

## THE CHILDREN'S APPERCEPTION TEST EVALUATION FORM: INITIAL DATA<sup>1</sup>

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*Summary.*—Some indexes and variables of the Children's Apperception Test Evaluation Form were used to evaluate children's thematic apperception stories to Bellak's test. The protocols were scored for four indexes: (1) number of words, (2) number of characters (animals) rightly identified, (3) number of modified characters (animals), (4) number of attributions given to the characters (animals) in the stories. The form was also scored for number and types of conflicts evoked in children. Interscorer reliability coefficients were high for all the indexes and variables. The sample included 70 children ages 4.5 to 11.5 yr. The relationship between scores and age and sex was also investigated.

Thematic apperceptive methods have been used to investigate a variety of aspects of personality. Among the more prominent have been Murray's Thematic Apperception Test (TAT) to make inferences about subjects' motivations and Bellak's derivation, the Children's Apperception Test (CAT). In Murray's TAT (1943), an individual is asked to "make up a story" for 19 pictures of individuals in different social situations and for one blank card. Murray's (1938, 1943) method of scoring is based on a dualistic "need-press" approach. This approach provides a way to assess an individual relationship to the environment without subscribing to any particular theory of drives or psychoanalytic theory (e.g., Schroth, 1977, 1979; Chandler, Shermis, & Lempert, 1989). In contrast with Murray, Bellak developed variations of the TAT for different ages within a psychoanalytic framework. The Children's Apperception Test was developed by Bellak in the early 1950s (Bellak & Bellak, 1949; Bellak, 1954) and was especially designed for use between the ages of 3 and 10 years (Bellak, 1988). The CAT uses animal pictures. The various animals in the pictures are portrayed in typically human situations, in the characteristic anthropomorphic fashion of comic strips and children's books. The CAT uses animal pictures to evoke fantasies relating to problems of feeding and other oral activity, sibling rivalry, parent-child rela-

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tions, aggression, toilet training, and other childhood experiences based on psychoanalytic theory—orality, oedipal complex, aggression, and the like.

Bellak claims that the use of animal figures makes it easier for the child to project and to make identifications more readily to pictures of animals than to pictures of humans. The child can identify with animals because they are small and are also “underdogs.” The use of animal figures also allows for enough psychological distance from the adult world to permit the expression of latent trends, particularly those of hostility without guilt, anxiety, or fear of reprisal. Bellak bases this assumption upon an observation to this effect made by Ernest Kris (Bellak & Bellak, 1949).

Bellak developed his own scoring system (Bellak, 1954), that led to a qualitative analysis of the protocol. The last revision of this scoring system was published in 1993. Bellak and Abrams' (1993) scoring system takes one through a sequence of different categories: the *main theme* and the *main hero* of the story; the overall *conception of the world* in the story; *interpersonal object relations*; drive-defense constellations expressed in a story in terms of specific *conflicts*, *nature of anxieties*, and *main defenses* against conflicts, anxieties, and fears; *integration of the ego* and *super-ego functioning*. The sequence of the different dimensions taken together provide a multidimensional, comprehensive diagnostic picture according to the diagnostic principles of Freud (1915) and A. Freud (1965), which also takes into account Murray's need–press approach. Finally, strength and integrity of the ego are analyzed quantitatively through 12 functions on a 7-point scale which identifies ego functioning within four intervals: Psychotic (range 1–6), Borderline (range 4–8), Neurotic (range 6–10), and Normal interval (range 8–13).

Chabert (1980), Arnaud (1987), and later Simmonet (1985, 1988) proposed a method of analysis of the CAT also based on psychoanalytic theory. They took into account a first level closer to the more conscious level of the manifest content of the story, whereas a second level attempts to get at the story's more underlying unconscious latent content. Their method identifies perceptual elements of the cards, and types and levels of conflicts evoked by the stimulus cards. Brody, Siegel, and Rosenblum (1992) also proposed a method of analysis of the CAT based on the psychoanalytic theory. The stories were evaluated according to three 5-point evaluation scales: thematic content, psychodynamic content, and defenses.

Another bulk of research done with the CAT in the 1960s and 1970s was stimulated by Bellak's thesis that animal stimuli evoke greater projective fantasy material in children than do human figures. This contention has stimulated vigorous controversy. A number of studies did not clearly support Bellak's contention, and some indicated that children gave longer and more meaningful stories to the TAT than to the CAT (Bellak & Bellak, 1965; Bellak & Hurvick, 1966; Neuringer & Livesay, 1970; Myler, Rosenkrantz, &

Holmes, 1972). Noting these results, Bellak has brought out a "human" equivalent of the CAT called the Children's Apperception Test-Human: CAT-H (Bellak & Bellak, 1965; Bellak & Hurvick, 1966). Although Haworth (1966) found that children tend to project and introject more on the CAT-H than on the CAT, subsequent research has generally shown the CAT and CAT-H to be equivalent in the responses they evoke, independently from the maturity, and anxiety of children and the changes in social climate (Neuringer & Livesay, 1970; Myler, *et al.*, 1972).

Overall, the referenced literature highlights the paucity of recent empirical data and research on the CAT. The few scoring systems based on psychoanalytic theory lack data on interrater agreement, detailed manuals for the coding systems, and normative data. Inferred developmental changes in the results were scarcely taken into account. This paucity of studies is rather surprising given the wide use of the method in clinical settings. Reviews of CAT studies (Bellak & Abrams, 1993) suggest that it has been a popular and relatively culture-free measure in the United States (Bellak & Siegel, 1989) and in other countries (Boekholt, 1993). Although there seems to be a general consensus in the USA that CAT-H is preferable to the old CAT, there is a paucity of studies also about this version of the test. The few studies already cited have generally shown equivalence between CAT and CAT-H (Neuringer & Livesay, 1970; Myler, *et al.*, 1972).

The major purpose of our research (Mazzeschi, Caneva, & Cesari, 1998; Mazzeschi, 1999; Mazzeschi, Lis, Polla, Parolin, & Rink-Leati, 2000) has been to develop a new evaluation form for the CAT (CAT-EF) based on psychoanalytic theory. The older version (CAT) was chosen because it is in general use in Italy. While projective methods as such the CAT are widely used in clinical settings, they are not standardized. They truly deserve increased attention and exhaustive research.

The CAT-EF ought to evaluate the stories on three main dimensions: formal (enumerative and descriptive aspects), content (popular themes; hero identification), and psychodynamic dimensions. Psychodynamic dimension includes the evaluation of types and levels of conflicts and the analysis of defenses on the basis of that already proposed by Chabert (1980), Simmonet (1985) and Shentoub for the TAT (Shentoub, 1987), but also in developmental terms as proposed by Freud's (1965, p. 138) "developmental, meta-psychological profile." Each dimension ought to include operationally defined variables scored at the nominal, ordinal, or interval level.

Form and content are two broad aspects of TAT and CAT that have been distinguished (Henry, 1956; Holt, 1958; Dana, 1959; Bellak, 1986; McGrew & Teglassi, 1990). Generally, form relates to how the storyteller is organizing his effort to accomplish the task (Bellak, 1986). Content refers to specific themes that reflect the unique concerns of the storyteller. From the na-

ture of the identical content and fantasies one could infer the storyteller's needs and strivings, attitudes, values, and conflicts. Hartman (1949) suggested that both form and content elements contribute to personality assessment (Hartman, 1949; McGrew & Teglasi, 1990). Formal characteristics of CAT responses should be given increased emphasis because they can be assessed more objectively and may be more telling for certain aspects of personality (Hartman, 1949; McGrew & Teglasi, 1990). Formal aspects of TAT stories, and so also of CAT stories, appear to be more readily amenable to group comparisons and standardization than content analysis (McGrew & Teglasi, 1990).

The specific aim of this study was to obtain initial empirical data for children on some indexes and variables of this new evaluation form by investigating the relationship between age and performance in normal school children on the overall protocol and on the single cards. Specific attention was given to the single cards. Four indexes were chosen within the "formal dimension": number of words, number of characters (animals) correctly identified, number of modified characters (animals), and number of attributions given to the characters (animals) of the stories. Intensity and types of conflicts evoked in children were scored within the psychodynamic dimension.

The number of words in a story is a straightforward but general measure of productivity (Fear & Stone, 1951; Neuringer & Livesay, 1970). Children and disturbed adolescents were found to produce short or more constricted CAT or TAT stories (Hartman, 1949; Cox & Sargent, 1950; Kempler & Scott, 1970; McGrew & Teglasi, 1990). The number of attributions given to the characters (animals) of the story pertains to the identifying characteristics of the main hero of the story (Bellak, 1954; Bellak & Abrams, 1993). It was related to self-esteem, cohesion of the self, and the level of continuity of the self-representation over time (Abrams, 1993). Reality testing has a psychodynamic significance. It may be implied in the CAT stories through the recognition or the introduction of figures, objects, or circumstances not typically expressed in stories; or implied through omissions of figures, objects or circumstances in stories to particular cards. More perceptual distortions and omissions were found in disturbed children's and adolescents' CAT and TAT stories (Leitch & Shafer, 1947; Gurevitz, 1951; Harworth, 1966). The number of characters (animals) correctly identified in the stories and the number of modified characters (animals) were considered in the literature as first face valid indexes of reality testing versus actual conflict and defenses that can be expected in manifest behavior (Shentoub, 1987; Abrams, 1993; Bellak & Abrams, 1993). Intensity and types of conflicts evoked in children is one of the classical variables already highlighted and taken into account in CAT research (Chabert, 1980; Simmonet, 1985, 1988; Bellak & Abrams, 1993). As highlighted by the psychoanalytic literature, it is funda-

mental to identify drive-defense constellations expressed in a story in terms of specific *conflicts*, *nature of anxieties*, and *main defenses* against conflicts, anxieties, and fears (Abrams, 1993; Bellak & Abrams, 1993).

Although the literature has highlighted that all these indexes and variables have a psychodynamic significance, it could be that they simply reflect a child's intellectual and affective maturity that increases with age. Normative data should distinguish a developmental trend unrelated to personality from personality aspects. We expected a developmental trend in describing and enriching the characters of the cards and in the types of resolutions of conflicts. Age differences were found in previous studies (Bellak & Abrams, 1993). Sex differences in the nature of responses, with exception of those at 3 and 4 years, were very small (Byrd & Witherspoon, 1954; Bellak & Abrams, 1993).

## METHOD

### *Subjects*

Seventy boys and girls from local nursery and elementary schools served as subjects. They represented seven ages: 4, 5, 6, 7, 8, 9, and 10 years. Ten subjects (5 boys and 5 girls) were included in each age group. As for the racial-ethnic composition of the sample, all the subjects were of European ancestry and lived in northern Italy. Socioeconomic status level (Hollingshead, 1975) was middle. All participants were in mainstream classrooms. Participants were drawn from two schools within suburban school districts. Children were allowed to participate when they and their parents gave assent. About their participation in the investigation children were told that the research team wanted to know better how children make up stories. The 70 subjects were individually administered all cards from the CAT by a female psychologist. Standard instructions were utilized.

### *Procedure*

Some indexes and variables of the CAT Evaluation Form (CAT-EF) (Mazzeschi, 1999) were used to evaluate children's thematic apperception stories from the CAT. Each card and the overall protocols were scored for four "formal" indexes: (1) length of the story (number of words), (2) number of characters correctly identified, (3) number of modified characters, and (4) number of attributes given to the characters. The definitions and psychological meanings of these indexes are shown in Table 1. Interscorer reliabilities were estimated by Pearson correlations for scorings by two psychologists who independently rated 20 protocols selected at random. The correlations were computed separately for each of the 10 CAT cards.

The CAT was also scored for intensity and types of conflicts evoked in

TABLE 1  
DEFINITIONS AND PSYCHOLOGICAL MEANINGS OF FOUR FORMAL INDICES

Variables	Definition	Psychological Meaning
Length of the story	Number of words a story comprises.	It is a straightforward but general measure of productivity (Fear & Stone, 1951; Neuringer & Livesay, 1970).
Number of characters (animals) correctly identified	The character is seen as it appears on the card, e.g., the lion is seen and named as lion.	
Number of modified characters (animals)	The character is modified, e.g., the bear is seen as a different animal or as a human being.	It has been used as a measure of reality testing (Abrams, 1993; Bellak & Abrams, 1993; Shentoub, 1987).
Number of attributes given to the characters (animals) of the stories	An attribute is defined as an adjective that qualifies and enriches the character, e.g., strong, nice, sad, happy, etc.	It has been used as an index of self-coherence and integration (Abrams, 1993).

children. Types of conflicts were defined by a team of psychologists with a psychoanalytic training following Chabert (1980) and Anna Freud (1965). Conflicts were first classified as identified and nonidentified. Identified conflicts were later classified as avoided, badly resolved, and well resolved.

In a pilot study, two members of the Psychology Department with psychoanalytic training provided a manual with definitions and examples used in the scoring criteria for the types of conflicts. The manual has already been published (Mazzeschi, *et al.*, 2000). Definitions and examples are also summarized in Table 2. To obtain interrater reliability, two research assistants (graduate students in psychology) independently rated 20 CAT protocols selected at random. The two raters had a theoretical and clinical training of 10 hours on psychoanalytic concepts on conflicts following Anna Freud (1965). They also had 10 hours of supervised clinical training on the manual with the two members who had devised the manual. Interscorer reliabilities were estimated by percentage of agreement and the Cohen coefficient of agreement separately for each of the 10 CAT cards.

## RESULTS

### *Interrater Reliability*

The agreement varied from .85 to .98 for the four indexes and the 10 cards. The percentage of agreement for the types of conflicts varied from .85 to .88. So for all indexes and variables (types of conflicts) agreement was higher than 80%, as required by the standards of the Journal of Personality Assessment (Weiner, 1991). Percentage of agreement does not always reflect the variance in agreements and disagreements (Wood, Nezworski, & Stejskal, 1996; Acklin, McDowell, Verschell, & Chan, 2000), and when exceeding .80

TABLE 2  
DEFINITIONS OF TYPES OF CONFLICTS

Type of Conflict	Definition	Example
Unidentified	The subject is unable to identify any conflict.	Card 4: <i>Molber kangaroo and her two babies. They all go for a walk.</i> <i>End</i> Card 3: <i>The lion king is sitting, and there is a little mouse. They all live in the forest. End.</i>
Identified-Avoidant	The subject identifies the conflict in the card and immediately avoids it.	Card 7: <i>A monkey and a tiger. May be the monkey is afraid . . . the tiger will . . . no . . . no . . . it is just a picture.</i> Card 10: <i>The little dog has soiled the kitchen. His mommy is very angry . . . no, no it was a misunderstanding.</i>
Identified-Poorly Resolved	The subject identifies the conflict but does not give a good solution to it.	Card 8: <i>The monkeys are talking about this child; they say that he is a naughty boy, a very naughty boy. There is no hope for him in his future.</i> Card 2: <i>Three bears; they are fighting. The youngest one is falling down the hill. He will die.</i>
Identified-Well Resolved	The subject identifies the conflict and gives a good solution to it for the developmental stage expected for his age.	Card 8: <i>The monkey is saying to the child that he has been naughty and he has not done his school tasks. The boy feels very guilty. He thinks: now I will go in my room, and I will begin to do better.</i> Card 9: <i>The rabbit is alone in its bed. He had a nightmare. He dreamed that mommy and daddy had left him alone in the home and went away forever because yesterday he was a naughty boy. . . He is very frightened. He wants to call mommy. Then he thinks, wait, I will go very silently into their room to see if they are there. I am sure they are there, and they will kiss me.</i>

can obscure major disagreements (Gronnerod, 1999). For this reason Cohen Kappa was also applied in 20 protocols. Kappa varied from .78 to .80. Cohen (1968) suggests the following guidelines for interpreting the size of  $d$  values: small = .30, medium = .50, and large = .80. Therefore, the interrater reliabilities were sufficiently high to merit the possible use of the four indexes and of the definitions of types of conflict in the present study.

### *Analyses*

For statistical analyses, subjects were divided into three age groups: nursery school (4–5 yr.), first level of elementary school (6–7 yr.), second level of elementary school (8–10 yr.), according to the Italian school organization. Because the sample is still very small, we limited our analysis to age and omitted analysis of sex differences until we have a larger sample.

Table 3 shows the means and standard deviations for, respectively, the number of words, of characters correctly identified, of modified characters, and of attributes for all of the CAT cards and the overall protocol in the total sample.

One-way (age group) analyses of variance were carried out for all four indexes and for each card and the overall protocol (44 analyses total). The analyses of variance for each card and the overall protocol resulted in a significant main effect for age in some indexes and cards. Table 3 shows the means and standard deviations in the different age groups for all indexes for all CAT cards and the overall protocol. Further comparisons on these age group means were carried out by the use of a Scheffé test.

### *Conflicts*

Data on conflicts were analyzed on the overall protocol and on single cards in terms of the numbers of conflicts, i.e., total number of conflicts: unidentified, avoided, badly resolved, and well resolved, and the type of conflicts, i.e., the frequencies of conflicts within each category. Frequencies of type of conflicts in the overall protocol are shown in Table 3. An analysis of variance (Table 3) of the mean frequencies of each type of conflict was also carried out. This analysis of variance with age group yielded significant main effects for age group on some cards. The number of well resolved conflicts increases across age groups: according to a Scheffé test, age group differences were significant (Table 3). The number of unidentified and avoidant conflicts decreases across age groups: according to a Scheffé test, age group differences were significant (Table 3).

Frequencies of type of conflicts in each card are shown on Table 4. A log-linear analysis was carried out with cards and types of conflicts as independent variables. Type of conflicts and Card  $\times$  Type of conflicts were significant effects (Table 4). Certain cards seem to elicit more of the less common types than others. Card 7 (a tiger with bared fangs and claws leaping at



TABLE 3

ANALYSES OF VARIANCE BY AGE GROUP, MEANS, AND STANDARD DEVIATIONS FOR NUMBER OF WORDS, NUMBER OF CHARACTERS CORRECTLY IDENTIFIED, NUMBER OF MODIFIED CHARACTERS, NUMBER OF ATTRIBUTES FOR EACH CARD AND FOR THE OVERALL PROTOCOL, AND FREQUENCIES OF TYPES OF CONFLICTS IN THE OVERALL PROTOCOL FOR TOTAL SAMPLE AND EACH AGE GROUP

	Total Sample		Age Group						F	Scheffé
	M	SD	4-5 yr. (n=20)		6-7 yr. (n=20)		8-10 yr. (n=30)			
			M	SD	M	SD	M	SD		
Number of Words										
Card 1	82.1	61.1	84.25	78.7	78.9	55.2	82.8	53.0	ns	
Card 2	89.7	69.0	98.85	103.9	83.9	45.8	87.4	52.9	ns	
Card 3	106.7	116.3	109.2	178.9	89.2	50.4	116.8	96.2	ns	
Card 4	122.7	104.9	116.2	156.1	110.3	52.1	135.2	90.1	ns	
Card 5	114.2	94.8	94.9	95.3	103.4	60.2	134.2	111.0	ns	
Card 6	105.4	97.0	103.1	119.4	87.5	36.1	118.8	108.6	ns	
Card 7	109.6	77.0	95.7	56.8	97.0	40.6	127.3	101.7	ns	
Card 8	107.5	81.1	70.5	34.1	108.3	59.8	131.6	104.9	3.67*	1 < 2 < 3
Card 9	110.0	78.9	80.7	42.9	105.5	73.1	132.5	94.7	ns	
Card 10	98.9	68.7	75.1	39.0	97.5	54.1	115.8	87.4	ns	
Protocol	1046.7	730.9	928.3	827.1	961.5	423.8	1182.4	819.3	ns	
Number of Characters Correctly Identified										
Card 1	3.1	1.4	3.2	1.3	2.7	1.8	3.4	1.2	ns	
Card 2	2.7	0.8	2.2	1.3	3.0	0.2	2.9	0.3	8.32†	1 < 2 = 3
Card 3	1.4	0.5	1.4	0.6	1.3	0.6	1.4	0.5	ns	
Card 4	2.3	1.1	1.6	1.4	2.5	0.8	2.8	0.8	9.05†	1 < 2 = 3
Card 5	1.1	1.0	0.6	0.8	0.8	1.0	1.6	0.8	11.65†	1 = 2 < 3
Card 6	1.8	1.2	1.5	1.3	1.4	1.3	2.3	1.0	4.86*	1 = 2 < 3
Card 7	1.9	0.3	1.9	0.4	2.0	0.2	1.9	0.3	ns	
Card 8	3.7	1.5	3.1	1.7	3.8	1.7	4.0	0.9	ns	
Card 9	0.9	0.3	0.9	0.4	0.9	0.3	0.9	0.3	ns	
Card 10	1.9	0.4	1.7	0.7	1.9	0.5	2.0	0.0	ns	
Protocol	20.8	4.1	17.8	4.9	20.1	3.2	23.3	3.0	15.65†	1 = 2 < 3
Number of Modified Characters										
Card 1	0.6	1.3	0.7	1.2	0.9	1.6	0.4	1.1	ns	
Card 2	0.2	0.6	0.6	1.1	0.0	0.2	0.0	0.2	5.01†	2 = 3 < 1
Card 3	1.0	0.1	1.0	0.2	1.0	0.0	1.0	0.0	ns	
Card 4	0.7	1.2	1.5	1.4	0.5	1.0	0.3	0.8	8.00†	2 = 3 < 1
Card 5	0.5	0.7	1.0	0.7	0.6	0.7	0.2	0.6	7.40†	1 < 3
Card 6	0.6	1.0	0.9	1.1	0.8	1.1	0.4	0.9	ns	
Card 7	0.1	0.3	0.4	0.5	0.0	0.2	0.0	0.2	7.13†	2 = 3 < 1
Card 8	0.4	1.2	0.9	1.7	0.7	1.5	0.0	0.0	4.05*	3 < 1
Card 9	0.1	0.3	0.2	0.4	0.2	0.4	0.1	0.3	ns	
Card 10	0.1	0.5	0.3	0.7	0.2	0.5	0.3	0.2	ns	
Protocol	3.6	3.4	7.2	3.7	4.7	3.1	2.5	1.7	16.50†	1 > 2 > 3
Number of Attributes										
Card 1	0.7	1.7	0.5	1.0	0.3	0.8	1.1	2.4	ns	

(continued on next page)

\* $p < .02$ . † $p < .001$ .

TABLE 3 (CONT'D)

ANALYSES OF VARIANCE BY AGE GROUP, MEANS, AND STANDARD DEVIATIONS FOR NUMBER OF WORDS, NUMBER OF CHARACTERS CORRECTLY IDENTIFIED, NUMBER OF MODIFIED CHARACTERS, NUMBER OF ATTRIBUTES FOR EACH CARD AND FOR THE OVERALL PROTOCOL, AND FREQUENCIES OF TYPES OF CONFLICTS IN THE OVERALL PROTOCOL FOR TOTAL SAMPLE AND EACH AGE GROUP

	Total Sample		Age Group						F	Scheffé
	M	SD	4-5 yr. (n=20)		6-7 yr. (n=20)		8-10 yr. (n=30)			
			M	SD	M	SD	M	SD		
Card 2	1.2	1.6	0.8	0.8	1.6	1.7	1.3	1.9	ns	
Card 3	0.1	0.3	0.3	0.4	0.0	0.3	0.0	0.0	4.53*	1 > 2 = 3
Card 4	1.1	1.3	0.8	1.4	0.8	0.8	1.5	1.5	ns	
Card 5	1.5	0.8	0.3	0.4	0.4	0.6	0.8	1.0	ns	
Card 6	0.9	1.1	1.0	1.2	0.5	0.7	1.1	1.3	ns	
Card 7	1.0	1.3	0.6	1.1	0.8	0.9	1.4	1.5	ns	
Card 8	1.2	1.6	0.7	0.8	1.0	1.1	1.6	2.2	ns	
Card 9	0.6	0.7	0.4	0.6	0.7	0.8	0.6	0.8	ns	
Card 10	1.1	1.1	1.0	1.1	1.0	1.0	1.2	1.2	ns	
Protocol	13.7	8.0	0.3	6.2	7.6	4.1	12.4	9.9	4.51*	1 < 2 < 3
Frequencies of Types of Conflicts in the Overall Protocol										
Unidentified	2.9	2.2	4.2	2.2	3.5	2.0	1.7	1.6	11.57†	1 > 2 > 3
Avoidant	0.8	1.0	1.2	1.0	1.0	1.1	0.5	0.7	3.92*	1 > 3
Poorly Resolved	2.2	1.7	2.3	1.8	1.6	1.3	2.6	1.9	ns	
Well Resolved	4.1	2.7	2.4	2.0	4.0	2.6	5.3	2.6	8.70†	1 < 2 < 3

\* $p < .02$ . † $p < .001$ .

a monkey which is also leaping through the air) is characterized by mostly poorly resolved conflicts. Card 8 (two adult monkeys sitting on a sofa drinking from a tea cup; one adult monkey in foreground sitting on a hassock talking to a baby monkey) is characterized by mostly avoidant conflicts. Clinicians should concentrate their interest on these cards. As for Types of conflicts ( $z=2.58$ ), most are well resolved, and sometimes unidentified, but seldom avoidant.

Finally, product-moment correlations among the four indexes and the frequencies of different types of conflicts were calculated (Table 5). The number of well resolved conflicts was significantly ( $p < .05$ ) negatively correlated with avoidant conflicts and positively with the number of attributes given the characters. The number of modified characters was significantly negatively correlated with correct identifications of characters and attributes and positively with the number of nonidentified conflicts. Poorly resolved conflicts were never significantly ( $p < .05$ ) correlated with other variables.

#### DISCUSSION

To establish norms for CAT demands spending a large amount of time with each child, but if norms are to be established, then large representative

TABLE 4  
 FREQUENCIES AND PERCENTAGE OF FREQUENCIES FOR EACH TYPE OF CONFLICT  
 FOR 10 CARDS AND LOG-LINEAR ANALYSIS (LAMBDA VALUES)

	Type of Conflict							
	1. Unidentified		2. Avoidant		3. Poorly Resolved		4. Well Resolved	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Card 1	36	51.5	7	10.0	9	12.8	18	25.7
Card 2	15	21.4	9	12.8	24	34.3	22	31.4
Card 3	18	25.7	10	14.3	19	27.1	23	32.8
Card 4	31	44.3	1	1.4	9	12.8	29	41.4
Card 5	23	32.8	4	5.7	12	17.1	31	44.2
Card 6	26	37.2	0	0.0	8	11.4	36	51.4
Card 7	2	2.8	4	5.7	26	37.1	38	54.3
Card 8	21	30.0	13	18.6	12	17.1	24	34.3
Card 9	13	18.6	5	7.1	17	24.3	35	50.0
Card 10	18	25.7	4	5.7	18	25.7	30	42.8
Protocol	203	29.0	57	8.2	154	22.0	286	40.8
$\chi^2 = 110.43, p < .001$								
	Log-linear Model							
	1	2	3	4				
Card 1	0.64‡	0.41	-0.53	-0.52	0.64†			
Card 2	-0.34	0.51	0.28	-0.45	1.73			
Card 3	-0.19	0.59	0.03	-0.43	1.95			
Card 4	0.82	-0.88	-0.21	0.27	-1.09			
Card 5	0.24	-0.06	-0.02	0.05	0.36			
Card 6	0.94	-1.68	-0.28	0.77	-1.56			
Card 7	-1.68‡	0.26	0.85‡	0.57	-1.37			
Card 8	-0.04	0.84‡	-0.41	-0.32	1.95			
Card 9	-0.34	0.11	0.90	0.14	0.56			
Card 10	-0.32	-0.09	0.14	-0.01	0.57			
	2.94*	-7.14*	1.03	10.03*				

\*Lambda value for column corresponding to an error probability of  $\alpha = .05/(c-1)$  for  $z = 2.24$ .

†Lambda value for row corresponding to an error probability of  $\alpha = .05/(r-1)$  for  $z = 2.58$ .

‡Lambda value for the interaction corresponding to an error probability of  $\alpha = .10/(r-1)(c-1)$  for  $z = 2.75$ .

samples must be obtained. Our sample is still very small, but our results seem to give some interesting points which can be used to generate hypotheses for study and stimulate research, despite the severe limits on sample size.

The correlations among the types of conflicts and with other indexes show some interesting relationships between types of conflicts, identifications and modifications of characters, and attributes given to the characters of the stories. These correlations seem to support how our formal indexes are related with actual conflict resolution. This seems to offer some evidence for their psychodynamic significance.

The productivity of the subjects increased across age groups only on a few cards, contrary to what, of course, we expected. The cards were more

TABLE 5  
 PEARSON CORRELATIONS AMONG FOUR INDICES AND TYPES OF CONFLICT FOR TOTAL SAMPLE

Index	1	2	3	4	5	6	7	8
2. Total identified characters	.25*							
3. Total modified characters	-.15	-.83†						
4. Total attributions	.75†	.34†	-.27*					
5. Unidentified conflict	.17	-.17	.25*	-.07				
6. Avoidant conflict	-.21	-.04	.10	-.20	.08			
7. Poorly resolved conflict	-.08	.07	.01	-.10	-.11	-.14		
8. Well resolved conflict	.39†	.22	-.21	.58†	-.21	-.29*	-.14	

\* $p < .05$ . † $p < .01$ .

accurately perceived by older groups; the number of modified characters decreased across age groups in the overall protocol and on some cards. There was a considerable increase in attributes and number of characters identified from nursery school age on up as the characters were best identified and characterized with more attributes. These results suggest checking developmental changes in describing and enriching the characters of the cards.

Classically the CAT stories were designed to elicit material that indicates the nature of the ideational content and fantasies so that one could infer some storyteller's aspects of personality. There was classically defined projection. How the mechanism of projection can be defined in projective techniques has actually stimulated vigorous debate among scholars. This debate has developed, above all, by authors interested in the Rorschach. Exner (1993), for instance, supports that only part of the Rorschach responses can be attributed to a mechanism of projection. Some of the responses derive from a cognitive process. We also support this general accounting. Our data, if confirmed with a larger sample, support that correct identification of characters as well as attributions increase with age, so maybe they can be supposed to be connected with cognitive or affective development. It is very important to detect these age influences to distinguish what derives from projection and what derives from cognitive and affective developmental trends.

Our results show also a considerable increase in well resolved conflicts and a considerable decrease in unidentified and avoidant conflicts from nursery school age on up to 10 years. These results suggest developmental changes also in the types of resolution of conflicts.

These observations highlight again the complexity of the storyteller's needs, strivings, attitudes, values, and conflicts in childhood. Specific attention has to be given to a child's developing internal world. This world can be different during the different stages of development.

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