INCREASED PERCEPTION AS A POSSIBLE FUNCTION OF BILINGUALISM: A DESCRIPTIVE STUDY

Audrey Notkin Cayne

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Abstract

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The researcher of the present thesis attempted to examine the nature of bilingualism as it exists within the Montreal School System and to investigate whether having a second language increases perception. It was felt, by the researcher, that if a relationship existed between using two languages and perception, then this research would be of significance to Art educators who may be interested in further inquiry as to whether or not a child's language influences the images he/she uses. The Dale Harris revision of Florence Goodenough's "Draw-A-Man" Test was given to groups of children, aged 7-9 years, who were equated on I.Q. level and on socio-economic background; the linguistic aspect remained as the variable in this study. A t test was done to compare the statistical difference between the two means. It was found that there was a significant difference at the .1 level of significance. The limitations of the present thesis as well as the implications for future research were outlined.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF GRAPHS

CHAPTER I

THE THEORETICAL FRAMEWORK FOR THE STUDY

The Statement of the Problem

The researcher will attempt to examine the nature of bilingualism as it exists within the Montreal school system[1] and investigate whether having a second language increases perception.[2] A review of the Art Education Literature relating to perception was thought to be an important aspect of this thesis. The "Perceptual Index" was developed by Ronald MacGregor after he made an extensive survey of the literature in the field of perception as it relates to art education.[3] It was thought, therefore, that this would be an important tool to use to measure perception. In a letter which was sent accompanying the "Perceptual Index", Ronald MacGregor stated that the nature of the present study might need a more sensitive tool.

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[1] That is, as opposed to bilingualism as used in business, or in professional circumstances.

[2] MacGregor (1972) uses perception as meaning, "the physical art of apprehending a stimulus, its translation and modification into cognitive data, and the recycling of that cognition in the subsequent apprehension of stimuli." (p. 11) ...the term "perception" has been used to refer to several quite different processes... at one extreme bordering on sensation and on the other, on concept-formation" (Segall et Al.: 1966). "...cognition and perception are closely intertwined." (Allport: 1955)

[3] "The Reference for Art Education of Certain Investigations into Visual Perception", (MacGregor: 1969).

Thus the present proposal, including the "Perceptual Index", was delivered to a group of graduate students in art education at Sir George Williams University. Criticism of the "Index" was that it was "culture bound", questionable as to "drawing quality" and questionable as to "what exactly the test measures", and for these reasons not entirely appropriate to the concerns of this thesis. For reasons explained further in the review of literature, the Dale Harris revision of Florence Goodenough's "Draw-A-Man Test", which provides a basis for relating the drawing act to current theoretical developments in the study of perception and conceptual processes, was used.

The "Draw-A-Man Test" was designed as a measure of intellectual maturity (Harris: 1963):

> By intellectual maturity is meant the ability to form concepts of increasingly abstract character. Intellectual activity requires: (1) the ability to perceive, i.e., to discriminate likenesses and differences (2) the ability to abstract, i.e., to classify objects according to such likenesses and differences; and (3) the ability to generalize, i.e., to assign an object newly experienced to a correct class, according to discriminated features, properties, or attributes. These three functions, taken together, comprise the process of concept formation.

For example:

> the description of likenesses and differences for a number of specific examples, in each of these classes of certain quadrupeds, (dogs, cats, cows, and horses) permits a child to abstract the elements characteristic of, indeed essential to "dogginess" as separate from "horsiness", and to generalize the concept approximately when he first sees, for example, a "Mexican Hairless" dog. (p. 5)

MacGregor's (1972) use of perception as meaning, "the physical art of apprehending a stimulus, its translation and modification into cognitive data, and the recycling of that cognition in the subsequent apprehension of stimuli" (p. 11), and Harris' theories of "concept-formation" (as stated above) have certain parallels in meaning, and therefore, literature from fields of both art education and psychology, as well as linguistics were used to help elucidate the present thesis.

For the purpose of this thesis, four groups of children aged 7-9 years were divided as follows: ten Anglophones (those speaking English and only a few words of French), ten Francophones (those speaking French and only a few words of English), and twenty bilingual students (ten who speak English at home and ten who speak French at home). An equal number of boys and girls were used and each student was equated on a socio-economic level (by determining the father's occupation), and on an equal I.Q. level (determined

by the teacher). The linguistic element remains as the variable in this study.

It is hoped that this study will show a relationship between language and perception. If a relationship between these two does exist, it may be of interest to art educators by making them aware that this relationship exists; by giving art educators the tools by which perception (according to the limitations of this thesis) can be tested, and by giving future researchers a basis for further study in language and perception.

Significance

The art educator wants to know not only what a child does, i.e., by examining the art product and by basing attempts at altering the product by means of alternate methods of motivation, alternate media etc.; but also, how a child comes to draw what he draws. According to Ron MacGregor (1969), many studies have been done to evaluate and analyze the former, but fewer studies have been devoted to trying to understand the latter. It is within the latter context that the present thesis is conceived. The researcher feels that the thesis might therefore benefit those art educators interested in knowing whether a child comes to draw what he draws due to the language (or languages) he/she uses.

A child comes to draw what he draws for many intricate reasons; however, one factor in this complicacy is perception; another, the researcher suspects, is language. If by using the "Draw-A-Man Test", it is found that a positive relationship exists between using two languages and increased perception, then this knowledge might benefit art educators by enabling them to investigate further the possibilities of the influence of language on children's drawings. We know of results that demonstrate that since Eskimos have three words for "snow", that is, the word "snow" is used more frequently in the Eskimo Language than in the English Language, they have three different perceptions of snow (see p. 11 of present thesis). So the question remains, "does a child's language influence the images he/she uses?"

Again, if the results of this thesis are positive, this knowledge might benefit art educators by enabling them to further test the possibilities of the child's ability to use language (i.e. in terms of poor, fair, average, good, excellent use of language etc.) with the resulting perceptual drawing test to see whether the ability to use language is related to perception.

Another possibility for the art educator might be to test the perceptions of non-language users (deaf children, for example) against those of language users. The data gathered in this kind of enquiry could be the basis for an

entirely different area of art education research.

If the test shows that a negative relationship exists, then it is hoped that there will be further investigations into this area of research, either through the use of the "Draw-A-Man Test" or through other perceptual tests.

Furthermore, it is interesting to note Harris' (1963) findings re. art and verbal expressions: findings which might shed further light on the importance of keeping language and art alive by stimulating the use of both together:

> with increasing skill in and dependance on verbal communication, the calligraphic aspect of drawings tends to be displaced. Most children become so dependant upon verbal techniques, so aware of the criterion of visual realism which is forced on them by an overwhelming visual, even pictorial, culture, and so critical of their inability to achieve visual effects commensurate with this criterion, that they give up drawing altogether.
>
> (p. 228)

Studies cited in the review of literature of the present thesis show that bilinguals are more flexible in their thinking since they have two symbols for each object. Earlier studies (Hoffman: 1934: Arsenian 1935) showed that bilinguals did not perform as well as monolinguals at certain tasks; however, the present researcher did not

include further discussion of these studies for the following reasons: (1) only research completed within the last ten years was included; (2) research using bilinguals other than bilinguals as defined in this thesis was not used. This flexibility allows bilinguals to abstract, which according to Harris' definition would give them a higher measure of "intellectual maturity" (see p. 2 of thesis). The present researcher posits that in an attempt to achieve a "realistic representation", a monolingual may be unable to produce a visual effect commensurate with his only symbolic image; on the otherhand, a bilingual who has two symbols for each object may not have the same difficulty in achieving a "realistic visual representation" since he has two images which are available to him. If linguistic differences are pointed out and reinforcement made along the lines of individual differences vs. conformities then perhaps a child might have a prolonged satisfaction in his individual expressions.

Review of Literature

The review of literature will include the following topics from the "areas" of psychology, psychology and linguistics, psychology and art education and anthropology:

1. The relationship of bilingualism to intelligence.

2. The relationship of bilingualism to other functions: experience, culture, language.

3. The Whorfian "Relativity Hypothesis" and its various "offshoots" as well as its defenders and antagonists.

4. The influence of culture on perception.

5. Art Education Theories in relation to "children's drawings as measures of intellectual maturity".

MacNamara defines bilingualism as follows:

> Bilinguals are persons who possess at least one of the language skills[4] even to a minimal degree in their second language ... This means that we consider bilingualism to be a continuum... (p. 59)

Other distinctions of bilingualism have been made: Uriel Weinreich (1958), Ervin and Osgood (1965), Lambert (1966); Lambert and Rawlings (1969) and Segalowitz and Lambert (1969) all distinguish between early and late bilingualism.

Bilingualism in the school systems in Montreal generally refers to the status of a student if he/she is taught over half of his/her courses in French if he/she is English or vice-versa. This information could be determined

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[4] By language skills MacNamara means the phonetic (pertaining to speech sounds, their production or their transcription into written symbols), the lexical (pertaining to words or vocabulary of a language), the syntactic (the study of the structure of grammatical sentences in a language), and the semantic (pertaining to the different meanings of words) (pp. 58-59)

by the teacher in charge of each of the chosen groups. It is probable that each student possesses a degree of bilingualism according to MacNamara's definition; however, it is not the purpose of this thesis to determine the degree of bilingualism of each student.

The research literature on the relation of bilingualism to intelligence is reviewed in the Peal and Lambert (1962) M.A. Thesis. In this study, there was no attempt to differentiate among bilinguals as to "coordinate" and "compound" bilinguals; "genuine" bilinguals (p. 6) were used, that is, the data of the middle group who were clearly neither monolingual nor bilingual was excluded. The results of the Study showed: (1) genuine bilinguals were superior intellectual on verbal and nonverbal intelligence subtests of the kind that required symbolic manipulation and mental flexibility; (2) the two groups did not differ on nonverbal tests which required spatial and perceptual factors.[5] Amongst other things, the dual linguistic experience of bilinguals is thought to influence their thinking in several ways:

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[5] Anastasi (1961) groups nonverbal tests as follows: (1) spatial and perceptual functions as contrasted to (2) the symbolic manipulation of abstract relations, concepts, and factual information. The latter functions seem to resemble more closely those required by traditional verbal tests of intelligence of the type used in the Peal and Lambert (1962) Study.

> giving them slightly different views of the world, giving them a flexible approach to problem solving, and perhaps encouraging them to think abstractly earlier. (p. 18)

In her Ph.D. thesis, Anisfeld (Peal, 1964), examined more closely the ways in which the cognitive functioning of monolinguals and bilinguals might differ. The main thesis presented is that experience with two languages during childhood may have significant effects on later cognitive functioning by showing that:

1. early experience in general can affect intellectual development (pp. 4-7)
2. Culture, as a medium through which the experiences of an individual are controlled can affect intellectual development (pp. 7-11)
3. language, as a significant form of experience, has effects on intelligence, (pp. 11-13)

And second, it is argued that experience with two cultures and/or two languages will have different effects on intellectual development than experience with only one culture and one language (pp. 13-18).

Spurred on by the Peal and Lambert Study (1962), Landry (1968) found that the linguistic and cultural experiences of those who became bilingual in childhood results in a subsequently greater development of their potential creativity than is the case for monolinguals.

Much has been reported by linguists and anthropologists about the use of language in culture (Whorf: 1959; Sapir: 1929; Brown: 1958; and Segall et al.: 1966).

Contemporary interest in the linguistic relativity hypothesis traces largely to the descriptive-speculative work of Whorf (1959), who broadly suggested that cognitive behaviour of individuals is determined by the language system they use (i.e., Eskimos have three words for snow). That human perception is culturally influenced has long been a proposition which is plausible, based as it is upon certain contemporary philosophical and social scientific concepts such as that of "cultural relativism". Thus anthropological linguists, Sapir (1929) and Whorf (1959) argued that cognitive behaviour is influenced by the semantic structure of languages:

> We see, hear and otherwise experience largely as we do because the language habits of our community predispose certain choices of interpretation
>
> (Sapir: 1929, p. 210)

On the other hand, Segall et al. (1966) describes the Humboldt- Boas- Cassirer- Sapir- Whorf hypothesis as the view that "language first influences cognition which in turn influences perception" (p. 36). Forgus (1966) provides another alternative by stating, "a critical analysis of the

principles of cognitive behaviour indicates that concept formation is the process which bridges the gap between perception and thinking." (p. 289)

Psychologists began to move from general anthropological description to controlled experimentation. Brown and Lenneberg (1954) were interested in the second of Whorf's two propositions, "that the language spoken in a community helps to shape the cognitive structure of the individuals speaking that language," vs. the proposition that, "different linguistic communities perceive and conceive reality in different ways." (p. 461) The basis for the Brown and Lenneberg (1954) investigation arose from evidence of Seroshevskii (1896) who reported in Iakuti there is a single word for both green and glue; from Lenneberg and Roberts (1953), who reported the Zunis code orange and yellow with a single term and from Whorf who reports that Eskimos have three words for snow (i.e., that Eskimos have different perceptions of snow than Americans). Brown and Lenneberg (1953) disagree with Whorf (1959) and maintain that since Americans can distinguish "good-packing" snow, "bad-packing" snow, that therefore, despite the fact that one word is used in Eskimo vs. one English phrase, Americans perceive the same snow. This difference led Brown and Lenneberg

(1954) to postulate that Eskimos have three words for snow due to the fact that "increased frequency of a perceptual categorization will mean a generally greater 'availability' of that category" (p. 455). Therefore Brown and Lenneberg (1954) do not agree with Whorf that language is held to be causally related to cognitive structure:

> simple exposure to speech will not shape anyone's mind. To the degree that the unaculturated individual is motivated to learn the language of a community, to the degree that he uses its structure as a guide to reality language can assume a formative role (p. 456)

J.B. Carroll in his introduction to Whorf's book Language, Thought and Reality (1959), feels it is a moot point "whether such differences in language structure are associated with actual differences in ways of perceiving and conceiving the world" (p. 27). He does feel what is important is that "linguistic and non-linguistic events must be separately observed and described before they can be correlated" (p. 28).

Segall, Cambell, Herskowitz (1966) write: "however plausible the Whorfian 'cultural relativism' hypothesis, it cannot be considered to be unequivocally demonstrated by very many empirical data" (p. 209). "A review of the literature forced us to conclude that considerably more

effort to amass systematic evidence of cultural differences in perception was called for" (p. 209). In a further effort to study, The Influence of Culture on Visual Perception, Segall et al. (1966) used an empiricist approach more specifically based on Brunswikian (1956) notions of 'ecological cue validity'[6] and 'probabalistic functionalism'. The study made use of illusion figures (such figures are popular because theoretically their nonverbal character eliminates the kinds of ambiguity that arose as a result of the strictures of language), to observe how groups of different cultural ecologies respond perceptually to identical stimuli (i.e. that Western peoples would be more susceptible to these illusions than non-Western peoples). "We found considerable support for both hypotheses in our own and others": (p. 211).

> To a substantial extent we learn to perceive; ...For all mankind, the basic process of perception is the same; only the contents differ and these differ only because they reflect different perceptual inference habits.
>
> (p. 213)

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[6] Ecology here is used to refer to the total environment including both man-made artifacts and natural environment of flora and fauna and geological structure (Segall et al.: 1966, p. 74)

Segall (1966) cites other studies reporting cultural differences in perception: (Bagby: 1950; Thouless: 1933; Berveridge: 1935 and Hudson: 1960; also Rivers (1901 and 1905).

Segall et al. (1966) deomonstrated that their subjects' degree of susceptibility was predictable on the basis of such factors as the degree of rectangularity in the environment, which suggests that people learn to perceive[7] visually in a way that enhances the probability of accurate perceptual inferences within their own environment (Segall, Encyclopedia of Education: 1: 457), then the use of two languages might also influence behaviour in both obvious and subtle ways. Another implication of findings like these is that to the extent that any task involves perception, learning to perform the tasks may be affected by the everyday perceptual experiences available in a particular environment.[8]

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[7]Author's underlining.

[8]For the purpose of the present thesis, perceptual differences that do exist, it is felt, will be in the direction of increased perception for users of two languages.

Summary

It seems appropriate to give a summary of the hypothesis of this investigation so far and then to show how it relates to both the art education and psychological aspects of the thesis.

It has been argued that experience with two cultures and/or two languages will have different effects on intellectual development than experience with only one culture and one language. (Peal & Anisfeld Ph.D., 1964 pp. 13-18). This concept was further demonstrated by Segall et al. (1966) who showed that people learn to perceive visually in a way that enhances the possibility of accurate perceptual inferences within their own environment. This line of reasoning then, contradicts the Gestaltist point of view which would argue that people perceive and respond visually in a universal way.

Furthermore, it has been found that bilingualism may influence thinking by providing the bilingual with two words for one referent. It is therefore posited that a bilingual child would arrive at an "understanding", much earlier than would a monolingual child, that names for things are arbitrarily assigned to objects in the environment.

It is suggested (Vygotsky, 1962) and (Leopold,

1949) that bilinguals, because of their experience with two languages learn earlier than monolinguals to detach words from objects and therefore to think in more abstract, conceptual terms. The bilingual is forced to see the word as a symbol separated from the thing itself since he has two words for the same object. Bilinguals may thus begin to think more abstractly (symbolically) earlier than monolinguals. It may be said that these implications are rooted in cognitive studies benefitting psychologists. However, in relation to Piaget's description...

> the very first experiences of the child with pencil or crayon come after the development of object recognition, but early in the process of concept formation aided by language. The development of the child's drawing thus is coordinate with and probably closely linked with the development of the system of verbalized concepts we commonly understand as cognition.
>
> (Harris: 1963, p. 203)

How unfamiliar or vague referents become assimilated into the child's ideational structure is illustrated by two interesting studies by Nagy (1953). Nagy asked students to draw human organs which they had talked about but never seen. From the point of view of this thesis the study is most interesting as an investigation of concept formation where minimum reference to visual objects is possible. Children identified parts and tissues of the organs by name

more successfully than they diagrammed them. In another study Nagy (1953) found that children have a clearer image of germs than of human organs. The Nagy studies illustrate the power of visual perception and of symbolic processes in forming concepts.

According to Harris (1963):

> The study of children's drawings from a psychological viewpoint, even those drawings made in response to specific instructions, cannot be divorced from the study of art. (p. 211)

Harris also cites Bühler:

> language seems to be closely related to the child's ability to draw; this fact adds strength to the conclusion that drawing for the child is primarily a cognitive process. (p. 173)

It was also Bühler who considered that "the development of language first aids drawing and ultimately defeats it as a mode of expression." He saw schematic sylizations as being a consequence of language, which "models the mind of man according to its requirements" (p. 114). This is a point of view associated with Benjamin Whorf's work with language.

Other Art educators have worked with psychology and perception: McFee (1961) has attempted to assemble

material from the psychology of perception as a basis for procedures in art education. Her view stresses the interaction of the developing child, environment and culture, and the complex relationship of personality and perception:

> visual training increases the wealth of material the children have to work with. If visual training becomes rigid and authoritarian it may inhibit creative activity; but if it is used to motivate visual curiosity and exploration it should widen the range of creativity of students. Much more effect of light and colour, of form and line will become available for children to use. They will go beyond cognitive categorizing and see many more details and significant relationships as they respond to their environment, both visually and cognitively.
> (p. 199)

CHAPTER II

TESTING PROGEDURE

Design

Data Collection:

The review of the literature indicates that the testing procedures be very exact. All testing materials were translated for use by both French and English students. The following points were carefully checked:

1. In comparing groups on intelligence, it was necessary to match the two groups on as many features known or suspected to correlate with intelligence as possible so that the difference between groups, if any, may be attributed to linguality itself.

2. A definition of bilingualism (see Review of Literature, Chapter I, p. 8).

3. Socio-economic status has been found to be related to intelligence and linguistic development (Jones: 1960; McCarthy: 1954) and all groups were equated on this level, by determining the father's occupation.

4. From past research it has been found that girls are more advanced than boys in language development, especially in early years. Since intelligence tests draw heavily on verbal skills it was important to have an equal number of girls and boys.

5. Groups should be matched for age; however, since the Dale Harris Test is standardized, allowances can be made for age differences.

6. The educational background of children may also affect their performance on standardized tests of intelligence. Therefore subjects from the same school system, and same school, if possible, were chosen.

7. Tests were given in the language in which the bilinguals are most proficient.

Originally the Dale Harris "Draw-A-Man Test" was to be given to the four groups of students outlined in Chapter I and selected by the objectives stated above. However, not all of the groups could meet the exact specifications and subsequent tests had to be given to two other groups of students to fulfill the linguistic requirements. The following groups were tested as shown:

1. Roslyn School: Eight Anglophone boys and one Anglophone girl were tested.

2. Private Home, Hampstead: Three Anglophone girls were tested.

3. Collège Marie de France: Ten Francophone girls were tested (three of these were eliminated because they did not meet the intelligence standard). Four bilingual girls (who speak English at home) were tested (two of this group were eliminated due to lack of specific information regarding the fathers' occupation). Four bilingual girls (who speak French at home) were tested.

4. Roslyn School, Grade One French Immersion Class: Seven bilingual girls (who speak English at home) were tested. (Three of these were eliminated because, according to their teacher, they excelled in "mathematics" but not in "drawing"). One bilingual girl (who speaks French at home) was tested. (This student was eliminated due to the father's occupation not meeting the requirements). Ten bilingual boys (who speak English at home) were tested. (One was eliminated because the intelligence level was uncertain).

5. Private Home, Notre Dame de Grace: One bilingual boy (who speaks French at home) was tested. Three Francophone boys were tested.

In all, fifty-two students were tested; however, ten students were eliminated and the final number of students used in the data collection was forty-two, divided into groups as follows: eleven Francophones, eleven Anglophones, and twenty Bilingual students.

Three tests, "Draw-A-Man", "Draw-A-Woman", and "Draw Yourself", were administered by the researcher to each child in the groups as indicated above. Prior to the testing and in order to equate students on I.Q. level, the teacher was asked whether or not a student was in the top half of the class. It was necessary to rely on the teachers' information owing to the fact that the French School System does not use an intelligence test and to the fact that the researcher did not have access to the files in the English School System. The "Language Capacity" of each student (see Appendix p. 44) was determined in an interview with the teacher and the student; and the student's name, age, birthdate, and father's occupation (which, in order to maintain the same socio-economic level, was required to be professional, i.e., a doctor, lawyer, or any other profession which would fall into the same income category) was determined at the same time.

An equal number of boys and girls were tested. Each student was given a booklet made up of three blank white pages and the background questionnaire stapled together.

Each student was given a pencil and instructions were given in whatever language the group being tested was most fluent. Since the students were tested in specific and similar linguistic groups, the instructions were given either in French or in English. (See Appendix p. 42 for English and French instructions). The approximate time for all three tests to be completed was between twenty and thirty minutes. Additional paper was available for students who wanted to start again.

Data Analysis:

All fifty-two tests were scored by the researcher. The measure for scoring was provided in the book Children's Drawings as Measures of Intellectual Maturity and the test scores were standardized according to the tables which were provided. An example of the scoring sheet (which enumerates approximately seventy-two items to be scored for each of the three tests is included in the Appendix, pp. 63 - 71 of this thesis).

Due to the possibility of subjective scoring, several test examples provided in Harris', (1963) book were used to measure the researchers' correcting scores against those in the book. After many sample tests were corrected there were still discrepancies between the scores in the book and researchers' scores. However, it was found that

the discrepancies were consistent and, viewed as a subjective disagreement as to the scoring of certain items, the researcher felt that if all the tests were corrected consistently, the researcher's point of view, or scoring, would be acceptable. Two complete tests of students chosen to take these tests will be included in the Appendix (see pp. 45, 51).

CHAPTER III

DISCUSSION OF FINDINGS

Methods of Statistical Analysis of the "Draw-A-Man Test" Scores

The scores of each of the forty-two students used in the final groups chosen were standardized according to tables provided in the book, Children's Drawings as Measures of Intellectual Maturity. The method of statistical analysis proceeded is as follows:

1. The mean of each of the three tests in each of the three groups, Francophones, Anglophones and Bilinguals (the original two groups were combined into one for the purpose of statistics) were calculated.

TABLE 1

Average Scores of the Three Groups

	"Draw A Man"	"Draw A Woman"	"Draw Yourself"
Anglophones	104.40	97.66	95.00
Francophones	110.40	103.70	100.50
Bilinguals	117.75	108.30	109.60

2. The three groups were divided into two groups, unilingual and bilingual.

TABLE 2

Average Scores of Two Groups

Groups	Draw A Man	Draw A Woman	Draw Yourself
Unilingual	107.40	100.68	97.75
Bilingual	117.75	108.30	109.60

3. An average was taken of the three test scores of each student in each of the two groups. (See Table 3, p. 27)

4. A graph was made of each group in order to show the frequency of test scores, that is, to show how many students in each of the two groups fell into the high, low, or middle test score results. This was done to find out if there was a significant pattern of results in either of the two groups. In order to graph the results, the averages found in Table 3 were used.

Results:

a) Twenty of the unilingual test scores fell between 96-105. Sixteen test scores out of twenty-two fell between 106-115. (see p. 28)

b) Fourteen out of twenty Bilingual test scores fell between 106-115. (see p. 29)

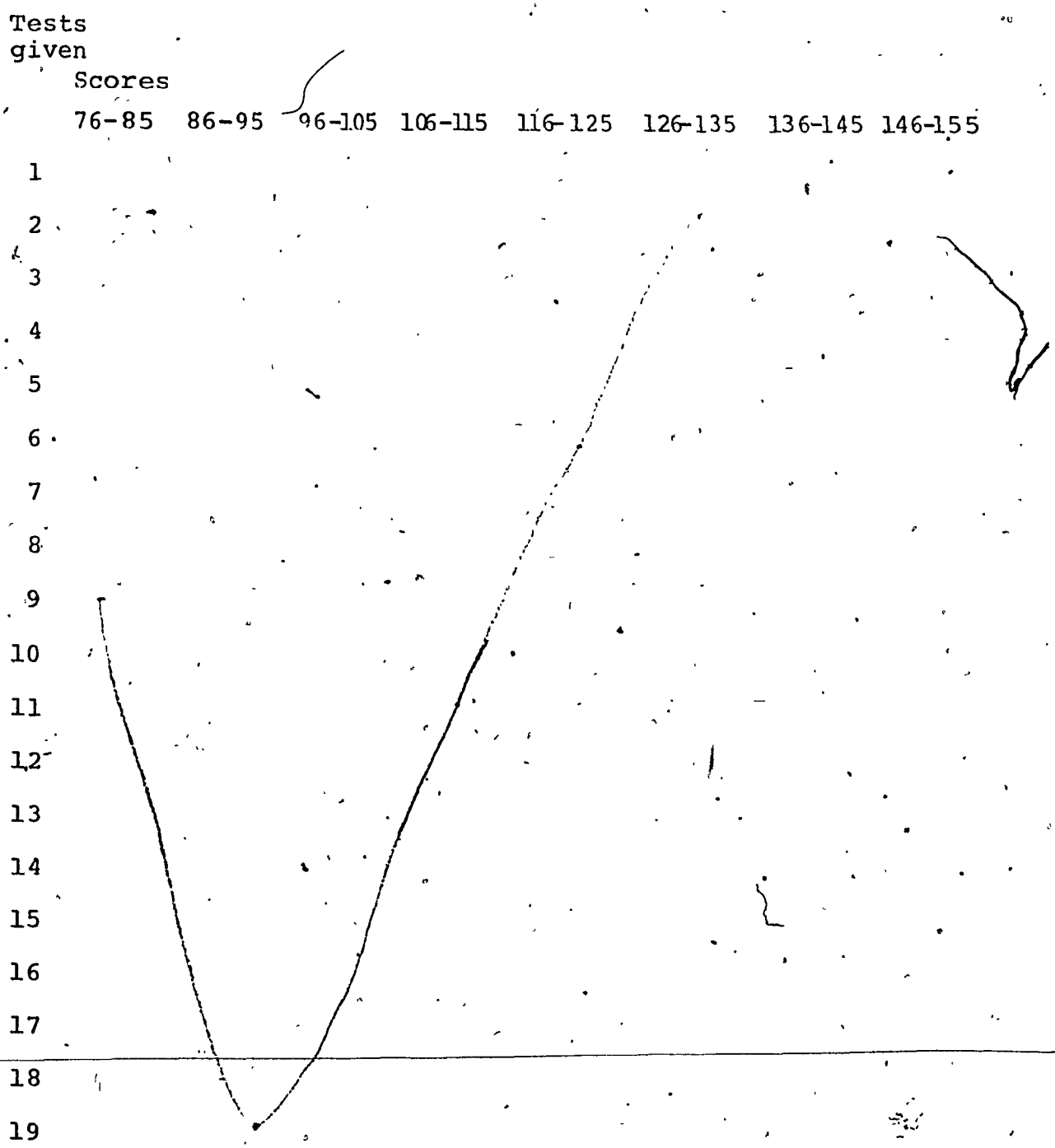
c) It was found that the significance is not shown by where the majority of the test scores fell, but by the general curve of the bilingual graph results as compared to the unilingual graph results. Fewer unilinguals achieved high scores than bilinguals.

TABLE 3

Students	Average Scores of Unilinguals	Students	Average Scores of Bilinguals
1	96	1	99
2	99	2	137
3	82	3	142
4	82	4	137
5	97	5	111
6	99	6	134
7	100	7	107
8	108	8	102
9	96	9	90
10	104	10	107
11	100	11	99
12	121	12	100
13	104	13	121
14	110	14	127
15	141	15	104
16	102	16	112
17	96	17	87
18	95	18	112
19	107	19	102
20	109	20	114
21	100		
22	131		

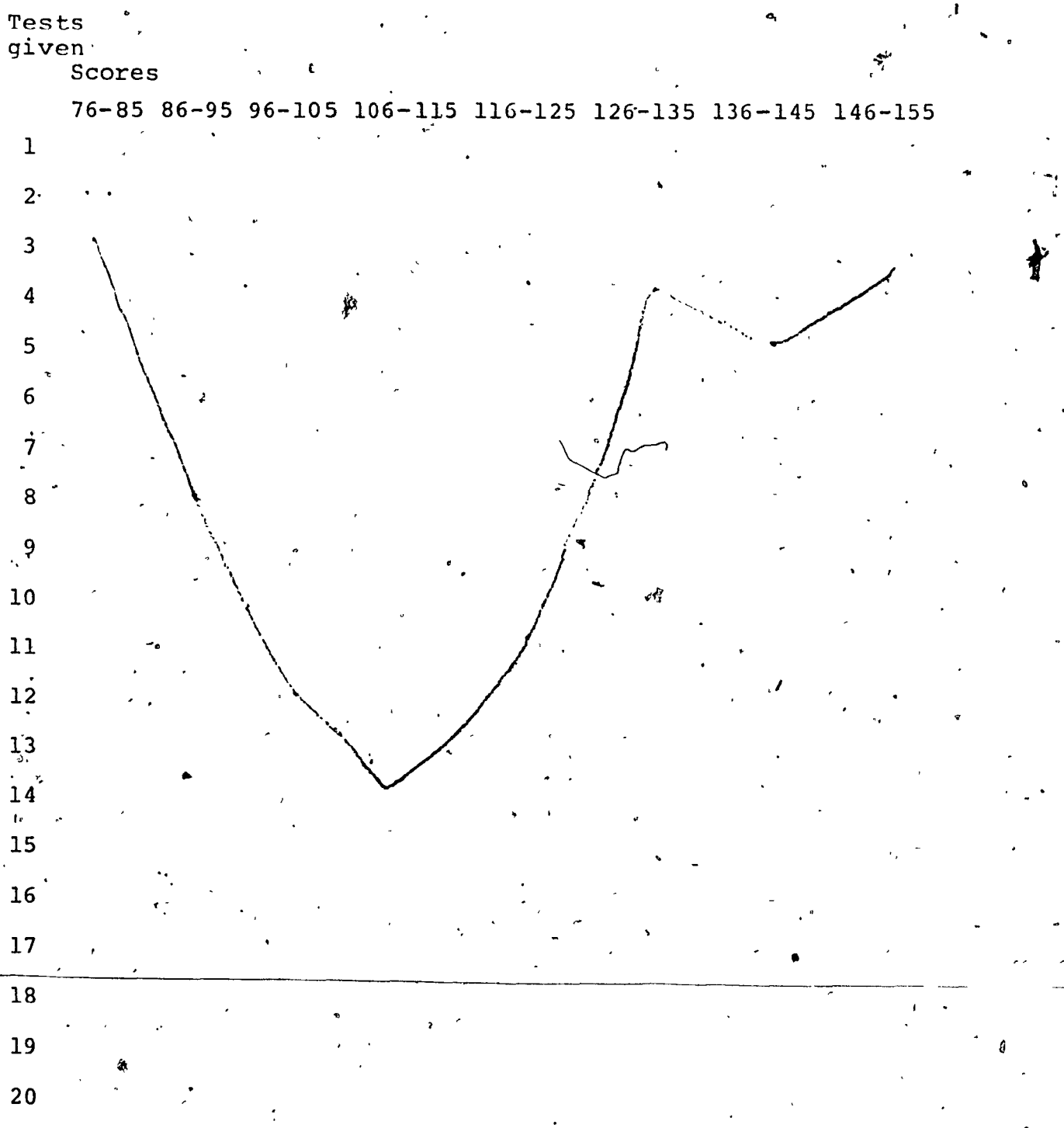
GRAPH 1

Unilingual Frequency Graph on
Total of Three Tests



GRAPH 11

Bilingual Frequency Graph on
Total of Three Tests



5. It was then thought to be important to see if there was any statistical significance between the two groups, that is, to find out whether or not there is reason to believe that the results have some basis in reliability.

Discussion of Results

A t test was done to compare the statistical difference between the two means. It was found that there was a significant difference at the .1 level of significance (t= 1.89; df= 40; two tailed test).[1]

Limitations of the Testing Procedure

1. On several occasions the researcher found that the intelligence level as determined by the teacher showed a distinction that was stated as follows: implying that the child is "exceptionally bright in math, but not in drawing". This distinction was not made with each student. That is, there was no attempt to distinguish between "drawers" and "non-drawers". More research could be done on this level.

2. Bilingualism in the Montreal School Systems is not necessarily the same as bilingualism in any other city, nor is it necessarily the same as bilingualism in other socio-economic backgrounds, even within the Montreal School System. However, this thesis deals only with the children of "professional" parents and the results obtained by this thesis can be used only in this context.

---

[1] Ferguson, Statistical Methods in Psychology and Education, McGraw-Hill, Toronto, 1972.

3. Since the thesis is related to linguistics in terms of the way a student's language influences his/her perceptions, there is little direct application to the practical theory of art education.

4. There is a possibility that trying to equate the students on a socio-economic level is superficial. That is, there is no distinction made as to whether or not the father who is a professional is also an artist. The fact that one or both of the parents is an artist may or may not influence the results. Further distinctions could be made at this level.

5. Because not all the groups met the exact specifications, and subsequent groups had to be tested at private homes, the continuity of the testing procedure was changed. Further research could include more definite homogeneous groupings.

6. Several limitations in procedure are evident at the scoring level:

a) The researcher alone was responsible for the scoring decisions. There are seventy-two categories to be decided upon. Perhaps the tests could be corrected by a second person.

b) It is possible that another test in conjunction with the "Draw-A-Man Test" could be used to achieve a more neutral test of perception. The "Draw-A-Man Test" is necessary for this thesis in order to show that any difference in the scores is attributed to linguality itself, since the test is one which measures intellectual maturity, a constant in the present study.

c) No system of coding was used in scoring the tests and perhaps a system to insure objectivity in scoring should be developed in future testing.

Summary

The results show that bilinguals have increased perception (according to results of the Dale Harris "Draw A Man Test") as compared to Unilinguals at the .1 level. The tests were administered and corrected by the researcher and the statistics were compiled.

CHAPTER IV

CONCLUSIONS

Perception and Art Education Theory

The hypothesis is framed in terms of Linguistics Psychology, as well as Art and Psychology. It is difficult to make any direct applications or implications for the field of Art Education without developing the framework around which implications can be made. The framework around which this thesis is based falls into the category of Psychology of Art and Perception. The thesis is structured in such a way so as to stress the possibility of further understanding as to why a child draws what he/she draws:

> To claim that the majority of art educators has been more concerned with what the child does rather than with what he sees is borne out by the nature of the bulk of art education literature.
>
> (MacGregor: 1969, p.1)

Gestaltist belief lies in acceptance of a more universal perception which is a theory of art directly opposed to the one proposed in this thesis:

> Typical of the experiments conducted by the pioneers of Gestalt theory is one by Koffka, which has as its area of enquiry the relationships existing between a figure and its ground.
>
> (MacGregor: 1969, p.1)

Rudolf Arnheim has promoted the use of universal principles to understand and teach perception (Art and Visual Perception, Berkeley: U. of Calif. Press, 1969). McFee (1961), on the otherhand, believes that children should be encouraged to explore their visual world rather than be introduced to formal perspective systems before they have learned to "see" perspectively (p. 49).

Other researchers have studied perception from different points of view: Segall, Campbell and Herskowitz (1966) made use of illusion figures in a recent cross-cultural study to observe how groups from different cultural ecologies responded perceptually to identical stimuli. They reasoned that if it could be shown that differences in perceptual constancy and in depth perception could be attributed to cultural factors, then the Gestaltist position regarding universal laws of perceptual organization was assailable. The Segall, Campbell, Herskowitz hypothesis was allied with the concept of ecological cue validity; that is, that if human groups differ in their visual inference tendencies, it is because their visual environments differ. Illusion figures were used in the above experiment because theoretically their non-verbal character eliminates the kinds of ambiguity that may arise as a result of the strictures of language. However, in the case of the present thesis the test in perception involved the variations in

language so as to determine the effects of language on perception.

MacGregor (1969) explains that results of the Sandler parallelogram and Mueller-Lyer illusion figure used to test twelve native African samples, one Philippine sample, and three Occidental/white samples, showed that:

> ...these differences are not racial. They are differences produced by the same kinds of factors that are responsible for individual differences in illusion susceptibility, namely, differences in experience.
> (p. 7)

Other educators have dealt with the subject of perception. Dale Harris (1963) equates the ability to perceive with the ability to discriminate. His remark that ... "the appreciation of abstract properties of the human figure... develops much more slowly than the awareness of the existence of parts" (p. 163) is very closely allied with Piaget's theory of development from a percept-dominated to a concept-dominated existence. Harris also argues in favour of perception as an aggregate of individual experience rather than an entity. June McFee (1961) has made perception the keystone of the structure of art education. Fundamental to her model is the necessity for bearing in mind those cultural configurations which will affect the child's perceptions. Accordingly, she sees a relationship

between cognitive understanding and visual perception.

> learning to handle information both ways, through what we know of it and through careful analysis of the visual information, gives us more accuracy in our observations. Further, it gives us the capacity to achieve a much richer aesthetic experience, because we get so much information from our environment. (pp. 80-81)

According to MacGregor (1969), McFee's "non-alignment with Gestalt theory is also apparent in her insistence upon the uniqueness of individual experience..." (p. 8)

In a further effort to understand the uniqueness of individual experience, the researcher felt that this thesis might benefit the area of art education enquiry that deals with individual differences, by attempting to see if a relationship exists between use of two languages and perception.

Implications of the Present Thesis for Art Education and Future Research

The results of the present thesis may benefit art educators by providing:

1. The basis for further research in testing perception and language.

2. The basis for future research using groups of Bilinguals, Anglophones, Francophones, to see if there are differences (other than those cited in this thesis) in perception.

3. The basis for determining more closely the effect of culture and environment on perception with the same groups as used in the present thesis, in order to determine whether, say, having a mother as "artist" as another variable in the test procedure.

4. The possibility of retesting the groups used in this thesis to see whether bilingualism at other ages affects perception.

5. The possibility of testing to see whether or not the socio-economic background (which we know influences intelligence, see p. 20 of present thesis) influences perception.

6. The possibility of testing, say a unilingual French child before and after he/she learns a second language to determine if he/she has increased perceptions after learning a second language.

7. The basis for further research involving Language and symbolic abstractions, and/or other characteristic or cultural traits that may result in increased perceptual awareness or perceptual flexibility and manipulation.

8. The possibility of further research to determine whether concept formation is a process which bridges the gap between perception and the resulting drawing of the perception. What interferes with, or enhances the gap between perception and the symbolic image?

9. Further studies could be conceived using the variables provided in this thesis and using Nagy's study of drawings that relate to things talked about but never seen (see p. 17 of thesis) to see if, indeed, bilinguals can abstract earlier than unilinguals within the forementioned context.

10. Studies could be conceived using the same variables as used in this thesis and another variable, those students who (as determined by their teachers) are "exceptionally bright in math" but not in "drawing", to see if the results have any relationship to those found in this thesis.

11. Provides the basis for further tests of the use of language as related to perception by testing the child's ability to use language (i.e., in terms of poor, fair, average, good, excellent use of language, etc.) with the resulting perceptual drawing test to see whether the ability to use language is related to perception.

12. Another possibility for the art educator would be to test the perceptions of non-language users (deaf children, for example) against those of language users. The data gathered in this kind of enquiry could be the basis for an entirely different area of art education research.

MacGregor (1969) advises that, "to make the point about man's uniqueness is of limited value if practices within the art area do not support it." (p.10) He suggests that individual carrels or cubicle spaces grouped around a

central "core" of specialized and non-portable equipment be provided. Even so, this kind of application is yet future-oriented; however, at the risk of advancing at too quick a pace, the researcher feels that the results provided by this study allow for the possibility of developing further understanding (as outlined in this chapter) that might enable art educators to advance theories that reinforce individual differences. Perhaps art educators could use the variables of this thesis and retest the students on an individual basis to see if there is still a relationship between using two languages and increased perception - that is, to put MacGregor's idea (of separate work area and thus individualized products) into practice. This would mean retesting the group of students used in this thesis on an individual basis in order to eliminate the influences of "the group experiences" and to compare the results with those found in this thesis.

APPENDIX A

English and French Instructions

for

The Draw-A-Man Test

INSTRUCTIONS

PAGE 1

JE VAIS VOUS DEMANDER DE ME RAIRE TROIS DESSINS AUJOURD'HUI. ON VA LES FAIRE UN PAR UN. SUR CETTE PREMIERE PAGE, VOUS ME DESSINEZ LE PORTRAIT D'UN HOMME. VOUS FAIRES DE VOTRE MIEUX: PRENEZ VOTRE TEMPS ET TRAVAILLEZ BIEN. JE VEUX VOIR SI LES PETITS GARCONS ET LES PETITES FILLES DE L'ECOLE .....PEUVENT FAIRE AUSSI BIEN QUE CEUX DES AUTRES ECOLES. FAITE DE VOTRE MIEUX ET NOUS ALLONS VOIR LES BEAUX DESSINS QUE VOUS POUVEZ FAIRE. IL FAUT DESSINER L'HOMME AU COMPLET, PAS SEULEMENT SA TETE ET SES EPAULES.

I AM GOING TO ASK YOU TO MAKE THREE PICTURES FOR ME TODAY. WE WILL MAKE THEM ONE AT A TIME. ON THIS FIRST PAGE I WANT YOU TO MAKE A PICTURE OF A MAN. MAKE THE VERY BEST PICTURE THAT YOU CAN: TAKE YOUR TIME AND WORK VERY CAREFULLY. I WANT TO SEE WHETHER THE BOYS AND GIRLS IN .... SCHOOL CAN DO AS WELL AS THOSE IN OTHER SCHOOLS. TRY VERY HARD, AND SEE WHAT GOOD PICTURES YOU CAN MAKE. BE SURE TO MAKE THE WHOLE MAN, NOT JUST HIS HEAD AND SHOULDERS.

(lorsque les enfants ont terminé ce dessin, donnez-leurs quelques mots d'encouragement; puis, on fait le deuxième dessin.)
(when the drawings have been completed, say a few words of praise and then begin the second drawing.)

PAGE 2

CETTE FOIS-CI, VOUS ME FAITES LE PORTRAIT D'UNE FEMME. VOUS FAITES LE MEILLEUR DESSIN POSSIBLE. PRENEZ VOTRE

TEMPS ET TRAVAILLEZ BIEN. IL FAUT DESSINER LA FEMME A LA COMPLETE PAS SEULEMENT SA TETE ET SES EPAULES.

THIS TIME I WANT YOU TO MAKE A PICTURE OF A WOMAN. MAKE THE VERY BEST PICTURE THAT YOU CAN: TAKE YOUR TIME AND WORK VERY CAREFULLY. BE SURE TO MAKE THE WHOLE WOMAN AND NOT JUST HER HEAD AND SHOULDERS.

(N.B. AVEC DE JEUNES ENFANTS, IL FAUT PARFOIS AJOUTER:
...UN PORTRAIT DE FEMME, UNE MAMAN).
(N.B. WITH VERY YOUNG CHILDREN IT MAY BE APPROPRIATE TO SAY:...PICTURE OF A WOMAN, A MOMMY).

Arretez pour quelques instants. Stop and rest before going on.

PAGE 3

CE DERNIER DESSIN SERA LE PORTRAIT DE QUELQU'UN QUE VOUS CONNAISSEZ BIEN: CA DOIT DONC ETRE LE MEILLEUR. CHACUN DE VOUS, VOUS ME DESSINEZ UNE PORTRAIT DE VOUS MEME AU COMPLET - PAS SEULEMENT LE VISAGE. VOUS L'IGNOREZ SANS DOUTE, MAIS PLUSIEURS GRANDS ARTISTES AIMAIENT FAIRE LEUR PROPRE PORTRAIT ET CE SONT SOUVENT LEURS MEILLEURS TRAVAUX ET LES MIEUX CONNUS. IL FAUT DONC FAIRE ATTENTION ET FAIRE LE MEILLEUR DES TROIS DESSINS.

THIS PICTURE IS TO BE SOMEONE YOU KNOW VERY WELL, SO IT SHOULD BE THE BEST OF ALL. I WANT EACH OF YOU TO MAKE A PICTURE OF YOURSELF -YOUR WHOLE SELF- NOT JUST YOUR FACE (PERHAPS YOU DON'T KNOW IT BUT MANY OF THE GREATEST ARTISTS LIKED TO MAKE THEIR OWN PORTRAITS, AND THESE ARE OFTEN AMONG THEIR BEST AND MOST FAMOUS PICTURES.) SO TAKE CARE AND MAKE THIS LAST ONE THE VERY BEST OF THE THREE.

APPENDIX B

Capacité Linguistique

Language Ability

LANGUAGE ABILITY: CAPACITE LINGUISTIQUE:

SPEAKS ENGLISH AND A FEW WORDS OF FRENCH [ ]

PARLE ANGLAIS ET QUELQUES MOTS DE FRANCAIS [ ]

SPEAKS FRENCH AND A FEW WORDS OF ENGLISH [ ]

PARLE FRANCAIS ET QUELQUES MOTS D'ANGLAIS [ ]

IS BILINGUAL AND SPEAKS FRENCH AT HOME [ ]

BILINGUE ET PARLE FRANCAIS CHEZ LUI [ ]

IS BILINGUAL AND SPEAKS ENGLISH AT HOME [ ]

BILINGUE ET PARLE ANGLAIS CHEZ LUI [ ]

OTHER WITH EXPLANATION [ ]

.....

AUTRE AVEC EXPLICATION [ ]

LANGUAGE ABILITY: CAPACITE LINGUISTIQUE:

SPEAKS ENGLISH AND A FEW WORDS OF FRENCH [ ]
PARLE ANGLAIS ET QUELQUES MOTS DE FRANCAIS [ ]

SPEAKS FRENCH AND A FEW WORDS OF ENGLISH [ ]
PARLE FRANCAIS ET QUELQUES MOTS D'ANGLAIS [ ]

IS BILINGUAL AND SPEAKS FRENCH AT HOME [ ]
BILINGUE ET PARLE FRANCAIS CHEZ LUI [ ]

IS BILINGUAL AND SPEAKS ENGLISH AT HOME [ ]
BILINGUE ET PARLE ANGLAIS CHEZ LUI [ ]

OTHER WITH EXPLANATION [ ]

.....

AUTRE AVEC EXPLICATION [ ]

APPENDIX C

Complete Test of

Francophone Female

ECOLE:
SCHOOL:

DATE:

1. Nom: JEAN
   Name: (nom)
   MADELEINE (prénom)

2. Adresse: 4405 ISABELLA Montréal
   Address:

3. garçon ☐ fille ☒
   boy ☐ girl ☒

4. âge: 7
   age:

5. Date de naissance: NOVEMBRE 5
   Date of Birth: (mois-month) (jour-day) (anneé- year)

6. Intelligence:
   I.Q.

7. Profession du père: Medecin
   Father's occupation:

8. Classe de grade: 2ième
   Grade:

LANGUAGE ABILITY: CAPACITÉ LINGUISTIQUE:

SPEAKS ENGLISH AND A FEW WORDS OF FRENCH ☐
PARLE ANGLAIS ET QUELQUES MOTS DE FRANÇAIS ☐

SPEAKS FRENCH AND A FEW WORDS OF ENGLISH ☐
PARLE FRANCAIS ET QUELQUES MOTS D'ANGLAIS ☑ PRESQUE QUE FRANCAIS

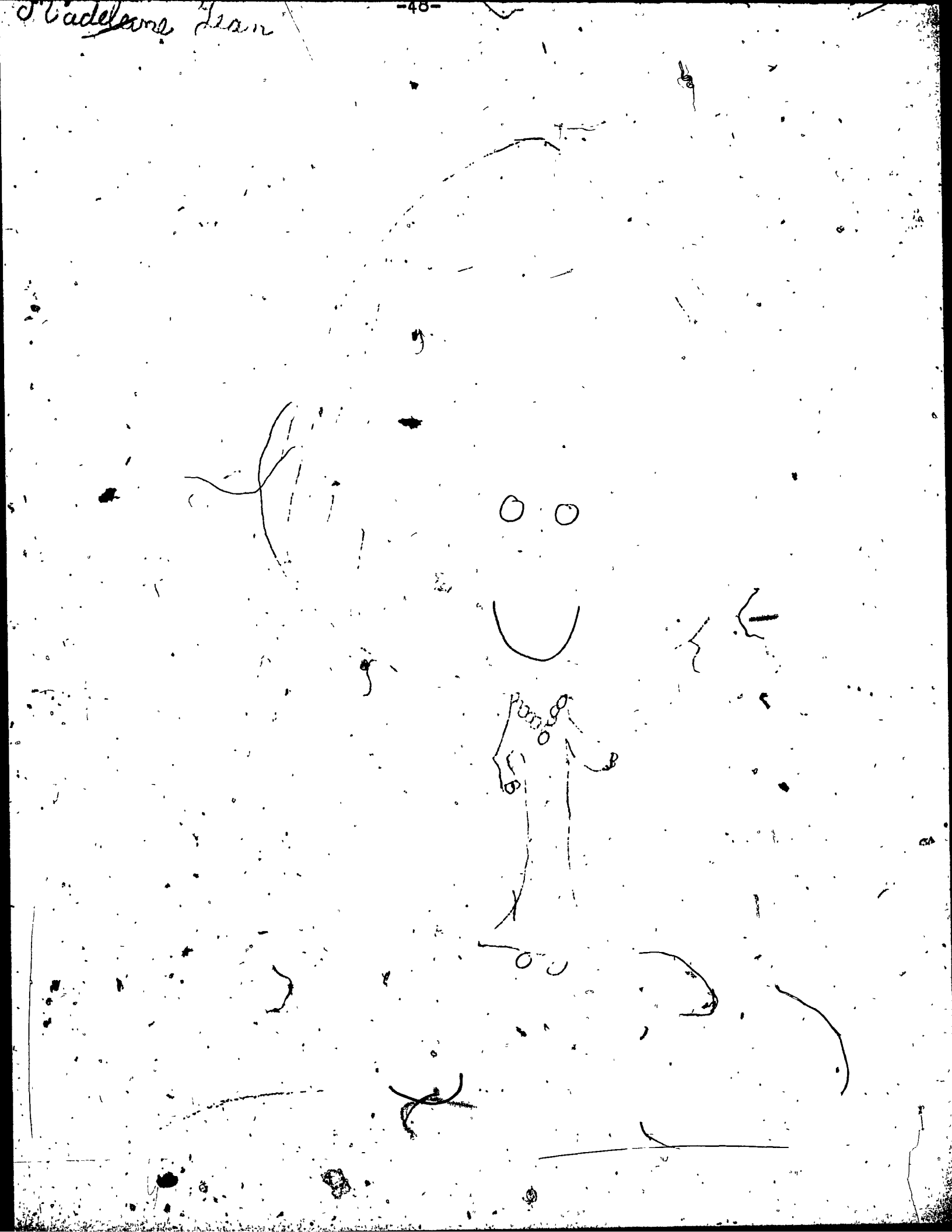
IS BILINGUAL AND SPEAKS FRENCH AT HOME ☐
BILINGUE ET PARLE FRANÇAIS CHEZ LUI ☐

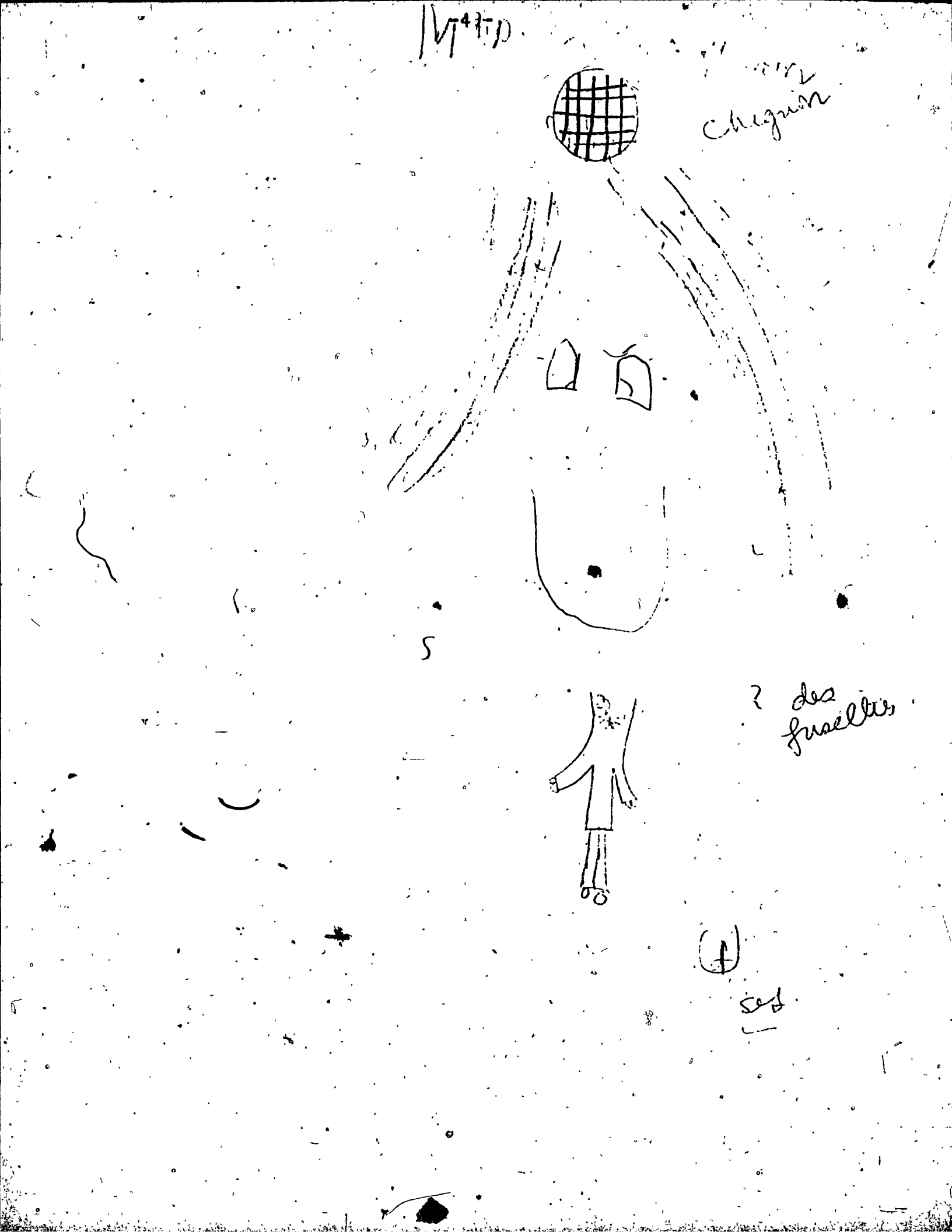
IS BILINGUAL AND SPEAKS ENGLISH AT HOME ☐
BILINGUE ET PARLE ANGLAIS CHEZ LUI ☐

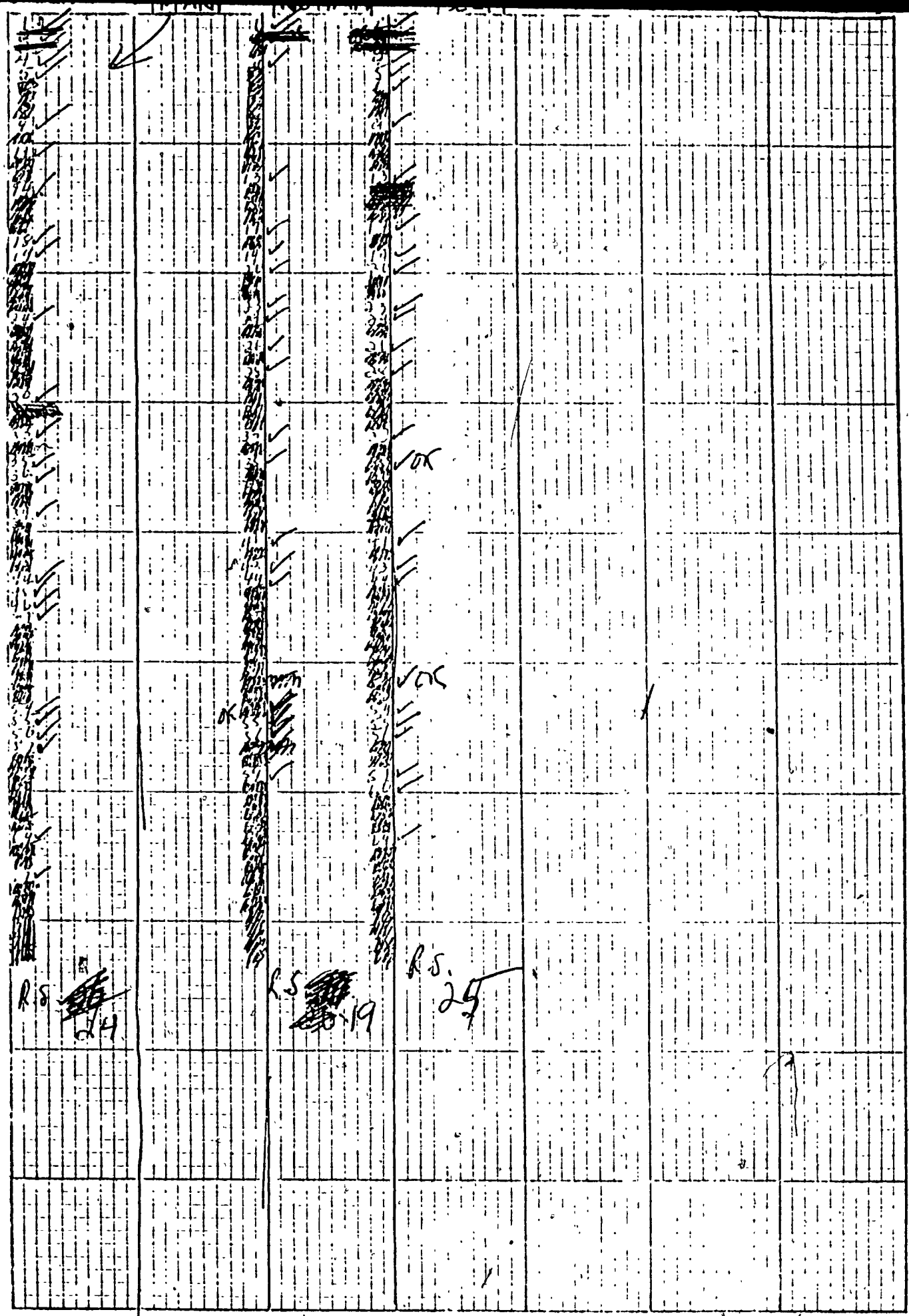
OTHER WITH EXPLANATION ☐
.....
AUTRE AVEC EXPLICATION ☐

Madeleine Jean

Madeleine Jean




Chagrin
? des fusillés



Madeleine Jean / F. / Francophone / more intelligent / professional father / 7 yrs.

APPENDIX D

Complete Test of

Bilingual Male.

ECOLE:
SCHOOL: Roslyn #7

DATE: May 25th 1973

1. Nom: Fieldman JORDAN
   Name: (nom) (prénom)

2. Adresse: 50 Arlington
   Address:

3. garçon ☑ fille ☐
   boy girl

4. âge: 7½
   age:

5. Date de naissance: Nov. 4 64
   Date of Birth: (mois-month) (jour-day) (anneé- year)

6. Intelligence: N° 1
   I.Q.

7. Profession du père: architect.
   Father's occupation:

8. Classe de grade: grade
   Grade:

LANGUAGE ABILITY: CAPACITé LINGUISTIQUE:

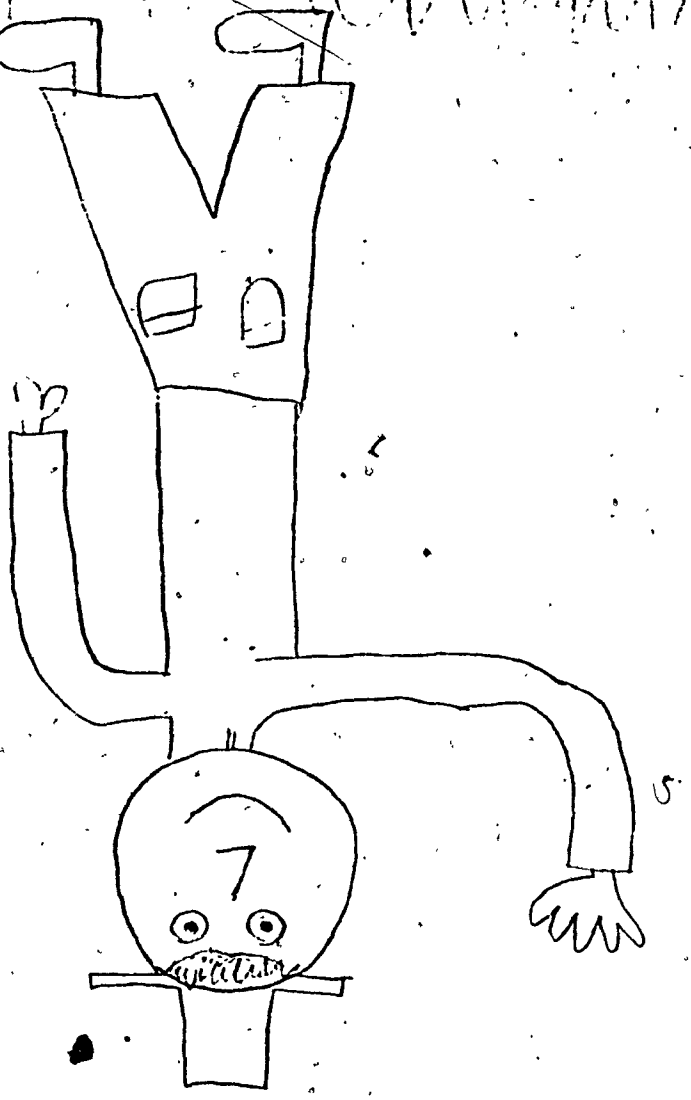
SPEAKS ENGLISH AND A FEW WORDS OF FRENCH ☐
PARLE ANGLAIS ET QUELQUES MOTS DE FRANÇAIS

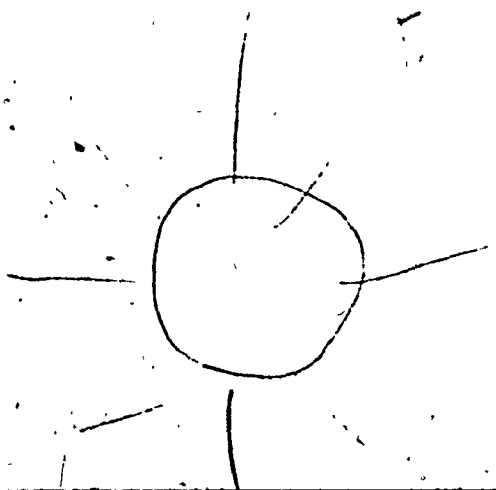
SPEAKS FRENCH AND A FEW WORDS OF ENGLISH ☐
PARLE FRANCAIS ET QUELQUES MOTS D'ANGLAIS

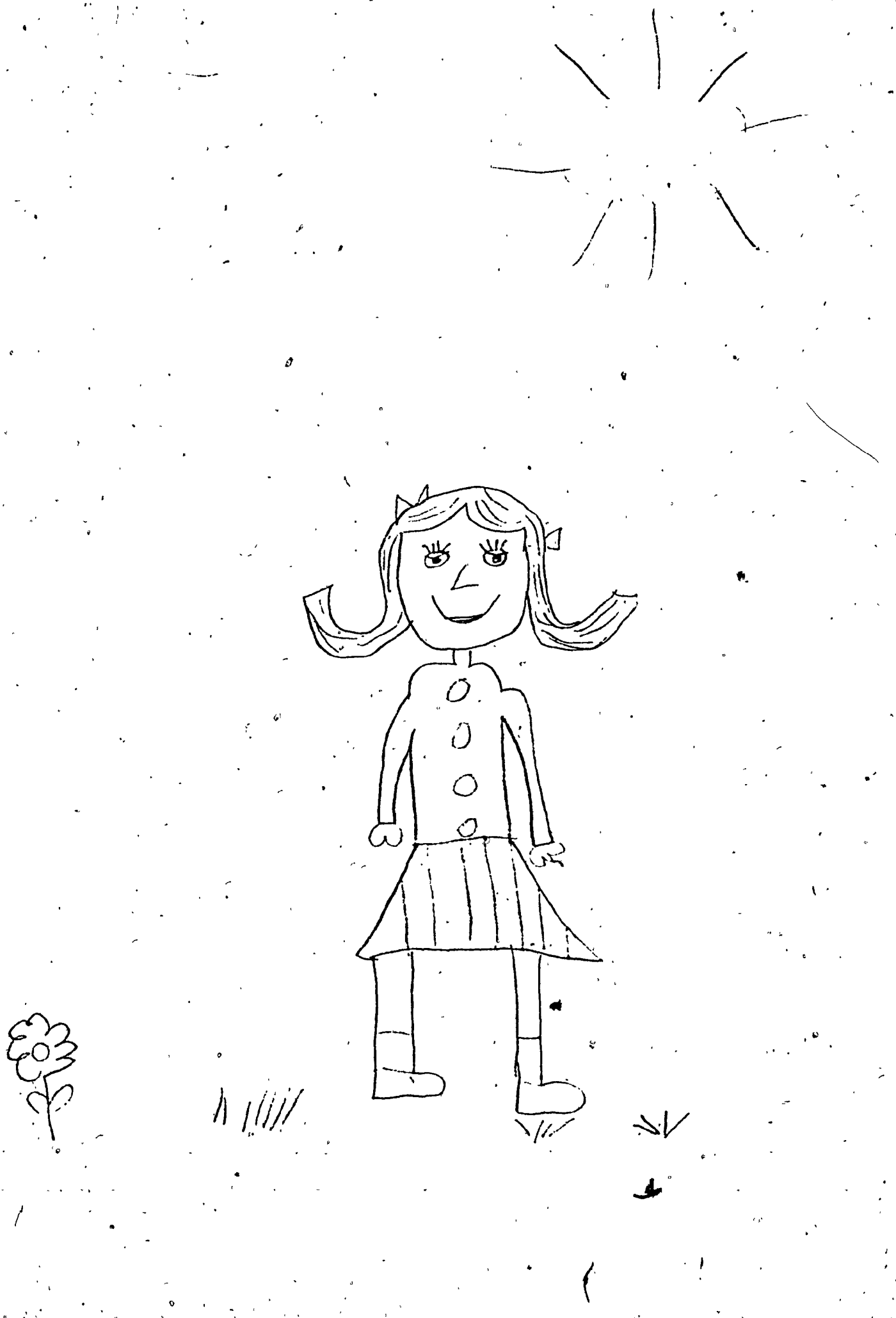
IS BILINGUAL AND SPEAKS FRENCH AT HOME ☐
BILINGUE ET PARLE FRANÇAIS CHEZ LUI

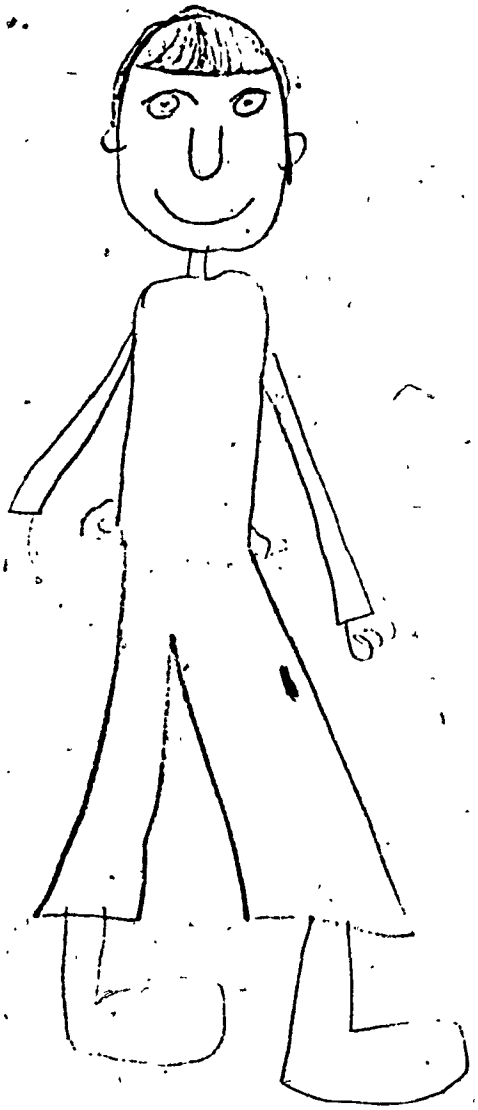
IS BILINGUAL AND SPEAKS ENGLISH AT HOME ☑ Fr. a bit
BILINGUE ET PARLE ANGLAIS CHEZ LUI

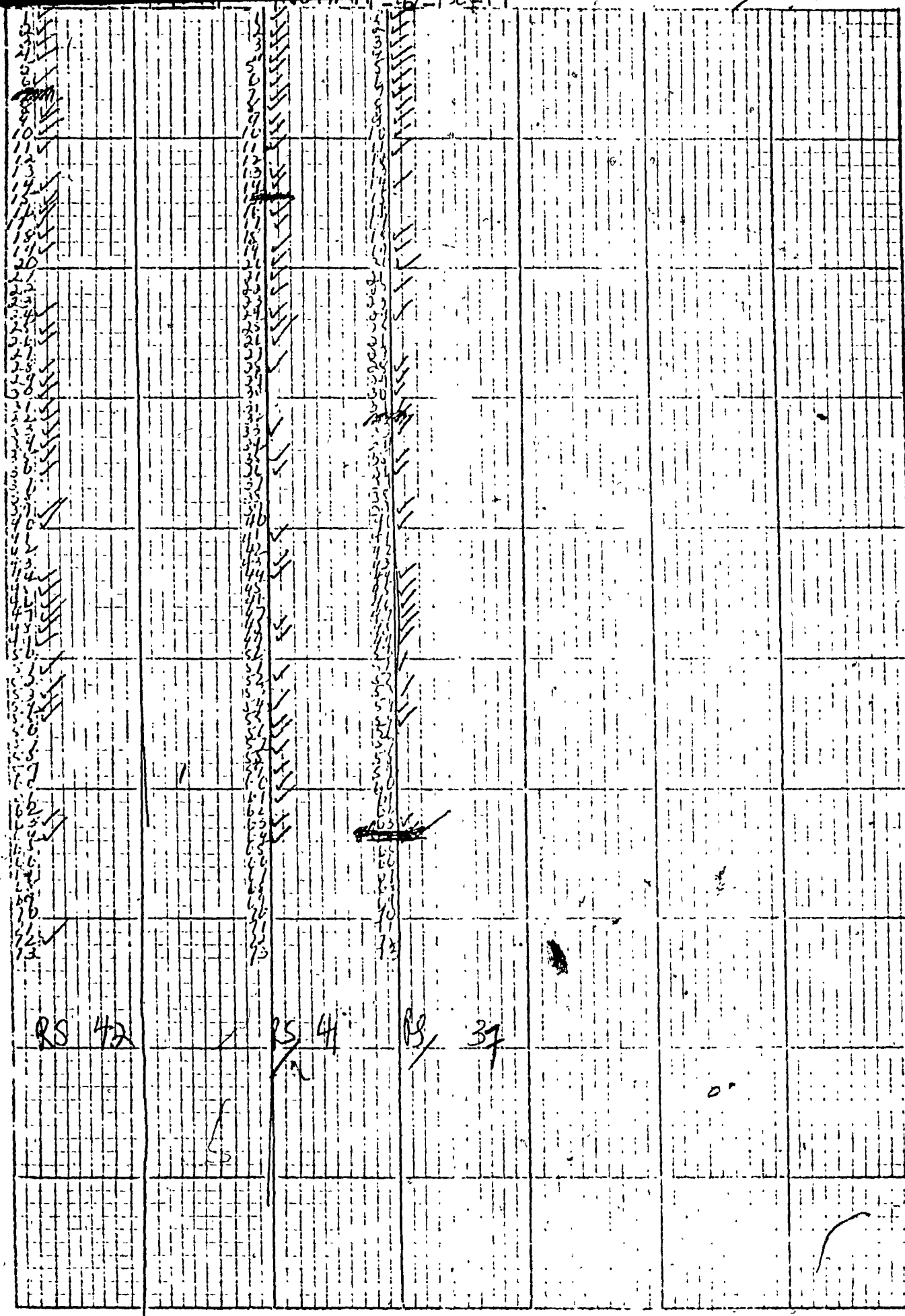
OTHER WITH EXPLANATION ☐
AUTRE AVEC EXPLICATION











Jordan Feldman / M. / Bilevy - Anglo / 17½ yrs / Architect / intelligent high

APPENDIX E

Dale Harris'
Tables for Converting
Raw Scores to
Standard Scores
(1963: pp. 294-301)

Table for Converting Raw Scores to Standard Scores

Drawing of a Man, by Boys.

RAW SCORE	CHRONOLOGICAL AGE IN YEARS													RAW SCORE
	3*	4*	5	6	7	8	9	10	11	12	13	14	15	
0	68	55	53	52	51	50	49							0
1	73	61	56	54	53	52	50							1
2	77	66	59	57	55	54	52	50	51					2
3	82	70	62	60	57	56	54	52	52					3
4	86	74	65	62	59	58	55	54	54	51				4
5	91	78	68	65	62	60	57	55	55	52				5
6	95	83	71	68	64	62	59	57	56	53				6
7	100	87	74	70	66	63	60	58	58	55	50			7
8	104	91	77	73	68	65	62	60	59	56	51			8
9	109	96	80	75	70	67	63	61	60	57	53			9
10	113	100	83	78	72	69	65	63	62	59	54	50	50	10
11	118	104	86	81	75	71	67	64	63	60	56	52	52	11
12	122	109	89	83	77	73	69	66	65	61	57	53	53	12
13	127	113	92	86	79	75	70	67	66	63	58	55	55	13
14	131	117	95	89	81	77	72	69	68	64	60	56	56	14
15	136	122	98	91	84	79	74	70	69	66	61	58	57	15
16	140	126	101	94	86	81	75	72	70	67	63	59	59	16
17	145	130	104	96	88	83	77	73	72	68	64	60	60	17
18	149	134	107	99	90	85	79	75	73	70	65	62	62	18
19	154	139	110	102	92	87	80	76	74	71	67	63	63	19
20	158	143	113	104	94	89	82	78	76	72	68	65	64	20
21	163	147	116	107	97	90	84	79	77	73	70	66	66	21
22	168	152	119	110	99	92	85	81	78	75	71	68	67	22
23	172	156	122	112	101	94	87	82	80	76	73	69	69	23
24		160	125	115	103	96	89	84	81	78	74	70	70	24
25		164	128	117	105	98	90	86	83	80	75	72	72	25
26		169	131	120	108	100	92	87	84	81	77	73	73	26
27		173	134	123	110	102	94	89	85	82	78	75	74	27
28		177	137	125	112	104	95	90	87	83	80	76	76	28
29			140	128	114	106	97	92	88	85	81	78	77	29
30			143	131	116	108	99	93	90	86	82	79	79	30
31			146	133	119	110	100	95	91	87	84	80	80	31
32			149	136	121	112	102	96	92	89	85	82	81	32
33			152	138	123	114	104	98	94	90	87	83	83	33
34				141	125	116	105	99	95	92	88	85	84	34
35				144	127	118	107	101	97	93	89	86	86	35

* These values have been calculated from samples which are not as representative as the age samples from 5 through 15 years. They are likely to be a little high for unselected or more adequately representative samples. They are offered as tentative guides for use with pre-school groups.

RAW SCORE	CHRONOLOGICAL AGE IN YEARS													RAW SCORE
	3	4	5	6	7	8	9	10	11	12	13	14	15	
36				146	130	119	109	102	98	94	91	88	87	36
37				149	132	121	110	104	99	96	92	89	88	37
38					134	123	112	105	101	97	94	90	90	38
39					136	125	114	107	102	98	95	92	91	39
40					138	127	116	108	103	100	96	93	93	40
41					141	129	117	110	105	101	98	95	94	41
42					143	131	119	111	106	102	99	96	96	42
43					145	133	121	113	108	104	101	98	97	43
44					147	135	122	115	109	105	102	99	98	44
45					149	137	124	116	110	106	103	100	100	45
46						139	126	118	112	108	105	102	101	46
47						141	127	119	113	109	106	103	103	47
48						143	129	121	114	111	108	105	104	48
49						145	131	122	116	112	109	106	105	49
50						146	133	124	117	113	110	108	107	50
51						148	134	125	119	115	112	109	108	51
52						150	136	127	120	116	113	110	110	52
53							137	128	121	117	115	112	111	53
54							139	130	123	119	116	113	113	54
55							141	131	124	120	118	115	114	55
56							142	133	125	121	119	116	115	56
57							144	134	127	123	120	118	117	57
58							146	136	128	124	122	119	118	58
59							147	137	130	126	123	120	120	59
60							149	139	131	127	125	122	121	60
61								140	132	128	126	123	122	61
62								142	134	130	127	125	124	62
63								143	135	131	129	126	125	63
64								145	137	132	130	128	127	64
65								146	138	134	132	129	128	65
66								148	139	135	133	130	130	66
67								150	141	136	134	132	131	67
68									142	138	136	133	132	68
69									143	139	137	135	134	69
70									145	140	139	136	135	70
71									146	142	140	138	137	71
72									148	143	141	139	138	72
73									149	145	143	140	139	73

Drawing of a Woman, by Boys

RAW SCORE	CHRONOLOGICAL AGE IN YEARS													RAW SCORE
	3*	4*	5	6	7	8	9	10	11	12	13	14	15	
0	68	55	56	56	51									0
1	73	61	59	58	53	50								1
2	77	66	61	61	56	52								2
3	82	70	64	63	58	53								3
4	86	74	67	65	60	55	50	49						4
5	91	78	70	68	62	57	51	51	49					5
6	95	83	73	70	64	59	53	52	51					6
7	100	87	75	73	66	61	55	54	52					7
8	104	91	78	75	68	63	57	56	54	50				8
9	109	96	81	77	70	65	59	57	55	52				9
10	113	100	84	80	72	67	60	59	57	54	50			10
11	118	104	86	82	74	69	62	61	59	55	52			11
12	122	109	89	84	76	70	64	62	60	56	53			12
13	127	113	92	87	79	72	66	64	62	58	55	50		13
14	131	117	95	89	81	74	67	66	63	60	56	52	51	14
15	136	122	97	91	83	76	69	67	65	61	58	54	53	15
16	140	126	100	94	85	78	71	69	66	63	59	55	54	16
17	145	130	103	96	87	80	73	70	68	64	61	57	56	17
18	149	134	106	98	89	82	75	72	70	66	63	58	57	18
19	154	139	108	101	91	84	76	74	71	68	64	60	59	19
20	158	143	111	103	93	86	78	75	73	69	66	62	61	20
21	163	147	114	105	95	87	80	77	74	71	67	63	62	21
22	168	152	117	108	97	89	82	79	76	72	69	65	64	22
23	172	156	119	110	99	91	84	80	78	74	70	66	65	23
24		160	122	112	102	93	85	82	79	75	72	68	67	24
25		164	125	115	104	95	87	84	81	77	73	70	69	25
26		169	128	117	106	97	89	85	82	78	75	71	70	26
27		173	131	119	108	99	91	87	84	80	77	73	72	27
28		177	133	122	110	101	93	89	85	82	78	74	71	28
29			136	124	112	103	94	90	87	83	80	76	75	29
30			139	126	114	104	96	92	89	85	81	78	77	30
31			142	129	116	106	98	93	90	86	83	79	78	31
32			144	131	118	108	100	95	92	88	84	81	80	32
33				133	120	110	102	97	93	89	86	82	82	33
34				136	122	112	103	98	95	91	88	84	83	34
35				138	125	114	105	100	96	93	89	86	85	35

RAW SCORE	CHRONOLOGICAL AGE IN YEARS													RAW SCORE
	3	4	5	6	7	8	9	10	11	12	13	14	15	
36				140	127	116	107	102	98	94	91	87	86	36
37				143	129	118	109	103	100	96	92	89	88	37
38				145	131	120	110	105	101	97	94	90	90	38
39					133	121	112	107	103	99	95	92	91	39
40					135	123	114	108	104	100	97	94	93	40
41					137	125	116	110	106	102	98	95	94	41
42					139	127	118	111	107	103	100	97	96	42
43					141	129	119	113	109	105	102	98	98	43
44					143	131	121	115	111	107	103	100	99	44
45					145	133	123	116	112	108	105	101	101	45
46					148	135	125	118	114	110	106	103	103	46
47					150	137	127	120	115	111	108	105	104	47
48						139	128	121	117	113	109	106	106	48
49						140	130	123	118	114	111	108	107	49
50						142	132	125	120	116	112	109	109	50
51						144	134	126	122	117	114	111	111	51
52						146	136	128	123	119	116	113	112	52
53						148	137	129	125	121	117	114	114	53
54						150	139	131	126	122	119	116	115	54
55							141	133	128	124	120	117	117	55
56							143	134	129	125	122	119	119	56
57							145	136	131	127	123	121	120	57
58							146	138	133	128	125	122	122	58
59							148	139	134	130	127	124	123	59
60							150	141	136	132	128	125	125	60
61								143	137	133	130	127	127	61
62								144	139	135	131	129	128	62
63								146	140	136	133	130	130	63
64								148	142	138	134	132	132	64
65								149	144	139	136	133	133	65
66								151	145	141	137	135	135	66
67									147	142	139	137	136	67
68									148	144	141	138	138	68
69									150	146	142	140	140	69
70										147	144	141	141	70
71										149	145	143	143	71

* These values have been calculated from samples which are *not* as representative as the age samples from 5 through 15 years. They are likely to be a little high for unselected or more adequately representative samples. They are offered as tentative guides for use with preschool groups.

Table for Converting Raw Scores to Standard Scores (continued)

Drawing of a Man, by Girls

RAW SCORE	CHRONOLOGICAL AGE IN YEARS													RAW SCORE
	3*	4*	5	6	7	8	9	10	11	12	13	14	15	
0	66	58	50	50	49									0
1	70	62	53	52	51	50								1
2	74	66	56	55	53	51								2
3	78	70	59	57	55	53	50							3
4	83	74	62	60	58	55	52							4
5	87	78	65	62	60	57	54	50						5
6	91	81	68	65	62	59	55	51						6
7	96	85	70	67	64	61	57	53	49					7
8	100	89	73	70	66	63	59	55	51	49				8
9	104	92	76	72	69	65	61	56	52	51				9
10	108	96	79	75	71	67	62	58	54	52				10
11	113	100	82	77	73	69	64	59	55	54	50			11
12	117	104	85	80	75	70	66	61	57	55	51			12
13	121	107	87	82	77	72	67	63	58	56	53	50		13
14	126	111	90	85	79	74	69	64	60	58	54	51		14
15	130	115	93	87	82	76	71	66	61	59	56	53	50	15
16	134	119	96	90	84	78	73	67	63	61	57	54	51	16
17	139	122	99	93	86	80	74	69	64	62	59	56	53	17
18	143	126	102	95	88	82	76	71	66	64	60	57	55	18
19	147	130	105	98	90	83	78	72	68	65	62	59	56	19
20	152	134	107	100	92	86	80	74	69	66	63	61	58	20
21	156	137	110	103	95	88	81	75	71	68	65	62	60	21
22	160	141	113	105	97	89	83	77	72	70	66	64	61	22
23	165	149	116	108	99	91	85	79	74	71	68	65	63	23
24	169	152	119	110	101	93	86	80	75	72	69	67	65	24
25	173	156	122	113	103	95	88	82	77	74	71	68	66	25
26	177	160	124	115	105	97	90	83	78	75	72	70	68	26
27		164	127	118	108	99	92	85	80	77	74	72	70	27
28		168	130	120	110	101	93	87	81	78	75	73	71	28
29		171	133	123	112	103	95	88	83	80	77	75	73	29
30		175	136	125	114	105	97	90	84	81	78	76	75	30
31			139	128	116	106	98	91	86	83	80	78	76	31
32			142	130	118	108	100	93	87	84	81	79	78	32
33			144	133	121	110	102	95	89	86	83	81	80	33
34			147	135	123	112	104	96	91	87	84	83	81	34
35			150	138	125	114	105	98	92	88	86	84	83	35

RAW SCORE	CHRONOLOGICAL AGE IN YEARS													RAW SCORE
	3	4	5	6	7	8	9	10	11	12	13	14	15	
0	36			140	127	116	107	100	94	90	87	86	85	36
1	37			143	129	118	109	101	95	91	89	87	86	37
2	38			146	131	120	111	103	97	93	91	89	88	38
3	39			148	134	122	112	104	98	94	92	90	90	39
4	40			151	136	124	114	106	100	96	94	92	91	40
5	41				138	125	116	108	101	97	95	94	93	41
6	42				140	127	118	109	103	99	97	95	95	42
7	43				142	129	119	111	104	100	98	97	96	43
8	44				144	131	121	112	106	102	100	98	98	44
9	45				147	133	123	114	107	103	101	100	100	45
10	46				149	135	124	116	109	104	103	101	101	46
11	47				151	137	126	117	110	106	104	103	103	47
12	48					139	128	119	112	107	106	104	105	48
13	49					141	130	120	114	109	107	106	106	49
14	50					142	131	122	115	110	109	108	108	50
15	51					144	133	124	117	112	110	109	110	51
16	52					146	135	125	118	113	112	111	111	52
17	53					148	137	127	120	115	113	112	113	53
18	54					150	138	128	121	116	115	114	115	54
19	55						140	130	123	118	116	115	116	55
20	56						142	132	124	119	118	117	118	56
21	57						143	133	126	120	119	119	120	57
22	58						145	135	127	122	121	120	121	58
23	59						147	136	129	123	122	122	123	59
24	60						149	138	130	125	124	123	125	60
25	61						150	140	132	126	125	125	126	61
26	62							141	133	128	127	126	128	62
27	63							143	135	129	128	128	130	63
28	64							144	137	131	130	130	131	64
29	65							146	138	132	131	131	133	65
30	66							148	140	134	133	133	135	66
31	67							149	141	135	134	134	136	67
32	68							151	143	136	136	136	138	68
33	69								144	138	138	137	140	69
34	70								146	139	139	139	141	70
35	71								147	141	141	141	143	71
36	72								149	142	142	142	145	72
37	73								150	144	144	144	146	73

* These values have been calculated from samples which are not as representative as the age samples from 5 through 15 years. They are likely to be a little high for unselected or more adequately representative samples. They are offered as tentative guides for use with pre-school groups.

Table for Converting Raw Scores to Standard Scores (continued)

Drawing of a Woman, by Girls

RAW SCORE	CHRONOLOGICAL AGE IN YEARS													RAW SCORE
	3*	4*	5	6	7	8	9	10	11	12	13	14	15	
0	62	55	52	52	49									0
1	66	59	54	54	50	48								1
2	70	63	57	56	52	50								2
3	74	67	59	58	54	51								3
4	78	70	62	60	56	53								4
5	83	74	64	62	58	55	48							5
6	87	78	67	64	60	56	50							6
7	91	81	69	66	62	58	52							7
8	96	85	72	69	64	60	54	49						8
9	100	89	74	70	66	62	55	51						9
10	104	92	77	73	68	63	57	53						10
11	109	96	79	75	70	65	59	54						11
12	113	100	82	77	71	67	60	56	50					12
13	117	104	84	79	73	68	62	57	52					13
14	121	108	86	81	75	70	64	59	53	50				14
15	126	111	89	83	77	72	65	61	55	52				15
16	130	115	92	86	79	74	67	62	56	53	50			16
17	134	119	94	88	81	75	69	64	58	55	51	48		17
18	139	122	97	90	83	77	71	65	60	56	53	50		18
19	143	126	99	92	85	79	72	67	61	58	55	51		19
20	147	130	102	94	87	81	74	69	63	60	56	53	50	20
21	151	134	104	96	89	82	76	70	64	61	58	55	52	21
22	156	137	107	98	90	84	77	72	66	63	59	56	54	22
23	160	141	109	100	92	86	79	73	68	64	61	58	56	23
24	164	145	112	103	94	87	81	75	69	66	63	60	57	24
25	169	149	114	105	96	89	82	77	71	67	64	61	59	25
26	173	152	117	107	98	91	84	78	72	69	66	63	61	26
27	177	156	119	109	100	93	86	80	74	71	67	65	63	27
28		160	122	111	102	94	88	81	76	72	69	66	64	28
29		164	124	113	104	96	89	83	77	74	71	68	66	29
30		168	126	115	106	97	91	85	79	75	72	70	68	30
31		171	129	117	108	99	93	86	80	77	74	71	70	31
32		175	131	119	109	101	94	88	82	78	75	73	71	32
33			134	122	111	103	96	89	84	80	77	75	73	33
34			136	124	113	105	98	91	85	82	79	76	75	34
35			139	126	115	106	100	93	87	83	80	78	77	35

RAW SCORE	CHRONOLOGICAL AGE IN YEARS													RAW SCORE
	3	4	5	6	7	8	9	10	11	12	13	14	15	
36			141	128	117	108	101	94	88	85	82	80	78	36
37			144	130	119	110	103	96	90	86	83	81	80	37
38			146	132	121	111	105	97	91	88	85	83	82	38
39			149	134	123	113	106	99	93	89	87	85	84	39
40				136	125	115	108	101	95	91	88	86	86	40
41				139	127	117	110	102	96	92	90	88	87	41
42				141	129	118	111	104	98	94	91	90	89	42
43				143	130	120	113	105	99	96	93	91	91	43
44				145	132	122	115	107	101	97	95	93	93	44
45				147	134	123	117	109	103	99	96	95	94	45
46				149	136	125	118	110	104	100	98	96	96	46
47					138	127	120	112	106	102	99	98	98	47
48					140	129	122	113	107	103	101	100	100	48
49					142	130	123	115	109	105	103	101	101	49
50					144	132	125	117	111	107	104	103	103	50
51					146	134	127	118	112	108	106	105	105	51
52					148	136	128	120	114	110	107	106	107	52
53					149	137	130	121	115	111	109	108	109	53
54					151	139	132	123	117	113	111	110	110	54
55						141	134	124	119	114	112	111	112	55
56						142	135	126	120	116	114	113	114	56
57						144	137	128	122	118	115	115	116	57
58						146	139	129	123	119	117	116	117	58
59						148	140	131	125	121	119	118	119	59
60						149	142	132	126	122	120	120	121	60
61						151	144	134	128	124	122	121	123	61
62							146	136	130	125	123	123	124	62
63							147	137	131	127	125	125	126	63
64							149	139	133	128	127	126	128	64
65							151	140	134	130	128	128	130	65
66								142	136	132	130	130	132	66
67								144	138	133	131	131	133	67
68								145	139	135	133	133	135	68
69								147	141	136	135	135	137	69
70								148	142	138	136	136	138	70
71								150	144	139	138	138	140	71

* These values have been calculated from samples which are not as representative as the age samples from 5 through 15 years. They are likely to be a little high for unselected or more adequately representative samples. They are offered as tentative guides for use with preschool groups.

APPENDIX F

Dale Harris'

Requirements for Scoring

the

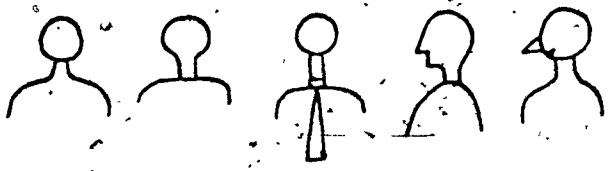
"Draw-A-Man" and "Draw-A-Woman"

Scale (1963: pp. 248-263, 276-291)

Requirements for Scoring the Draw-a-Man Scale

ITEM	DESCRIPTION
1. Head present	Any clear method of representing the head. Features alone, without any outline for the head itself, are not credited for this point
2. Neck present	Any clear indication of the neck as distinct from the head and the trunk. Mere juxtaposition of the head and the trunk is not credited.
3. Neck, two dimensions	Outline of neck continuous with that of the head, of the trunk, or of both. Line of neck must "flow" into head line or trunk line. Neck interposed as pillar between head and trunk does not get credit unless treated definitely to show continuity between neck and head or trunk or both, as by collar, or curving of lines.

Credit



No Credit

4. Eyes present	Either one or two eyes must be shown. Any method is satisfactory. A single indefinite feature, such as is occasionally found in the drawings of very young children, is credited.
5. Eye detail: brow or lashes	Brow, lashes or both shown.
6. Eye detail: pupil	Any clear indication of the pupil or iris as distinct from the outline of the eye. Both must appear if both eyes are shown.
7. Eye detail: proportion	The horizontal dimension of the eye must be greater than the vertical dimension. This requirement must be fulfilled in both eyes if both are shown; one eye is sufficient if only one is shown. Sometimes in profile drawings of a high grade the eye is shown in perspective. In such drawings any triangular form approximating the following examples is credited.

Credit

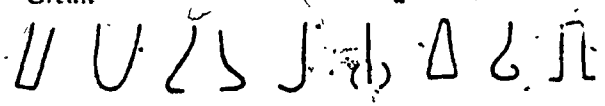
8. Eye detail: glance	**Full Face:** The eyes obviously glancing. There must be no convergence or divergence of the two pupils, either horizontally or vertically.

Credit

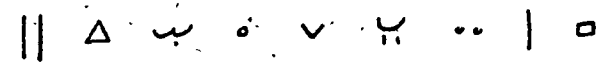
Profile: The eyes must either be shown as in the preceding point, or, if the ordinary almond form is retained, the pupil must be placed toward the front of the eye rather than in the center. The scoring should be strict.

9. Nose present	Any clear method of representation. In "mixed profiles," the score is plus even though two noses are shown.
10. Nose, two dimensions	**Full Face:** Credit all attempts to portray the nose in two dimensions, when the bridge is longer than the width of the base or tip.

Credit

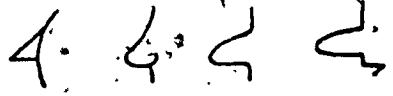


No Credit



Profile: Credit all crude attempts to show the nose in profile, provided tip or base is shown in some manner. Do not credit simple "button."

Credit



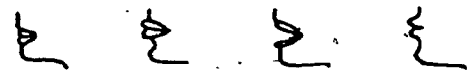
No Credit

11. Mouth present	Any clear representation.
12. Lips, two dimensions	**Full Face:** Two lips clearly shown.

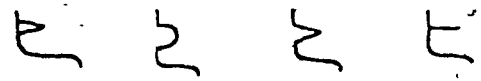
Credit

Profile:

Credit



No Credit



13. Both nose and lips in two dimensions

Bonus point given when Items 10 and 12 are passed. See preceding items for accepted forms.

14. Both chin and forehead shown

Full Face: Both the eyes and mouth must be present, and sufficient space left above the eyes to represent the forehead; below the mouth to represent the chin. The scoring should be rather lenient. Where neck is continuous with face, placement of mouth with respect to narrowing of lower portion of head is important. The sketches below illustrate mouth placement.

Credit

No Credit

15. Projection of chin shown; chin clearly differentiated from lower lip

Full Face: Modeling of chin must be indicated in some way, as by a curved line below the mouth or lip, or point of chin indicated by appropriate facial modeling, or dot or line placed below mouth near lower limit of face. Beard obscuring chin does *not* score. *Note:* Distinguish carefully from Item 16. There must definitely be an attempt to show a "pointed" chin to credit this item. This point is credited most frequently in profiles.

Credit

Items 15 and 16

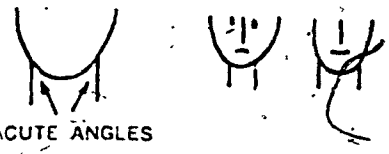
Item 15 but not 16

Item 16 but not 15

16. Line of jaw indicated

Full Face: Line of jaw and chin drawn across neck but not squarely across. Neck must be sufficiently wide, and chin must be so shaped that the line of the jaw forms a well-defined acute angle with the line of the neck. Score strictly on the simple oval face.

Credit



ACUTE ANGLES

No Credit

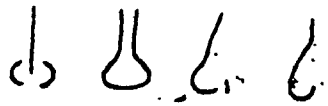
Profile: Line of jaw extends toward ear.

Credit

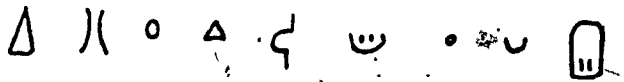
17. Bridge of nose

Full Face: Nose properly placed and shaped. The [illegible] of the nose must appear as well as the indication of a straight bridge. Placement of upper portion of bridge is important; must extend up to or between the eyes. Bridge must be narrower than the base.

Credit



No Credit



Profile: Nose at angle with face, approximately 35–45 degrees. Separation of nose from forehead clearly shown at eye.

Credit

No Credit

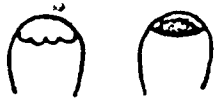
Hair I 19

Any indication of hair, however crude.

Hair II 19

Hair shown on more than circumference of head and more than a scribble. Nontransparent, unless it is clear that a bald-headed man is portrayed. A simple hairline across the skull on which no attempt has been made to shade in hair does *not* score. If any attempt has been made, even in outline or with a little shading, to portray hair as having substance or texture, the item scores.

Credit



No Credit

Hair III 20

Any clear attempt to show cut or styling by use of side burns, a forelock, or conformity of base line to a "style." When a hat is drawn, credit the point if hair is indicated in front as well as behind the ear, or if hairline at back of neck or across forehead suggests styling.

Hair IV 21

Hair shaded to show part, or to suggest having been combed, or brushed, by means of *directed* lines. Item 21 is never credited unless Item 20 is; it is thus a "high-grade" point.

Credit

No Credit

Ears present 22

Any indication of ears.

Ears present: proportion and position 23

The vertical measurement must be greater than the horizontal measurement. The ears must be placed somewhere within the middle two-thirds of the head.

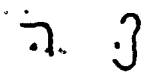
Full Face: The top of the ear must be separated from the head line, and *both* ears must extend from the head.

Credit

No Credit

Profile: Some detail, such as a dot, to represent the aural canal must be shown. The shell-like portion of the ear must extend toward the back of the head. (Some children, especially retarded boys, tend to reverse this position, making the ear extend toward the face. In such drawings this item is never credited.)

Credit



No Credit

24. Fingers present

Any suggestion of fingers, separate from hand or arm. In drawings by older children, where there is a tendency to "sketch," credit this point if any suggestion of fingers occurs.

25. Correct number of fingers shown

Both hands necessary if both hands are shown. Credit this point in "sketchy" drawings by older children, even though five digits may not be definitely discerned.

26. Detail of fingers correct

"Grapes" or "sticks" do not score. Length of individual fingers must be distinctly greater than width. In well-executed drawings, where hand may appear in perspective, or where fingers are indicated by "sketching," credit this point. Credit also those cases in which, because the hand is obviously clenched, only the knuckles or part of the fingers appear. This last will occur only in high-quality drawings where there is considerable use of perspective.

27. Opposition of thumb shown

Fingers must be indicated, with a clear differentiation of the thumb from the fingers. Scoring should be very strict. The point is credited if one of the lateral digits is definitely shorter than any of the others (compare especially with the little finger), or if the angle between it and the index finger is not less than twice as great as that between any two of the other digits, or if its point of attachment to the hand is distinctly nearer to the wrist than that of the fingers. Conditions must be fulfilled on both hands if both are shown; one hand is sufficient if only one is shown. *Fingers must be present or indicated;* "mitt" hand does *not* score, unless figure is definitely in winter garb, wearing mittens.

Credit

No Credit

28. Hands present

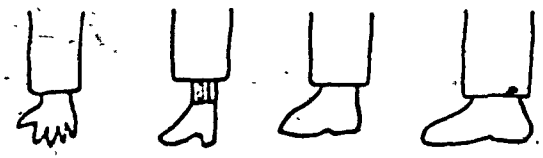
Any representation of the hand, apart from the fingers. When fingers are shown, a space must be left between base of fingers and edge of sleeve or cuff. Where no cuff exists, arm must broaden in some way to suggest palm or back of hand as distinct from wrist. Characteristic must appear on both hands if both are shown.

Marginal Credit

29. Wrist or ankle shown

Either wrist or ankle clearly indicated as separate from sleeve or trouser. A line across the limb to indicate the end of sleeve or trouser, although credited in Item 55, is *not* sufficient here.

Credit



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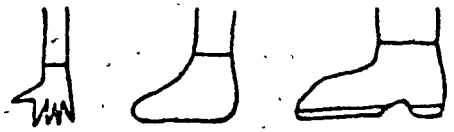


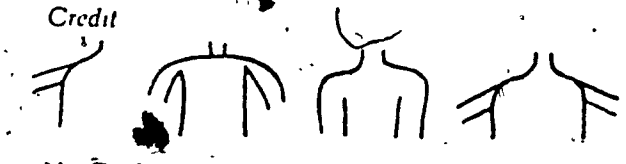
30. Arms present

Any method of representation clearly intended to indicate arms. Fingers alone are not sufficient, but the point is credited if any space is left between the base of the fingers and that part of the body to which they are attached. The number of arms must also be correct, except in profile drawings when only one arm may score.

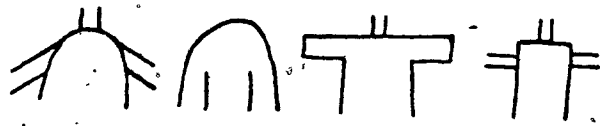
31. Shoulders I

Full Face: A change in the direction of the outline of the upper part of the trunk which gives an effect of concavity rather than convexity. The point is scored rather strictly. The ordinary elliptical form is never credited, and the score is always minus unless it is evident that there has been a recognition of the abrupt broadening out of the trunk below the neck which is produced by the shoulder blade and the collar bone. A perfectly square or rectangular trunk does not score, but if the corners have been rounded, the point is credited.

Credit



No Credit



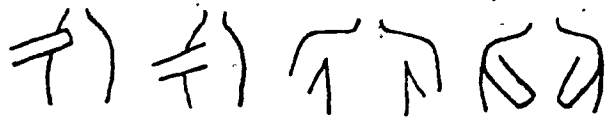
Profile: The scoring should be somewhat more lenient than in full-face drawings, since it is more difficult to represent the shoulders adequately in the profile position. A profile drawing, in this connection, should be understood to mean one in which the trunk, as well as the head, is shown in profile. If the lines forming the outline of the upper part of the trunk diverge from each other at the base of the neck in such a way as to show the expansion of the chest, the point is credited.

32. Shoulders II

Full Face: Score more strictly than previous item. Shoulders must be continuous with neck and arms, and "square," not drooping. If arm is held from the body, the armpit must be shown.

Profile: Shoulder joint in approximately correct position. Arm must be represented by double line.

Credit

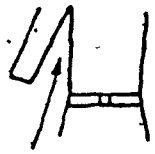


No Credit

33. Arms at side or engaged in activity

Full Face: Young children generally draw the arms stiffly out from the body. Credit this point when at least one arm is down at the side, making an angle of no more than 10 degrees with the general vertical axis of the trunk, unless the arms are engaged in some definite activity, such as carrying an object. Credit when hands are in pockets, on hips, or behind back.

Credit



Profile: Credit if hands are engaged in definite activity, or if upper arm is suspended even though forearm is extended.

34. Elbow joint shown There must be an abrupt bend (not a curve) at approximately the middle of the arm. One arm is sufficient. Modeling or creasing of the sleeve is credited.

Full Face:

Credit

Profile:

Credit

No Credit

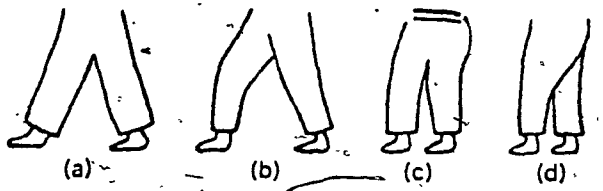
35. Legs present Any method of representation clearly intended to indicate the legs. The number must be correct: two in full-face drawings, either one or two in profiles. Use common sense rather than a purely arbitrary scoring. If only one leg is present, but a rough sketch of a crotch is included, showing clearly what the child has in mind, score the item. On the other hand, three or more legs, or a single leg without logical explanation should be scored minus. A single leg to which two feet are attached is scored plus. Legs may be attached anywhere to the figure.

36. Hip I (crotch) **Full Face:** Crotch indicated. This is most frequently shown by inner lines of the two legs meeting at point of junction with the body. (Young children usually place the legs as far apart from each other as possible, and this never scores.)

Credit

Profile: If only one leg shows, buttock must be shaped.

Credit

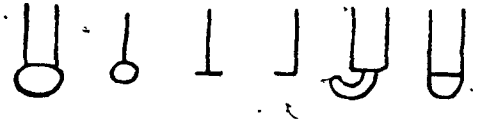


37. Hip II Preceding item earned with credit to spare. Drawing gives a better idea of the hip than required for passing preceding item. Examples (b) and (d) on Item 36 are credited here also, (a) and (c) are not.

38. Knee joint shown There must be, as in the case of the elbow, an abrupt bend (not curve) at about the middle of the leg, or, as is sometimes found in very high-quality drawings, a narrowing of the leg at this point. Knee length trousers are not sufficient. Crease or shading to indicate knee is scored plus.

39. Feet I: any indication Feet indicated by any means: two feet in full-face, one or two in primitive profile. Young children may indicate feet by attaching toes to the end of the leg. This is credited.

Credit



40. Feet II: proportion The feet and legs must be shown in two dimensions. Feet must not be "clubbed", that is, the length of the foot must be greater than its height from sole to instep. The length of the foot must be not more than one-third or less than one-tenth the total length of the leg. The item is also credited in full face drawings in which the foot is shown in perspective, longer than wide, provided the foot is separated in some way from the rest of the leg, and not merely indicated by a line across the leg.

Full Face:

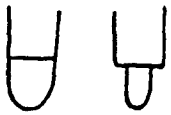
Credit

No Credit

41. Feet III: heel

Any clear method of indicating the heel. In full-face drawings, credit the item arbitrarily when the foot is shown as below, provided there is some demarcation between the foot and the leg. In the profile, the instep *must* be indicated.

Credit



42. Feet IV: perspective

Foreshortening attempted in at least one foot.

Credit

No Credit

43. Feet V: detail

Any one item of detail such as lacing, tie, strap, or shoe sole indicated by a double line.

44. Attachment of arms and legs I

Both arms and both legs attached to the trunk at any point, or arms attached to the neck, or at the juncture of the head and the trunk when the neck is omitted. If the trunk is omitted, the score is always zero. If the legs are attached elsewhere than to the trunk, regardless of the attachment of the arms, the score is zero. If only one arm or leg is shown, either in full-face or in profile drawings, credit may be given on the basis of the limb that is shown. If both arms and legs are shown, the members of each pair must be attached approximately symmetrically. Arms attached to the legs score zero.

45. Attachment of arms and legs II

Legs attached to trunk, and arms attached to the trunk at the correct point. Do not credit if arm attachment occupies one-half or more of the chest area (neck to waist). When no neck is present, the arms must *definitely* be attached to the upper part of the trunk.

Full Face: When Item 31 is plus, the point of attachment must be exactly at the shoulders. If Item 31 is zero, the attachment must be exactly at the point which should have been indicated as the shoulders. Score very strictly, especially in those cases where Item 31 is zero.

Profile: Do not credit if both the lines delineating the arm extend from the outline of the back, or if the point of attachment either reaches the base of the neck, or falls below the greatest expansion of the chest line.

46. Trunk present

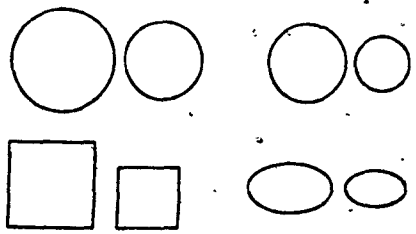
Any clear indication of the trunk, either one or two dimensional. Where there is no clear differentiation between the head and the trunk, but the features appear in the upper end of a single figure, the point is scored plus, if the features do not occupy more than half the length of the figure, otherwise, the score is zero, unless a cross line has been drawn to indicate the termination of the head. A single figure placed between the head and the legs is always counted as a trunk, even though its size and shape may suggest a neck rather than a trunk. (This ruling is based on the fact that, when questioned, a number of children whose drawings showed this peculiarity, called the part a trunk.) A row of buttons extending down between the legs is scored zero for trunk but plus for clothing, unless a cross line has been drawn to show the termination of the trunk.

47. Trunk in proportion, two dimensions

Length of the trunk must be greater than breadth. Measurement should be taken at the points of greatest length and of greatest breadth. If the two measurements are equal, or so nearly so that the difference is not readily determined, the score is zero. In most instances the difference will be great enough to be recognized at a glance, without actually measuring.

48. Proportion: head I

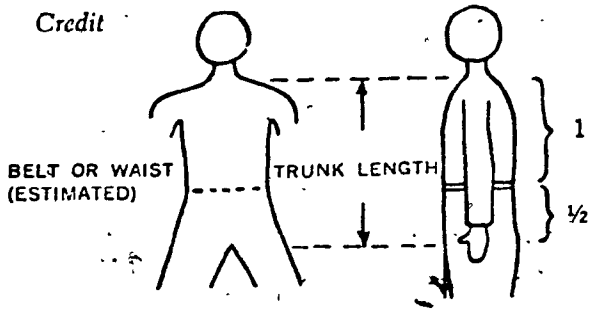
Area of the head not more than one-half or less than one-tenth that of the trunk. Score rather leniently. See below for a series of standard forms of which the first is double the area of the second in each pair.



49. Proportion: head II

Head approximately one-fourth trunk area. Score strictly; over one-third or under about one-fifth fails the item. Where crotch is not shown, as in some profiles, consider belt or waist at about two-thirds down total trunk length.

Credit



50. Proportion: face

Full Face: Length of head greater than its width. Should show a general oval shape.

Profile: Head definitely elongated. Face longer than "dome" of skull.

51. Proportion: arms I

Arms at least equal to the trunk in length. Tips of hands extend to middle of hip but not to knee. Hands need not necessarily extend to or below the crotch, especially if legs are unusually short. In full-face drawings, both hands must so extend. Score by relative *lengths*, not *position*, of arms.

52. Proportion: arms II

Arms taper; forearm narrower than upper arm. Any tendency to narrow the forearm except right at the wrist, is credited. If both arms show clearly, tapering must occur in both.

53. Proportion: legs

Length of the legs not less than the vertical measurement of the trunk nor greater than twice that measurement. Width of either leg less than that of the trunk.

54. Proportion: limbs in two dimensions

Both arms and legs shown in two dimensions. If the arms and legs are in two dimensions, the point is credited, even though the hands and feet are drawn in linear dimension.

55. Clothing I

Any clear representation of clothing. As a rule the earliest forms consist of a row of buttons running down the center of the trunk, or of a hat, or of both. Either alone scores. A single dot or small circle placed in the center of the trunk is practically always intended to represent the navel and should not be credited as clothing. A series of vertical or horizontal lines drawn across the trunk (and sometimes on the limbs as well) is a fairly common way of indicating clothing, and should be so credited. Marks to indicate pockets or sleeve-ends also get credit.

56. Clothing II

At least two articles of clothing (as hat and trousers) nontransparent; that is, concealing the part of the body which they are supposed to cover. In scoring this point it must be noted that a hat which is merely in contact with the top of the head but does not cover any part of it is *not* credited. Buttons alone, without any other indication of the coat, are *not* credited. Two of the following must be present to indicate coat: sleeves, collar or neckline, buttons, or pockets. Trousers must be clearly intended by belt, fly, pockets, cuff, or any separation of feet or leg from bottom of trouser leg. Foot as an extension of leg does not score when a line drawn across the leg is the only way of indicating the separation of foot and leg.

57. Clothing III

Entire drawing free from transparencies of any sort. Both sleeves and trousers must be shown as distinct from wrists or hands and legs or feet.

58. Clothing IV

At least four articles of clothing definitely indicated. The articles should be among those in the following list: hat, shoes, coat, shirt, collar, necktie, belt, trousers, jacket, sport shirt, overalls, socks (pattern). *Note:* Shoes must show some detail, as laces, toe cap, or double line for the sole. Heel alone is not sufficient. Trousers must show some features, such as fly, pockets, cuffs. Coat or shirt must show either collar, sleeves, pockets, lapels, or distinctive shading, as spots or stripes. Buttons alone are not sufficient. Collar should not be confused with neck shown merely as insert. The necktie is often inconspicuous and care must be taken not to overlook it, but it is not likely to be mistaken for anything else.

59. Clothing V

Costume complete without incongruities. This may be a "type" costume (e.g., cowboy, soldier) or costume of everyday dress. If the latter, it should be clearly recognized as appropriate; e.g., sport shirt on man, cap appropriate to hunting outfit, overalls for farmer. This is a "bonus" point, and must show more than necessary for Item 58.

60. Profile I

The head, trunk, and feet must be shown in profile without error. The trunk may not be considered as drawn in profile unless the characteristic line of buttons has been moved from the center to the side of the figure, or some other indication, such as the position of the arms, pockets, or necktie shows clearly the effect of this position. The entire drawing may contain *one*, but not more than one, of the following three errors:

1. One body transparency, such as the outline of the trunk showing through the arm.
2. Legs not in profile. In a true profile at least the upper part of the leg which is in the background must be concealed by the one in the foreground.
3. Arms attached to the outline of the back and extending forward.

61. Profile II — The figure must be shown in true profile, without error or any body transparency.

62. Full face — (Include partial profile, where attempt is to show figure in perspective.) All major body parts in proper location and correctly joined unless hidden by perspective or clothing.

Essential items: Legs, arms, eyes, nose, mouth, ears, neck, trunk; hands and feet. Parts must be in two dimensions. Feet may be in perspective, but not in profile, unless they turn "out" in opposite directions.

63. Motor coordination: lines — Look at the long lines in arms, legs, and trunk. Lines should be firm, well-controlled and free from accidental wavering. A few long lines may be retraced or erased. The drawing need not achieve very smoothly "flowing" lines to earn credit. Young children sometimes "color in" with their pencils; examine carefully the fundamental lines of their drawings. Older children frequently use a "sketching" technique readily distinguishable from the uncertain, wavering lines resulting from immature coordination. If the general effect is that of firm, sure lines showing that the pencil was under control, credit the item. The drawing may be quite immature and still score on this point.

64. Motor coordination: junctures — Look at the juncture points of lines. They must meet cleanly without a marked tendency to cross or overlap, or leave gaps between the ends. A drawing with few lines is scored more strictly than one with frequent changes in direction of line. A "sketchy" drawing is ordinarily credited even though the junctures of lines may seem uncertain, since this is a characteristic confined almost entirely to drawings of a mature type. Some erasures may be allowed.

65. Superior motor coordination — This is a "bonus" point for good pencil work on details as well as on major lines. Look at the small detail as well as at the character of the major lines. All lines should be firmly drawn, with correct joining. Pencil work in fine detail—facial features, small items of clothing, etc.—indicates a good control of the pencil. Scoring should be quite strict. Erasures and/or redrawing invalidate this item.

[4] Items 63, 64, and 65 concern the *quality* of the child's control of the pencil. These items evaluate the firmness and sureness of line, quality of line junctions, "corners," etc.

66. Directed lines and form: head outline [5] — Outline of head must be drawn without obviously unintentional irregularities. The point is credited only in drawings where the shape has developed beyond the first crude circle or ellipse. In profile drawings, a simple oval to which a nose has been added does *not* score. Scoring should be rather strict, the contour of the face must be developed as a unit, *not* by adding parts.

67. Directed lines and form: trunk outline — Same as for the preceding item, but here with reference to the trunk. Note that the primitive "stick," circle, or ellipse does *not* score. The body lines must show an attempt to follow an intentional deviation from the simple ovoid form.

68. Directed lines and form: arms and legs — Arms and legs must be drawn without irregularities, as in above item, and without tendency to narrowing at the points of junction with the body. Both arms and legs must be in two dimensions.

69. Directed lines and form: facial features — Facial features must be symmetrical in all respects. Eyes, nose, and mouth must all be shown in two dimensions.

Full Face: The features must be appropriately placed, regular and symmetrical, giving a clear appearance of the human form.

Profile: The eye must be regular in outline and located in the forward one third of the head. The nose must form an obtuse angle with the forehead. The scoring should be strict; a "cartoon" nose is not credited.

70. "Sketching" technique — Lines formed by well-controlled short strokes. Repeated tracing of long line segments is not credited. "Sketching" technique appears in the work of some older children and almost never occurs under age eleven or twelve.

71. "Modeling" technique — "Lines" or shading must indicate one or more of the following: garment creases, wrinkles or folds, other than trouser press; fabric; hair; shoes; "coloring in", or background features.

72. Arm movement — Figure must express freedom of movement in both shoulders and elbows. One arm suffices. Credit hands on hips or in pockets, if both shoulders and elbows are apparent. A definite activity need *not* be indicated.

73. Leg movement — Freedom of movement portrayed both in hips and knees of the figure.

[5] Items 66–69 concern the child's deliberate direction of the pencil to produce a good form. The child's work must show that he has exercised control, firmly and surely

Requirements for Scoring the Draw-a-Woman Scale

ITEM	DESCRIPTION
1. Head present	Any clear method of representing the head. Features alone, without any outline for the head itself, are not credited for this point.
2. Neck present	Any clear indication of the neck as distinct from the head and the trunk. Mere juxtaposition of the head and the trunk is not credited.
3. Neck, two dimensions	Outline of neck continuous with that of the head, of the trunk or of both. Line of neck must "flow" into head line or trunk line. Neck interposed as pillar between head and trunk does not get credit unless treated definitely to show continuity between neck and head or trunk or both, as by collar, or curving of lines.

Credit

No Credit

4. Eyes present	Either one or two eyes must be shown. Any method is satisfactory. A single indefinite feature, such as is occasionally found in the drawings of very young children, is credited. Credit also, in mature drawings attempting perspective, any indication of the eye by contour of the profile, as:

5. Eye detail: brow or lashes	Brow, lashes or both shown.

Full Face:

Credit

Profile:

Credit

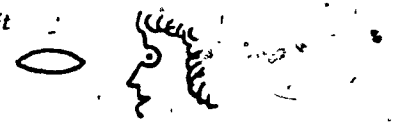
No Credit

6. Eye detail: pupil	Pupil shown. Credit any clear indication of the pupil or iris as distinct from the outline of the eye. Both pupils must appear if both eyes are shown.
7. Eye detail: proportion	The horizontal measurement of the eye must be greater than the vertical dimension. This requirement must be fulfilled in both eyes if both are shown; one eye is sufficient if only one is shown. In profile drawings, any triangular forms which approximate the example below are credited.

Profile:

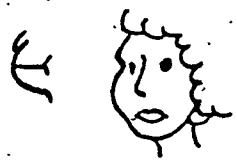
Credit

No Credit



8. Cheeks	Credit modeling or "shading" on cheeks or at mouth corners. Credit also "cosmetic cheeks"— circular spots on cheeks. In drawings which attempt perspective, credit any indication in *contour* of face.

Credit



9. Nose present	Any clear method of representation. In "mixed profiles," the score is plus even though two noses are shown.
10. Nose, two dimensions	Full Face: Credit all attempts to portray the nose in two dimensions, when the bridge is longer than the width of the base or tip.

Credit

No Credit

Profile: Credit all crude attempts to show the nose in profile, provided tip or base is shown in some manner. Do not credit simple "button."

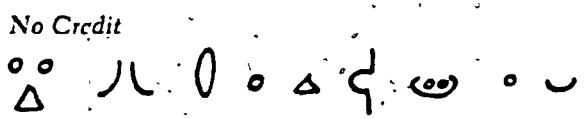
No Credit

11. Bridge of nose

Full Face: Nose properly placed and shaped. The base of the nose must appear as well as the indication of a straight bridge. Placement of upper portion of bridge is important, must extend *up to or between the eyes. Bridge must be narrower than the base.*

Credit

No Credit



Profile: Nose at angle with face approximately 45 degrees. Separation of nose from forehead clearly shown at eye.

Credit

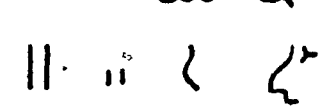
No Credit

12. Nostrils shown

Any attempt to portray nostrils as holes, dots, or to show "wings."

Credit

No Credit



13. Mouth present

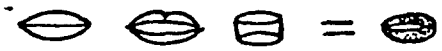
Any clear representation.

14. Lips, two dimensions

Two lips clearly shown.

Full Face:

Credit



Profile:

Credit

No Credit

15. "Cosmetic lips"

Any clear attempt to show "Cupid's bow." Score based on the outer shape. Two lips need *not* be shown.

Credit

16. Both nose and lips in two dimensions

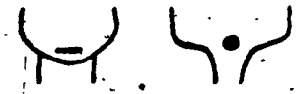
Bonus point given when both Items 10 and 14 are passed.

17. Both chin and forehead shown

Full Face: Sufficient space must be left above the eyes to represent the forehead, and below the mouth to represent the chin. The scoring should be rather lenient. Where neck is continuous with face, placement of mouth with respect to narrowing of lower portion of head is important.

Credit

No Credit.



Profile: The point may be credited when the eyes and mouth are omitted, if the outline of the face shows clearly the limits of the chin and forehead. Score leniently if forehead is covered by hat brim; more strictly if covered by hair.

18. Line of jaw indicated

Full Face: Line of jaw and chin drawn across neck but not squarely across. Neck must be sufficiently wide, and chin must be so shaped that the line of the jaw forms a well defined acute angle with the line of the neck. Score *strictly* on the simple oval face.

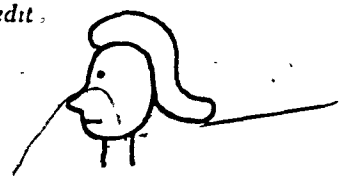
Credit

ACUTE ANGLES

Profile: Line of jaw extends toward (but not all the way to) the ear or across the neck.

Credit

No Credit



19. Hair I

Any indication of hair, however crude.

20. Hair II

Scribble closely conforming to head, *or*

Full Face: Shaped masses suggesting braids or locks each side of face.

Credit

Profile: Mass dependant in back.

Credit

21. Hair III

Style suggested by indentation at temple, or bangs, or shaped at lower ends or both. General "style" achieved. Distinctly better design than Item 20.

22. Hair IV

Use of directed lines to indicate a part, texture, or combing. Superior style achieved.

Caution Score strictly; superior style may be achieved with *outline* sketching, but this does not score. Directed lines to indicate hair texture must appear, and be better than "coloring in."

23. Necklace or earrings

Any clear indication. Distinguish necklace from neckline or collar of dress. Earrings without ears (which may be concealed by hair) should be credited.

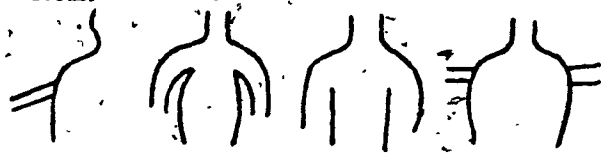
24. Arm placement

Any method of representation clearly intended to indicate arms. Fingers alone are not sufficient, but the point is credited if any space is left between the base of the fingers and that part of the body to which they are attached. The number of arms must be correct, except in profile drawings when only one arm may score.

25. Shoulders

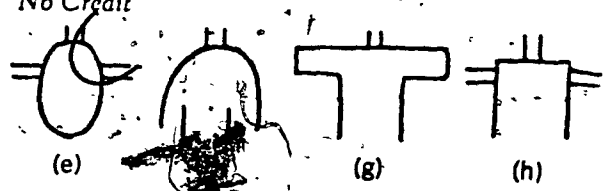
Full Face: A distinct change in the direction of the upper part of the trunk, which gives the effect of a "*rounded corner.*" The ordinary elliptical form is never credited. There must be an abrupt broadening of the trunk below the neck, which then turns downward into the arms or sides of the trunk. Square corners fail.

Credit



(a) (b) (c) (d)

No Credit



(e) (g) (h)

Profile: Somewhat more lenient where the trunk as well as the head is shown in profile. If the lines that form the upper part of the trunk diverge from each other at the base of the neck so as to show the expansion of the chest, credit the point.

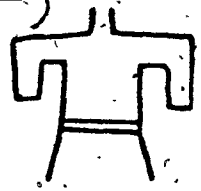
26. Arms (or activity behind)

Full Face: Young children generally draw the arms held stiffly out from the body. Credit this point when at least one arm is down at the side, making an angle of no more than 10 degrees with the general vertical axis of the trunk, unless the arms are engaged in some definite activity, such as carrying an object. Credit when hands are placed on hips or behind the back.

Credit

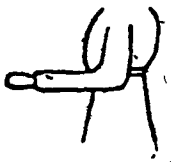
10° OR LESS

No Credit



Profile: Credit if *hands are engaged in definite activity*, or if upper arm is suspended, even though forearm is extended.

Credit



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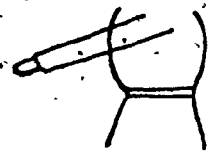
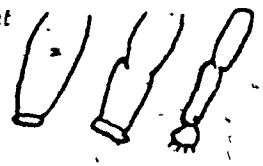


27. Elbow joint shown

There must be an abrupt bend (not a curve) at approximately the middle of the arm. One arm is sufficient. Modeling or creasing of the sleeve is credited.

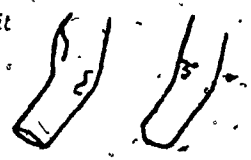
Full Face:

Credit



Profile:

Credit



No Credit

28. Fingers present

Any indication of fingers. Mitt hand does not score even if thumb is shown.

29. Correct number of fingers shown

If both hands are shown, the correct number on each is necessary, unless there is a clear attempt to portray hand activity which would conceal the correct number. Credit drawings produced by older children who try a "sketching" technique, even though five digits may not be definitely discerned.

Credit

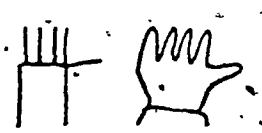
30. Detail of fingers correct

"Grapes" or "sticks" do not score. Length of individual fingers must be distinctly greater than width. In well-executed drawings, where hand may appear in perspective, or where fingers are indicated by "sketching," credit this point. Credit also those cases in which, because the hand is obviously clenched, only the knuckles or part of the fingers appear. This last will occur only in high-quality drawings where there is considerable use of perspective.

31. Opposition of thumb shown

A clear differentiation of the thumb from the fingers. Scoring should be very strict. The point is credited if one of the lateral digits is definitely shorter than any of the others (compare especially with little finger), or if the angle between it and the index finger is not less than twice as great as that between any two of the other digits; or if its point of attachment to the hand is distinctly nearer to the wrist than that of the fingers. Conditions must be fulfilled on both hands if both are shown, unless hand is grasping something, one hand is sufficient if only one is shown. Five digits are necessary for thumb to score. *Fingers must be present or indicated.* "mitt" hand does *not* score unless subject is definitely shown in winter garb, wearing mittens.

Credit



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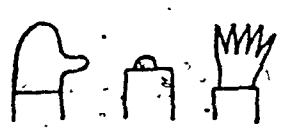
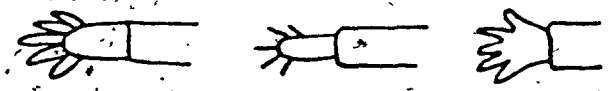


32. Hands present

Any representation of the hand, apart from the fingers. When fingers are shown a space must be left between base of fingers and edge of sleeve or cuff. Where no cuff

exist . arm must broaden in some way to suggest palm or back of hand as distinct from wrist. Characteristic must appear on both hands, if both are shown. "Mitt" hand with thumb does not score unless figure obviously is wearing mittens.

Credit



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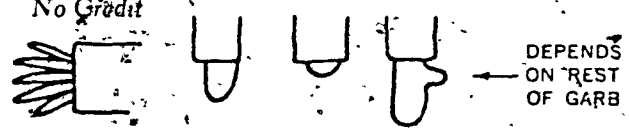


Marginal Credit

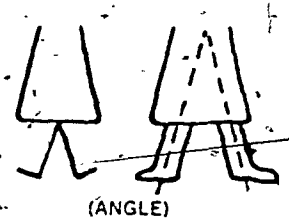
33. Legs present

Any method of representation clearly intended to indicate the legs. There must be two legs in full-face drawings, and either one or two, in profiles. Credit where long skirt hides legs or feet.

34. Hip

Full-Face: The principal axes of the legs must form a distinct angle. The distance between the ankles must be greater than the distance between the inner surfaces of the legs at the skirt line; and the difference must be more than can be accounted for by contours of the calf and ankle. Do not credit in the case of a long gown.

Credit



No Credit

Profile: Credit when legs form angle, as in walking. Credit in standing figure, when one leg is shown, or when two appear in true profile.

Credit

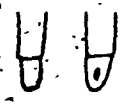
35. Feet I: any indication

Feet indicated by any means: two feet in full-face; one or two in profile. In the case of a long gown, credit this item.

36. Feet II: proportion

Full-Face: Feet must be longer than wide, or drawn in perspective.

Credit



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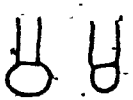
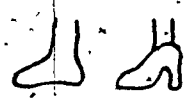


Profile: Horizontal dimension of fore-part of foot must be greater than vertical dimension. In the case of a long gown, credit only when foot is indicated in some way, as by the tip appearing beneath the edge of the gown, etc.

Credit



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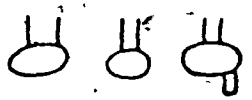


37. Feet III: detail

Foot or shoe must show some ornamentation, such as a buckle, tie, strap; or sole. In the case of a long gown, do *not* credit unless foot is shown.

38. Shoe I: "feminine"

Credit any clear attempt to depict a feminine shoe as opposed to "brogan" or other thick, solid shoe. Note especially attempts to depict slender toe or arch, high heel, open toe, or straps. If heel is crucial point, it should be at least one-third of total height of shoe at that point. Shoe must be marked off from leg, either by a line or by profile shaping. In the case of a long gown, credit only when shoe is shown.

Credit

39. Shoe II: style

Shoe must be clearly feminine and "styled," i.e., clearly a pump, tie, open toe, wedgie, saddle shoe, etc. In the case of a long gown, credit only when clearly shown.

46. Placement of feet appropriate to figure.

Full Face: Feet turned "in" or "out," or in perspective. Do not credit primitive feet.

No Credit

Profile: Credit both feet turned in direction of head. Do not credit when feet are absent, except where long gown hides feet.

41. Attachment of arms and legs I

Both arms and legs attached to the trunk at any point, or arms attached to the neck, or at juncture of head and trunk when neck is omitted. Do not credit if either arms or legs are missing. Credit where dress hides legs and/or feet. If the trunk is omitted, the score is always zero. If the legs are attached elsewhere than to the trunk, regardless of the attachment of the arms, the score is zero. If only one arm or leg is shown, either in full-face or profile drawings, credit may be given on the basis of the limb that is shown. If both arms and legs are shown, the members of each pair must be attached approximately symmetrically. Credit where long dress hides legs and or feet. Be careful to distinguish this item from Item 25.

Credit

42. Attachment of arms and legs II

Arms attached to the trunk at the correct position. Legs attached to the bottom of the trunk or skirt and not continuous with vertical line or drape of the skirt. Credit this point if both feet and legs are hidden by long gown.

Legs:

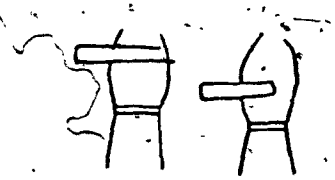
Credit

No Credit

Arms: Full Face: Where Item 25 is failed, attachment must be exactly at the point where the shoulders should have been indicated. Score very strictly, especially when Item 25 is zero. Do not credit if arms at their place of attachment occupy as much as one-half or more of the distance from the neck to the waist. The following sketch illustrates when Item 41 but *not* Item 42 scores:

(See also Item 25, a, e, h, for examples which credit Item 41 but *not* 42.)

Arms Profile: The attachment of the arms must be indicated at a point approximately on the median line of the trunk, at a short distance below the neck, this point coinciding with the broadening of the trunk which indicates the chest and shoulders. If the arms extend from the line which outlines the back, or if the point of attachment reaches the base of the neck, or falls below the greatest expansion of the chest, the point is not credited. Credit Item 41 but *not* Item 42.



43. Clothing indicated

Clothing indicated by buttons or pockets on the simple ellipse, triangle, or trapezoid figure. Credit if there is definitely a skirt, even if no buttons or pockets are shown.

44. Sleeve I

Indicated by any means.

45. Sleeve II

Indicated by more than a simple cross line. Must show button, cuff, double line, puffed sleeve (long or short), or sleeve definitely wider than the arm which protrudes from it. Where a strap or strapless gown is clearly indicated, credit both Items 44 and 45. When hands are so placed that possible cuff is hidden, do *not* credit unless short sleeve is clearly indicated. *Note:* Be careful not to confuse bracelet or wristwatch with sleeve.

46. Neckline I

Any dress line at neck other than that produced by chin or jaw. Any crude single line, straight or semicircular. Distinguish carefully from necklace.

47. Neckline II: collar

Collar indicated. Neckline must be "V'd" or definitely shaped in some other manner.

48. Waist I

Whether or not a belt is shown, the direction of the body contour must change perceptibly at and/or below the waist. *If no belt or waist is drawn,* a gentle,

continuous curve does not score, there must be an abrupt change in body line.

Credit

No Credit

49. Waist II

A distinct belt (two lines), sash, sweater, or blouse hem must be indicated by means *better than a single horizontal line*

50. Skirt "modeled" to indicate pleats or draping

Irregular hemline not sufficient, lines, shading, or sketching must appear.

Credit

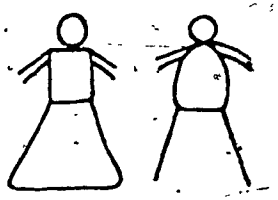
51. No transparencies in the figure

There must be a garment on the figure that is clear and complete. Clothing must show neckline, sleeves, skirt hem, or slacks. No body lines may show through clothes that would ordinarily conceal them.

52. Garb feminine

Young Children (under 8) Skirt must be a distinct feature, and the body must appear in two distinct segments.

Credit



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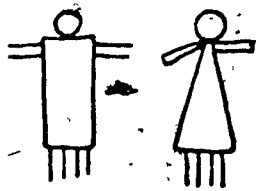


Older Children (8 and over) Credit as dress or skirt. Where slacks, breeches, or overalls are shown, credit only if the style of blouse or pants is distinctly feminine, apart from hair, face, or breast indication. Slacks may be judged by absence of fly and by placement of pockets.

53. Garb complete, without incongruities

Garb must contain all these elements: shoes, sleeves (hands must protrude), dress and neckline or sleeves, or skirt and blouse (or jacket). *Exceptions* Slacks, blue jeans, sports garb, formal dress which may obscure shoes. These are credited.

54. Garb a definite "type"

Types may include, formal gown, sports garb (shorts, slacks), "school garb," "dress up," house dress (should include apron), or "suit" (jacket and skirt).

55. Trunk present

Any clear indication of the trunk, either one or two dimensional.

56. Trunk in proportion, two dimensions

Length of trunk greater than breadth. In drawings by younger children, where the trunk may not be clearly differentiated from the skirt, judge body area as including skirt.

57. Head-trunk proportion

Young Children (under 8) Score in relation to *body area*, excluding head when no differentiation between waist and terminus of trunk or no indication of skirt is shown.

Older Children (8 and over): Credit drawings that indicate a garment but do not suggest a waistline, if the head is no larger than one-fourth or smaller than one-eighth of the body (including garment) area.

Profile: Score more leniently, judge more on the length of head in relation to the length of chest area. If two lengths are about equal, or if head is the shorter length but not less than one-fourth the chest length, credit the item.

58. Head: proportion

Full Face: Length of head greater than its width. Should show a general oval shape.

Profile: Same requirement as full-face drawing, but exclude hair in estimating width.

59. Limbs: proportion

Length of arms and legs greater than width. When arms score, credit the item even if feet are concealed by long dress.

60. Arms in proportion to trunk

Both arms longer than length of trunk from shoulder (or base of neck) to waist, but not more than twice this length.

Young Children (under 8). Arms must be equal to body length

Older Children (5 and over): Credit drawings that portray dress or skirt if arm length is at least half of dress length (shoulder to hem of skirt) but not as long as hem.

61. Location of waist

This item evaluates child's ability to *locate* the waist. Waist located below one-third of total length of figure, crown to toe, but not below one-half of total length. (Crown is considered the top of the head, including hair, but not hat.) Waistline must be indicated by belt, or by some distinct change in body contour. Do not credit when trunk and dress are indicated by uninterrupted curve, with no indication of waistline.

62. Dress area

Dress area below waist must be as large or larger than trunk area above waist but not more than twice as large (three times as large in profile). Credit if formal gown is clearly represented. For slacks, include the area occupied by the legs but not the feet. Define as waist a waist *line* however indicated, or estimate location from an obvious narrowing of body, or widening of hips. Do not credit in drawings by young children showing no trunk or body contours.

63. Motor coordination: junctures

All lines meet cleanly, without overlap or intervening space. Emphasis is on the juncture of lines, regardless of the character of lines.

64. Motor coordination: lines

Lines are firm, cleanly made, continuous and "controlled." If "sketchy" judge the basic character of the body lines created by the shorter pencil strokes. Both curved and straight lines must be handled with assurance. Do not credit in a drawing with extensive redrawing and erasures.

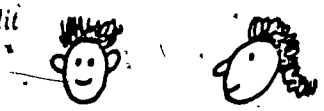
65. Superior motor coordination

Credit this point in all cases where Item 64 is achieved without redrawing or erasures, and where the total effect of lines is neat, clean, and "sure."

66. Directed lines and form: head outline

The drawing must show the contours of the head and/or face. Simple circle or ellipse to which projecting features have been added does not score.

No Credit



67. Directed lines and form: breast

Any attempt, by modeling or by contour, to indicate the feminine breast. In full-face drawings, credit strapless gown if top is curved.

68. Directed lines and form: hip contour

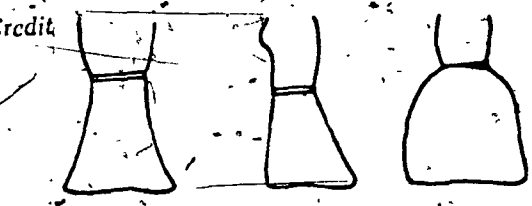
Credit

Full Face: Hips indicated by distinct convexity below waistline. This must occur on both sides. Note that wide, uniformly curved bell-shaped flaring skirt does *not* score.

Profile: Convexity must be indicated over hips and buttocks.

Credit

No Credit



69. Directed lines and form: arms taper

Wrist and or forearm distinctly narrower than upper arm. Credit the point whether achieved by narrowing of sleeve or by shaping the bare arm. Where long, full sleeves are clearly indicated, credit this item.

70. Directed lines and form: calf of leg

Leg-shaped better than a taper. Definite calf must be shown. Score strictly.

71. Directed lines and form: facial features

Facial features must be symmetrical in all respects. Eyes and mouth must be shown in two dimensions; nose may be indicated by dots.

Full Face: Features must be appropriately placed, regular and symmetrical, giving a clear appearance of the human form.

Profile: The eye must be regular in outline and located in the forward one-third of the head. The bridge of the nose must form an obtuse angle with the forehead. The scoring should be strict; a "cartoon" nose does not get credit.

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