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The Henderer-Harrison Interpersonal Relations Scale: a picture arrangement measure of interpersonal functioning

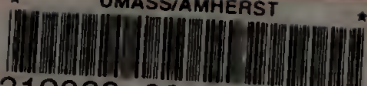
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THE HENDERER-HARRISON INTERPERSONAL RELATIONS SCALE:
A PICTURE ARRANGEMENT MEASURE OF
INTERPERSONAL FUNCTIONING

A Thesis Presented

by

James M. Henderer

Submitted to the Graduate School of the
University of Massachusetts in partial fulfillment of
the requirements for the

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May 1967

Major Subject: Psychology

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A PICTURE ARRANGEMENT MEASURE OF
INTERPERSONAL FUNCTIONING

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May 1967

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I always have been one to save the best for last. It would be impossible to forget my wife, Sarah, on whom the successful completion of this research depends more than anyone else. There are times when I feel it should be her name that is written on the cover.

James M. Henderer

Amherst, Massachusetts
August 1966

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CHAPTER I

THE NEED FOR A MEASURE OF INTERPERSONAL FUNCTIONING

Interpersonal experience is the essence of human life. This is the basic assumption upon which the following work is predicated. I would like to state this assumption more strongly. If man is to find meaning in his existence, he must find it in his interpersonal living. It is only as he lives interpersonally that he is able to experience those qualities of life that make his life distinctly human, distinctly meaningful. It follows that anything that interferes with effective interpersonal living stands between a man and the possibility of his fully experiencing life. A man can only be whole to the extent that his interpersonal living is effective.

The centrality of interpersonal living has not gone unnoticed in the field of psychology. In her introduction to Principles of Intensive Psychotherapy, Frieda Fromm-Reichmann emphasizes the interpersonal.

Emotional difficulties in living are difficulties in interpersonal relationships; and a person is not emotionally hampered, that is, he is mentally healthy, to the extent which he is able to be aware of, and therefore to handle, his interpersonal relationships (147). In stating this and, by implication, defining psychiatry and psychotherapy as the science and art of interpersonal relationships, I not only wish to say that a person is mentally healthy to the extent to which he is able to be aware of and to handle his overt relationships with other people. But I also wish to refer to a much more far-reaching fact. We can understand human personality only in terms of interpersonal relationships. There is no way to know about human personality other than by means of what one person conveys¹ to another, that is, in terms of his relationship with him.

Interpersonal living is also basic in the thought of Karen Horney.

Rejecting instinct theory, she asserts that neuroses stem from cultural factors, or more specifically, from disturbances in human relationships.²

In The Neurotic Personality of Our Time, she presents in detail what she terms the neurotic need for affection. In so doing, she makes it clear how disrupted human relationships give rise to neurosis.

Interpersonal factors are also of great importance in the theories of Erich Fromm and Harr Stack Sullivan.³ Fromm, like Horney, looks to culture as the source of Man's anxiety. It is human relations that give rise to the human condition, and Man is a product of His interpersonal life. For Sullivan, too, personality is defined in interpersonal terms. Personality is the "relatively enduring pattern of recurring interpersonal situations which characterize a human life."⁴ This is basic to his interpersonal theory of psychiatry. Man is known and understood only through His human relationships.

This recognition of the centrality of the interpersonal in human life holds implications for the future direction of psychology. First, it means that psychological health must be defined interpersonally. A person who is healthy is one who is able to function effectively along the different dimensions of interpersonal life. Conversely, mental illness must be understood as an inability to live effectively along one or a number of interpersonal dimensions. Second, it means that if psychology is to deal effectively with human problems, it must hold as one of its goals a greater understanding of human relationships. It must strive to define the dimensions of effective interpersonal functioning. Since psychotherapy is the most available setting in psychology, it is the logical setting for the investigation of interpersonal functioning. Although little has been done to investigate the dimensions of interpersonal functioning in psychotherapy, there is a growing body of literature concerned with such an investigation. What has been

done can be roughly subdivided into two categories. The first of these relates to the problem area that is the focus of the therapeutic relationship, or the reason why the client seeks therapy. The second of these areas goes beyond any specific content and centers on those dimensions that are present in any constructive human relationship involving "more knowing" and "less knowing" individuals. Outstanding among the work done in this area is that of Robert R. Carkhuff and Charles B. Truax. Their work has been extensive and no review will be attempted here.⁵ But it is important to be aware of the fact that they have found a number of interpersonal variables that have been shown to be central to constructive therapeutic relationships. Among these are the therapist variables of empathic understanding, respect or positive regard, genuineness, personally relevant concreteness and self-disclosure. Carkhuff has called these the core of facilitative functioning. It is upon this core that the interpersonal relationship in therapy depends, as does the outcome of therapy.

If the outcome of therapy depends on the core of facilitative conditions, what need is there to be concerned with the specific content area, the interpersonal problem that brought about a need for therapy? Perhaps a concern for this area is limited, but that does not mean that diagnostic information concerning the client can not be helpful. Reliable and valid information concerning the strengths and weaknesses of the client's interpersonal life can provide effective and time-saving leads in dealing with his defensive maneuvering in therapy. If such information is provided, it is possible to use it to make therapy shorter and more to the point.

The problem of providing interpersonal diagnostic information in a

systematic manner is one that has rarely been tackled. Timothy Leary, asserting that the interpersonal can be considered "the most crucial and functionally important dimension of personality,"⁶ has set forth a systematic approach in his Interpersonal Diagnosis of Personality. From a vast amount of interpersonal information he collected, he derived what he felt to be sixteen distinct mechanisms or reflexes that could be used for the classification of interpersonal behavior. His classification system could be used to rate any individual on his interpersonal behavior. Through the use of statistical procedures, information concerning a given individual can be transformed into a "point which summarizes all of the interpersonal behavior in any behavioral sequence in terms of its distance and direction from the center of [a] circle."⁷ Leary's profiles can be used in a number of different ways. But there are two distinct drawbacks to his system. First of all, the profiles are not actual measures of interpersonal behavior. Rather, they merely render a graphic representation of information that must be obtained beforehand. The second problem concerns the "second person" in the interpersonal behavior to be rated. It is well-known that a person's behavior will vary depending on those he is with at a given time. Leary's system would require either some sort of summary representation of all of a person's different interactions, which might well be meaningless, or would necessitate a different profile to describe his behavior with each different person with whom he interacted. This would be too cumbersome to give a clear picture of his interpersonal life. Leary's system might also be criticized on the basis of his sixteen mechanisms that he uses to describe interpersonal behavior. Many of them appear to be overlapping. In addition, there are some

basic interpersonal behaviors that are not accounted for. Thus, there are a number of ways in which Leary's interpersonal diagnosis could be revised beneficially.

The present research is an attempt to develop a satisfactory system of interpersonal diagnosis. The fundamental question to such research is "what are those areas of interpersonal relating that are the most basic to human life?" The answer to this question must be partially subjective. Yet important guidelines may be found in the literature. Throughout the literature a great many areas of interpersonal relating are suggested. To sort these out for those which are distinct and basic is not an easy task. The areas that were chosen are felt to be comprehensive, yet distinct, and basic: many other dimensions of interpersonal relating could be considered combinations of these basic ones. A discussion of the areas that were chosen will be reserved for a more complete discussion of the system of interpersonal diagnosis. No one system provided all the areas that were chosen, but that of Erik Erikson contributed significantly to the selection of areas. In Childhood and Society, Erikson presents in detail the "Eight Ages of Man." Characteristic of some of these eight ages are interpersonal relations that are shown to be fundamental to human life. Erikson has brilliantly woven these interpersonal extensions into Freudian psychosexual theory and in so doing has greatly broadened the meaning of Freudian psychology.

Once the basic interpersonal dimensions were chosen, the second major consideration was "how could an individual's strengths and weaknesses be evaluated adequately along these different dimensions?" This is a question of form: what objective form of measurement could be used for such an evaluation? A picture arrangement test was decided

upon. Picture arrangement tests comprise a relatively unexplored area of testing. In view of the dearth of material relating to picture arrangement tests, this might be viewed as a tenuous decision. In fact, it is, but it is not a decision that is not lent some support by the literature. What little reference there is in the literature to picture arrangement tests is mostly related to the Picture Arrangement subtest on the Wechsler Adult Intelligence Scale (WAIS). There are some references to the Picture Arrangement Test (PAT) developed by Tompkins and Horn. However, this test provides little information relevant to the construction of an objective measure of interpersonal functioning. On the other hand, the Picture Arrangement subtest of the WAIS is generally recognized to be a measure of the social functioning of the individual. David Rappaport elaborates on this point in Diagnostic Psychological Testing.⁸ He also points out that this subtest is a very sensitive one. If errors can be controlled for in some manner, the picture arrangement subtest should provide an accurate picture of an individual's social functioning. It should also be noted that the picture arrangement subtest is a performance subtest and is thus well suited to a direct measurement of social behavior. It is clear that social behavior relies more heavily upon performance variables, or "action" variables, and depends less heavily upon verbal abilities.

Since very little has been done in the way of interpersonal testing, if a sensitive test could be constructed to assess objectively and directly an individual's interpersonal functioning along the basic dimensions of human relations, it would be possible to provide interpersonal diagnostic information that heretofore has not been available. The task then was to build a test that could provide such information.

FOOTNOTES

1. Frieda Fromm-Reichmann, Principles of Intensive Psychotherapy (Chicago: University of Chicago Press, 1950), p. (xiv).
2. Timothy Leary, Interpersonal Diagnosis of Personality (New York: Ronald Press, 1957), p. 7.
3. Ibid, pp. 7-10.
4. Harry Stack Sullivan, as quoted by Timothy Leary, Ibid, p. 8.
5. Of particular interest are the following:

Carkhuff, R. R. (ed.), The Counselor's Contribution to Facilitative Processes (Urbana, Illinois: Parkinson, 1966).

Carkhuff, R. R. and Truax, C. B., "Toward Explaining Success and Failure in Interpersonal Learning Processes," Personnel and Guidance Journal, 1966, 44, 723-728.

Truax, C. B. and Carkhuff, R. R., "Significant Developments in Psychotherapy Research," Chapter 7, Progress in Clinical Psychology, (L. E. Abt and B. F. Reiss, eds.), (New York: Grune and Stratton, 1964), pp. 124-155.

Carkhuff, R. R., "Training in the Counseling and Therapeutic Process: Requiem or Reveille?", Journal of Counseling Psychology, 1966, 13, No. 2.
6. Leary, op. cit., p. 12.
7. Ibid, p. 68.
8. David Rappaport, Diagnostic Psychological Testing (Chicago: The Year Publishers, Inc., 1945-46), pp. 214-230.

CHAPTER II

THE NATURE OF THE TEST

The Henderer-Harrison Interpersonal Relations Scale (HHIRS) was developed to measure objectively an individual's competence to function effectively across a number of interpersonal dimensions. In the event that problems in inter-personal functioning appear, the test is designed to provide information concerning the nature of the interpersonal problems.

The HHIRS is a picture arrangement test composed of 48 items. Each item represents a particular content area, e.g., trust, as it must be dealt with in the context of a particular interpersonal relationship, e.g., boy-girl. Each individual item is composed of a four-panel Peanuts cartoon. The four panels are presented in a scrambled order to the subject, whose task it is to reorder the panels to their original sequence within a given period of time. An individual's total score is the number of sequences which he could not properly order. This score reflects the individual's level of interpersonal competence. The content of the failed items supplies vital information concerning the nature of his interpersonal problems. The entire test may be seen in Appendix A.

Why Peanuts cartoons were chosen for this test is a simple matter. Humor is assumed to be an integral part of mental health, and Peanuts is widely acclaimed as one of the nation's most humorous cartoon strips. In addition, this strip is suited for use in such a test as the HHIRS because of the large amount of psychological material that has been woven into the lives of its characters. Peanuts is a "natural for a psychological test.

The test is based on the assumption that an item will be failed when the emotional reaction of the testee to the content of the item prevents him from arriving at the correct solution within the allotted time. This assumption of emotional blocking has long been central to the diagnostic use of the WAIS. It is recognized that many items are failed because they are emotionally loaded for the subject, rather than because they are beyond his intellectual ability. Rappaport, in Diagnostic Psychological Testing, asserts that an individual's ability to score highly on the picture arrangement subtest of the WAIS is partly dependent upon his ability to deal with the emotional content of the items.¹ The fact that the ability to solve scrambled cartoons is partly a function of the emotions has been demonstrated as a sidelight of a study by Henderer and Oakes, which used scrambled Peanuts cartoons. It was shown that, for solvable cartoons, those which were designated as being emotionally loaded were solved significantly less frequently than those designated as neutral.²

Content Areas

The HHIRS is concerned with six interpersonal areas. These will be referred to as content areas. The six content areas are trust, hostility, giving, seduction, dominance and guilt. The following theoretical discussion of each of these areas makes it clear that it would be difficult to use them in the test in their extended form. Therefore, a simplified, concrete expression of these areas was adopted for use in the test, so that the content could be easily recognized by the testee. A short explanation of the simplified version of each category will accompany each theoretical discussion.

Trust. Trust is the most basic of interpersonal dimensions. As

Erikson points out, the establishment of a basic trust is the fundamental goal of the relationship between the newborn infant and the mother. In an individual's world the presence of trust means that there is certainty and stability: there is a quality of knowing what to expect. This predictability does not refer to the details of any relationship; rather, it refers to the confidence that the second person in the interpersonal relationship has, and will maintain, a facilitative approach to the relationship. If an individual establishes a number of trusting relationships early in his life, his trusting goes beyond any individual relationship: trust becomes characteristic of his outlook on the world and life. The individual leads his life with certainty and confidence. Without trust, there is no stability in an individual's world. The fears stemming from the normal unpredictability of everyday life, with which all people must deal, are underscored, for the untrusting person, by his basic fear that life will deal harshly with him at every turn. His overwhelming fears prevent him from acting in the face of the unpredictability of life, and rob him of the opportunity to learn to trust by establishing trusting relationships in those situations where it is possible. A vicious circle is established, and the individual is forced to live in isolation.

Those cartoons chosen to deal with trust on the HHIRS rely heavily on the identification figure's ability to count on someone: he looks to another person to provide certainty and stability in his world.

Hostility. Hostility is another basic dimension of interpersonal relationships. It is the desire of one individual to destroy another individual. Although hostility can be used in a constructive manner, a purely hostile relationship is characterized by attempts by one

individual to be destructive to another: no attempt is made to employ the hostility constructively as a basis of inquiring further into the relationship. The logical extension of the hostile relationship is thus a life or death battle with the sole objective of destroying another individual.

The expression of hostility is not always so clearly understood as a life and death battle. Hostility is expressed in many ways, some more subtle than others. For the purposes of the HHIRS, hostile cartoons are those which deal with a more popular conception of hostility. Characters are shown to be angry with each other and, in some cases, to act out this anger.

Giving. Giving is a basic dimension of interpersonal relating that is often overlooked by psychologists. It is an interpersonal orientation that is in direct contrast to hostility: while hostility is destructive, giving is constructive. Giving, in an interpersonal relationship is based on a deep respect for the other person's worth and a recognition of his rights as a free individual. It is characterized by an individual's concern for the welfare of another and by his acting on this concern. This action involves the individual's putting himself out, a "risking of himself," either for the sake of the relationship or for the sake of the other person. Thus we see that a giving person has a constructive attitude toward others and is willing to give of himself in order to implement this attitude.

Again for the purposes of the HHIRS, the cartoons dealing with giving employ a more popular conception of the term. What is given is often an object, a compliment or a privilege.

Seduction. Seduction is an interpersonal dimension that is

primarily associated with sex; however, it is by no means confined to sex alone. More generally, seduction can be understood simply as temptation or enticement to any action or point of view, good or bad. This enticement is directed primarily to the emotions, rather than at the intellect. An important aspect of this concept, and one which distinguishes seduction from hostility, is that the seducer remains aware of the interests and feelings of the seduced. This awareness serves to forward his (the seducer's) own personal ends, and only apparently exists out of genuine concern for the seduced.

In light of the fact that seduction is epitomized, in the popular mind, by sex, and also because sexual problems are frequent in psychotherapy, it was decided the content of the cartoons chosen to deal with seduction in the HHIRS should be sexual in nature.

Dominance. Dominance, in the interpersonal relationship, is characterized by the desire of an individual to control completely the actions of another. The dominating person is one who attempts to make all the decisions and to determine the final outcome of the situation. In so doing, he works for an eradication of the individuality of the dominated person. In contrast to the seducer, the dominator shows no concern or respect for the interests and integrity of the person whom he dominates: he simply is interested in acquiring and exercising power over that person. Such a desire is rooted in one of the fundamental characteristics of the destructive person: that he will allow no man to go further than he himself has gone.

The cartoons used to deal with dominance on the HHIRS concern the ability of an individual to control the final outcome of a situation by making the decisions for another person or imposing his point of view on that person.

Guilt. The final area of interpersonal relating to be considered is that of guilt. Guilt is rooted in an individual's feelings of inadequacy and incompleteness. Feelings of inadequacy can arise either from the performance of an act judged (by the individual or by his society) to be wrong, or from the failure to perform an act judged to be right. In addition, guilt feelings can arise from an individual's failing to act at all--either "right" or "wrong"--in a situation. Existential psychologists, who equate living with acting, point out that failure to act at all is a failure to live. Man's feelings of guilt tell him that he has adopted a stance which is not allowing him to live fully; thus guilt, as seen by the existentialist, may serve to stimulate man to a fuller life. This is in contrast to the understanding of guilt presented by Erikson in Childhood and Society. For Erikson, guilt is the product of the discouragement of initiative, and causes an individual to live a repressed and restricted life.³ Both of these theories provide valuable insights into the nature of guilt.

Guilt cartoons on the HHIRS were concerned with the guilt feelings of the individual, that resulted from another individual's impressing upon him the wrongness of his actions.

Second Person Categories

In any interpersonal relationship in which these six basic dimensions--or any others--are involved, it is important to remember that there are two people involved. The implication of this is that any interpersonal relationship is a two-way relationship. That is, at any one point in time, either of the participants in the relationship can assume an active stance, while the other assumes a passive stance: one is acting; the other is receiving his action. In light of the

fact that an individual may be either acting or acted upon in an interpersonal relationship, any measure that would assess his ability to function in such a relationship must take into account his abilities both as an actor and as a receiver of action. On the basis of this assumption, each of the six content areas of the HHIRS was divided into an active and a passive version. In the active version, it was the identification figure who acted (e.g., who trusted); in the passive form, it was the identification figure who received the action (e.g., who was trusted.) Thus the HHIRS takes into consideration the fact that any interpersonal relationship is a two-way relationship.

Another aspect of any interpersonal relationship, that must be taken into consideration, concerns the second person in that relationship. As mentioned above, it is well-known that any person's behavior in a relationship depends upon the person with whom the relationship exists. Therefore, who the second person is is a primary consideration in the evaluation of an individual's functioning in that relationship. With this in mind, an attempt was made to determine the basic types of persons to whom the identification figure might relate. It is important to note that in all cases the identification figure is male.* The following types of second persons were chosen: Mother, Father, Female Peer, Male Peer. These will be referred to as the second-person categories.

Mother and Father were chosen for two reasons. The first reason

*The use of the male identification figure was justified in light of the fact that the HHIRS was designed to be given in a male-oriented society. Ideally, however, a companion version of the HHIRS, using a female identification figure, should be constructed for women.

is an obvious one: an individual's parents play an extremely important role in his life. Because of their role, they may often be the focus of psychological problems. A second reason for their inclusion stems from the role they play as authority figures: indeed, they are much more than authority figures; they are prototypes which determine, in large part, the way in which an individual will relate to all authority figures. Therefore the use of these figures as second persons in a relationship will not only reveal problems with parents, but also with all individuals who act as authority figures in relation to the testee.

The choice of the Female Peer as a second-person category was also made for two reasons. The Female Peer represents a large number of people with whom the individual comes in contact in his daily living. Because the identification figure is male, the Female Peer also represents a potentially very special type of relationship: it is only with a female peer that society sanctions a sexual relationship. Furthermore, it is, in most cases, a female peer with whom life is shared.

The Male Peer was chosen for the obvious reason that he represents the balance, if not the majority, of the individuals with whom the male deals in his interpersonal life.

Each of these four second-person categories is taken into account in the HHIRS in the following manner. In both the active and the passive forms of each of the six content areas, each of the four second-person categories is represented by one test item. The matrix shown in Table 1 is a graphic representation of the organization of the content of the test.

| | TRUST | | HOSTILITY | | GIVING | | SEDUCTION | | DOMINANCE | | GUILT | |
|------------|--------|---------|-----------|---------|--------|---------|-----------|---------|-----------|---------|--------|---------|
| | Active | Passive | Active | Passive | Active | Passive | Active | Passive | Active | Passive | Active | Passive |
| BOY-MOTHER | | | | | | | | | | | | |
| BOY-FATHER | | | | | | | | | | | | |
| BOY-GIRL | | | | | | | | | | | | |
| BOY-BOY | | | | | | | | | | | | |

TABLE 1
Matrix Representing the Organization of the HHIRS

Plus-Minus Sequence

Now that the basic structure of the system of interpersonal diagnosis has been derived, attention must be given to the nature of the individual items. Another aspect of interpersonal relations must be considered at this point.

Along any content area there may be either a positive or a negative expression of the content. A person's ability to deal with the content of a relationship with a given person may be a function of the positive or negative expression of that content. For example, an individual's ability to deal in a relationship where trust is extended may differ significantly from his ability to deal with that same relationship where trust is withheld. This positive or negative expression of a content area had to be taken into consideration in the selection of each individual item. In each cartoon, there could be either a positive or a negative expression of a content area. For simplicity, these could be expressed as plus (+) or minus (-) sequences. In addition, it was realized that the mode of expression could vary within a given sequence. A sequence might begin with a negative expression and end with a positive expression of the content: sequences could be either -+ or +-.* To make clear the fact that there was no variation in the constant sequences, they were designated as ++ or --. Any given cartoon could take the form of one of these four patterns.

To assure that each pattern of expression appeared with equal frequency within each content area, the cartoons within that area were selected so that each pattern appeared once in both the active and the

*The number of pictures designated as "beginning" or "ending" varied from sequence to sequence.

passive content areas. The positive-negative sequences of the items in the passive version of each content area are exactly opposite to those of their counterparts in the active version. In addition, each pattern was placed exactly three times in each second-person category. Attention to the plus-minus sequences of the items was of further advantage in that it would prevent the testee from learning that one particular sequence was dominant, a fact that might prove helpful to him in solving later test items. The resulting matrix of positive and negative patterns is shown in Appendix B.

It can easily be seen that in any particular combination of content area and second-person category (within any one cell of the matrix), there is only one test item, and that only one pattern can be used. An exhaustive test of interpersonal behavior would be composed of four items for each cell of the matrix. In the construction of the HHIRS, it was not felt that such an exhaustive test was necessary. Rather, it was felt that the sampling of behaviors in any given cell would be sufficient. As a result, an understanding of an individual's interpersonal behavior in a given cell depends on the way he scores in the entire categories whose intersection is that cell. The HHIRS does not rely on any particular test item, but rather on an individual's performance along the entirety of the particular dimensions.

Additional Controls

There are a number of other variables which had to be taken into consideration in the selection of individual items for the HHIRS. One of the primary considerations was that each picture sequence be of roughly the same difficulty. In addition, the difficulty of transition between each panel of each item had to be equal. A further consideration

stems from the fact that the final panel in a Peanuts cartoon is often identifiable in a number of ways. For example, Charles Schulz always places his signature in the final panel. This was corrected by blacking out his signature and by placing a similar black strip in every panel. Characteristic facial or verbal expressions or style of printing may also serve as keys to identify the final panel, and had to be controlled.

An obvious consideration in the selection of items was that each cartoon be clearly concerned with the designated content area and with the designated second-person. Since Charles Schultz never pictures adults, the items calling for mother or father relationships had to rely on verbal reference to these relationships. In such cases the child was, if possible, pictured alone. In cases where this was not possible, another character, of the same sex as the parent concerned, was the other participant in the cartoon. This is not to say that the relationship in question in such cartoons was that with the substituted character; rather, the substituted character and the identification figure conversed about the relationship between the parent and the identification figure. Another consideration in the selection of items was that the thematic content of the cartoon be characteristic of the relationship between the identification figure and the second person (e.g., a cartoon dealing with the son-mother relationship might have, for its theme, something to do with the provision of food.)

All the above variables were considered for one basic reason: since a failure to solve a given item would be interpreted as emotional blocking, all other variables that might influence the solution of an item, must be held constant. The acceptability of an item, on the basis of all these criteria, was judged by three individuals deemed psycho-

logically sophisticated.*

As might be imagined from the number of criteria that any item must meet in order to be included in the HHIRS, it was impossible to obtain all of the test items from the published works of Charles Schulz. It was therefore necessary to modify a majority of the cartoons selected for use. In addition to the criteria already mentioned, certain criteria had to be considered concerning the construction of the items. The first requirement was that the constructed cartoons be as consistent with original Peanuts cartoons as possible. Accordingly, the themes and situations used by Schulz himself were employed whenever possible. In no case was a theme or situation employed that was not consistent with the type of subject matter used by Schulz. Similar standards were set for characters and wording.

In constructing the items, the amount of work varied greatly from item to item. In some cases, it was only necessary to replace one caption in an original Schulz sequence. In other cases, it was necessary to create a completely original cartoon, selecting pictures from one or several different Schulz cartoons, and replacing all the words. (In selecting pictures from different cartoons for use in a completely revised item, it was necessary to consider a great number of details, such as consistency of clothing, background, position of characters, facial expressions and the like, and spatial considerations that would allow room for the desired working.) The difficulty of construction of any one item might lie anywhere on the continuum between these two extremes. In no case were any drawings changed or

* Graduate students in psychology.

created: only wording was revised. Here again, it was important that the printing within the captions resemble as closely as possible that of Schulz, so that attention was not drawn to the construction. The actual mechanics of the construction involved cutting out the undesired balloons, printing the desired wording on paper of similar quality and color, and inserting and gluing the new caption into the new balloon.

Parallel Forms

So far, the discussion has centered around the construction of a single form of the HHIRS. Actually, the test was constructed in two parallel forms. The usual method for constructing parallel tests, as described by Gulliksen in Theory of Mental Tests, was not followed.⁴ Rather, the items in both forms were chosen according to the same stringent criteria and were thus assumed to constitute parallel forms. The definition of parallel tests that would be used to determine whether the attempt to construct parallel tests had been successful, was that given by Gulliksen.⁵ The degree to which the test proved to be parallel will be discussed in the results section of Chapter 3. The reason for the construction of a parallel form was to provide an alternative measure. The two forms could thus be used as pre- and post-measures with the same subjects in subsequent research. The parallel forms could also be used in assessing the reliability of the test: the reliability of the test could be defined by using parallel tests in the manner presented by Gulliksen.⁶

At this point, the only other aspect of the parallel form (Form B, as opposed to Form A) that requires consideration concerns the pattern of plus-minus sequence used in the selection and construction of items. Each item in Form B is the opposite of its counterpart in

Form A in this respect. This can be seen in Appendix B.

Validity Measures

Perhaps the factor of greatest interest concerning any test is whether or not it is valid. Accordingly, there was an attempt to collect information that would serve to validate the findings of the test. Although the actual behavior of the individuals who were tested was considered to be the ultimate criterion to be used in evaluating the test, self-reports of behavior were felt to be the most feasible source of data in this situation. With this in mind, a questionnaire was designed to provide basic behavioral data concerning each individual tested. This questionnaire may be seen in Appendix C.

FOOTNOTES

1. David Rappaport, Diagnostic Psychological Testing (Chicago: The Year Publishers, Inc., 1945-46), pp. 214-230.
2. James Henderer and Betty Oakes, "A Study of the Relationship Between Ego-strength and the Use of Repression in the Recall of Completed and Incompleted Tasks" (University of Massachusetts, Unpublished Manuscript, 1964.)
3. Erik Erikson, Childhood and Society (New York: Norton, 1963), p. 255-258.
4. Harold Gulliksen, Theory of Mental Tests (New York: John Wiley and Sons, Inc., 1962), p. 208-210.
5. Ibid, pp. 28-29.
6. Ibid, pp. 13-14.

CHAPTER III

THE PILOT STUDY: METHOD AND RESULTS

Method

Basic Organization. The HHIRS was designed so that it could be easily administered either individually or to a large group of people. The four panels of each item were glued, in a scrambled order, onto a square of cardboard. Out of the twenty-three possible scrambled orders in which the panels might appear, only ten were used. These ten were those scrambled orders in which no two panels were in the order in which they appeared in the original cartoon. The sequences which were used were: 2143, 3142, 2413, 4321, 3241, 4132, 3214, 2431, 1432, 4213. These ten sequences are presented here in random order.* Each scrambled sequence was given a number corresponding to its position in this randomized list and was assigned to an item. The pattern of assignment assured that each sequence would appear as seldom as possible in any given dimension.

Once the panels were glued onto the cards, the cards in each form were randomized. The order of the cards was examined to determine four things: (1) that no more than two identical scrambling sequences appeared consecutively, (2) that no more than two identical plus-minus sequences appeared consecutively, (3) that no more than two identical content areas appeared consecutively, and (4) that no more than two identical second person categories appeared consecutively.

For the purposes of the present research, both forms of the test

*The "original" order was determined by a strict numerical progression (i.e., 1234, 1243, 1324, ... 4321).

were presented to the subjects simultaneously. To control for fatigue and other factors of sequential presentation, the items of the two forms were combined in random order. The same checks were made that had been made after each form was randomized. The only exceptions to the criteria used for ordering the individual forms, was that three identical content areas were allowed to appear consecutively in a few cases.

Subjects. In a pilot study, the HHIRS was presented to 25 subjects, eighteen men and seven women. The subjects were students at the University of Massachusetts summer school, and were enrolled in an introductory course in psychology. They participated in the research because of a course requirement.

Presentation. The combined forms of the HHIRS were presented to the subjects en masse. The subjects were seated with adequate spacing, facing a large movie screen. Each subject was provided with an answer sheet and pencil. The answer sheet appears in Appendix D. The instructions were read aloud to the subjects by the administrator of the test. The instructions appear in full in Appendix D. They center around the explanation of the means by which the items are to be solved. Affixed to the center of the cardboard square to which each item was glued was a piece of paper with four typewritten numbers to identify the four panels of the cartoons. The layout can be seen by referring to the test items in Appendix A. The subjects are to use these numbers when indicating on the answer sheet the order in which the panels should appear. For example, the answer recorded on the answer sheet for the cartoon pictures as practice item No. 3 in Appendix A would read "4213." That is to say, panel four is the first picture in the

unscrambled cartoon, panel two is the next, and so on. Instructions also called attention to the fact that it would be noticeable that new wording had been supplied in some of the captions. It was emphasized that such changes provided no special clues for solving the cartoons, and that it would be to the subject's advantage not to waste time by giving reworded cartoons extra attention. It was also pointed out that there might be more than one acceptable answer for some cartoons. (The presentation of the cartoons to judges, prior to the administration, showed that a few of the cartoons had more than one acceptable answer.)

Following the reading of the instructions, the lights were turned out and the administrator presented three sample cartoons and explained the method of solution. Then the administration of the test proper began. Each item was projected individually onto the screen for a period of one minute. During this period, the subject was to solve the cartoon and write his answer. The only interval between test items was that required to insert the new item into the opaque projector. After half of the items had been presented, a five-minute break was allowed. After the second half of the items had been presented, the subjects were asked to fill out the aforementioned questionnaire.

Scoring--The Test. Once the data was collected, each answer sheet was corrected. A score of one was given for each cartoon that was not solved correctly; the total score was the number of cartoons missed.

It was then determined which cell in the HHIRS matrix corresponded to which item number in the order of presentation. For example, the cell which represents the boy-father passive trust relationship was the 44th item to be presented. A matrix was then made for each subject,

with an "X" placed in the cell of each item that was missed. This provided a pictorial representation of each subject's interpersonal abilities. A matrix obtained by one of the subjects is pictured in Table 2. As can be seen from this matrix, certain patterns of an individual's ability (or inability) to function interpersonally, emerge. There is little doubt that the subject in question has difficulty with problems of dominance and submission. Such patterns will be discussed at greater length in the chapter on implications.

Scoring--The Questionnaire. The answers for each question on the questionnaire were given a numerical rating on a continuum. For any unanswered question, a score was substituted. This score was an average of the performance of all other subjects on that question. The score obtained for the answer to the question on the questionnaire was correlated with different subscores on the test. The subscores used for each form were the total score of each subcontent area and the total score of each second person categories. In addition, a total score for each form was used.

Variables. As was stated previously, each subject was given a score, which was the number of errors made on both forms of the test. In addition to this total score, a number of subscores were also computed for each subject, for each form of the test. The first of these subscores were total scores for each form of the test. There was also one subscore for the active form of each content area and one subscore for the passive form of each content area. There was also one subscore for each second-person category. Scores were, in addition, given to each subject for each question on the questionnaire. Furthermore, a score for each item was given. These 65 subscores were those that were used in the analysis of the data from each form of the test. Subscores

INTERPERSONAL RELATIONS SCALE

HHIIRS

FORM
A

| | TRUST | | HOSTILITY | | GIVING | | SEDUCTION | | DOMINANCE | | GUILT | |
|------------|-------|---|-----------|---|--------|---|-----------|---|-----------|---|-------|---|
| | a | p | a | p | a | p | a | p | a | p | a | p |
| BOY-MOTHER | | | X | X | | | | | X | X | | X |
| BOY-FATHER | | | | | X | | | | X | | X | |
| BOY-GIRL | X | | | | | | X | | X | X | | |
| BOY-BOY | | | | | | | | | X | X | X | X |

FORM
B

| | | | |
|---|---|---|---|
| | | | X |
| X | | | |
| X | | X | X |
| X | X | X | X |
| | | | |
| | X | | X |
| | | | X |
| | | | |
| | X | | |
| | X | | X |
| X | | X | |
| | X | | |

DATE _____

SCORE

NAME

SEX ☐ MALE ☒ FEMALE

AGE

35

were punched on data cards for use in the CDC 3600 computer.

Results

The analysis of the data was performed to provide information about four basic aspects of the test: (1) the extent to which the two forms were parallel, (2) whether or not the test was reliable, (3) whether or not the test or any aspects of it were valid, and (4) the extent to which each item related to a number of indices (item analysis).

Parallel forms. To assess the degree to which the two forms of the test were parallel, the procedure indicated by Gulliksen's definition of parallel forms, was used. A two-tailed t test for correlated samples was computed on the means, $df = 24$. A t of 4.55 was obtained. Therefore, t was highly significant, past the .001 level: in terms of the means, the tests were not found to be parallel. Table 3 shows the means, variances and intercorrelation for both forms of the pilot study of the HHIRS.

A two-tailed t test for correlated samples was also performed to assess the difference between the variances of the two forms. A t of 2.27 was obtained, $df = 23$, $p < .05$. Again, in terms of the variances, the two forms of the HHIRS were not found to be parallel.

The third computation in the evaluation of the extent to which the two tests were parallel was a correlation between the total scores obtained on each form of the test. A Pearson product-moment correlation was found to be .84, $df = 23$. This is highly significant, beyond the .001 level: the forms of the test by this index are judged to be parallel.

In the light of these results, it would be difficult to make the assumption that the two forms of the test were parallel. The fact that

TABLE 3

Means, Variance, and Intercorrelations
for Both Forms of the Pilot Study

| | MEANS | VARIANCE | INTERCORRELATIONS*** |
|-----------|--------|----------|----------------------|
| FORM A | 11.16 | 21.64 | .84** |
| FORM B | 14.16 | 36.72 | .84** |
| \bar{t} | 4.55** | 2.27* | ---- |

* Significant past the .05 level

** Significant past the .001 level

*** A Pearson Product Moment correlation was computed. The resulting value (.84) underestimates the value that would be obtained using the Spearman-Brown formula which corrects for the use of the split-half technique. The Spearman-Brown value is .92.

the means were significantly different is not of great concern: this can be corrected for by the addition of a constant (the value of the difference between the two means) to the score each subject on the form with the smaller mean. The matter of correcting for the difference in variances is not too easily accomplished: revisions within the test itself would be necessary.

Reliability. To assess the degree to which the test is reliable, the split-half method of determining reliability was used. Since the two forms of the test were randomly mixed and were administered simultaneously, each form of the test could be considered as one of the halves. The correlation to determine the split-half reliability was thus the correlation between the total scores on Form A and Form B. This has already been found to be .84 and to be highly significant at less than the .001 level. It can therefore be concluded that the two forms of the HHIRS are measuring very much the same thing.

In an attempt to establish the reliability of the more specific dimensions of the HHIRS, a number of correlations were performed between specific dimensions on one form and the corresponding dimensions on the other form. That is to say, each subcontent area (e.g., hostility-passive) on Form A was correlated with each subcontent area on Form B. Each second person category on Form A was also correlated with its corresponding second person category on Form B. In addition, each subcontent area and each second person category on Form A was correlated with every other subcontent area or second person category on Form B. Thus, two matrices were formed. These matrices are pictured in Tables 4 and 5. The first correlation, in each case, to be

TABLE 4

Matrix Containing Results of Intercorrelation
of Subcontent Areas on Forms A and B

FORM A

| TRUST | | HOSTILITY | | GIVING | | SEDUCTION | | DOMINANCE | | GUILT | |
|-----------|------|-----------|------|--------|------|-----------|------|-----------|------|---------|------|
| Active | | Passive | | Active | | Passive | | Active | | Passive | |
| Active | .46* | .74* | .13 | .11 | .20 | .36 | .41* | .11 | -.01 | .04 | .18 |
| Passive | .20 | .10 | -.22 | -.23 | .02 | .04 | .28 | .06 | -.01 | .50* | -.15 |
| Active | .44* | .15 | .14 | .47* | -.22 | -.19 | .26 | -.23 | .25 | .01 | .16 |
| Hostility | | | | | | | | | | | |
| Passive | .39 | .37 | .06 | -.21 | .21 | .48* | .29 | .20 | .03 | .30 | .36 |
| Active | .22 | .60* | .11 | .27 | .18 | .22 | .36 | .15 | -.19 | -.22 | -.03 |
| Giving | | | | | | | | | | | |
| Passive | .19 | .07 | -.12 | .39 | .25 | .44* | .18 | .45* | .20 | .28 | .43* |
| Active | .12 | .38 | -.23 | .03 | .16 | .64* | .33 | .23 | .28 | .31 | .36 |
| Seduction | | | | | | | | | | | |
| Passive | -.05 | .05 | -.04 | .18 | -.02 | -.11 | .07 | -.13 | .04 | .10 | .01 |
| Active | .29 | .16 | .10 | .33 | .08 | .42* | .01 | .32 | .44* | .44* | .47* |
| Dominance | | | | | | | | | | | |
| Passive | .24 | .39 | .18 | .29 | -.03 | .53* | .17 | .23 | .34 | .07 | .37 |
| Active | .28 | .17 | .27 | -.03 | .37 | .73* | .13 | .60* | .02 | .15 | .48* |
| Guilt | | | | | | | | | | | |
| Passive | .22 | .04 | .33 | .05 | -.02 | .40* | -.06 | .17 | .19 | .06 | .01 |

The correlation coefficients appearing in India ink are reliability indices.

* Significant values, a value of .40 needed for significance at the .05 level, df = 23.

TABLE 5

Matrix Containing Results of Intercorrelation
of Second Person Categories on Forms A and B

| | BOY-MOTHER | BOY-FATHER | BOY-GIRL | BOY-BOY |
|------------|------------|------------|----------|---------|
| BOY-MOTHER | .50* | .37 | .46* | .40* |
| BOY-FATHER | .57* | .70* | .45* | .52* |
| BOY-GIRL | .66* | .54* | .47* | .49* |
| BOY-BOY | .50* | .70* | .53* | .65* |

*The correlation coefficients appearing in ink are reliability indices.

*Significant values, a value of .40 needed for significance at the .05 level, df = 23.

considered was the one with the corresponding subcontent area or second person area on the opposite form (i.e., guilt-active, Form B, with guilt-active, Form A). In addition, the correlation of each subcontent area in one form with every other subcontent area in the opposite form was examined in order to determine if there were high correlations in areas where they were not predicted. The same procedure was applied to the second person categories. If an unpredicted high correlation were found, it would indicate that the individual items within the two areas concerned should be looked at more closely to determine what specific content of these items might be contributing to this high correlation. If unpredicted high correlations were not found, and a high predicted correlation were found, this would be felt to indicate that that aspect of the test was reliable. If a predicted high correlation were not found, this would be considered an indication that revision of the areas in question was necessary.

From Tables 4 and 5, it can be seen that there were a number of areas that were found to be not reliable. The reliability data appears in india ink. As concerns the subcontent areas, only the correlations for trust-active, giving-passive, dominance-active and guilt-active were significant. Further, all subcontent areas show unpredicted high correlations. With regard to the second person categories, all the reliability indices are significant, but also are all the other correlations in the matrix, with the exception of one, boy-mother--boy-father. Accordingly, to provide more information on the individual items, an item analysis was performed on the items in both forms.

Item Analysis. The item analysis performed on Form A was identical with that of Form B. Since the procedure was the same for both forms, only procedure for Form A will be discussed. The results of the two

analyses will be presented separately.

The first step in item analysis on Form A was to correlate each item with the subcontent area to which it belonged on that form (i.e., trust-active, boy-mother, was correlated to the total score obtained on all trust-active items.) Since the correlation is recognized to be "inflated" because of the inclusion in the total score of the item itself, a correlation of .45, $df = 23$, was deemed necessary for significance, instead of the usual correlation of .40.* If a significant correlation was not found, it was felt that the subject matter of the item should be revised in order to express the content area more clearly. In addition, each item was correlated with each of the other eleven subcontent areas. All these correlations for Form A and Form B are shown in Appendix E. These non-inflated correlations were examined to reveal unpredicted high correlations. A value of .40 was needed for significance for "non-inflated" correlations. If such high correlations were found, the item was examined to determine what subject matter might account for this high correlation. This subject matter was then removed, and appropriate subject matter was substituted. Such procedures will receive greater attention in the following chapter.

*The selection of .45 instead of .40 was arbitrary. All the data was analyzed using .45 as the criteria. It was subsequently learned through analysis by McNemar's part-whole correlation (McNemar, 1962) that, although this arbitrary change would be satisfactory in some instances, it would not satisfactorily account for the inflation in all instances. For example, by use of the part-whole correlation, it was found that in the instance where the correlation would be most inflated (the correlation of an item with a second person category score: the item is one part in four [India ink figures in Appendix E]) that the value would have to be raised to .54 to account for the effects of the inflation. Similar smaller adjustments would be appropriate in other instances. However, it was not felt that it was very important to make these changes, because the decisions concerning the revision of items would be altered only very slightly.

Another aspect of the item analysis consisted of correlating each item with every other item in the form. The resulting intercorrelation matrix was examined to reveal significantly high predicted and unpredicted values. (The intercorrelation of items belonging to a given subcontent area was predicted to be significant, significance being defined by a value of .40, $df = 23$.) Although this examination was not used as a criterion for the revision of items, it did supply information concerning the subject matter of cartoons that proved useful in revising items. The intercorrelation matrices are presented in Appendix F.

The same steps used in the item analysis of the content areas were repeated with regard to the second person categories. The data for the second person categories appears in Appendix G.

A third aspect of the item analysis was the correlation of each item in the form with the total score on the form. Again, a correlation of .45 was considered significant, $df = 23$. This step provided the more general information of how an item contributed to the measure of the overall interpersonal functioning of the subject. If nonsignificance occurred, the item was recommended for revision. The results of this correlation are shown in Appendix H.

Validity. The validity of the HHIRS was assessed by correlating the answers to six questionnaire items to a number of different scores on both forms of the test. Again, the scores used for each form were the total score of each subcontent area, the total score of each second person category, and simply a total score on the entire form. The resulting matrix is shown in Table 6. A correlation of .40 was considered significant. As can be seen from Table 6, a number of correlations were found to be significant. Several correlations were of special interest.

Matrix Showing the Correlation between Each
Questionnaire Question and the Totals of Each
Subcontent Area, and Second Person Category for
Both Forms of the Test, and between Each Questionnaire
Question and the Total Score of Each Form

| Questionnaire Question Number | 1 (...) | 2 (...) | 3 (...) | 4 (...) | 5 (...) | 6 (...) | | | | |
|-------------------------------------|---|---------|---------|---------|---------|---------|------|------|-------|-------|
| | Form A Form B Form A Form B Form A Form B Form A Form B | | | | | | | | | |
| TRUST I | .38 | .29 | .15 | .06 | .21 | .58* | -.10 | -.11 | .09 | -.50* |
| TRUST II | .16 | .35 | -.02 | -.00 | .53* | .06 | -.06 | -.10 | -.32 | -.17 |
| HOSTILITY I | .27 | -.16 | -.14 | -.29 | -.04 | .05 | .03 | -.03 | -.07 | .21 |
| HOSTILITY II | -.27 | .44* | .23 | -.03 | .24 | .07 | .03 | .05 | .22 | .11 |
| GIVING I | -.09 | .02 | -.21 | .16 | -.06 | .54* | -.24 | -.16 | -.20 | .09 |
| GIVING II | .56* | .08 | -.06 | .12 | .20 | .38 | .14 | .03 | -.37 | -.29 |
| SEDUCTION I | -.01 | .41* | .40* | -.00 | .50* | .39 | -.32 | .03 | -.55* | -.53* |
| SEDUCTION II | .08 | -.04 | -.42* | .06 | .21 | .16 | -.09 | -.14 | -.28 | -.03 |
| DOMINANCE I | .14 | .17 | -.24 | -.06 | .17 | .17 | .13 | -.08 | -.11 | .16 |
| DOMINANCE II | .34 | .31 | .17 | .11 | -.08 | .31 | .13 | -.20 | .10 | -.12 |
| GUILT I | .12 | .36 | .12 | .14 | .03 | .01 | -.09 | .11 | -.28 | -.13 |
| GUILT II | .50* | .41* | .16 | .12 | .22 | .12 | -.01 | .00 | -.04 | -.11 |
| BOY-MOTHER | .19 | .23 | -.14 | -.05 | .40* | .28 | -.07 | -.14 | -.22 | -.05 |
| BOY-FATHER | .48* | .59* | .38 | .07 | .38 | .52* | .03 | .06 | -.37 | -.36 |
| BOY-GIRL | .18 | .26 | -.13 | .25 | .20 | .46* | -.05 | -.09 | -.08 | -.21 |
| BOY-BOY | .44* | .37 | .18 | -.13 | .20 | .22 | -.11 | -.18 | -.34 | -.27 |
| TOTAL SCORE | .41* | .42* | .15 | .05 | .39 | .46* | -.07 | -.10 | -.33 | -.25 |

*Significant values, a value of .40 needed for significance at the .05 level, df = 23.

Concerning the subject's familiarity with the Peanuts cartoon strip, the correlations with the total scores on the two forms showed that the less familiar a subject was with Peanuts, the more difficulty he had with the test in general. In regard to the subject's grade point average, there was found to be little or no correlation with performance on the test (total score on a form). This is felt to indicate that success on the test depended on the subject's ability to solve interpersonal problems and not on his ability to solve academic problems.

It was assumed that a subject's living arrangements would correlate with his ability to function interpersonally. His living arrangements were rated on a continuum ranging from living in a dormitory to living at home. It was predicted that the more similar his living arrangements were to "home," the less ability he would have to function interpersonally. Again, with reference to the correlation with the total score on the two forms, this prediction was confirmed. The significant correlations seen in the table in the son-father and boy-girl categories might suggest that such lessened ability might stem from a struggle, on the part of the child, to break with home rule (father) and to establish himself as a unit of society (husband or wife).

With regard to the sixth question on the questionnaire, it was predicted that the more people whom the subject knew in the room, the better would be his ability to function interpersonally. Although the correlations with the total scores are not significant, they are well in the predicted direction. It is not surprising that significant correlations appear on both forms of the test in the active seduction area: the healthy person in this age group is actively concerned with finding a mate. This lends further support to the suggestion that poor scores of those subjects who live at home reflect problems in self-

establishment.

There was no relationship found between the fact that a subject had or had not sought professional psychological help and his total score on the two forms of the test, nor was there a relationship found between the number of dates a subject might have during a week's time and his performance on the test.

Although the validity of a number of aspects of the test was supported, it was felt that a good deal more validation was desireable. This and many other weaknesses, that have been referred to above, strongly suggested that the test could benefit from the revision of a number of items.

FOOTNOTES

1. N. M. Downey and R. W. Heath, Basic Statistical Methods (New York: Harper and Row, 1965), p. 306.

CHAPTER IV

THE REVISION

Revising the Test

On the basis of the results and the experience of administering the pilot study, it was clear that a number of revisions in several areas would be of benefit to the HHIRS. The pilot study results which particularly indicated the need for revision were the discrepancy between the variance of the forms and a number of poor indices of reliability. The revisions performed will be discussed below.

Test Items. The item analysis produced six criteria that were used for the determination of an item's need for revision. These six criteria, in order of importance, are: (1) item difficulty, (2) the correlation of the item with the total score of the subcontent area to which it belongs, (3) the correlation of the item with the total score of the second person area to which it belongs, (4) the correlation of the item with the total score of the form in which it appears, (5) the occurrence of high, unpredicted correlations of the item with other subcontent areas, and (6) the occurrence of high unpredicted correlations of the item with other second person categories. Item difficulty was defined by the mean score obtained on that item. The correlations that were computed between the item and every item on the form were checked but were not used as criteria, because it was felt that these correlations would be reflected in the correlation of the item with every subcontent area and second person category. A table summarizing all these indices, and showing which items were indicated to be in need of revision, is shown in Tables 7 and 8.

TABLE 7

Matrix Showing Indices of Revision and Recommendation
of Items for Revision for Form A

| ITEM NUMBERS | MEAN | CORRELATION WITH SUBCON- TENT AREA | CORRELATION WITH SECOND PERSON AREA | CORRELATION WITH TOTAL SCORE ON FORM | UNPREDICTED SIGNIFICANT CORRELATION IN OTHER SUB- CONTENT AREA | UNPREDICTED SIGNIFICANT CORRELATION IN SECOND PER- SON CATEGORIES | RECOMMENDED FOR REVISION |
|-----------------|------|--|---|--|--|---|--------------------------------|
| 1. | .48 | .69 | .39 | .34 | no | no | no |
| 2. | .28 | .75 | .59 | .49 | no | no | no |
| 3. | .72 | .71 | .56 | .59 | no | no | no |
| 4. | .56 | .79 | .11 | .05 | no | no | no |
| 5. | .68 | .79 | .45 | .27 | no | no | no |
| 6. | .04 | .53 | .54 | .55 | yes | yes | no |
| 7. | .04 | .40 | .01 | .13 | no | no | yes |
| 8. | .32 | .76 | .22 | .18 | no | no | no |
| 9. | .20 | .40 | .39 | .18 | no | no | yes |
| 10. | .24 | .86 | .28 | .36 | no | no | no |
| 11. | .16 | .61 | .71 | .54 | no | no | no |
| 12. | .16 | .79 | .64 | .58 | no | no | no |
| 13. | .12 | .54 | .17 | .18 | no | no | yes |
| 14. | .28 | .57 | .09 | .15 | no | no | yes |
| 15. | .04 | .30 | .15 | -.01 | no | no | yes |
| 16. | .08 | .30 | .34 | .09 | no | no | yes |
| 17. | .08 | .62 | .34 | .47 | yes | yes | yes |
| 18. | .28 | .61 | .38 | .13 | no | no | no |
| 19. | .40 | .67 | .32 | .04 | no | no | no |
| 20. | .04 | .41 | .49 | .66 | yes | yes | yes |
| 21. | .04 | .67 | .15 | .26 | no | no | yes |
| 22. | .04 | .40 | .49 | .66 | yes | yes | yes |
| 23. | .60 | .44 | .49 | .10 | no | no | no |
| 24. | .12 | .63 | .37 | .42 | no | yes | no |

42

See text for explanation of values

TABLE 7 (Cont.)

| ITEM NUMBERS | MEAN | CORRELATION WITH SUBCON- TENT AREA | CORRELATION WITH SECOND PERSON AREA | CORRELATION WITH TOTAL SCORE ON FORM | UNPREDICTED SIGNIFICANT CORRELATION IN OTHER SUB CONTENT AREA | UNPREDICTED SIGNIFICANT CORRELATION IN SECOND PER SON CATEGORIES | RECOMMENDED FOR REVISION |
|-----------------|------|--|---|--|---|--|--------------------------------|
| 25. | .72 | .65 | .33 | .12 | no | no | no |
| 26. | .00 | .00 | .00 | .00 | no | no | yes |
| 27. | .04 | .30 | -.03 | .08 | no | no | yes |
| 28. | .16 | .60 | .42 | .39 | no | no | no |
| 29. | .08 | .62 | .09 | .09 | no | no | yes |
| 30. | .16 | .64 | .33 | .51 | yes | yes | no |
| 31. | .00 | .00 | .00 | .00 | no | no | yes |
| 32. | .84 | .69 | .55 | .54 | no | yes | no |
| 33. | .60 | .62 | .55 | .26 | no | no | no |
| 34. | .04 | .65 | .34 | .26 | yes | no | no |
| 35. | .52 | .54 | .28 | .12 | no | no | no |
| 36. | .00 | .00 | .00 | .00 | no | no | no |
| 37. | .04 | .38 | .64 | .66 | yes | no | yes |
| 38. | .38 | .88 | .31 | .47 | no | yes | yes |
| 39. | .24 | .53 | .12 | -.02 | no | no | no |
| 40. | .00 | .00 | .00 | .00 | no | no | yes |
| 41. | .04 | .30 | .26 | -.01 | no | no | yes |
| 42. | .24 | .61 | .41 | .35 | yes | no | yes |
| 43. | .20 | .70 | .56 | .47 | no | no | no |
| 44. | .12 | .45 | .38 | .12 | no | no | no |
| 45. | .24 | .69 | .59 | .35 | no | no | yes |
| 46. | .12 | .72 | .15 | -.07 | no | no | no |
| 47. | .28 | .32 | .50 | .45 | yes | no | yes |
| 48. | .12 | .79 | .54 | .39 | no | no | yes |

See text for explanation of values.

TABLE 8

Matrix Showing Items of Revision and Recommendation
of Items for Revision for Form B

| ITEM NUMBERS | MEANS | CORRELATION WITH SUBCON TENT AREA | CORRELATION WITH SECOND PERSON AREA | CORRELATION WITH TOTAL SCORE ON FORM | UNPREEICTED SIGNIFICANT CORRELATION IN OTHER SUB CONTENT AREA | UNPREDICTED SIGNIFICANT CORRELATION IN SECOND PER SON CATEGORIES | RECOMMENDED FOR REVISION |
|-----------------|-------|---|---|--|---|--|--------------------------------|
| 1. | .32 | .60 | .62 | .52 | yes | no | no |
| 2. | .32 | .60 | .37 | .36 | no | no | no |
| 3. | .40 | .52 | -.03 | -.26 | yes | no | no |
| 4. | .20 | .59 | .25 | .39 | no | no | no |
| 5. | .72 | .52 | .25 | .29 | no | no | no |
| 6. | .08 | .66 | .27 | .59 | no | yes | no |
| 7. | .20 | .60 | .60 | .51 | yes | no | no |
| 8. | .24 | .90 | .29 | -.08 | no | no | no |
| 9. | .40 | .66 | .59 | .36 | yes | no | no |
| 10. | .16 | .58 | .37 | .32 | no | yes | no |
| 11. | .84 | .43 | .37 | .27 | no | no | yes |
| 12. | .08 | .23 | .35 | .04 | yes | no | yes |
| 13. | .32 | .70 | .77 | .59 | yes | no | no |
| 14. | .08 | .47 | -.10 | -.16 | no | no | yes |
| 15. | .48 | .66 | .05 | .06 | no | no | no |
| 16. | .68 | .61 | .33 | .18 | no | no | no |
| 17. | .52 | .68 | .34 | .17 | no | no | no |
| 18. | .16 | .51 | .60 | .54 | no | no | no |
| 19. | .28 | .60 | .38 | .40 | no | yes | no |
| 20. | .04 | .33 | .64 | .79 | yes | yes | yes |
| 21. | .16 | .51 | .31 | .34 | no | no | no |
| 22. | .36 | .58 | .47 | .43 | yes | no | no |
| 23. | .04 | .65 | .64 | .79 | yes | yes | yes |
| 24. | .16 | .63 | .02 | .06 | no | no | yes |

See text for explanation.

TABLE 8 (Cont.)

| ITEM NUMBERS | MEANS | CORRELATION WITH SUBCON TENT AREA | CORRELATION WITH SECOND PERSON AREA | CORRELATION WITH TOTAL SCORE ON FORM | UNPREDICTED SIGNIFICANT CORRELATION IN OTHER SUB CONTENT AREA | UNPREDICTED SIGNIFICANT CORRELATION IN SECOND PER SON CATEGORIES | RECOMMEND FOR REVISION |
|-----------------|-------|---|---|--|---|--|------------------------------|
| 25. | .40 | .45 | .46 | .10 | no | no | yes |
| 26. | .64 | .78 | .39 | .27 | no | no | no |
| 27. | .12 | .51 | .69 | .72 | yes | no | no |
| 28. | .04 | .66 | .76 | .79 | yes | no | no |
| 29. | .20 | .54 | .47 | .53 | yes | yes | no |
| 30. | .40 | .62 | .46 | .12 | no | no | no |
| 31. | .24 | .64 | .44 | .52 | yes | yes | no |
| 32. | .00 | .00 | .00 | .00 | no | no | no |
| 33. | .48 | .68 | .45 | .43 | no | yes | yes |
| 34. | .36 | .65 | .51 | .47 | no | no | no |
| 35. | .08 | .77 | .48 | .59 | no | yes | no |
| 36. | .04 | .30 | .76 | .79 | yes | no | yes |
| 37. | .08 | .13 | .19 | -.01 | no | no | yes |
| 38. | .08 | .30 | .01 | -.18 | no | no | yes |
| 39. | .52 | .62 | .33 | .31 | no | no | no |
| 40. | .24 | .54 | .46 | .52 | no | no | no |
| 41. | .68 | .43 | .17 | .13 | no | no | yes |
| 42. | .24 | .66 | .68 | .52 | yes | no | no |
| 43. | .40 | .60 | .23 | .35 | no | no | no |
| 44. | .00 | .00 | .00 | .00 | no | no | yes |
| 45. | .20 | .54 | .72 | .54 | yes | no | no |
| 46. | .52 | .79 | .56 | .39 | no | no | no |
| 47. | .36 | .71 | .42 | .18 | no | no | no |
| 48. | .60 | .79 | .10 | .16 | no | no | no |

See text for explanation of values.

A mean of less than .12 or greater than .88 was felt to indicate that an item was too easy or too difficult. The correlations that were considered indicative of a need for revision in the subcontent areas were those which were under .40. For the second person categories, a Pearson r of .30 was needed if the item was to remain unrevised. Only item-total correlations that were very low (below .10 or negative) were considered to indicate a need for revision. It should be noted that none of these criteria was used as the sole determinant for an item's revision: an item's performance across all the indices was the final determining factor.

Once it was indicated that an item was in need of revision, the subject matter of this item was examined to determine what might be eliminated or added in order to make the item more satisfactory. The same processes that were employed in the construction of the test were employed once again here. In the revision, items that performed very well on the various indices of revision were used as models. All revised test items appear in Appendix J.

Questionnaire. A new questionnaire was designed in another attempt to establish the validity of the test. Questions that appeared relevant on the first questionnaire were included; all others were eliminated. New questions were added to obtain behavioral information in the specific areas measured by the test. For example, the behavior of an individual in sampled athletic areas was assessed. It was felt that this activity would be related to a subject's ability to function interpersonally along the dimension of hostility. Such an assumption was based on the theoretical suggestion that athletics offer a socially acceptable outlet for hostility. A complete copy of the revised questionnaire appears in Appendix K.

Procedure. The procedure for the administration of the revised version of the HHIRS was largely the same as that used in the pilot study. Therefore, only those parts which differ will be dealt with here. The subjects were 38 male and 47 female undergraduate students in an introductory psychology course at the University of Massachusetts. A few minor changes were made in the instructions for the sake of clarification. The only major procedural change that was made concerned the time limit allowed for the solution of each item. The time limit was reduced from 60 seconds to 45 seconds. This change was based on two observations. During the administration of the pilot study, it was clear that most of the subjects had excess time on most of the items. Further, the results of the pilot study showed that there were a great many items that were missed by only a small number of subjects. It was felt that these items could be made more difficult merely by changing the time limit rather than by revising them.

The only other procedural change concerned scoring. The answers of each subject to questions that had been failed by 85% of the subjects in the pilot study were examined to see if there were an answer that could be called correct by consensus. The determination of a correct answer by this procedure was allowed only in those cases where the answer was judged to be acceptable and where at least 75% of those originally failing the item gave that answer. There were two such items.

Results of the Revised Test

The results of the administration of the revised HHIRS were reviewed in a manner similar to that of the pilot study.

Parallel Forms. The procedures used to determine the degree to which the two forms were parallel were identical to those used in the pilot study. To determine the significance of the difference between the means of the two forms, a two-tailed t test for correlated samples, $df = 84$, was used, which yielded a t value of 2.95. For significance at the .01 level, a t value of 2.64 is necessary. Therefore, the difference between the means was found to be significant, past the .01 level. Although this difference is not as great as on the pilot study, it is still quite large. Table 9 shows the means, variances and inter-correlations for both forms or the revised HHIRS. As can be seen from Table 9, the difference between the means can be easily corrected for by adding a constant of one to the score of each subject on Form A.

It was mentioned earlier that certain items that were "easy" on the first administration of the test, but which were not indicated to be in need of revision by other criteria, would be made more difficult merely by reducing the time allowed for the solution of each item. Nine such items were examined to determine the effects of the shortened time limit on the difficulty of the items. Of these nine, five were made more difficult, while four remained roughly equally difficult.

A two-tailed t test for correlated samples, $df = 83$, was also performed on the variances of the two forms to assess the degree to which they differed. A t of 1.60 was obtained. For significance at the .05 level, a t value of 1.99 is necessary. Thus the variances are not found to differ significantly. This is a substantial improvement over the original version of the HHIRS. As a result, the two forms of the revised test are judged by this criterion to be parallel.

The final measure of parallel forms, intercorrelation, yielded a

TABLE 9

Means, Variances, and Intercorrelations
for Both Forms of The Revised HHIRS

| | MEAN | VARIANCE | INTERCORRELATION**** |
|----------|-------|----------|----------------------|
| FORM A | 16.81 | 41.33 | .82**** |
| FORM B | 18.13 | 50.51 | .82**** |
| <u>t</u> | 2.95* | 1.60** | ---- |

*

Significant past the .01 level.

**

Not significant.

Significant past .001 level.

A Pearson-Product Moment Correlation was computed. The resulting value (.82) underestimates the value that would be obtained using the Spearman-Brown formula which corrects for the use of the split-half technique. The Spearman-Brown value is .91.

result of .82. For significance at the .001 level, $df = 83$, a value of .35 is necessary. The intercorrelation is thus seen to be highly significant, as was that on the pilot study.

It can therefore be seen that the two forms of the HHIRS have been rendered parallel by the revision.

Reliability. The procedures that were used to determine reliability on the pilot study were used on the revised test. The results of these procedures for the revised test are pictured in Tables 10 and 11. The values appearing in india ink are the reliability indices. To achieve significance at the .05 level, a correlation of .21 is necessary, $df = 83$. Concerning the subcontent areas, it can be seen that the reliability indices for only four (trust-active, hostility-active, giving-active and Dominance-Passive) were non-significant. The finding for the reliability indices for the second person categories was similarly good: all the predicted correlations are significant. When these results are compared with the corresponding results of the original test, the effects of the revision can be ascertained.

As concerns the reliability of the subcontent areas, the following was observed: four correlations improved, six correlations remained the same, and two correlations decreased. The number of significant intercorrelations between subcontent areas on the pilot study was four; there were eight on the revised test. Of these eight, seven were more significant than the original four. With regard to the second-person categories, two correlations improved, one remained the same, and one decreased. All four correlations were significant on both the pilot study and the revised test. The correlation between the total scores on both forms on the revised test was the same as that on the original test. In both

TABLE 10

Matrix Showing the Intercorrelation of Subcontent Areas,
Second Person Categories, and Total Score on Form A of
the Revised Test, with their Corresponding Measures on
Form B of the Revised Test

| ITEM NUMBERS | FORM A: SUBCONTENT AREAS | | | | | | | | | | | |
|-----------------|--------------------------|------|------|------|------|-------|------|------|------|------|------|-------|
| | T-I | T-II | H-I | H-II | Gv-I | Gv-II | S-I | S-II | D-I | D-II | Gt-I | Gt-II |
| T-I | .16 | .47* | .25* | .21* | .16 | .27* | .36* | .28* | .37* | .34* | .29* | .46* |
| T-II | .31* | .32 | .18 | .31* | .35* | .40 | .29* | .38* | .35* | .26* | .29* | .28* |
| H-I | .30* | .35* | .17 | .20 | .34* | .31* | .35* | .26* | .26* | .16 | .14 | .35* |
| H-II | .29* | .39* | .20 | .40* | .34* | .39* | .22* | .38* | .13 | -.02 | .28* | .08 |
| Gv-I | .14 | .22* | .16 | .35* | .18 | .21* | .11 | .14 | .34* | .27* | .30* | .31* |
| Gv-II | .26* | .32* | .27* | .28* | .27* | .54* | .38* | .31* | .23* | .37* | .28* | .39* |
| S-I | .29* | .28* | .21 | .24* | .38* | .21 | .25* | .25* | .27* | .00 | .14 | .27* |
| S-II | .34* | .50* | .22* | .26* | .35* | .29* | .38* | .31* | .44* | .26* | .20 | .39* |
| D-I | .19 | .34* | .35* | .34* | .29* | .40* | .37* | .23* | .28* | .19 | .41* | .45* |
| D-II | .27* | .27* | .18 | .10 | .25* | .23* | .15 | .21* | .44* | .10 | .28* | .22* |
| Gt-I | .27* | .34* | .14 | .32* | .28* | .31* | .33* | .37* | .34* | .21* | .41* | .26* |
| Gt-II | .42* | .25* | .17 | .11 | .30* | .46* | .36* | .14 | .38* | .20 | .21* | .35* |

Values in ink are reliability indices.

*Correlation coefficient is significant, a value of .21 needed for significance at the .05 level, $df = 23$.

TABLE 11

Matrix Showing the Intercorrelations
of Second Person Categories on Form
A of the Revised Test with the Corres-
ponding Measures on Form B of the
Revised Test

| | BOY-MOTHER | BOY-FATHER | BOY-GIRL | BOY-BOY |
|------------|------------|------------|----------|---------|
| BOY-MOTHER | .69* | .45* | .55* | .53* |
| BOY-FATHER | .56* | .42* | .53* | .52* |
| BOY-GIRL | .55* | .49* | .58* | .50* |
| BOY-BOY | .56* | .62* | .51* | .64* |

* Significant value, a value of .21 being needed for significance at the .05 level, $df = 23$.

Values Appearing in india ink are reliability indices.

cases, the correlations were highly significant.

In addition to the measures of reliability that were performed on the pilot study, two additional measures were employed on the revised test. A total score for each content area of Form A (e.g., guilt-active plus guilt-passive) was correlated with the corresponding content score on Form B. The results of the correlation are shown in Table 12. Table 12 shows all correlations predicted to be significant (those in red) were indeed significant. Again, a correlation value of .21 was required for significance.

The second measure that was computed was the intercorrelation of total scores for the active aspects of each form. A similar procedure was followed for the passive aspects. The results of these correlations were .69 and .72 respectively. Both these correlations were highly significant.

It can clearly be seen from Tables 10, 11, and 12 that almost every correlation in the matrices is significant. In fact, every correlation in both Table 11 and Table 12 is significant. Indeed many correlations that were predicted to be nonsignificant are higher than those predicted to be significant. It is felt that these numerous significant correlations are indicative of the interrelatedness of the test. However, in the face of such interrelatedness, it would be hard to say that any one scale was descriptively reliable. The results, therefore, indicate that the revised version of the test is a highly reliable measure of general interpersonal functioning, but that it is not a reliable measure of specific aspects of interpersonal functioning.

In light of the fact that items of the HHIRS were constructed with a male identification figure, the question arose concerning the relative

TABLE 12

Matrix Showing the Intercorrelation
of Content Areas on the Revised Test

| FORM A : | TRUST | HOSTILITY | GIVING | SEDUCTION | DOMINANCE | GUILT |
|-----------|-------|-----------|--------|-----------|-----------|-------|
| TRUST | .51* | .35* | .44* | .47* | .51* | .50* |
| HOSTILITY | .52* | .33* | .48* | .45* | .22* | .32* |
| GIVING | .40* | .40* | .50* | .37* | .48* | .51* |
| SEDUCTION | .53* | .32* | .44* | .42* | .40* | .35* |
| DOMINANCE | .47* | .40* | .49* | .38* | .48* | .57* |
| GUILT | .49* | .27* | .52* | .43* | .46* | .47* |

*Significant at the .05 level, a value of .21 needed for significance, df = 83.
Correlation coefficients in ink are reliability indices.

FORM B

reliability of the test for males and females. On the basis of the fact that women identify easily with a male identification figure in this male-oriented society, and because women are known to take testing more seriously than men do, it was expected that the test might be more reliable for women than for men. To check the relative reliability for men and women, the data was analyzed separately for each sex. When the results were compared, it appeared that the test was roughly equally reliable for males and females.

More specifically, examination of the reliability in the subcontent areas showed that the test was more reliable for males in three subcontent areas, equally reliable in five and more reliable for females in four areas. With regard to the content areas, the test was seen to be more reliable for the males in two cases, more reliable for the female in one case, and of equal reliability in the remaining three cases. As concerns the second person categories, the test was more reliable for males in one category, for females in one category and of equal reliability in two categories. It is interesting to note that the test is more reliable for females in the mother category and more reliable for males in the father category. The correlation between the total score for the two forms was the same for both sexes. It should be noted that the reliability of every aspect of the test was significant for both sexes. The only exceptions to this rule appeared in the subcontent areas. There were five insignificant correlations for males; of the corresponding correlations for females, two were significant and three were not. There were four insignificant correlations for females; of the corresponding correlations for males, only one was significant. Thus, the unreliable subcontent areas for one sex overlap largely with those for the other sex. The comparative reliability data for the two

sexes is presented in Appendix I.

Validity. As was stated previously, a revised questionnaire was administered to the subjects in an attempt to assess the validity of the HHIRS. There were 25 questions, each of which was intended to provide behavioral data relevant to one aspect of interpersonal functioning measured by the test.

Once again the subject's familiarity with Peanuts cartoon strip was examined to see if such familiarity was related to his performance on the test. In both cases, there were no significant relationships established. (Significance for all questionnaire data was defined at the .05 level, $df = 83$, as a value of .21.) The correlation between the question on familiarity with Peanuts and the total score on the two combined forms of the revised test (grand total) was $-.11$ (not significant). The direction of correlation indicates that subjects who knew the cartoon strip well performed better on the test. It should be noted once again, however, that the correlations were not significant. This was felt to indicate that the subject's score on the test was independent of his knowledge of Peanuts and based on interpersonal, rather than academic, ability factors.

Nine additional questions were asked in an attempt to ascertain the general validity of the HHIRS. Of these nine, only two produced significant correlations. Question 19 asked the subject to list the first and last names of as many individuals in the room he could. It was predicted that the more names he listed, the better he would perform on the HHIRS. The assumption was that a well-functioning subject would know more people than a poorly functioning person. It was found that there was a positive relationship between the number of people listed

and the subject's performance on the test as a whole. The correlation was .22. This is directly opposite to the prediction. From this question, though, it would be difficult to state that the HHIRS was not valid. Perhaps all it is possible to say is that the assumption on which the prediction was based is invalid.

The second of these questions, number 5, inquired if the subject had ever sought professional psychological help. It was predicted that those individuals who had sought professional psychological help would perform no differently on the test (as reflected in the three total scores) than those who had not sought such help. It was felt that although they might have once been functioning interpersonally below individuals not seeking help, they would now have benefited from therapy and be functioning as well as--perhaps better than--those not seeking help. The results indicate that subjects who had not sought help performed significantly better on the test than those who had sought help. The correlations were as follows: Form A Total Score $-.33$, Form B Total Score $-.29$, Combined Total Score $-.32$: less errors were made by persons not seeking help than by those seeking help. This finding was not in accordance with the prediction. Again, it would be difficult to say the HHIRS was invalid on the basis of this finding, especially in light of the favorable results to this inquiry in the pilot study. The results could simply indicate that those who did poorly on the test were people whose psychological problems continue to affect their interpersonal functioning adversely. If this is the case such a finding holds implications concerning the ineffectiveness of the large portion of psychotherapy today.

Fourteen questions were asked in an attempt to establish the validity of the more specific aspects of the HHIRS. None of these questions produced significant findings in the areas which they were designed to tap. In light of the fact that specific reliabilities were not established, even if significant correlations had been obtained, it would be impossible to suggest that such findings could offer describable validity to a given aspect of the test.

As a result, very little can be said about the validity of the HHIRS. It has been shown that the test offers a highly reliable measure of general interpersonal functioning. This measure appears to be unrelated to a subject's familiarity with the Peanuts cartoon strip and seems to be rooted in interpersonal, rather than academic ability factors. Other than that, all that can be said is that much more work is required to establish or discredit the validity of the HHIRS.

FOOTNOTES

1. L. Podell and J. C. Perkins, "A Guttman Scale for Sexual Experience--
A Methodological Note," Journal of Abnormal and Social Psychology,
May 1957 (Vol. 54, No. 3), pp. 420-22.
2. Harvard Educational Review, reference lost!
3. Erikson, op. cit., pp. 247-251.

CHAPTER V

SUMMARY AND IMPLICATIONS

Summary

Based upon the conviction that a man can only be whole to the extent that his interpersonal living is effective, the Henderer-Harrison Interpersonal Relations Scale was created to evaluate the interpersonal functioning of individuals.

The HHIRS is a picture-arrangement test. There are two forms, each has 48 items. Each item is concerned with a unique combination of some of the factors operating in an interpersonal relationship. This combination is portrayed by a four-panel Peanuts cartoon; the wording of which is often dubbed for the purpose. The four panels are presented in a scrambled order to the subject, whose task it is to reorder the panels to their original sequence within a given period of time. An individual's total score is the number of sequences which he could not properly order. This score is intended to reflect his level of interpersonal competence. The content of the failed items is intended to supply vital information concerning the nature of his interpersonal problems. The test is based on the assumption that an item will be failed when the emotional reaction of the subject to the content of the item prevents him from arriving at the correct solution within the allotted time.

The task of the present research was to achieve the development of two parallel forms of the HHIRS and to begin to establish the reliability and validity of these forms as measures of interpersonal functioning. The test was constructed according to a number of strict specifications and then administered in a pilot study to reveal weak points. In the

pilot study, all 96 items were presented in random order to 25 undergraduate psychology students at the University of Massachusetts summer school. The results were analyzed by the CDC 3600 computer.

Following Gulliksen's definition of parallel forms, the two forms of the HHIRS were found not to be parallel with regard to means or variances, but the two forms were found to correlate significantly, and in this respect were considered parallel. The attempt to establish the general reliability of these forms met with success because of the high intercorrelation, but the reliability of a number of specific aspects of the test proved impossible to establish. Accordingly, it was difficult to make a statement concerning the validity of any specific interpersonal areas dealt with by the test. All that could be concluded from the administration of a questionnaire in an attempt to validate the HHIRS was that the test appeared to be tapping an individual's general interpersonal abilities, and that more work would be needed to bolster the validity as well as the reliability of the test and the parallelness of its two forms.

A revision of the HHIRS was undertaken. An item analysis was performed to aid in the revision of the specific items. The questionnaire was rewritten as well. The most important procedural change incorporated was the reduction of the time limit per item from 60 seconds to 45 seconds. The revised HHIRS was administered to 85 undergraduate psychology students at the University of Massachusetts.

The results of the revision were gratifying. The test could be judged parallel by all three of Gulliksen's indices. Again the general reliability of the HHIRS was readily established, but the attempt to carry reliability to the more specific aspects of the test failed.

Accordingly, it was impossible to claim validity for any specific dimensions with which the test dealt. However, support for the general validity of the test indicated by the pilot study was received. Performance on the HHIRS was judged independent of knowledge of the Peanuts cartoon strip and dependent on interpersonal ability factors rather than academic ability factors. Nevertheless, validity findings were very disappointing and need even further work.

What is clearly established by the present research is that a test composed of two parallel forms, exists that can provide a highly reliable measure of an individual's general ability to function interpersonally. It is also established that a great deal more work can be expended to establish more firmly the validity of the HHIRS and to refine its measurement of more specific aspects of interpersonal functioning.

Implications

From a general review of the results of testing with the revised HHIRS, it may be seen that the test could benefit from even further revision. In addition to improving the reliability, there is a need to establish more firmly the validity of the test. One means of establishing more clearly the validity of the test might be the administration of the test to an institutionalized population rather than to a "healthy" population. Once this is completed, the test would be standardized for a large number of populations. The positive results obtained from the present research indicate that such continued studies would indeed be worthwhile. The result would be a relevant psychological measure of greater reliability and validity than those currently in use.

The uses for a test such as the HHIRS are numerous. The HHIRS is basically a diagnostic tool. Its use as such holds implications for

nosology: there is a need for the redefinition of diagnostic categories in terms of interpersonal functioning, terms that are relevant to the central concern of psychology. This redefinition is called for, if for no other reason than for practicality in hospital administration. The assignment of patients to hospital wards is presently done on the basis of the patient's ability to function interpersonally, but no objective criterion is available for assessing this ability: the HHIRS would provide such a criterion. Studies assessing the test's use for this purpose are called for.

But the HHIRS is much more than a diagnostic tool. It is a measure of interpersonal functioning, and as such can be used to assess interpersonal functioning wherever such an assessment is desired. It would be of particular use in situations where an attempt is made to change the level of this functioning. The fact that the test has two parallel forms, which can be used as pre- and post-measures adds value to its use in situations of this kind. Another aspect of the HHIRS that makes it amenable to use in studies is the fact that it can be projected onto a screen and thus administered to a large number of people simultaneously.

The two major situations in which the test may be used for evaluation are psychotherapy and therapist training. In the case of psychotherapy, its success will be reflected in the degree to which a patient's performance on the HHIRS improves. In the case of therapist training, the test can be used in a similar manner to evaluate entire training programs as well as any aspect of these programs, such as supervision. These will be judged on their ability to bring about an improvement in a student's interpersonal functioning, since the success of therapy depends both directly and indirectly on the therapist's ability to relate to people.

Directly, success in therapy depends on the ability of the therapist to "get through" to the patient and establish a relationship with him. Indirectly, success depends on the patient's using his interpersonal relationship with the therapist as a model around which to reconstruct the faulty interpersonal relations that permeate his life.

Another aspect of the HHIRS which might be investigated concerns the pattern of scoring that might be obtained by a subject. It is obvious that there are great numbers of possible scoring patterns, many of which are not congruent with the categories around which the test is built. It would be of interest to determine the behavioral bases of various scoring patterns.

These are only a few of the applications and implications that arise from the development of a measure of interpersonal functioning such as the HHIRS. There are many more. It is hoped that the present research will stimulate the use of the HHIRS and will lead to further inquiry into additional areas of application.

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APPENDIX A

Three
Practice
Items

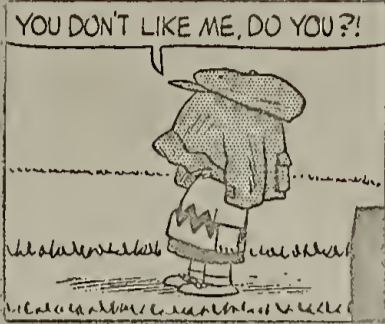


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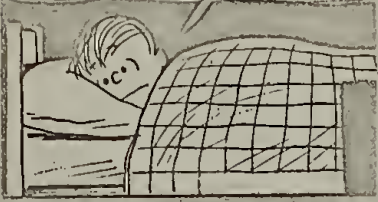
Form A-1

Trust I

2143

2413

I GUESS SHE FORGOT TONIGHT. HOW WILL I EVER GET TO SLEEP WITHOUT BEING TUCKED IN?



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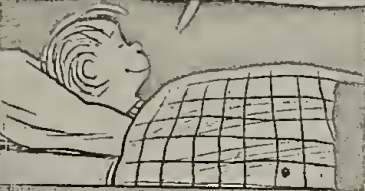
RATS! I'M NEVER SURE MOM WILL REMEMBER TO TUCK ME IN.



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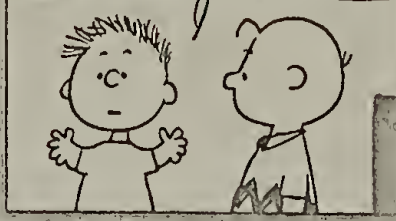
HAPPINESS IS BEING ABLE TO COUNT ON YOUR MOTHER FOR A GOOD TUCK-IN!



WHAT'S THAT! MAYBE SHE'S COMING AFTER ALL! MAYBE I WILL GET TUCKED IN!



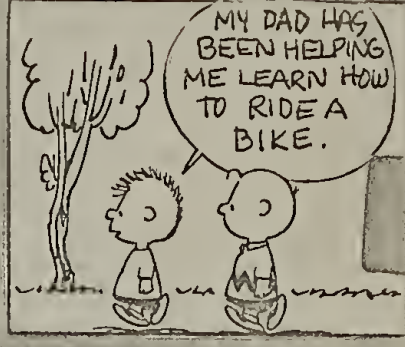
HE HOLDS THE HANDLEBARS AND EVERYTHING IS FINE. I NEVER FALL OFF.



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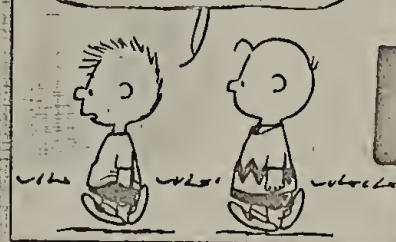
MY DAD HAS BEEN HELPING ME LEARN HOW TO RIDE A BIKE.



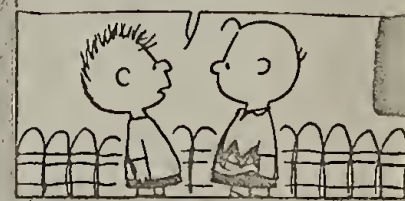
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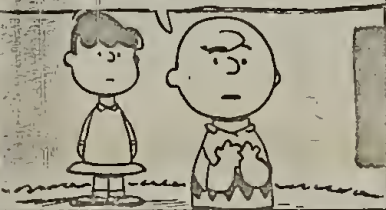
DADS SURE DO COME IN HANDY.



HE'S BEEN DOING A GOOD JOB. I WAS AFRAID I'D FALL OFF, BUT DAD TAKES CARE OF THAT...



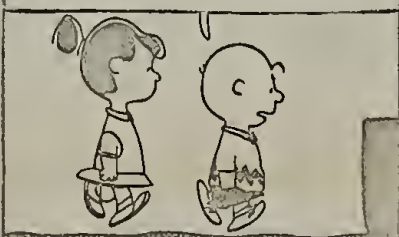
I DON'T THINK I CAN LET YOU DO ANYTHING THAT IMPORTANT. I JUST DON'T THINK SO.



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NO, VIOLET, I'M SORRY. I CAN'T LET YOU PLAY FIRST BASE THIS YEAR.



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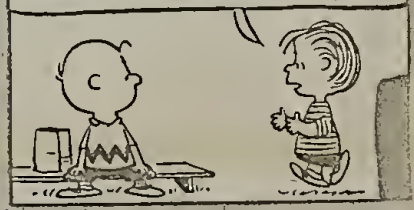
AAUGH!!



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I DID IT, CHARLIE BROWN... I WENT UP TO HER, AND I TOLD HER ALL ABOUT HOW YOU'RE MADLY IN LOVE WITH HER, AND.



2

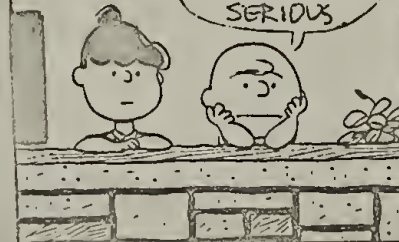
4

WELL, CHARLIE BROWN, HAVE YOU MADE UP YOUR MIND?

I'M SORRY, VIOLET



THE CONSEQUENCES COULD BE VERY SERIOUS.



WITHOUT HER KNOWING WHAT YOU'RE UP TO, FIND OUT IF SHE'S EVER NOTICED ME OR WHAT SHE THINKS OF ME... BUT REMEMBER... BE SLY... BE REAL SLY...



LINUS. DO ME A FAVOR...

I WANT YOU SLYLY TO START A CONVERSATION WITH THAT LITTLE RED-HAIRED GIRL...

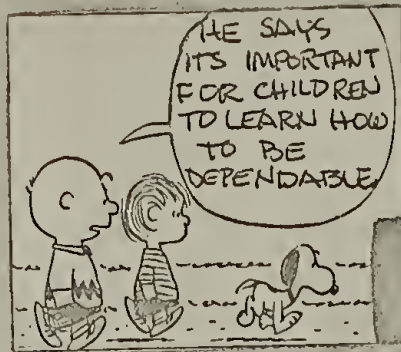


3142/3412

4321

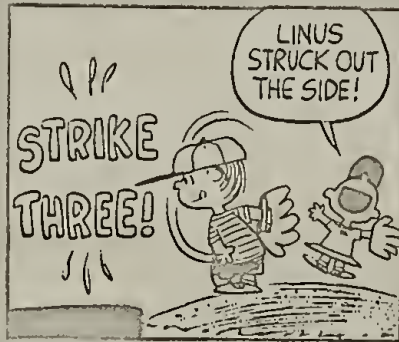
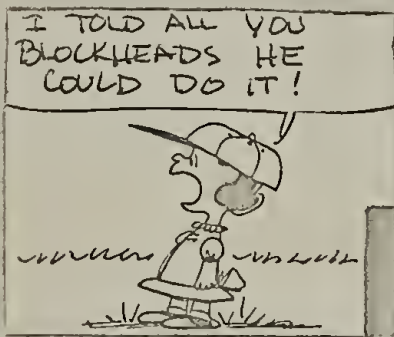
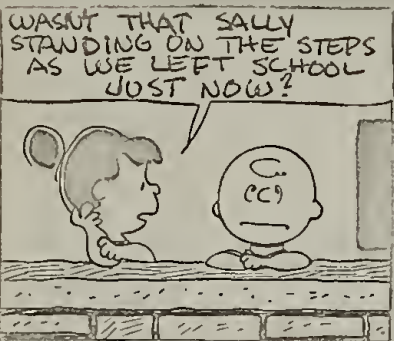
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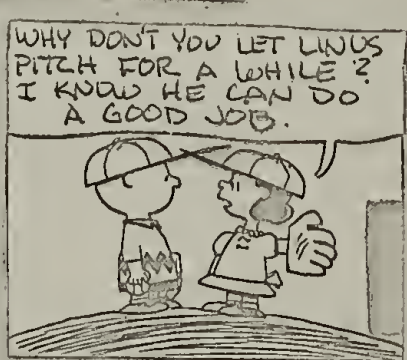
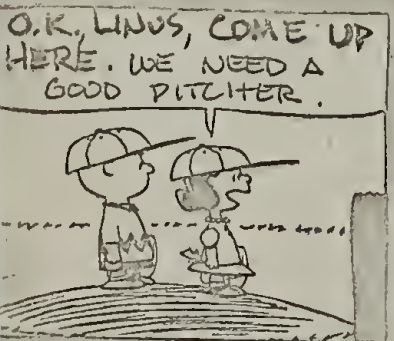
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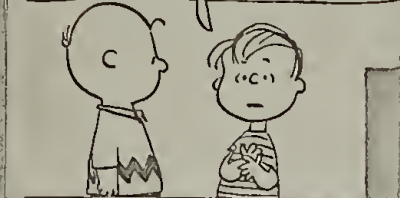
Form A-1

Hostility I

3142

4321

WE'VE HAD TV DINNERS
FOUR TIMES THIS WEEK.
SINCE SHE GOT HER POOL
TABLE, SHE'S DONE
NOTHING BUT PLAY POOL.



I'M JUST NOT THE TYPE
THAT BITES THE HAND
THAT FEEDS ME.



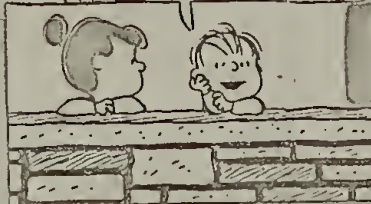
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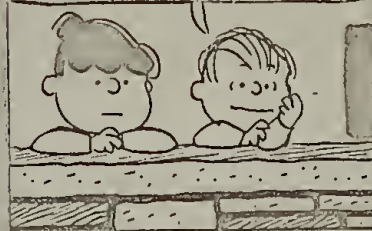
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BUT I'LL BE ABLE TO
FORGIVE HIM IN TIME
FOR HIM TO TAKE ME
TO THE GAME TONIGHT.



HE VETOED TV LAST
NIGHT BECAUSE OF
MY GRADES.



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I SUPPOSE
I REALLY OUGHT
TO BE QUITE
ANGRY WITH
MY MOTHER.



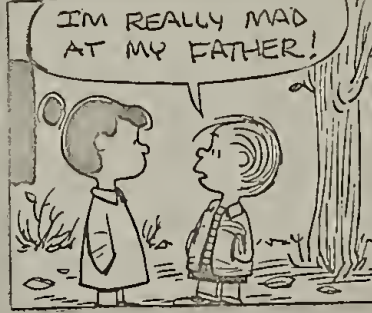
IT'S FUNNY, THOUGH.
I JUST DON'T SEEM TO
BE ABLE TO GET MAD
AT HER.



WHAT'S HE
DONE TO
MAKE YOU
MAD?



I'M REALLY MAD
AT MY FATHER!



LOOK AT IT THIS WAY, CHARLIE
BROWN...WE LEARN MORE FROM
LOSING THAN WE DO FROM WINNING



I GET TIRED OF LOSING...
EVERYTHING I DO, I LOSE!



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BASEBALL AND
BLANKETS JUST
DON'T MIX!



NOTHING MAKES
ME Madder
THAN LINUS
AND THAT STUPID
BLANKET!



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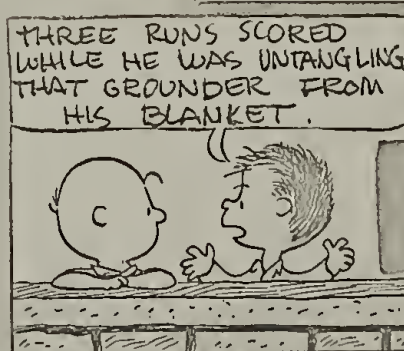
THAT MAKES ME
THE SMARTEST PERSON
IN THE WORLD!!



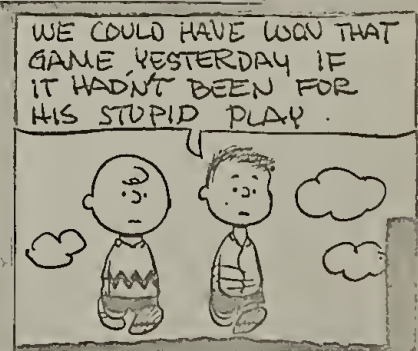
ANOTHER BALL
GAME LOST!!
GOOD GRIEF!



THREE RUNS SCORED
WHILE HE WAS UNTANGLING
THAT GROUNDER FROM
HIS BLANKET.



WE COULD HAVE WON THAT
GAME YESTERDAY IF
IT HADN'T BEEN FOR
HIS STUPID PLAY.



4213

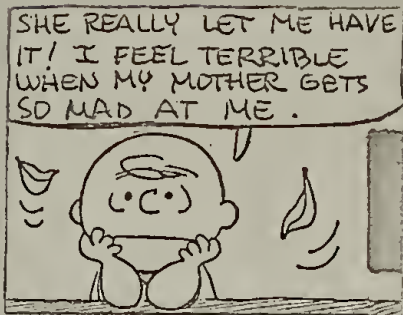
2431/2341

Form A-1

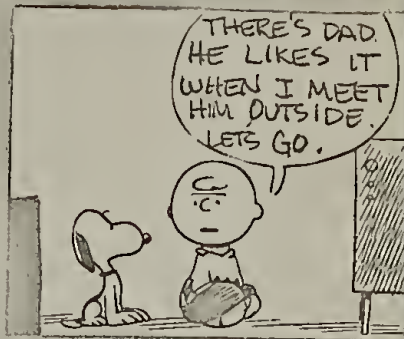
Hostility II

4321/3241

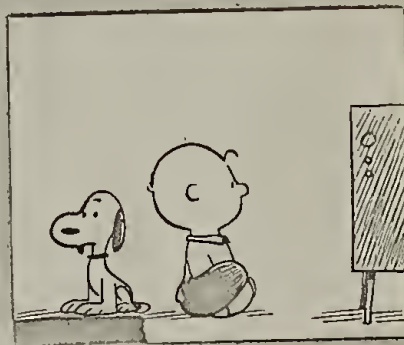
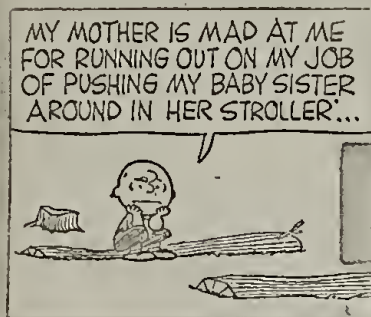
4213



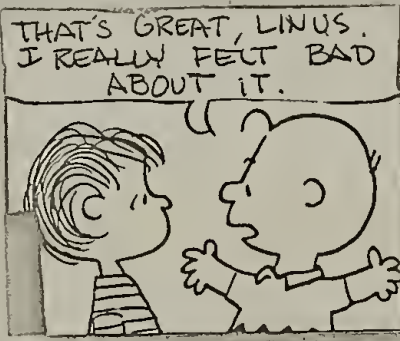
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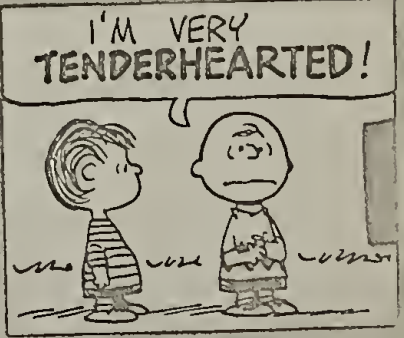
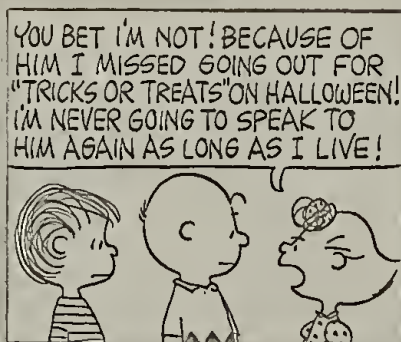
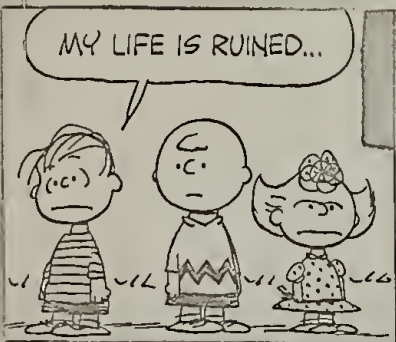
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Form A-1

Giving I

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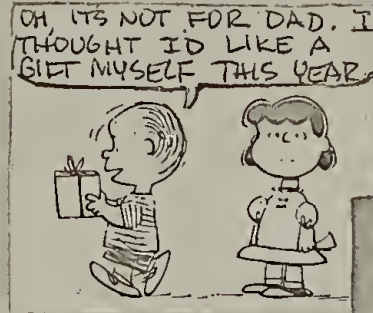
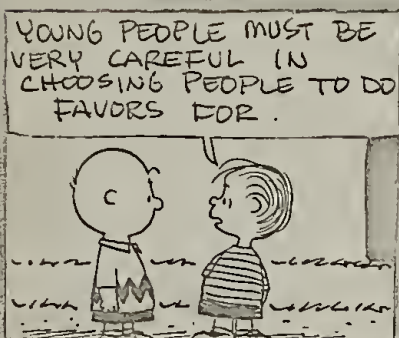


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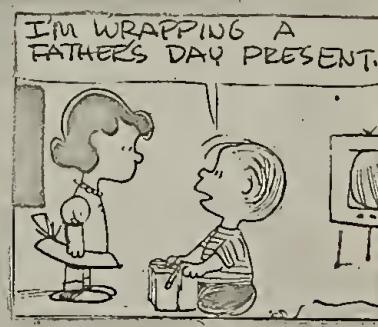
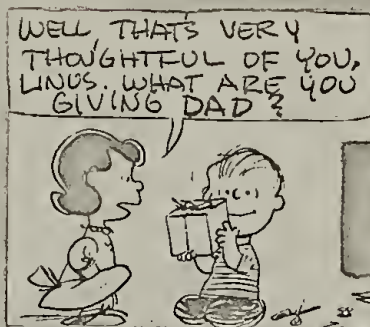


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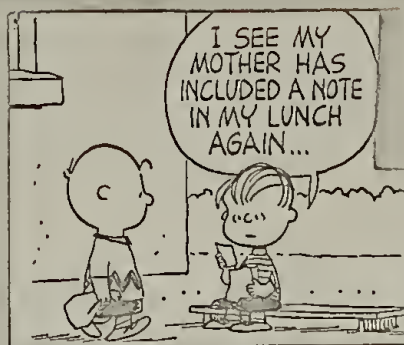
1324 / 4132

Form A-1,2

Giving II

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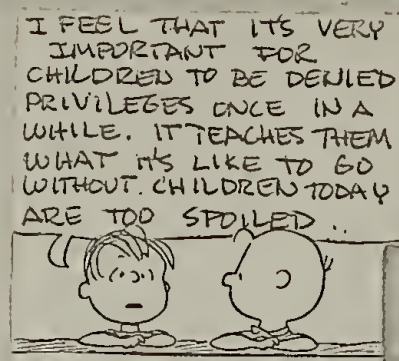
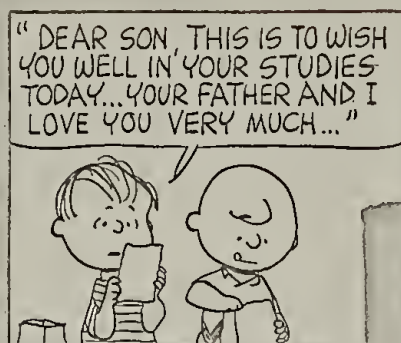
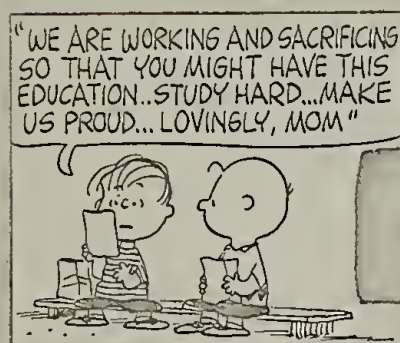


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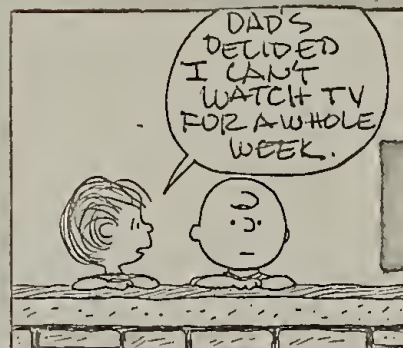


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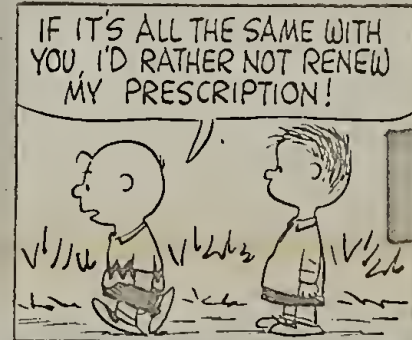
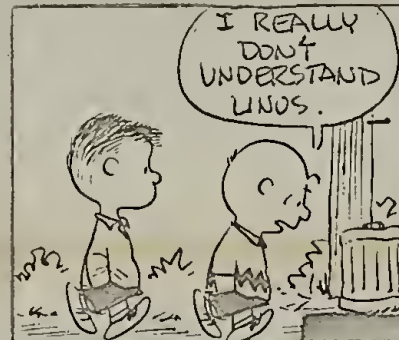


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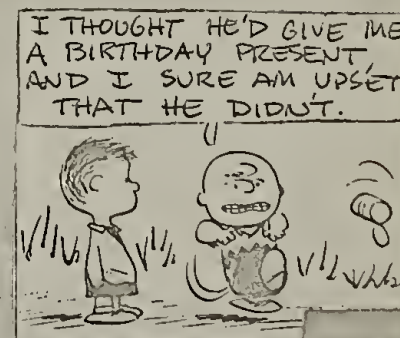
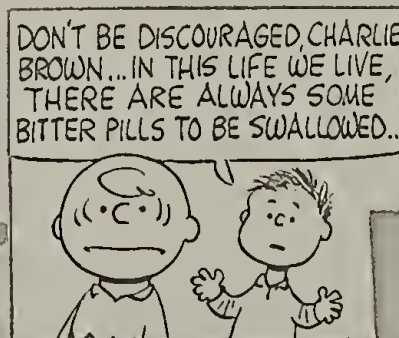


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Form A-1

Sex I

4132/4123

3214



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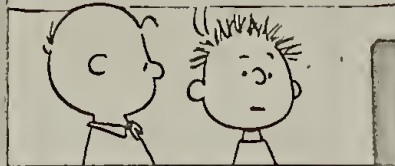
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EVERY SATURDAY AFTERNOON HE AND I HAVE A WRESTLING MATCH. DAD'S PRETTY BUSY, AND IT'S THE ONLY TIME I GET TO PLAY WITH HIM. I WOULDN'T MISS IT!



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THAT SOUNDS LIKE A GOOD IDEA.

WE THINK SO



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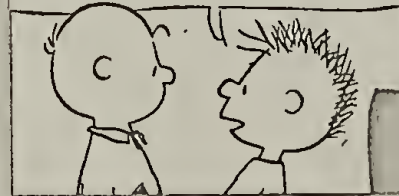
4



THAT SOUNDS PRETTY GOOD! I THINK I'LL GO SCRUB FOR A LITTLE LOVE.



WE HAVE A LOT OF FUN! IT'S ONE OF THE BEST WAYS I KNOW FOR A SON TO GET TO KNOW HIS FATHER!



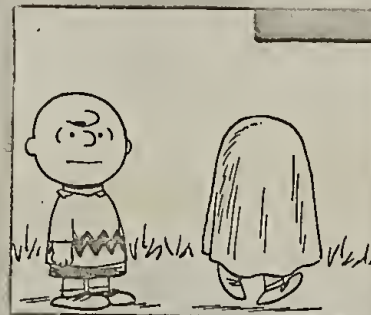
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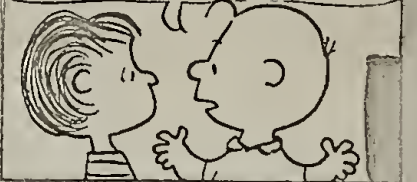
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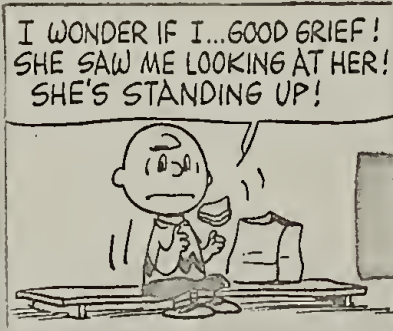
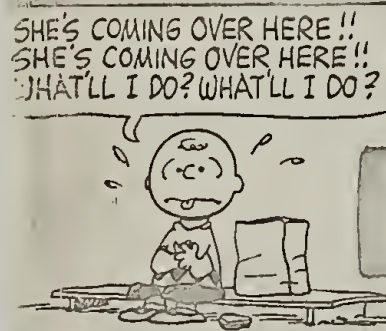
3

SINCE MY HERO WAS SENT TO THE MINORS, I'VE REPLACED HIS PICTURES WITH SOME OF BEATRICE BOMBSHELL.



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1432

3241 / 3421

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1432

SHE KEEPS WANTING ME TO SIT ON HER LAP WHEN SHE READS ME STORIES. I GUESS SHE DOESN'T REALIZE I'M TOO OLD.



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I'VE TRIED TO BE VERY TACTFUL, BUT WHAT DO YOU SAY TO AN AFFECTIONATE MOTHER?



MY DAD MADE AN IMPORTANT DECISION LAST NIGHT, CHARLIE BROWN.

I GUESS WE'LL JUST SHAKE HANDS.



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I REALLY GET UNCOMFORTABLE WHEN SHE WANTS ME TO PUT MY HEAD ON HER SHOULDER.



I'M HAVING A PROBLEM WITH MY MOTHER, CHARLIE BROWN.



WHAT WILL YOU DO?



HE SAID I WAS GETTING TOO OLD TO KISS HIM GOOD-NIGHT. I SUPPOSE HE'S RIGHT.

MUSICIANS GET UNNERVED WHEN YOU TELL THEM THAT THEY HAVE PRETTY EYES



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IT'S JUST SOMETHING I GOT IN THE MAIL TODAY. IT'S NOT THE KIND OF THING THAT WOULD INTEREST YOU.



WHAT'S THAT YOU'RE LOOKING AT LINUS?



OH, NOT MUCH.

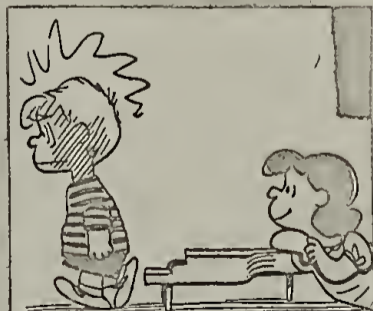
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DID ANYONE EVER TELL YOU THAT YOU HAVE PRETTY EYES, SCHROEDER?



IT'S ANOTHER PICTURE FOR MY PINUP WALL. ISN'T IT GREAT? WHY DON'T YOU COME OVER AND SEE THE REST?



WHAT DO YOU MEAN? WHY CAN'T I TAKE A LOOK?



MAYBE YOU WOULD BE INTERESTED..

3241

2143

Form A-1

Dominance I

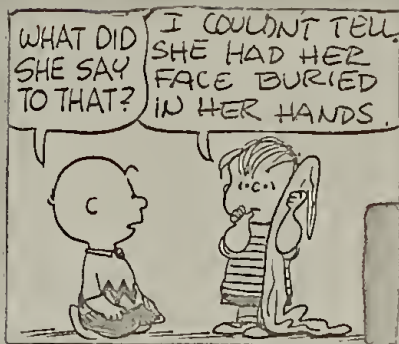
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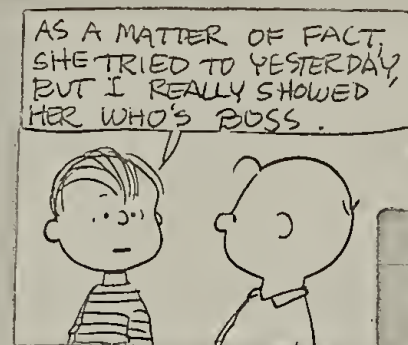
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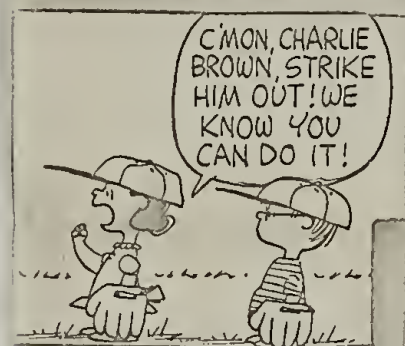
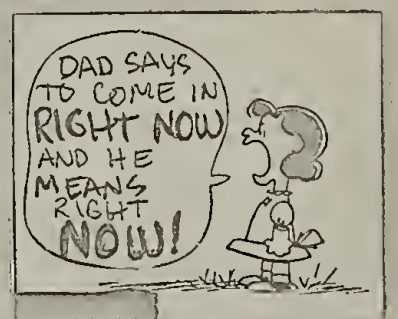
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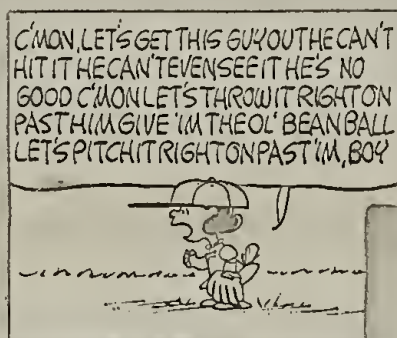
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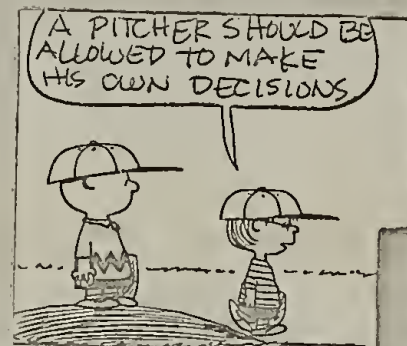
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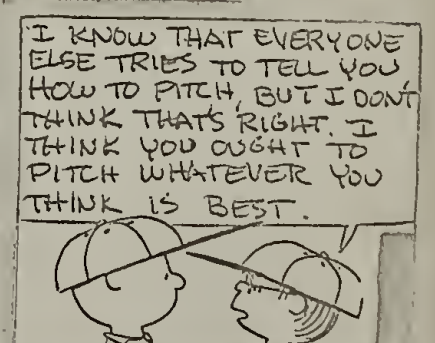
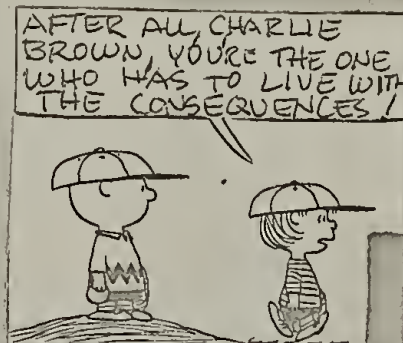
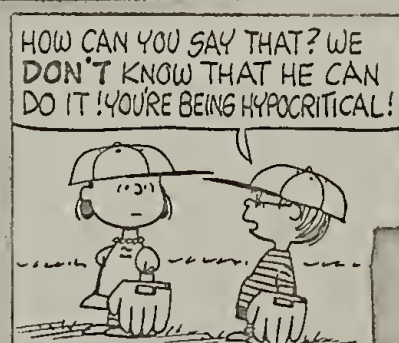
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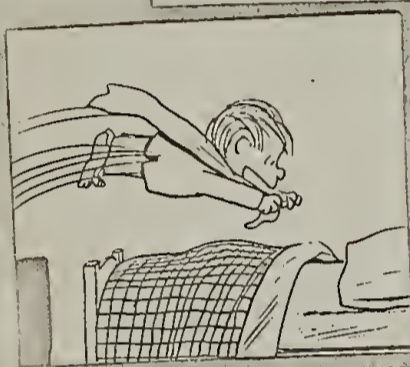
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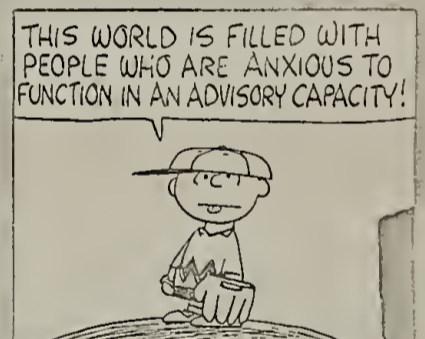
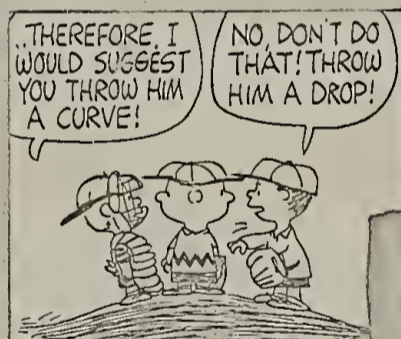
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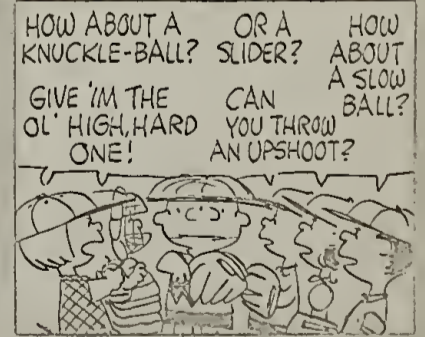
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any sequence ending
in a "3"

3142

Form A-1

Guilt I

4321

4213 / 2413

IT'S DIFFICULT TO CRITICIZE A MOTHER WHEN SHE HAS SUCH HIGH HOPES FOR HER SON.



"STUDY HARD, AND SOMEDAY YOU MAY GET TO BE PRESIDENT"



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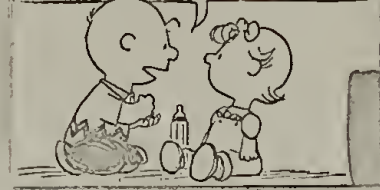
I'M SURE GONNA TELL HER WHAT A POOR JOB SHE DOES!... LOOKS LIKE SHE PUT IN A NOTE.



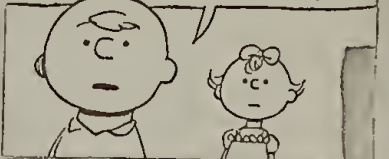
ANOTHER PEANUT BUTTER SANDWICH! MOM SHOULD BE ASHAMED, SHE'S SURE DONE A POOR JOB ON MY LUNCH LATELY!



FATHERS SHOULD ALWAYS CONSIDER THE IMPLICATIONS WHICH THEIR BUSINESS DECISIONS MAY HAVE ON THEIR CHILDREN'S PERSONALITIES



I GUESS I'LL HAVE TO SPEAK TO DAD ABOUT THIS. I'LL HAVE TO MAKE HIM REALIZE HOW WRONG HIS DECISION WAS!



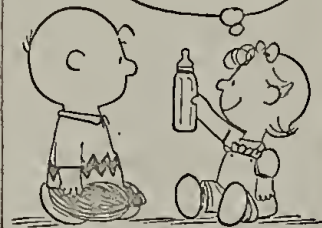
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I'LL DRINK TO THAT!



I'VE REALLY BECOME UNPOPULAR SINCE HAIRCUT PRICES WENT UP AGAIN



I WOULDN'T PUSH YOU IF I DIDN'T WANT TO. WHAT'S A BROTHER FOR IF HE WON'T PUSH HIS SISTER IN TIME OF NEED?



I CAN'T PLAY RIGHT NOW. I HAVE TO PUSH SALLY A LITTLE LONGER.



THAT'S ALL RIGHT...THE ONLY THING THAT MATTERS IS THE TEAM...THE TEAM IS EVERYTHING!



I DON'T WANT TO BE A PITCHING HERO AT YOUR EXPENSE...IF YOU HADN'T GOT "LITTLE LEAGUER'S ELBOW," I WOULDN'T EVEN BE PITCHING



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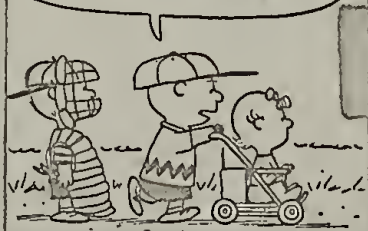
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DON'T FEEL BAD SALLY. I REALLY DON'T MIND.



I SHOULD BE BACK HERE IN ABOUT FIVE MINUTES.



I FEEL GUILTY, CHARLIE BROWN...



OF COURSE, IF YOU WANT TO FEEL JUST A LITTLE BIT GUILTY, GO RIGHT AHEAD

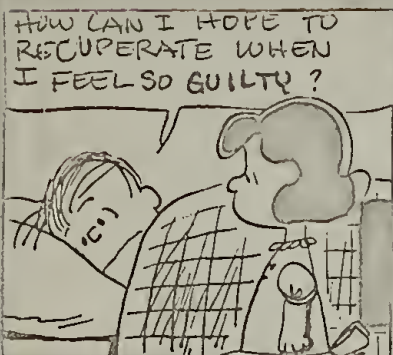


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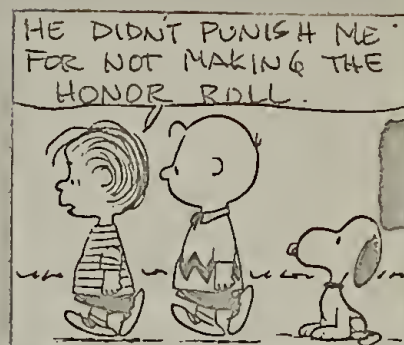
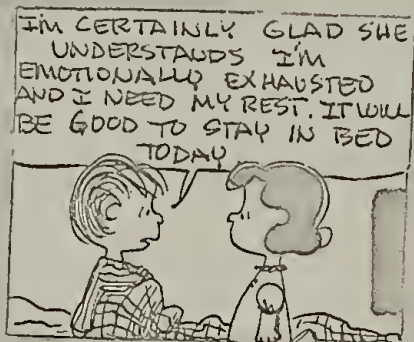
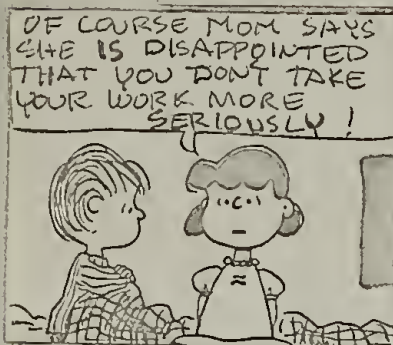


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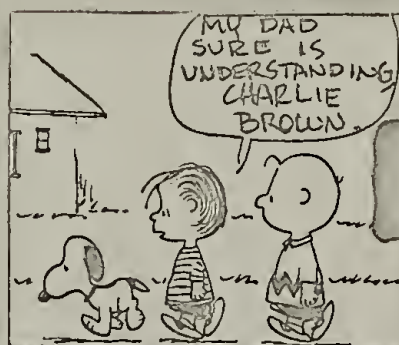


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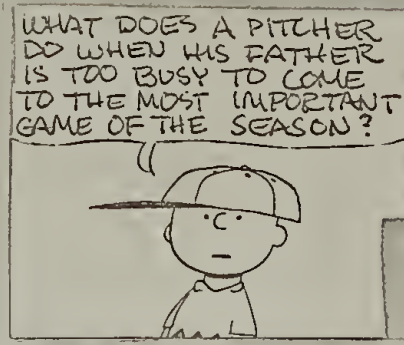
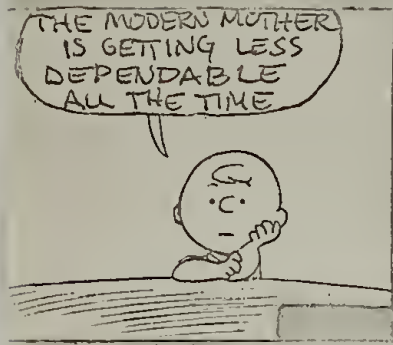
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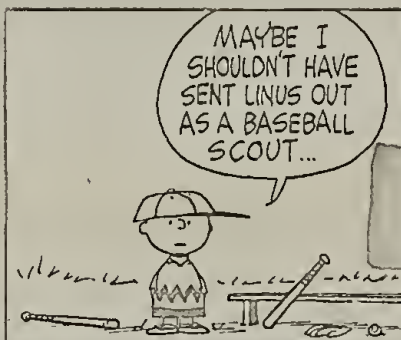
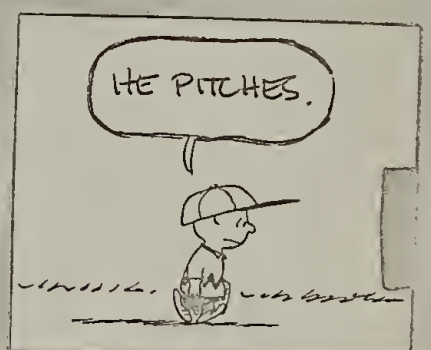
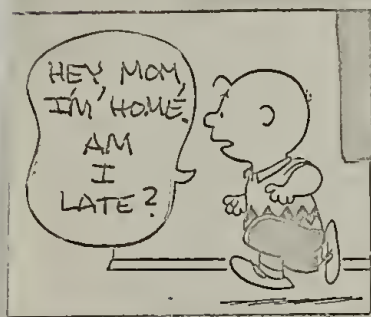
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4132

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Trust II

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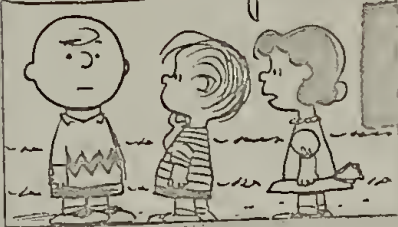
THEN YESTERDAY SALLY
CRAWLED INTO THE STREET
AND HE SAVED HER LIFE
HIS MOTHER SURE TRUSTS
HIM NOW!



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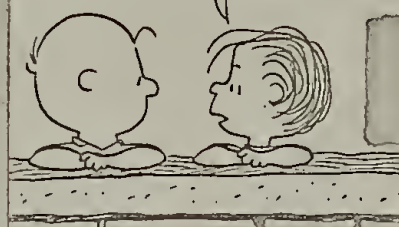
HIS MOTHER SURE IS
STUPID! SHE DIDN'T EVEN
TRUST HIM TO TAKE CARE
OF SALLY.



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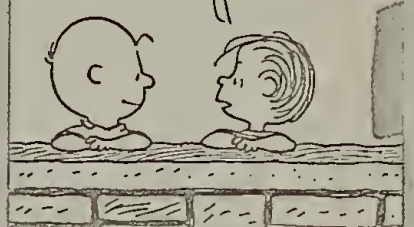
OH, YES...WE WENT TO
QUITE A FEW



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I'M SORT OF A
BUILT-IN FRIEND!



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HOW DOES IT
FEEL TO BE
A HERO?

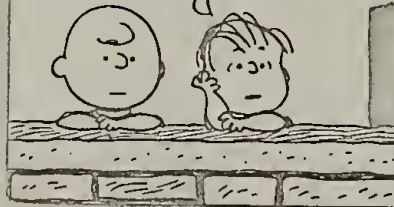


MAY I HAVE
YOUR AUTOGRAPH,
CHARLIE
BROWN?

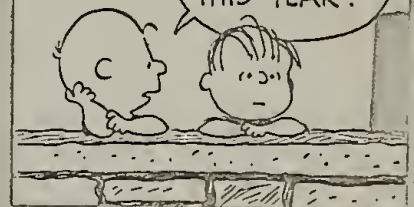
HEY, LINUS,
DID YOU HEAR
THE NEWS?
CHARLIE BROWN
IS A HERO!



I THINK HE LIKES
HAVING A SON TO TAKE
TO THE BALL GAME...



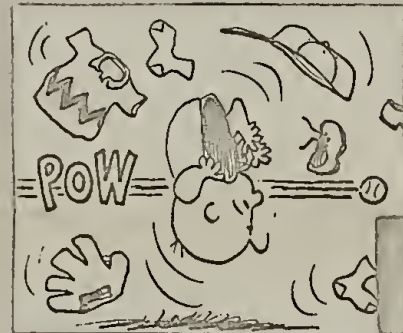
DID YOUR DAD
TAKE YOU TO
MANY BALL GAMES
THIS YEAR?



MY
ARM
HURTS.



ALREADY? THIS IS
ONLY THE FIRST GAME
OF THE SEASON! YOUR
ARM CAN'T HURT ALREADY!



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BOY, AM
I A
HYPOCRITE!



YOU CAN DO IT, CHARLIE
BROWN! SHOW HIM YOUR STUFF!
YOU'RE A BETTER MAN THAN
HE IS, CHARLIE BROWN!



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WHY DON'T
YOU JUST
GIVE UP?

I'LL SHOW
YOU WHO CAN
WIN A GAME!



WHAT'S THE MATTER WITH
YOU, CHARLIE BROWN?
WE CAN NEVER DEPEND
ON YOU TO WIN A GAME.



C'MON, CHARLIE
BROWN, PITCH
IT TO HIM,
BOY!



THROW IT RIGHT PAST HIM,
CHARLIE BROWN.. YOU CAN DO
IT! WE KNOW YOU CAN DO IT!



1432

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4321 / 2341

4132

1432 / 4132

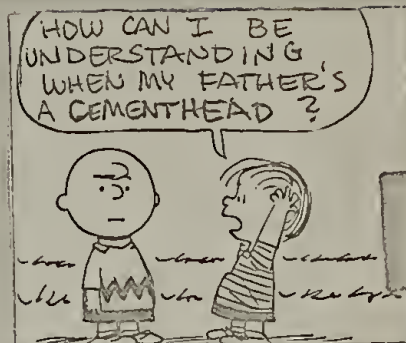


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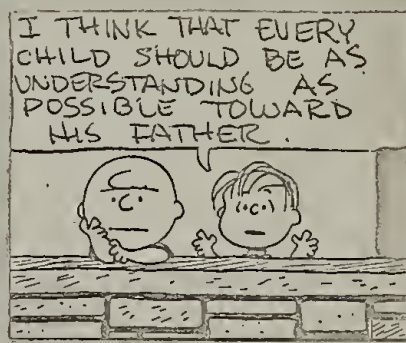
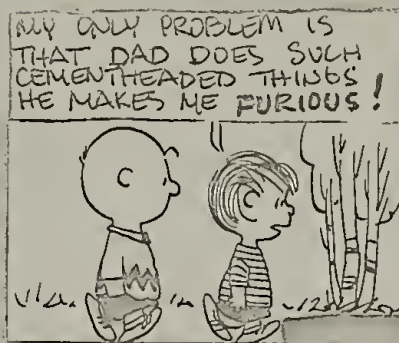


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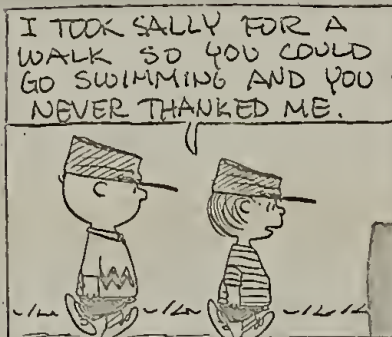


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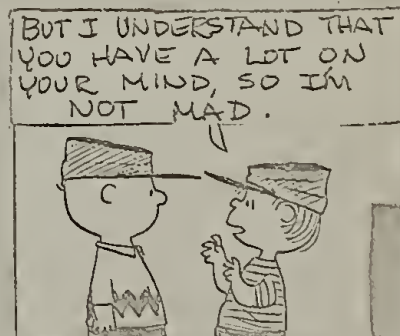
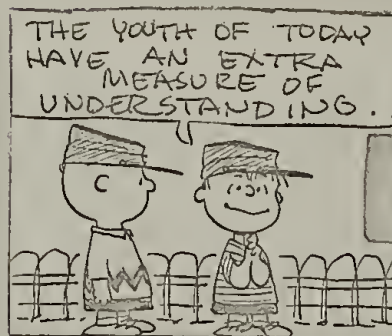


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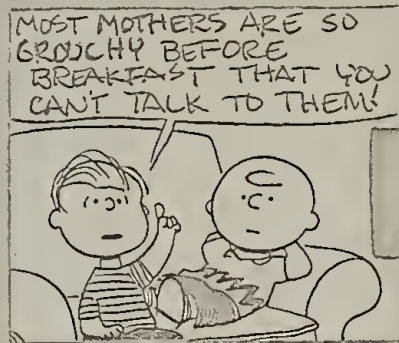
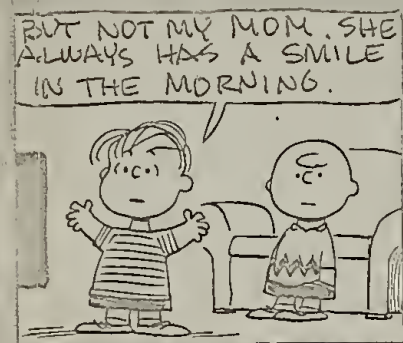
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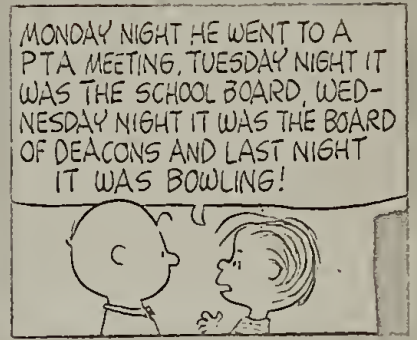
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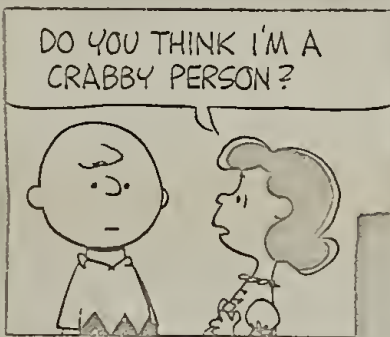
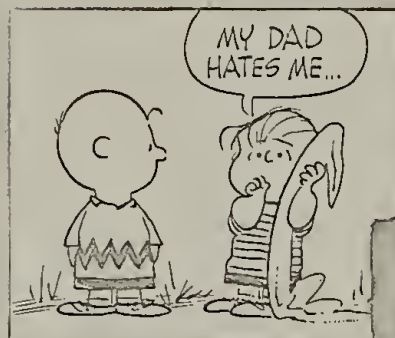
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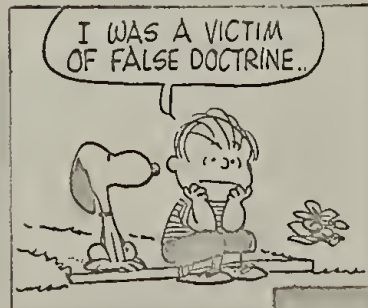
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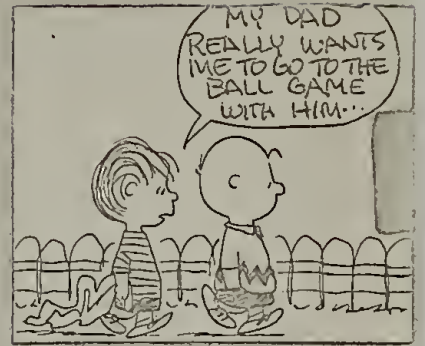
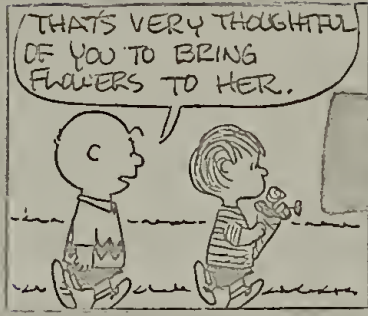
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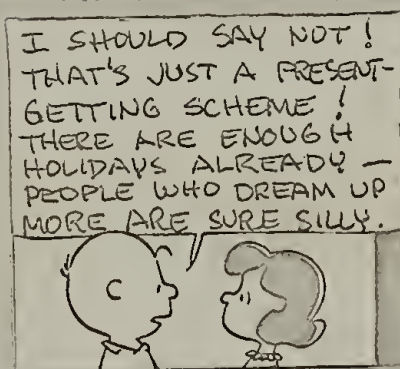
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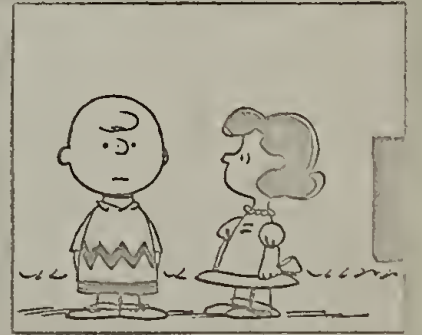
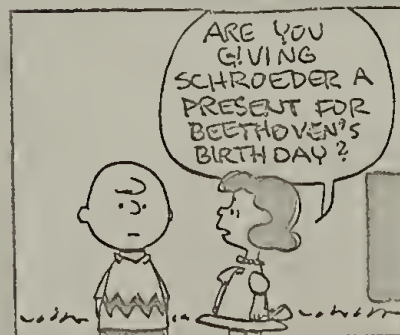
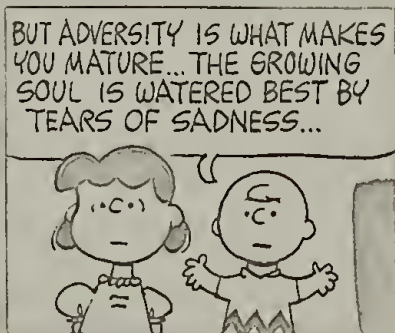
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2143

IT'S BEEN THIS WAY ALL WEEK, AND IT'S BECAUSE ALL MY MOTHER THINKS ABOUT IS THAT STUPID GAME OF POOL!



A PEANUT BUTTER SANDWICH AND A BANANA...WHAT AN UNIMAGINATIVE LUNCH!



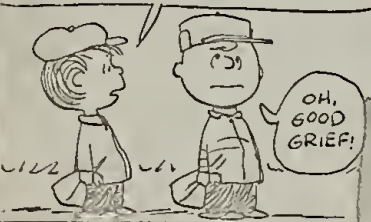
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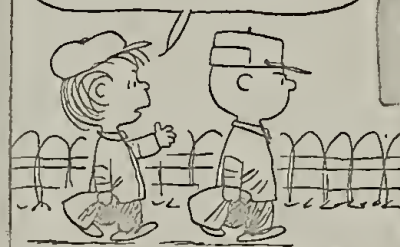
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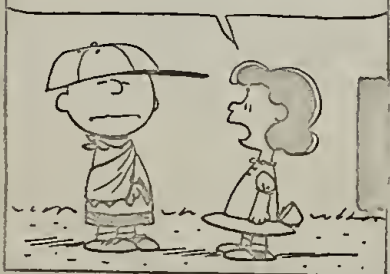
YOU HAVE THE ONLY MOTHER WHO CAN PUT BACK-SPIN ON THE CUE BALL!



SO YOU'VE GOT A POOR LUNCH... BE PROUD...



A LOUSY PLAYER LIKE YOU?!



DO YOU WANT ME TO KISS IT?



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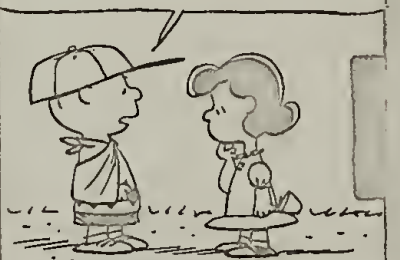
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I'VE GOT "LITTLE LEAGUER'S ELBOW"!



YOU'VE GOT WHAT?

IT'S REALLY QUITE PAINFUL.



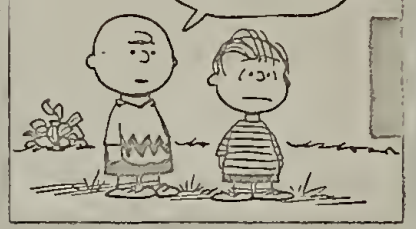
3142

2413

HE FOUND HE COULDN'T DO IT, THOUGH, WITHOUT RAISING THE PRICE OF HAIRCUTS.



I JUST HAD A BIG DISAPPOINTMENT



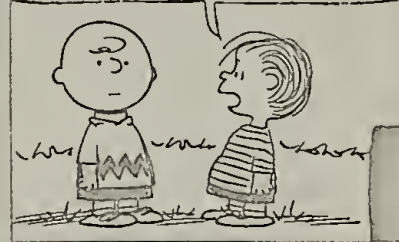
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PROBLEMS OF HIGH FINANCE HAVE ALWAYS FASCINATED ME.



MY DAD WANTED TO RAISE MY ALLOWANCE. HE THOUGHT I NEEDED MORE MONEY NOW THAT I'M OLDER.



GOOD OL' CHARLIE BROWN!



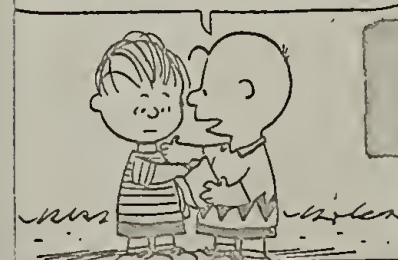
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A CHOCOLATE-CREAM AND A FRIENDLY PAT ON THE BACK



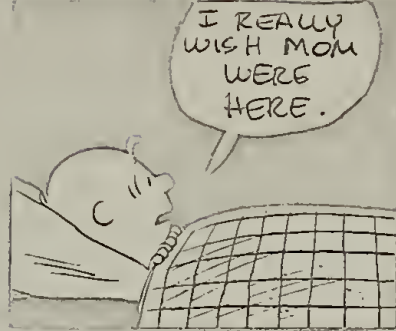
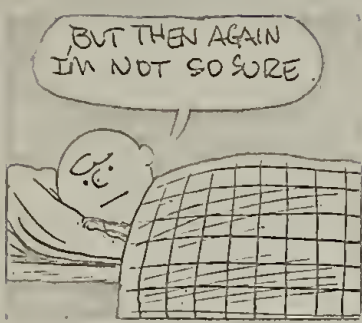
WHAT'S THE CURE FOR DISILLUSIONMENT, CHARLIE BROWN?



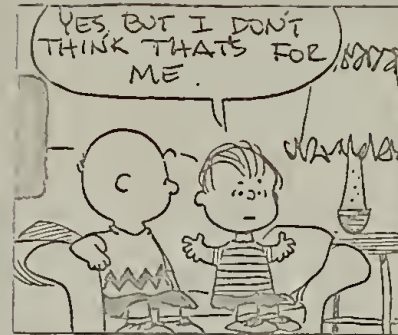
4321

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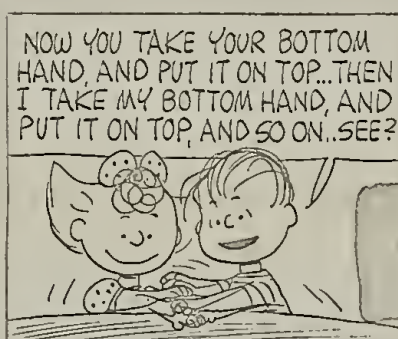
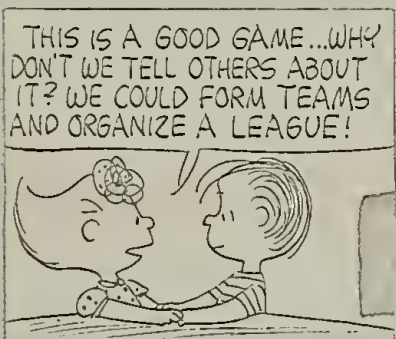
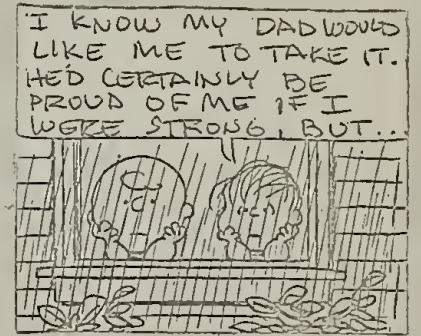
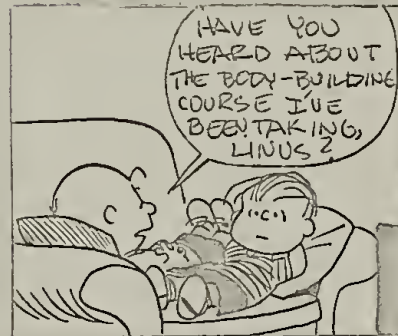
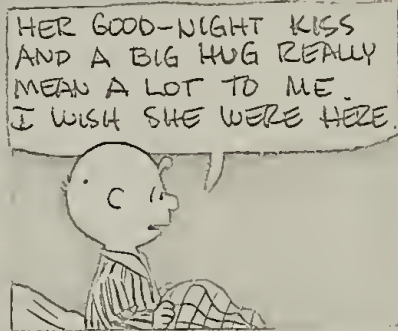
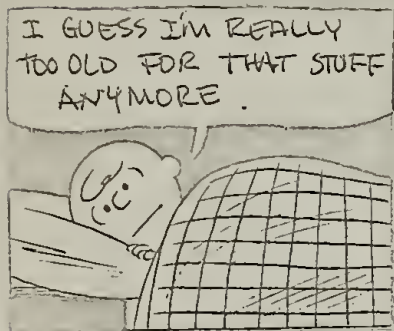
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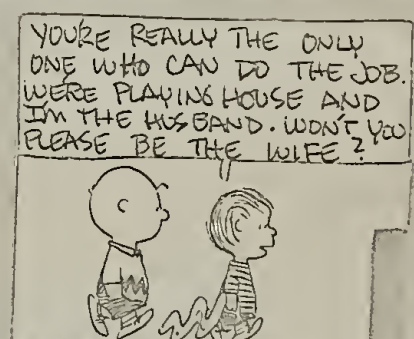
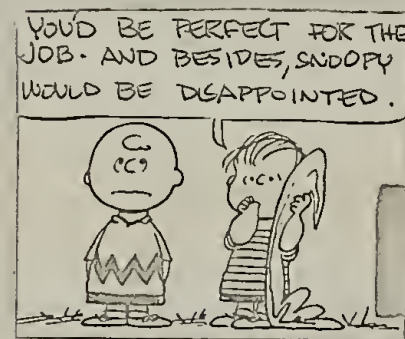
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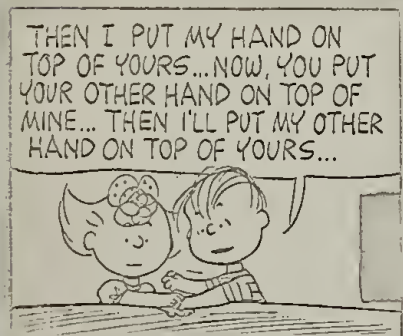
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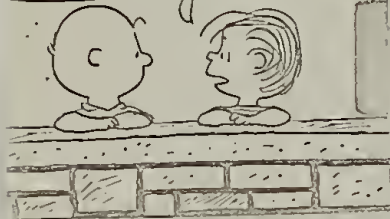
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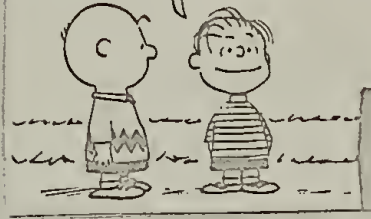
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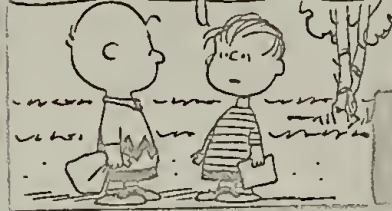
MY MOM'S HAD IT ROUGH. SHE'S AFRAID OF THE DARK. SHE'S TRIED HARD TO SLEEP ALONE...



EVERYTHING'S O.K. NOW. SHE HARDLY MISSES DAD AT ALL ANYMORE!



YES, AND I'LL BE GLAD TOO. I'VE ALWAYS WANTED TO SAY "AND I WAS A 37-POUND WEAKLING!"



I GUESS YOUR DAD WILL BE PRETTY PROUD OF YOU...



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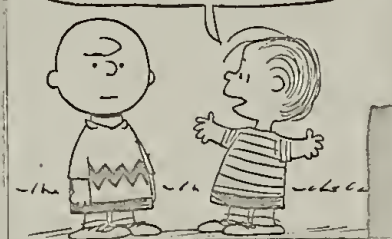
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3 4

I HEAR YOUR DAD'S AWAY ON BUSINESS, LINUS.



YES, HE'S BEEN GONE ABOUT A WEEK.

BUT SHE FINALLY ASKED ME TO SLEEP WITH HER...



IT'S A FORM TO SEND AWAY FOR A BODY-BUILDING COURSE. PRETTY GOOD, HUH?



LOOK WHAT MY DAD GAVE ME, CHARLIE BROWN!



WHAT IF SHE SAID TO ME, "DEAREST CHARLIE BROWN, WON'T YOU BE MY VALENTINE? PLEASE? PLEASE? PLEASE?"



WHAT IF SHE CAME OVER TO ME AND HANDED ME A BIG FANCY VALENTINE WITH LACE ALL AROUND THE EDGE?



YOU'RE RIGHT! THE SEX LIFE OF THE SEA ANEMONE IS A STIMULATING SUBJECT!



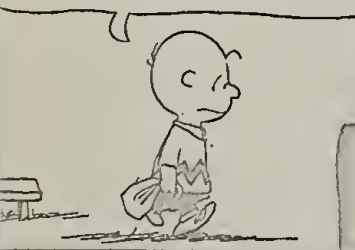
I KNOW YOU DON'T LIKE RACY STORIES, LINUS...



1 2
3 4

1 2
3 4

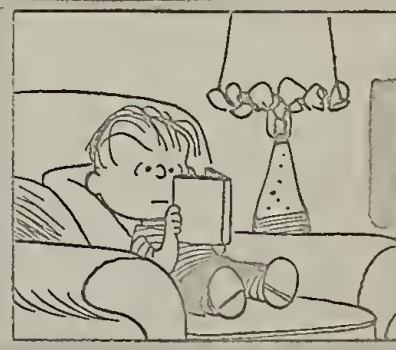
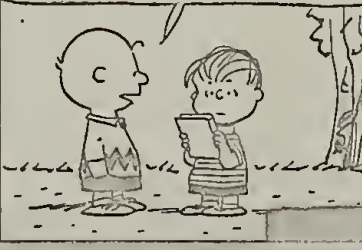
I'D BETTER GO IN... I THINK I'M CRACKING UP...



WOULDN'T IT BE GREAT IF THAT LITTLE RED-HAIRED GIRL GAVE ME A VALENTINE TOMORROW?



BUT THIS ONE'S REALLY GOOD. WHY DON'T YOU READ IT?



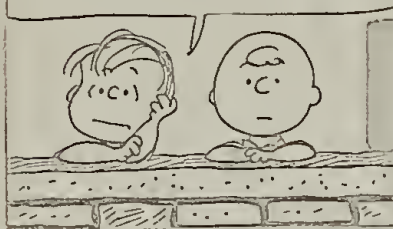
4213 / 4123

2341

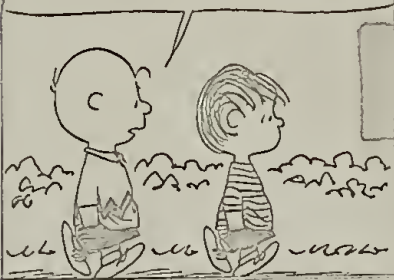
4321 / 3241

4213

I DON'T THINK IT'S A CHILD'S PLACE TO CRITICIZE HIS MOTHER'S LEISURE ACTIVITIES.



WHY DID YOU DECIDE THAT?



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I DON'T THINK I SHOULD TRY TO MAKE MOM GIVE UP HER POOL TABLE.



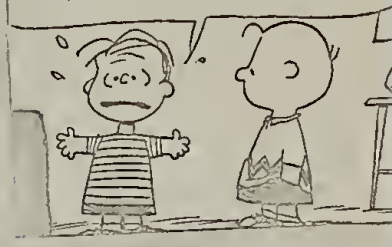
I'VE THOUGHT IT OVER PRETTY WELL.



WHEN MY DAD DOES THAT I GO ON STRIKE. THAT REALLY SHOWS HIM WHO'S BOSS.



HE SAYS 'I FORGOT TO PICK UP MY TOYS JUST ONCE TOO OFTEN.'



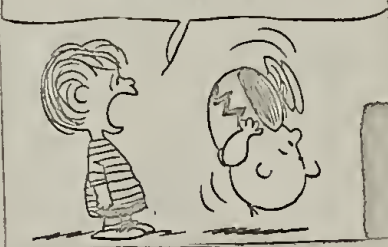
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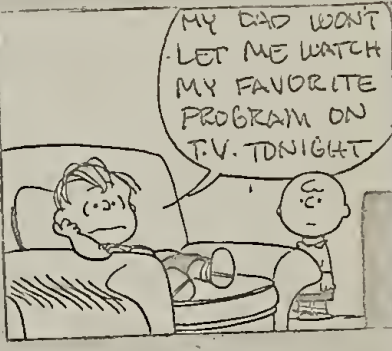
3

4

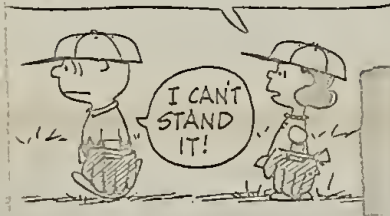
LINDS LOCAL NOW ON STRIKE!



MY DAD WON'T LET ME WATCH MY FAVORITE PROGRAM ON T.V. TONIGHT



WHENEVER A MANAGER TALKS TO ONE OF HIS PLAYERS, HE SHOULD MAKE SURE THAT HIS CAP DOESN'T TOUCH THE PLAYER'S CAP..



LOOK, LUCY, THIS IS OUR LAST GAME OF THE SEASON..

CAN'T YOU PLAY ANY BETTER THAN YOU'VE BEEN PLAYING?



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MOVE YOUR HEAD SO YOUR CAP WON'T TOUCH MY CAP..



YOU'VE DROPPED FIVE FLY BALLS THIS INNING!

YOUR CAP IS TOUCHING MY CAP CHARLIE BROWN...



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ALL RIGHT, TEAM...LET'S HEAR A LITTLE CHATTER OUT THERE!



GIVE ME A SUGGESTION, WILL YOU, CHARLIE BROWN? I NEVER CAN THINK OF ANYTHING TO SAY



2431

3214 / 2314

4213

2431



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4

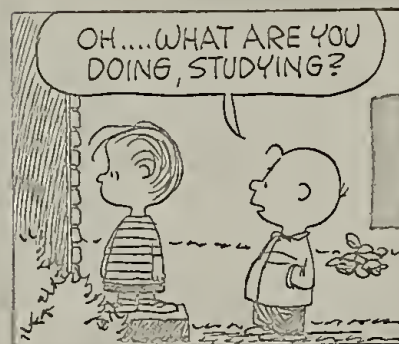


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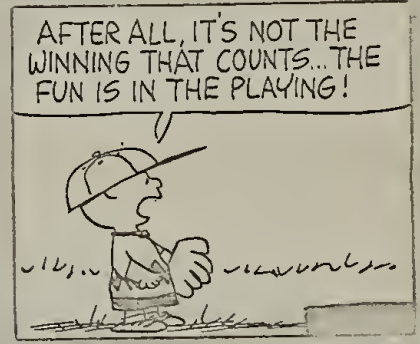
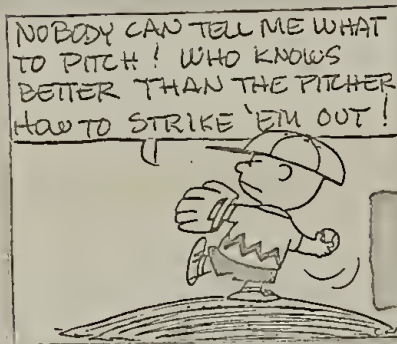


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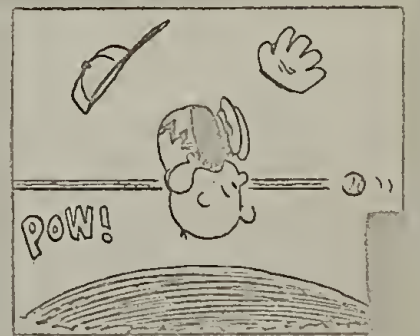
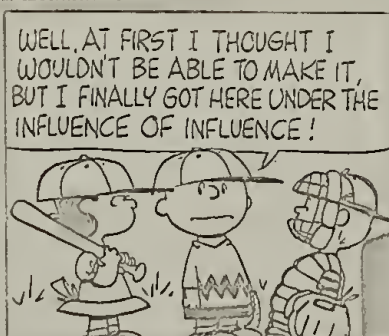
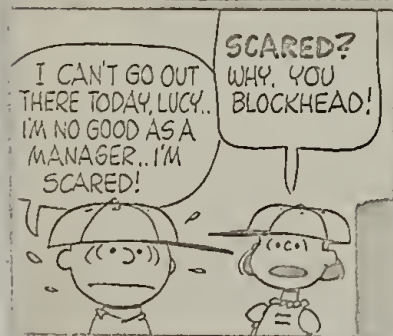


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3214

3142

1432

3241

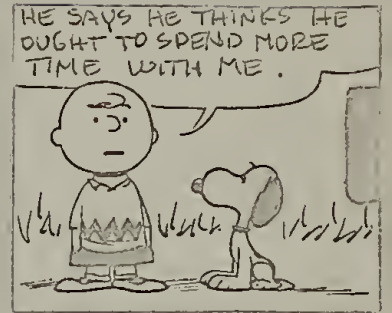
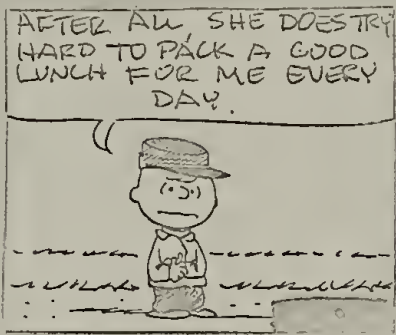
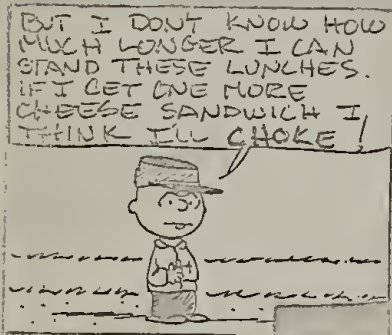


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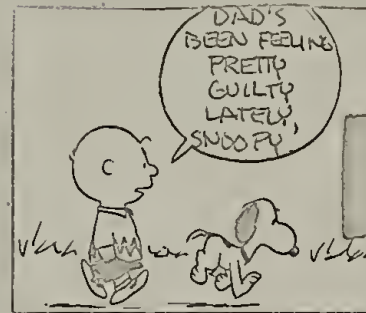


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4

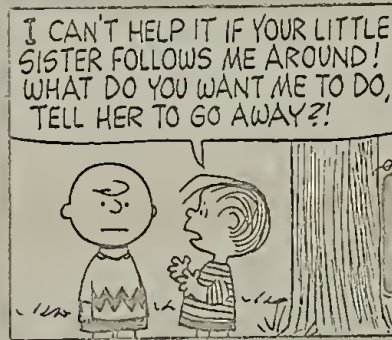


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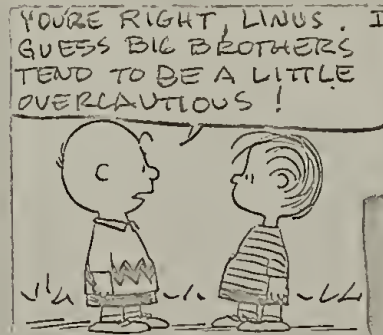


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1243

2413

2143

2413 / 3241



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2

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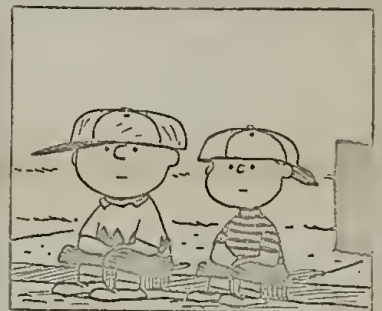


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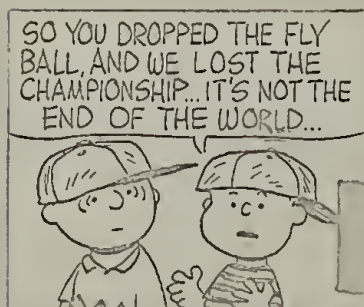
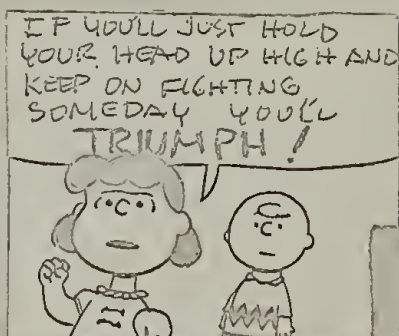


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3142

4321

APPENDIX B

Matrix of Positive and Negative Patterns
For Each Item of the HHIRS (Form A)

| | TRUST | | HOSTILITY | | GIVING | | SEDUCTION | | DOMINANCE | | GUILT | |
|------------|-------|---|-----------|---|--------|---|-----------|---|-----------|---|-------|---|
| BOY-MOTHER | - | + | - | + | + | + | - | + | - | - | - | + |
| BOY-FATHER | + | + | + | - | - | + | + | + | - | + | + | - |
| BOY-GIRL | - | + | + | + | + | - | + | + | + | - | + | + |
| BOY-BOY | + | - | + | - | + | - | + | - | + | + | + | - |

Matrix of Positive and Negative Patterns

For Each Item of the HHIRS (Form B)

| | TRUST | | HOSTILITY | | GIVING | | SEDUCTION | | DOMINANCE | | GUILT | |
|------------|-------|---|-----------|---|--------|---|-----------|---|-----------|---|-------|---|
| BOY-MOTHER | + | - | + | - | + | - | + | - | - | + | + | - |
| BOY-FATHER | - | + | - | + | + | + | - | + | + | - | + | + |
| BOY-GIRL | + | - | + | - | - | + | + | - | - | + | - | - |
| BOY-BOY | - | + | - | + | - | + | - | + | + | - | + | - |

APPENDIX C

1. How well do you know the Japanese customs? (check one)

- ☐ very well
☐ pretty well
☐ a little
☐ not at all

2. What is your cumulative average?

3. Have you ever sought professional psychological help? (check one)

- ☐ yes
☐ no

4. Are you now living in (check one)

- ☐ dormitory
☐ rented room
☐ home
☐ other (specify _____)

5. How many times do you date during a 7-day week?

6. List the first and last names of everyone you see in this room.

APPENDIX D

INSTRUCTIONS

This is a picture arrangement test. You are going to be shown some series of pictures, one series at a time. The pictures in each series have been scrambled. Before they were scrambled, they composed a complete cartoon. You are to put the pictures in their original order, thus re-creating the original cartoon. The pictures are numbered so that you can use the numbers in organizing them. I'll show some samples in a minute. You will be shown each series of pictures for 60 seconds only. During this time, you are to solve the cartoon and write your answer on the answer sheet provided.

You will notice that in some cartoons, new wording has been supplied. Such changes do not supply any special clues for solving a cartoon, so it will be to your advantage not to waste time by giving reworded cartoons extra attention.

Each cartoon has one correct solution. However, for some cartoons there may be an alternative answer which will be acceptable. Every cartoon can be solved.

Make sure each S puts his seating number on his answer sheet. This will be a check on visibility, as well as serve as identification.

Show sample and explain. Ask about visibility.

Explain answer sheet.

There must be no talking.

Start experiment.

July 1901

1901

1901

1901

1901

| | | | |
|-----|-----|-----|-----|
| 11 | 11 | 11 | 11 |
| 12 | 12 | 12 | 12 |
| 13 | 13 | 13 | 13 |
| 14 | 14 | 14 | 14 |
| 15 | 15 | 15 | 15 |
| 16 | 16 | 16 | 16 |
| 17 | 17 | 17 | 17 |
| 18 | 18 | 18 | 18 |
| 19 | 19 | 19 | 19 |
| 20 | 20 | 20 | 20 |
| 21 | 21 | 21 | 21 |
| 22 | 22 | 22 | 22 |
| 23 | 23 | 23 | 23 |
| 24 | 24 | 24 | 24 |
| 25 | 25 | 25 | 25 |
| 26 | 26 | 26 | 26 |
| 27 | 27 | 27 | 27 |
| 28 | 28 | 28 | 28 |
| 29 | 29 | 29 | 29 |
| 30 | 30 | 30 | 30 |
| 31 | 31 | 31 | 31 |
| 32 | 32 | 32 | 32 |
| 33 | 33 | 33 | 33 |
| 34 | 34 | 34 | 34 |
| 35 | 35 | 35 | 35 |
| 36 | 36 | 36 | 36 |
| 37 | 37 | 37 | 37 |
| 38 | 38 | 38 | 38 |
| 39 | 39 | 39 | 39 |
| 40 | 40 | 40 | 40 |
| 41 | 41 | 41 | 41 |
| 42 | 42 | 42 | 42 |
| 43 | 43 | 43 | 43 |
| 44 | 44 | 44 | 44 |
| 45 | 45 | 45 | 45 |
| 46 | 46 | 46 | 46 |
| 47 | 47 | 47 | 47 |
| 48 | 48 | 48 | 48 |
| 49 | 49 | 49 | 49 |
| 50 | 50 | 50 | 50 |
| 51 | 51 | 51 | 51 |
| 52 | 52 | 52 | 52 |
| 53 | 53 | 53 | 53 |
| 54 | 54 | 54 | 54 |
| 55 | 55 | 55 | 55 |
| 56 | 56 | 56 | 56 |
| 57 | 57 | 57 | 57 |
| 58 | 58 | 58 | 58 |
| 59 | 59 | 59 | 59 |
| 60 | 60 | 60 | 60 |
| 61 | 61 | 61 | 61 |
| 62 | 62 | 62 | 62 |
| 63 | 63 | 63 | 63 |
| 64 | 64 | 64 | 64 |
| 65 | 65 | 65 | 65 |
| 66 | 66 | 66 | 66 |
| 67 | 67 | 67 | 67 |
| 68 | 68 | 68 | 68 |
| 69 | 69 | 69 | 69 |
| 70 | 70 | 70 | 70 |
| 71 | 71 | 71 | 71 |
| 72 | 72 | 72 | 72 |
| 73 | 73 | 73 | 73 |
| 74 | 74 | 74 | 74 |
| 75 | 75 | 75 | 75 |
| 76 | 76 | 76 | 76 |
| 77 | 77 | 77 | 77 |
| 78 | 78 | 78 | 78 |
| 79 | 79 | 79 | 79 |
| 80 | 80 | 80 | 80 |
| 81 | 81 | 81 | 81 |
| 82 | 82 | 82 | 82 |
| 83 | 83 | 83 | 83 |
| 84 | 84 | 84 | 84 |
| 85 | 85 | 85 | 85 |
| 86 | 86 | 86 | 86 |
| 87 | 87 | 87 | 87 |
| 88 | 88 | 88 | 88 |
| 89 | 89 | 89 | 89 |
| 90 | 90 | 90 | 90 |
| 91 | 91 | 91 | 91 |
| 92 | 92 | 92 | 92 |
| 93 | 93 | 93 | 93 |
| 94 | 94 | 94 | 94 |
| 95 | 95 | 95 | 95 |
| 96 | 96 | 96 | 96 |
| 97 | 97 | 97 | 97 |
| 98 | 98 | 98 | 98 |
| 99 | 99 | 99 | 99 |
| 100 | 100 | 100 | 100 |

APPENDIX E

Matrix Showing the Correlation of Each
Item to Every Subcontent Area for Form A¹

| ITEM NUMBERS | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. | 14. | 15. | 16. | 17. | 18. | 19. | 20. | 21. | 22. | 23. | 24. |
|-----------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| T-I | .69* | .15 | .25 | .09 | -.11 | .38 | .38 | .01 | -.20 | -.12 | .31 | .31 | .54* | .25 | -.08 | .05 | .54* | .05 | -.24 | .38 | -.08 | .38 | -.31 | .13 |
| T-II | .31 | .75* | .48 | -.07 | .28 | .22 | .22 | -.45 | .04 | .04 | .25 | .14 | .15 | .57* | .02 | .31 | .02 | .14 | .22 | .22 | -.18 | .22 | -.06 | .15 |
| H-I | .18 | .23 | .71* | .05 | .04 | -.01 | .30 | -.17 | -.03 | -.03 | .30 | .30 | .35 | .23 | .30 | .20 | -.02 | .10 | .07 | -.01 | -.01 | .30 | -.02 | |
| H-II | .07 | .18 | .08 | .79* | .05 | .06 | .06 | -.05 | .29 | -.11 | -.03 | .13 | .28 | -.08 | .06 | .30 | .09 | -.08 | -.12 | .06 | .06 | .06 | -.24 | .28 |
| Gv-I | .05 | .21 | .25 | -.03 | .79* | .30 | -.23 | .33 | -.05 | .09 | .21 | .07 | .22 | -.02 | .03 | .05 | .62* | .25 | .13 | .30 | -.23 | .30 | -.02 | .06 |
| Gv-II | .31 | .20 | .31 | -.28 | .17 | .53* | .17 | .32 | -.07 | .07 | .27 | .27 | -.16 | -.00 | -.17 | .09 | .26 | .61* | .07 | .53* | .07 | .53* | .21 | .40 |
| S-I | .27 | .33 | .06 | -.11 | .14 | .11 | .40 | -.02 | .12 | -.11 | .23 | -.09 | .19 | .33 | -.19 | -.06 | -.06 | -.06 | .67* | .11 | -.19 | .11 | -.19 | .01 |
| S-II | .30 | .08 | .24 | -.14 | .26 | .41 | -.08 | .76* | -.19 | .23 | .22 | .09 | .01 | -.03 | -.08 | -.11 | .42 | .08 | -.02 | .41 | -.08 | .41 | .02 | .30 |
| D-I | .00 | -.06 | .26 | .26 | -.23 | .21 | .21 | .03 | .40 | .26 | .21 | .33 | -.17 | .04 | -.02 | -.19 | -.03 | .04 | -.16 | .21 | .67* | .21 | .07 | .11 |
| D-II | -.33 | -.01 | .01 | -.02 | -.16 | .40 | -.11 | .05 | .22 | .84* | .03 | .44 | -.20 | -.12 | .14 | -.16 | .21 | -.01 | -.24 | .40 | .65 | .40 | .04 | .26 |
| Gt-I | .03 | .22 | .21 | -.08 | .35 | .34 | -.13 | .15 | .38 | .18 | .61* | .48 | -.10 | -.10 | .11 | -.02 | .15 | .01 | .13 | .34 | .34 | .34 | .44 | .05 |
| Gt-II | .02 | .38 | .33 | -.06 | -.09 | .71* | -.11 | .09 | .13 | .45 | .35 | .79* | -.03 | -.33 | -.11 | .04 | .43 | .02 | -.22 | .71* | .44 | .71* | .33 | .63* |

The correlation coefficients appearing in India Ink are between items and the subcontent area to which those items belong. These are inflated correlations.

* A significant value, a value of .54 being needed for significance at the .05 level, df = 23.

** An important unpredicted significant correlation. A value of .40 is needed for significance at the .05 level, df = 23.

¹ The correlations computed here are Pearson Product Moment correlations. Such correlations were used instead of the more appropriate biserial correlation for simplicity in programming the CDC 3600. The values presented are underestimates of the true values.

(cont)

| ITEM NUMBERS | 25. | 26. | 27. | 28. | 29. | 30. | 31. | 32. | 33. | 34. | 35. | 36. | 37. | 38. | 39. | 40. | 41. | 42. | 43. | 44. | 45. | 46. | 47. | 48. |
|-----------------|------|-----|------|------|------|------|-----|------|------|------|------|-----|------|------|------|-----|------|------|------|------|------|------|------|------|
| T-I | .65* | .00 | -.08 | .31 | .05 | .31 | .00 | .30 | .15 | -.08 | -.33 | .00 | .38 | .35 | .19 | .00 | -.08 | -.12 | .36 | -.29 | .09 | -.15 | .35 | -.01 |
| T-II | .13 | .00 | -.18 | .14 | -.27 | .57* | .00 | .39 | .02 | -.18 | .00 | .00 | .22 | .88* | .04 | .00 | .02 | -.23 | .53 | .15 | -.05 | -.33 | -.04 | -.09 |
| H-I | .04 | .00 | .30 | -.19 | .20 | .14 | .00 | .36 | -.07 | -.01 | .18 | .00 | -.01 | .21 | .53* | .00 | -.01 | .11 | -.03 | .16 | .25 | -.39 | -.17 | -.02 |
| H-II | .33 | .00 | -.24 | .60* | .09 | -.03 | .00 | .03 | .12 | .06 | .07 | .00 | .06 | .22 | .03 | .00 | -.24 | .03 | .00 | -.25 | .03 | -.07 | .31 | -.07 |
| Gv-I | -.10 | .00 | .03 | .07 | .62* | .21 | .00 | .22 | -.13 | -.23 | .06 | .00 | .30 | .01 | -.16 | .00 | .39 | .33 | -.05 | .38 | -.16 | -.26 | .33 | -.10 |
| Gv-II | -.10 | .00 | .30 | .27 | -.07 | .64* | .00 | .36 | .02 | .07 | -.03 | .00 | .53* | .34 | -.14 | .00 | .07 | .61* | .16 | .26 | .07 | -.16 | .20 | .26 |
| S-I | -.20 | .00 | .11 | .07 | -.06 | .39 | .00 | .09 | .05 | -.19 | .20 | .00 | .11 | .52 | .16 | .00 | -.19 | -.11 | .70* | .19 | .02 | .01 | -.06 | -.17 |
| S-II | -.29 | .00 | .17 | .09 | .42 | .22 | .00 | .69* | .22 | -.08 | .08 | .00 | .41 | .01 | -.10 | .00 | .17 | .68* | .28 | .46* | .12 | -.14 | .19 | .01 |
| D-I | .06 | .00 | -.02 | .21 | -.03 | -.16 | .00 | .16 | .62* | .67* | .18 | .00 | .21 | -.07 | -.16 | .00 | -.25 | .05 | .18 | -.17 | .69* | .38 | .24 | .52 |
| D-II | .23 | .00 | -.11 | .03 | -.16 | .03 | .00 | .10 | .24 | .65* | -.07 | .00 | .40 | -.10 | -.31 | .00 | .14 | .04 | .22 | -.05 | .27 | .72* | .43* | .56 |
| Gt-I | -.22 | .00 | .34 | .23 | -.02 | .10 | .00 | .16 | .06 | .34 | .54* | .00 | .34 | -.00 | -.04 | .00 | .11 | .40 | .02 | .05 | .18 | -.1- | .32 | .48 |
| Gt-II | .10 | .00 | -.11 | .35 | -.16 | .35 | .00 | .09 | .11 | .44 | -.13 | .00 | .71* | .16 | -.05 | .00 | -.11 | .20 | .13 | -.20 | .45 | .13 | .38 | .79* |

The correlation coefficients appearing in India Ink are between items and the subcontent area to which those items belong. These are inflated correlations.

*

A significant value, a value of .54 being needed for significance at the .05 level, df = 23.

**

An important unpredicted significant correlation. A value of .40 is needed for significance at the .05 level, df = 23.

1

The correlations computed here are Pearson Product Moment Correlations. Such correlations were used instead of the more appropriate biserial correlation for simplicity in programming the CDC 3600. The values presented are underestimates of the true values.

Matrix Showing the Correlation of Each
Item to Every Subcontent Area for Form B1

| ITEM NUMBERS | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. | 14. | 15. | 16. | 17. | 18. | 19. | 20. | 21. | 22. | 23. | 24. |
|-----------------|------------------|------------------|-------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| T-I | .60 [*] | .20 | -.40 | .28 | .29 | .30 | .16 | -.08 | .08 | .32 | .06 | -.04 | .70 [*] | -.21 | .05 | .10 | .13 | .32 | .22 | .44 | .32 | .28 | .44 | -.19 |
| T-II | .30 | .60 [*] | -.49 [*] | .05 | .09 | .13 | -.07 | -.08 | -.11 | .19 | -.19 | -.04 | .30 | .47 [*] | -.32 | .29 | .13 | -.06 | .12 | .21 | .07 | -.10 | .21 | -.19 |
| H-I | .15 | -.17 | .62 [*] | .32 | -.20 | -.01 | -.06 | -.01 | .14 | -.01 | .11 | .13 | -.01 | -.14 | .66 [*] | -.07 | -.13 | .30 | .03 | .09 | .09 | -.05 | .09 | -.01 |
| H-II | .46 [*] | .36 | -.06 | .59 [*] | .21 | .28 | .59 [*] | -.21 | .04 | .17 | .20 | -.05 | .36 | .11 | -.27 | .61 [*] | .27 | .42 | .19 | .66 [*] | .29 | .34 | .66 | -.08 |
| Gv-I | .35 | .09 | -.26 | -.16 | .62 [*] | .26 | .34 | .31 | .23 | .06 | .16 | .26 | .44 | -.04 | .05 | .17 | .68 [*] | .28 | -.17 | .39 | -.16 | .33 | .39 | -.16 |
| Gv-II | .36 | .09 | -.24 | .38 | .20 | .66 [*] | .06 | -.13 | -.07 | -.06 | .06 | -.27 | .18 | .04 | -.22 | -.27 | -.04 | .51 [*] | .36 | .67 [*] | .28 | .53 [*] | .67 [*] | -.06 |
| S-I | .16 | .08 | -.24 | .41 | .32 | .38 | .60 [*] | -.06 | .29 | .26 | .05 | -.17 | .64 [*] | -.31 | .12 | .08 | .11 | .56 | .60 [*] | .55 [*] | .26 | .38 | .55 [*] | .05 |
| S-II | .34 | -.05 | .04 | -.09 | -.01 | .14 | .12 | .10 [*] | .58 [*] | -.27 | -.21 | .47 [*] | .15 | -.18 | .11 | .05 | .42 | .21 | .01 | .33 | -.03 | -.10 | .33 | -.27 |
| D-I | .33 | .41 | -.18 | .07 | .06 | .35 | .26 | .05 | .66 [*] | .31 | .40 | .07 | .33 | -.20 | .16 | .07 | -.16 | .21 | .36 | .53 [*] | .51 [*] | -.01 | .53 [*] | .00 |
| D-II | .27 | .27 | -.34 | .00 | .13 | .39 | .25 | -.27 | .14 | .58 [*] | .33 | .02 | .41 | -.22 | .08 | -.06 | .05 | .13 | .31 | .27 | .13 | .58 [*] | .27 | .31 |
| Gt-I | .15 | .35 | -.02 | .41 | .24 | .42 | .53 [*] | -.44 | .08 | .09 | .43 | -.11 | .05 | -.11 | -.27 | .16 | -.11 | .36 | .19 | .65 [*] | .22 | .31 | .65 [*] | .22 |
| Gt-II | -.16 | -.04 | .20 | .19 | -.19 | .43 | .46 | -.07 | .42 | .05 | .10 | .23 | .07 | -.17 | -.00 | .04 | .00 | .19 | .19 | .30 | .05 | -.03 | .30 | .63 [*] |

The correlation coefficients appearing in India Ink are between items and the subcontent area to which those items belong.
These are inflated correlations.

*

A significant value, a value of .54 being needed for significance at the .05 level, df = 23.

**

An important unpredicted significant correlation. A value of .40 is needed for significance at the .05 level, df = 23.

1

The correlations computed here are Pearson Product Moment Correlations. Such correlations were used instead of the more appropriate biserial correlation for simplicity in programming the CDC 3600. The values presented here are underestimates of the true values.

(cont.)

ITEM

| NUMBERS | 25. | 26. | 27. | 28. | 29. | 30. | 31. | 32. | 33. | 34. | 35. | 36. | 37. | 38. | 39. | 40. | 41. | 42. | 43. | 44. | 45. | 46. | 47. | 48. |
|---------|------------------|------------------|-------------------|-------------------|-------------------|------------------|-------------------|-----|------------------|------------------|------------------|-------------------|------|------|------------------|------------------|------|-------------------|------------------|-----|-------------------|------------------|------------------|------------------|
| T-I | .45 ⁺ | .59 | .52 ⁺⁺ | .44 | .16 | .17 | .57 ⁺⁺ | .00 | .14 | .09 | .13 | .44 | .13 | -.04 | .04 | .36 | .39 | .25 | .36 | .00 | .28 | .13 | -.01 | -.08 |
| T-II | -.02 | .78 ⁺ | .09 | .21 | -.19 | .36 | .03 | .00 | .14 | .09 | -.04 | .21 | .13 | .30 | .13 | .36 | -.20 | .03 | .26 | .00 | .05 | -.14 | -.01 | -.17 |
| H-I | -.09 | -.34 | .51 ⁺ | .09 | .51 ⁺⁺ | -.09 | .09 | .00 | -.02 | .10 | .13 | .09 | -.01 | .13 | .62 ⁺ | -.19 | -.07 | .25 | -.02 | .00 | .41 | .24 | -.05 | .02 |
| H-II | -.06 | .33 | .49 | .66 ⁺ | .36 | .04 | .32 | .00 | .19 | .15 | .62 | .66 ⁺⁺ | .11 | -.05 | .08 | .54 ⁺ | -.17 | .22 | .22 | .00 | .25 | -.01 | .24 | .15 |
| Gv-I | .15 | .01 | .45 | .39 | .54 ⁺ | .07 | .50 | .00 | .05 | .08 | .11 | .39 | -.18 | -.33 | -.05 | .40 | .43 | .12 | -.10 | .00 | .14 | .28 | -.09 | -.15 |
| Gv-II | .27 | .26 | .69 ⁺⁺ | .67 ⁺ | .38 | .62 ⁺ | .27 | .00 | .21 | .36 | .50 | .67 ⁺⁺ | .12 | .04 | .38 | .37 | .09 | .66 ⁺ | .36 | .00 | .59 ⁺⁺ | .13 | .09 | -.19 |
| S-I | -.02 | .40 | .30 | .55 | .13 | -.02 | .64 ⁺ | .00 | .27 | .23 | .52 | .55 ⁺⁺ | .38 | -.03 | -.04 | .37 | -.08 | .29 | .60 ⁺ | .00 | .22 | .11 | .15 | .24 |
| S-II | -.15 | .10 | .04 | .33 | .36 | .04 | .07 | .00 | .11 | .09 | .14 | .33 | -.18 | .14 | -.11 | .07 | .24 | .07 | .22 | .00 | -.09 | -.11 | -.28 | -.04 |
| D-I | .12 | .01 | .38 | .53 | .36 | -.11 | .14 | .00 | .68 ⁺ | .46 | .35 | .53 ⁺⁺ | .34 | -.34 | .29 | .22 | .07 | .57 ⁺⁺ | .28 | .00 | .54 ⁺ | .29 | .14 | .18 |
| D-II | -.14 | .04 | .49 | .27 | .33 | .00 | .36 | .00 | .21 | .65 ⁺ | .15 | .27 | .02 | -.34 | .19 | .44 | .16 | .52 | .00 | .00 | .50 ⁺⁺ | .79 ⁺ | .03 | .12 |
| Gt-I | .18 | -.21 | .45 | .65 ⁺⁺ | .29 | -.02 | .12 | .00 | .49 | .11 | .77 ⁺ | .65 ⁺⁺ | .11 | -.29 | .18 | .35 | -.05 | .35 | .18 | .00 | .41 | .18 | .71 ⁺ | .12 |
| Gt-II | .13 | -.19 | -.13 | .30 | .05 | -.35 | .06 | .00 | .21 | .42 | .43 | .30 | .03 | -.17 | .00 | -.07 | .16 | -.19 | -.13 | .00 | -.08 | .33 | .19 | .79 ⁺ |

The correlation coefficients appearing in India Ink are between items and the subcontent areas to which those items belong. These are inflated correlations.

*

A significant value, a value of .54 being needed for significance at the .05 level, df = 23.

**

An important unpredicted significant correlation. A value of .40 is needed for significance at the .05 level, df = 23.

1

The correlations computed here are Pearson Product Moment Correlations. Such correlations were used instead of the more appropriate biserial correlation for simplicity in programming the CDC 3600. The values presented here are underestimates of the true values.

APPENDIX F

Matrix Showing the Correlation of
Each Item in Form A to Every Other
Item in Form A^{1,2}

| ITEM # | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. | 14. | 15. | 16. |
|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1. | 1.00 | .11 | .24 | -.12 | -.03 | .21 | .21 | .20 | -.08 | -.35 | .45 | .02 | .14 | .29 | -.20 | -.28 |
| 2. | .11 | 1.00 | .39 | -.17 | .43 | .33 | -.13 | -.24 | .13 | .07 | .46 | .46 | .04 | .01 | -.13 | .47 |
| 3. | .24 | .39 | 1.00 | -.01 | .15 | .13 | .13 | -.15 | .09 | .14 | .27 | .27 | .23 | .39 | .13 | .18 |
| 4. | -.12 | -.17 | -.01 | 1.00 | -.09 | -.23 | .18 | -.08 | .24 | -.07 | -.27 | -.05 | .33 | .01 | .18 | -.04 |
| 5. | -.03 | .43 | .15 | -.09 | 1.00 | .14 | -.30 | .10 | .13 | -.02 | .30 | .07 | -.01 | .05 | .14 | .20 |
| 6. | .21 | .33 | .13 | -.23 | .14 | 1.00 | -.04 | .30 | -.10 | .36 | .47 | .47 | -.08 | -.13 | -.04 | -.06 |
| 7. | .21 | -.13 | .13 | .18 | -.30 | -.04 | 1.00 | -.14 | -.10 | -.11 | -.09 | -.09 | .55 | .33 | -.04 | -.06 |
| 8. | .20 | -.24 | -.15 | -.08 | .10 | .30 | -.14 | 1.00 | -.13 | .02 | .17 | -.07 | .01 | -.43 | -.14 | -.20 |
| 9. | -.08 | .13 | .09 | .24 | .13 | -.10 | -.10 | -.13 | 1.00 | .19 | .33 | .05 | -.18 | -.09 | -.10 | -.15 |
| 10. | -.35 | .07 | .14 | -.07 | -.02 | .36 | -.11 | .02 | .19 | 1.00 | .01 | .27 | -.21 | .07 | .36 | -.17 |
| 11. | .45 | .46 | .27 | -.27 | .30 | .47 | -.09 | .17 | .33 | .01 | 1.00 | .40 | -.16 | -.03 | -.09 | -.13 |
| 12. | .02 | .46 | .27 | -.05 | .07 | .47 | -.09 | -.07 | .05 | .27 | .40 | 1.00 | .17 | -.27 | -.09 | .27 |
| 13. | .14 | .04 | .23 | .33 | -.01 | -.08 | .55 | .01 | -.18 | -.21 | -.16 | .17 | 1.00 | .04 | -.08 | .34 |
| 14. | .29 | .01 | .39 | .01 | .05 | -.13 | .33 | -.43 | -.09 | .07 | -.03 | -.27 | .04 | 1.00 | .33 | -.18 |
| 15. | -.20 | -.13 | .13 | .18 | .14 | -.04 | -.04 | -.14 | -.10 | .36 | -.09 | -.09 | -.08 | .33 | 1.00 | -.06 |
| 16. | -.28 | .47 | .18 | -.04 | .20 | -.06 | -.06 | -.20 | -.15 | -.17 | -.13 | .27 | .34 | -.18 | -.06 | 1.00 |

The correlations computed here are Pearson Product Moment Correlations. Such correlations were used instead of the more appropriate tetrachoric correlation for simplicity in programming the CDC 3600. The values presented here are underestimates of the true values.

²A value of .40 is needed for significance at the .05 level, df = 23.

| ITEM # | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. | 14. | 15. | 16. |
|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 17. | .31 | .14 | .18 | -.04 | .20 | .69 | -.06 | .43 | -.15 | .18 | .27 | .27 | .34 | -.18 | -.06 | -.09 |
| 18. | .29 | .01 | .10 | -.17 | -.15 | -.13 | -.13 | -.05 | .13 | -.14 | -.03 | -.03 | -.23 | .01 | -.13 | .14 |
| 19. | .03 | .33 | -.04 | -.10 | .39 | -.17 | -.17 | -.04 | .20 | -.27 | .09 | -.13 | -.05 | .04 | -.17 | .06 |
| 20. | .21 | .33 | .13 | -.23 | .14 | 1.00 | -.04 | .30 | -.10 | .36 | .47 | .47 | -.08 | -.13 | -.04 | -.06 |
| 21. | -.30 | -.13 | .13 | .18 | -.30 | -.04 | -.04 | -.04 | -.14 | .41 | .36 | -.09 | .47 | -.08 | -.13 | -.06 |
| 22. | .21 | .33 | .13 | -.23 | .14 | 1.00 | -.04 | .30 | -.10 | .36 | .47 | .47 | -.08 | -.13 | -.04 | -.06 |
| 23. | -.20 | .15 | .04 | -.23 | .14 | .17 | -.35 | .04 | .00 | .08 | .13 | .36 | -.20 | -.40 | .17 | .24 |
| 24. | .14 | .32 | .23 | .08 | -.01 | .55 | -.08 | .27 | .12 | .37 | .17 | .17 | -.14 | -.23 | -.08 | -.11 |
| 25. | .06 | -.01 | .01 | .17 | -.24 | .13 | .13 | -.34 | -.13 | .14 | .03 | .27 | .23 | .19 | .13 | .18 |
| 26. | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 27. | .21 | -.13 | .13 | -.23 | .14 | -.04 | -.04 | .30 | .41 | -.11 | .47 | -.09 | -.08 | -.13 | -.04 | -.06 |
| 28. | .24 | .21 | .03 | .17 | .07 | .47 | -.09 | .17 | .33 | .01 | .40 | .11 | -.16 | -.03 | -.09 | -.13 |
| 29. | .01 | -.18 | .18 | .26 | .20 | -.06 | -.06 | .43 | -.15 | -.17 | -.13 | -.13 | .34 | -.18 | -.06 | -.09 |
| 30. | .24 | .46 | .27 | -.27 | .30 | .47 | -.09 | -.07 | -.22 | .01 | .11 | .40 | .17 | .21 | -.09 | .27 |
| 31. | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 32. | .42 | .37 | .46 | .05 | .17 | .09 | .09 | .30 | -.05 | .25 | .19 | .19 | .16 | .27 | .09 | .13 |

(cont)

| ITEM # | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. | 14. | 15. | 16. |
|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 33. | .13 | -.04 | .04 | .10 | -.04 | .17 | .17 | .21 | -.20 | .08 | .13 | .13 | -.20 | .15 | .17 | -.06 |
| 34. | -.20 | -.13 | .13 | .18 | -.20 | -.04 | -.04 | -.14 | .41 | .36 | -.09 | .47 | -.08 | -.13 | -.04 | -.06 |
| 35. | -.20 | -.11 | .11 | .12 | .20 | -.21 | .20 | -.03 | .28 | -.02 | -.02 | -.02 | .11 | .23 | .20 | -.01 |
| 36. | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 37. | .21 | .33 | .12 | -.23 | .14 | 1.00 | -.04 | .30 | -.10 | .36 | .47 | .47 | -.08 | -.13 | -.04 | -.06 |
| 38. | .28 | .65 | .28 | -.01 | .16 | .27 | .27 | -.34 | .04 | -.03 | .13 | .13 | .24 | .27 | -.15 | .39 |
| 39. | .02 | .07 | -.07 | .12 | -.22 | -.11 | .36 | -.18 | -.28 | -.32 | .01 | .27 | .37 | -.14 | -.11 | .18 |
| 40. | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 41. | -.20 | -.13 | .13 | -.23 | .14 | -.04 | -.04 | -.14 | -.10 | .36 | -.09 | -.09 | -.08 | .33 | -.04 | -.06 |
| 42. | .02 | -.14 | .14 | -.07 | .18 | .36 | -.11 | .62 | -.05 | .12 | .27 | .01 | -.21 | -.14 | -.11 | -.17 |
| 43. | .32 | .36 | .09 | -.16 | -.09 | .41 | .41 | .09 | .00 | .19 | .33 | .05 | .12 | .36 | -.10 | -.15 |
| 44. | -.11 | .04 | .23 | -.17 | .25 | -.08 | -.08 | .01 | -.18 | .08 | -.16 | -.16 | -.14 | .32 | -.08 | -.11 |
| 45. | .02 | -.14 | .35 | .12 | -.42 | .36 | .36 | .02 | -.05 | .12 | .01 | .27 | .08 | .07 | -.11 | -.17 |
| 46. | -.35 | -.23 | -.32 | .08 | -.27 | -.08 | -.08 | .01 | .12 | .37 | -.16 | .17 | -.14 | -.23 | -.08 | -.11 |
| 47. | .11 | .01 | .19 | .19 | .05 | .33 | -.13 | .15 | .13 | .28 | .21 | .21 | .04 | .01 | -.13 | -.18 |
| 48. | -.11 | .04 | .23 | -.17 | -.27 | .55 | -.08 | .01 | .12 | .37 | .17 | .51 | -.14 | -.23 | -.08 | -.11 |

| ITEM #17. | 18. | 19. | 20. | 21. | 22. | 23. | 24. | 25. | 26. | 27. | 28. | 29. | 30. | 31. | 32. |
|-----------|------|------|------|------|------|------|------|------|-----|------|------|------|------|-----|------|
| 1. | .31 | .29 | .03 | .21 | -.20 | .21 | .14 | .06 | .00 | .21 | .24 | .01 | .24 | .00 | .42 |
| 2. | .14 | .01 | .22 | .33 | -.13 | .33 | .32 | -.01 | .00 | -.13 | .21 | -.18 | .46 | .00 | .27 |
| 3. | .13 | .19 | -.04 | .13 | .13 | .04 | .23 | .01 | .00 | .13 | .03 | .18 | .27 | .00 | .46 |
| 4. | -.04 | -.17 | -.10 | -.23 | .18 | -.23 | .08 | .17 | .00 | -.23 | .17 | .26 | -.27 | .00 | .05 |
| 5. | .20 | -.15 | .39 | .14 | -.30 | .14 | -.01 | -.24 | .00 | .14 | .07 | .20 | .30 | .00 | .17 |
| 6. | .69 | -.13 | -.17 | 1.00 | -.04 | 1.00 | .55 | .13 | .00 | -.04 | .47 | -.06 | .47 | .00 | .09 |
| 7. | -.06 | -.13 | -.17 | -.04 | -.04 | -.04 | -.08 | .13 | .00 | -.04 | -.09 | -.06 | -.09 | .00 | .09 |
| 8. | .43 | -.05 | -.04 | .30 | -.14 | .30 | .27 | -.34 | .00 | .30 | .17 | .43 | -.07 | .00 | .30 |
| 9. | -.15 | .13 | .20 | -.10 | .41 | -.10 | .12 | -.13 | .00 | .41 | .33 | -.15 | -.22 | .00 | -.05 |
| 10. | .27 | -.03 | .09 | .47 | .36 | .36 | .37 | .14 | .00 | -.11 | .01 | -.17 | .01 | .00 | .25 |
| 11. | .27 | -.03 | .09 | .47 | -.09 | .47 | .17 | .03 | .00 | .47 | .40 | -.13 | .11 | .00 | .19 |
| 12. | .27 | -.03 | -.13 | .47 | .47 | .47 | .17 | .27 | .00 | -.09 | -.11 | -.13 | .40 | .00 | .19 |
| 13. | .34 | -.23 | -.05 | -.08 | -.08 | -.08 | -.14 | .23 | .00 | -.08 | -.16 | .34 | .17 | .00 | .16 |
| 14. | -.18 | .01 | .04 | -.13 | -.13 | -.13 | -.23 | .19 | .00 | -.13 | -.03 | -.18 | .21 | .00 | .27 |
| 15. | -.06 | -.13 | -.17 | -.04 | -.04 | -.04 | -.08 | .13 | .00 | -.04 | -.09 | -.06 | -.09 | .00 | .09 |
| 16. | -.09 | .14 | .06 | -.06 | -.06 | -.06 | -.11 | .18 | .00 | -.06 | -.13 | -.09 | .27 | .00 | .13 |

(cont)

| ITEM # | 17. | 18. | 19. | 20. | 21. | 22. | 23. | 24. | 25. | 26. | 27. | 28. | 29. | 30. | 31. | 32. |
|--------|------|------|------|------|------|------|------|------|------|-----|------|------|------|------|-----|------|
| 17. | 1.00 | -.18 | -.24 | .69 | -.06 | .69 | -.06 | .34 | .18 | .00 | -.06 | .27 | .46 | .27 | .00 | .13 |
| 18. | -.18 | 1.00 | .04 | -.13 | .33 | -.13 | .15 | .04 | -.01 | .00 | .33 | -.03 | -.18 | .32 | .00 | .27 |
| 19. | -.24 | .04 | 1.00 | -.17 | -.17 | -.17 | .17 | -.05 | -.40 | .00 | .25 | -.13 | .06 | .31 | .00 | -.09 |
| 20. | .69 | -.13 | -.17 | 1.00 | -.04 | 1.00 | .17 | .55 | .13 | .00 | 0.04 | .47 | -.06 | .47 | .00 | .09 |
| 21. | -.06 | .33 | -.17 | -.04 | 1.00 | -.04 | .17 | -.08 | .13 | .00 | -.04 | .47 | -.06 | -.09 | .00 | .09 |
| 22. | .69 | -.13 | -.17 | 1.00 | -.04 | 1.00 | .17 | .55 | .13 | .00 | -.04 | .47 | -.06 | .47 | .00 | .09 |
| 23. | -.06 | .15 | .17 | .17 | .17 | .17 | 1.00 | .05 | -.43 | .00 | -.08 | .51 | -.11 | .17 | .00 | .09 |
| 24. | .34 | .04 | -.05 | .55 | -.08 | .55 | .05 | 1.00 | -.04 | .00 | -.08 | .51 | -.11 | .17 | .00 | .16 |
| 25. | .18 | -.01 | -.40 | .13 | .13 | .13 | -.33 | -.04 | 1.00 | .00 | -.33 | .27 | -.13 | .03 | .00 | -.03 |
| 26. | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 27. | -.06 | .33 | .25 | -.04 | -.04 | -.04 | .17 | -.08 | -.33 | .00 | 1.00 | -.09 | -.06 | -.09 | .00 | -.11 |
| 28. | .27 | -.03 | -.13 | .47 | -.09 | .47 | -.31 | .51 | .27 | .00 | -.09 | 1.00 | -.13 | .11 | .00 | .13 |
| 29. | .46 | -.18 | .06 | -.06 | -.06 | -.06 | -.06 | -.11 | -.14 | .00 | -.06 | -.13 | 1.00 | -.13 | .00 | .19 |
| 30. | .27 | .21 | .31 | .47 | -.09 | .47 | .13 | .17 | .03 | .00 | -.09 | .11 | -.13 | 1.00 | .00 | .00 |
| 31. | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 1.00 |
| 32. | .13 | .27 | -.09 | .09 | .09 | .09 | .09 | .16 | -.08 | .00 | .09 | -.11 | .13 | .19 | .00 | .31 |

(cont)

| ITEM #17. | 18. | 19. | 20. | 21. | 22. | 23. | 24. | 25. | 26. | 27. | 28. | 29. | 30. | 31. | 32. |
|-----------|------|------|------|------|------|------|------|------|-----|------|------|------|------|-----|------|
| 33. | -.06 | -.04 | -.17 | .17 | .17 | .00 | .05 | .22 | .00 | -.25 | .13 | -.06 | -.09 | .00 | .31 |
| 34. | -.06 | .33 | -.17 | -.04 | 1.00 | -.04 | -.08 | .13 | .00 | -.04 | -.09 | -.06 | 0.09 | .00 | .09 |
| 35. | -.31 | -.11 | .13 | -.21 | .20 | .03 | -.38 | -.42 | .00 | .20 | -.02 | -.01 | -.02 | .00 | .02 |
| 36. | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 37. | .69 | -.13 | -.17 | 1.00 | -.04 | .17 | .55 | .13 | .00 | -.04 | .47 | -.06 | .47 | .00 | .09 |
| 38. | -.09 | .24 | .27 | -.24 | -.15 | .10 | .24 | .10 | .00 | -.15 | .13 | -.22 | .58 | .00 | .33 |
| 39. | -.17 | -.14 | .11 | -.11 | -.11 | .27 | -.21 | .14 | .00 | -.11 | -.25 | .18 | .01 | .00 | -.01 |
| 40. | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 41 | -.06 | -.13 | -.17 | -.04 | -.04 | -.25 | -.08 | .13 | .00 | -.04 | -.09 | -.06 | -.09 | .00 | .09 |
| 42. | .18 | .07 | -.08 | .36 | -.11 | .36 | .37 | -.28 | .00 | .36 | .27 | .18 | .01 | .00 | .25 |
| 43. | .22 | -.09 | .00 | .41 | -.10 | .41 | .12 | .09 | .00 | -.10 | .33 | -.15 | .33 | .00 | .22 |
| 44. | -.11 | .04 | .20 | -.08 | -.08 | -.20 | -.14 | -.32 | .00 | -.08 | -.16 | .34 | .17 | .00 | .16 |
| 45. | .18 | -.14 | .27 | .36 | .36 | .08 | .08 | -.07 | .00 | -.11 | .01 | .18 | .01 | .00 | -.01 |
| 46. | -.11 | .04 | -.05 | -.08 | .55 | -.20 | -.14 | .23 | .00 | -.08 | -.16 | -.11 | -.16 | .00 | -.17 |
| 47. | .47 | .01 | -.15 | .33 | .33 | -.40 | .32 | .39 | .00 | -.13 | .46 | .14 | -.03 | .00 | .03 |
| 48. | .34 | .04 | -.30 | .55 | .55 | .30 | .24 | -.04 | .00 | -.08 | .17 | -.11 | .17 | .00 | -.17 |

| ITEM #33. | 34. | 35. | 36. | 37. | 38. | 39. | 40. | 41. | 42. | 43. | 44. | 45. | 46. | 47. | 48. |
|-----------|------|------|-----|------|------|------|-----|------|------|------|------|------|------|------|------|
| 1. | .13 | -.20 | .00 | .21 | .28 | .02 | .00 | -.20 | .02 | .32 | -.11 | .02 | -.35 | .11 | -.11 |
| 2. | -.04 | -.13 | .00 | .33 | .65 | .07 | .00 | -.13 | -.14 | .36 | .04 | -.14 | -.23 | .01 | .04 |
| 3. | .04 | .13 | .00 | .13 | .28 | -.07 | .00 | .13 | .14 | .09 | .23 | .35 | -.32 | .19 | .23 |
| 4. | .10 | .18 | .00 | -.23 | -.01 | .12 | .00 | -.23 | -.07 | -.16 | -.17 | .12 | .08 | -.17 | .19 |
| 5. | -.04 | -.30 | .00 | .14 | .16 | -.22 | .00 | .14 | .18 | -.08 | .25 | -.42 | -.27 | .05 | -.27 |
| 6. | .17 | -.04 | .00 | 1.00 | .27 | -.11 | .00 | -.04 | .36 | .41 | -.08 | .36 | -.08 | .33 | .55 |
| 7. | .17 | -.04 | .00 | -.04 | .27 | .36 | .00 | -.04 | -.11 | .41 | -.08 | .36 | -.08 | -.13 | -.08 |
| 8. | .21 | -.14 | .00 | .30 | -.34 | -.18 | .00 | -.14 | .62 | .09 | .01 | .02 | .01 | .15 | .01 |
| 9. | -.20 | .41 | .00 | -.10 | .04 | -.28 | .00 | -.10 | -.05 | .00 | -.18 | -.05 | .12 | .13 | .12 |
| 10. | .08 | .36 | .00 | .36 | -.03 | -.32 | .00 | .36 | .12 | .19 | .08 | .12 | .37 | .28 | .37 |
| 11. | .13 | -.09 | .00 | .47 | .13 | .01 | .00 | -.09 | .27 | .33 | -.16 | .01 | -.16 | .21 | .17 |
| 12. | .13 | .47 | .00 | .47 | .13 | .27 | .00 | -.09 | .01 | .05 | -.16 | .27 | .17 | .21 | .51 |
| 13. | -.20 | -.08 | .00 | -.08 | .24 | .37 | .00 | -.08 | -.21 | .12 | -.14 | .08 | -.14 | .04 | -.14 |
| 14. | .15 | -.13 | .00 | -.13 | .27 | -.14 | .00 | .33 | -.14 | .35 | .32 | .07 | -.23 | .01 | -.23 |
| 15. | .17 | -.04 | .00 | -.04 | -.15 | -.11 | .00 | -.06 | -.17 | -.15 | -.11 | -.17 | -.11 | -.18 | -.11 |
| 16. | -.06 | -.06 | .00 | -.06 | .39 | .18 | .00 | -.06 | .18 | .22 | -.11 | .18 | -.11 | .47 | .34 |

(cont)

| ITEM | #33. | 34. | 35. | 36. | 37. | 38. | 39. | 40. | 41. | 42. | 43. | 44. | 45. | 46. | 47. | 48. |
|------|------|------|------|-----|------|------|------|-----|------|------|------|------|------|------|------|------|
| 17. | -.06 | -.06 | -.31 | .00 | .69 | .09 | -.17 | .00 | -.06 | .18 | .22 | -.11 | .18 | -.11 | .47 | .34 |
| 18. | -.04 | .33 | 0.11 | .00 | -.13 | .27 | -.14 | .00 | -.13 | .07 | -.09 | .04 | -.14 | .04 | .01 | .04 |
| 19. | -.17 | -.17 | .13 | .00 | -.17 | .24 | .11 | .00 | -.17 | -.08 | .00 | .20 | -.27 | -.05 | -.15 | -.30 |
| 20. | .17 | -.04 | -.21 | .00 | 1.00 | .27 | -.11 | .00 | -.04 | .36 | .41 | -.08 | .36 | -.08 | .33 | .55 |
| 21. | .17 | 1.00 | .20 | .00 | -.04 | -.15 | -.11 | .00 | -.04 | -.11 | -.10 | -.08 | .36 | .55 | .33 | .55 |
| 22. | .17 | -.04 | -.21 | .00 | 1.00 | .27 | -.11 | .00 | -.04 | -.11 | -.10 | -.08 | .36 | -.08 | .33 | .55 |
| 23. | .00 | .17 | .03 | .00 | .17 | .10 | .27 | .00 | -.25 | .08 | -.41 | -.20 | .08 | -.20 | -.40 | .30 |
| 24. | .05 | -.08 | -.38 | .00 | .55 | .24 | -.21 | .00 | -.08 | .37 | .12 | -.14 | .08 | .20 | .32 | .24 |
| 25. | .22 | .13 | -.42 | .00 | .13 | .10 | .14 | .00 | .13 | -.28 | .09 | -.32 | -.07 | .23 | .39 | -.04 |
| 26. | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 27. | -.25 | -.04 | .20 | .00 | -.04 | -.15 | -.11 | .00 | -.04 | .36 | -.10 | -.08 | -.11 | -.08 | -.13 | -.08 |
| 28. | .13 | -.09 | -.02 | .00 | .47 | .13 | -.25 | .00 | -.09 | .27 | .33 | -.16 | .01 | -.16 | .46 | .17 |
| 29. | -.06 | -.06 | -.01 | .00 | -.06 | -.22 | .18 | .00 | -.06 | .18 | -.15 | .34 | .18 | -.11 | .14 | -.11 |
| 30. | -.09 | -.09 | -.02 | .00 | .47 | .58 | .01 | .00 | -.09 | .01 | .33 | .17 | .01 | -.16 | -.03 | .17 |
| 31. | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 32. | .31 | .09 | .02 | .00 | .09 | .33 | -.01 | .00 | .09 | .25 | .33 | .16 | -.01 | .30 | .15 | .05 |

| ITEM # | 33. | 34. | 35. | 36. | 37. | 38. | 39. | 40. | 41. | 42. | 43. | 44. | 45. | 46. | 47. | 48. |
|--------|------|--------|------|-----|------|------|------|-----|------|------|------|------|------|------|------|------|
| 33. | 1.00 | .17... | -.13 | .00 | .17 | -.07 | -.11 | .00 | -.25 | .08 | .20 | -.20 | .27 | .30 | .15 | .05 |
| 34. | .17 | 1.00 | .20 | .00 | -.04 | -.15 | -.11 | .00 | -.04 | .11 | -.10 | -.08 | .36 | .55 | .33 | .55 |
| 35. | -.13 | .20 | 1.00 | .00 | -.21 | -.11 | -.02 | .00 | .20 | .16 | .08 | .35 | .16 | -.14 | -.11 | .11 |
| 36. | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 37. | .17 | -.04 | -.21 | .00 | 1.00 | .27 | -.11 | .00 | -.04 | .36 | .41 | -.08 | .36 | -.08 | .33 | .55 |
| 38. | -.07 | -.15 | -.11 | .00 | .27 | 1.00 | .16 | .00 | -.15 | -.23 | .46 | -.02 | -.03 | -.28 | -.10 | -.02 |
| 39. | -.11 | -.11 | -.02 | .00 | -.11 | .16 | 1.00 | .00 | -.11 | -.10 | -.05 | .08 | .12 | -.21 | -.35 | -.21 |
| 40. | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 41. | -.25 | -.04 | .20 | .00 | -.04 | -.15 | -.11 | .00 | 1.00 | .36 | -.10 | .55 | -.11 | -.08 | .33 | -.08 |
| 42. | .08 | -.11 | .16 | .00 | .36 | -.23 | -.10 | .00 | .35 | 1.00 | -.05 | .37 | .12 | -.21 | .28 | .08 |
| 43. | .20 | -.10 | .08 | .00 | .41 | .46 | -.05 | .00 | -.10 | -.05 | 1.00 | .12 | .19 | .12 | .13 | .12 |
| 44. | -.20 | -.08 | .35 | .00 | -.08 | -.02 | .08 | .00 | .55 | .37 | .12 | 1.00 | .08 | -.14 | .04 | -.14 |
| 45. | .27 | .36 | .16 | .00 | .36 | -.03 | .12 | .00 | -.11 | .12 | .19 | .08 | 1.00 | .08 | .07 | .66 |
| 46. | .30 | .55 | -.14 | .00 | -.08 | -.28 | -.21 | .00 | -.08 | -.21 | .12 | -.14 | .08 | 1.00 | .32 | .24 |
| 47. | .15 | .33 | -.11 | .00 | .33 | -.10 | -.35 | .00 | .33 | .28 | .13 | .04 | .07 | .32 | 1.00 | .32 |
| 48. | .05 | .55 | .11 | .00 | .55 | -.02 | -.21 | .00 | -.08 | .08 | .12 | -.14 | .66 | .24 | .32 | 1.00 |

Matrix Showing the Correlation of
Each Item in Form B to Every Other
Item in Form B^{1,2}

| Item # | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. | 14. | 15. | 16. |
|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1. | 1.00 | .26 | -.04 | .30 | .05 | .11 | .09 | .22 | .14 | .17 | .07 | .11 | .26 | -.20 | -.14 | .10 |
| 2. | .26 | 1.00 | -.56 | -.13 | .24 | .11 | .09 | -.18 | .14 | .40 | .07 | .11 | .26 | .11 | -.14 | .29 |
| 3. | -.04 | -.56 | 1.00 | .41 | -.58 | -.24 | .00 | .11 | .00 | -.36 | -.09 | .06 | -.39 | -.24 | .20 | .04 |
| 4. | .30 | -.13 | .41 | 1.00 | -.13 | .22 | .25 | -.28 | -.20 | -.22 | -.05 | -.15 | .09 | -.15 | -.08 | .13 |
| 5. | .05 | .24 | -.58 | -.13 | 1.00 | .18 | .31 | -.07 | -.04 | .03 | .21 | -.14 | .24 | .18 | -.11 | .15 |
| 6. | .11 | .11 | -.24 | .22 | .18 | 1.00 | .22 | -.17 | .06 | -.13 | .13 | -.09 | .11 | -.09 | -.28 | -.11 |
| 7. | .09 | .09 | .00 | .25 | .31 | .22 | 1.00 | -.05 | .20 | .33 | .22 | -.15 | .30 | -.15 | -.08 | .34 |
| 8. | .22 | -.18 | .11 | -.28 | -.07 | -.17 | -.05 | 1.00 | .50 | -.25 | -.27 | .52 | .02 | -.17 | .21 | -.02 |
| 9. | .14 | .14 | .00 | -.20 | -.04 | .06 | .20 | .50 | 1.00 | .09 | .13 | .36 | .32 | -.24 | .36 | .04 |
| 10. | .17 | .40 | -.36 | -.22 | .03 | -.13 | .33 | -.25 | .09 | 1.00 | .19 | -.13 | .40 | -.13 | .24 | .07 |
| 11. | .07 | .07 | -.09 | -.05 | .21 | .13 | .22 | -.27 | .13 | .19 | 1.00 | .13 | .07 | .13 | -.02 | .17 |
| 12. | .11 | .11 | .06 | -.15 | -.14 | -.09 | -.15 | .52 | .36 | -.13 | .13 | 1.00 | .11 | -.09 | .31 | .20 |
| 13. | .26 | .26 | -.39 | .09 | .24 | .11 | .30 | .02 | .32 | .40 | .07 | .11 | 1.00 | -.20 | .20 | .29 |
| 14. | -.20 | .11 | -.24 | -.15 | .18 | -.09 | -.15 | -.17 | -.24 | -.13 | .13 | -.09 | -.20 | 1.00 | -.18 | .20 |
| 15. | -.14 | -.14 | .20 | -.08 | -.11 | -.28 | -.08 | .21 | .36 | .24 | -.02 | .31 | .20 | -.28 | 1.00 | -.20 |
| 16. | .10 | .29 | .04 | .13 | .15 | -.11 | .34 | -.02 | .04 | .07 | .17 | .20 | .29 | .20 | -.20 | 1.00 |

¹The correlations computed here are Pearson Product Moment Correlations. Such correlations were used instead of the more appropriate tetrachoric correlation for simplicity in programming the CDC 3600. The values presented here are underestimates of the true values.

² A value of .40 is needed for significance at the .05 level, df = 23.

[illegible]

(cont)

| ITEM # | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. | 14. | 15. | 16. |
|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 33. | .20 | .37 | -.29 | -.08 | .42 | .31 | .32 | .02 | .36 | .24 | .42 | .01 | .03 | .01 | -.12 | .14 |
| 34. | .20 | .02 | -.10 | .04 | -.09 | .39 | .04 | -.03 | .41 | .13 | .33 | .09 | .20 | .09 | -.05 | -.02 |
| 35. | .11 | .11 | .06 | .59 | .18 | .46 | .59 | -.17 | .06 | -.13 | .13 | -.09 | .11 | -.09 | -.28 | .20 |
| 36. | .30 | .30 | -.17 | .41 | .13 | .69 | .41 | -.11 | .25 | -.09 | .09 | -.06 | .30 | -.06 | -.20 | .14 |
| 37. | -.20 | -.20 | .06 | .22 | -.14 | -.09 | .22 | -.17 | -.24 | .27 | -.27 | .09 | .11 | -.09 | .31 | -.11 |
| 38. | .11 | -.20 | .36 | .22 | -.47 | -.09 | -.15 | .18 | -.24 | -.13 | -.68 | -.09 | -.20 | -.09 | .01 | -.11 |
| 39. | .14 | .14 | -.03 | .08 | .11 | .28 | -.12 | -.21 | -.03 | -.02 | .24 | -.01 | -.03 | .28 | .12 | .03 |
| 40. | .42 | .42 | -.46 | -.05 | .35 | .18 | .42 | -.10 | .11 | .52 | .25 | -.17 | .22 | .18 | -.16 | -.02 |
| 41. | .29 | -.26 | -.14 | -.30 | -.05 | .20 | -.09 | .18 | .21 | .07 | .17 | .20 | .10 | -.11 | -.03 | -.29 |
| 42. | .42 | .22 | -.08 | .19 | -.07 | .18 | -.05 | -.10 | .11 | .27 | .25 | -.17 | .22 | -.17 | .02 | -.22 |
| 43. | .14 | .14 | -.17 | .41 | .15 | .06 | .00 | .11 | .17 | -.13 | -.09 | .06 | .49 | -.24 | .03 | .04 |
| 44. | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 45. | .30 | .30 | .00 | .25 | -.13 | .22 | .00 | -.28 | .00 | .33 | .22 | -.15 | .30 | -.15 | .12 | -.09 |
| 46. | .14 | .32 | -.20 | -.12 | -.06 | .28 | .08 | -.21 | .13 | .42 | .24 | .28 | .32 | -.31 | .28 | -.14 |
| 47. | .02 | .38 | .07 | .25 | .10 | .09 | .25 | -.42 | -.10 | .13 | -.13 | -.22 | -.16 | -.22 | -.22 | -.02 |
| 48. | -.32 | -.14 | .17 | .20 | -.15 | .24 | .41 | -.11 | .33 | .13 | -.13 | -.06 | .04 | -.06 | .13 | .14 |

| ITEM # | 17. | 18. | 19. | 20. | 21. | 22. | 23. | 24. | 25. | 26. | 27. | 28. | 29. | 30. | 31. | 32. |
|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|
| 1. | .14 | .17 | -.05 | .30 | .17 | .20 | .30 | -.07 | -.04 | .34 | .54 | .30 | .30 | .14 | .22 | .00 |
| 2. | .14 | -.07 | -.05 | .30 | .17 | .02 | .30 | -.07 | -.04 | .16 | .27 | .30 | .09 | -.04 | .02 | .00 |
| 3. | -.03 | .09 | -.15 | -.17 | -.13 | -.27 | -.17 | .09 | -.33 | -.41 | -.05 | -.17 | .20 | -.33 | -.27 | .00 |
| 4. | -.12 | .60 | .13 | .41 | .33 | .25 | .41 | .05 | .00 | .17 | .43 | .41 | .25 | .00 | .19 | .00 |
| 5. | .11 | .27 | -.01 | .13 | -.21 | .47 | .13 | .03 | .33 | .09 | .23 | .13 | .09 | .15 | .35 | .00 |
| 6. | -.01 | .27 | .47 | .69 | .27 | .39 | .69 | .27 | .36 | .22 | .34 | .69 | .22 | .36 | .18 | .00 |
| 7. | .28 | .33 | .13 | .41 | .05 | .25 | .41 | .33 | -.20 | -.04 | .12 | .41 | .25 | -.20 | .42 | .00 |
| 8. | .35 | .01 | -.14 | -.11 | -.25 | -.23 | -.11 | -.25 | -.27 | .03 | -.21 | -.11 | .19 | -.08 | -.10 | .00 |
| 9. | .13 | .09 | .22 | .25 | .09 | -.27 | .25 | .09 | -.17 | -.07 | -.05 | .25 | .20 | -.33 | .11 | .00 |
| 10. | -.02 | -.19 | .21 | -.09 | .11 | .13 | 0.09 | .11 | -.13 | .10 | .17 | -.09 | .05 | -.13 | .27 | .00 |
| 11. | -.20 | -.11 | .03 | .09 | .19 | .10 | .09 | .19 | .13 | -.10 | .16 | .09 | .22 | -.09 | -.01 | .00 |
| 12. | .28 | -.13 | -.18 | -.06 | -.13 | -.22 | -.06 | -.13 | -.24 | -.09 | -.11 | -.06 | .22 | -.24 | -.17 | .00 |
| 13. | .49 | .40 | .15 | .30 | .17 | .20 | .30 | -.07 | -.04 | .51 | .27 | .30 | .09 | -.21 | .62 | .00 |
| 14. | -.01 | -.13 | 0.18 | -.06 | -.13 | -.22 | -.06 | -.13 | .06 | .22 | -.11 | -.06 | -.15 | .36 | -.17 | .00 |
| 15. | -.04 | .02 | .11 | -.20 | .02 | -.22 | -.20 | -.20 | -.12 | -.28 | .14 | -.20 | .32 | -.29 | .21 | .00 |
| 16. | .37 | .07 | -.15 | .14 | .07 | -.02 | .14 | -.17 | -.14 | .20 | -.01 | .14 | .13 | -.32 | -.02 | .00 |

(cont)

| ITEM # | 17. | 18. | 19. | 20. | 21. | 22. | 23. | 24. | 25. | 26. | 27. | 28. | 29. | 30. | 31. | 32. |
|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|
| 17. | 1.00 | .20 | -.29 | .20 | -.24 | .05 | .20 | -.24 | -.36 | .11 | .11 | .20 | .28 | -.20 | .35 | .00 |
| 18. | .20 | 1.00 | -.03 | .47 | .11 | .35 | .47 | .11 | .09 | .10 | .51 | .47 | .33 | -.13 | .52 | .00 |
| 19. | -.29 | -.03 | 1.00 | .33 | .21 | .27 | 1.33 | -.03 | .04 | .28 | .04 | .33 | -.09 | .22 | .07 | .00 |
| 20. | .20 | .47 | .33 | 1.00 | .47 | .27 | 1.00 | -.09 | .25 | .15 | .55 | 1.00 | .41 | .25 | .36 | .00 |
| 21. | -.24 | .11 | .21 | .47 | 1.00 | -.10 | .47 | -.19 | .31 | .10 | .17 | .47 | .05 | .09 | .27 | .00 |
| 22. | .05 | .35 | .27 | .27 | .10 | 1.00 | .27 | .13 | .07 | .04 | .49 | .27 | .25 | .24 | .16 | .00 |
| 23. | .20 | .47 | .33 | 1.00 | .47 | .27 | 1.00 | -.09 | .25 | .15 | .55 | 1.00 | .41 | .25 | .36 | .00 |
| 24. | -.24 | .11 | -.03 | -.09 | -.19 | .13 | -.09 | 1.00 | -.13 | -.13 | -.16 | -.09 | -.22 | -.13 | .01 | .00 |
| 25. | -.36 | .09 | .04 | .25 | .31 | .12 | .25 | -.13 | 1.00 | .10 | .20 | .25 | .00 | .33 | .11 | .00 |
| 26. | .11 | .10 | .28 | .15 | .10 | .04 | .15 | -.13 | .10 | 1.00 | .02 | .15 | -.25 | .27 | .23 | .00 |
| 27. | .11 | .51 | .04 | .55 | .17 | .49 | .55 | -.16 | .20 | .02 | 1.00 | .55 | .74 | .20 | .37 | .00 |
| 28. | .20 | .47 | .33 | 1.00 | .47 | .27 | 1.00 | -.09 | .25 | .15 | .55 | 1.00 | .41 | .25 | .36 | .00 |
| 29. | .28 | .33 | -.09 | .41 | .05 | .25 | .41 | -.22 | .00 | -.25 | .74 | .41 | 1.00 | .00 | .19 | .00 |
| 30. | -.20 | -.13 | .22 | .25 | .09 | .23 | .25 | -.13 | .33 | .27 | .20 | .25 | .00 | 1.00 | -.08 | .00 |
| 31. | .35 | .52 | .07 | .36 | .27 | .16 | .36 | .01 | .11 | .23 | .37 | .36 | .19 | -.08 | 1.00 | .00 |
| 32. | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |

| ITEM # | 17. | 18. | 19. | 20. | 21. | 22. | 23. | 24. | 25. | 26. | 27. | 28. | 29. | 30. | 31. | 32. |
|--------|------|------|-----|------|------|------|------|------|------|------|------|------|------|------|------|-----|
| 33. | -.36 | .02 | .29 | .21 | .02 | .11 | .21 | .24 | .20 | .05 | .14 | .21 | .12 | .03 | -.16 | .00 |
| 34. | -.11 | .13 | .27 | .27 | .13 | .13 | .27 | .35 | -.10 | .22 | .24 | .27 | .25 | .07 | .16 | .00 |
| 35. | -.01 | .68 | .14 | .69 | .27 | .39 | .69 | .27 | .06 | -.09 | .34 | .69 | .22 | .06 | .18 | .00 |
| 36. | .20 | .47 | .33 | 1.00 | .47 | .27 | 1.00 | -.09 | .25 | .15 | .55 | 1.00 | .41 | .25 | .36 | .00 |
| 37. | -.01 | -.13 | .47 | -.06 | -.13 | .09 | -.06 | -.13 | -.24 | .22 | -.11 | -.06 | -.15 | .06 | .18 | .00 |
| 38. | -.01 | -.13 | .14 | -.06 | -.13 | -.22 | -.06 | -.13 | -.24 | .22 | -.11 | -.06 | -.15 | .36 | -.17 | .00 |
| 39. | -.28 | .20 | .06 | .20 | .20 | .05 | .20 | .20 | .13 | -.05 | .35 | .20 | .08 | .29 | -.02 | .00 |
| 40. | .16 | .01 | .28 | .36 | .01 | .36 | .36 | .01 | -.08 | .23 | .37 | .36 | .19 | .31 | .34 | .00 |
| 41. | .03 | -.17 | .05 | .14 | .07 | -.02 | .14 | .07 | .39 | .02 | -.01 | .14 | -.09 | .21 | .18 | .00 |
| 42. | -.02 | .27 | .28 | .36 | .27 | .36 | .36 | -.25 | -.08 | .03 | .66 | .36 | .42 | .11 | .12 | .00 |
| 43. | -.03 | .53 | .22 | .25 | .09 | .24 | .25 | -.13 | .00 | .44 | .20 | .25 | .00 | .00 | .11 | .00 |
| 44. | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 45. | .08 | .33 | .23 | .41 | .13 | .25 | .41 | -.22 | .00 | -.04 | .74 | .41 | .50 | .00 | .19 | .00 |
| 46. | .20 | -.02 | .06 | .20 | .20 | .22 | .20 | .20 | -.20 | -.22 | .35 | .20 | .28 | -.20 | .35 | .00 |
| 47. | -.11 | .13 | .09 | .27 | -.10 | .13 | .27 | .13 | .07 | -.31 | .24 | .27 | .04 | -.10 | -.03 | .00 |
| 48. | -.13 | .13 | .33 | .17 | .13 | -.07 | .17 | .36 | .00 | -.10 | -.20 | .17 | .00 | -.33 | .08 | .00 |

| ITEM | #33. | 34. | 35. | 36. | 37. | 38. | 39. | 40. | 41. | 42. | 43. | 44. | 45. | 46. | 47. | 48. |
|------|------|------|------|------|------|------|------|------|------|------|------|-----|------|------|------|------|
| 1. | .20 | .20 | .11 | .30 | -.20 | .11 | .14 | .42 | .39 | .42 | .14 | .00 | .30 | .14 | .02 | -.32 |
| 2. | .37 | .02 | .11 | .30 | -.20 | -.20 | .14 | .42 | -.26 | .22 | .14 | .00 | .30 | .32 | .38 | -.14 |
| 3. | -.29 | -.10 | .06 | -.17 | .06 | .36 | -.03 | -.46 | -.14 | -.08 | -.17 | .00 | .00 | -.20 | .07 | .17 |
| 4. | -.08 | .04 | .59 | .41 | .22 | .22 | .08 | -.05 | -.30 | .19 | .41 | .00 | .25 | -.12 | .25 | .20 |
| 5. | .42 | -.09 | .18 | .13 | -.14 | -.47 | .11 | .35 | -.05 | -.07 | .15 | .00 | -.13 | -.06 | .10 | -.15 |
| 6. | .31 | .39 | .46 | .69 | -.09 | -.09 | .38 | .18 | .20 | .18 | .06 | .00 | .22 | .28 | .09 | .24 |
| 7. | .32 | .04 | .59 | .41 | .22 | -.15 | -.12 | .42 | -.09 | -.05 | .00 | .00 | .00 | .08 | .25 | .41 |
| 8. | .02 | -.03 | -.17 | -.11 | -.17 | .18 | -.21 | -.10 | .18 | -.10 | .11 | .00 | -.28 | -.21 | -.42 | -.11 |
| 9. | .36 | .41 | .06 | .25 | -.24 | -.24 | -.03 | .11 | .21 | .11 | .17 | .00 | .00 | .13 | -.10 | .33 |
| 10. | .24 | .13 | -.13 | -.09 | .27 | -.13 | -.02 | .52 | .07 | .27 | -.13 | .00 | .33 | .42 | .13 | .13 |
| 11. | .42 | .33 | .13 | .09 | -.27 | -.68 | .24 | .25 | .17 | .25 | -.09 | .00 | .22 | .24 | -.13 | -.13 |
| 12. | .01 | .09 | -.09 | -.06 | -.09 | -.09 | -.01 | -.17 | .20 | -.17 | .06 | .00 | -.15 | .28 | -.22 | -.06 |
| 13. | .03 | .20 | .11 | .30 | .11 | -.20 | -.03 | .22 | .10 | .22 | .49 | .00 | -.15 | -.31 | -.22 | -.06 |
| 14. | .01 | .09 | -.09 | -.06 | -.09 | -.09 | .28 | .18 | -.11 | -.17 | -.24 | .00 | .12 | .28 | -.22 | .13 |
| 15. | -.12 | -.05 | -.28 | -.20 | .31 | .01 | .12 | -.16 | -.03 | .02 | .03 | .00 | .12 | -.28 | -.22 | .13 |
| 16. | .14 | -.02 | .20 | .14 | -.11 | -.11 | .03 | -.02 | -.29 | -.22 | .04 | .00 | -.09 | -.14 | -.02 | .14 |

| ITEM | # | 33. | 34. | 35. | 36. | 37. | 38. | 39. | 40. | 41. | 42. | 43. | 44. | 45. | 46. | 47. | 48. |
|------|---|------|------|------|------|------|------|------|------|------|------|------|-----|------|------|------|------|
| 17. | | -.36 | -.11 | -.01 | .20 | -.01 | -.01 | -.28 | .16 | .03 | -.02 | -.03 | .00 | .08 | .20 | -.11 | -.13 |
| 18. | | .002 | .13 | .68 | .47 | -.13 | -.13 | .20 | .01 | -.17 | .27 | .53 | .00 | .33 | -.02 | .13 | .13 |
| 19. | | .29 | .27 | .14 | .33 | .47 | .14 | .06 | .28 | .05 | .28 | .32 | .00 | .13 | .06 | .09 | .33 |
| 20. | | .21 | .27 | .69 | 1.00 | -.06 | -.06 | .20 | .36 | .14 | .36 | .25 | .00 | .41 | .20 | .27 | .17 |
| 21. | | .02 | .13 | .27 | .47 | -.13 | -.13 | .20 | .01 | .07 | .27 | .09 | .00 | .33 | .20 | -.10 | .13 |
| 22. | | .11 | .13 | .39 | .27 | .09 | -.22 | .05 | .36 | .07 | .27 | .09 | .00 | .33 | .20 | .13 | -.07 |
| 23. | | .21 | .27 | .69 | 1.00 | -.06 | -.06 | .20 | .36 | .14 | .36 | .25 | .00 | .41 | .20 | .27 | .17 |
| 24. | | .24 | .35 | .27 | -.09 | -.13 | -.13 | .20 | .01 | .07 | -.25 | -.13 | .00 | -.22 | .20 | .13 | .36 |
| 25. | | .20 | -.10 | .06 | .25 | -.24 | -.24 | .13 | -.08 | .39 | -.08 | .00 | .00 | .00 | -.20 | .07 | .00 |
| 26. | | .05 | .22 | -.09 | .15 | .22 | .22 | -.05 | .23 | .02 | .03 | .44 | .00 | -.04 | -.22 | -.31 | -.10 |
| 27. | | .14 | .24 | .34 | .55 | -.11 | -.11 | .35 | .37 | -.01 | .66 | .20 | .00 | .74 | .35 | .24 | -.20 |
| 28. | | .21 | .27 | .69 | 1.00 | -.06 | -.06 | .20 | .36 | .14 | .36 | .25 | .00 | .41 | .20 | .27 | .17 |
| 29. | | .12 | .25 | .22 | .41 | -.15 | -.15 | .08 | .19 | -.09 | .42 | .00 | .00 | .50 | .28 | .04 | .00 |
| 30. | | .03 | .07 | .06 | .25 | .06 | .36 | .29 | .31 | .21 | .11 | .00 | .00 | .00 | -.20 | -.10 | -.33 |
| 31. | | -.16 | .16 | .18 | .36 | .18 | -.17 | -.02 | .34 | .18 | .12 | .11 | .00 | .19 | .35 | -.03 | .08 |
| 32. | | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |

(cont)

| ITEM # | 33. | 34. | 35. | 36. | 37. | 38. | 39. | 40. | 41. | 42. | 43. | 44. | 45. | 46. | 47. | 48. |
|--------|------|------|------|------|------|------|------|------|------|------|------|-----|------|------|------|------|
| 33. | 1.00 | .28 | .31 | .21 | -.28 | -.28 | .28 | .21 | -.03 | .21 | .20 | .00 | .12 | -.04 | .28 | .13 |
| 34. | .28 | 1.00 | .09 | .27 | -.22 | -.22 | .22 | .16 | .16 | .36 | .07 | .00 | .25 | .39 | -.22 | .27 |
| 35. | .31 | .09 | 1.00 | .69 | -.09 | -.09 | .28 | .18 | -.11 | .18 | .36 | .00 | .22 | -.01 | .38 | .24 |
| 36. | .21 | .27 | .69 | 1.00 | -.06 | -.06 | .20 | .36 | .14 | .36 | .25 | .00 | .41 | .20 | .27 | .17 |
| 37. | -.28 | -.22 | -.09 | -.06 | 1.00 | .46 | -.31 | .18 | -.11 | -.17 | .06 | .00 | -.15 | -.01 | .09 | .24 |
| 38. | -.28 | -.22 | -.09 | -.06 | .46 | 1.00 | -.01 | -.17 | -.11 | -.17 | .06 | .00 | -.15 | -.31 | .09 | -.06 |
| 39. | .28 | .22 | .28 | .20 | -.31 | -.01 | 1.00 | -.02 | .03 | .16 | -.03 | .00 | .28 | .20 | -.11 | -.13 |
| 40. | .21 | .16 | .18 | .36 | .18 | -.17 | -.02 | 1.00 | .18 | .34 | -.08 | .00 | .19 | .16 | .16 | -.11 |
| 41. | -.03 | .16 | -.11 | .14 | -.11 | -.11 | .03 | .18 | 1.00 | -.02 | -.32 | .00 | -.09 | .20 | -.20 | -.04 |
| 42. | .21 | .36 | .18 | .36 | -.17 | -.17 | .16 | .34 | -.02 | 1.00 | .31 | .00 | .89 | .35 | .16 | -.31 |
| 43. | .20 | .07 | .36 | .25 | .06 | .06 | -.03 | -.08 | -.32 | .31 | 1.00 | .00 | .20 | -.20 | .07 | -.17 |
| 44. | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 45. | .12 | .25 | .22 | .41 | -.15 | -.15 | .28 | .19 | -.09 | .89 | .20 | .00 | 1.00 | .48 | .25 | -.20 |
| 46. | -.04 | .39 | -.01 | .20 | -.01 | -.31 | .20 | .16 | .20 | .35 | -.20 | .00 | .48 | 1.00 | .05 | .03 |
| 47. | .28 | -.22 | .39 | .27 | .09 | .09 | -.11 | .16 | -.20 | .16 | .07 | .00 | .25 | .05 | 1.00 | .10 |
| 48. | .13 | .27 | .24 | .17 | .24 | -.06 | -.13 | -.11 | -.04 | -.31 | -.17 | .00 | -.20 | .03 | .10 | 1.00 |

APPENDIX G

Matrix Showing the Correlation of Each Item
to Every Second Person Category for
Form A^{1, 2}

| Item # | Boy-Mother | Boy-Father | Boy-Girl | Boy-Boy |
|--------|------------|------------|----------|---------|
| 1. | .39** | .24 | .29 | .10 |
| 2. | .59 | .45 | .15 | .22 |
| 3. | .52 | .50 | .41 | .33 |
| 4. | .11 | -.11 | .20 | -.05 |
| 5. | .45 | .28 | .17 | -.11 |
| 6. | .54 | .49 | .34 | .64* |
| 7. | .01 | -.02 | .15 | .26*** |
| 8. | .22** | .00 | .21 | .11 |
| 9. | .39** | .03 | .11 | -.06 |
| 10. | .28 | .18 | .17 | .35 |
| 11. | .71 | .23 | .33 | .27 |
| 12. | .54 | .41 | .42 | .41 |
| 13. | .15 | .17** | .17 | .08 |
| 14. | .04 | .09** | .31*** | .11 |
| 15. | .01 | .15 | .15 | -.26 |
| 16. | .02 | .34** | .09 | -.09 |
| 17. | .48* | .34 | .22 | .37 |
| 18. | -.01 | .38** | .15 | .00 |
| 19. | .05* | .32** | -.12 | -.10 |
| 20. | .54* | .49 | .34 | .64* |
| 21. | .12 | .15 | .34*** | .26 |
| 22. | .54* | .49 | .34 | .64 |
| 23. | .08 | .49 | -.10 | -.10 |
| 24. | .47* | .37 | .06 | .31 |
| 25. | .01 | -.01 | .33** | .11 |
| 26. | .00 | .00 | .00 | .00 |
| 27. | .22*** | .15 | -.03 | -.13 |
| 28. | .42 | .05 | .42** | .27 |
| 29. | .09 | -.03 | .09** | .09 |
| 30. | .31 | .68* | .33 | .34 |
| 31. | .00 | .00 | .00 | .00 |
| 32. | .54* | .40 | .55 | .20 |
| 33. | .16 | .01 | .55 | .15 |
| 34. | .12 | .15 | .34** | .26 |
| 35. | .06 | -.04 | .28** | .10 |
| 36. | .00 | .00 | .00 | .00 |
| 37. | .54 | .49 | .34 | .64 |
| 38. | .35 | .61* | .19 | .31 |
| 39. | -.11 | .02 | -.08 | .12** |
| 40. | .00 | .00 | .00 | .00 |
| 41. | -.09 | -.19 | -.03 | .26** |
| 42. | .28 | .10 | .25 | .41** |
| 43. | .34 | .12 | .38 | .56 |
| 44. | -.04 | -.04 | .06 | .38** |
| 45. | .13 | .10 | .25 | .59 |
| 46. | -.17 | -.24 | .06 | .15 |
| 47. | .36 | .09 | .39 | .50 |
| 48. | .21 | .27 | .17 | .54 |

¹The correlations computed here are Pearson Product Moment Correlations. Such correlations were used instead of the more appropriate biserial correlations for simplicity in programming the CDC 3600. The values presented here are underestimates of the true values.

Correlation coefficients outlined in black are those of items that belong to the designated interpersonal area. Each correlation coefficient in the black box should be higher than that of the item in any other second person category. Significant predicted correlations appear in India Ink, a value of .45 being needed for significance at the .05 level, $df = 23$.

*

Important unpredicted significant correlations, a value of .40 needed for significance at the .05 level, $df = 23$.

**

As predicted, the highest of the four correlations, although not significant

***,

Correlation coefficient helpful in strengthening the predicted correlation.

Matrix Showing the Correlation of Each Item
to Every Second Person Category for
Form B^{1, 2}

| Item # | Boy-Mother | Boy-Father | Boy-Girl | Boy-Boy |
|--------|------------|------------|----------|---------|
| 1. | .62 | .26 | .44 | .38 |
| 2. | .37** | .26 | .24 | .33 |
| 3. | -.03 | -.29 | -.38*** | -.15 |
| 4. | .25 | .39*** | .33 | .31 |
| 5. | .25 | .24 | .38*** | -.03 |
| 6. | .27 | .45 | .69* | .44 |
| 7. | .60 | .39 | .28 | .26 |
| 8. | .29 | -.20 | -.13 | -.30 |
| 9. | .59 | .19 | .15 | .18 |
| 10. | .27 | .25 | .10 | .46* |
| 11. | .37** | .10 | .26 | .11 |
| 12. | .35** | .05 | -.14 | -.07 |
| 13. | .42 | .77 | .36 | .38 |
| 14. | -.25*** | -.10 | .07 | -.24 |
| 15. | .12 | .05 | -.15 | .14 |
| 16. | .34 | .33 | .04 | -.18 |
| 17. | .26 | .34** | -.04 | -.04 |
| 18. | .33 | .69 | .46 | .34 |
| 19. | .12 | .38 | .33 | .50* |
| 20. | .48 | .64 | .76* | .60* |
| 21. | .14 | .31 | .36 | .27 |
| 22. | .16 | .47 | .39 | .37 |
| 23. | .48 | .64 | .76* | .60* |
| 24. | .14 | .02 | .00 | .08 |
| 25. | -.17 | .02 | .46 | -.01 |
| 26. | .08 | .02 | .39** | .06 |
| 27. | .44 | .50 | .69 | .66 |
| 28. | .48 | .64 | .76 | .60 |
| 29. | .54* | .22 | .47 | .31 |
| 30. | -.22 | .60* | .46 | .13 |
| 31. | .29 | .60* | .44 | .35 |
| 32. | .00 | .00 | .00 | .00 |
| 33. | .54* | .05 | .46 | .28 |
| 34. | .31 | .34 | .51 | .37 |
| 35. | .44 | .53* | .48 | .44 |
| 36. | .48 | .64 | .76 | .60 |
| 37. | -.17 | .13 | -.14 | .19** |
| 38. | -.25*** | -.18 | -.14 | .01 |
| 39. | .12 | .25 | .34 | .33 |
| 40. | .45 | .35 | .44 | .46 |
| 41. | .08 | .06 | .20 | .17 |
| 42. | .29 | .30 | .44 | .68 |
| 43. | .21 | .41** | .31 | .23 |
| 44. | .00 | .00 | .00 | .00 |
| 45. | .25 | .39 | .42 | .72 |
| 46. | .26 | .38 | .15 | .56 |
| 47. | .12 | .02 | .15 | .42** |
| 48. | .12 | .20 | .04 | .10 |

¹The correlations computed here are Pearson Product Moment Correlations. Such correlations were used instead of the more appropriate biserial correlation for simplicity in programming the CDC 3600. The values presented here are underestimates of the true values.

2

Correlation coefficients outlined in black are those of items that belong to the designated interpersonal area. Each correlation coefficient in the black box should be higher than that of the item on any other second person category. Significant predicted correlations appear in India Ink, a value of .45 being needed for significance at the .05 level, $df = 23$.

* Important unpredicted significant correlations, a value of .40 being needed for significance at the .05 level, $df = 23$.

** As predicted, the highest of the four correlations, although not significant

*** Correlation coefficient helpful in strengthening the predicted correlation.

APPENDIX H

Table Showing the Correlation
of Each Item in Form A with the
Total Score for Form A¹

| ITEM # | CORRELATION | ITEM # | CORRELATION |
|--------|-------------|--------|-------------|
| 1. | .34 | 25. | .12 |
| 2. | .49 | 25. | .00 |
| 3. | .59 | 27. | .08 |
| 4. | .05 | 28. | .39 |
| 5. | .27 | 29. | .09 |
| 6. | .66 | 30. | .51 |
| 7. | .13 | 31. | .00 |
| 8. | .18 | 32. | .54 |
| 9. | .19 | 33. | .26 |
| 10. | .33 | 34. | .26 |
| 11. | .54 | 35. | .12 |
| 12. | .58 | 36. | .00 |
| 13. | .18 | 37. | .66 |
| 14. | .15 | 38. | .47 |
| 15. | -.01 | 39. | -.02 |
| 16. | .09 | 40. | .00 |
| 17. | .47 | 41. | -.01 |
| 18. | .13 | 42. | .35 |
| 19. | .04 | 43. | .47 |
| 20. | .66 | 44. | .12 |
| 21. | .26 | 45. | .35 |
| 22. | .66 | 46. | -.07 |
| 23. | .10 | 47. | .45 |
| 24. | .42 | 48. | .39 |

¹ Significant values appear in India Ink. A value of .45 is necessary for significance at the .05 level, $df = 23$.

Table Showing the Correlation
of Each Item in Form B with the
Total Score for Form B¹

| ITEM # | CORRELATION | ITEM # | CORRELATION |
|--------|-------------|--------|-------------|
| 1. | .52 | 25. | .10 |
| 2. | .36 | 26. | .27 |
| 3. | -.29 | 27. | .72 |
| 4. | .39 | 28. | .79 |
| 5. | .29 | 29. | .53 |
| 6. | .59 | 30. | .12 |
| 7. | .51 | 31. | .52 |
| 8. | -.08 | 32. | .00 |
| 9. | .36 | 33. | .43 |
| 10. | .32 | 34. | .47 |
| 11. | .27 | 35. | .59 |
| 12. | .04 | 36. | .79 |
| 13. | .59 | 37. | -.01 |
| 14. | -.16 | 38. | -.18 |
| 15. | .06 | 39. | .31 |
| 16. | .18 | 40. | .52 |
| 17. | .17 | 41. | .13 |
| 18. | .54 | 42. | .52 |
| 19. | .40 | 43. | .35 |
| 20. | .79 | 44. | .00 |
| 21. | .34 | 45. | .54 |
| 22. | .43 | 46. | .39 |
| 23. | .79 | 47. | .18 |
| 24. | .06 | 48. | .16 |

Significant values appear in India Ink. A value of .45 is necessary for significance at the .05 level, df = 23.

APPENDIX I

Comparative Reliability of
Male and Female Subjects¹

| MALE | | FEMALE | | HIGHER VALUES |
|------------|------|------------|-----|---------------|
| AREA | r* | AREA | r* | |
| T-I | -.12 | T-I | .40 | F |
| T-II | .34 | T-II | .31 | M |
| H-I | .18 | H-I | .16 | M |
| H-II | .31 | H-II | .55 | F |
| Gv-I | .16 | Gv-I | .18 | F |
| Gv-II | .64 | Gv-II | .46 | M |
| S-I | .17 | S-I | .31 | F |
| S-II | .49 | S-II | .11 | M |
| D-I | .26 | D-I | .30 | F |
| D-II | .13 | D-II | .16 | F |
| Gt-I | .47 | Gt-I | .35 | M |
| Gt-II | .30 | Gt-II | .43 | F |
| TRUST | .30 | TRUST | .62 | F |
| HOSTILITY | .29 | HOSTILITY | .39 | F |
| GIVING | .50 | GIVING | .48 | M |
| SEDUCTION | .46 | SEDUCTION | .32 | M |
| DOMINANCE | .57 | DOMINANCE | .43 | M |
| GUILT | .45 | GUILT | .49 | F |
| BOY-MOTHER | .60 | BOY-MOTHER | .75 | F |
| BOY-FATHER | .49 | BOY-FATHER | .36 | M |
| BOY-GIRL | .55 | BOY-GIRL | .60 | F |
| BOY-BOY | .67 | BOY-BOY | .62 | M |
| TOTAL | .82 | TOTAL | .83 | F |

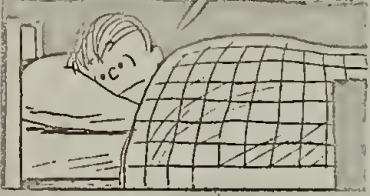
¹A value of .29 for Females, and .33 for Males, is needed for significance at .05 level.
* Pearson Product Moment Correlations

APPENDIX J

2143

2413

I GUESS SHE FORGOT TONIGHT. HOW WILL I EVER GET TO SLEEP WITHOUT BEING TUCKED IN?



RATS! I'M NEVER SURE MOM WILL REMEMBER TO TUCK ME IN.



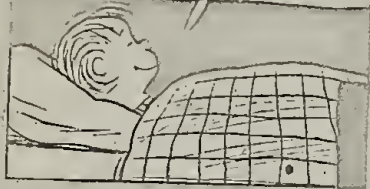
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2

3

4

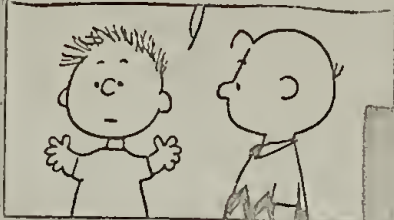
HAPPINESS IS BEING ABLE TO COUNT ON YOUR MOTHER FOR A GOOD TUCK-IN!



WHAT'S THAT? MAYBE SHE'S COMING AFTER ALL! MAYBE I WILL GET TUCKED IN!



HE CAUGHT THE HANDLEBARS AND EVERYTHING WAS FINE. I DIDN'T EVEN FALL OFF!



1

2

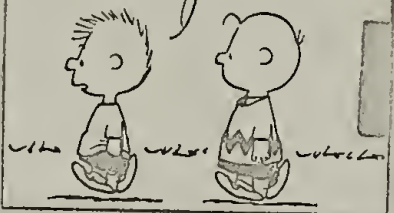
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4

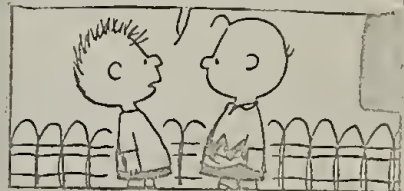
MY DAD HAS BEEN HELPING ME LEARN HOW TO RIDE A BIKE.



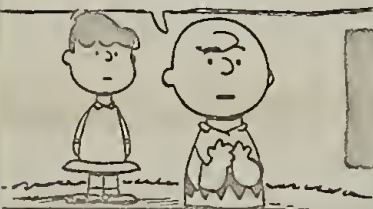
DEPENDABLE DADS SURE DO COME IN HANDY!



HE'S PRETTY GOOD! YESTERDAY I GOT SCARED AND STARTED TO FALL OFF, BUT DAD WAS RIGHT THERE...



I DON'T THINK I CAN LET YOU DO ANYTHING THAT IMPORTANT. I JUST DON'T THINK SO.



1

2

3

4

NO, VIOLET, I'M SORRY. I CAN'T LET YOU PLAY FIRST BASE THIS YEAR.



AAUGH!!



1

2

3

4

I DID IT, CHARLIE BROWN... I WENT UP TO HER, AND I TOLD HER ALL ABOUT HOW YOU'RE MADLY IN LOVE WITH HER, AND...

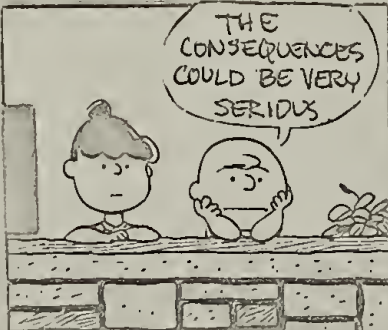


WELL, CHARLIE BROWN, HAVE YOU MADE UP YOUR MIND?

I'M SORRY, VIOLET



THE CONSEQUENCES COULD BE VERY SERIOUS



WITHOUT HER KNOWING WHAT YOU'RE UP TO, FIND OUT IF SHE'S EVER NOTICED ME OR WHAT SHE THINKS OF ME... BUT REMEMBER... BE SLY... BE REAL SLY...



I KNOW I CAN COUNT ON YOU LINDS!

I WANT YOU SLYLY TO START A CONVERSATION WITH THAT LITTLE RED-HAIRED GIRL...

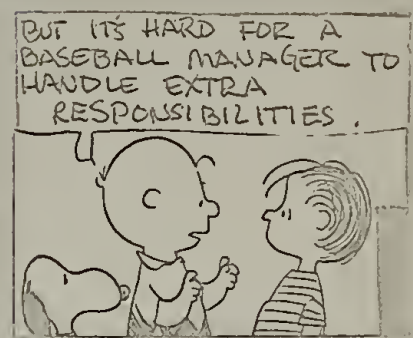
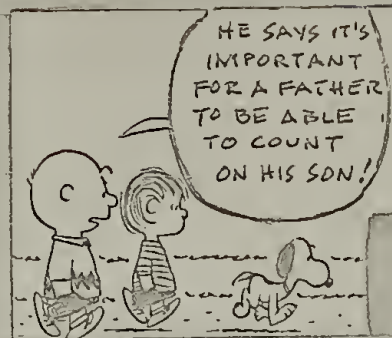


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4321

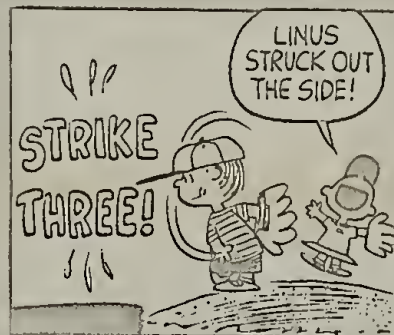
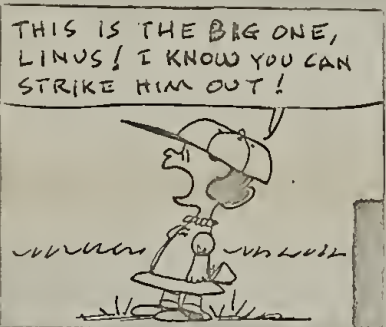
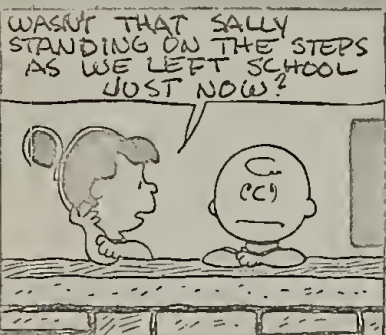
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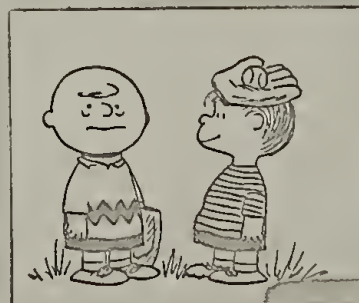
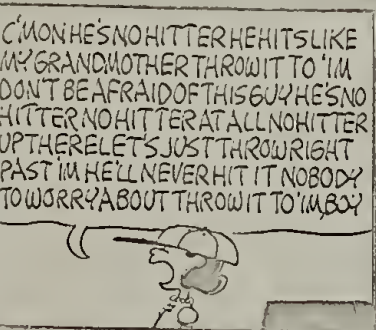
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|---|---|
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| 3 | 4 |

| | |
|---|---|
| 1 | 2 |
| 3 | 4 |



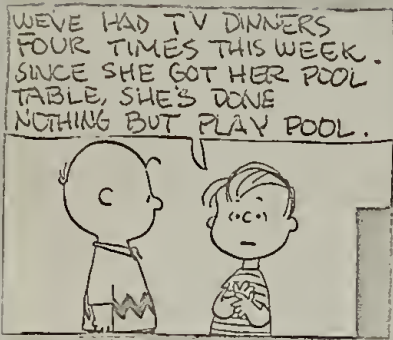
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|---|---|
| 1 | 2 |
| 3 | 4 |

| | |
|---|---|
| 1 | 2 |
| 3 | 4 |



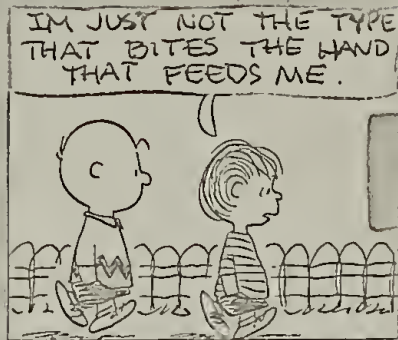
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4213



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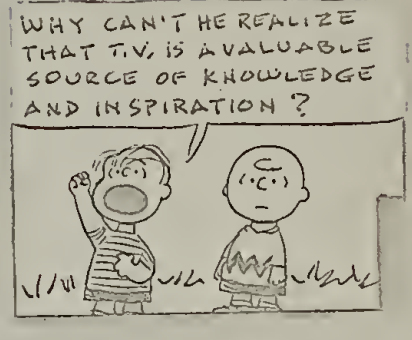
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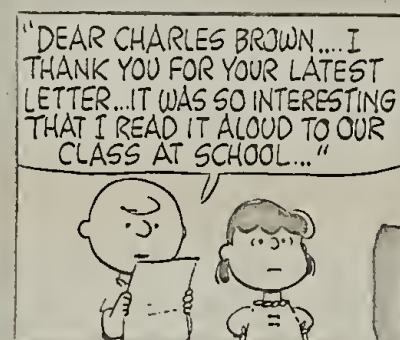
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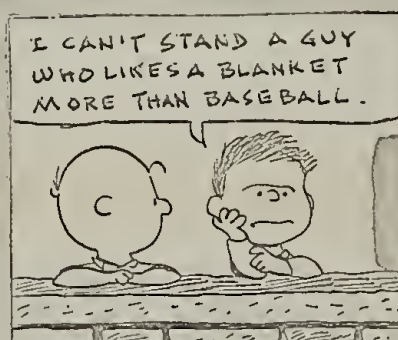
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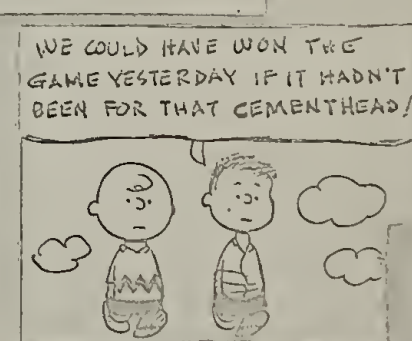
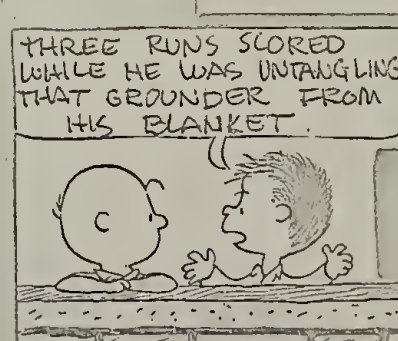
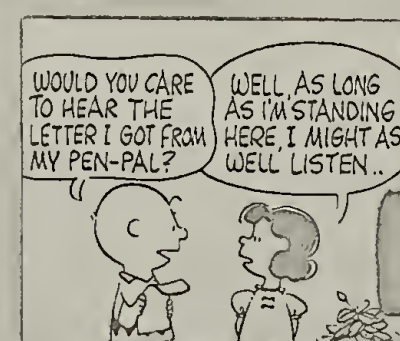
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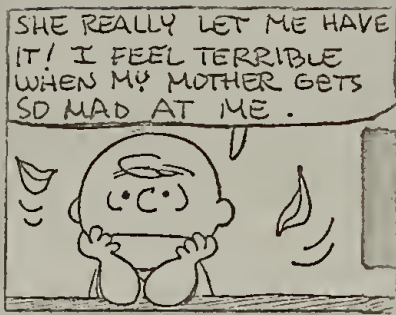
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4321 / 3241

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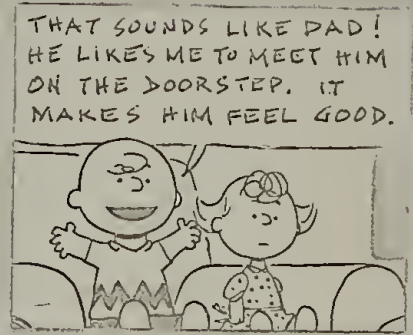


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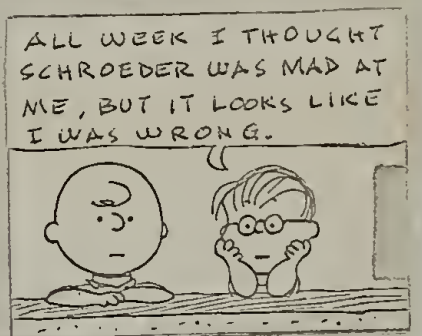
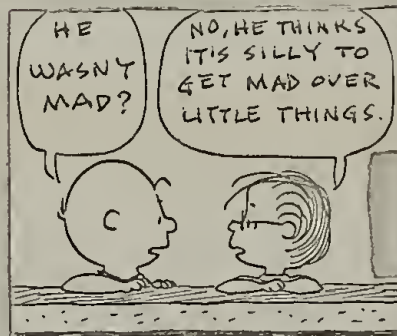
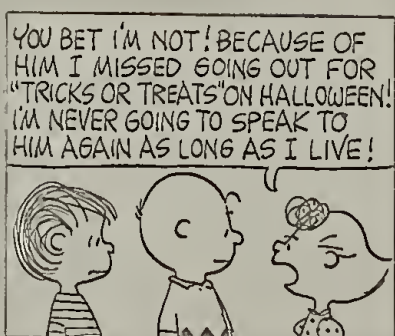


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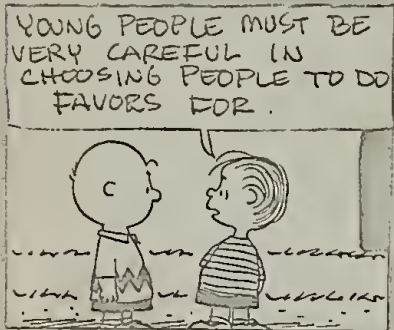


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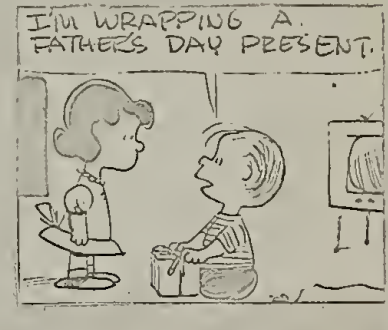
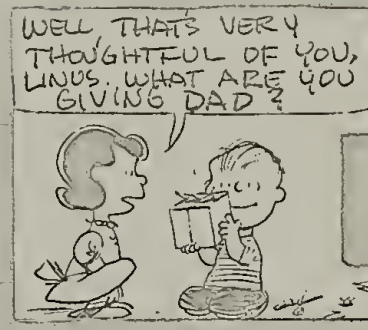


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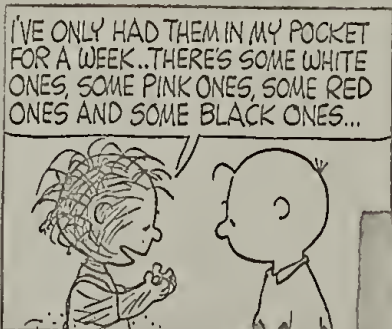


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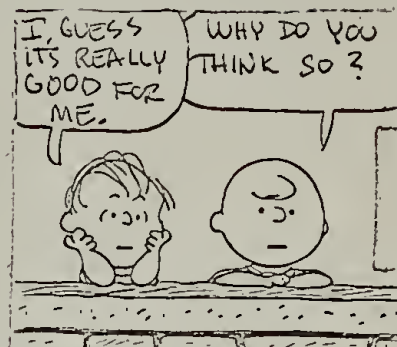
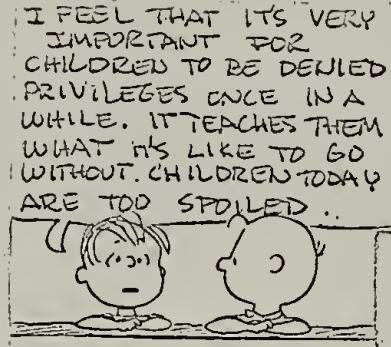
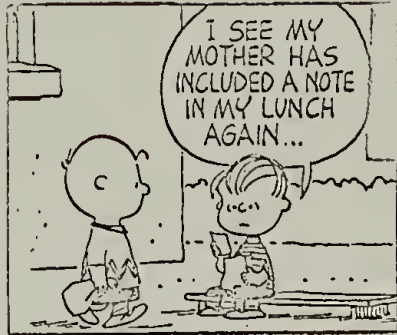


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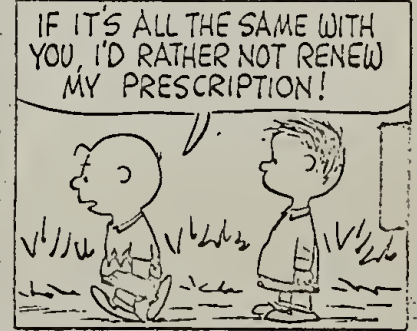
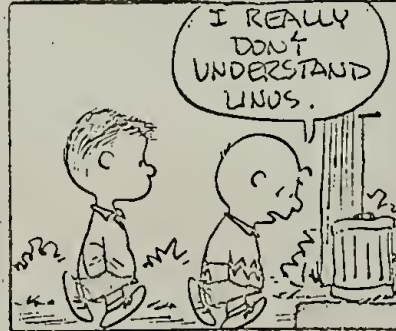
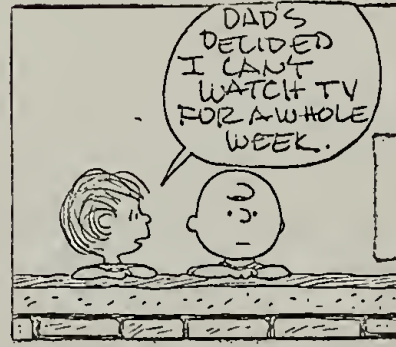
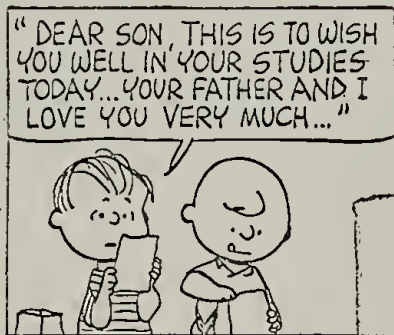
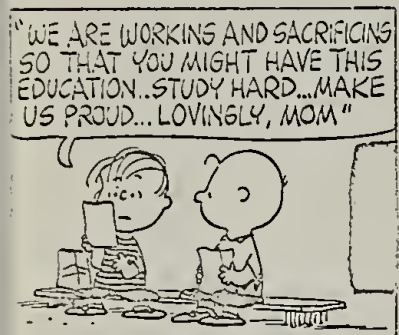
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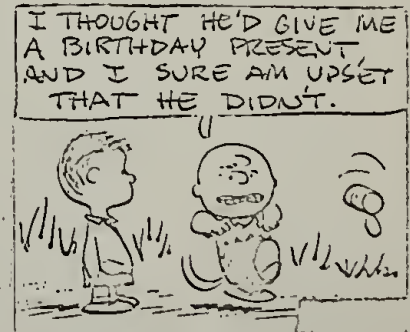
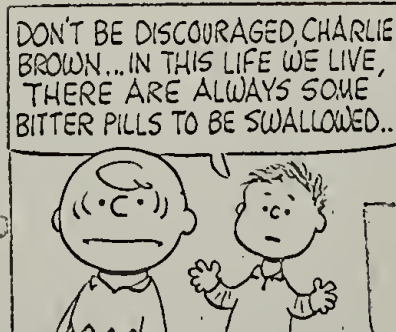
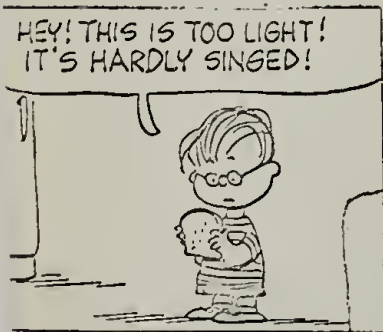
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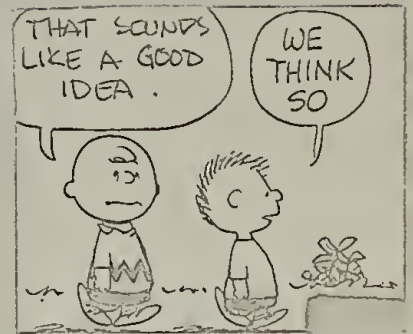


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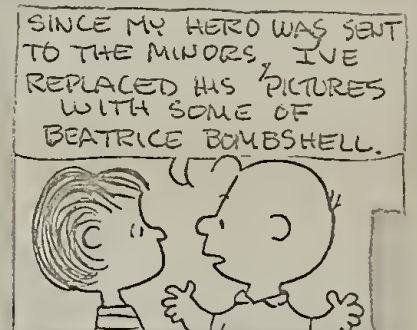
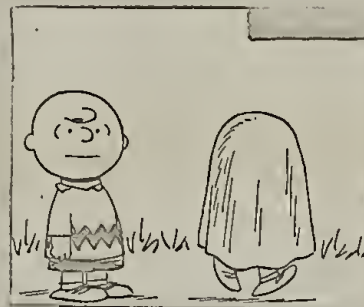
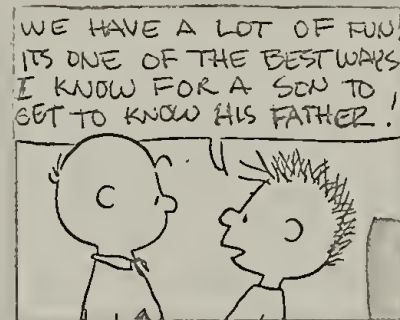
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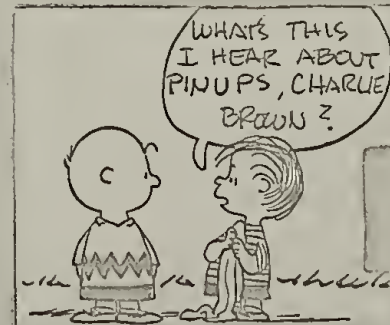
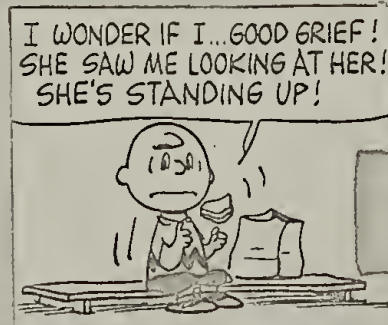
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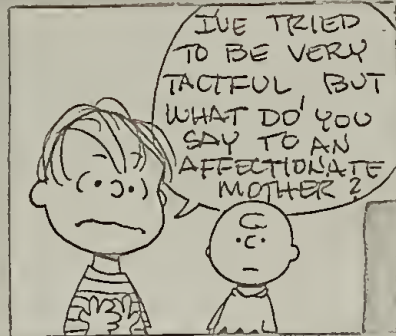
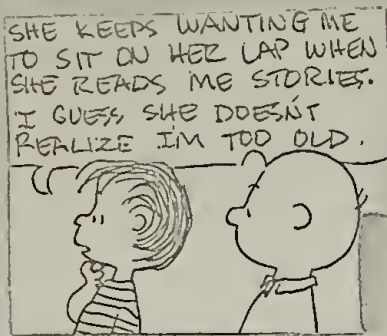


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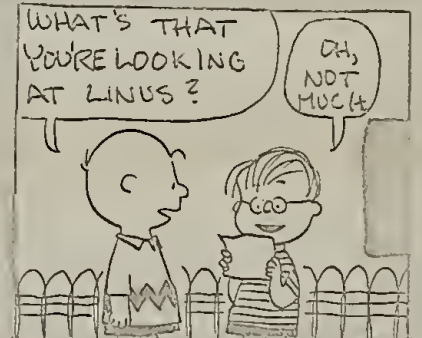
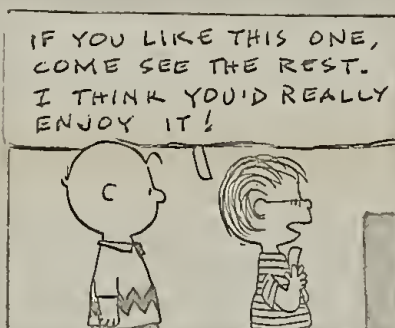
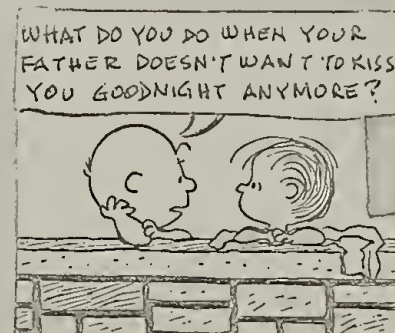
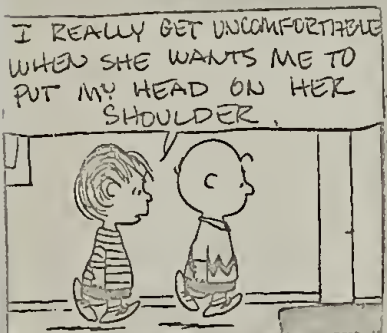
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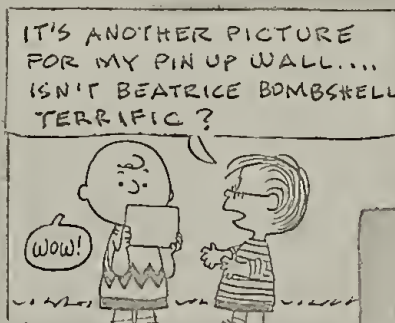
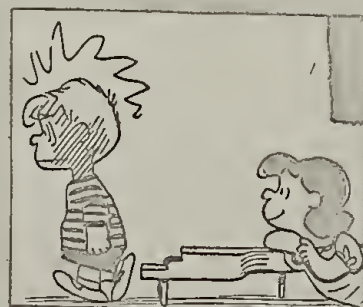
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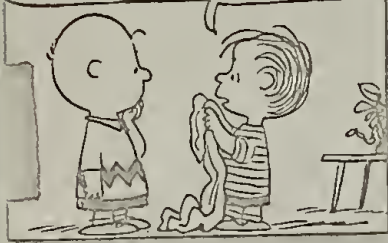
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I GUESS I REALLY SHOWED
MY MOM WHO'S BOSS!



WHAT DID
SHE SAY
TO THAT?

I COULDN'T TELL
SHE HAD HER
FACE BURIED
IN HER HANDS.



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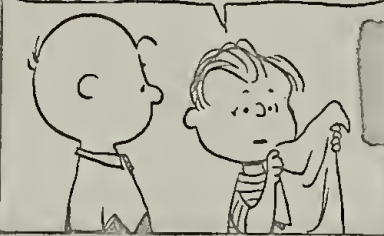
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I TOLD HER I'D GIVE UP
THE BLANKET IF SHE'D
GIVE UP HER POOL
TABLE.



WE HAD A DISCUSSION
ABOUT WHETHER OR NOT I
SHOULD GIVE UP MY BLANKET.



TELL HIM AN OCCASIONAL
REST IS IMPORTANT IN
OUR COMPLEX SOCIETY.



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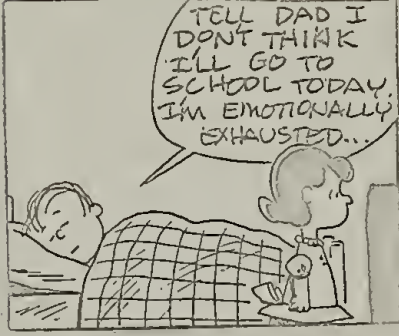
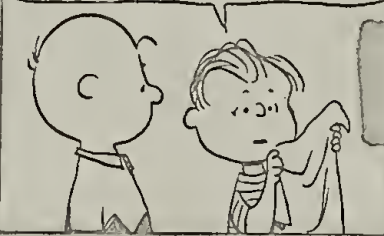
HE SAYS TO GET OUT OF
BED THIS VERY MINUTE!



I TOLD HER I'D GIVE UP
THE BLANKET IF SHE'D
GIVE UP HER POOL
TABLE.



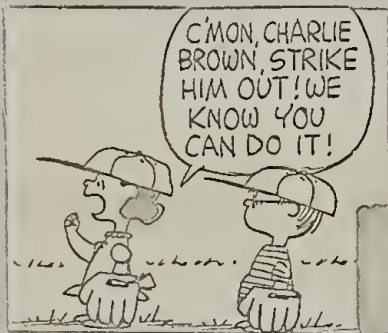
WE HAD A DISCUSSION
ABOUT WHETHER OR NOT I
SHOULD GIVE UP MY BLANKET.



TELL DAD I
DON'T THINK
I'LL GO TO
SCHOOL TODAY.
I'M EMOTIONALLY
EXHAUSTED...



I GUESS YOU CAN'T
WIN 'EM ALL!



C'MON, CHARLIE
BROWN, STRIKE
HIM OUT! WE
KNOW YOU
CAN DO IT!

C'MON, LET'S GET THIS GUY OUT HE CAN'T
HIT IT HE CAN'T EVEN SEE IT HE'S NO
GOOD C'MON LET'S THROW IT RIGHT ON
PAST HIM GIVE 'IM THE OL' BEAN BALL
LET'S PITCH IT RIGHT ON PAST 'IM, BOY

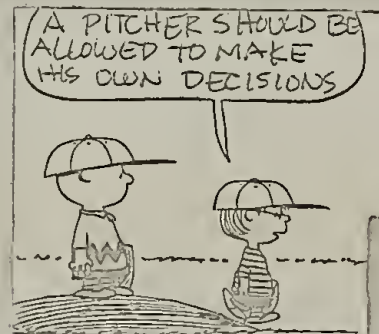


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A PITCHER SHOULD BE
ALLOWED TO MAKE
HIS OWN DECISIONS



I THINK
YOU'RE DOING
FINE, CHARLIE
BROWN

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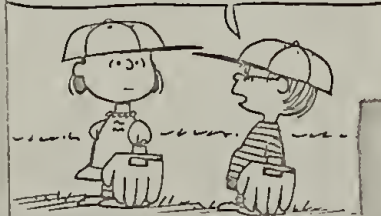
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C'MON, CHARLIE BROWN, STRIKE
HIM OUT! WE THINK
MAYBE YOU CAN DO IT !!



HOW CAN YOU SAY THAT? WE
DON'T KNOW THAT HE CAN
DO IT! YOU'RE BEING HYPOCRITICAL!



AFTER ALL, CHARLIE
BROWN, YOU'RE THE ONE
WHO HAS TO LIVE WITH
THE CONSEQUENCES!



I KNOW THAT EVERYONE
ELSE TRIES TO TELL YOU
HOW TO PITCH, BUT I DON'T
THINK THAT'S RIGHT. I
THINK YOU OUGHT TO
PITCH WHATEVER YOU
THINK IS BEST.



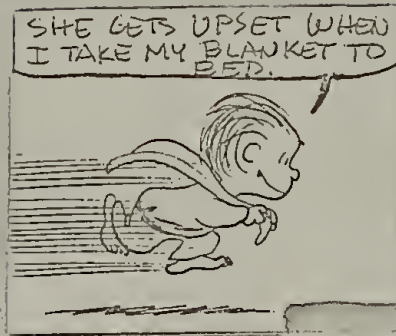
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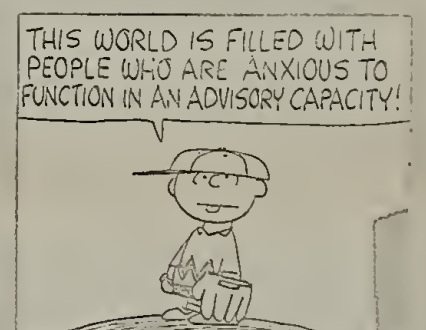
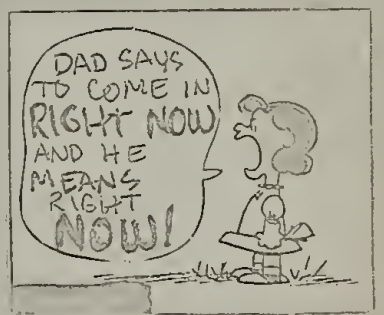
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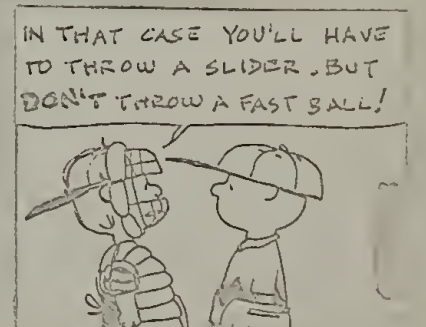
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4213 / 2413

IT'S DIFFICULT TO CRITICIZE A MOTHER WHEN SHE HAS SUCH HIGH HOPES FOR HER SON.

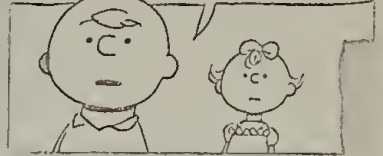


"STUDY HARD, AND SOMEDAY YOU MAY GET TO BE PRESIDENT"

FATHERS SHOULD ALWAYS CONSIDER THE IMPLICATIONS WHICH THEIR BUSINESS DECISIONS MAY HAVE ON THEIR CHILDREN'S PERSONALITIES



I GUESS I'LL HAVE TO SPEAK TO DAD ABOUT THIS. I'LL HAVE TO MAKE HIM REALIZE HOW WRONG HIS DECISION WAS!



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I'M SURE GONNA TELL HER WHAT A POOR JOB SHE DOES!... LOOKS LIKE SHE PUT IN A NOTE.



ANOTHER PEANUT BUTTER SANDWICH! MOM SHOULD BE ASHAMED, SHE'S SURE DONE A POOR JOB ON MY LUNCH LATELY!

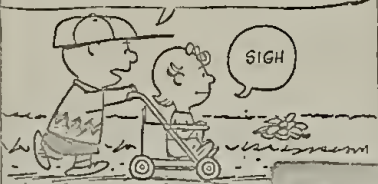


I'LL DRINK TO THAT!



I'VE REALLY BECOME UNPOPULAR SINCE HAIRCUT PRICES WENT UP AGAIN

I WOULDN'T PUSH YOU IF I DIDN'T WANT TO. WHAT'S A BROTHER FOR IF HE WON'T PUSH HIS SISTER IN TIME OF NEED?



SIGH



I CAN'T PLAY RIGHT NOW. I HAVE TO PUSH SALLY A LITTLE LONGER.

DON'T FEEL GUILTY, LINUS. IT'S YOUR DUTY TO PITCH WHEN THE TEAM NEEDS YOU!



I DON'T WANT TO BE A PITCHING HERO AT YOUR EXPENSE...IF YOU HADN'T GOT "LITTLE LEAGUER'S ELBOW," I WOULDN'T EVEN BE PITCHING



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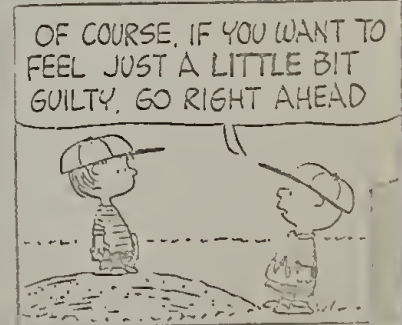
DON'T FEEL BAD, SALLY, I REALLY DON'T MIND.



I SHOULD BE BACK HERE IN ABOUT FIVE MINUTES..



I FEEL GUILTY, CHARLIE BROWN...



OF COURSE, IF YOU WANT TO FEEL JUST A LITTLE BIT GUILTY, GO RIGHT AHEAD

2431

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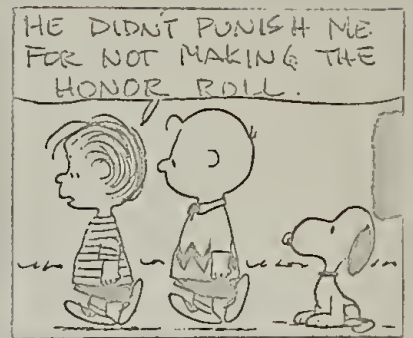
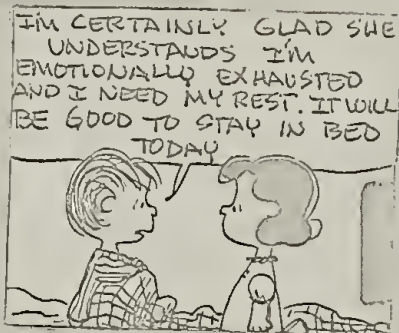
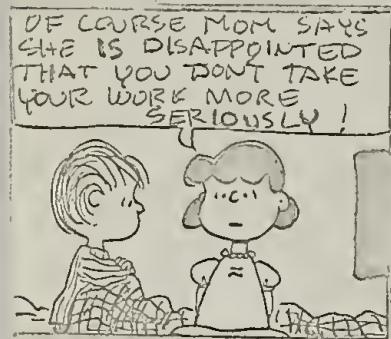


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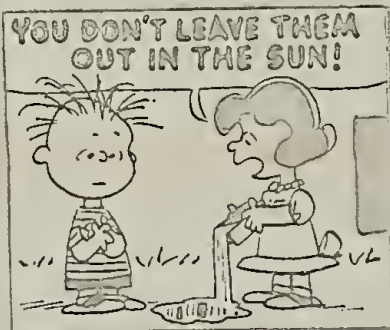
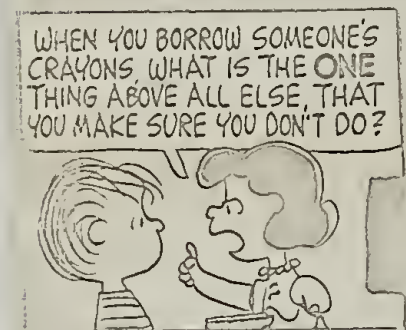
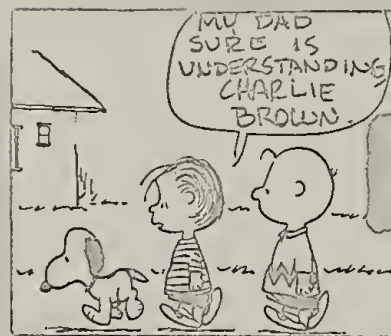


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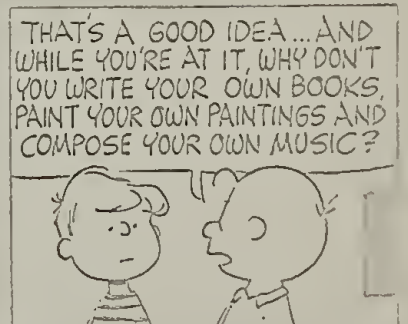


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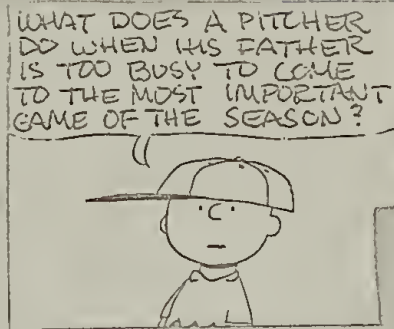
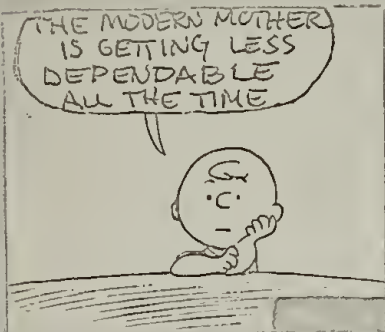
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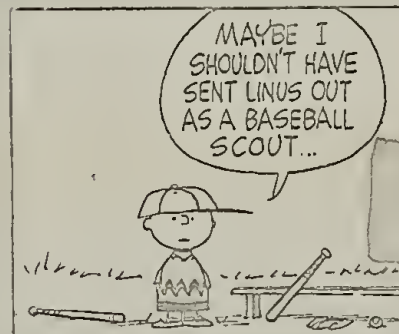
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THEN YESTERDAY SALLY CRAWLED INTO THE STREET AND HE SAVED HER LIFE HIS MOTHER SURE TRUSTS HIM NOW!

HIS MOTHER SURE IS STUPID! SHE DIDN'T EVEN TRUST HIM TO TAKE CARE OF SALLY.

OH YES... DAD EXPECTS ME TO GO WITH HIM AT LEAST TWICE A WEEK.

MY FATHER THINKS OF A SON AS SORT OF A BUILT IN FRIEND!

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HOW DOES IT FEEL TO BE A HERO?

MAY I HAVE YOUR AUTOGRAPH, CHARLIE BROWN?

HEY, LINUS, DID YOU HEAR THE NEWS? CHARLIE BROWN IS A HERO!

I THINK HE LIKES HAVING A SON TO TAKE TO THE BALL GAME...

ARE YOU GOING TO THE BALL GAME WITH YOUR FATHER TONIGHT?

MY ARM HURTS.

ALREADY? THIS IS ONLY THE FIRST GAME OF THE SEASON! YOUR ARM CAN'T HURT ALREADY!

POW

...AND CLEAR OVER THE BACKSTOP!

I'M COUNTING ON YOU, CHARLIE BROWN. I KNOW YOU CAN DO IT!

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WHY DON'T YOU JUST GIVE UP?

I'LL SHOW YOU WHO CAN WIN A GAME!

WHAT'S THE MATTER WITH YOU, CHARLIE BROWN? WE CAN NEVER DEPEND ON YOU TO WIN A GAME.

IT'S A FULL COUNT. IF YOU CAN GET THIS BATTER, WE'LL WIN THE GAME!

THERE IT IS...RIGHT OVER THE PLATE...

1432

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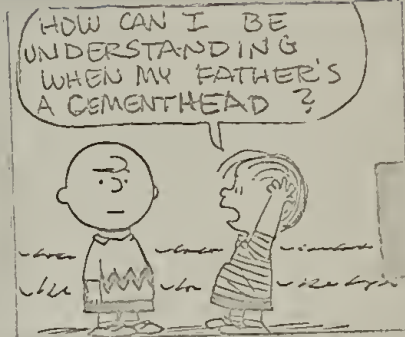
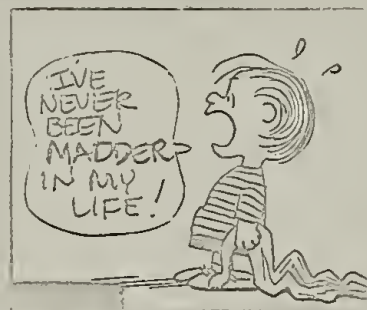
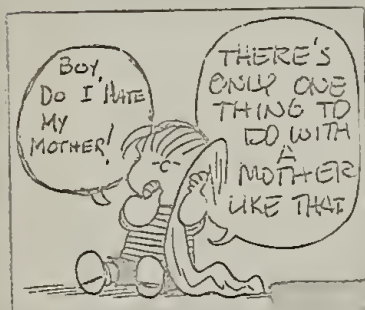


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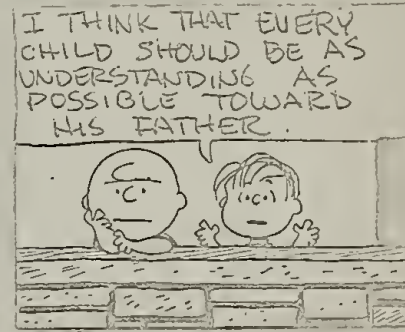
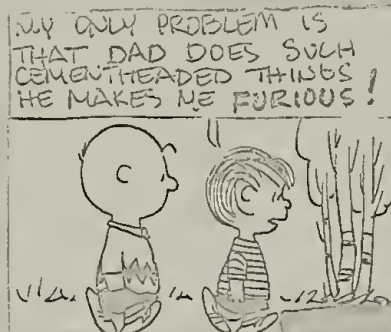


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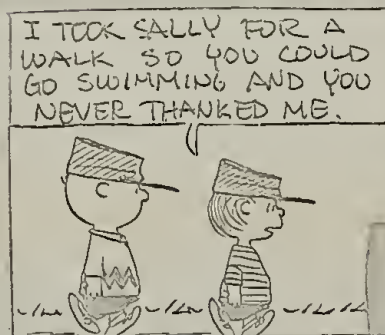


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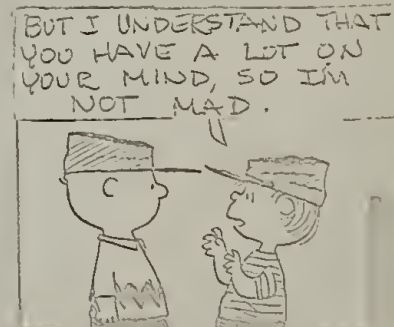
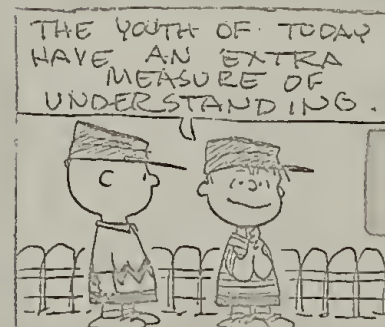
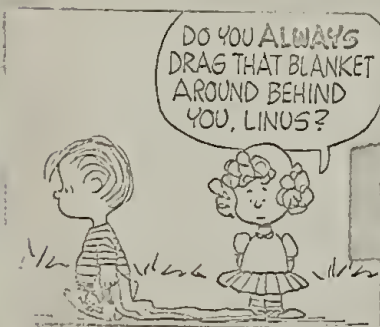


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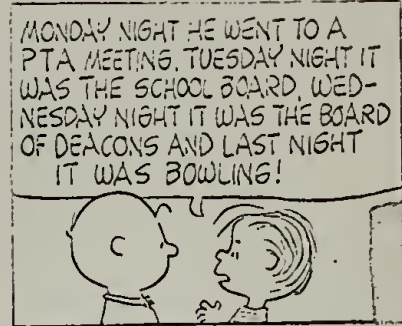
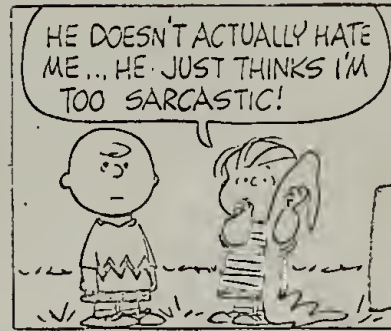
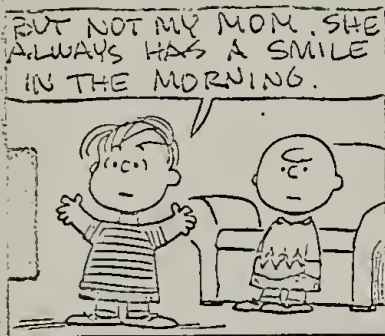


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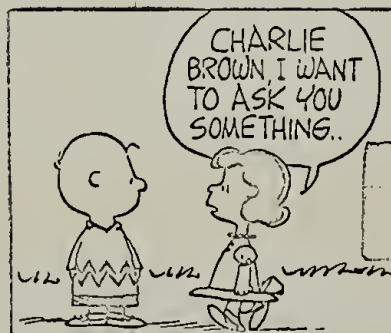
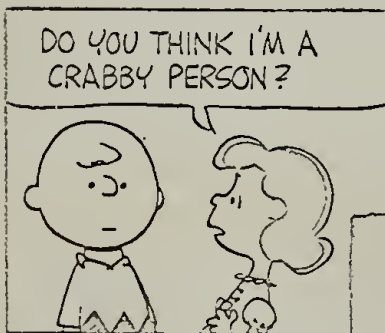
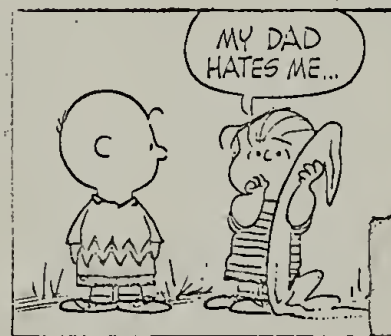


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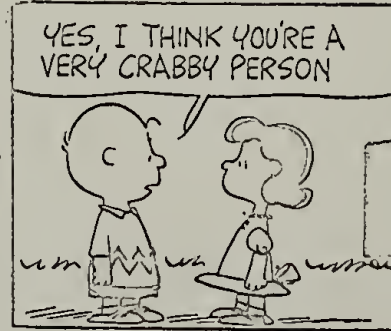
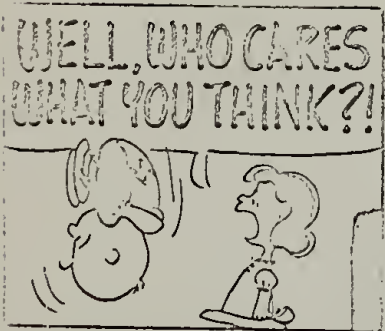


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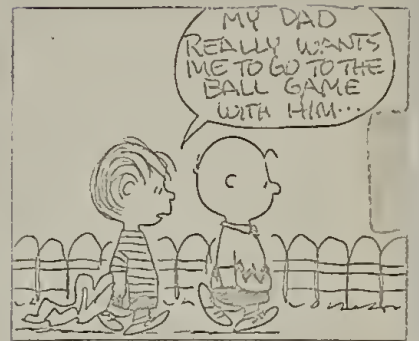
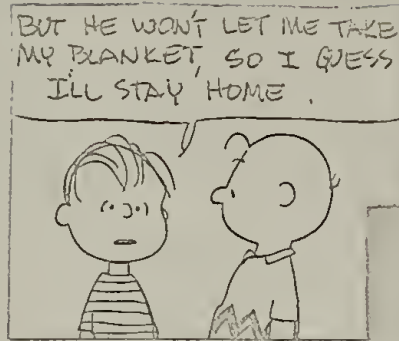
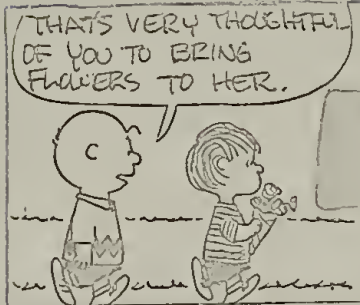


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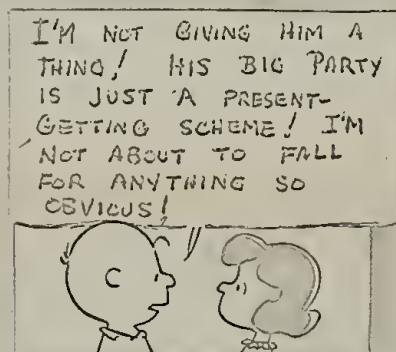
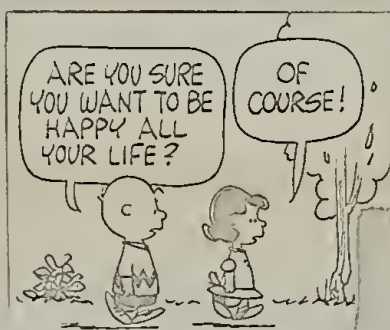
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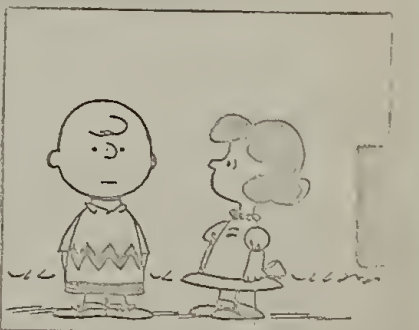
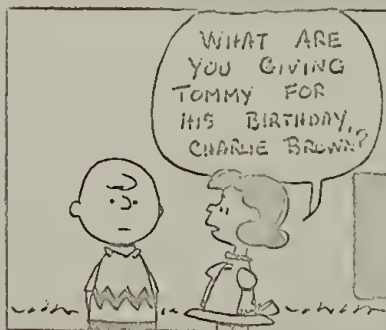
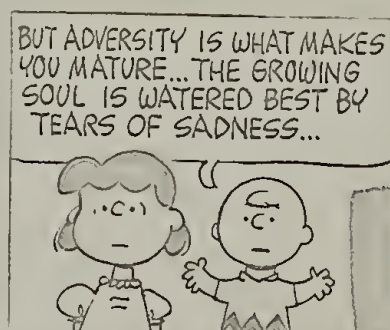
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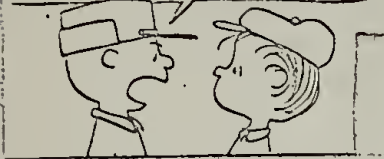


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ITS BEEN THIS WAY ALL WEEK, AND ITS BECAUSE ALL MY MOTHER THINKS ABOUT IS THAT STUPID GAME OF POOL!



A PEANUT BUTTER SANDWICH AND A BANANA...WHAT AN UNIMAGINATIVE LUNCH!



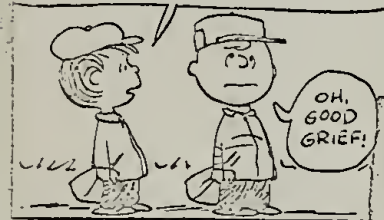
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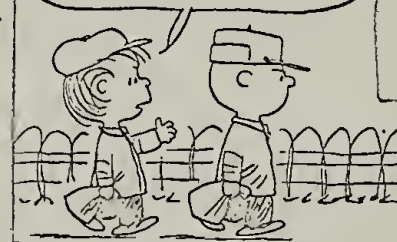
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YOU HAVE THE ONLY MOTHER WHO CAN PUT BACK-SPIN ON THE CUE BALL!



SO YOU'VE GOT A POOR LUNCH... BE PROUD...



HE FOUND HE COULDN'T DO IT, THOUGH, WITHOUT RAISING THE PRICE OF HAIRCUTS.



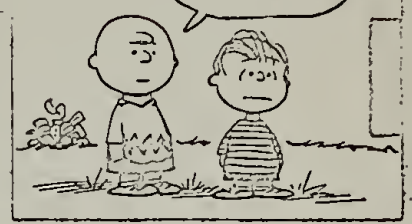
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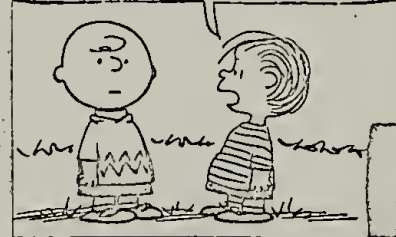
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I JUST HAD A BIG DISAPPOINTMENT



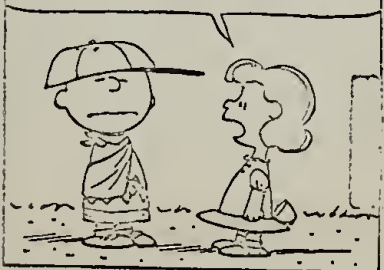
PROBLEMS OF HIGH FINANCE HAVE ALWAYS FASCINATED ME.



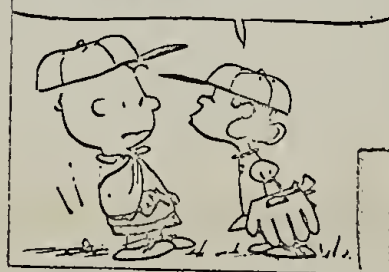
MY DAD WANTED TO RAISE MY ALLOWANCE. HE THOUGHT I NEEDED MORE MONEY NOW THAT I'M OLDER.



A LOUSY PLAYER LIKE YOU?!



DO YOU WANT ME TO KISS IT?



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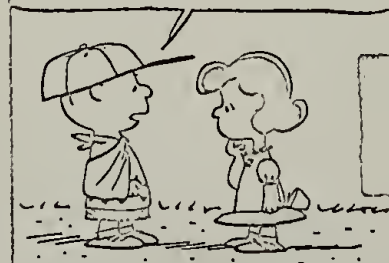
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I'VE GOT "LITTLE LEAGUES' ELBOW"!



YOU'VE GOT WHAT?

ITS REALLY QUITE PAINFUL.



GOOD OL' CHARLIE BROWN!



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A CHOCOLATE-CREAM AND A FRIENDLY PAT ON THE BACK



WHAT'S THE CURE FOR DISILLUSIONMENT, CHARLIE BROWN?

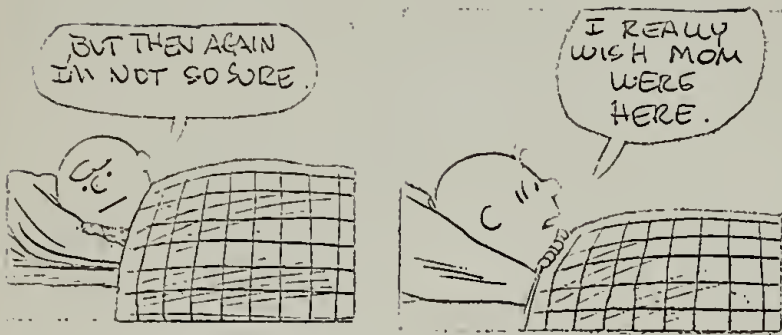


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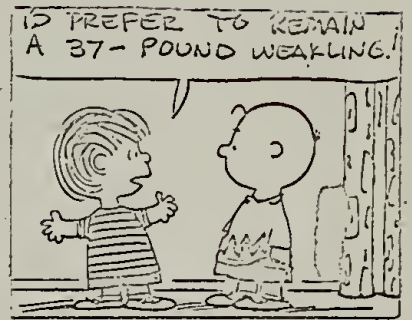
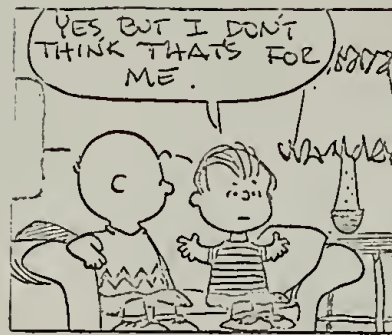
4321

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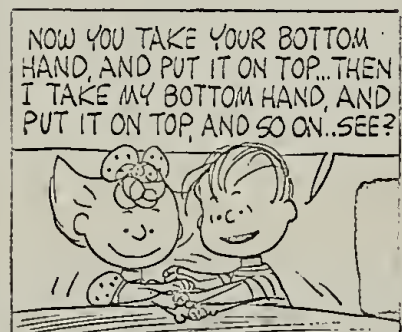
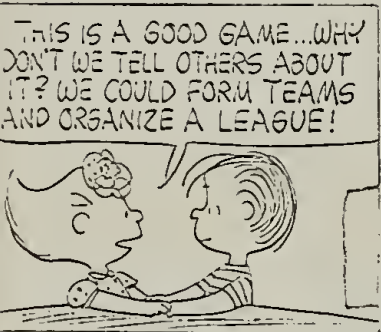
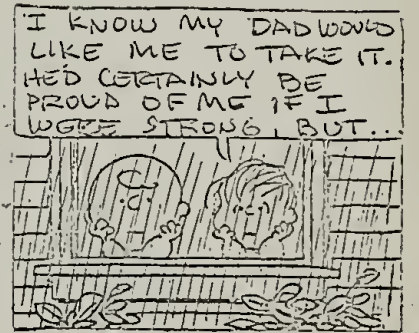
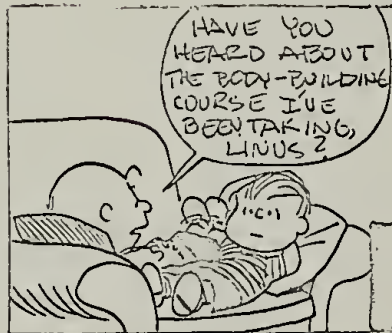
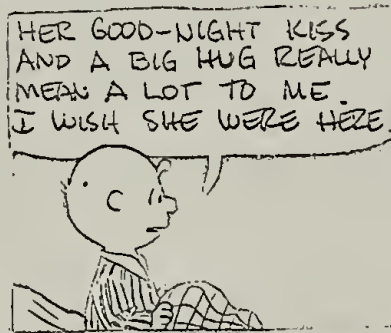
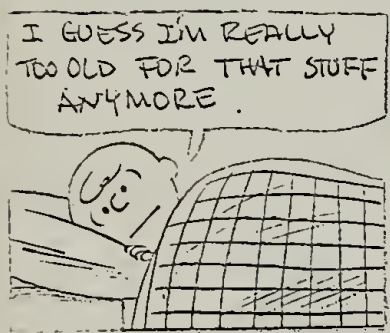
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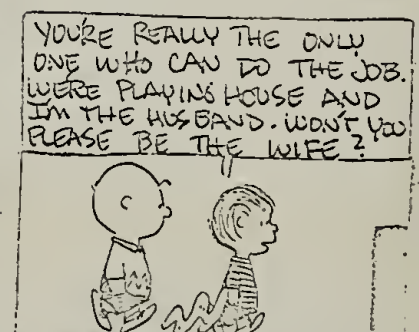
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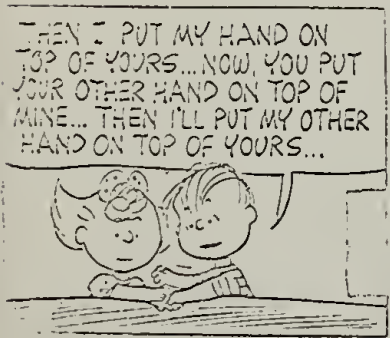
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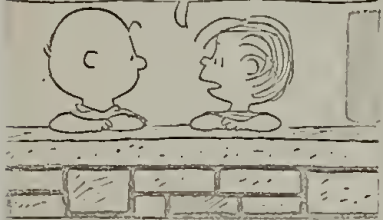


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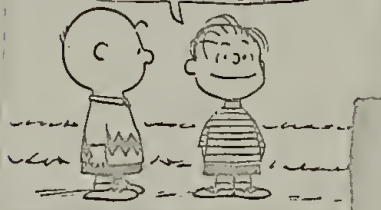
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3142

MY MOMS HAD IT ROUGH. SHE'S AFRAID OF THE DARK. SHE'S TRIED HARD TO SLEEP ALONE...



EVERYTHING'S O.K. NOW. SHE HARDLY MISSES DAD AT ALL ANYMORE!



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I HEAR YOUR DAD'S AWAY ON BUSINESS, LINUS.

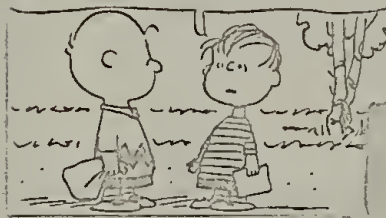
YES, HE'S BEEN GONE ABOUT A WEEK.



BUT SHE FINALLY ASKED ME TO SLEEP WITH HER...



YES, AND HE SAYS HE'LL BE PROUD WHEN I CAN SAY, "I WAS A 37-POUND WEAKLING!"



ARE YOU AND YOUR DAD GOING TO WORK OUT TOGETHER?



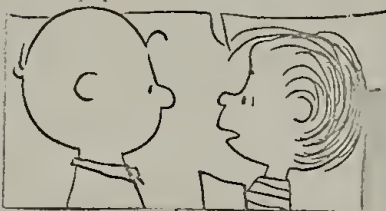
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IT'S A BOOKLET ON BODY-BUILDING. SOME OF THESE GUYS REALLY LOOK GOOD!



LOOK WHAT MY DAD GAVE ME, CHARLIE BROWN!



WHAT IF SHE SAID TO ME, "DEAREST CHARLIE BROWN, WON'T YOU BE MY VALENTINE? PLEASE? PLEASE? PLEASE?"



WHAT IF SHE CAME OVER TO ME AND HANDED ME A BIG FANCY VALENTINE WITH LACE ALL AROUND THE EDGE?



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YOU'RE RIGHT! THE SEX LIFE OF THE SEA ANEMONE IS A STIMULATING SUBJECT!



I KNOW YOU DON'T LIKE RACY STORIES, LINUS...



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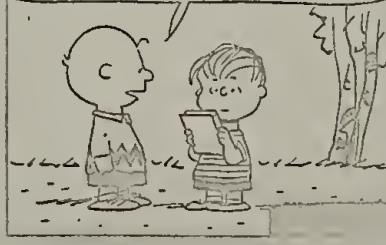
I'D BETTER GO IN... I THINK I'M CRACKING UP...



WOULDN'T IT BE GREAT IF THAT LITTLE RED-HAIRED GIRL GAVE ME A VALENTINE TOMORROW?



BUT THIS ONE'S REALLY GOOD. WHY DON'T YOU READ IT?



WOW! THIS IS REALLY GREAT!



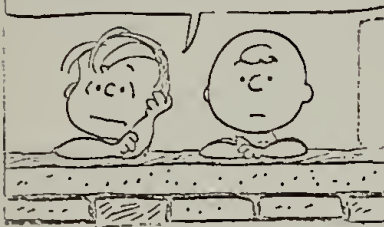
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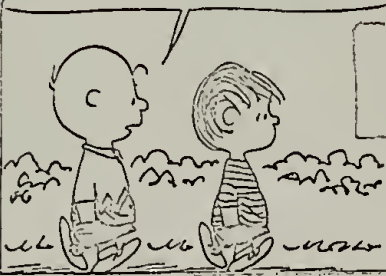
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I DON'T THINK IT'S A CHILD'S PLACE TO CRITICIZE HIS MOTHER'S LEISURE ACTIVITIES.



WHY DID YOU DECIDE THAT?



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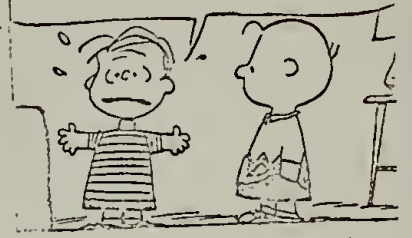
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WHEN MY DAD DOES THAT I GO ON STRIKE. THAT REALLY SHOWS HIM WHO'S BOSS.



HE SAYS I FORGOT TO PICK UP MY TOYS JUST ONCE TOO OFTEN.



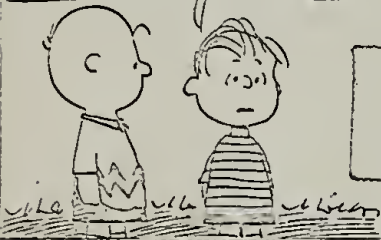
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I DON'T THINK I SHOULD TRY TO MAKE MOM GIVE UP HER POOL TABLE.



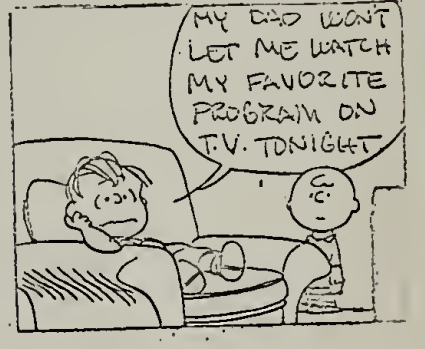
I'VE THOUGHT IT OVER PRETTY WELL.



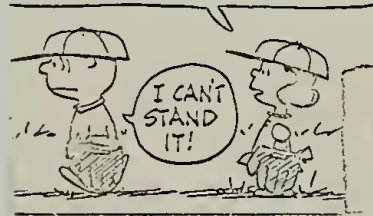
LINDS LOCAL NOW ON STRIKE!



MY DAD WON'T LET ME WATCH MY FAVORITE PROGRAM ON T.V. TONIGHT



WHENEVER A MANAGER TALKS TO ONE OF HIS PLAYERS, HE SHOULD MAKE SURE THAT HIS CAP DOESN'T TOUCH THE PLAYER'S CAP...



LOOK, LUCY, THIS IS OUR LAST GAME OF THE SEASON..

CAN'T YOU PLAY ANY BETTER THAN YOU'VE BEEN PLAYING?

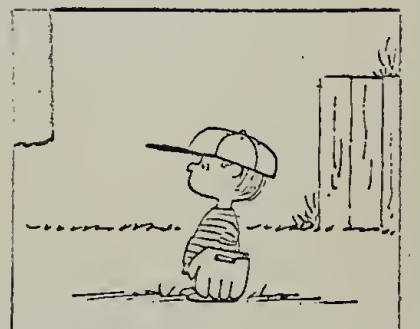
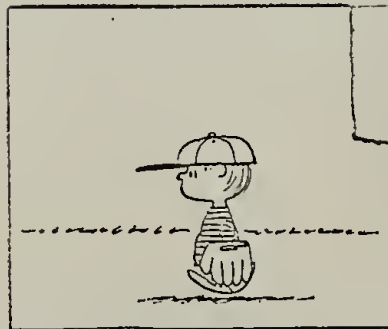


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MOVE YOUR HEAD SO YOUR CAP WON'T TOUCH MY CAP...



YOU'VE DROPPED FIVE FLY BALLS THIS INNING!

YOUR CAP IS TOUCHING MY CAP, CHARLIE BROWN...



ALL RIGHT, TEAM...LET'S HEAR A LITTLE CHATTER OUT THERE!



GIVE ME A SUGGESTION, WILL YOU, CHARLIE BROWN? I NEVER CAN THINK OF ANYTHING TO SAY

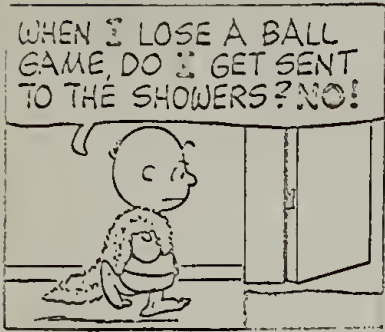


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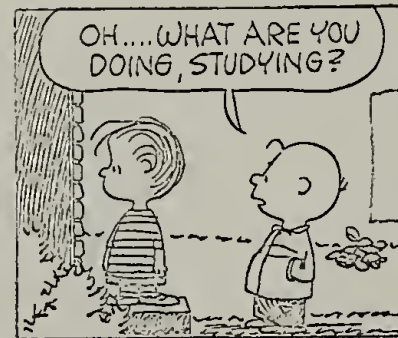
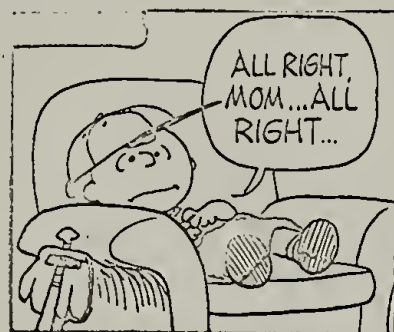


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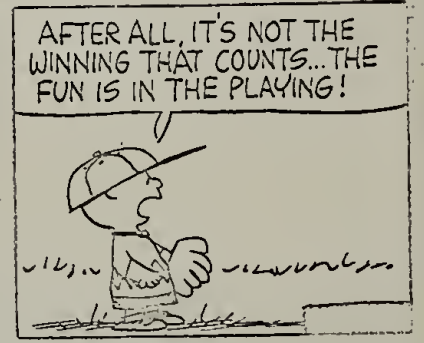
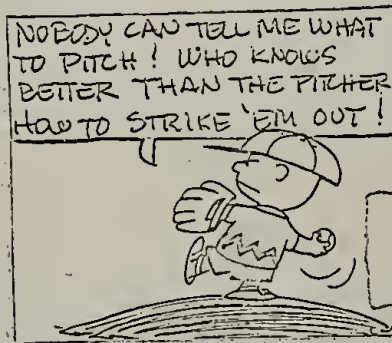


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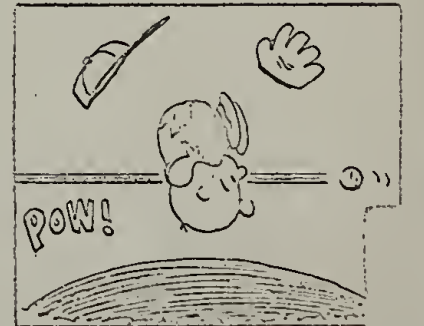
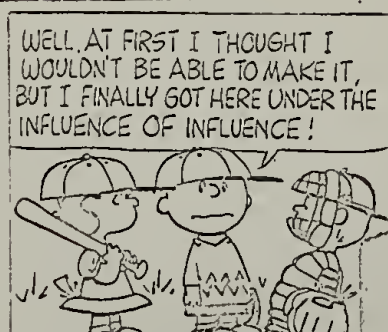
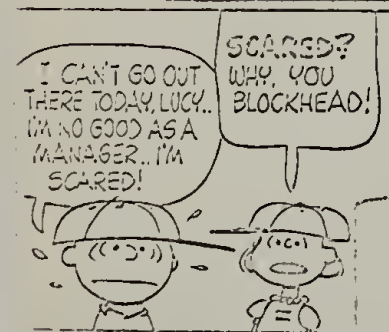


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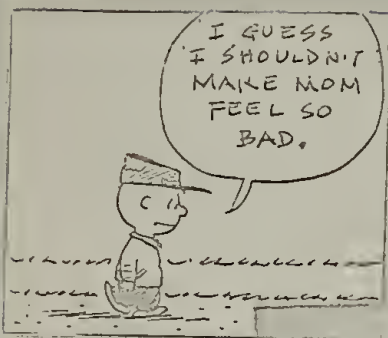


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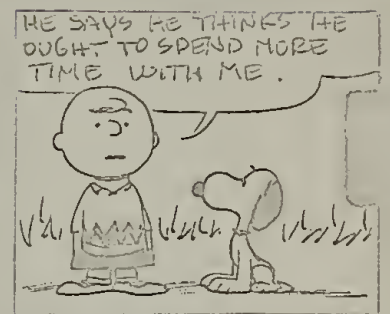
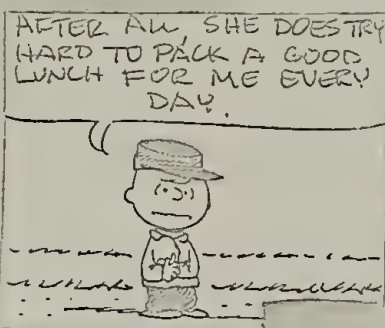
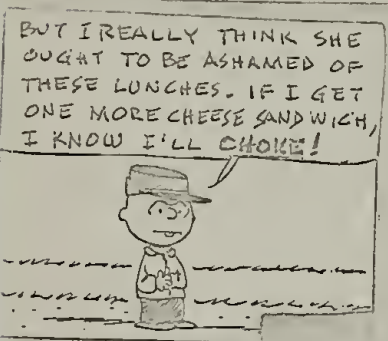


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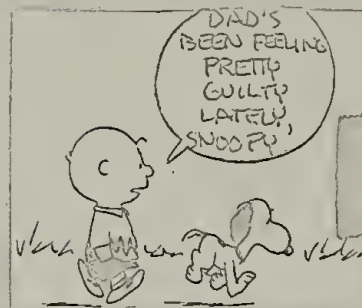


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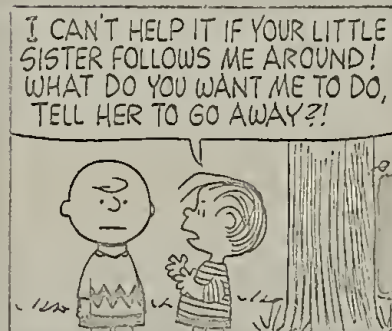


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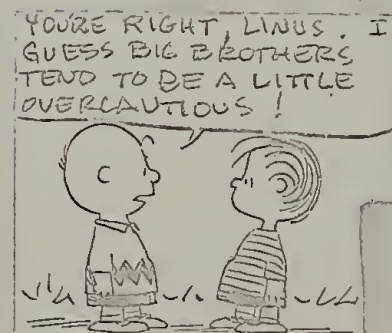


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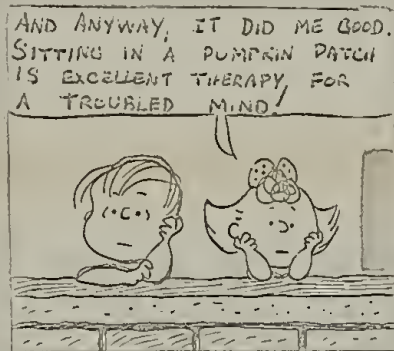
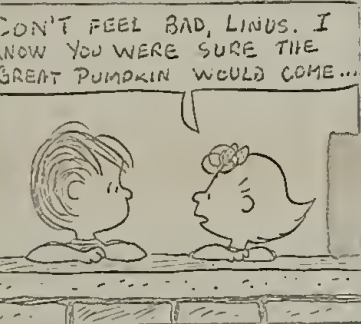


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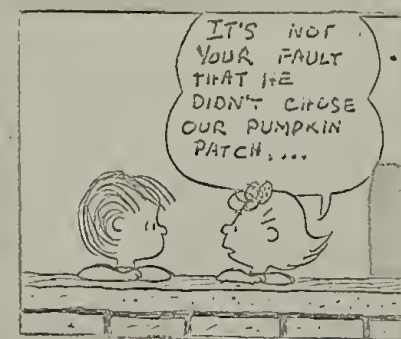
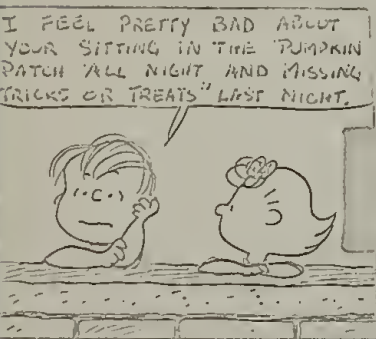


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APPENDIX K

QUESTIONS

1. How well do you know the Peanut cartoon strip? (check one)
 - ☐ very well
 - ☐ pretty well
 - ☐ a little
 - ☐ not at all
2. What is your cumulative average? _____
3. How many people are there in your immediate family? _____
4. Have you ever served in an elective office (check one at each level)

| | |
|--|--|
| in high school? <input type="checkbox"/> yes | in college? <input type="checkbox"/> yes |
| <input type="checkbox"/> no | <input type="checkbox"/> no |
5. Have you ever sought professional psychological help? ☐ yes ☐ no
6. Are you now living in (check one)

| | | |
|---|---|---|
| <input type="checkbox"/> a rented room | <input type="checkbox"/> a dormitory | <input type="checkbox"/> a rented apartment |
| <input type="checkbox"/> a rented house | <input type="checkbox"/> your parents' home | <input type="checkbox"/> other (specify) |
7. List the names of all the professors you can.
8. In what broad category of religious affiliation would you place yourself? (check one)

| | |
|---|--|
| <input type="checkbox"/> Orthodox Jewish <input type="checkbox"/> Christian Scientist <input type="checkbox"/> Fundamentalist Protestant <input type="checkbox"/> Agnostic <input type="checkbox"/> Mormon <input type="checkbox"/> Roman Catholic | <input type="checkbox"/> Liberal Protestant <input type="checkbox"/> Reformed Jewish <input type="checkbox"/> Atheist <input type="checkbox"/> Orthodox Churches (Greek and Russian) <input type="checkbox"/> Conservative Jewish |
|---|--|
9. Which best characterizes your dating? (check one)

| | |
|---|--|
| <input type="checkbox"/> unattached <input type="checkbox"/> dating one person steadily <input type="checkbox"/> pinned | <input type="checkbox"/> engaged <input type="checkbox"/> married |
|---|--|

How many people give you presents at Christmas time? _____

11. What do you consider to be the nature of Man? (check one)

- | | |
|---|---|
| <input type="checkbox"/> totally evil | <input type="checkbox"/> mostly good, but partly evil |
| <input type="checkbox"/> mostly evil, but partly good | <input type="checkbox"/> Totally good |
| <input type="checkbox"/> equally evil and good | |

12. List as many of your mother's lady friends as you can.

13. When on dates, MOST of the people I know have done the following (check as many as are applicable)

- | | |
|---|---|
| <input type="checkbox"/> have sexual intercourse | <input type="checkbox"/> pet |
| <input type="checkbox"/> kiss and neck | <input type="checkbox"/> have oral contact with genitalia |
| <input type="checkbox"/> manipulate genitalia to orgasm | |

14. To how many people do you give presents at Christmas time? _____

15. Assuming Christianity to be true, which aspect of Christianity holds the most meaning for you? (check one)

- | | |
|--|---|
| <input type="checkbox"/> provision of a moral code | <input type="checkbox"/> salvation from damnation |
| <input type="checkbox"/> "life more abundant" | <input type="checkbox"/> provision of a "way of life" |
| <input type="checkbox"/> forgiveness of sins | |

16. Check any of the following sports in which you have participated in any way

- | | |
|---|-----------------------------------|
| <input type="checkbox"/> squash | <input type="checkbox"/> lacross |
| <input type="checkbox"/> Skiing (snow or water) | <input type="checkbox"/> sailing |
| <input type="checkbox"/> weight lifting | <input type="checkbox"/> tennis |
| <input type="checkbox"/> track and field | <input type="checkbox"/> boxing |
| <input type="checkbox"/> soccer | <input type="checkbox"/> swimming |

17. How often do you attend religious services? (check one)

- | | |
|--|---|
| <input type="checkbox"/> more than once a week | <input type="checkbox"/> a few times a year |
| <input type="checkbox"/> once a week | <input type="checkbox"/> once a year |
| <input type="checkbox"/> once a month | <input type="checkbox"/> never |

18. Which best describes the atmosphere of your home? (check one)

_____ if given the opportunity most children would show that they were capable of handling more responsibility than is generally expected.

_____ the saying " Father knows best " still has more than a grain of truth.

19. List the first and last names of everyone you can in this room.
(Turn over and use the back if necessary.)

YOUR NAME _____

AGE _____

CLASS _____

APPENDIX L

INSTRUCTIONS

This is a picture arrangement test. You are going to be shown some series of pictures, one series at a time. The pictures in each series have been scrambled. Before they were scrambled, they composed a complete cartoon. You are to put the pictures in their original order, thus re-creating the original cartoon. The pictures are numbered so that you can use the numbers in organizing them. I'll show some samples in a minute. You will be shown each series of pictures for 45 seconds only. During this time, you are to solve the cartoon and write your answer on the answer sheet provided.

You will notice that in some cartoons, new wording has been supplied. Such changes do not supply any special clues for solving a cartoon, so it will be to your advantage not to waste time by giving reworded cartoons extra attention.

Each cartoon has one correct solution. However, for some cartoons there may also be an alternative answer which will be acceptable. Every cartoon can be solved.

Make sure each S puts his seating number on his answer sheet. This will be a check on visibility, as well as serve as identification.

Show sample and explain. Ask about visibility.

Explain answer sheet.

There must be no talking.

Start experiment.

APPENDIX M

HENDERER - HARRISON INTERPERSONAL RELATIONS SCALE

FORM
A

FORM
B

| TRUST | | HOSTILITY | | GIVING | | SEDUCTION | | DOMINANCE | | GUILT | |
|-------|---|-----------|---|--------|---|-----------|---|-----------|---|-------|---|
| a | p | a | p | a | p | a | p | a | p | a | p |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

| | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

BOY-
MOTHER
BOY-
FATHER
BOY-GIRL
BOY-BOY

NAME _____ DATE _____

SEX ☐ MALE ☐ FEMALE SCORE

AGE

APPENDIX N

November 13, 1964

James M. Henderer
153 Lyman Street
South Hadley. Massachusetts

Dear Mr. Henderer,

You certainly may have my permission
to use "Peanuts" in your thesis. If
you need any additional information
you are welcome to write back to me.

Kindest regards.

Sincerely,

Charles M. Schulz
Charles M. Schulz

