	N	Yes	No	Maybe
SCA 613	0.889	0.111	0.000	9	1.000	0.000	0.000	14
SCA 614	0.000	0.556	0.444	9	0.071	0.143	0.786	14
SCA 615	0.444	0.000	0.556	9	0.071	0.000	0.929	14
SCA 616	0.000	1.000	0.000	9	0.000	1.000	0.000	14
SCA 625	0.000	1.000	0.000	9	0.000	0.857	0.143	14
SCA 626	0.111	0.444	0.444	9	0.000	0.214	0.786	14
SCA 627	0.556	0.111	0.333	9	0.357	0.000	0.643	14
SCA 628	0.889	0.111	0.000	9	1.000	0.000	0.000	14
SCA 633	0.000	0.667	0.333	9	0.000	0.357	0.643	14
SCA 634	0.000	0.778	0.222	9	0.000	0.786	0.214	14
SCA 635	0.556	0.000	0.444	9	0.500	0.000	0.500	14
SCA 636	0.889	0.111	0.000	9	1.000	0.000	0.000	14

29 a). Type of judgment

SES	high/low (SES 5)				high/high (SES 6)			
	Variable	Yes	No	Maybe	N	Yes	No	Maybe
SCA 613	0.917	0.000	0.083	12	1.000	0.000	0.000	8
SCA 614	0.083	0.333	0.583	12	0.000	0.250	0.750	8
SCA 615	0.250	0.000	0.750	12	0.250	0.000	0.750	8
SCA 616	0.000	0.917	0.083	12	0.000	1.000	0.000	8
SCA 625	0.000	0.750	0.250	12	0.000	1.000	0.000	8
SCA 626	0.000	0.333	0.667	12	0.125	0.375	0.500	8
SCA 627	0.250	0.000	0.750	12	0.375	0.000	0.625	8
SCA 628	0.833	0.000	0.167	12	1.000	0.000	0.000	8
SCA 633	0.000	0.167	0.833	12	0.125	0.125	0.750	8
SCA 634	0.000	0.750	0.250	12	0.125	0.875	0.000	8
SCA 635	0.167	0.083	0.750	12	0.143	0.000	0.857	7
SCA 636	0.853	0.000	0.167	12	1.000	0.000	0.000	8

29 b).Adequacy of judgment

SES	low/low (SES 1)		low/high (SES 2)		middle/low (SES 3)	
	Variable	N	N	N	N	
SCB 613	1.000	7	1.000	9	0.889	9
SCB 614	0.429	7	0.778	9	0.444	9
SCB 615	0.571	7	0.889	9	0.556	9
SCB 616	0.857	7	1.000	9	1.000	9
SCB 625	1.000	7	1.000	9	1.000	9
SCB 626	0.714	7	0.778	9	0.444	9
SCB 627	0.286	7	0.667	9	0.333	9
SCB 628	0.857	7	0.889	9	0.889	9
SCB 633	0.286	7	0.889	9	0.333	9
SCB 634	0.714	7	1.000	9	0.778	9
SCB 635	0.571	7	0.889	9	0.444	9
SCB 636	0.714	7	1.000	9	0.889	9

29 b).Adequacy of judgment

SES	middle/high (SES 4)		high/low (SES 5)		high/high (SES 6)	
Variable		N		N		N
SCB 613	1.000	14	0.917	12	1.000	8
SCB 614	0.786	14	0.500	12	0.750	8
SCB 615	0.929	14	0.750	12	0.750	8
SCB 616	1.000	14	0.917	12	1.000	8
SCB 625	0.857	14	0.750	12	1.000	8
SCB 626	0.786	14	0.667	12	0.500	8
SCB 627	0.643	14	0.750	12	0.625	8
SCB 628	1.000	14	0.833	12	1.000	8
SCB 633	0.643	14	0.833	12	0.750	8
SCB 634	0.857	14	0.750	12	0.875	8
SCB 635	0.500	14	0.750	12	0.857	7
SCB 636	1.000	14	0.833	12	1.000	8

29 c). First repetition of Premise

SES	low/low (SES 1)		low/high (SES 2)		middle/low (SES 3)	
Variable		N		N		N
SPA 613	0.857	7	1.000	9	1.000	9
SPA 625	0.857	7	0.889	9	0.889	9
SPA 633	0.571	7	0.556	9	0.889	9

29 c). First repetition of Premise

SES	middle/high (SES 4)		high/low (SES 5)		high/high (SES 6)	
Variable		N		N		N
SPA 613	1.000	14	1.000	12	1.000	8
SPA 625	0.929	14	0.917	12	1.000	8
SPA 633	0.786	14	0.833	12	0.750	8

29 d). Second repetition of Premise

SES	low/low (SES 1)			low/high (SES 2)			middle/low (SES 3)			
Variable		N			N			N		
SPB 613	1.000	7			9			9		
SPB 625	0.857	7			9			9		
SPB 633	1.000	7			9			0.889		

29 d). Second repetition of Premise

SES	middle/high (SES 4)			high/low (SES 5)			high/high (SES 6)			
Variable		N			N			N		
SPB 613	1.000	14			12			8		
SPB 625	1.000	14			12			8		
SPB 633	1.000	14			12			8		

29 e). Conclusion pattern

SES	low/low (SES 1)					low/high (SES 2)				
Variable	CD	TD	BC	CN	N	CD	TD	BC	CN	N
STAGEFE 6	0.143	0.286	0.286	0.286	7	0.000	0.111	0.111	0.778	9
STAGESS 6	0.143	0.286	0.286	0.286	7	0.111	0.111	0.222	0.556	9
STAGEAB 6	0.286	0.143	0.286	0.286	7	0.111	0.000	0.111	0.778	9

29 e). Conclusion pattern

SES	middle/low (SES 3)					middle/high (SES 4)				
Variable	CD	TD	BC	CN	N	CD	TD	BC	CN	N
STAGEFE 6	0.111	0.333	0.222	0.333	9	0.000	0.143	0.071	0.786	14
STAGESS 6	0.111	0.111	0.444	0.333	9	0.143	0.071	0.214	0.571	14
STAGEAB 6	0.222	0.000	0.556	0.222	9	0.214	0.071	0.357	0.357	14

29 e). Conclusion pattern

SES	high/low (SES 5)					high/high (SES 6)				
Variable	CD	TD	BC	CN	N	CD	TD	BC	CN	N
STAGEFE 6	0.083	0.167	0.250	0.500	12	0.000	0.000	0.250	0.750	8
STAGESS 6	0.250	0.000	0.250	0.500	12	0.000	0.125	0.375	0.500	8
STAGEAB 6	0.250	0.000	0.167	0.583	12	0.000	0.000	0.143	0.857	7

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