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AN EXPERIMENTAL ANALYSIS OF PROACTIVE INHIBITION

by

SANDRA B. NEWMAN

A dissertation submitted to the Graduate Faculty in Psychology

in partial fulfillment of the requirements for the degree of

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Abstract

AN EXPERIMENTAL ANALYSIS OF PROACTIVE INHIBITION

by

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Advisors: Professor Bruce L. Brown

Professor Thom Verhave

Proactive inhibition (PI) in short-term memory has traditionally been studied using the Brown-Peterson task with groups of subjects. Semantic similarity of the trial stimuli, number of stimuli presented on a trial, and retention (distractor) interval duration have been demonstrated to affect the build-up of PI over trials on the Brown-Peterson task. This study examined the effects of the these variables on individual performance.

Twelve normal subjects, ages 17 through 50, participated in this experiment. In order to examine the effects of the variables on individual performance, two additional variables were adjusted to account for individual differences: distractor task difficulty and category membership. The initial similarity manipulation was presented to all subjects. All subsequent manipulations were based upon individual performance on the Brown-Peterson task.

The effect of similarity was examined based upon individual as well as group data. The effect of the number of stimuli per trial and of distractor interval duration were examined based only upon individual data. Two aspects of performance were analyzed. Mean percent correct was analyzed over four trials for both individuals and groups. The build-up of PI (decrement in performance) was measured over trials 1 and 2 for both individuals and groups, and across trials 1, 2, 3, and 4 for groups. The group analyses were performed using five scoring methods; the individual analyses were performed with two. These scoring methods differed with respect to the extent to which recall of correct stimulus position contributed to the score.

The analyses of the group data indicated a robust effect of similarity on overall mean performance for all scoring methods. This robust effect was also found for the build-up of PI over the first two trials for three of the five methods. For one of the two scoring methods used in the analyses of individual data, the effects of similarity, number of stimuli per trial, and duration of distractor interval on overall mean performance were robust. The effects of these variables on the build-up of PI over the first two trials for individuals, however, were not consistent.

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An individual's ability to respond correctly on a retention test can be compromised by a variety of factors. Interference theory states that forgetting (failure to respond correctly on a retention test) may occur as a result of previous learning interfering with the retention of new learning. This type of interference is called proactive inhibition or interference (PI). The forgetting of previous learning as a result of interference from more recent learning is called retroactive inhibition or interference (RI).

Interference theory explains forgetting for verbal material in both long-term and short-term memory studies (Adams, 1967). In long-term-memory (LTM) studies, subjects are presented with lists of items and retention is tested over intervals of minutes or longer whereas in short-term-memory (STM) studies, subjects are presented with a few items and retention is tested over intervals of usually a few seconds (Keppel and Underwood, 1962).

LTM studies dominated research on forgetting for the first half of the 20th century. It was not until Brown (1958) and Peterson and Peterson (1959) reported their work on forgetting over retention intervals measured in seconds that STM experiments generated much interest (Adams, 1967; Watkins, 1978). These experiments changed the focus of experimentation by providing a method, the Brown-Peterson task, for testing memory for a few items over the span of a few seconds, rather than lists of items over retention intervals of minutes or longer. This task would enable researchers to demonstrate whether or not the principle of interference, which applied to LTM, also applied to STM. Keppel and Underwood (1962) pointed out that since Peterson and Peterson found no evidence of PI in their STM study, and RI was believed to be minimized, it seemed that interference theory could not explain forgetting in STM as it did in LTM. This would create "a potential theoretical schism, with one set of propositions being used for LTM and another possibly wholly different set for STM" (Keppel and Underwood, p. 153). Keppel and Underwood set out to demonstrate that such a theoretical schism did not exist using what is now known as the Brown-Peterson task.

The Brown-Peterson task. In the Brown-Peterson task, subjects are exposed to a series of trials in which they are presented with a ready signal, a sequence of stimuli to be remembered, a retention interval which contains a distractor task, and a retrieval interval followed by an intertrial interval.

Some of the variables which have been manipulated are retention interval duration (Dillon, 1973; Keppel and Underwood, 1962; Lindley, 1963; Turvey, Brick, and Osborn, 1970; Wright, 1967;), number of trials (Keppel and Underwood; Wickens, Born, and Allen, 1963), intertrial interval (Loess and Waugh, 1967), and item similarity. Item similarity is a broad term that can refer to similarity along connotative dimensions, i.e., Osgood dimensions (Wickens and Clark, 1968), grammatical class (Goggin, 1974; Wickens, Clark, Hill, and Wittlinger, 1968), taxonomic categories (Loess, 1968; Wickens, Dalezman, and Eggemeier, 1976), and formal similarity (Wickens et al., 1963; Wright, 1967).

Wickens (1970) described a number of studies using the Brown-Peterson task in which attributes of the stimuli such as semantic similarity or the physical characteristics of the words were manipulated. Subjects were presented with successive trials in which the attribute of interest was held constant until the last trial, when there was a "shift". For example, if the stimuli on all trials were from the same semantic category, then the stimuli on the shift trial would be from a different semantic category. PI would build up as subjects progressed through the trials until they reached the shift trial. Improvement on this shift trial was called "release from PI". Wickens stated that changes in semantic content produced "a considerable amount of release from proactive inhibition whereas the physical characteristics of the words--their lengths and sounds--produce only a slight effect" (p. 8). Wickens, Dalezman, and Eggemeier (1976) demonstrated that the magnitude of the release corresponded to the semantic or psychological distance between the categories. They first determined the semantic or psychological distance of semantic categories using the amount of overlap of denotative attributes. For example, fruits and

vegetables have two major attributes in common, they both are edible and grow from the ground. Fruits and meats have only one major attribute in common, they both are edible. The semantic or psychological distance between fruits and meats is greater than that between fruits and vegetables. Therefore, the shift from fruits to meats results in a greater release from PI than does the shift from fruits to vegetables.

Group and single subject design. Research involving the Brown-Peterson task has traditionally used groups. All the studies mentioned thus far have been based upon group designs. The Brown-Peterson task has also been used to study age-related forgetting (Fozard and Waugh, 1969; Puckett and Lawson, 1989) with a group design.

Results from an individual subject (Parkin, Leng, Stanhope, and Smith, 1988) and relatively small groups of subjects (Leng and Parkin, 1989; Parkin et al., 1988) have been reported when the Brown-Peterson task was used as part of testing protocols with neurologically impaired individuals. Performance on individual trials was not presented but rather performance on trials pooled across duration of retention interval was presented. Jitsumori, Wright, and Shyan (1989) used the Brown-Peterson task with a single subject, a rhesus monkey. Pictures of flowers and primate faces were used as stimuli. In each session, the subject was presented with 40 trials using pictures of flowers followed by 40 trials using pictures of primate faces, or vice versa. A trial consisted of four consecutive picture slides, a 1-second retention interval, and then a probe slide in which the subject was to indicate whether or not the probe picture was identical to any that had been presented in the immediately preceding list. Results were averaged over blocks of eight trials. Jitsumori et al. found a build-up of PI when stimuli from the same category were used and a release when there was a category shift. These results were consistent with the group literature.

Will a build-up and release occur with individual human subjects when a trial-by-trial analysis is done? Gunter (1980), referring to group mean scores of release from PI, stated

that "the tendency to consider only mean group performance may be misleading and hides what is happening to the individual subject" (p. 1044). Gunter indicated that when television news material was used in the Brown-Peterson task (Gunter, 1979; 1980), there were significant improvements in mean group recall on the shift trials. Yet when the individual data were analyzed, "substantial proportions of subjects in the shift group failed to show improved performance on the release trial" (p. 1044). Gunter suggested that in order to determine the salience of an attribute, the number of subjects who demonstrated the release effect should be taken into account as well as the degree of the release effect for the group. Although, as Gunter indicated, these studies were not typical in that they involved complex verbal encoding, the important point was that significant differences in group means do not necessarily reflect the performance of substantial numbers of subjects.

The Brown-Peterson task has been used with individuals with data pooled across trials by distractor interval duration (Parkin et al., 1988). Can it be used so that trial-by-trial data can be examined and reflect useful information? Wickens (1970) "suggested the possibility that the shift procedure [release trial] could be used as something of a projective technique of cognitive organization; a way of asking the subject what classes are being employed without requiring him to identify or label them--or even...being aware of them" (p. 3).

Wickens made his statement based upon group results. A group experiment treats between-subject variability as unsystematic and so occasional idiosyncratic responses of individuals will average out. These responses, therefore, should not affect the group results but can affect the individual results. In the Brown-Peterson task these idiosyncratic responses may be in the form of unexpected improvement on trials or no evidence of a build-up of PI because of ceiling or floor effects. For an analysis of trial-by-trial performance for individuals, these idiosyncratic responses must be minimized, i.e., the variables that influence them have to be identified and controlled. Three variables which

have been demonstrated to produce differences in group performance were manipulated at an individual level in this experiment. The variables were the relation among stimuli which appeared in a trial ("similarity"), the number of stimuli presented on each trial, and the duration of the distractor interval. These variables were manipulated in order to change the subject's performance on the Brown-Peterson task. In order to examine the effects of these variables on individual performance, however, two additional variables were adjusted to account for individual differences: the distractor task difficulty and the particular stimuli to be recalled ("category membership"). Both similarity and category membership were intended to address the issue of lack of experimental control over the history of individuals with respect to the formation of semantic categories. Both sets of variables, "adjusted" and "manipulated", are discussed below.

"Adjusted" variables

Distractor task difficulty. A distractor task is presented in order to prevent rehearsal of the stimuli to be remembered. Both perceptual-motor and verbal activities have been used.

Crowder (1967) used a perceptual-motor activity (keypressing) as a distractor task in two experiments. The subject pressed keys corresponding to stimulus lights. If the subject pressed the correct key, the light would go out and another would appear. The task was self-paced so that the keypressing score was the number of lights extinguished in a fixed interval of time. For his first experiment, subjects were sequentially exposed to (1) pretraining on the keypressing task, (2) Brown-Peterson trials with backward counting as the distractor task, (3) Brown-Peterson trials with keypressing as the distractor task, and (4) just a keypressing task. For his second experiment, subjects were exposed to procedures (1), (2), and (4). In the first experiment, he found that all subjects achieved higher recall with the keypressing task than with the backward counting task. He also found that of his 60 subjects (both experiments combined), 53 made fewer keypresses

during the Brown-Peterson trials than during the keypressing alone trials. This result provided evidence for rehearsal during the distractor interval, although there was no consistent negative correlation between recall and keypressing on the Brown-Peterson trials. In addition, he noticed that some subjects "fused" the memory and keypressing tasks by whispering the words in time to the keypresses. However, he was not able to determine how prevalent this practice was among his subjects. He concluded that the perceptual motor activity (keypressing) used in his study "turned out to be a generally poor method of controlling rehearsal when compared with those verbal tasks typically used in STM studies (counting backwards, digit reading, color naming)" (p. 759).

Wickens et al. (1963) used color naming as the distractor task. They noted that subjects tended "to shirk the color-naming task in an effort to rehearse the item on which the retention was to be tested. Occasionally, Ss [subjects] were heard interpolating a consonant or a number among the color names, and there seemed to be a tendency toward increased latencies of color-naming as the trials progressed" (p. 443).

A frequently used distractor task has been counting backwards by threes (Wickens et al., 1976; Wickens and Clark, 1968; Keppel and Underwood, 1962; Peterson and Peterson, 1959). This task was deemed difficult enough to prevent the subject from rehearsing, and different enough from the stimuli to be remembered so that retroactive interference would be minimized. In these and other studies, the distractor task has been presented to all subjects at the same rate. In the Leng and Parkin (1989) study with neurologically impaired participants, however, the distractor task was modified to counting backwards by ones for the one individual who found it too difficult to count backwards by threes.

Gardiner, Craik, and Birtwistle (1972), Dillon and Bittner (1975), and Wixted and Rohrer (1992) presented common words (taken from Thorndike and Lorge, 1944) spelled backwards and required their subjects to read the words as if they were correctly written.

These backwards words were presented to every subject at the rate of one word every 1.5 seconds. In these experiments, as in experiments using other verbal distractor tasks, there was a build-up of PI across trials.

In the present experiment, common words from Thorndike and Lorge (1944) were spelled backwards and subjects were required to read the words as if they were correctly written. Rather than the experimenter presenting the words at the same rate to all subjects, the words were presented to each subject at a rate adjusted for that subject's backward reading ability.

Stimulus category membership. Stimuli used in the Brown-Peterson task have typically been consonant trigrams (CCC) or words from the same semantic category. When the latter have been used, they have typically come from normed lists; Wickens et al. (1976) used Battig and Montague norms. The assumption was that the subjects would recognize the words as belonging to the nominal categories. Gardiner et al. (1972) and Dillon and Bittner (1975) attempted to present their subjects with stimuli that were "most representative" (Dillon and Bittner, p. 617) of the experimental categories and subsets of these categories by having items from lists selected and sorted by subjects who were not exposed to the Brown-Peterson task. For both studies, items were eliminated which did not meet a "familiarity" criterion, or were rejected because these subjects did not recognize the words as belonging to a basic category, e.g., cities. "It was felt that items selected on the basis of subjects who could not classify them, and alternatively, items known only by the best subjects would be of little use in obtaining the desired effect" (Dillon and Bittner, p. 617).

In the present study, each subject sorted stimulus words so that only those words which the subject indicated as belonging to the categories specified by the experimenter would be used for that subject.

Manipulated variables

Similarity. Wickens et al. (1976) investigated semantic distance. The results of that study demonstrated that PI builds up over trials when subjects are presented with words from the same semantic category and that there is a release from PI when stimuli are presented from a different semantic category. The magnitude of the release is reflective of the semantic distance between the categories (between-class differences). On the other hand, Gardiner et al. (1972) and Dillon and Bittner (1975) demonstrated that the release effect can occur when stimuli from the same general category are used (within-class differences).

Gardiner et al. (1972) investigated the release from PI phenomenon by shifting to different subsets of the same semantic category on the last trial rather than to different semantic categories. Subset membership was determined by a sorting task presented to a separate group of subjects. For example, these subjects sorted members of the basic (general) category "flowers" into either "garden flowers" or "wild flowers". On the shift trial, there was either no cue (control group) or the presentation of cues, the subset names. A cue was presented either just prior to the presentation of the trial stimuli (CP group) or at recall (CR group). Gardiner et al. found the subset-cued groups showed a release effect and the control group showed a continued decline in accuracy of responding. They found no difference between the two subset-cued groups. They reported that only one subject in the control group and only one subject in the CR group were aware of the subset shift at the time the stimuli were presented. Therefore, the significant improvement in recall in the CR group seemed to be attributable to the cue presented at recall and not to an awareness of the shift by the subjects in that group. They concluded that the cue served as a selection device.

Dillon and Bittner (1975) also investigated the release effect using subsets of the basic categories. For three groups of subjects, the fourth trial contained a subset shift. For

three groups of subjects, it did not. For the three groups with a shift, one group was presented with a general category cue on the fourth trial, one group was presented with a subset cue prior to the presentation of the stimuli on the fourth trial, and one group was presented with a subset cue at recall on the fourth trial. These same cue conditions were used for the three groups without the shift. From the analyses of the fourth trial, they found main effects of subset shift and of subset cues, with more accurate recall occurring in the shift than in the non-shift condition, and more accurate recall occurring in the subset cue than in the general cue condition. There was no interaction between shift and cue conditions. Their findings agreed with Gardiner et al. (1972) that there was no difference between the subset-cued groups. Contrary to the results of Gardiner et al., however, the subset shift in the general cue condition did have an effect on recall. This result indicates the importance of considering subset membership when presenting the Brown-Peterson task to individuals. An unexpected improvement may occur as a result of presenting a trial consisting of all items belonging to a subset which the subject recognizes, although the experimenter may not. Moreover, changing subsets from trial to trial may attenuate the build-up effect.

In order to determine subset membership, Gardiner et al. (1972) had subjects who did not participate in the Brown-Peterson task sort basic category words into two subsets and into a "reject" category. These subjects were told to make their decisions "in a subjective rather than in an absolute sense" (p. 780). Subset words which were finally used had to be either two or three syllables in length and had to meet certain familiarity and frequency ratings. Dillon and Bittner (1975) used a similar procedure, requiring a similar degree of familiarity and frequency. Words were sorted into four subsets and a reject category. For example, the four designated subsets of the category sports were indoor team, indoor individual, outdoor team, and outdoor individual. Items from the same subsets were randomly assigned to trials with the restriction that words which were related in some

way other than by the designated subsets could not appear within a trial. For example, water sports could not appear on the same trial. While the experimenter can identify subsets such as these, there may be other subsets, peculiar to the subject, which the experimenter cannot identify. In a group design, the random occurrence of these subsets unique to a subject may cause unexpected improvement in accuracy of responding on some trials. If enough subjects are used, these occasional random occurrences would not adversely affect the results. In a single-subject design, however, unexpected improvements would be noticed and require an explanation.

Watkins and Watkins (1975) described the build-up of PI as a cue overload effect. The cue overload principle states that forgetting occurs because the effectiveness of a cue to facilitate recall decreases as the number of items it subsumes increases. For example, if "last list" serves as a functional retrieval cue, it becomes less effective as the number of trials increases. Similarly, "mammals" or "fruits" or some other category name becomes less effective as a retrieval cue as the number of items under this heading increases. Both Gardiner et al. (1972) and Dillon and Bittner (1975) demonstrated the effectiveness of a subset cue in producing a release from PI when there is a subset (within-category) shift. Dillon and Bittner indicated that the small improvement on the release trial when there was a shift of subset and only a general category cue suggested that there were a few subjects who were aware of the subset shift and used this information. Therefore, an unexpected improvement in performance for individual subjects may be attributable to a subset shift recognizable to those subjects even though there is no experimenter-provided cue.

In the present study, performance on trials in which all the items within a particular trial were from the same subset and subsets changed from trial to trial was compared to performance on trials in which the items within a particular trial belonged to different subsets. All items had previously been sorted by the subject, and no cues were provided. It was expected that performance in the "same" subset condition would be at a higher level

of accuracy than performance in the "different" subset condition.

Number of stimuli per trial. The memory span of an individual is defined as the length of a series of items, usually digits, that the subject can produce 50% of the time (Crowder, 1967; Jacobs as cited in Baddeley, 1990). According to Miller (1956), the immediate memory span of individuals is between five and nine chunks. Typically, three stimuli have been presented in the Brown-Peterson task to ensure that the number of stimuli to be remembered is within the memory span of the subjects. However, if there is no evidence of a subject's accuracy of performance deteriorating over trials, then increasing the number of stimuli on each trial should increase the likelihood of performance degradation. Brown (1958), Murdock (1961), Fuchs and Melton (1974), and Noyd (as cited in Fuchs and Melton, 1974) studied the effect of the number of stimuli per trial on recall on the Brown-Peterson task. These studies indicated that an increase in the number of stimuli per trial resulted in a decline in accuracy of recall.

Brown (1958) varied the number of pairs of consonants presented to his subjects and found a direct relation between forgetting and the number of pairs of consonants which were to be remembered. He presented his subjects with 1, 2, 3, and 4 pairs of consonants which were to be recalled after a retention interval of 4.7 seconds. There was a decline in accuracy of responding directly related to the number of pairs of consonants presented on each trial.

Although Peterson and Peterson (1959) described their experiments as presenting subjects with single items, they were in fact presenting subjects with three items, consonant trigrams (CCC syllables), and requiring a perfect response from the subjects in order to be given credit. Murdock (1961) replicated their experiment and demonstrated that subjects performed better on the STM task when presented with a single word than with either a CCC syllable or a word triad. Results on the CCC trials were similar to those on the word triad trials. Murdock suggested "that the consonant syllables and word triads

are three items to be remembered while an individual word is only a single item. If this is so, then the number of items to be remembered would seem to be a significant variable in short-term retention" (p. 624).

Fuchs and Melton (1974) investigated the effects of the frequency of presentation and number of stimuli to be recalled (unit length) on retention over various retention intervals in the Brown-Peterson task. They presented subjects with lists of either three or five words for 1, 2, 3, and 4 presentations over the course of 59 trials. Once PI had reached its maximum (after the eighth trial), they found a significant main effect of unit length, with poorer recall occurring on 5-word trials than on 3-word trials. Fuchs and Melton also described an unpublished study by Noyd (1965) in which, using a within-subjects design, retention of 2-, 3- and 5-word units was tested over retention intervals of 4, 8, or 24 seconds on all trials excluding the first. Noyd found that "under conditions of high PI, there is a strong interaction of retention interval and length of the TBR [to-be-recalled] unit, such that the number of words recalled, without regard for order" (p.630) was less for the five-word unit after 24 seconds than for the 3- or 2-word units.

In the present study, the number of stimuli presented on a trial was increased when there was a ceiling effect.

Retention (distractor) interval duration. Keppel and Underwood (1962) presented subjects with the Brown-Peterson task at various retention intervals. They observed a direct relation between magnitude of PI and length of retention interval in two of their three experiments.

In a study by Dillon (1973), retention intervals of 3, 6, 9, and 12 seconds were used in the Brown-Peterson task. Although his scoring methods collapsed across all trials for each retention interval, the differences in the probability of accurate recall for the intervals were reliable, with the probability of accurate recall declining as the duration of the retention interval increased.

Lindley (1963) exposed his subjects to retention intervals of 3, 12, and 39 seconds. He collapsed across trials for each retention interval and found that accuracy of recall decreased as retention interval increased.

Fuchs and Melton (1974) examined the effects of the number of stimuli per trial (unit length) over different retention intervals on recall. They found a significant main effect of retention interval and a significant unit length x retention interval interaction. They examined accuracy of recall on trials which were presented 1, 2, 3, or 4 times. The results of trials in which the stimuli were presented once are relevant to this study. On these trials, subjects showed the lowest levels of accurate recall for both 3- and 5-word units as the length of the retention interval increased.

Parkin et al. (1988) and Leng and Parkin (1989) showed that longer retention intervals resulted in lower levels of accurate recall.

In the studies just described, the duration of the retention interval was a within-subjects variable. Wright (1967) and Turvey et al. (1970) used the duration of the retention interval as a between-subjects variable. The results from these two studies contradicted each other. Wright tested subjects using retention intervals of 3, 9, and 18 seconds. He found a sharper decline in performance over the first four trials for the 18 second retention interval compared to the decline in performance over the first four trials for the 3- and 9-second retention intervals. These results were consistent with the results of Keppel and Underwood (1962). Turvey et al. used retention intervals of 5, 10, 15, 20, and 25 seconds. They found no main effect of retention interval nor retention interval x trial interaction. They found, however, an effect of retention interval on trial 2, with accuracy of recall increasing as the retention interval increased. This finding contradicted Wright's results. Turvey et al. indicated that one explanation for their results would be that the high acoustic similarity of the CCCs they used (consonants sharing the vowel sound long e) resulted in increasing "the probability of confusion between successive trigrams at

the short retention intervals" (p.146).

In the present study, the duration of the distractor interval was decreased in order to improve a subject's performance.

Summary. The group literature indicates that relatedness within a semantic category (subsets), number of stimuli per trial, and duration of distractor interval affect performance on the Brown-Peterson task. The purpose of this study was to investigate the effective of these variables on individual performance.

Data from all subjects were pooled to examine the effect of similarity of stimuli on a trial with a long retention interval and three stimuli per trial. The effects of distractor (retention) interval duration, number of stimuli per trial, as well as similarity, were analyzed for individual subjects with respect to their effects on the build-up of PI and overall performance.

Method

Subjects

Twelve subjects participated in this experiment. Eleven subjects were naive; one was aware of the general purpose of the experiment but not of the particulars. Subjects were assigned to one of two groups. The first 6 volunteers were assigned to Group 1; the second 6 were assigned to Group 2. The age and gender of each subject are listed in Table 1 by group.

Subjects S1 and S2 were juniors in high school; S3 was a senior in high school. All the other subjects had a minimum of an Associate's degree. Subjects S9 and S10 were fraternal twins. Subjects S5 and S11 were siblings.

Table 1

Subjects' Age and Gender by Group

Group 1			Group 2		
Subject	Age	Gender	Subject	Age	Gender
S1	17	F	S7	22	F
S2	17	M	S8	34	M
S3	17	M	S9	48	F
S4	40	F	S10	48	F
S5	41	F	S11	50	M
S6	44	F	S12	50	F

Materials and Apparatus

Four sets of stimulus words were used for this experiment: stimuli to be sorted, practice trial stimuli, stimuli to be reported (STBR), and distractor stimuli. These sets are described below.

Stimuli to be sorted. These words came from eight semantic categories: MAMMALS, STATES, BODY PARTS, SPORTS, MUSICAL INSTRUMENTS, AUTOMOBILES, COUNTRIES, and SEA CREATURES. The words included in each category are listed in Table 2 with the number of items in each category indicated. The words in the categories STATES, BODY PARTS, and SPORTS were taken from lists used by Wixted and Rohrer (1992). The words in the categories MAMMALS, MUSICAL INSTRUMENTS, AUTOMOBILES, COUNTRIES and SEA CREATURES were generated by volunteers who were not used as subjects. These volunteers ranged in age from 16 to 48. These volunteers also provided additional stimuli for the lists by Wixted and Rohrer.

The lists were modified for the purposes of the present study as follows:

(1) lists from Wixted and Rohrer were extended so that each list contained at least 30 items;

(2) words on all lists were eliminated which could be changed to another word on that list by the addition, deletion, distortion, or substitution of one phoneme, e.g., bat and cat;

(3) all states were eliminated that differed from another state by a direction, i.e., Virginia and West Virginia, North and South Carolina, North and South Dakota;

(4) all countries were eliminated as in (3), e.g., North and South Korea; and

(5) the generated list for SEA CREATURES was extended using The Sea (Engel, 1969).

Two list creation errors occurred. Both "seal" and "sole" should have been eliminated from SEA CREATURES but only sole was eliminated. "Mouse" and "moose" were not eliminated from MAMMALS.

These stimuli were presented individually on white cards, 4" by 1.5". The words were hand-printed in uppercase block letters, approximately .5" high.

Table 2

Stimuli Presented to Each Subject during Session 1 by Category and Number of Stimuli

MAMMALS - 60

AARDVARK	DINGO	HAMSTER	MINK	RABBIT
BABOON	DOG	HARE	MOOSE	RACCOON
BEAR	ELEPHANT	HIPPO	MOUSE	RHINO
BEAVER	ELK	HORSE	MULE	SHEEP
BISON	FERRET	HUMAN	MUSKRAT	SKUNK
CAMEL	GAZELLE	JAGUAR	OPOSSUM	SQUIRREL
CHEETAH	GERBIL	KANGAROO	ORANGUTAN	TIGER
CHIMP	GIRAFFE	LEMUR	OTTER	WATER
CHINCHILLA	GNU	LEOPARD	PANTHER	BUFFALO
COW	GOAT	LION	PIG	WILD BOAR
COYOTE	GORILLA	LLAMA	PLATYPUS	WOLF
DEER	GUINEA PIG	LYNX	PRAIRIE DOG	YAK
				ZEBRA

STATES - 44

ALABAMA	GEORGIA	MAINE	NEVADA	RHODE ISLAND
ALASKA	HAWAII	MARYLAND	NEW HAMPSHIRE	TENNESSEE
ARIZONA	IDAHO	MASSACHUSETTS	NEW JERSEY	TEXAS
ARKANSAS	ILLINOIS	MICHIGAN	NEW MEXICO	UTAH
CALIFORNIA	INDIANA	MINNESOTA	NEW YORK	VERMONT
COLORADO	IOWA	MISSISSIPPI	OHIO	WASHINGTON
CONNECTICUT	KANSAS	MISSOURI	OKLAHOMA	WISCONSIN
DELAWARE	KENTUCKY	MONTANA	OREGON	WYOMING
FLORIDA	LOUISIANA	NEBRASKA	PENNSYLVANIA	

BODY PARTS - 37

ANKLE	ELBOW	KIDNEY	PALM	THUMB
BACK	ESOPHAGUS	KNEE	PANCREAS	TOE
BRAIN	EYE	LIVER	RIB	TONGUE
CHEEK	FACE	MOUTH	SHOULDER	TOOTH
CHEST	FINGER	NAVEL	SPINE	WRIST
CHIN	FOREHEAD	NECK	SPLEEN	
COLON	HEART	NOSE	STOMACH	
EAR	HEEL	NOSTRIL	THROAT	

(table continues)

SPORTS - 50

AEROBICS	CROQUET	ICE SKATING	ROLLER BLADING	SOFTBALL
ARCHERY	CYCLING	JAVELIN	ROLLER SKATING	SQUASH
BADMINTON	DISCUS	JUDO	ROWING	SURFING
BASEBALL	DIVING	KARATE	RUGBY	SWIMMING
BASKETBALL	FENCING	LACROSSE	RUNNING	TENNIS
BILLIARDS	FOOTBALL	PADDLEBALL	SAILING	TOBOGGANING
BOCCIE BALL	FRISBEE	PING-PONG	SHOT PUT	VOLLEYBALL
BOWLING	GOLF	POLO	SKATEBOARDING	WATER POLO
BOXING	HANDBALL	POOL	SKIING	WEIGHTLIFTING
CRICKET	HOCKEY	RACQUETBALL	SOCCER	WRESTLING

MUSICAL INSTRUMENTS - 34

ACCORDION	CHIMES	GUITAR	PIANO	TRUMPET
BANJO	CLARINET	HARMONICA	PICCOLO	TUBA
BASS	CYMBALS	HARP	RECORDER	UKELELE
BASSOON	DRUMS	HARPSICHORD	SAXOPHONE	VIOLA
BELLS	FLUTE	MANDOLIN	TAMBOURINE	VIOLIN
BUGLE	FRENCH HORN	OBOE	TRIANGLE	XYLOPHONE
CELLO	GLOCKENSPIEL	ORGAN	TROMBONE	

AUTOMOBILES - 47

ACURA	FIAT	LEXUS	OLDSMOBILE	SUBARU
AUDI	FORD	LINCOLN	PEUGEOT	SUZUKI
ALFA-ROMEO	GEO	MAZDA	PLYMOUTH	TOYOTA
BMW	HONDA	MASERATI	PONTIAC	TRIUMPH
BUICK	HYUNDAI	MERCEDES-BENZ	PORSCHE	VOLKSWAGEN
CADILLAC	INFINITI	MERCURY	RENAULT	VOLVO
CHEVROLET	ISUZU	MERKUR	ROLLS ROYCE	YUGO
CHRYSLER	JAGUAR	MITSUBISHI	SAAB	
DODGE	JEEP	MORRIS	SATURN	
EAGLE	LAMBORGHINI	NISSAN	STERLING	

(table continues)

COUNTRIES - 77

ALBANIA	ECUADOR	INDIA	NICARAGUA	SWEDEN
ALGERIA	EGYPT	INDONESIA	NIGERIA	SWITZERLAND
ANGOLA	EL SALVADOR	IRELAND	PANAMA	SYRIA
ARGENTINA	ENGLAND	ISRAEL	PAKISTAN	TAIWAN
BELGIUM	ETHIOPIA	ITALY	PERU	THAILAND
BRAZIL	FINLAND	LEBANON	PHILIPPINES	TIBET
BURMA	FRANCE	JAMAICA	POLAND	TURKEY
CAMBODIA	GERMANY	JAPAN	PORTUGAL	UKRAINE
CANADA	GREECE	JORDAN	QATAR	UNITED
CHILE	GREENLAND	LAOS	RUSSIA	STATES
CHINA	GUATEMALA	LIBERIA	SAUDI ARABIA	URUGUAY
COLOMBIA	GUYANA	MADAGASCAR	SCOTLAND	VENEZUELA
COSTA RICA	HAITI	MALAYSIA	SENEGAL	WALES
CUBA	HOLLAND	MEXICO	SOUTH AFRICA	ZAMBIA
CZECHOSLOVAKIA	HONDURAS	MOROCCO	SPAIN	
DENMARK	ICELAND	NEPAL	SUDAN	

SEA CREATURES - 43

ANEMONE	HADDOCK	MUSSEL	SARDINE	SPONGE
BARNACLE	HALIBUT	NAUTILUS	SCALLOP	SQUID
BASS	HERRING	OCTOPUS	SEA CUCUMBER	STING RAY
CLAM	JELLY FISH	OYSTER	SEA TURTLE	STURGEON
CORAL	LAMPREY	PILOT FISH	SEA URCHIN	SWORD FISH
CRAB	LOBSTER	PORPOISE	SEAL	TUNA
DOLPHIN	MANATEE	PUFFER FISH	SHRIMP	WALRUS
ELECTRIC EEL	MANTA RAY	SAIL FISH	SNAIL	WHALE
FLOUNDER	MORAY EEL	SALMON		

Practice trial stimuli. These were groups of either three or four words that were used in practice trials. These words were from different sets of categories generated by the experimenter. The words in each group were semantically related but were not related to the words in other trials nor to the STBR. The groups of words are listed in Table 3 in the order they were used in the experiment (by trial within each session).

Stimuli to be reported (STBR). These words were taken from the stimuli which each subject had sorted into the initially designated categories. The sort procedure is described below (see Similarity).

Distractor stimuli. These stimuli were words taken from the 500 most common words as listed in Thorndike and Lorge (1944). Three hundred sixty-four words from this list were used. They were not obviously related to the STBR (Dillon and Bittner, 1975) and each contained at least four letters. Six random lists of these distractor words were generated by a computer program specially designed for this purpose. Two lists were available for use during the first session. The other four lists were used during sessions 2 through 5.

Practice trial stimuli, STBR, and distractor stimuli were presented on a PC monitor by a computer program specifically written for this experiment. All stimulus words that appeared on the monitor were in yellow, uppercase lettering on a lavender background.

General procedure

Each subject participated in five sessions. The first session was used to determine the STBRs and the distractor task setting for each subject. Blocks of Brown-Peterson type trials were presented in sessions 2 through 5 to each subject. A block was a sequence of either three or four trials. Blocks of three trials were used for practice; each trial within a block contained words from a unique semantic category (see Table 3). Blocks of four trials were used for the experimental manipulations; each trial within a block contained words from the same semantic category as the other trials within that block.

Table 3

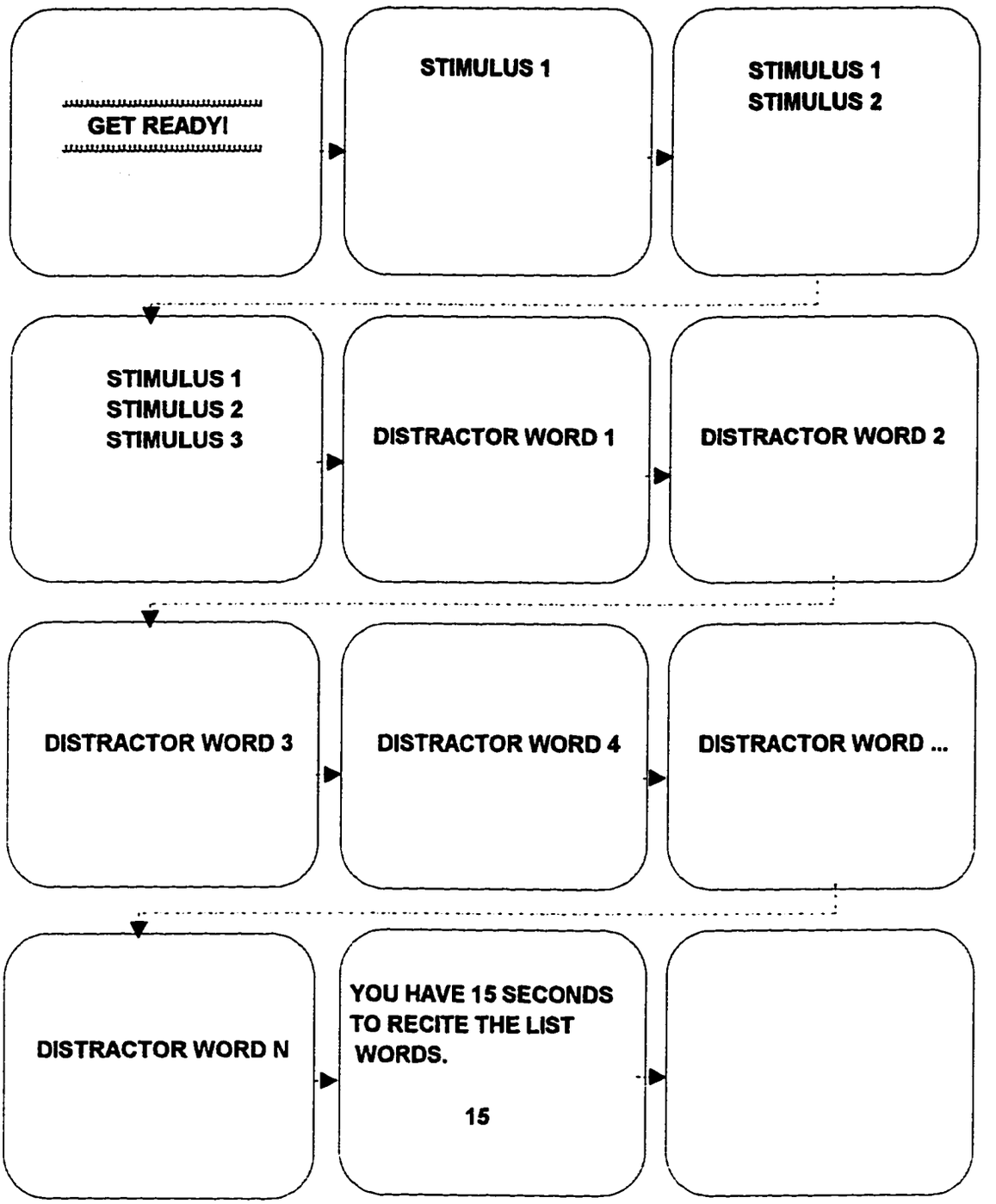
Stimuli Used in Practice Trials Listed by Session

	Trial		
Session	1	2	3
2	COMPUTER	SLEET	BOOK
	DISK	RAIN	NEWSPAPER
	DRIVE	SNOW	MAGAZINE
3	PENCIL	MARS	SUNDAY
	CRAYON	PLUTO	WEDNESDAY
	MARKER	JUPITER	TUESDAY
	-or-	-or-	-or-
	PENCIL	MARS	SUNDAY
	CRAYON	PLUTO	WEDNESDAY
	MARKER	JUPITER	TUESDAY
	PEN	VENUS	FRIDAY
4	PEAR	WHISKEY	LETTUCE
	BANANA	SCOTCH	ONION
	PEACH	BOURBON	CELERY
	-or-	-or-	-or-
	PEAR	WHISKEY	LETTUCE
	BANANA	SCOTCH	ONION
	PEACH	BOURBON	CELERY
	PLUM	VODKA	POTATO
5	RED	BLOUSE	ALMOND
	PURPLE	JACKET	PISTACHIO
	GREEN	VEST	CASHEW
	-or-	-or-	-or-
	RED	BLOUSE	ALMOND
	PURPLE	JACKET	PISTACHIO
	GREEN	VEST	CASHEW
	YELLOW	TIE	PECAN

Brown-Peterson trial sequence. Subjects were presented with typical Brown-Peterson trials. In each trial, there was (a) a ready signal, (b) the visual presentation of stimuli, the STBR, (c) the recitation of the STBR by the subject, (d) a distractor task, (e) a recall interval, and (f) an inter-trial interval.

The screens presented to the subjects on each trial are represented in Figure 1. The arrows indicate the sequence of screens. "N" represents the number of distractor words presented on the trial. The duration of the ready signal, "GET READY", was 1 second. Each STBR was on the monitor for .5 seconds before the next one appeared. The subject was instructed to read each STBR as it appeared. All the STBR remained on the monitor for an additional period equal to .5 seconds per word (1.5 seconds if there were three STBR, or 2 seconds if there were four STBR). When this interval ended, the screen was cleared and the distractor interval began immediately. The distractor words appeared one at a time for a duration appropriate for each subject as determined in session 1. Each distractor word was spelled backwards on the screen. The subjects were to read each word correctly. The duration of the distractor interval was between 24 and 28 seconds or between 12 and 14 seconds. This distractor interval was immediately followed by the recall interval. The duration of the recall interval was 15 seconds. During this interval, the subject was to report the STBR presented just prior to the distractor interval. During this interval, the message "YOU HAVE 15 SECONDS TO RECITE THE LIST WORDS" appeared on the monitor. The number 15 appeared below this message to indicate the number of seconds left. The seconds were counted down by ones so the subject could see how much time was left. When the 15 seconds were completed, a beep sounded. The inter-trial interval lasted for 4 seconds. The screen was blank during the inter-trial interval. In addition, there was a 2-minute pause between blocks to increase the probability of a release from PI from block to block (Loess and Waugh, 1967). When a block of trials ended, the message "PLEASE WAIT.....THERE IS A 2 MINUTE PAUSE" appeared on the

Figure 1. A representation of a Brown-Peterson trial. The arrows indicate the sequence of screens presented to the subjects. The STBR are indicated by "STIMULUS 1", "STIMULUS 2", and "STIMULUS 3". "N" represents the number of distractor words presented on the trial. The blank screen corresponds to the inter-trial interval.



monitor. The number 30 appeared below this message. This number was decreased by 1 every 4 seconds so that the subject could see when the interval was ending. The experimenter indicated verbally that the 2-minute pause was nearing its end, i.e., when the count was down to either 2 or 3. When this pause ended, the message "HIT ENTER WHEN YOU ARE READY TO CONTINUE...." appeared on the monitor so that the subject could initiate the presentation of the first trial of the next block. The experimenter also verbally prompted the subjects to hit <ENTER> when the message appeared. All subjects followed the instructions within 2 seconds of it appearing on the monitor. All messages and stimuli were printed in yellow on a lavender background.

Manipulated variables

Each manipulated variable in the present experiment had two levels. These variables were similarity of the stimuli on a trial, number of stimuli per trial, and duration of the distractor interval.

Similarity. The two levels of similarity were designated as "DIFFERENT" and "SAME".

In session 1, each subject sorted stimuli from each semantic category into subsets of their own choosing. These subsets were used to construct trials. SAME indicated that all the stimuli on a particular trial belonged to the same subset. DIFFERENT indicated that each of the stimuli on a particular trial belonged to different subsets. A block of trials contained either four SAME trials or four DIFFERENT trials. Examples of SAME and DIFFERENT blocks of trials using stimuli from MUSICAL INSTRUMENTS and MAMMALS are presented below.

In the first example, a block of SAME trials and a block of DIFFERENT trials in which the STBR belong to the category MUSICAL INSTRUMENTS are displayed in Table 4. If a block of trials is SAME, each trial contains STBR from a distinct subset. In Table 4, the STBR on trials 1, 2, 3, and 4 belong to the subsets stringed instruments, percussion

instruments, keyboard instruments, and wind instruments, respectively. On the other hand, if a block of trials is DIFFERENT, each STBR within a trial belongs to a different subset. The order of the STBR from the different subsets, however, remains the same from trial to trial. In Table 4, the STBR on trial 1 belong to the subsets stringed, percussion, and wind, respectively. Trials 2, 3, and 4 also contain instruments from these same subsets in the same order.

Table 4

A Block of SAME Trials and a Block of DIFFERENT Trials of Stimuli Belonging to the Semantic Category MUSICAL INSTRUMENTS

	SIMILARITY Level	
Trial	SAME	DIFFERENT
1	GUITAR	GUITAR
	BANJO	DRUMS
	VIOLA	TROMBONE
2	DRUMS	BANJO
	TRIANGLE	CYMBALS
	CYMBALS	BUGLE
3	PIANO	VIOLA
	ACCORDION	TRIANGLE
	HARPSICHORD	SAXOPHONE
4	TROMBONE	MANDOLIN
	BUGLE	CHIMES
	SAXOPHONE	TUBA

In the second example, a block of SAME trials and a block of DIFFERENT trials in which the STBR belong to the category MAMMALS as sorted by subject S12 are presented in Table 5. In the top panel of Table 5, each column represents a subset designated by S12: mammals who carry their young, gentle mammals, mammals who chew their cud, and dogs, respectively. A block of SAME trials and a block of DIFFERENT trials are displayed on the bottom panel, based upon S12's subsets.

Table 5

Four Subsets Generated by S12 Used to Create a Block of SAME Trials and a Block of DIFFERENT Trials

Subsets			
BABOON	BEAR	COW	COYOTE
CHIMP	CAMEL	GOAT	DOG
GORILLA	DEER	HORSE	PRAIRIE DOG
HUMAN	GAZELLE	MULE	WOLF
KANGAROO	LLAMA	SHEEP	
OPOSSUM	ZEBRA		
ORANGUTAN			

	SIMILARITY Level	
Trial	SAME	DIFFERENT
1	BABOON	BABOON
	HUMAN	CAMEL
	KANGAROO	GOAT
2	CAMEL	GORILLA
	DEER	BEAR
	LLAMA	HORSE
3	GOAT	OPOSSUM
	MULE	GAZELLE
	SHEEP	COW
4	COYOTE	HUMAN
	DOG	DEER
	WOLF	MULE

Note. The subset designations in the upper panel are mammals who carry their young, gentle mammals, mammals who chew their cud, and dogs, respectively.

Number of stimuli presented on a trial. The number of stimuli per trial was either three or four, designated as 3 S/T and 4 S/T, respectively.

Duration of distractor interval. The range of the distractor interval was either 24 to 28 seconds or 12 to 14 seconds, designated as "LONG" and "SHORT", respectively. The specific LONG distractor interval for each subject was determined in session 1. The specific SHORT distractor interval for each subject was half the LONG interval.

These three variables, each with two levels, yielded eight possible conditions. These conditions are displayed in Figure 2 as cells in two matrices. The cells in the matrix on the left represent the four conditions with DIFFERENT similarity; the cells in the matrix on the right represent the four conditions with SAME similarity. Each cell represents a condition which can be named by the three parameter values associated with it, e.g., DIFF-3-LONG indicates that the similarity level is DIFFERENT, there are 3 S/T, and the distractor interval falls into the 24 to 28 second range, i.e., LONG. Although there were eight possible conditions, not all were examined in this study.

Session 1. Parametric settings were determined for each subject to adjust for individual differences with respect to category membership, subset membership, and distractor task difficulty.

Sessions 2 through 5. The purpose of the present experiment was to examine the effects of three variables on individual performance on the Brown-Peterson task. Each subject was exposed to a total of four conditions, where each condition was presented twice over the course of sessions 2 through 5. Two conditions were presented in each session. Therefore, four sessions were needed.

Two conditions were the same for all subjects, DIFF-3-LONG and SAME-3-LONG. The order in which these conditions appeared differed between the two groups of subjects. Table 6 displays the distribution of these two conditions for Groups 1 and 2 over sessions 2 through 5. Both groups were exposed to DIFF-3-LONG and SAME-3-LONG in session 2.

Figure 2. Matrices representing the eight possible combinations of similarity (DIFF and SAME), number of stimuli per trial (3 and 4), and distractor interval, indicated by D.I., (LONG and SHORT).

Similarity

DIFFERENT

SAME

Number of Stimuli per Trial

D.I.	3	4
SHORT		
LONG		

D.I.	3	4
SHORT		
LONG		

Table 6

Sessions in Which Conditions DIFF-3-LONG and SAME-3-LONG Occurred Indicated by Group

Group 1			
Session			
2	3	4	5
DIFF-3-LONG SAME-3-LONG	DIFF-3-LONG		SAME-3-LONG
Group 2			
Session			
2	3	4	5
DIFF-3-LONG SAME-3-LONG	SAME-3-LONG		DIFF-3-LONG

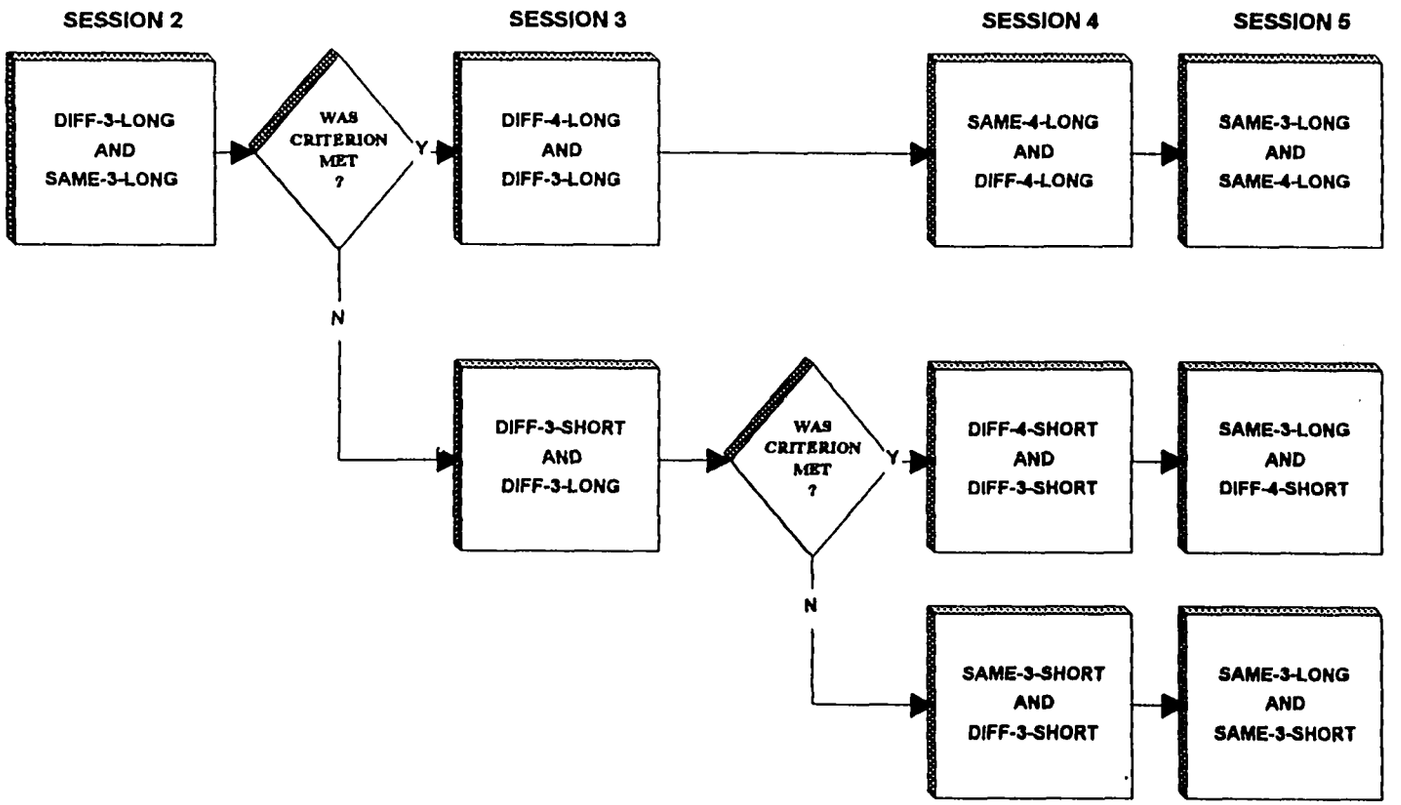
Reversals occurred in sessions 3 and 5. Group 1 was exposed to DIFF-3-LONG in session 3 and to SAME-3-LONG in session 5. This was reversed for Group 2. This between-groups balancing was done to control for possible session effects.

In session 2, all subjects were exposed to the same two conditions, DIFF-3-LONG and SAME-3-LONG. The performance of the subject in this session was used to determine that subject's parametric settings for session 3. The subject's performance in session 3 was used to determine that subject's parametric settings for session 4. Session 5 completed the balanced presentation of all conditions between groups. Flowcharts of the conditions are displayed in Figure 3 for both groups. The criterion for following each path is described below (see Condition assignment).

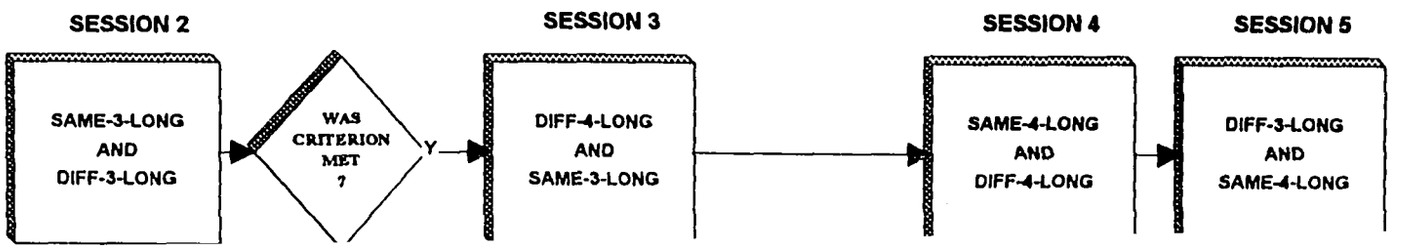
Session structure. In each session, each subject was exposed to nine blocks of trials. The first block always consisted of three practice trials (see Table 3). This practice block was followed by eight blocks, each block consisting of four trials. The stimuli in each

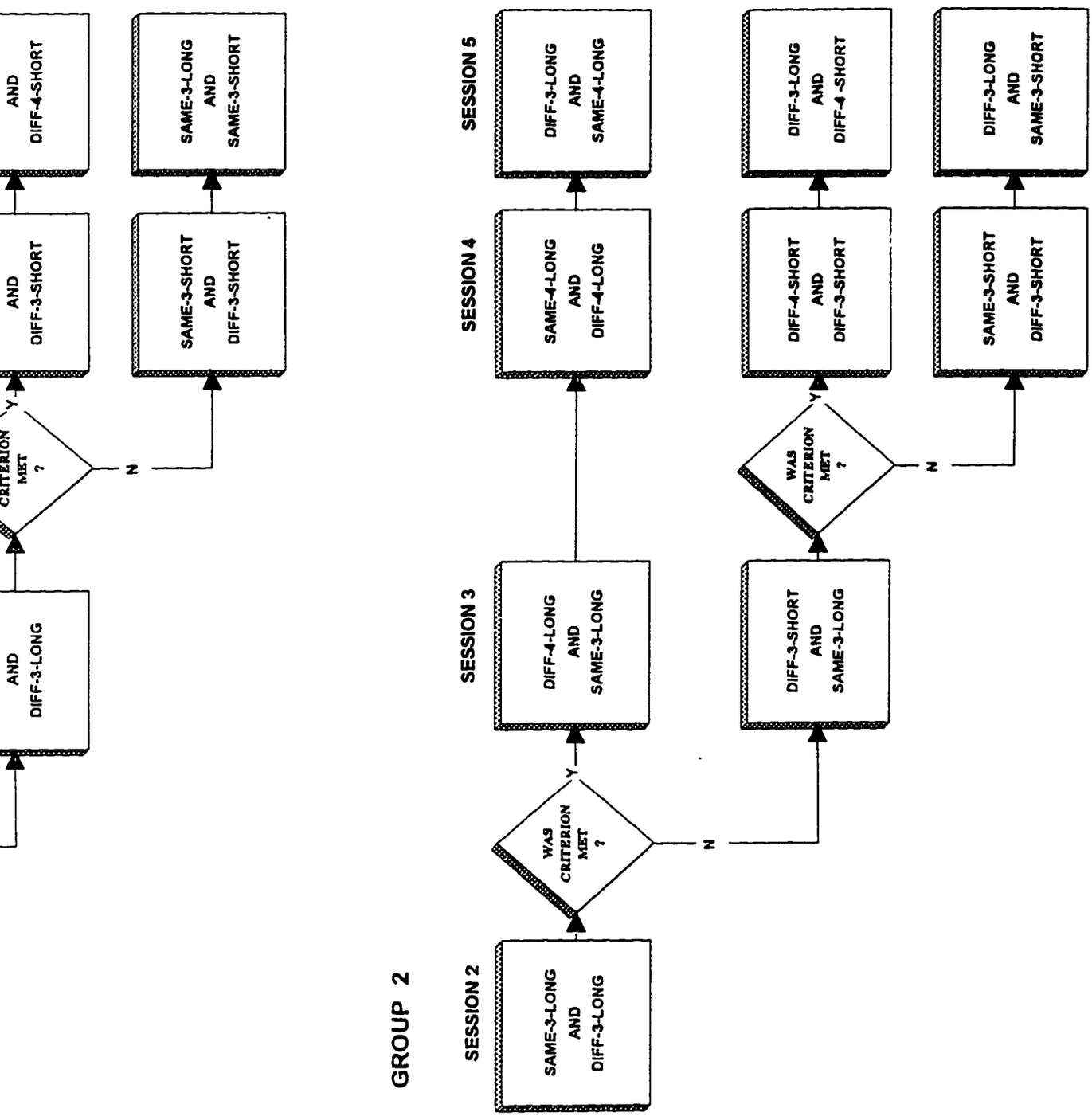
Figure 3. Flowcharts displaying the order of conditions for Groups 1 and 2. The groups differed with respect to occurrences of DIFF-3-LONG and SAME-3-LONG.

GROUP 1



GROUP 2





block belonged to a particular semantic category described in Stimuli to be reported above.

The sequence in which the categories were presented was determined randomly with two restrictions. These were: (1) MAMMALS and SEA CREATURES could not appear sequentially and (2) STATES and COUNTRIES could not appear sequentially. In both cases, the categories in each pair were similar and their sequential presentation could contribute to a PI effect from one block to the next. To minimize that possibility, the above restrictions were imposed. The sequence in which the categories were presented was held constant for all subjects (Watkins and Watkins, 1975) across all sessions. The sequence of blocks of trials which was presented to every subject in sessions 2 through 5 is displayed in Figure 4. The left-most column indicates the semantic category to which the trial stimuli in the block belonged. The arrows indicate the trial sequence.

Two conditions were presented in each session with conditions alternating from block to block. The assignment of conditions to blocks of trials for session 2 for both groups is displayed in Table 7. The order of conditions in this session for Group 1 was reversed for Group 2, so the categories associated with the conditions for the two groups were reversed.

The structure of sessions 3 through 5 was the same as session 2, with a different pair of conditions appearing in each session (see Figure 3). Within subjects, categories were balanced across conditions. That is, every condition to which each subject was exposed occurred with every category. Table 8 displays conditions with categories by session for each group. In Table 8, the first column indicates the categories associated with each condition in that row. M, BP, MI, and C represent MAMMALS, BODY PARTS, MUSICAL INSTRUMENTS, and COUNTRIES, respectively; ST, SP, A, and SC represent STATES, SPORTS, AUTOMOBILES, and SEA CREATURES, respectively. In Table 8, "X" and "Y" are generic labels for the conditions in sessions 3, 4, and 5 since these conditions varied by subject; they were determined by each subject's performance as described below

Figure 4. The sequence of categories with trials presented to each subject in experimental sessions 2 through 5. The left-most column indicates the semantic category to which the trial stimuli in the block belonged. The arrows indicate the trial sequence.

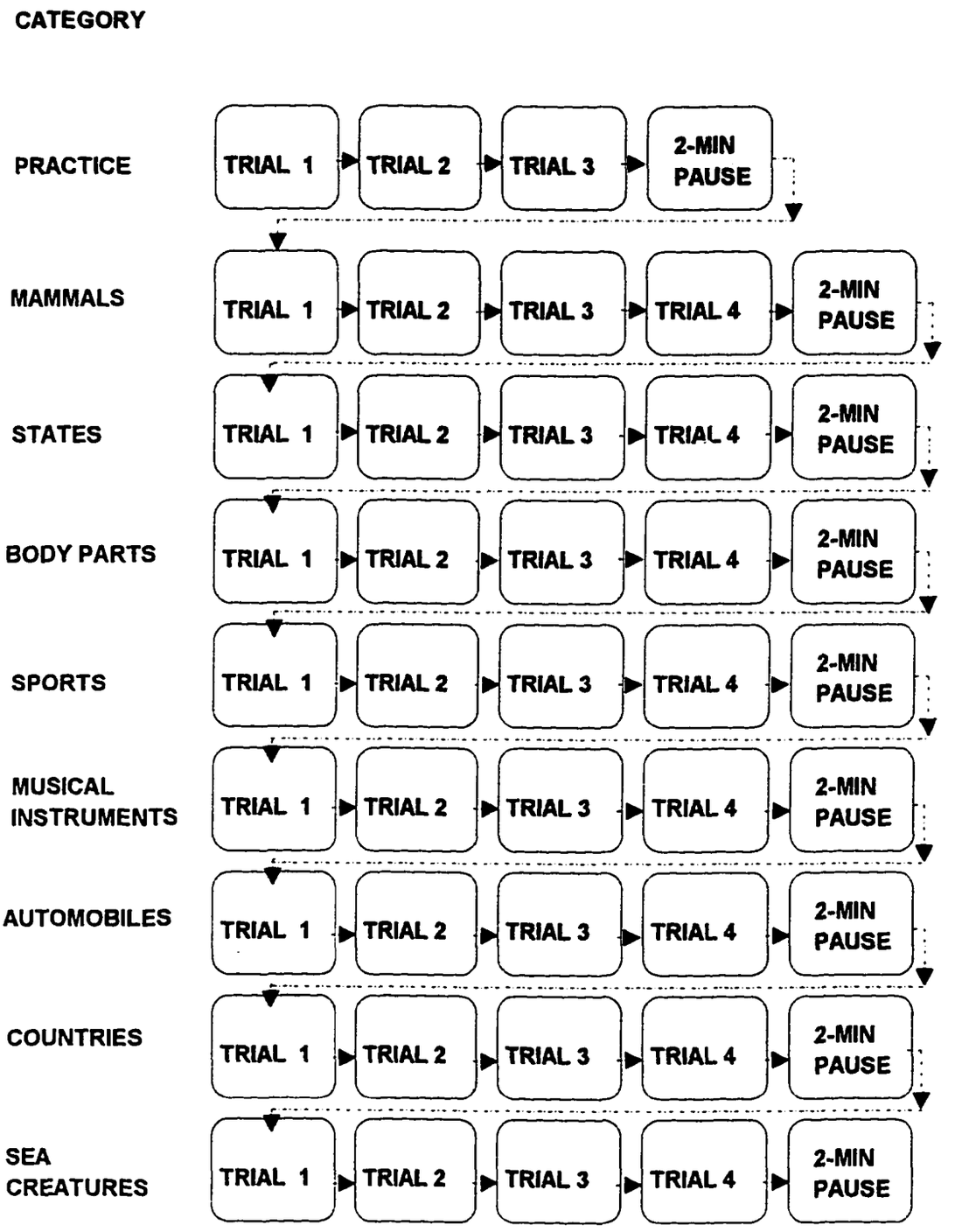


Table 7

Blocks, Categories, and Conditions for Groups 1 and 2 in Session 2

Block #	Category	Group 1 Condition	Group 2 Condition
0	PRACTICE	-	-
1	MAMMALS	DIFF-3-LONG	SAME-3-LONG
2	STATES	SAME-3-LONG	DIFF-3-LONG
3	BODY PARTS	DIFF-3-LONG	SAME-3-LONG
4	SPORTS	SAME-3-LONG	DIFF-3-LONG
5	MUSICAL INST.	DIFF-3-LONG	SAME-3-LONG
6	AUTOS	SAME-3-LONG	DIFF-3-LONG
7	COUNTRIES	DIFF-3-LONG	SAME-3-LONG
8	SEA CREATURES	SAME-3-LONG	DIFF-3-LONG

Table 8

Sessions in Which Conditions DIFF-3-LONG and SAME-3-LONG Occurred with Categories Indicated by Group

Group 1

	Session			
Categories	2	3	4	5
M, BP, MI, C	DIFF-3-LONG	X	Y	SAME-3-LONG
ST, SP, A, SC	SAME-3-LONG	DIFF-3-LONG	X	Y

Group 2

	Session			
Categories	2	3	4	5
M, BP, MI, C	SAME-3-LONG	X	Y	DIFF-3-LONG
ST, SP, A, SC	DIFF-3-LONG	SAME-3-LONG	X	Y

Note. "X" and "Y" are generic labels for the conditions that were presented in sessions 3, 4, and 5. M = MAMMALS; BP = BODY PARTS; MI = MUSICAL INSTRUMENTS; C = COUNTRIES; ST = STATES; SP =SPORTS; A = AUTOMOBILES; SC = SEA CREATURES.

in Condition assignment. X was either DIFF-4-LONG or DIFF-3-SHORT; Y was SAME-4-LONG, DIFF-4-SHORT, or SAME-3-SHORT. Figure 3 displays these various conditions in the appropriate sessions. Within each box in Figure 3, the conditions are displayed so that the condition in the top of each box was presented with MAMMALS, BODY PARTS, MUSICAL INSTRUMENTS, and COUNTRIES in that session, and the condition in the bottom of each box was presented with STATES, SPORTS, AUTOMOBILES, and SEA CREATURES in that session.

Condition assignment. The primary objective of this experiment was to examine the effects of the three independent variables on individual performance, to determine whether by manipulating these variables, the build-up of PI could be induced or reduced. In order to do this, the performance of individual subjects was evaluated on a given session and the appropriate manipulation was imposed on the subsequent session. Specifically, an increase in the number of stimuli per trial from three to four was expected to induce the build-up of PI if it did not occur because of a ceiling effect, and a change in the distractor interval from LONG to SHORT, or a change in similarity from DIFF to SAME was expected to reduce the build-up of PI or improve responding if it were occurring at a low level of accuracy.

Each subject was exposed to four conditions. Every subject was exposed to DIFF-3-LONG and SAME-3-LONG in session 2. The conditions which followed session 2 were individualized with the objective of changing the performance of the subject. To that end, each subject's performance was assessed in DIFF at two points in the procedure, at the end of session 2 to determine the new condition in session 3 and at the end of session 3 to determine the new condition in session 4 (see Figure 3).

New condition in session 3. During session 2, each subject was exposed to four blocks of trials of DIFF-3-LONG (see Table 7). The initial decrement in responding on the Brown-Peterson task occurs from trial 1 to trial 2. With this as a consideration, after session 2, the performance of the subject was examined on trials 1 and 2 from the four

blocks of trials of DIFF-3-LONG. In this study, the build-up of PI was considered as not having occurred if the subject demonstrated correct responding on at least six of these eight trials. Correct responding on a trial was the reporting of all stimuli for that trial in the correct order. If this criterion were met, not only was the subject demonstrating a relatively high degree of accurate responding, but there were at least two pairs of successive trials in which there was no decrement. If subjects met the criterion, then the number of stimuli per trial was increased to four as the new condition in session 3. Similarity and the duration of the distractor task interval remained at DIFF and LONG, respectively. If subjects did not meet the criterion, the distractor interval duration was changed to SHORT as the new condition in session 3. Similarity and the number of stimuli per trial remained at DIFF and three, respectively.

New condition in session 4. During session 3, each subject was exposed to four blocks of trials of either DIFF-4-LONG or DIFF-3-SHORT. The new condition in session 4 for all subjects exposed to DIFF-4-LONG in session 3 was SAME-4-LONG. This was assigned unconditionally. For the other subjects, as in session 2, subject performance was examined on trials 1 and 2 from the four blocks of trials of DIFF-3-SHORT. As with DIFF-3-LONG, the build-up of PI was considered as not having occurred if the subject demonstrated correct responding on at least six of these eight trials. If subjects met the criterion, then the number of stimuli per trial was increased to four as the new condition in session 4. Similarity and the duration of the distractor task interval remained at DIFF and SHORT, respectively. If subjects did not meet the criterion, the similarity was changed to SAME as the new condition in session 4. The number of stimuli per trial and the duration of the distractor interval remained at three and SHORT, respectively.

Procedure

All subjects participated for a total of five sessions. Sessions were scheduled approximately a week apart. The first session lasted from 1 1/2 to 2 hours. The other four

sessions each lasted approximately 45 minutes. The informed consent indicated that this was a memory experiment in which the subject would be shown common words on a computer monitor.

Session 1. This session served three purposes; two were related. These two were to determine functional category members for each subject, and to have each subject sort these category members into functional subsets. The stimuli which were sorted into functional subsets were used as the stimuli on trials (the STBR) in sessions 2 through 5 for each subject. The third purpose was to determine an exposure time for the words used in the distractor task for each subject. This distractor task determination was done once all the sorting was completed.

Functional category members. In order to determine which stimuli each subject treated as belonging to a stated category, each subject performed a sorting task. Each subject was required to sort stimuli from each of eight semantic categories into four groups according to the instructions which the experimenter presented orally to each subject. The categories and the order in which they were presented to each subject were MAMMALS, STATES, BODY PARTS, SPORTS, MUSICAL INSTRUMENTS, AUTOMOBILES, COUNTRIES, and SEA CREATURES. This order was kept constant throughout the experiment. The stimuli in each of these categories are displayed in Table 2. The subject was given a pile of white cards with the stimuli from one category written on them, one stimulus to a card. The subject was given the following oral instructions:

> You are to look through this entire pile of cards and place each card into one of four piles: things that are definitely __ (category name supplied by experimenter), things that are definitely not __ (category name supplied by experimenter), things that may or may not be __ (category) - you're not sure, and things which you don't recognize. You don't have to have cards in every pile.

These instructions was repeated for each category, usually in an abbreviated form by the

third or fourth sorting.

Subsets. Each time a subject completed the functional sorting for one category, the subject then sorted the functional category members into functional subsets. When the subject completed the functional sorting task for a category, the experimenter removed all the piles except the one that contained stimuli that the subject had selected as belonging to the designated category. The experimenter then gave the subject the following set of oral instructions: "You are to sort the cards in this pile into at least four groups. Each group must contain at least four items, based upon some similarity that you have decided upon." The subject was then given an example of how fruit could be sorted to demonstrate that the stimuli could be sorted on a similarity and/or a knowledge basis (Medin, 1989). This was followed by further oral instructions:

> If an item can fit into two groups, then choose the group you think it fits into best. Don't sort by the number of letters in the words or the first letters, or anything else that has to do with the word itself. If there are items that don't fit into any group or groups with less than 4 items in them, then they'll go into a miscellaneous pile when you're done. Don't spend a lot of time making decisions with each item. You have __ minutes to do this sorting.

The subject was given 15 minutes to sort MAMMALS and COUNTRIES and 10 minutes to sort each of the other categories. When the subject had completed this sorting, the experimenter recorded the results. The subject was instructed to tell the experimenter what the items had in common and then read each item to the experimenter. In this way, the experimenter knew that the subject had sorted the stimuli into meaningful categories and that the subject could pronounce each word. The experimenter repeated these instructions for each sorting task as necessary.

The results of this task provided the experimenter with the stimuli that were presented to the subject (the STBR) in sessions 2 through 5. The subjects' sortings are

presented in Appendix A. Stimuli were randomly assigned to trials from the appropriate subsets subject to restrictions which were intended to minimize acoustic and formal similarities (Wickens and Clark, 1968; Wickens, Clark, Hill, and Wittlinger, 1968; Fozard and Waugh, 1969): not all words on a trial could have the same initial letter, not all countries on a trial could end with "a" or with "land", and not all words on a trial could be of the same length.

Table 9 displays a symbolic grouping of stimuli from a functional category into subsets. The category was divided into five subsets, a, b, c, d, and e, each containing at least four stimuli. The individual stimuli in each subset are indicated by that subset designation (letter) and a number. A miscellaneous subset was also generated. In this case, there were 12 stimuli in this subset. Note that f1 and f2, k1 and k2, h1, h2, and h3 formed subsets but had to be assigned to the miscellaneous subset because these subsets each contained fewer than four stimuli. The stimuli g1, i1, and j1 were assigned to the miscellaneous subset because they did not fit into any of the subject's other subsets.

Table 9

Symbolic Representation of Subsets of Stimuli from a Functional Category

Subsets						
a	b	c	d	e	miscellaneous	
a1	b1	c1	d1	e1	f1	i1
a2	b2	c2	d2	e2	f2	j1
a3	b3	c3	d3	e3	g1	k1
a4	b4	c4	d4	e4	h1	k2
a5		c5	d5		h2	
		c6	d6		h3	
		c7	d7			

Distractor task exposure time determination. For the distractor task, the subject was presented, sequentially, with a series of common words spelled backwards on the monitor and was required to read them correctly. For example, if R I A H C appeared on the screen, the subject had it read it as "CHAIR". In previous studies, these words have

been presented for 1.5 seconds each (Gardiner et al., 1972; Dillon and Bittner, 1975; Wixted and Rohrer, 1992). Not all subjects can accomplish this task if words are presented for only 1.5 seconds each. Therefore, a backwards word "exposure time" had to be determined for each subject so that a subject could accomplish the task with a minimum of errors.

Trial sequence to determine exposure time duration. A "GET READY" message appeared for 2 seconds. This was followed by a single word written backwards in uppercase letters, center-screen. This word remained on the screen for a preset exposure time and was replaced by another single word written backwards in uppercase letters, center-screen, for the same exposure time. The subject's task was to read each word correctly. This procedure was followed until a total of 12 words had appeared, thus completing a trial. The intertrial interval was four seconds long.

Each subject received the same words in the same order as every other subject.

Block order. Each subject was presented with blocks of trials in which the words in each block were presented for a pre-determined duration (exposure time). These durations were used to determine the exposure time for each subject. Each block contained three trials.

A subject's exposure time was defined as the shortest exposure time for which the subject read at least 11 of the 12 words correctly on each trial within a block of three trials. Subjects were first presented with exposure times that were close to the time which had been used in previous research (Gardiner et al., 1972; Dillon and Bittner, 1975; Wixted and Rohrer, 1992). The first block of trials was a practice block. It consisted of three trials. Each trial contained four words, with an exposure time of 1.5 seconds per word. This practice block was followed by four blocks of trials in which the exposure times, in seconds, were 1.5, 2, 1.25, and 1.75. If the subject met the exposure time criterion at 1.5, 1.75, or 2 seconds, the test ended. If the subject met criterion at 1.25 seconds, the

subject continued with exposure times of .75 seconds and 1 second. If the subject did not meet criterion at 1.25, 1.5, 1.75, or 2 seconds, the subject continued with an exposure time of 2.75 seconds. This time (2.75 seconds) was selected in order to minimize the number of blocks that had to be used, i.e., if the subject met criterion at 2.75 seconds, the subject continued with blocks of trials with exposure times of 2.25 and 2.5 seconds. On the other hand, if the subject did not meet criterion at 2.75 seconds, the subject continued with consecutive blocks of trials with exposure times of 3.25, 3, and 3.5 seconds.

The experimenter presented the following oral instructions to each subject:

The rest of this session will be on the computer. You will see words on the center of the screen that will be spelled backwards. You have to read them correctly. So if you see "t o h", you have to read it as "hot". We're doing this so I can find the fastest time for which you can read the backwards words correctly. You'll be given some practice trials first, before I start keeping track of your reading. First the screen will say "Get Ready". Then a word will appear backwards for a short time. Try to read it correctly. Then another word will appear backwards for a short time. Try to read that one correctly. This will continue a few more times and then you get a short break and a new trial begins. Then the same thing happens again. After three trials, you get a longer break. Then you get another three trials. Sometimes you may have trouble reading the words because they're on the screen for a very short time, and sometimes you may find it easy to read the words. For every three trials, the words appear at the same rate, so each group of trials may be faster or slower than the one before it. Do the best you can. Any questions?

Once the instructions were concluded, the subject's questions, if any, were answered, and then the trials were begun. After each block of three trials, the experimenter asked the subject if he/she were ready to go on. The break between blocks varied between 5 and 10 seconds.

The exposure times which were tested, duration of the corresponding LONG distractor intervals in session 2, 3, 4, and 5, and number of words per LONG distractor interval are listed in Table 10. The maximum and minimum duration of the distractor interval were 28 seconds and 24 seconds respectively. This resulted in a maximum number of words presented of 20 and a minimum of 8. In order to keep the duration of the distractor interval similar for all subjects, the number of words had to have this range.

Table 10

Exposure Time per Word, Duration of LONG Distractor Interval, and Number of Words per LONG Distractor Interval for Sessions 2, 3, 4, and 5

Exposure Time per Word in Seconds	Distractor Interval Duration in Seconds	Number of Words per Distractor Interval
1.25	25	20
1.5	24	16
1.75	24	14
2.0	24	12
2.25	26.75	12
2.5	25	10
2.75	27.5	10
3.0	24	8
3.25	26	8
3.5	28	8

Sessions 2 through 5: The basic structure of sessions 2 through 5 was identical. Each subject was exposed to nine blocks of trials (see Brown-Peterson trial sequence above). The first block was always practice and consisted of three trials. The practice trials differed from the other trials in that the ready signal duration was 2 seconds long followed by a blank screen for .5 seconds and the number of words read backwards by each subject was six. The other eight blocks each consisted of four trials. Each block contained stimuli from different semantic categories presented in the following order:

MAMMALS, STATES, BODY PARTS, SPORTS, MUSICAL INSTRUMENTS, AUTOMOBILES, COUNTRIES, and SEA CREATURES. Two conditions were presented during each session. These conditions alternated from block to block.

Distractor task. For the distractor task, each subject was required to correctly read a word spelled backwards on the monitor as in session 1 (Gardiner, Craik, and Birtwistle, 1972; Dillon and Bittner, 1975; Wixted and Rohrer, 1992). Each word appeared in uppercase letters, center-screen. The letters in each word were separated by one space. For example, SIDE appeared as E D I S. The exposure time for the words in this distractor task had been determined for each subject in session 1.

Session 2. In this session, every subject was exposed to two conditions, DIFF-3-LONG and SAME-3-LONG. The particular value of LONG was determined in session 1 for each subject.

Each subject was seated at the computer and was given the following oral instructions by the experimenter:

> For this session, and the remaining ones, we'll be using the computer. I'm going to explain what you'll have to do and then you'll get practice to see if you understand what you have to do. Do you remember the backward reading you did last time? You're going to be doing that plus something else. You're going to have groups of trials again but this time, after the "GET READY" signal, you will see three words appear in a list, one at a time. As each word appears, read it aloud to me - that way I know that you saw the word. The list will stay on the screen for a second or two and then disappear. You will then have to do the backward reading task like you did last time. After you finish that, you will have 15 seconds to recall the first three words you read to me. The 15 seconds will be counted down on the screen so you'll know how much time you have left. So your job is to read the three words as they appear, read the backwards words the correct way, and then tell me

the three words you read initially in the correct order. Either give them to me in the order you saw them, or if you are saying them out of order, you have to tell me which came first, second, and third. Any questions? You'll start with three practice trials followed by a two minute break. Then you'll have eight groups of four trials each. There will be a two-minute break between each group of trials. I'll be sitting behind you keeping track of your responses. Any questions? We'll begin now.

As the subject went through the practice trials, the experimenter made corrections when necessary such as reminding the subject to read each list word as it appeared and to tell the experimenter the order of the STBR if it were different from the recited order. During the pause following the practice trials, the experimenter reminded each subject that the practice trials were over and the experiment would begin. The experimenter pointed out when the break was nearing its end and asked the subject if he/she were ready to continue when the "HIT ENTER..." message appeared. All subjects answered affirmatively and pressed the ENTER key within three seconds.

Each subject's performance on the first two trials of each block of DIFF-3-LONG was evaluated to determine the appropriate condition in session 3.

Session 3. Subjects in Group 1 were exposed to DIFF-3-LONG and either DIFF-4-LONG or DIFF-3-SHORT. Subjects in Group 2 were exposed to SAME-3-LONG and either DIFF-4-LONG or DIFF-3-SHORT (see Figure 3).

Subjects were given oral instructions by the experimenter appropriate to their conditions as follows:

Instructions for DIFF-4-LONG subjects: You'll be doing the same type of task that you did in the last session but during the practice, you'll have four words in each trial to remember instead of three. This is because some groups of trials will have three words for you to recall and some groups of trials will have four words for you

to recall. Remember, if the first trial in a group has three words, all the trials in that group will have three words and if the first trial in a group has four words, all the trials in that group will have four words. Any questions? Are you ready to begin?

Instructions for DIFF-3-SHORT subjects: You'll be doing the same type of task that you did in the last session but the number of words you read backwards will not be the same throughout this session. For some groups of trials, you'll have more words to read backwards. For other groups of trials, you'll have fewer words to read backwards. The number of backward words will be consistent within a group. Any questions? Are you ready to begin?

For subjects exposed to DIFF-3-SHORT, their performance was evaluated on the first two trials of each block of DIFF-3-SHORT in order to determine the appropriate condition in session 4.

Session 4. In this session, subjects in both groups were exposed to DIFF-4-LONG and SAME-4-LONG, DIFF-3-SHORT and DIFF-4-SHORT, or DIFF-3-SHORT and SAME-3-SHORT (see Figure 3).

Subjects were given oral instructions by the experimenter appropriate to their conditions:

Instructions for DIFF/SAME-4-LONG subjects: You'll be doing the same type of task that you did in the last session. During the practice, you'll have four words in each trial to remember. This is because every trial will have four words for you to recall. There won't be any switching from three to four words. Any questions? Are you ready to begin?

Instructions for DIFF-3/4-SHORT subjects: You'll be doing the same type of task that you did in the last session. During the practice, you'll have four words in each trial to remember instead of three. This is because some

groups of trials will have three words for your to recall and some groups of trials will have four words for you to recall. Remember, if the first trial in a group has three words, all the trials in that group will have three words and if the first trial in a group has four words, all the trials in that group will have four words. Any questions? Are you ready to begin?

Instructions for DIFF/SAME-3-SHORT subjects: You'll be doing the same type of task that you did in the last session. In the last session, the number of words you read backwards sometimes changed. This time it won't. It'll be the same throughout this session. Any questions? Are you ready to begin?

Session 5. In this final session, the subjects in Group 1 were exposed to SAME-3-LONG and SAME-4-LONG, DIFF-4-SHORT, or SAME-3-SHORT whereas the subjects in Group 2 were exposed to DIFF-3-LONG and SAME-4-LONG, DIFF-4-SHORT, or SAME-3-SHORT (see Figure 3).

Subjects were given oral instructions by the experimenter appropriate to their conditions:

Instructions for SAME-3/4-LONG and DIFF-3-LONG/SAME-4-LONG subjects: You'll be doing the same type of task that you did in the last session. During practice, you'll have four words to remember. In this session, some groups of trials will have three words for you to recall and some groups of trials will have four words for you to recall. Remember, if the first trial in a group has three words, all the trials in that group will have three words and if the first trial in a group has four words, all the trials in that group will have four words. Any questions? Are you ready to begin?

Instructions for SAME-3-LONG/DIFF-4-SHORT and DIFF-3-LONG/DIFF-4-SHORT subjects: You'll be doing the same type of task that you did in the last session. During practice you'll have four words to remember. In this

session, some groups of trials will have three words for you to recall and some groups of trials will have four words for you to recall. Remember, if the first trial in a group has three words, all the trials in that group will have three words and if the first trial in a group has four words, all the trials in that group will have four words. Also, for some groups of trials, you'll have more words to read backwards. For other groups of trials, you'll have fewer words to read backwards. The number of backward words will be consistent within a group. Any questions? Are you ready to begin?

Instructions for SAME-3-LONG/SHORT and DIFF-3-LONG/SAME-3-SHORT subjects: You'll be doing the same type of task that you did in the last session but for some groups of trials, you'll have more words to read backwards. For other groups of trials, you'll have fewer words to read backwards. The number of backward words will be consistent within a group. Any questions? Are you ready to begin?

Data Analysis

Both group and individual data were analyzed. All responses were scored using the five scoring methods described below.

Method I. A value of one was assigned to a trial if all stimuli were recalled in their correct positions. Otherwise, zero was assigned to the trial (Brown, 1958; Loess and Waugh, 1967;Murdock, 1961).

Method II. A value of one was assigned for each stimulus that was recalled in its correct position. Therefore, for a trial in which there were three stimuli, the score was 0, 1, 2, or 3 (Petrusic and Dillon, 1972).

Method III. A value of two was assigned for a stimulus recalled in its correct position; one was assigned for a stimulus recalled in an incorrect position. Therefore, for a trial in which there were three stimuli, the score was 0, 1, 2, 3, 4, or 6 (Turvey et al.,

1970; Wright, 1967).

Method IV. A value of one was assigned for each correctly recalled stimulus regardless of position. An additional value of one was assigned if all the stimuli in the trial were recalled in their correct positions. Therefore, for a trial in which there were three stimuli, the score was 0, 1, 2, 3, or 4 (Wickens et al., 1976).

Method V. A value of one was assigned for each correctly recalled stimulus regardless of position. Therefore, for a trial in which there were three stimuli, the score was 0, 1, 2, or 3 (Dillon and Bittner, 1975; Gardiner et al., 1972; Petrusic and Dillon, 1972; Watkins and Watkins, 1975).

The scoring methods differ by the extent to which stimulus position contributes to the trial score. Methods I and II require that a stimulus be recalled correctly and in its correct position in order to be considered a correct response. Method I has the additional requirement that all stimuli of a trial must be recalled. Method III and IV consider correct recall of the stimulus and its position as two separate components of the score. Method V only takes into account the correct recall of the stimulus; position is not a consideration. The different scoring methods can be conceptualized as on a "continuum" from most stringent (Method I) to least stringent (Method V) with respect to position information.

Results and Discussion

Wickens (1970) stated that PI reaches its maximum by the third or fourth trial. Loess (1968) and Loess and Waugh (1967) noted in their studies that there was a marked decrease in accuracy of responding from trial 1 to trial 2 and that performance remained at a rather constant level thereafter. This difference may be explained by the fact that Wickens (1970) used a different method of scoring than did Loess (1968) and Loess and Waugh (1967). The consistent finding among these studies was the decrement in performance from trial 1 to trial 2. Therefore, in the present study, group data were analyzed over the first two trials as well as over all four trials using the five scoring methods previously described. Tables which display the scores for all trials for each subject are presented in Appendix B. Both group and individual subject results are presented below. All statistical analyses were performed on absolute scores. However, to facilitate graphical comparisons, mean scores were converted to percent measures.

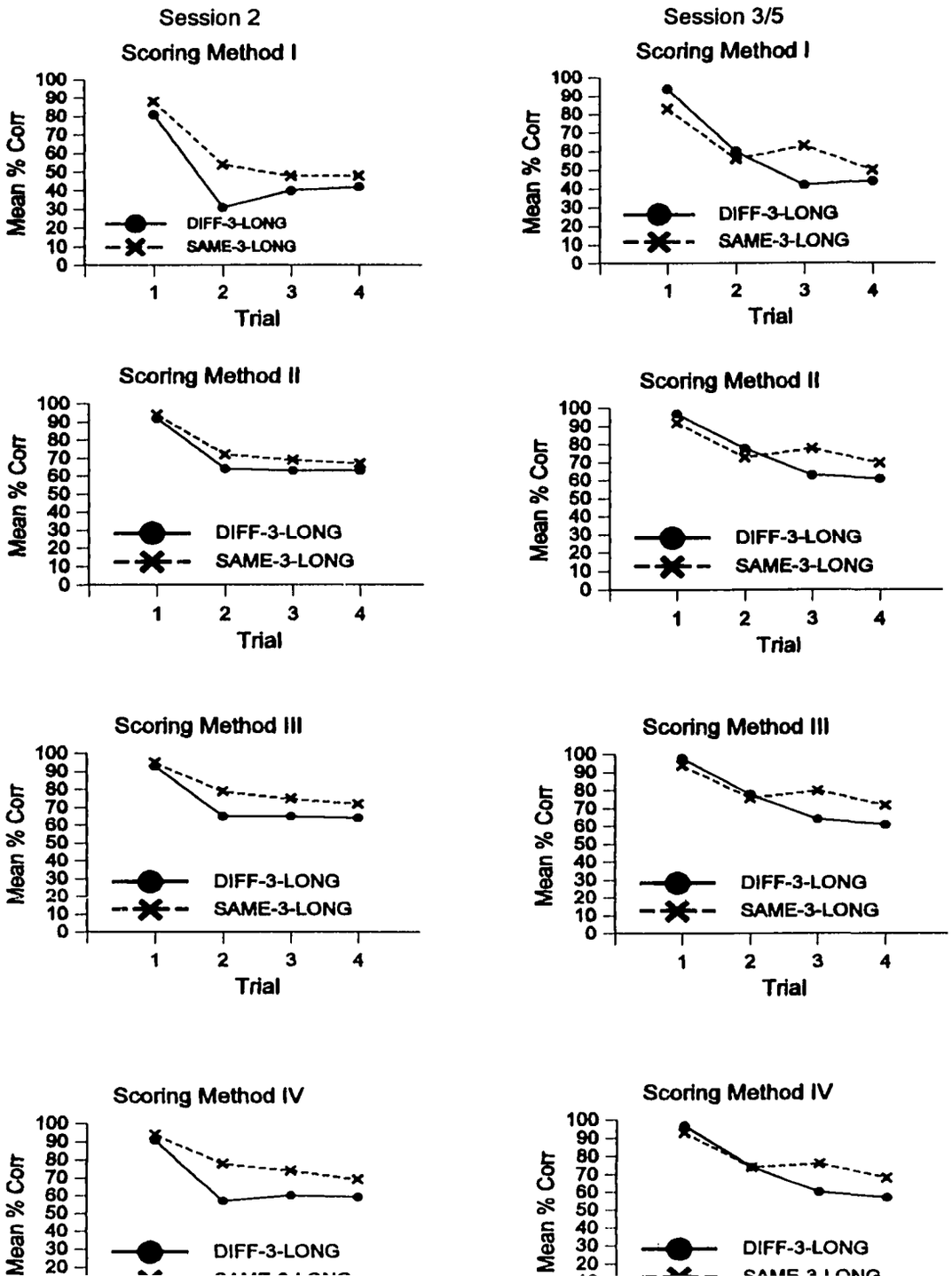
Group Data

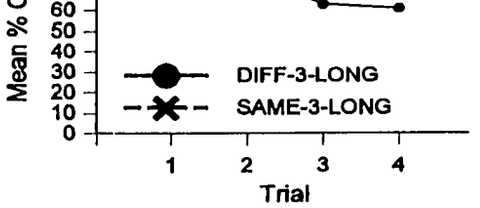
Group comparisons were conducted for only DIFF-3-LONG and SAME-3-LONG conditions. All subjects were exposed to both conditions on different sessions. In each session, half the categories were assigned to one condition, and half to the other condition. The assignment of categories to conditions was balanced across sessions and groups. The assignment of categories to conditions for Group 2 was a direct reversal of the assignment for Group 1 by session. In the following analyses, Similarity and Session were within-subjects factors, and Condition/Category assignment was a between-groups factor.

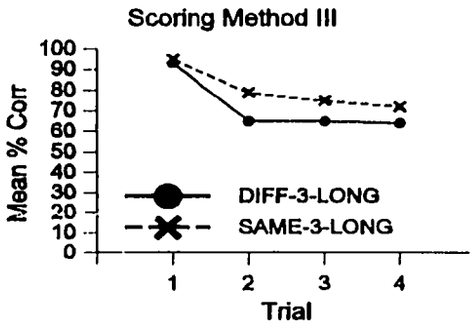
Session 2

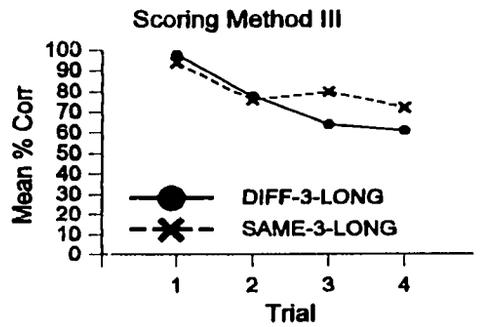
Session 2 was the first session in which all subjects were exposed to the Brown-Peterson task. In this session, all subjects were exposed DIFF-3-LONG and SAME-3-LONG. Data from this session are presented in Figure 5 (left panel) which displays mean percent correct as a function of trials (1-4) for each scoring method. The results of the analyses of

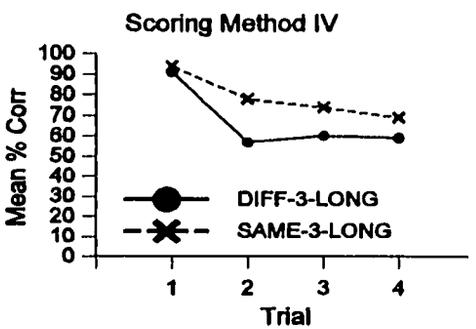
Figure 5. The left column of graphs depicts mean percent correct as a function of trial for DIFF-3-LONG and SAME-3-LONG in session 2 for all scoring methods. The right column of graphs depicts mean percent correct as a function of trial for DIFF-3-LONG and SAME-3-LONG in sessions 3 and 5 combined for all scoring methods.

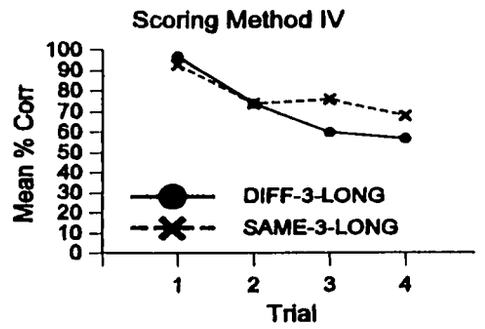


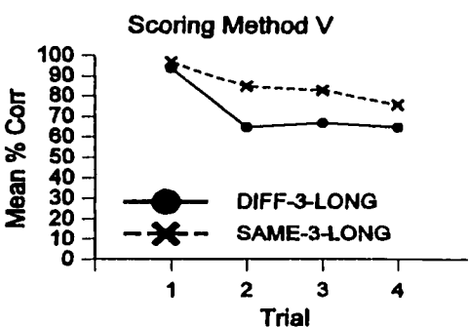


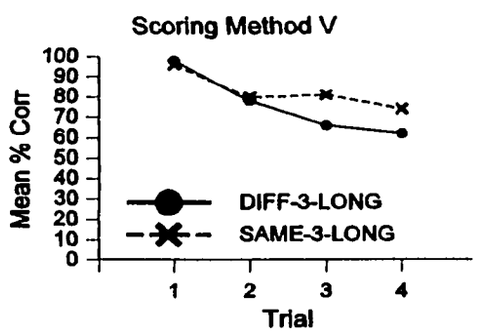












variance are displayed in Table 11 where G refers to Group, A to Similarity, and T to Trial. The graphs in the left column of Figure 5 can be characterized as indicating a lower level of accurate performance in DIFF than SAME across trials 2 through 4, with the greatest decline occurring from trial 1 to trial 2 in both DIFF and SAME for all scoring methods.

4 trials. An analysis of the data was done using a 2 (Group) x 2 (Similarity) x 4 (Trial) ANOVA with repeated measures on Similarity and Trial for each scoring method.

There were no statistically significant Group main effect or interactions of Group with any factors. Therefore, there was no evidence to suggest an effect of assignment of conditions to category. The main effect of trial was significant at $p < .05$ for all scoring methods. This outcome suggests that the procedure used produced a build-up of PI regardless of the scoring method used. The main effect of Similarity was significant at $p < 0.05$ for all methods. This suggests a difference in accuracy of responding based upon Similarity regardless of the scoring method used. The Trial x Similarity interaction was not significant for any scoring method.

2 trials. An analysis of the data was done using a 2 (Group) x 2 (Similarity) x 2 (Trial) ANOVA with repeated measures on Similarity and Trial for each scoring method.

There were no statistically significant effects involving the Group factor. Therefore, there was no evidence to suggest an effect of Condition order/Category. There was a statistically significant Trial x Similarity interaction for three scoring methods, III, IV and V, indicating that similarity had a differential effect upon responding. A greater decrement in accuracy of responding occurred with DIFF than with SAME (see Figure 5, left panel). These results indicate that when the stimuli used in a trial belonged to the same subset and subsets changed from trial to trial (SAME), accuracy of responding was at a higher level than when the stimuli in a trial belonged to different subsets, and therefore only to the general category (DIFF).

There was a statistically significant main effect of Trial at $p < .05$ for all

Table 11

Analysis of Variance of Responding in Session 2 for Trials 1-4 and 1-2

		Trials 1-4				
		Scoring Method				
		I	II	III	IV	V
SOURCE	df	F	F	F	F	F
G	1	0.18	0.01	0.00	0.03	0.00
Error	10	(0.4501)	(1.7069)	(5.4010)	(2.8622)	(1.0616)
A	1	8.08*	6.22*	18.93*	25.71*	24.31*
AxG	1	4.12	0.78	1.64	3.51	1.74
Error	10	(0.0355)	(0.1007)	(0.3578)	(0.2143)	(0.1350)
T	3	16.57*	12.08*	13.10*	15.41*	12.90*
TxG	3	0.53	0.70	0.50	0.27	0.24
Error	30	(0.0599)	(0.3288)	(1.0122)	(0.4449)	(0.2085)
AxT	3	1.00	0.20	0.95	1.80	2.19
AxTxG	3	0.15	0.45	0.42	0.47	0.66
Error	30	(0.0390)	(0.1607)	(0.5641)	(0.2879)	(0.1437)
		Trials 1-2				
G	1	0.00	0.10	0.03	0.00	0.00
Error	10	(0.1807)	(0.4589)	(1.3526)	(0.8370)	(0.2531)
A	1	7.31*	2.31	7.82*	14.26*	16.62*
AxG	1	2.39	0.90	0.66	0.97	0.26
Error	10	(0.0349)	(0.1443)	(0.3839)	(0.1932)	(0.0802)
T	1	28.78*	30.49*	33.51*	33.03*	32.35*
TxG	1	0.07	0.59	0.51	0.22	0.35
Error	10	(0.0724)	(0.2214)	(0.6568)	(0.3786)	(0.1354)
AxT	1	3.72	1.20	10.43*	19.14*	30.18*
AxTxG	1	0.23	0.08	0.58	1.06	1.61
Error	10	(0.0224)	(0.0693)	(0.1443)	(0.0786)	(0.0292)

Note. Values in parentheses are mean squares for error terms. G = Group; A = Similarity; T = Trial. *$p < .05$.

scoring methods. The main effect of Similarity was statistically significant at $p < .05$ for all methods but II.

Sessions 2, 3, and 5

Session 2, 3, and 5 were all the sessions in which the subjects were presented with conditions DIFF-3-LONG and SAME-3-LONG. Data from these sessions were analyzed over both 4 trials and 2 trials separately, on all scoring methods. The groups differed with respect to the order in which they were exposed to the Condition/Category assignment in session 2 and in the later sessions.

Data from sessions 3 and 5 were pooled and are presented in Figure 5 (right panel), indicated as "SESSIONS 3/5". Percent correct is displayed as a function of trials (1-4) for each scoring method. The overall pattern of responding in session 2 and sessions 3/5 was similar. Performance declined from trial 1 to trial 2 for both conditions for all scoring methods in all sessions. By trial 2 in session 2, and by trial 3 in session 3/5, mean percent correct in DIFF was lower than in SAME and stayed that way through trial 4.

The results of the ANOVAs over 4 trials are displayed in Table 12 for all scoring methods. The results of the ANOVAs over 2 trials are displayed in Table 13 for all scoring methods (S represents Session).

4 trials. A 2 (Group) x 2 (Session) x 2 (Similarity) x 4 (Trial) ANOVA was run with repeated measures on Session, Similarity, and Trial for each scoring method.

There was a significant Trial x Similarity interaction at $p < .05$ for method V, providing evidence of a differential build-up of PI for the measure in which recall of correct position contributed nothing to the score. There was a statistically significant main effect of Trial and of Similarity at $p < .05$ for all scoring methods, as well as a statistically significant Group x Similarity interaction at $p < .05$ for scoring method II.

The Group x Session x Similarity x Trial interaction was not significant for any scoring method. There were, however, two statistically significant second-order

Table 12

Analysis of variance of responding in sessions 2, 3, and 5 for Trials 1-4

		Scoring Method				
		I	II	III	IV	V
SOURCE	df	F	F	F	F	F
G	1	0.52	0.18	0.14	0.24	0.12
Error	10	(0.7652)	(3.0199)	(10.0316)	(5.3954)	(2.1057)
T	3	35.15*	25.89*	25.53*	28.29*	23.31*
GxT	3	1.77	2.13	1.70	1.38	1.19
Error	30	(0.0508)	(0.2863)	(1.0585)	(0.5048)	(0.2594)
A	1	5.51*	8.97*	14.22*	15.67*	17.03*
GxA	1	4.40	5.37*	2.70	2.24	1.14
Error	10	(0.0430)	(0.1019)	(0.6081)	(0.3787)	(0.2229)
S	1	4.53	3.37	1.22	1.10	0.01
SxG	1	0.91	1.75	1.95	1.74	1.91
Error	10	(0.0605)	(0.1785)	(0.5420)	(0.2852)	(0.1154)
SxA	1	1.64	0.20	1.21	3.65	4.07
SxAxG	1	20.50*	10.04*	12.36*	21.50*	15.34*
Error	10	(0.0446)	(0.1287)	(0.4519)	(0.2144)	(0.0924)
SxT	3	0.80	0.37	0.40	0.72	0.70
SxTxG	3	0.18	0.32	0.52	0.56	1.05
Error	30	(0.0537)	(0.2467)	(0.7672)	(0.3300)	(0.1391)
AxT	3	1.40	1.54	2.16	2.57	3.10*
AxTxG	3	0.96	0.51	0.58	0.85	0.79
Error	30	(0.0418)	(0.2024)	(0.6819)	(0.3200)	(0.1470)
SxAxT	3	4.51*	3.23*	2.62	2.73	1.85
SxAxTxG	3	1.08	1.28	0.77	0.77	0.64
Error	30	(0.0205)	(0.0949)	(0.3746)	(0.1939)	(0.1117)

Note. Values in parentheses are mean squares for error terms. S = session; G = group; A = Similarity; T = trial. *$p < .05$.

Table 13

Analysis of variance of responding in sessions 2, 3, and 5 for Trials 1-2

		Scoring Method				
		I	II	III	IV	V
SOURCE	df	F	F	F	F	F
G	1	0.05	0.04	0.04	0.00	0.03
Error	10	(0.3163)	(0.9294)	(3.0751)	(1.8372)	(0.6423)
T	1	37.37*	30.45*	29.11*	31.15*	25.86*
GxT	1	0.01	0.19	0.27	0.14	0.37
Error	10	(0.0829)	(0.3503)	(1.2564)	(0.6622)	(0.2991)
A	1	1.27	0.03	2.19	4.50*	5.88*
GxA	1	2.10	1.18	1.47	1.79	1.38
Error	10	(0.0251)	(0.0794)	(0.3230)	(0.2091)	(0.1064)
S	1	4.50	2.76	2.48	3.44	1.84
SxG	1	0.31	0.07	0.00	0.00	0.20
Error	10	(0.0522)	(0.1596)	(0.4413)	(0.2185)	(0.0798)
SxA	1	7.33*	3.72	6.59*	10.08*	11.32*
SxAxG	1	10.38*	4.23	5.02*	7.97*	5.50*
Error	10	(0.0392)	(0.1576)	(0.3923)	(0.1883)	(0.0626)
SxT	1	1.98	1.02	0.76	0.97	0.41
SxTxG	1	0.41	0.40	0.12	0.05	0.01
Error	10	(0.0397)	(0.1628)	(0.4517)	(0.2185)	(0.0772)
AxT	1	3.27	0.50	3.96	8.37*	11.00*
AxTxG	1	4.57	2.56	3.56	4.86	4.13
Error	10	(0.0241)	(0.0826)	(0.2501)	(0.1372)	(0.0569)
SxAxT	1	1.47	1.02	6.36*	9.66*	10.76*
SxAxTxG	1	4.76	3.12	3.34	3.66	1.20
Error	10	(0.0111)	(0.0409)	(0.0861)	(0.0456)	(0.0267)

Note. Values in parentheses are mean squares for error terms. S = Session; G = Group; A = Similarity; T = Trial. *$p < .05$.

interactions, Session x Group x Similarity and Session x Similarity x Trial. These are discussed below.

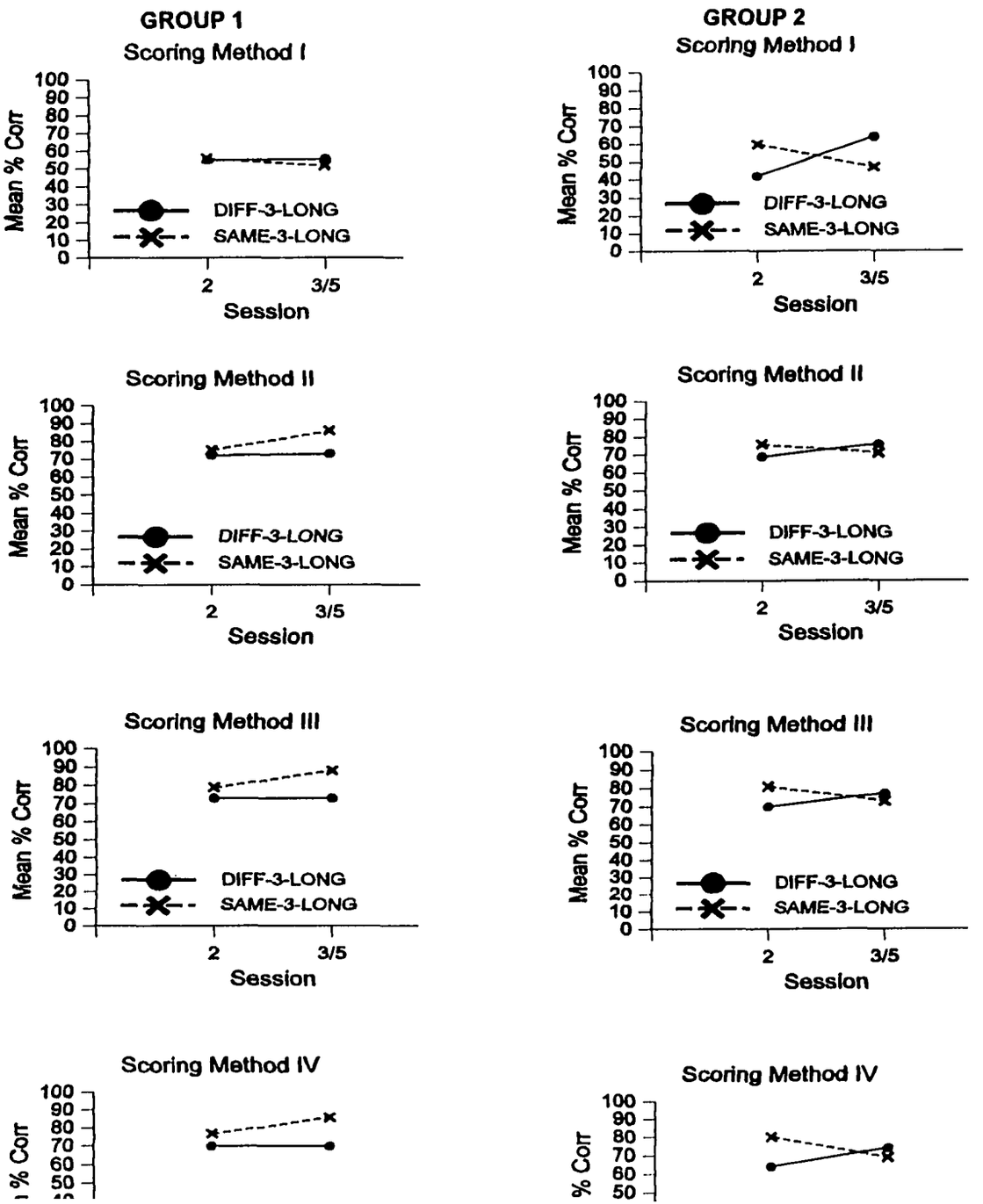
The Session x Group x Similarity interaction was statistically significant at $p < .05$ for all scoring methods. Post hoc tests were run by group to determine for which levels of similarity (DIFF, SAME) there were significant session effects. The mean percent correct for DIFF and SAME by session for each group is displayed in Figure 6 for all scoring methods.

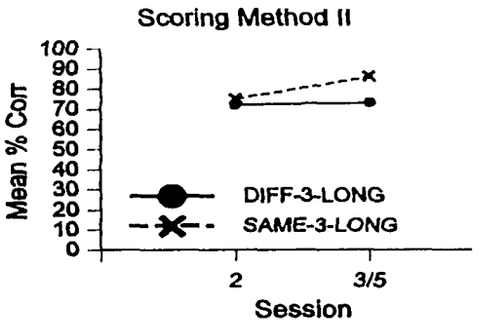
For Group 1 (left panel), any improvement or decrement in performance for either DIFF or SAME from session 2 to sessions 3/5 was not statistically significant for any scoring method. For Group 2 (right panel), the improvement in DIFF from session 2 to sessions 3/5 for scoring methods I, II, and IV was statistically significant at $p < .05$, $F(1,5) = 66.12$, $F(1,5) = 8.86$, and $F(1,5) = 11.36$, respectively. This was also true for the decrement in SAME for Group 2 for scoring methods IV and V, $p < .05$, $F(1,5) = 9.20$ and $F(1,5) = 13.61$, respectively.

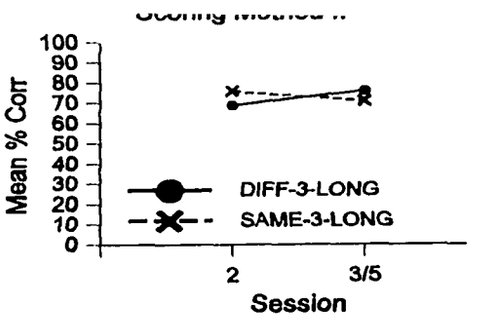
A single practice effect cannot readily explain both the improvement and the decrement across sessions. A category effect can account for both the improvement and the decrement across sessions. The categories that were associated with SAME and DIFFERENT in sessions 3/5 were the reverse of those associated with SAME and DIFFERENT in session 2. The graphs in Figure 6 indicate that for Group 2, the relative performance in SAME and DIFFERENT in sessions 3/5 was the reverse of the relative performance in SAME and DIFFERENT in session 2. This change in relative performance changed with the categories involved. The effect of categories worked against the Similarity effect in sessions 3/5, overshadowing it.

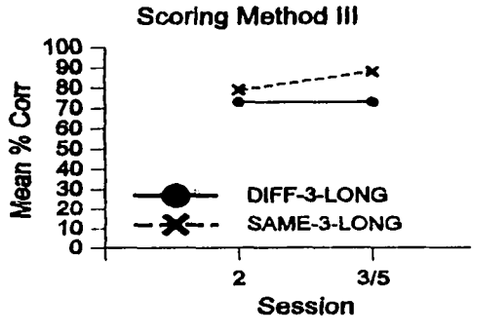
The Session x Similarity x Trial interaction was statistically significant at $p < .05$ for scoring methods I and II (see Figure 5 and Table 12). These scoring methods required correct position as well as item information for credit. Post hoc tests were run by session

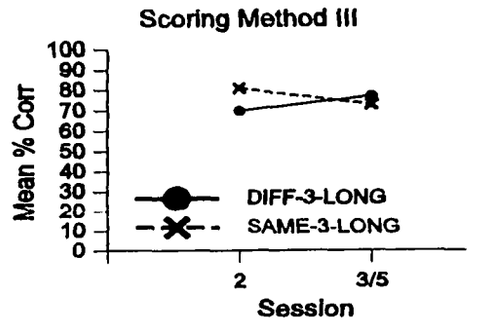
Figure 6. The left column of graphs depicts mean percent correct for DIFF and SAME for four trials by session for Group 1 for all scoring methods. The right column of graphs depicts mean percent correct for DIFF and SAME for four trials by session for Group 2 for all scoring methods.

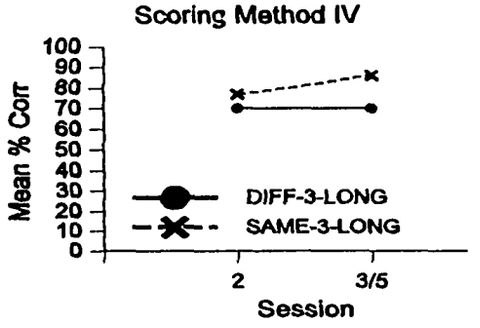


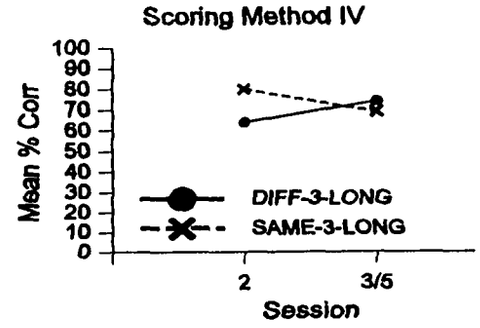


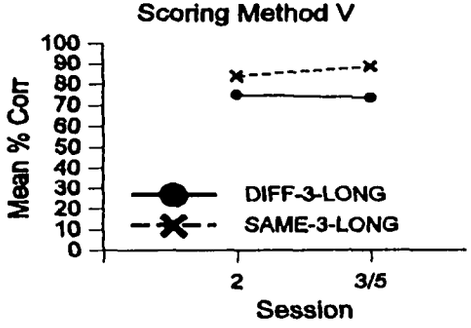


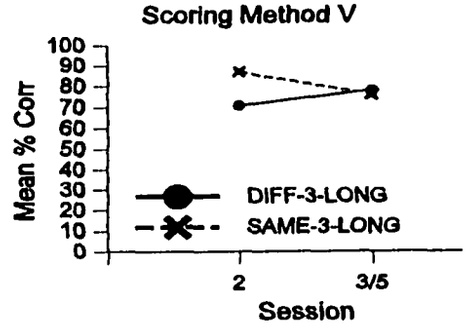












to determine on which trials significant differences occurred with respect to Similarity for scoring methods I and II. For session 2, there was a significant Similarity effect on trial 2, with performance on SAME at a higher level than on DIFF, for scoring method I, $p < .05$, $F(1,10) = 12.35$. For sessions 3/5, significant Similarity effects, $p < .05$, occurred on trials 1 and 3 for methods I and II. For trials 1 and 3 for method I, $F(1,10) = 9.62$ and $F(1,10) = 8.93$, respectively. For trials 1 and 3 for method II, $F(1,10) = 9.80$ and $F(1,10) = 17.75$, respectively. For sessions 3/5, trial 1, these differences were not in the expected direction, i.e., responding was at a higher level of accuracy in DIFF than in SAME.

2 trials. A 2 (Group) x 2 (Session) x 2 (Similarity) x 2 (Trial) ANOVA was run with repeated measures on Session, Similarity, and Trial for each scoring method.

The Trial x Similarity interaction was statistically significant at $p < .05$ for scoring methods IV and V, providing evidence of a differential build-up of PI for those measures in which correct position contributed minimally or not at all to the score.

There was a statistically significant main effect of Trial at $p < .05$ for all scoring methods. The main effect of Similarity was statistically significant at $p < .05$ only for scoring methods IV and V.

There was no significant Group x Session x Similarity x Trial interaction for any scoring methods. The Session x Similarity interaction was significant at $p < .05$ for scoring methods I, III, IV, and V. As with four trials, the Session x Group x Similarity and Session x Similarity x Trial interactions were significant at $p < .05$.

The Session x Group x Similarity interaction was statistically significant for four scoring methods, I, III, IV, and V (see Table 13). Post hoc tests were run by group on the data based upon these scoring methods to determine for which levels of similarity there were significant session effects with these scoring methods. The tests indicated a statistically significant improvement in responding from session 2 to sessions 3/5 in DIFF for Group 2 for all these scoring methods, $p < .05$. $F(1,5) = 19.74$, $F(1,5) = 13.42$,

$F(1,5) = 18.06$, and $F(1,5) = 15.97$, for scoring methods I, III, IV, and V, respectively. Graphs of the data are displayed in Figure 7. A visual inspection of the graphs in Figures 6 and 7 indicates similar patterns.

The Session x Similarity x Trial interaction was statistically significant at $p < .05$ for scoring methods III, IV, and V (see Figure 5 and Table 13). Post hoc tests were run by session to determine on which trials significant similarity differences occurred for these scoring methods. For session 2, statistically significant differences at $p < .05$ were found on trial 2 for these scoring methods. For scoring methods III, IV, and V, $F(1,10) = 12.72$, $F(1,10) = 23.67$, and $F(1,10) = 24.31$, respectively. The differences occurred in the expected direction, with performance on DIFF at a lower level of accuracy than performance on SAME. For sessions 3/5, however, the statistically significant differences at $p < .05$ occurred on trial 1 for methods III and IV in a direction opposite to that which was expected. $F(1,10) = 9.62$, and $F(1,10) = 5.52$ for scoring methods III and IV, respectively. There were no statistically significant differences on either trial 1 or 2 with scoring method V in sessions 3/5.

Results and scoring methods

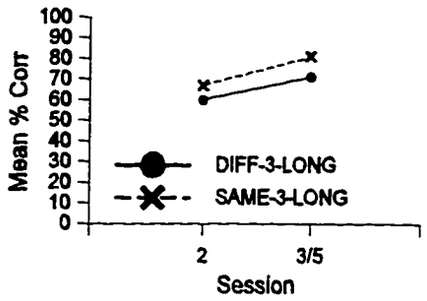
Typically, Brown-Peterson task data have been analyzed using only one scoring method, although there have been a few studies which used two. In the present study, five scoring methods were used in the analysis of the group data. The individual data will be presented using only methods I and V. Before this is done, however, a brief discussion of studies using two methods is presented as well as a rationale for the selection of scoring methods I and V.

Winters (1982) cautioned that the method of scoring used could affect the interpretation of the results. He compared the results on the Brown-Peterson task using two scoring methods corresponding to methods IV and V in this study. With both methods, 1 point is given for each stimulus correctly recalled, whether or not correct position is

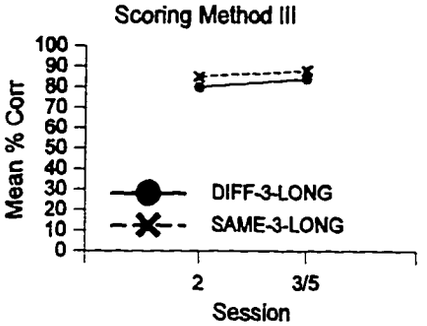
Figure 7. The left column of graphs depicts mean percent correct for DIFF and SAME for the first two trials by session for Group 1 for scoring methods I, III, IV, and V. The right column of graphs depicts mean percent correct for DIFF and SAME for the first two trials by session for Group 2 for scoring methods I, III, IV, and V.

Group 1

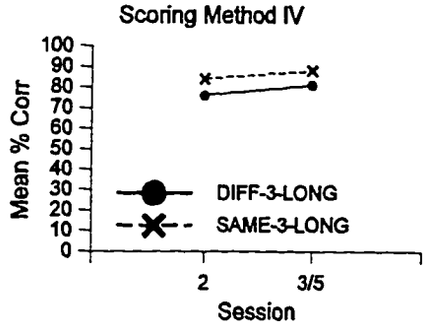
Scoring Method I



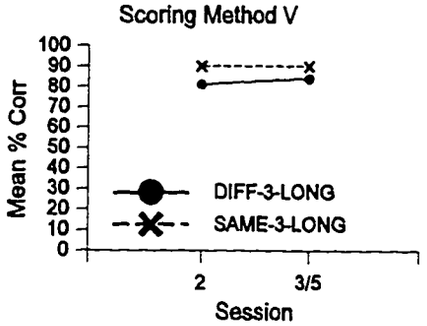
Scoring Method III



Scoring Method IV

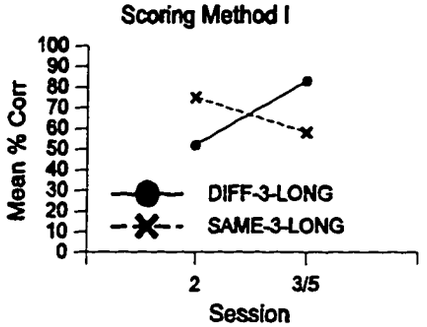


Scoring Method V

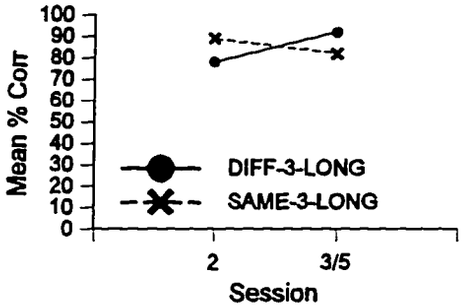


Group 2

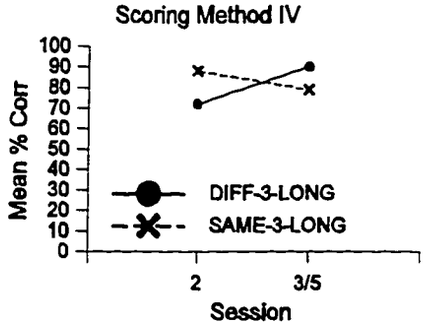
Scoring Method I



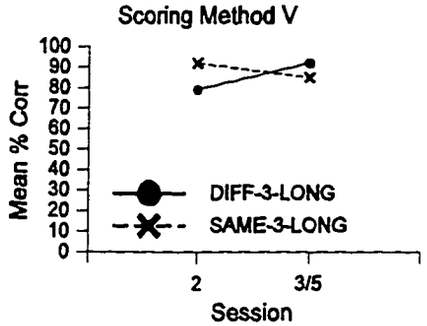
Scoring Method III



Scoring Method IV



Scoring Method V



recalled. With method IV, an additional point is given if all the stimuli are recalled in their correct positions. Winters indicated that with method IV as opposed to method V (in this study): (1) the slopes of the build-up curves are steeper; (2) better performing groups exhibit a greater build-up of PI than the poorer performing groups; and (3) interactions occur which might not otherwise. In the present study, not all statistically significant main effects or interactions occurred for all scoring methods. In this study, statistically significant interactions that occurred with method IV also occurred with method V, but not necessarily with the other scoring methods.

A few additional studies have used two methods to score the data. Wright (1967) used two methods of scoring which correspond to method I (1 point if all stimuli are recalled in their correct positions, otherwise 0) and method III (1 point for each correctly recalled stimulus plus one point for each stimulus recalled in its correct position) in this study. He stated that method I was the most frequently used measure but that it implied "that STM is an all-or-none affair" (p. 388). He described method III as a means of quantifying "the differing degrees of STM reflected by errors differing in number of individual elements recalled correctly" (p. 388). Wright found that both scoring methods showed a Retention Interval x Items (trials) interaction in his study. Fuchs and Melton (1974) used two scoring methods corresponding to methods I and V. They included method I, a "more stringent measure of recall" (p. 632) to add support to their conclusions based upon method V scoring. Fuchs and Melton stated that "analysis of the data in terms of this measure [method I in the present study] provided results in terms of main effects and interactions that were virtually identical to those reported for the words correct measure" (p. 632) (method V in the present study) and that "correct recall for complete units was found to decrease much more rapidly" (p. 632). They did not present any data from the method I analysis. Turvey et al. (1970) presented results scored by methods corresponding to I and III. They supplied the proportion of correctly recalled trigrams

(method I) for purposes of comparison but their data analysis was done using only method III scores.

Peterson and Peterson (1959) described the consonant trigrams they presented to their subjects as individual verbal items, reflecting the learning of item-to-item associations, and the scoring method they used, 1 or 0 (method I in the present study), reflected this view. Fozard and Waugh (1969) compared recall on prompted to unprompted trials on the Brown-Peterson task, where the prompt was the first word of the trial triad. Fozard and Waugh calculated the proportion of trials in which all three trial items were recalled in the correct order. The decline from the first trial to the second was greater in the prompted condition. Had the words on a trial been learned as item-to-item associations, then trial 2 responses should have been at a higher level of accuracy in the prompted condition. This did not occur. The Fozard and Waugh (1969) study does not support the notion of learning item-to-item associations of words.

The studies using semantically related stimuli demonstrated that subjects learned not just the stimuli, but meaning as well. Based upon this, scoring methods such as I and II do not correspond with the notion of measuring meaning-related learning. On the other hand, scoring methods III, IV, and V allow for correct stimuli in incorrect positions and so these scoring methods are more sensitive to the learning of meaningful relations among the trial stimuli. Another consideration for this study was the number of scores contributing to each data point. For the analysis of individual data in the present study, each data point consisted of the mean of only four trials. With so few scores contributing to a mean, scoring methods that are more sensitive to small changes in responding from trial to trial are more appropriate. For example, a subject may report all the stimuli but none of them in their correct positions on trial 1, two stimuli, not in their correct positions on trial 2, and none of the correct stimuli on trial 3. These three trials would all be scored 0 with methods I and II. Since this study is concerned with demonstrating the effects of similarity, a

scoring method that does not differentiate between performance on these three trials will obscure the effect of similarity, particularly if only four trials contribute to the mean for each trial. Methods III and IV are sensitive to both item and position information loss while method V is only sensitive to item information loss, thereby focusing on meaning. In the present study, individual subjects' data are reported using only two scoring methods, I and V. Method V was used because it is in keeping with the studies which were related to cuing and subsets, specifically, Gardiner et al. (1972) and Dillon and Bittner (1975). Method I was used because it provides the greatest contrast to method V with respect to position.

Individual Subjects' Data

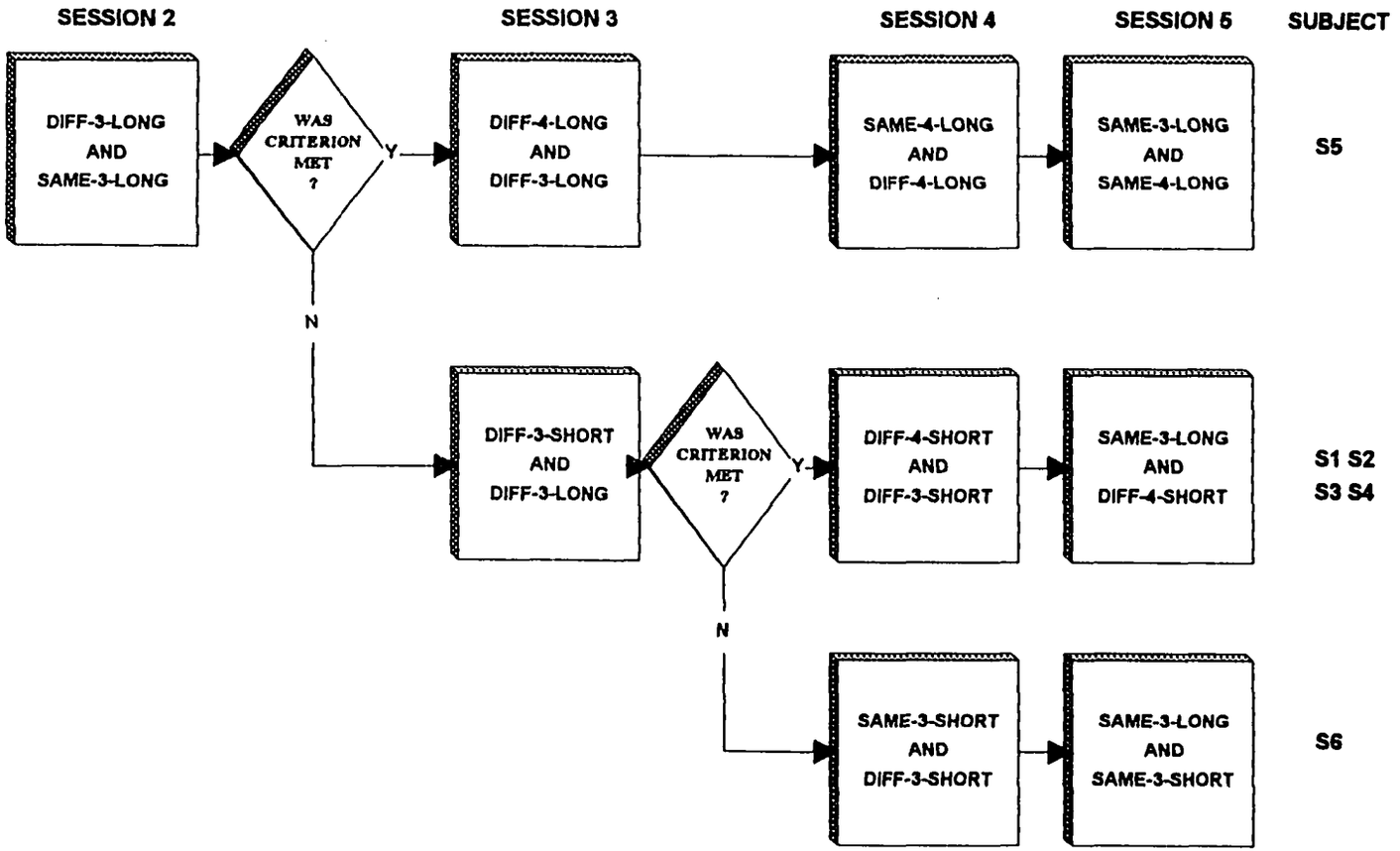
During this study, decisions were made in sessions 2 and 3 regarding parametric settings to be used for subjects in sessions 3 and 4. The significant interactions described above were of particular importance because they affected the analyses of individual results. In the present analysis, the performance of subjects was tracked from session 2 to session 3, from 3 to 4, and from 4 to 5 to determine if the manipulations produced the expected results. In this way, categories were kept constant for most comparisons and practice effects were minimized because consecutive sessions were used. When a condition is referred to, the session in which it occurred will be indicated in parentheses. For example, DIFF-3-LONG(3) indicates the condition DIFF-3-LONG in session 3. D3L(3) is used in tables and D-3-L (3) is used in graphs to indicate DIFF-3-LONG(3).

Assignment to conditions

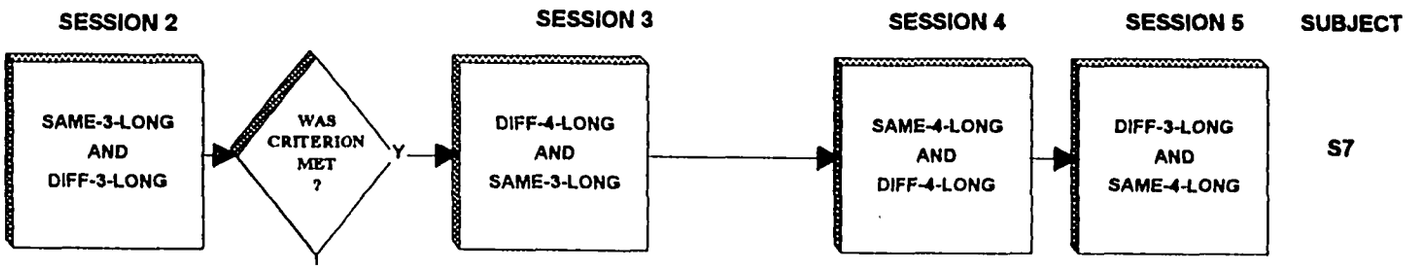
The assignment of a subject to a set of conditions was based upon that subject's performance in DIFF-3-LONG(2) and, for some subjects, also in DIFF-3-SHORT(3). The flowcharts showing sequencing of conditions for both group are displayed in Figure 8. The subjects who followed each path are listed to the right of each flowchart, next to the path they followed. Each box in the flowchart contains two conditions, organized so that the

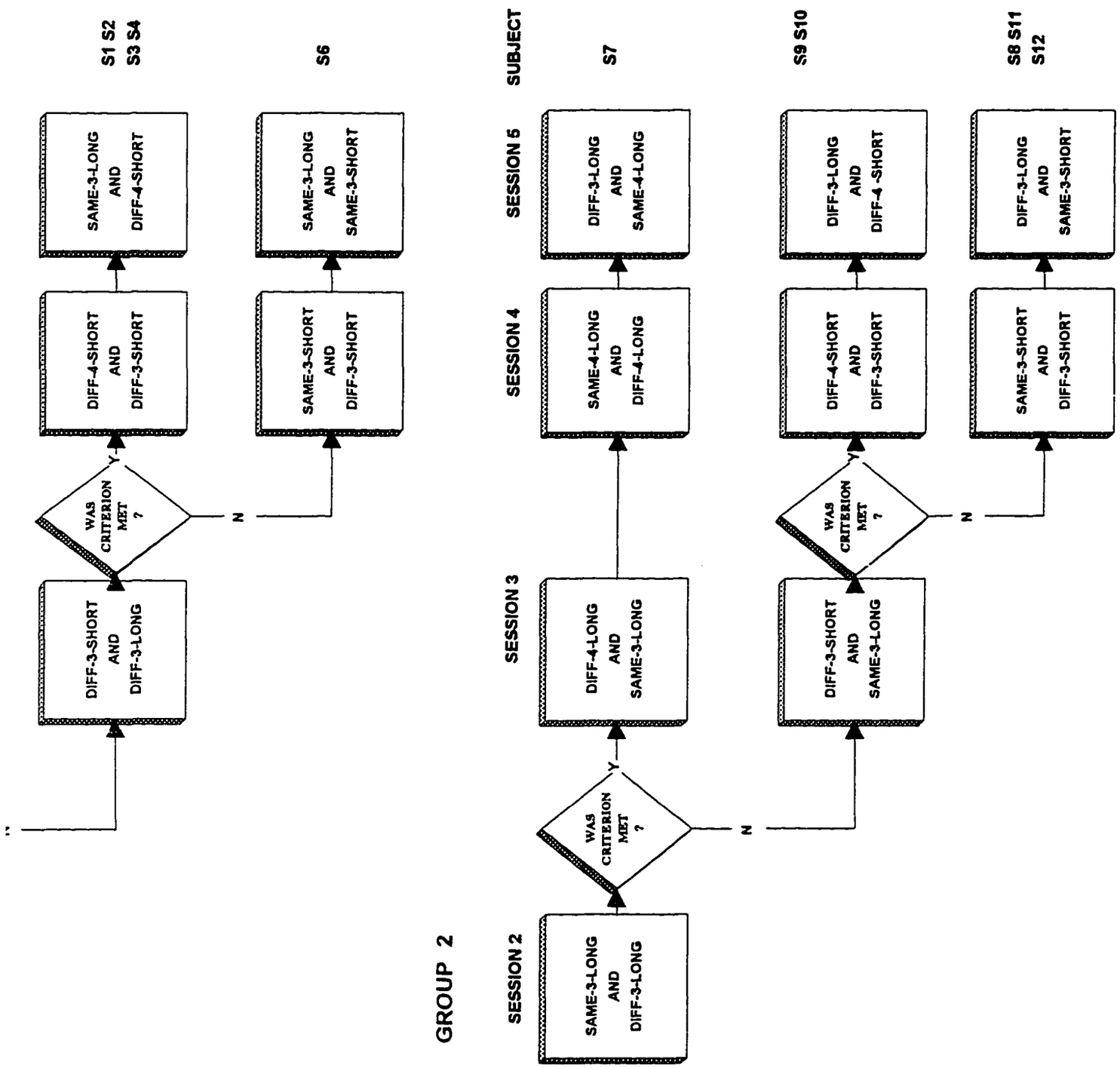
Figure 8. Flowcharts for Group 1 and Group 2 with the subjects listed to the right of the path they followed.

GROUP 1



GROUP 2





condition on the top was associated with MAMMALS, BODY PARTS, MUSICAL INSTRUMENTS, and COUNTRIES and the condition on the bottom was associated with STATES, SPORTS, AUTOMOBILES, and SEA CREATURES.

Subjects S5 and S7 responded with 100% accuracy on at least 6 of the first 8 trials of DIFF-3-LONG in session 2. Therefore, they were assigned to DIFF-4-LONG in sessions 3 and 4, corresponding to an increase in the number of stimuli per trial to four. The fourth condition for these subjects, SAME-4-LONG in sessions 4 and 5, corresponding to a change in similarity to SAME, was not conditional upon their performance in DIFF-4-LONG.

The other ten subjects responded with 100% accuracy on fewer than six of the first eight trials of DIFF-3-LONG in session 2. Therefore, they were assigned to DIFF-3-SHORT in sessions 3 and 4. For these subjects, their fourth condition was determined by their performance on the first eight trials in DIFF-3-SHORT in session 3. Subjects S1, S2, S3, S4, S9, and S10 met the 100% accuracy criterion. Therefore, they were assigned to DIFF-4-SHORT in sessions 4 and 5, corresponding to an increase in the number of stimuli per trial to four. Subjects S6, S8, S11, and S12 did not meet the 100% accuracy criterion and so were assigned to SAME-3-SHORT in sessions 4 and 5, corresponding to a change in similarity to SAME.

Comparisons

Three types of comparisons were made, DIFF to SAME in session 2, all possible session-to-session comparisons, and DIFF/SAME in session 2 compared to DIFF/SAME in session 4. The session-to-session comparisons were based upon similarity, number of stimuli per trial, and distractor interval duration.

The data of individual subjects were analyzed with respect to the build-up of PI and overall performance. When the build-up was analyzed, only performance from trial 1 and trial 2 were considered. Performance across four trials was often too variable to draw any clear conclusions. Although trial-by-trial performance across four trials was not described,

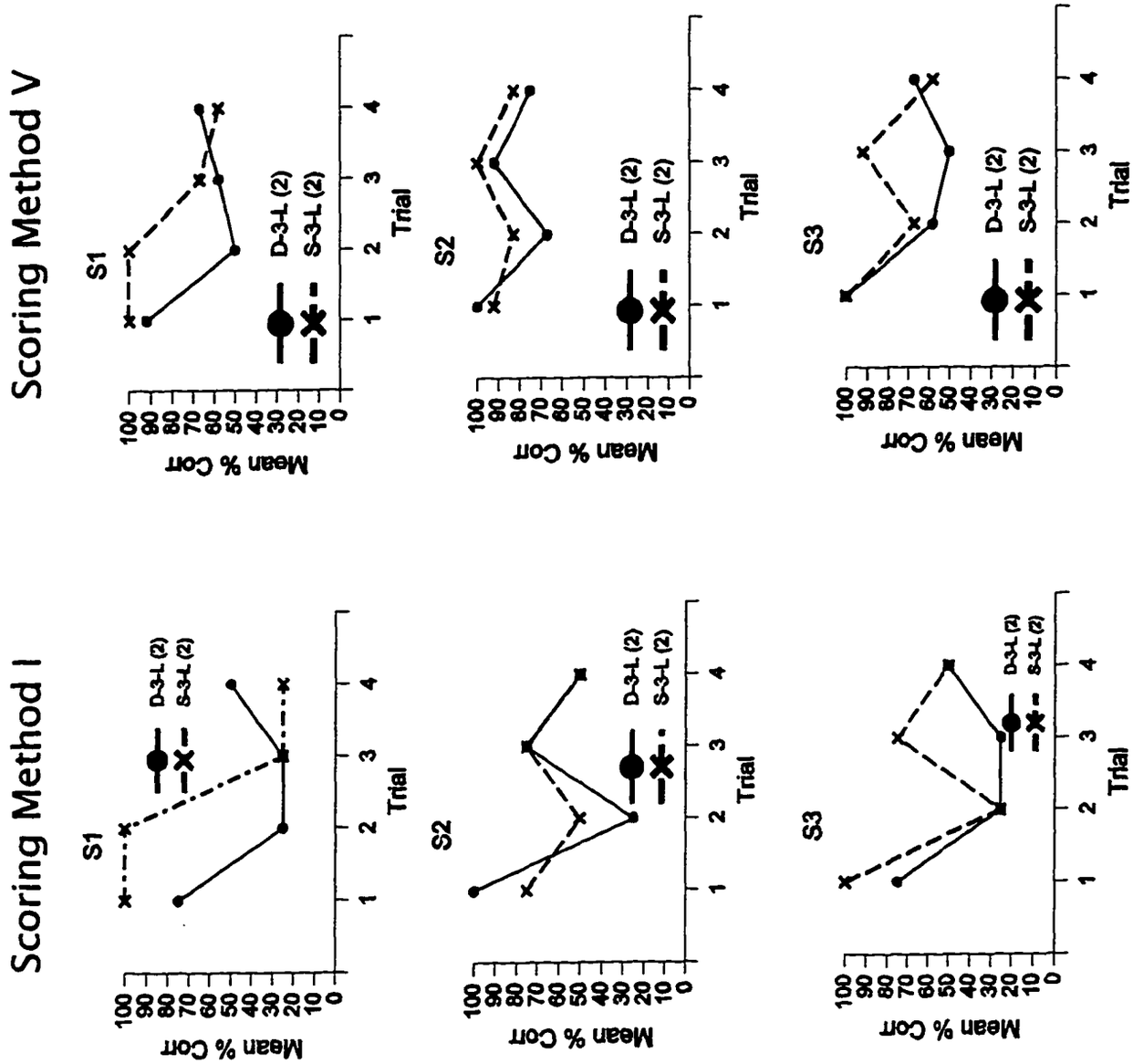
overall average performance over four trials was.

DIFF-3-LONG and SAME-3-LONG in session 2. All subjects were exposed to the DIFF-3-LONG and SAME-3-LONG conditions in session 2. The graphs of mean percent correct for these conditions by trial based upon scoring methods I and V are displayed in Figure 9 for each subject in Group 1, and in Figure 10 for each subject in Group 2. Graphs of mean percent correct using method I are displayed on the left in each figure; graphs of mean percent correct using method V are displayed on the right. For Group 1, the categories associated with DIFF were MAMMALS, BODY PARTS, MUSICAL INSTRUMENTS, and COUNTRIES; the categories associated with SAME were STATES, SPORTS, AUTOMOBILES and SEA CREATURES. For Group 2, these associations of categories and conditions were reversed. The subjects are described without regard to group or categories, as ANOVAs of group data did not reveal an effect of these variables in session 2.

For scoring method I, the ANOVAs did not indicate a significant Trial x Similarity interaction over either two trials or four trials, suggesting no evidence for a differential effect of Similarity on responding over trials. For five of the 12 subjects, S1, S2, S6, S7, and S9, there was a greater decrement in mean percent correct from trial 1 to trial 2 for DIFF than SAME. The ANOVAs did indicate a significant Similarity effect over four trials. Examining individual results showed that average performance over four trials was greater in SAME than in DIFF for eight subjects, S1, S3, S4, S8, S9, S10, S11, and S12.

For method V, the ANOVAs did not indicate a significant Similarity x Trial interaction over four trials, but did over two trials. All subjects but one, S5, exhibited a greater decrement in mean percent correct from trial 1 to trial 2 in DIFF than in SAME. The ANOVAs did indicate a significant Similarity effect over four trials. Examination of individual results showed that average performance over four trials was greater in SAME than in DIFF for all subjects but S5.

Figure 9. Graphs of mean percent correct by trial of DIFF-3-LONG and SAME-3-LONG in session 2 for subjects in Group 1. Graphs of mean percent correct using method I are displayed on the left. Graphs of mean percent correct using method V are displayed on the right.



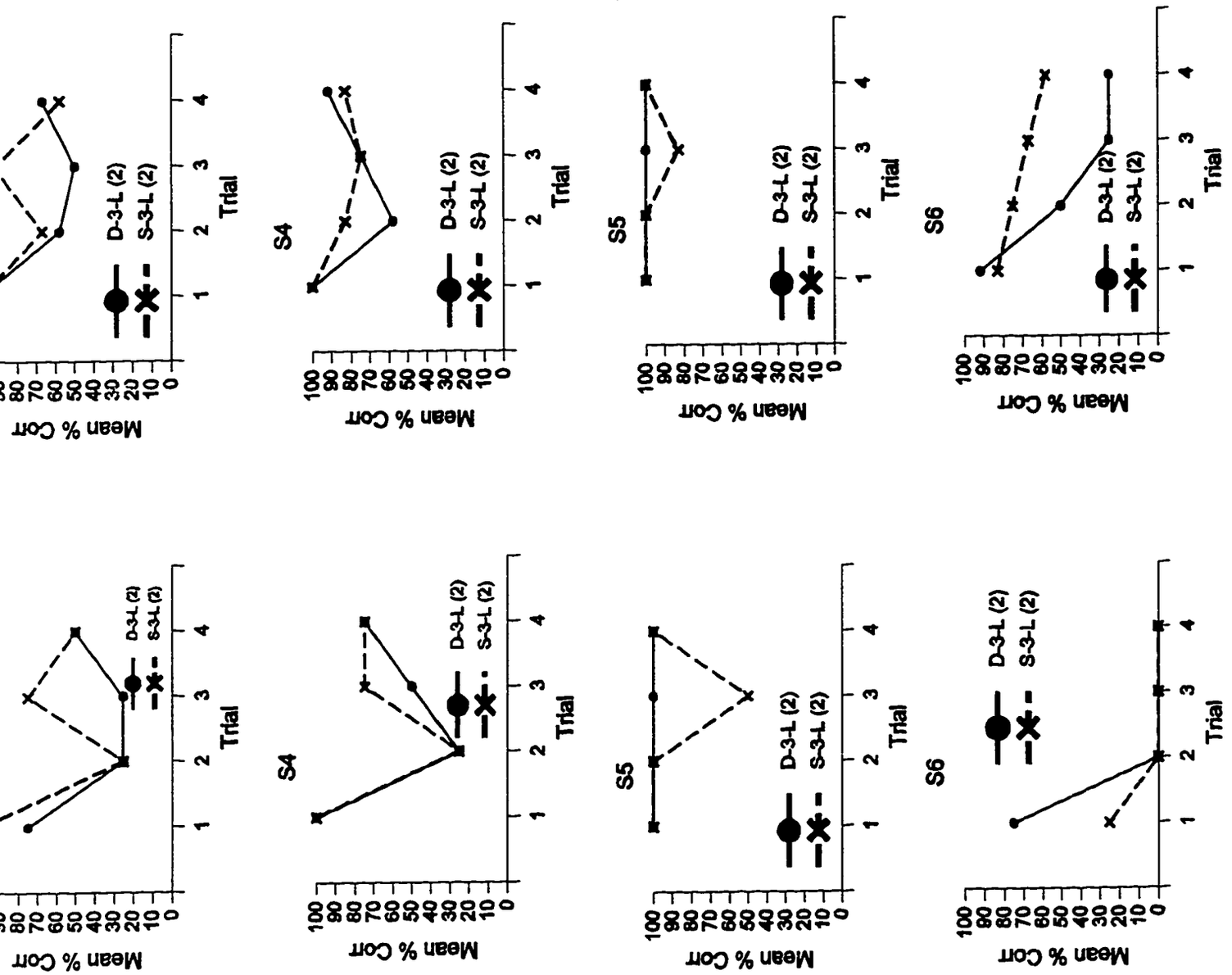
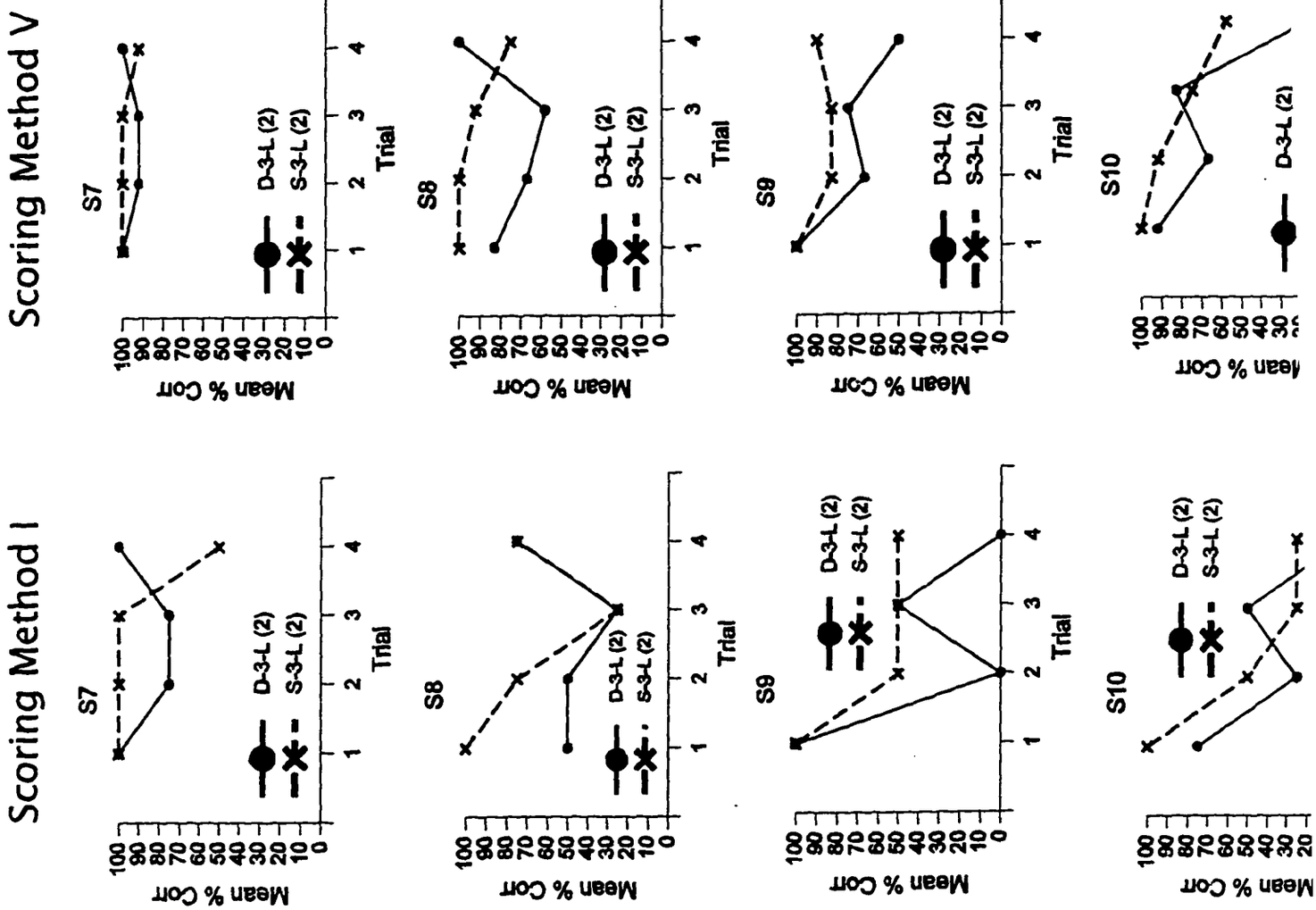
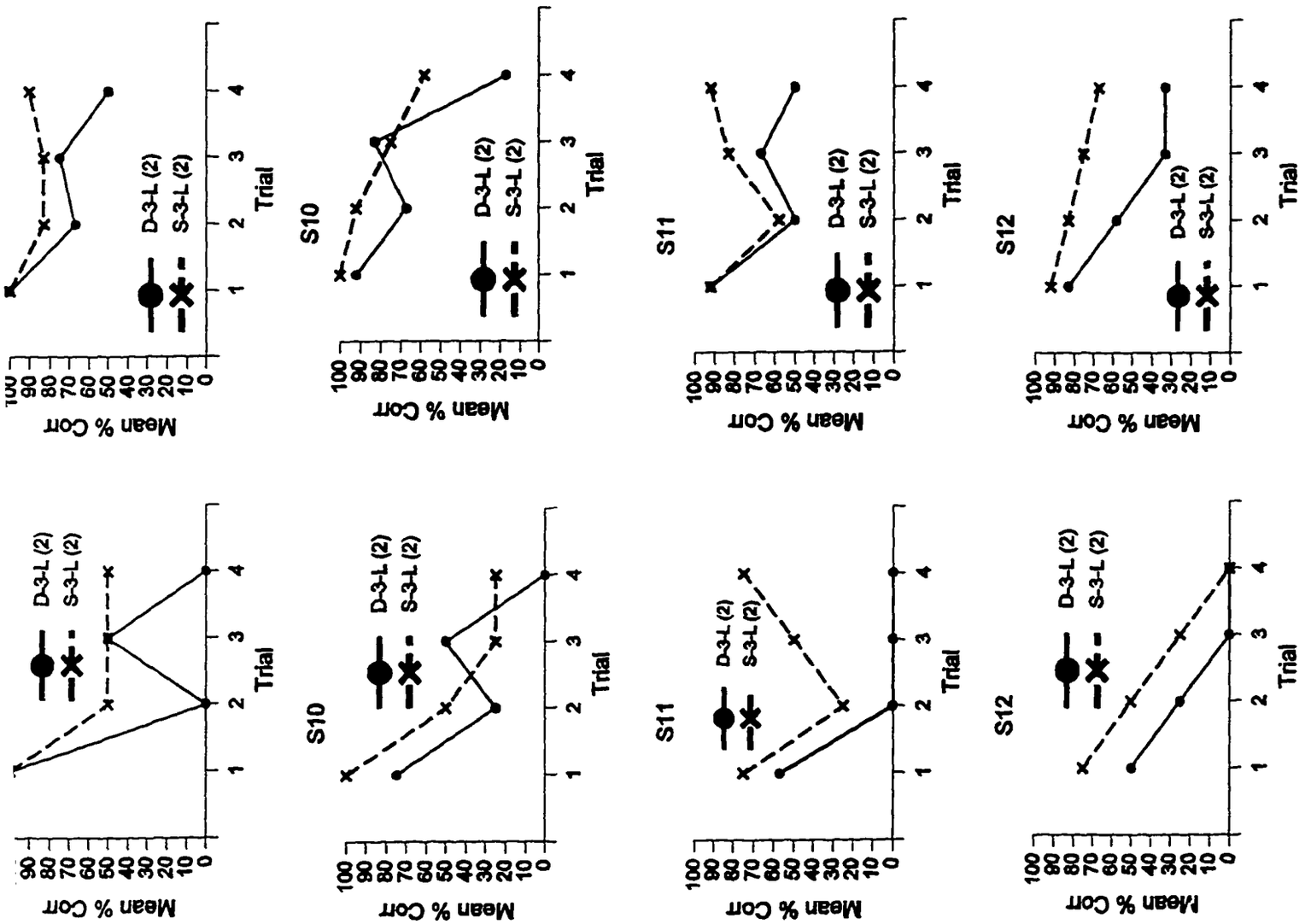


Figure 10. Graphs of mean percent correct by trial of DIFF-3-LONG and SAME-3-LONG in session 2 for subjects in Group 2. Graphs of mean percent correct using method I are displayed on the left. Graphs of mean percent correct using method V are displayed on the right.





The two methods of scoring yielded different results for the same data. More subjects demonstrated a greater decrement in performance from trial 1 to trial 2 in DIFF than SAME and a higher average performance in SAME than DIFF with method V than with method I.

Session-to-session comparisons. All possible session-to-session comparisons are presented. Session-to-session comparisons were made so that categories would be kept constant for most comparisons and possible practice effects would be minimized. Responding over the first two trials is described as well as data averaged over four trials.

Similarity. Twelve session-to-session comparisons based upon similarity were made for both scoring methods. All comparisons used the same categories for both conditions. The results of these comparisons are displayed in Table 14. The results for individual subjects are displayed in Figure 11 (S5 and S7, method I), Figure 12 (S6, S8, S11, and S12, method I), Figure 13 (S5 and S7, method V), and Figure 14 (S6, S8, S11, and S12, method V).

A summary of the comparisons based on Figures 11 - 14 is shown in Table 14. In the table, each comparison is written across the top. There are two columns under each comparison. The left column, DD, refers to the differential decrement from trial 1 to trial 2. A "Y" indicates that there was a greater decrement in mean percent correct in DIFF than in SAME; an "N" indicates that this did not occur. The right column, AVG, refers to average performance over four trials. A "Y" indicates that the average performance over four trials was better in SAME than in DIFF; an "N" indicates that this did not occur. A blank cell indicates that the subject was not exposed to the conditions.

For scoring method I, a greater decrement in responding from trial 1 to trial 2 occurred in DIFF, not SAME, in 8 of the 12 comparisons. The average performance over four trials was better in SAME rather than in DIFF in 10 of the 12 comparisons. For scoring method V, a greater decrement in responding from trial 1 to trial 2 occurred in DIFF, not

SAME, in 9 of the 12 comparisons. The average performance over four trials was better in SAME than DIFF in 11 of the 12 comparisons.

In summary, for both scoring methods, both the decrement from trial 1 to trial 2 was greater in DIFF than in SAME and the average performance over four trials was greater in SAME than in DIFF occurred in most cases. The difference in average performance over four trials was a more robust effect than the differential decrement.

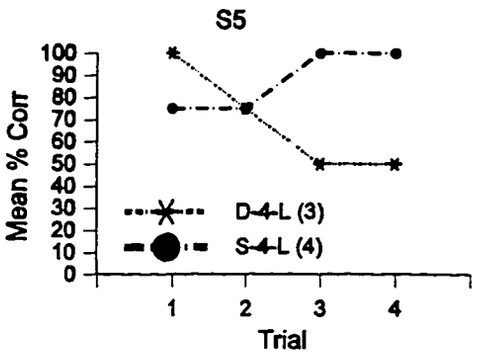
Table 14

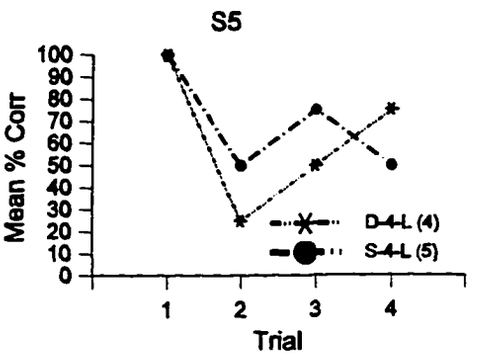
Occurrences of Differential Decrement in Responding From Trial 1 to Trial 2 and Overall Mean Percent Correct Based Upon Similarity Comparisons by Subject

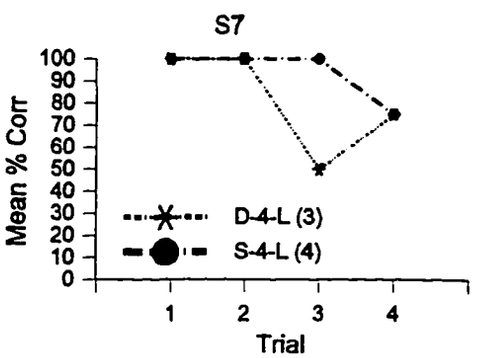
		Similarity Comparisons							
		D4L(3) S4L(4)		D4L(4) S4L(5)		D3S(3) S3S(4)		D3S(4) S3S(5)	
Subj	Scoring Method	DD	AVG	DD	AVG	DD	AVG	DD	AVG
S5	I	Y	Y	Y	Y				
	V	Y	Y	Y	Y				
S7	I	N	Y	N	Y				
	V	N	Y	N	Y				
S6	I					Y	Y	Y	Y
	V					Y	Y	Y	Y
S8	I					Y	Y	N	Y
	V					Y	Y	Y	Y
S11	I					Y	Y	N	N
	V					Y	Y	Y	Y
S12	I					Y	Y	Y	N
	V					N	Y	Y	N

Note. "DD" refers to a differential decrement in responding from trial 1 to trial 2. "AVG" refers to mean performance over four trials. "Y" indicates that for DD, the decrement in responding from trial 1 to trial 2 for SAME was less than for DIFF, and for AVG, overall mean percent correct was greater for SAME than for DIFF; "N" indicates that these outcomes did not occur. Subjects are grouped according to the paths they took, separated by the horizontal line.

Figure 11. Session-to-session similarity comparisons for subjects S5 and S7 using scoring method I. Graphs in the left column depict mean percent correct for DIFF and SAME for four trials in sessions 3 and 4, respectively. Graphs in the right column depict mean percent correct for DIFF and SAME for four trials in sessions 4 and 5, respectively.







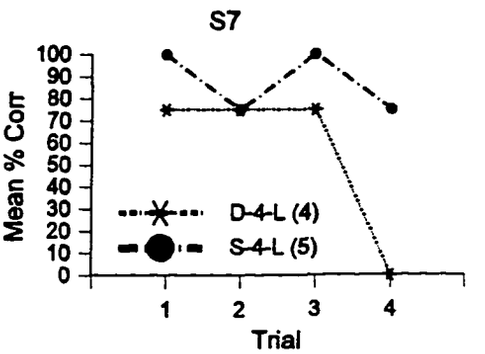
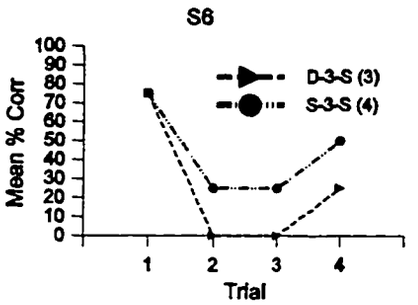
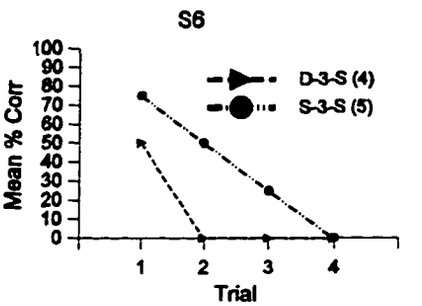
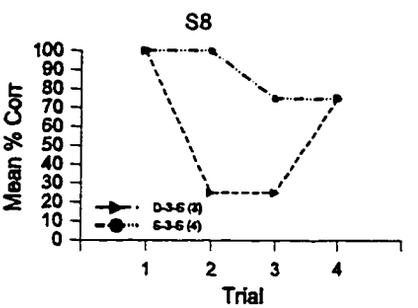
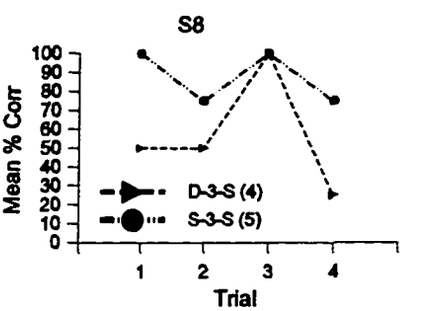


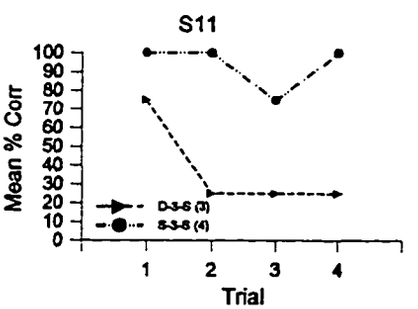
Figure 12. Session-to-session similarity comparisons for subjects S6, S8, S11, and S12 using scoring method I. Graphs in the left column depict mean percent correct for DIFF and SAME for four trials in sessions 3 and 4, respectively. Graphs in the right column depict mean percent correct for DIFF and SAME for four trials in sessions 4 and 5, respectively.

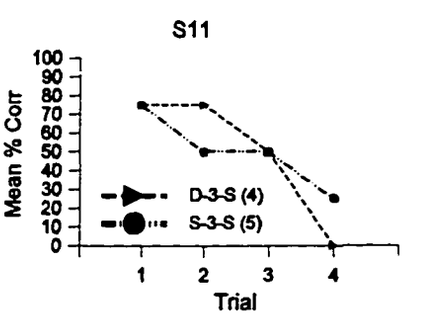


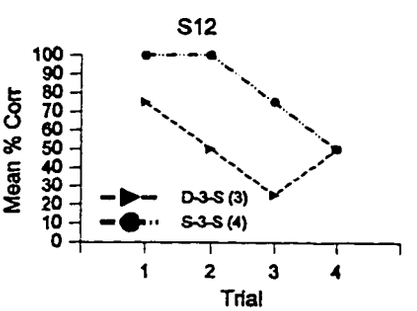












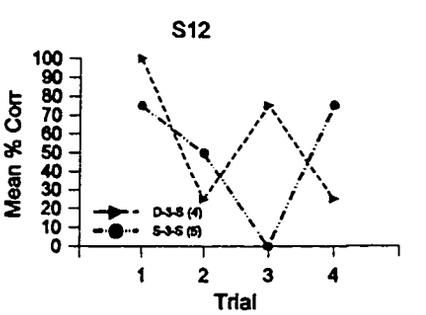
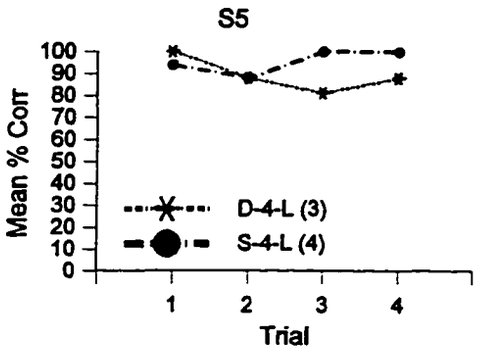
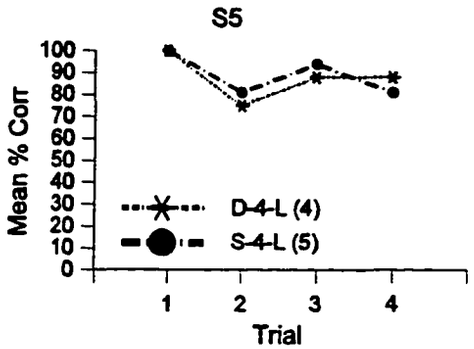
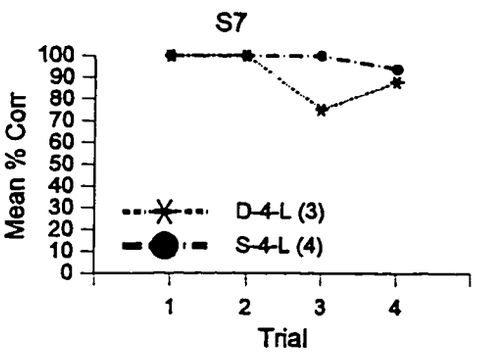


Figure 13. Session-to-session similarity comparisons for subjects S5 and S7 using scoring method V. Graphs in the left column depict mean percent correct for DIFF and SAME for four trials in sessions 3 and 4, respectively. Graphs in the right column depict mean percent correct for DIFF and SAME for four trials in sessions 4 and 5, respectively.







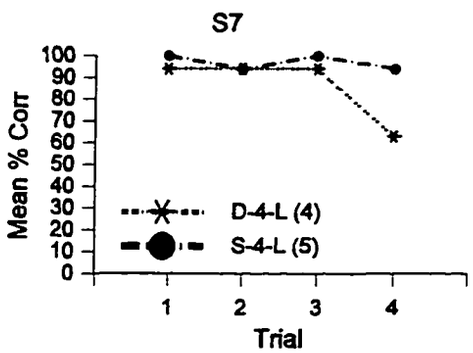
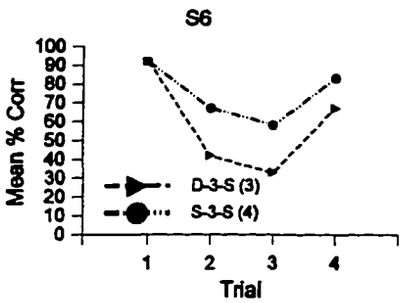
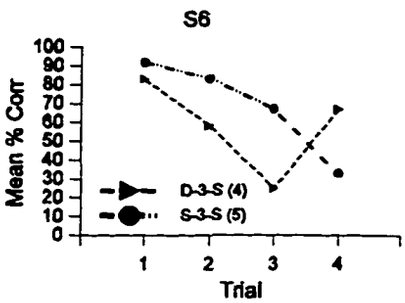
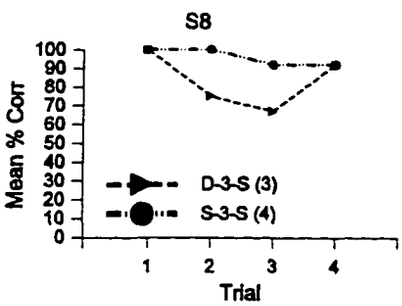
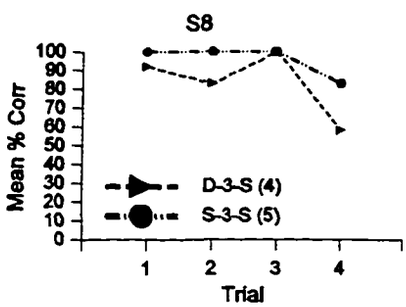


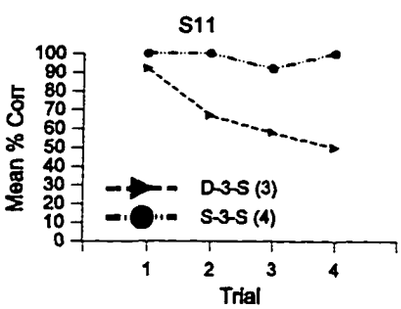
Figure 14. Session-to-session similarity comparisons for subjects S6, S8, S11, and S12 using scoring method V. Graphs in the left column depict mean percent correct for DIFF and SAME for four trials in sessions 3 and 4, respectively. Graphs in the right column depict mean percent correct for DIFF and SAME for four trials in sessions 4 and 5, respectively.

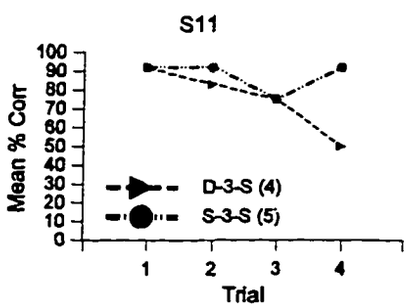


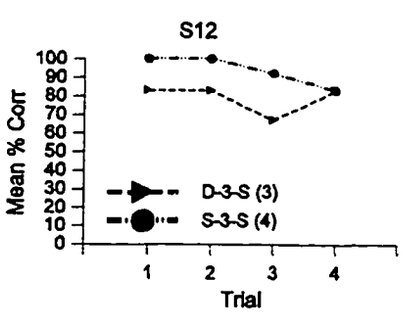


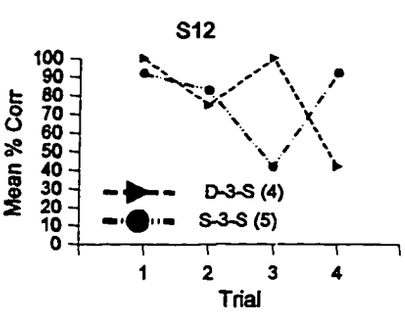












Number of stimuli per trial. Fifteen session-to-session comparisons based upon number of stimuli per trial were made for both scoring methods using the same categories in both conditions. Two session-to-session comparisons were made for each scoring method using different categories in the two conditions. The results of these comparisons are displayed in Table 15. The graphs of the results are displayed in Figure 15 (S5 and S7, method I), Figure 16 (S1, S2, S3, S4, S9, and S10, method I), Figure 17 (S5 and S7, method V), and Figure 18 (S1, S2, S3, S4, S9, and S10, method V). The comparisons in which the conditions used different categories are indicated by asterisks.

A summary of the comparisons based on Figures 15 - 18 is shown in Table 15. In the table, each comparison is written across the top. There are two columns under each comparison. The left column, DD, refers to the differential decrement from trial 1 to trial 2. A "Y" indicates that there was a greater decrement in mean percent correct with four stimuli per trial than with three; an "N" indicates that this did not occur. The right column, AVG, refers to average performance over four trials. A "Y" indicates that the average performance over four trials was better with three stimuli per trial than with four; an "N" indicates that this did not occur. A blank cell indicates that the subject was not exposed to the condition.

For scoring method I, a greater decrement in mean percent correct occurred from trial 1 to trial 2 with four stimuli per trial than with three stimuli per trial for 7 of the 15 comparisons. Average performance of four trials was better with three stimuli per trial rather than with four for all comparisons. For scoring method V, a greater decrement in mean percent correct from trial 1 to trial 2 occurred in 9 of the 15 comparisons. Average performance of four trials was better with three stimuli per trial than with four for all comparisons.

Although this manipulation did not produce the expected differential decrement from trial 1 to trial 2 with any regularity, it did produce the expected overall average result

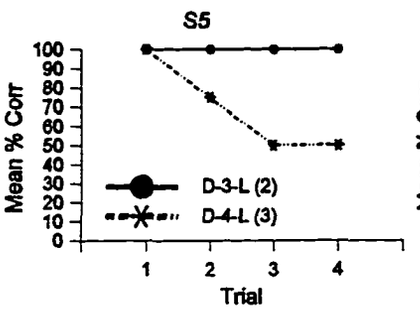
Table 15

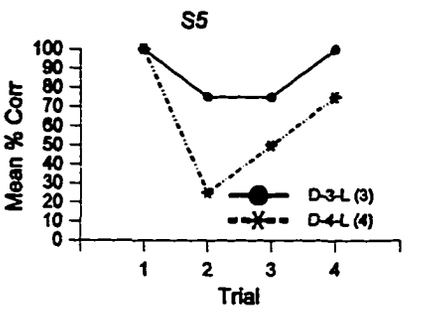
Occurrences of Differential Decrement in Responding From Trial 1 to Trial 2 and Overall Mean Percent Correct Based Upon Number of Stimuli per Trial Comparisons by Subject

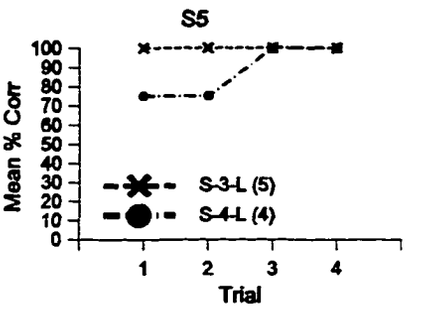
		Number of S/T Comparisons											
		D3L(2) D4L(3)		D3L(3) D4L(4)		S4L(4) S3L(5)		S3L(3) S4L(4)		D3S(3) D4S(4)		D3S(4) D4S(5)	
Subj	Scoring Method	DD	AVG	DD	AVG	DD	AVG	DD	AVG	DD	AVG	DD	AVG
S5	I	Y	Y	Y	Y	N	Y						
	V	Y	Y	Y	Y	Y	Y						
S7	I	N*	Y*					N*	N*				
	V	N*	Y*					N*	N*				
S1	I									N	Y	Y	Y
	V									Y	Y	Y	Y
S2	I									Y	Y	N	Y
	V									Y	Y	Y	Y
S3	I									N	Y	N	Y
	V									N	Y	N	Y
S4	I									Y	Y	Y	Y
	V									N	Y	Y	Y
S9	I									N	Y	Y	Y
	V									N	Y	Y	Y
S10	I									N	Y	N	Y
	V									N	Y	N	Y

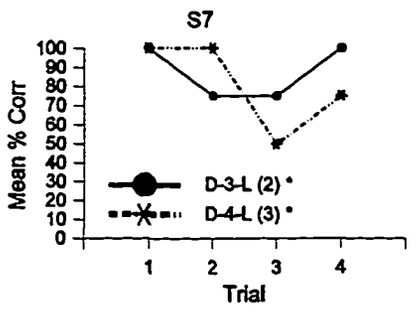
Note. "DD" refers to a differential decrement in responding from trial 1 to trial 2. "AVG" refers to mean performance over four trials. "Y" indicates that for DD, the decrement in responding from trial 1 to trial 2 for 3 S/T was less than for 4 S/T, and for AVG, overall mean percent correct was greater for 3 S/T than for 4 S/T; "N" indicates that these outcomes did not occur. Subjects are grouped according to the paths they took, separated by the horizontal line. "*" indicates comparisons in which the categories were not held constant.

Figure 15. Session-to-session number of S/T comparisons for subjects S5 and S7 using scoring method I. Graphs in the left-most column depict mean percent correct for 3 S/T and 4 S/T for four trials in sessions 2 and 3, respectively. Graphs in the middle column depict mean percent correct for 3 S/T and 4 S/T for four trials in sessions 3 and 4, respectively. The graph in the right-most column depicts mean percent correct for 3 S/T and 4 S/T for four trials in sessions 5 and 4, respectively. The asterisks in the legend (see subject S7) indicate that the categories associated with 3 S/T were not the same as those associated with 4 S/T.









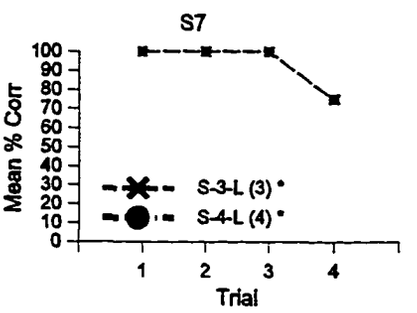
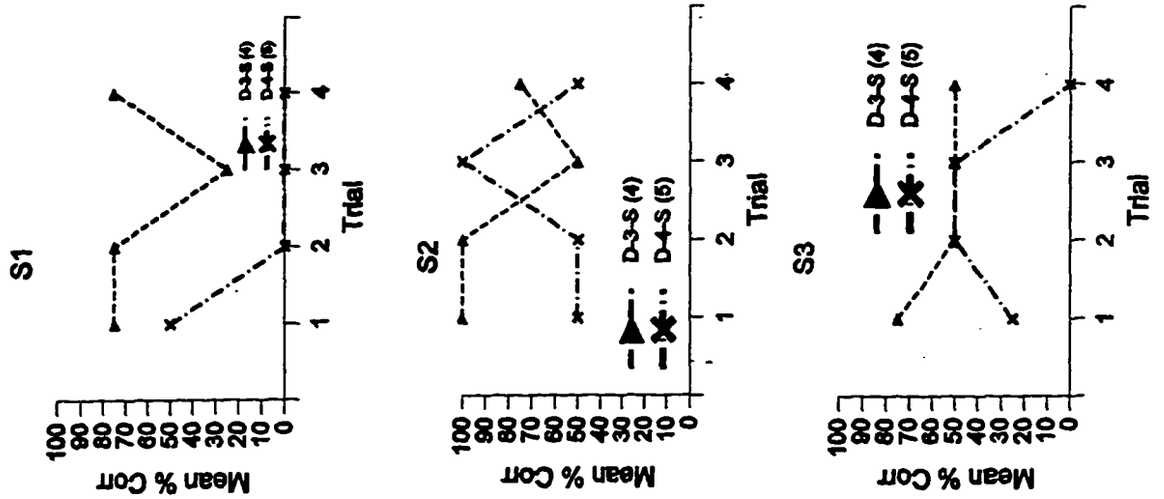
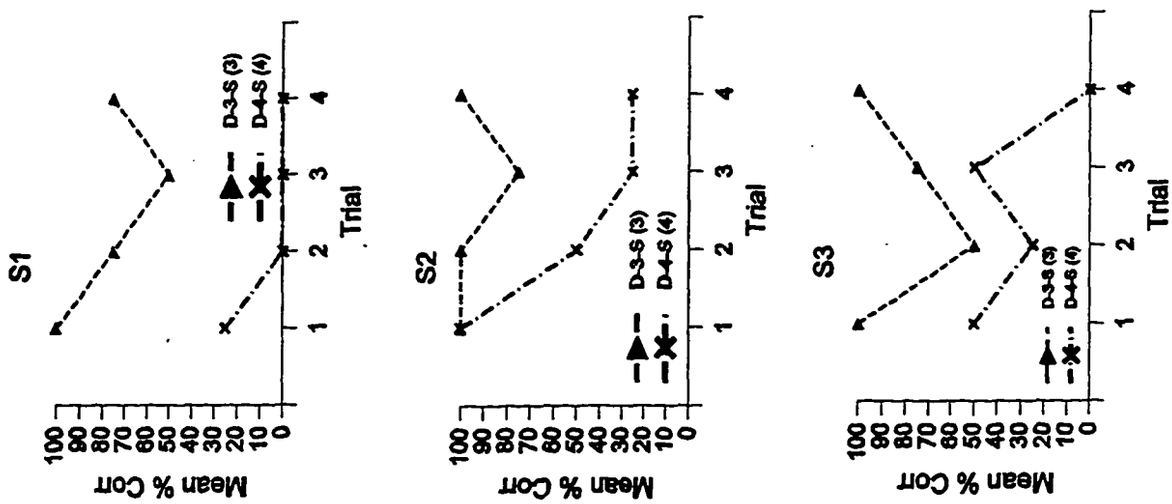
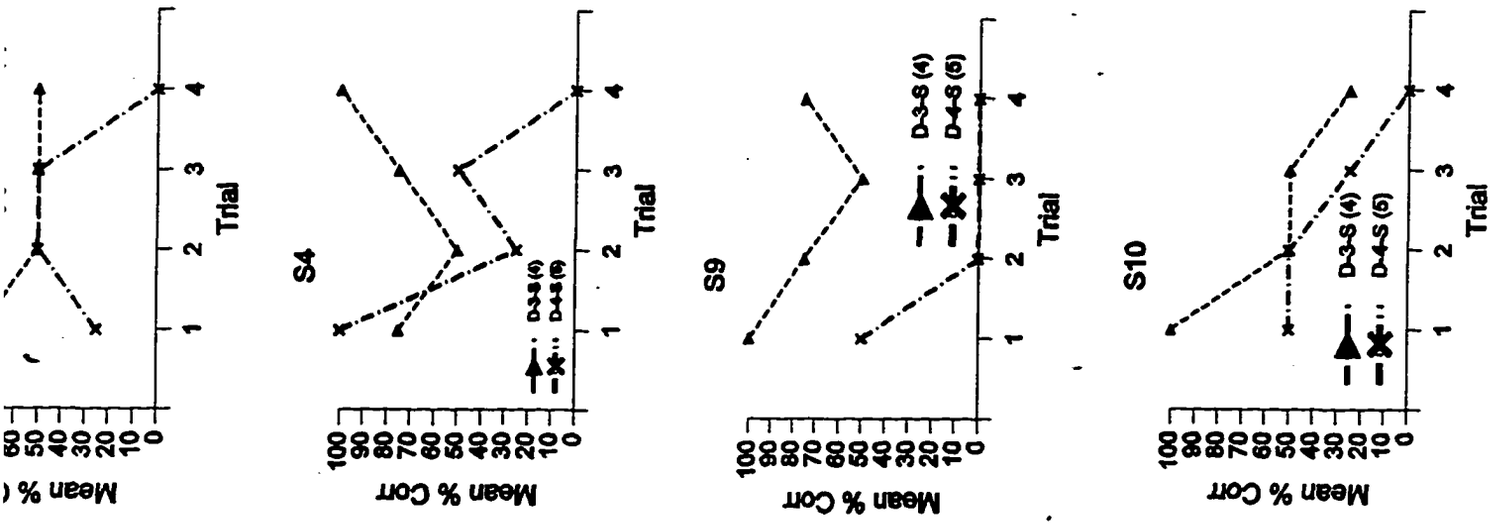


Figure 16. Session-to-session number of S/T comparisons for subjects S1, S2, S3, S4, S9, and S10 using scoring method I. Graphs in the left column depict mean percent correct for 3 S/T and 4 S/T for four trials in sessions 3 and 4, respectively. Graphs in the right column depict mean percent correct for 3 S/T and 4 S/T for four trials in sessions 4 and 5, respectively.







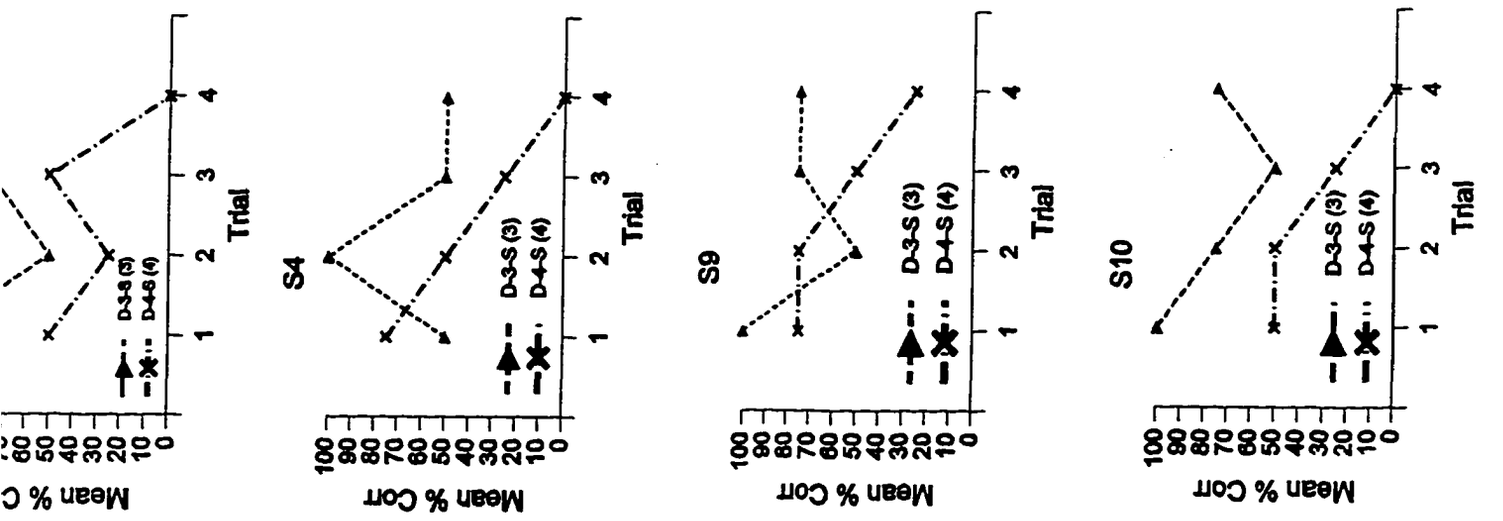
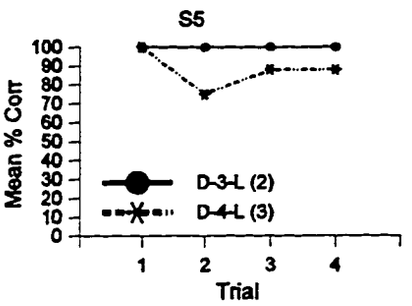
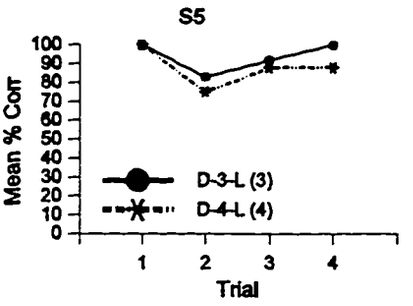
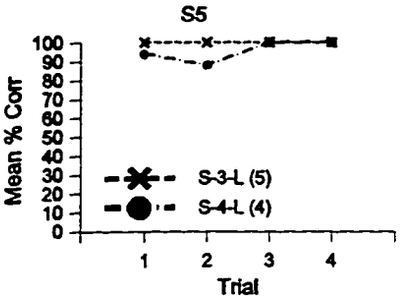
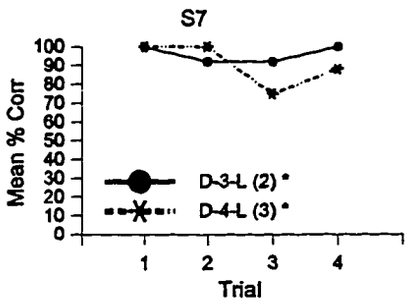


Figure 17. Session-to-session number of S/T comparisons for subjects S5 and S7 using scoring method V. Graphs in the left-most column depict mean percent correct for 3 S/T and 4 S/T for four trials in sessions 2 and 3, respectively. Graphs in the middle column depict mean percent correct for 3 S/T and 4 S/T for four trials in sessions 3 and 4, respectively. The graph in the right-most column depicts mean percent correct for 3 S/T and 4 S/T for four trials in sessions 5 and 4, respectively. The asterisks in the legend (see subject S7) indicate that the categories associated with 3 S/T were not the same as those associated with 4 S/T.









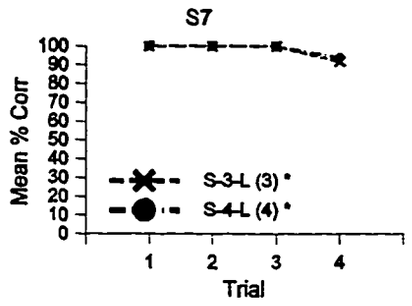
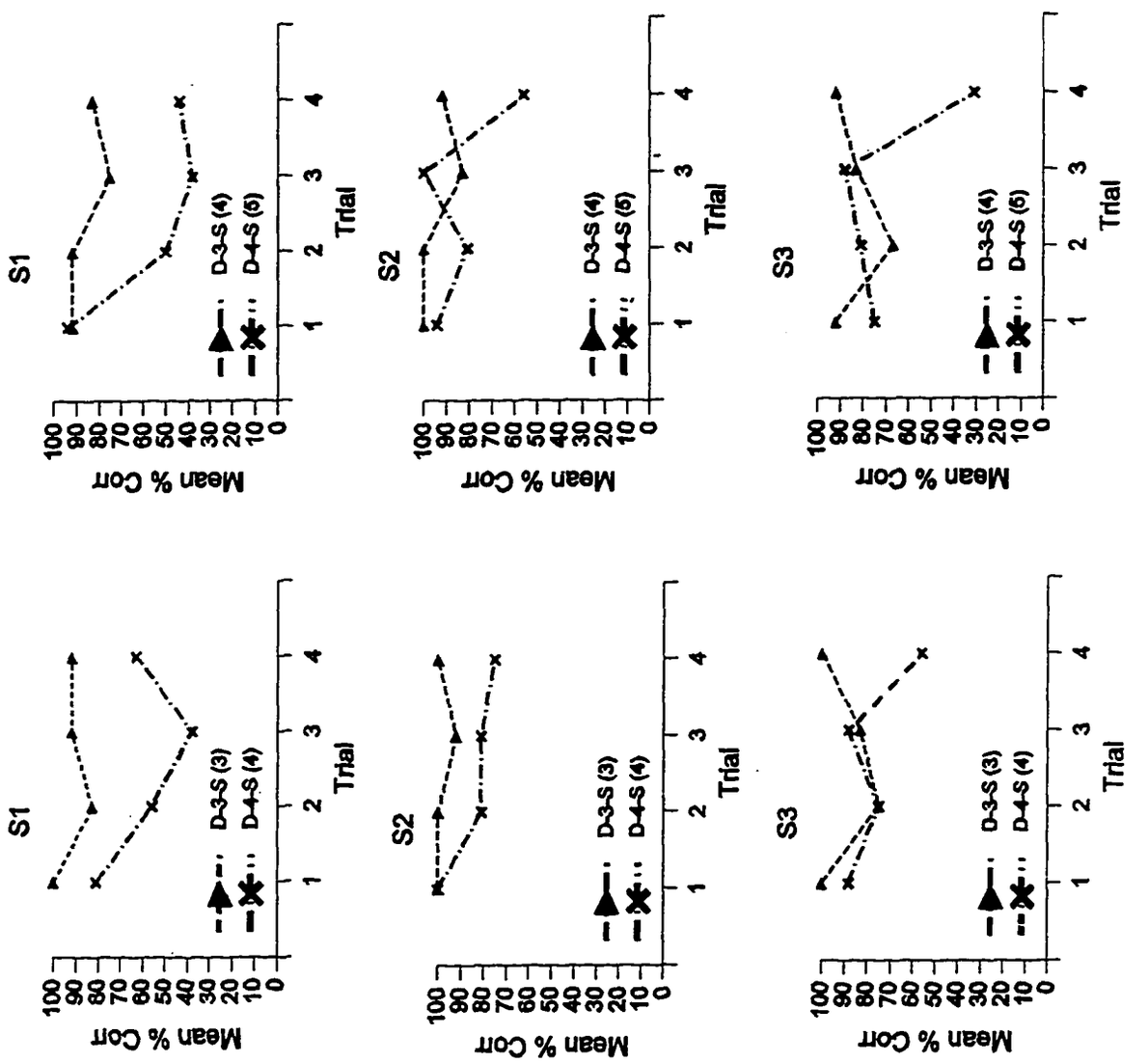
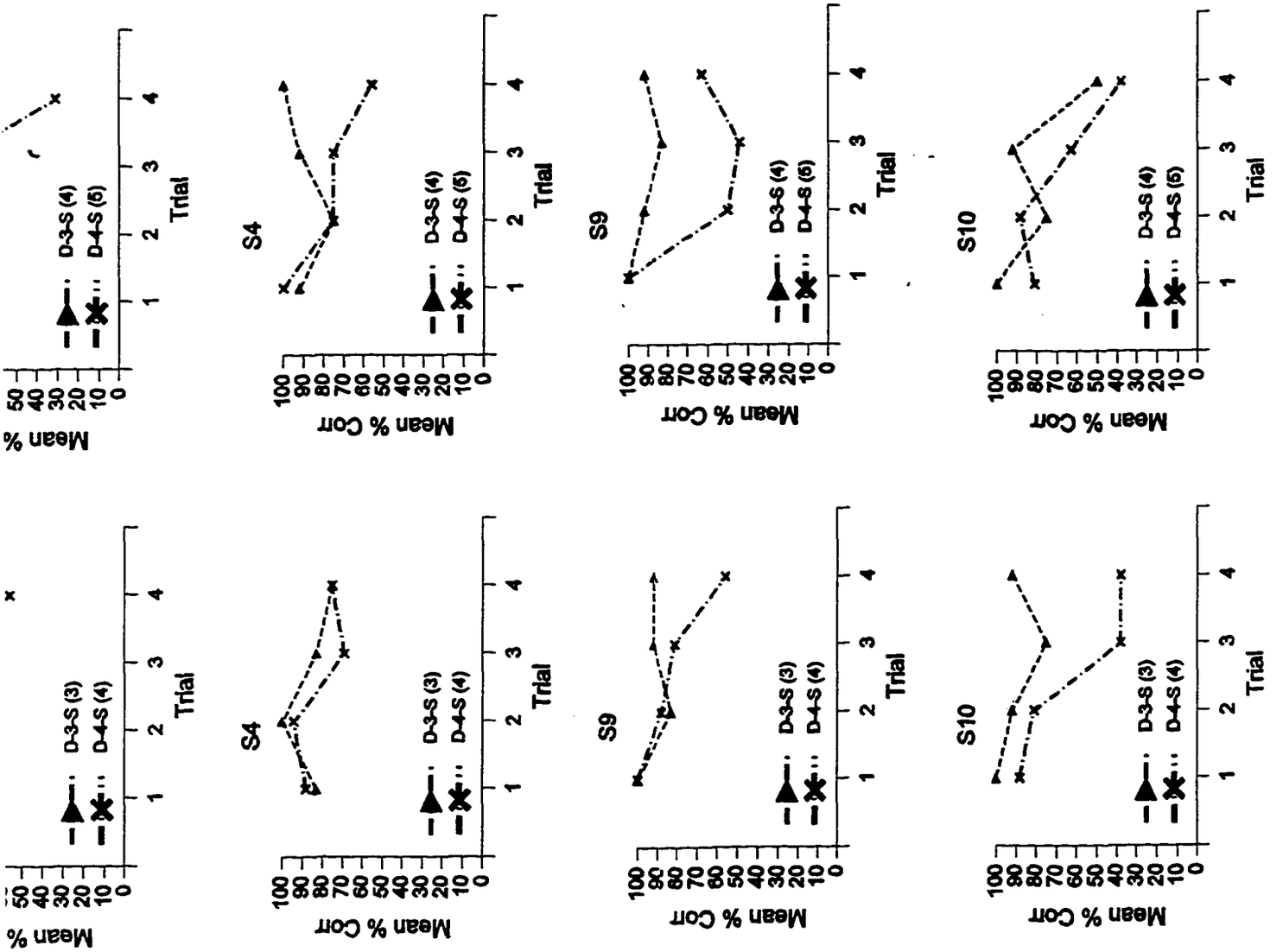


Figure 18. Session-to-session number of S/T comparisons for subjects S1, S2, S3, S4, S9, and S10 using scoring method V. Graphs in the left column depict mean percent correct for 3 S/T and 4 S/T for four trials in sessions 3 and 4, respectively. Graphs in the right column depict mean percent correct for 3 S/T and 4 S/T for four trials in sessions 4 and 5, respectively.





in all cases. The effect of the number of stimuli per trial appears to be more robust with respect to overall average performance than to the build-up of PI from trial 1 to trial 2.

Two comparisons of the effect of number of stimuli per trial were made for S7, D3L(2)-D4L(3) and S3L(3)-S4L(4). The assignment of categories to conditions would work against the effect. For this subject, average performance was better with three stimuli per trial than with four with D3L(2)-D4L(3) for both scoring methods. This did not occur with the other comparison nor did performance decline more for four stimuli per trial than for three over the first two trials for either scoring method. The failure of the number of stimuli per trial to produce the expected effects may have been due to the category effect dominating.

Distractor interval duration. Ten session-to-session comparisons based upon distractor interval duration were made for both scoring methods using the same categories in both conditions. Five session-to-session comparisons were made for each scoring method using different categories in the two conditions. The results of these comparisons are displayed in Table 16. The graphs of the results are displayed in Figures 19 (S1, S2, S3, S4, S9, and S10, method I), Figure 20 (S6, S8, S11, and S12, method I), Figure 21 (S1, S2, S3, S4, S9, and S10, method V) and Figure 22 (S6, S8, S11, and S12, method V). The comparisons in which the conditions used different categories are marked with asterisks.

A summary of the comparisons based on Figures 19 - 22 is shown in Table 16. In the table, each comparison is written across the top. There are two columns under each comparison. The left column, DD, refers to the differential decrement from trial 1 to trial 2. A "Y" indicates that there was a greater decrement in mean percent correct with a LONG distractor interval than with a SHORT distractor interval; an "N" indicates that this did not occur. The right column, AVG, refers to average performance over four trials. A "Y" indicates that the average performance over four trials was better with a SHORT distractor

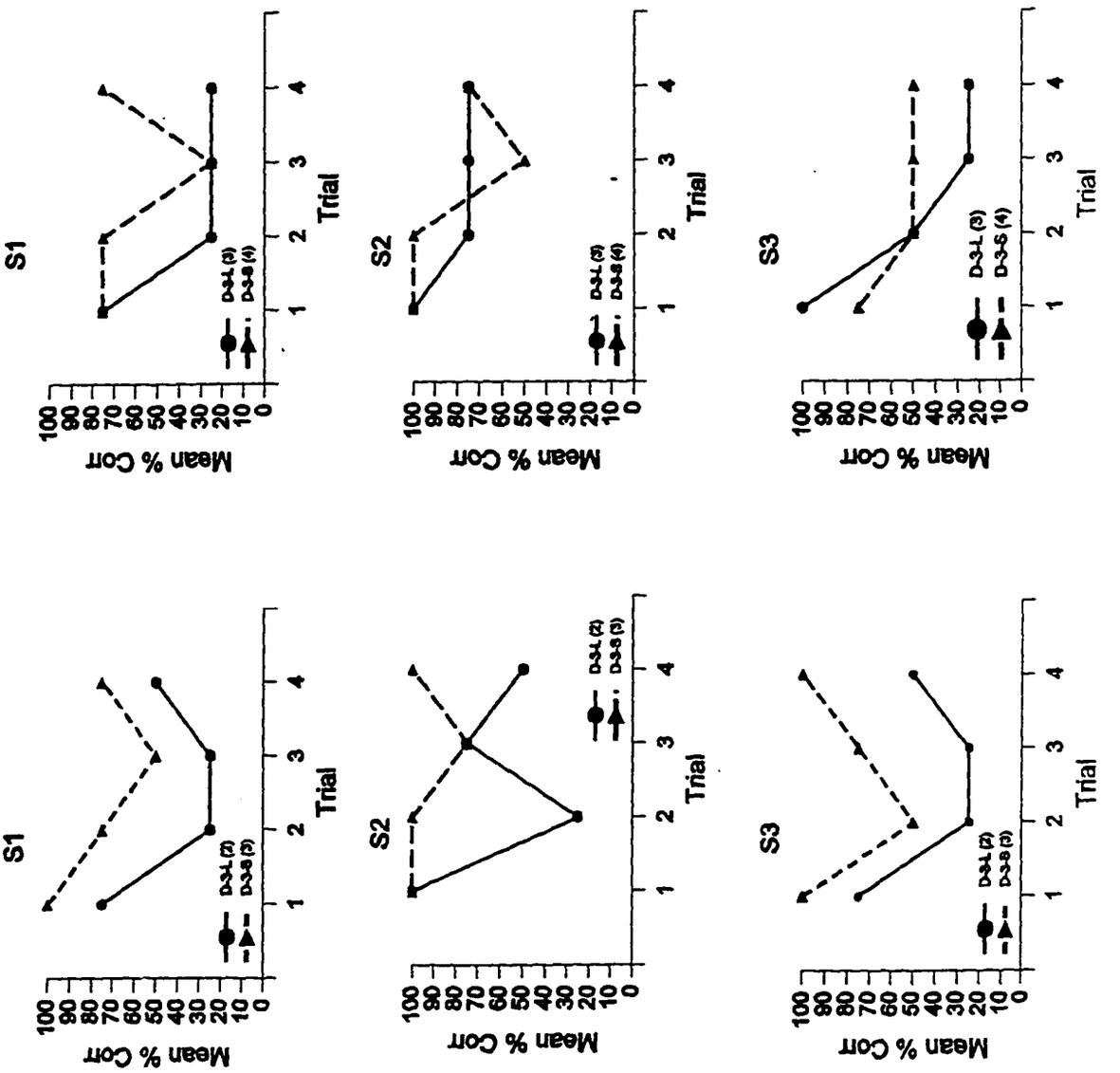
Table 16

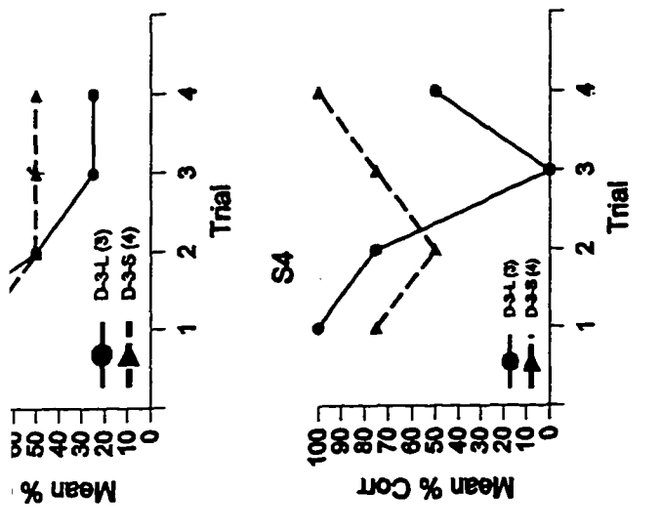
Occurrences of Differential Decrement in Responding From Trial 1 to Trial 2 and Overall Mean Percent Correct Based Upon Distractor Interval Duration Comparisons by Subject

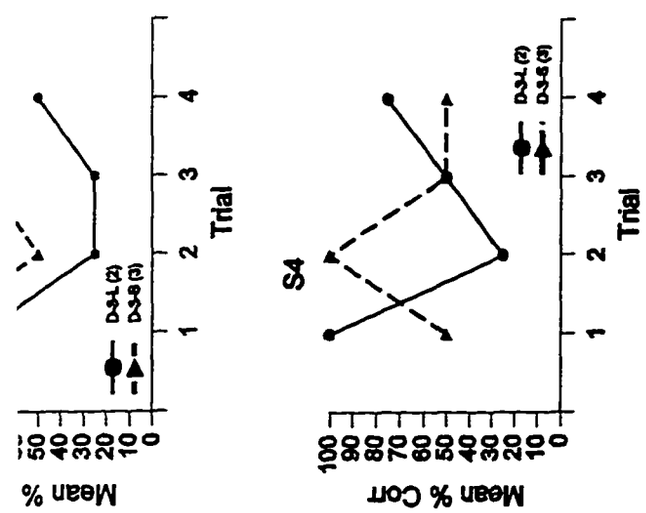
		Distractor Interval Duration Comparisons					
		D3L(2) D3S(3)		D3L(3) D3S(4)		S3S(4) S3L(5)	
Subject	Scoring Method	DD	AVG	DD	AVG	DD	AVG
S1	I	Y	Y	Y	Y		
	V	Y	Y	Y	Y		
S2	I	Y	Y	Y	N		
	V	Y	Y	Y	Y		
S3	I	N	Y	Y	Y		
	V	Y	Y	N	Y		
S4	I	Y	N	N	Y		
	V	Y	Y	N	Y		
S9	I	Y*	Y*				
	V	Y*	Y*				
S10	I	Y*	Y*				
	V	Y*	Y*				
S6	I	N	Y			N	N
	V	N	Y			N	N
S8	I	N*	Y*				
	V	N*	Y*				
S11	I	Y*	Y*				
	V	Y*	Y*				
S12	I	N*	Y*				
	V	Y*	Y*				

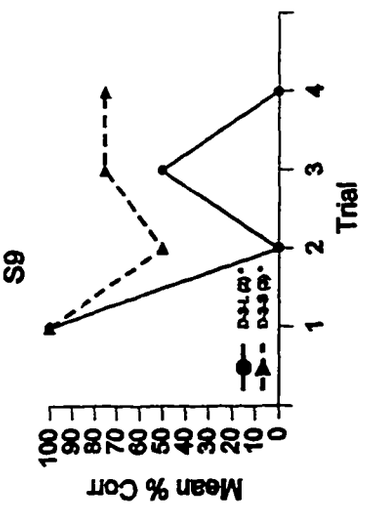
Note. "DD" refers to differential decrement in responding from trial 1 to trial 2. "AVG" refers to mean performance over four trials. "Y" indicates that for DD, the decrement in responding from trial 1 to trial 2 for SHORT was less than for LONG, and for AVG, overall mean percent correct was greater for SHORT than for LONG; "N" indicates that these outcomes did not occur. Subjects are listed according to the paths they took, separated by the horizontal line. "*" indicates comparisons in which categories were not held constant.

Figure 19. Session-to-session distractor interval duration comparisons for subjects S1, S2, S3, S4, S9, and S10 using scoring method I. Graphs in the left column depict mean percent correct for LONG and SHORT for four trials in sessions 2 and 3, respectively. Graphs in the right column depict mean percent correct for LONG and SHORT for four trials in sessions 3 and 4, respectively. The asterisks in the legend (see subjects S9 and S10) indicate that the categories associated with LONG were not the same as those associated with SHORT.









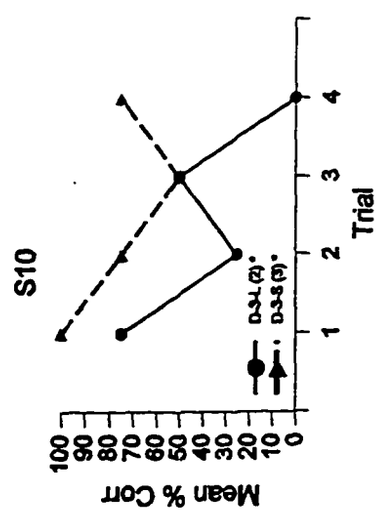
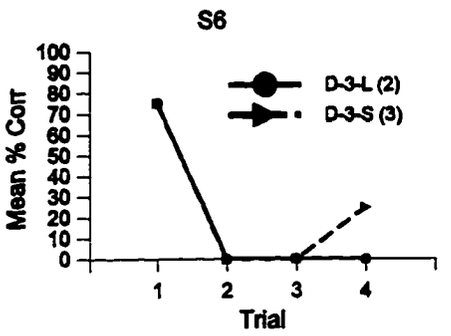
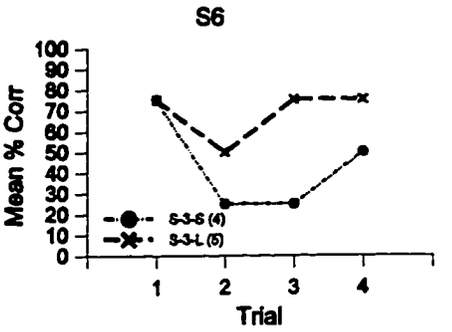
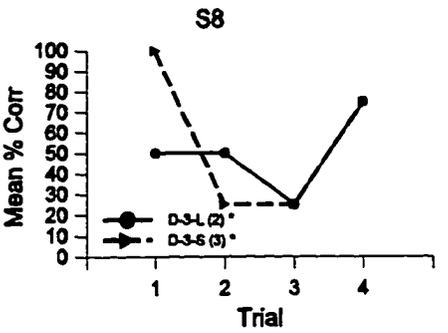
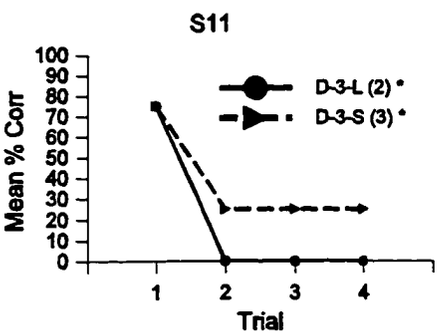


Figure 20. Session-to-session distractor interval duration comparisons for subjects S6, S8, S11, and S12 using scoring method I. Graphs in the left column depict mean percent correct for LONG and SHORT for four trials in sessions 2 and 3, respectively. The graph in the right column depicts mean percent correct for LONG and SHORT for four trials in sessions 5 and 4, respectively. The asterisks in the legend (see subjects S8, S11, and S12) indicate that the categories associated with LONG were not the same as those associated with SHORT.









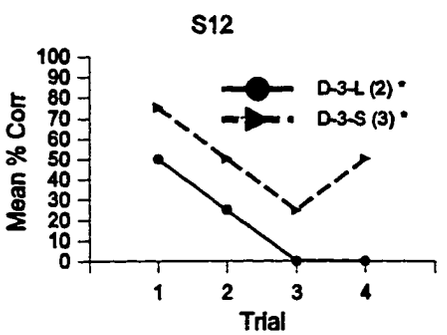
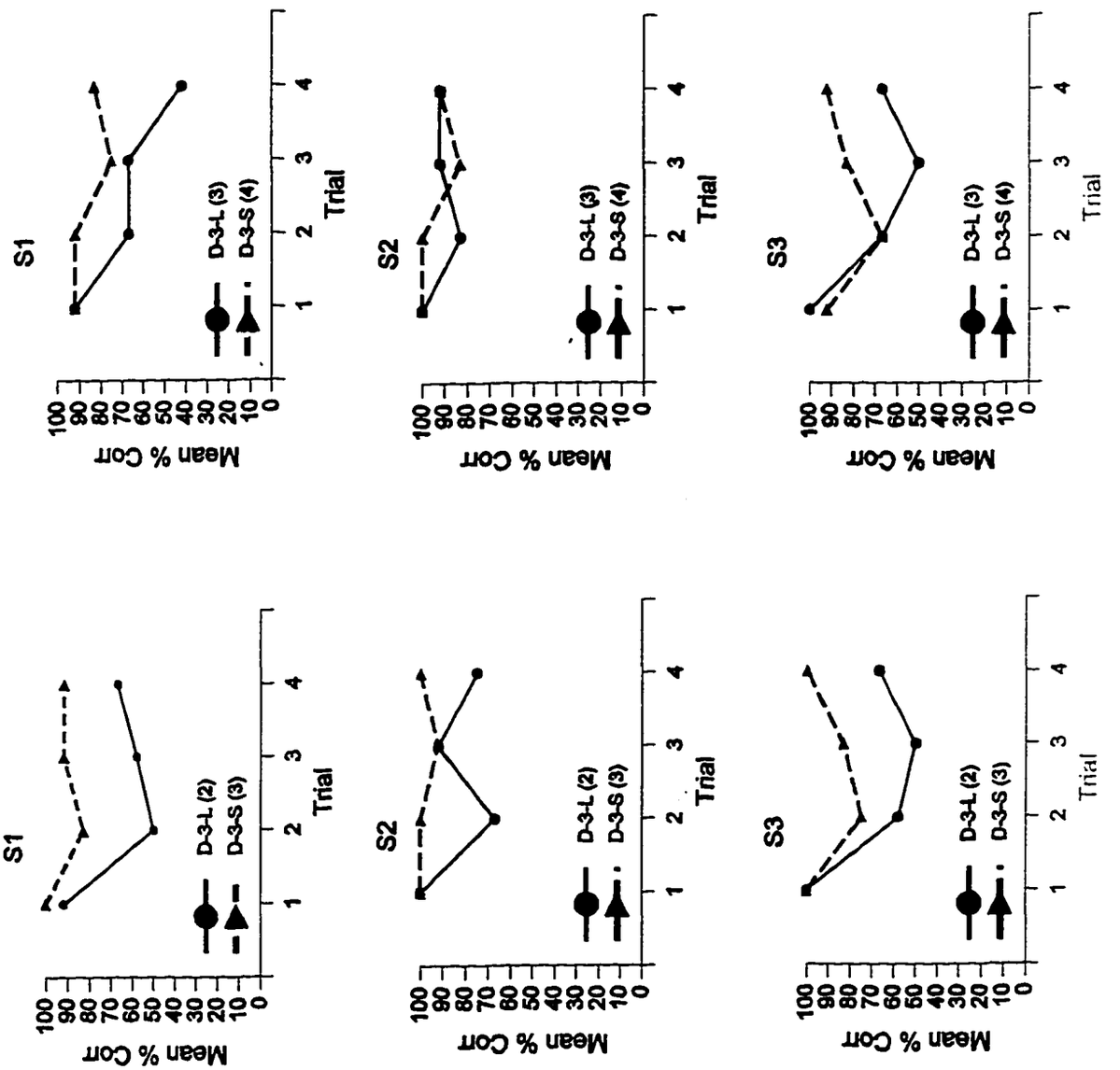
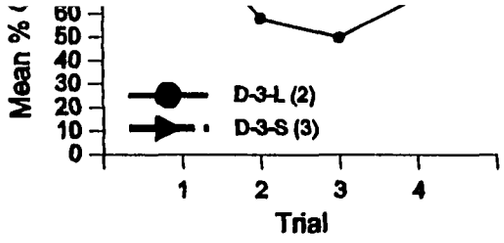
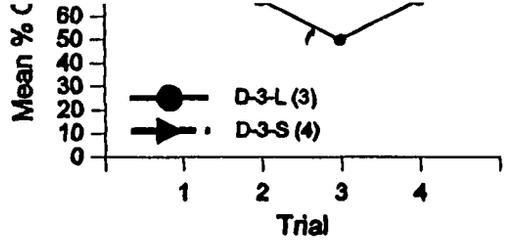
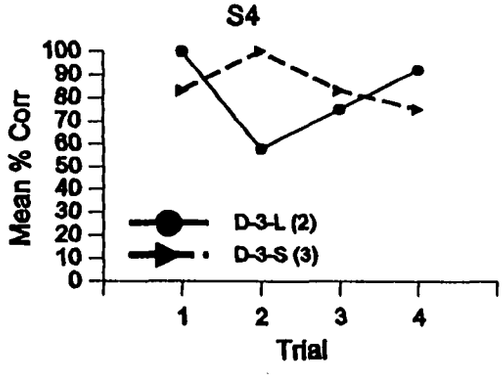


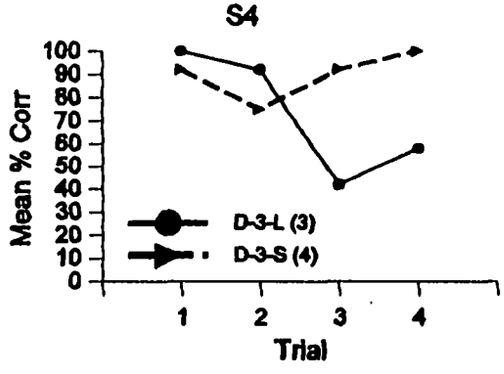
Figure 21. Session-to-session distractor interval duration comparisons for subjects S1, S2, S3, S4, S9, and S10 using scoring method V. Graphs in the left column depict mean percent correct for LONG and SHORT for four trials in sessions 2 and 3, respectively. Graphs in the right column depict mean percent correct for LONG and SHORT for four trials in sessions 3 and 4, respectively. The asterisks in the legend (see subjects S9 and S10) indicate that the categories associated with LONG were not the same as those associated with SHORT.

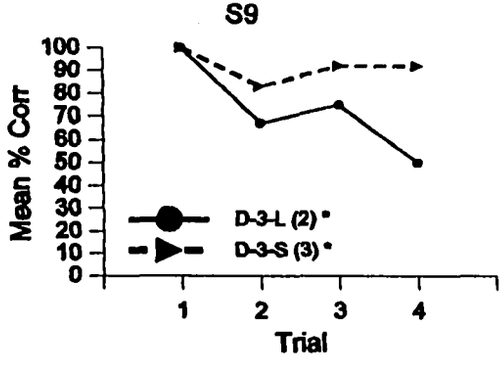












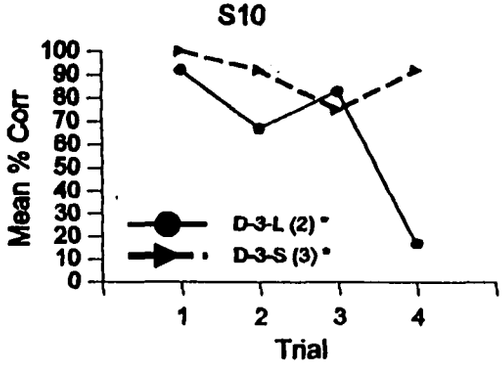
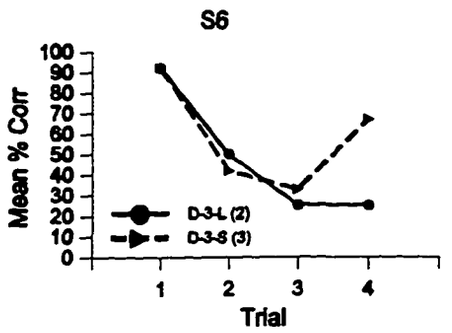
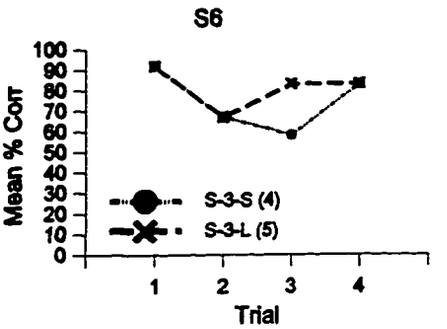
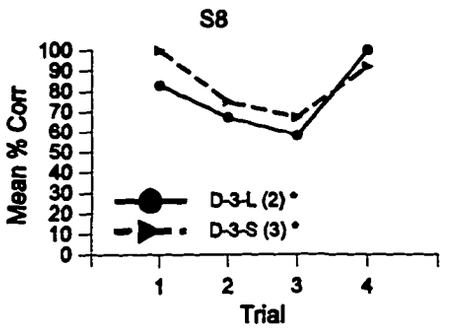
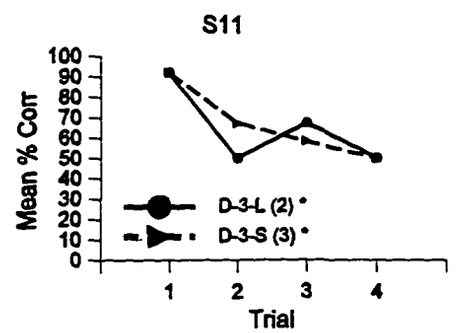


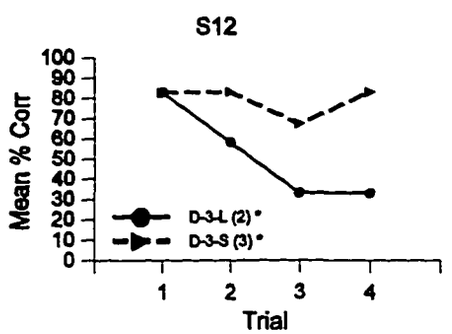
Figure 22. Session-to-session distractor interval duration comparisons for subjects S6, S8, S11, and S12 using scoring method V. Graphs in the left column depict mean percent correct for LONG and SHORT for four trials in sessions 2 and 3, respectively. The graph in the right column depicts mean percent correct for LONG and SHORT for four trials in sessions 5 and 4, respectively. The asterisks in the legend (see subjects S8, S11, and S12) indicate that the categories associated with LONG were not the same as those associated with SHORT.











interval than with a LONG distractor interval; an "N" indicates that this did not occur. A blank cell indicates that the subject was not exposed to the conditions.

The comparisons in which the categories were the same are presented first. For scoring method I, the greater decrement from trial 1 to trial 2 occurred with LONG rather than with SHORT in 6 of the 10 comparisons. Average performance over four trials was better with SHORT rather than with LONG in 7 of the 10 comparisons. For scoring method V, the greater decrement from trial 1 to trial 2 in LONG than SHORT occurred in 6 of the 10 comparisons. Average performance over four trials was better with SHORT than with LONG in 9 of the 10 comparisons.

As with the other manipulations, the effect of distractor interval duration on average performance over four trials was more robust than the effect of the manipulation on performance from trial 1 to trial 2.

Five session-to-session comparisons based upon distractor interval duration were made for each scoring method using different categories in both conditions. In all cases, the assignment of categories to conditions would work to enhance the effect of the distractor interval manipulation. The decrement in responding from trial 1 to trial 2 was greater in LONG than SHORT for three of the five comparisons with method I, and for four of the five comparisons with method V. Average performance over four trials was better in SHORT than in LONG for all comparisons with both scoring methods. It is not possible to conclude that the outcome was a result solely of the manipulation because the categories were working to enhance the effect.

Summary of comparisons by subject. Table 17 provides a summary of the results of all comparisons in which the categories used for the two levels of the variables were the same. The subjects are grouped together according to the paths they took. Under the headings Similarity, Number of S/T, and Dist. Int. Dur., the two columns DD and AVG refer to differential decrement over the first two trials and average performance over four trials,

Table 17
Ratios Indicating Success of Manipulations With Categories Held Constant by Subject

		Manipulations					
		Similarity		Number of S/T		Dist. Int. Dur.	
Subject	S.M.	DD	AVG	DD	AVG	DD	AVG
S5	I	2/2	2/2	2/3	3/3		
	V	2/2	2/2	3/3	3/3		
S7	I	0/2	2/2				
	V	0/2	2/2				
S1	I			1/2	2/2	2/2	2/2
	V			2/2	2/2	2/2	2/2
S2	I			1/2	2/2	2/2	1/2
	V			2/2	2/2	2/2	2/2
S3	I			0/2	2/2	1/2	2/2
	V			0/2	2/2	1/2	2/2
S4	I			2/2	2/2	1/2	1/2
	V			1/2	2/2	1/2	2/2
S9	I			1/2	2/2		
	V			1/2	2/2		
S10	I			0/2	2/2		
	V			0/2	2/2		
S6	I	2/2	2/2			0/2	1/2
	V	2/2	2/2			0/2	1/2
S8	I	1/2	2/2				
	V	2/2	2/2				
S11	I	1/2	1/2				
	V	2/2	2/2				
S12	I	2/2	1/2				
	V	1/2	1/2				
Success	I	67	83	47	100	60	70
Rate (%)	V	75	92	60	100	60	90

Note. Denominators indicate the number of comparisons to which the subject was exposed; numerators indicate the number of expected outcomes that occurred. "S.M." indicates scoring method. "DD" refers to a differential decrement in responding from trial 1 to trial 2. "AVG" refers to mean performance over four trials. "Success Rate (%)" is a summary percent by column which represents the sum of the expected outcomes versus the sum of the number of comparisons to which subjects were exposed. Subjects are grouped according to the paths they took, separated by the horizontal lines.

respectively. In each column, the denominator of the ratio refers to the number of comparisons to which the subjects were exposed. The numerator of the ratio indicates the number of occurrences of the expected outcome. This information is indicated for both scoring methods. For example, if the ratio is 2/3 under AVG in Similarity, the subject was exposed to three similarity comparisons, and the average performance of the subject over four trials was better in SAME than DIFF twice. The last two lines of the table (Success Rate) show the ratio of the sum of expected outcomes to the sum of comparisons for each column for scoring methods I and V as a percent.

The success rates indicate that all manipulations were more effective in producing expected outcomes with respect to average performance over four trials ("AVG") than with respect to the differential decrement from trial 1 to trial 2 ("DD") for both scoring methods. The similarity manipulation produced a differential decrement in responding in the expected direction more consistently than did the other manipulations. Except for two instances in which the success rates were the same, scoring method V yielded higher percentages than did method I, as expected.

DIFF and SAME in sessions 2 and 4. Although all manipulation decisions were solely based upon a subject's performance in DIFF, the experimental design provided the opportunity to examine the effect of similarity at two levels of number of stimuli per trial or two levels of distractor interval duration with six subjects. These six subjects were exposed to conditions DIFF and SAME in session 2 and session 4. All subjects had the same parametric settings in session 2, but different settings in session 4. Subjects S5 and S7 were exposed to DIFF and SAME in session 4 with four stimuli per trial; S6, S8, S11, and S12 were exposed to DIFF and SAME in session 4 with a SHORT distractor interval.

The performances of S5 and S6 were not compared for the two sessions since the categories assigned to SAME and DIFF in session 2 were the reverse of the categories assigned to SAME and DIFF in session 4. The performances of S7, S8, S11, and S12 were compared for the sessions. The category assignment for DIFF and SAME in session 2 was

the same as the category assignment for DIFF and SAME in session 4. If the category assignment enhanced the effect of the experimental manipulations, this effect should be constant for both sessions.

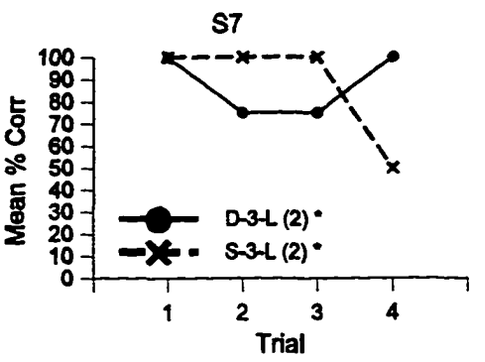
Graphs of mean percent correct for the two sessions for S7, S11, S8, and S12 are displayed in Figures 23, 24, 25, and 26, respectively. Graphs for scoring methods I and V, are on the left and right, respectively. Graphs for session 4 are below those for session 2 in each figure.

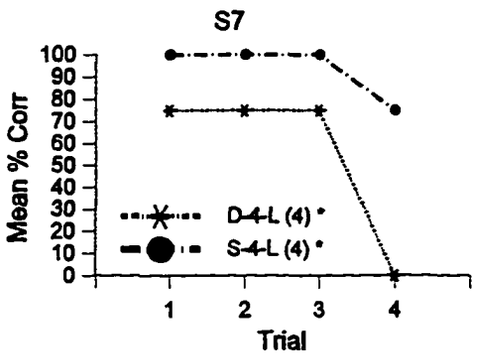
S7 provided the opportunity to examine the effect of number of stimuli per trial on the effect of similarity. For both scoring methods, performance in DIFF was lower than in SAME for only two trials in session 2. When the number of stimuli per trial was increased to four in session 4, S7's performance in DIFF was lower than SAME for all trials. In session 4, the relation between DIFF and SAME became more consistent for both scoring methods (see Figure 23).

S8, S11, and S12 provided the opportunity to examine the effect of distractor interval duration on the effect of similarity. For S11 (see Figure 24), shortening the distractor interval duration resulted in a higher level of performance in both DIFF and SAME. The improvement in performance eliminated the apparent floor effect for the DIFF condition. Although performance improved, the relative performance in DIFF and SAME in sessions 2 and 4 remained the same. For S8 (see Figure 25) and S12 (see Figure 26), shortening the distractor interval duration raised their levels of performance on most trials. Comparisons of their performance in sessions 2 and 4, however, do not indicate that shortening the distractor interval duration necessarily establishes a more orderly relation nor maintains the existing one. Had manipulation decisions been based upon the subjects' relative performance in SAME and DIFF in session 2, not just on DIFF, more consistent patterns of responding in session 4 may have occurred.

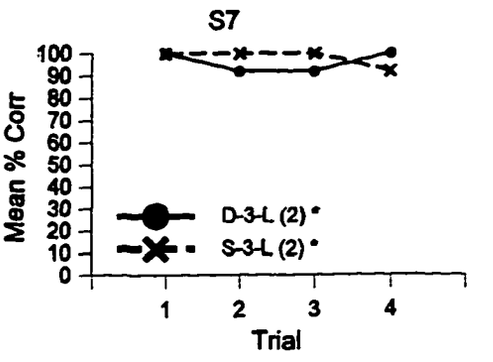
Figure 23. Graphs of mean percent correct by trial for DIFF and SAME in sessions 2 and 4 for subject S7. Graphs for scoring methods I and V are on the left and right, respectively. Session 4 graphs are below session 2 graphs. The asterisks in the legend indicate that the categories associated with DIFF were not the same as those associated with SAME.

Scoring Method I





Scoring Method V



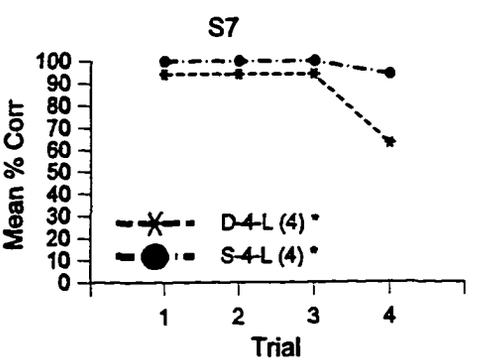
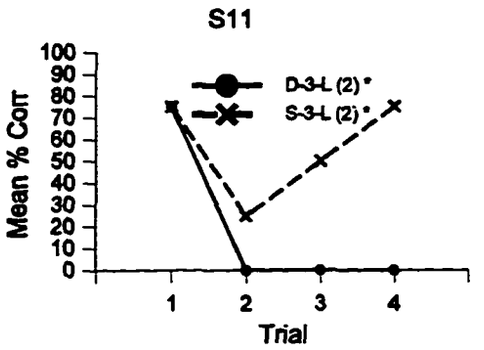
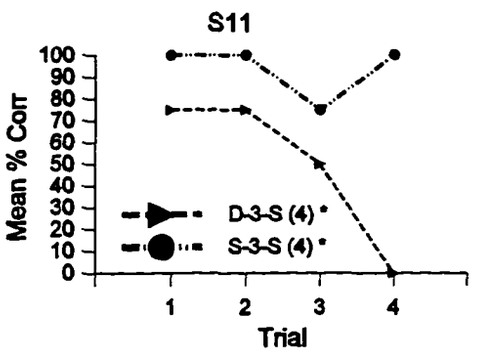


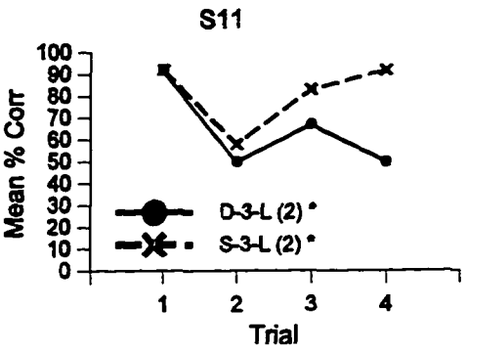
Figure 24. Graphs of mean percent correct by trial for DIFF and SAME in sessions 2 and 4 for subject S11. Graphs for scoring methods I and V are on the left and right, respectively. Session 4 graphs are below session 2 graphs. The asterisks in the legend indicate that the categories associated with DIFF were not the same as those associated with SAME.

Scoring Method I





Scoring Method V



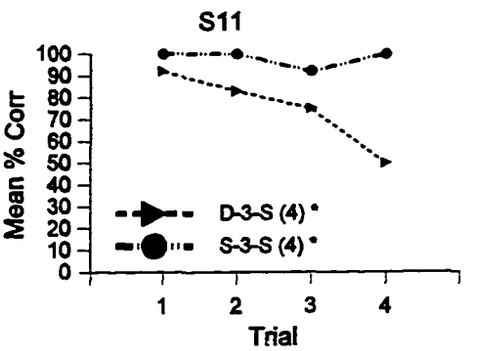
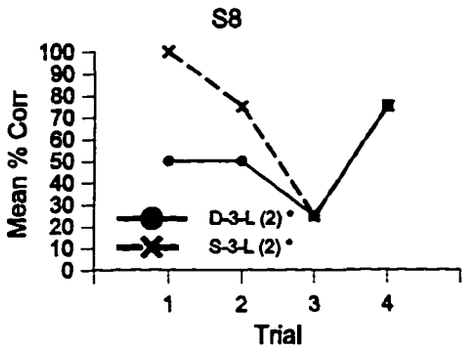
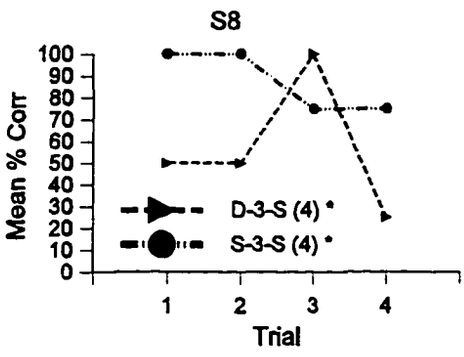


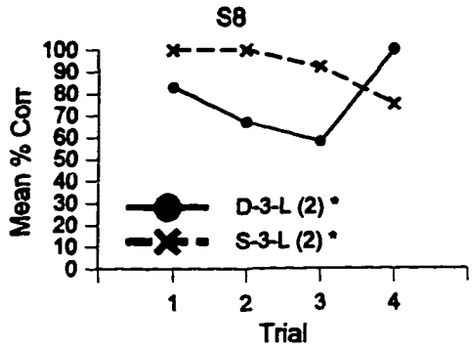
Figure 25. Graphs of mean percent correct by trial for DIFF and SAME in sessions 2 and 4 for subject S8. Graphs for scoring methods I and V are on the left and right, respectively. Session 4 graphs are below session 2 graphs. The asterisks in the legend indicate that the categories associated with DIFF were not the same as those associated with SAME.

Scoring Method I





Scoring Method V



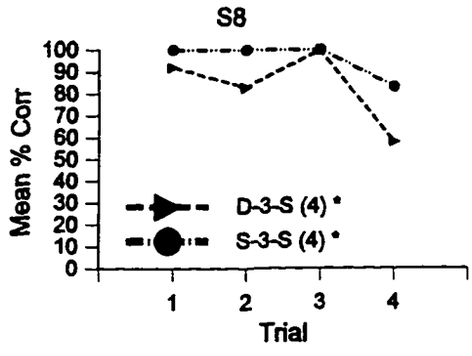
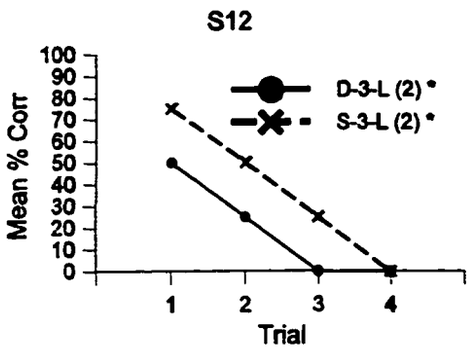
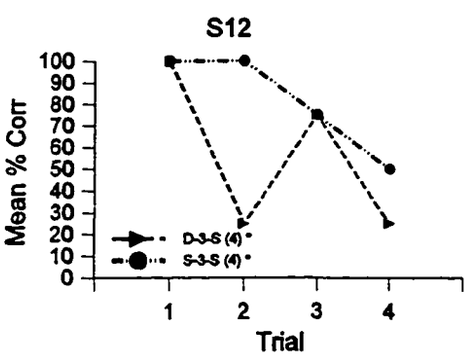


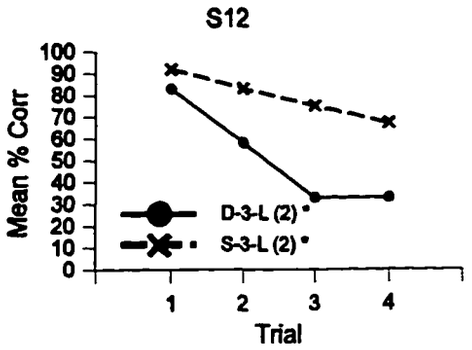
Figure 26. Graphs of mean percent correct by trial for DIFF and SAME in sessions 2 and 4 for subject S12. Graphs for scoring methods I and V are on the left and right, respectively. Session 4 graphs are below session 2 grapns. The asterisks in the legend indicate that the categories associated with DIFF were not the same as those associated with SAME.

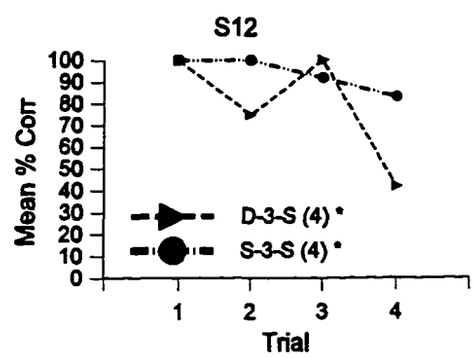
Scoring Method I





Scoring Method V





General Discussion

The present study examined PI from a behavioral rather than a cognitive perspective. The Brown-Peterson task has been used to examine inferred memorial processes and mechanisms with group designs. This study has taken as a point of departure the group approach of cognitive research and sought to replicate the empirical findings with individual subjects. It has examined the effects of stimulus similarity, number of stimuli per trial, and distractor interval duration on the performance of individuals on the Brown-Peterson task while adjusting category membership and difficulty of the distractor task to control individual differences. The first manipulation of similarity was imposed upon all subjects. Subsequent manipulations were based upon each subject's performance on the Brown-Peterson task and were attempts to change each subject's performance based upon observable behavior.

Group results. The analyses of the group data from session 2 indicated that similarity affected overall mean performance regardless of the scoring method used. In addition, similarity affected performance over the first two trials for scoring methods which credited correct stimuli in incorrect positions (methods III, IV, and V). In both cases, performance was at a higher level when trials consisted of stimuli which were members of the same subset (SAME). The relatedness of the stimuli within a class affected performance.

Individual data. The initial plan of the study was to examine the build-up of PI across four trials for each subject under each condition. Each subject was presented with eight blocks of trials under each condition, in which a block consisted of four trials. The mean performance on each trial (based upon the eight scores) was to be calculated so that these comparisons could be made. All conditions were presented in two separate sessions so that each condition would be presented with at least two other conditions to control for possible sequence effects, to increase the generality of the findings, and to reduce the

impact of extraneous events on a particular condition. The statistical analyses did not reveal a Group x Trial x Similarity interaction either for session 2 or the pooled data from session 2, 3, and 5 for any of the dependent measures. Therefore, it was possible to examine individual data without concern for the group to which the subject had been assigned. Statistically significant interactions did place some limitations upon the individual analyses. A differential effect of categories was suggested. This outcome limited comparisons to session-to-session comparisons so that categories were kept constant. Session-to-session comparisons also minimized any possible practice effects. A difference in performance between session 2 and sessions 3/5 was suggested which precluded averaging data from conditions DIFF-3-LONG and SAME-3-LONG across these sessions for individuals.

The initial manipulation of similarity in session 2, to which all subjects were exposed, was robust with respect to both responding from trial 1 to trial 2 and mean overall performance when scoring method V was used; 11 of the 12 subjects showed a greater decrement in responding from trial 1 to trial 2 in DIFF and higher mean performance over four trials in SAME than in DIFF. With categories held constant for session-to-session comparisons, however, for all three manipulations, the results were robust with respect to overall mean performance (for scoring method V) but not with respect to differential responding from trial 1 to trial 2 (see Table 17). These results indicate limitations of using the Brown-Peterson task on a trial-by-trial basis with individuals.

Categories. The Session x Group x Similarity interaction provided evidence of a category effect. Categories were assigned randomly to their positions with two restrictions described in the Method section. It was assumed that was there were no systematic differences in the sets of categories. Although the subjects had initially categorized the stimuli as belonging to the nominal groups, some categories may have been more familiar to the subjects than others. There was no measurement of a subject's familiarity with or

special knowledge of each category.

Alternative experimental designs. In studying the effect of the stated variables, each subject was taken through a parametric space with the intention of changing the subject's performance. All manipulation decisions were based upon performance in DIFF. As an alternative to basing manipulation decisions solely upon performance in DIFF, a comparison could be made of performance in SAME and DIFF. Manipulations would then be made based upon the relative build-up of PI in both conditions. In this way, every session would contain comparable conditions and a reversal could be employed. For example, if there were no difference in performance in SAME and DIFF due to a ceiling effect in session 2, as with subjects S5 and S7, these subjects could be exposed to DIFF and SAME and a LONG distractor interval with four stimuli per trial in session 3. Session 3 conditions could be repeated in session 4, and then a return to three stimuli per trial in session 5.

Another possible improvement would be to present subjects with many more blocks containing only two trials. The presentation of more blocks provides the opportunity to present many more categories. Increasing the number of categories should reduce any differential effect of categories. By presenting more blocks with only two trials per block, something more akin to a steady-state baseline could be established for each subject on which to base manipulation decisions.

Subsets and free recall. The present study examined the effect of subsets on performance on the Brown-Peterson task. The effects of subset organization can also be seen in a free recall experiment conducted by Bower, Clark, Lesgold, and Winzenz (1969). Many free recall experiments have examined stimulus organization as it relates to recall without looking at subset organization, e.g., Bousfield, Cohen, and Whitmarsh, 1958; Tulving, 1962; Puff, 1966. On the other hand, Bower et al. examined the effects of the hierarchic organization of words in the same conceptual category on free recall. Bower et

al. described a conceptual category as a type of associative network in which the group of stimuli are related by class inclusion. Class inclusion is the organization of the stimuli into a hierarchy of subsets. The words they used were arranged either in an accurate hierarchic organization (in a class inclusion relationship) or randomly assigned to the same hierarchic organization (a "spatial tree"). In the random organization, the words were assigned to random locations in the same structural hierarchy, "avoiding obvious conceptual relations amongst words in successive nodes of a tree" (p. 325). Subjects were presented with word trees in their entireties from each of four taxonomic categories for four trials for each category. Stimuli were more accurately recalled when they were arranged in an accurate structure than when arranged randomly in the same structural format (mean recall was 3.5 times better on trial 1). Subjects in the random group showed "conflict between clustering according to the underlying conceptual categories versus according to the spatially contiguous words in the randomized input" (p. 327). In addition, analysis from trial 1 showed that for the "accurate" group, recall of a subset label acted as a cue for recall for subset members. When the subset word was omitted, the subset members were likely to be omitted. Bower et al. concluded that if subjects can learn a rule relating the items on a list, then subjects will use the rule to retrieve the items, resulting in improved recall. While no explicit rule or cue was presented to subjects in the present study, the presentation of subsets on sequential trials (SAME) resulted in more accurate responding than did the presentation of stimuli not organized in this manner (DIFF).

Conceptual behavior. To demonstrate that a concept has been formed, a subject must generalize to other members of the class and discriminate between members of different classes. A further test of the formation of a concept is a test in a novel situation (Cooper, Heron, and Heward, 1987). The Brown-Peterson task may provide just such a test, particularly in areas of research which utilize a single-subject design. For example, the results for individual subjects are presented in equivalence class formation experiments

(Fields, Adams, Verhave, and Newman, 1990; Fields, Adams, Newman, and Verhave, 1992). An equivalence class is a conceptual category consisting of stimuli which have become interrelated although they do not necessarily share any common physical properties (Fields et al., 1992). These classes are formed using a conditional discrimination procedure for training and testing stimulus-stimulus relations. The stimulus-stimulus relations which are tested are called emergent relations. The formation of these conceptual categories is considered as having been accomplished when all emergent relations tests have been passed. To demonstrate the formation of a concept, a subject must generalize to other members of the class and discriminate between members of different classes. The conditional discrimination procedure provides this test. Fields et al., (1992) demonstrated that equivalence classes can be expanded through simple discrimination training and fading. Testing of the existence of expanded classes was accomplished with a conditional discrimination procedure. The use of the Brown-Peterson task could provide a further test of class formation. Although the results of this study do not indicate that a trial-by-trial analysis will necessarily provide dependable results with only a few observations per subject, mean performance over trials will. Performance on this task could provide evidence of the existence of distinct classes without asking the subject anything directly about the classes.

PI and individual subjects. Watkins (1990) provided an empirical law, the cue overload principle, to explain forgetting. It states that memory cues mediate recall and a cue loses its effectiveness as the number of items it subsumes increases. He suggested that memory should be examined without resorting to mediationism. Mediationism refers "to the doctrine that remembering an event requires that a representation of that event be embodied in a "memory trace" that is retained over the time between the event's occurrence and its recollection" (p. 329). While he did not discard the substrate of memory, "we have opted for a form of functionalism, a perspective from which memory is

regarded as a function of (a) the rememberer's physical environment and state of mind at the time of test, and (b) the rememberer's history" (p. 331). Watkins does not want to resort to inferred mechanisms of memory - encoding, storage, and retrieval, which leads to a proliferation of theories which can explain a subject's performance on a recall test, with no way to distinguish between the alternative theories. One interpretation may be more elegant than the others "but there is no agreed-upon rule or set of rules for deciding which is right and which are wrong" (pp. 329-330). He suggested that psychologists can study in a meaningful way "the effect that an experience at one point in time can have on experience or behavior at another point in time without invoking a physical substrate to bridge their temporal separation" (p. 331).

The present study was conducted in the spirit of Watkin's agnosticism. Variables were manipulated and adjusted based upon observable behavior, specifically, each subject's performance on the sorting, backwards reading, and Brown-Peterson tasks. When the data from individual subjects were examined, results of overall mean performance on four trials using scoring method V indicated robust effects of the variables; manipulations of similarity, number of stimuli per trial, and distractor interval duration produced consistent changes in performance of individuals on the Brown-Peterson task. Proactive inhibition, however, is typically indicated by a decrement in responding from one trial to the next, not by examining overall performance. The results with respect to this aspect of performance differed when session 2 and session-to-session performance were examined. The effect of similarity in session 2 with respect to producing a differential decrement in responding from trial 1 to trial 2 was robust. When performance from trial 1 to trial 2 was examined for session-to-session data, however, the effects were not robust for similarity nor for either of the other variables. This may have been due, at least in part, to the procedure used for determining manipulations. Determinations were not based upon evidence of PI (a decrement from one trial to the next), but were based upon performance over eight trials, a

more global evaluation. On the other hand, if more extreme levels of the variables had been used, the expected differential decrements may have occurred with more regularity. In summary, the present study indicates robust effects of the variables with respect to overall mean performance for individual subjects. It also indicates consistent effects of similarity with respect to PI from trial 1 to trial 2 when the similarity data are taken as a whole. This is not the case, however, for the effects of number of stimuli per trial nor distractor interval duration.

Appendix A

Appendix A contains Tables A1 through A96. Every eight consecutive tables contain the sorted stimuli, by category, for each subject. Tables A1 through A8 contain the stimuli for S1, Tables A9 through A17 contain the stimuli for S2, etc. Each table displays the sorted stimuli for one category. Each column represents a subset. Horizontal dotted lines separate subsets within a category. The category order of the tables is the same the order used in this study: MAMMALS, STATES, BODY PARTS, SPORTS, MUSICAL INSTRUMENTS, AUTOMOBILES, COUNTRIES, and SEA CREATURES.

Table A1

S1: Stimulus Sorting of MAMMALS

*BISON	BEAVER	CHEETAH	AARDVARK
*GAZELLE	FERRET	COYOTE	DEER
*GNU	GERBIL	JAGUAR	DINGO
*LEMUR	HAMSTER	LEOPARD	DOG
*MUSKRAT	HARE	LION	ELK
*ORANGUTAN	PRAIRIE DOG	LYNX	GOAT
*YAK	SKUNK	PANTHER	GUINEA PIG
	SQUIRREL	TIGER	KANGAROO
		WOLF	MINK
			MOOSE
			MOUSE
			MULE
			PIG
			RABBIT
			RACCOON
			SHEEP
			ZEBRA
CAMEL	BABOON	BEAR	CHINCHILLA
GIRAFFE	CHIMP	COW	OPOSSUM
HORSE	GORILLA	ELEPHANT	OTTER
LLAMA	HUMAN	HIPPO	PLATYPUS
		RHINO	WATER BUFFALO
		WILD BOAR	

Note. * = not recognized.

Table A2

S1: Stimulus Sorting of STATES

CONNECTICUT	ALASKA	ALABAMA	ILLINOIS	ARKANSAS
DELAWARE	ARIZONA	FLORIDA	INDIANA	MISSOURI
MAINE	CALIFORNIA	GEORGIA	MICHIGAN	NEBRASKA
MARYLAND	COLORADO	HAWAII	MINNESOTA	OKLAHOMA
MASSACHUSETTS	NEVADA	IDAHO	MONTANA	
NEW HAMPSHIRE	NEW MEXICO	IOWA	WISCONSIN	
NEW JERSEY	OREGON	KANSAS	WYOMING	
NEW YORK	UTAH	KENTUCKY		
PENNSYLVANIA	WASHINGTON	LOUISIANA		
RHODE ISLAND		MISSISSIPPI		
VERMONT		OHIO		
		TENNESSEE		
		TEXAS		

Table A3

S1: Stimulus Sorting of BODY PARTS

ELBOW	ANKLE	BRAIN	EAR	BACK
FINGER	HEEL	CHEEK	ESOPHAGUS	CHEST
PALM	KNEE	CHIN	EYE	COLON
THUMB	TOE	FACE	MOUTH	HEART
WRIST		FOREHEAD	NECK	KIDNEY
		SHOULDER	NOSE	LIVER
			NOSTRIL	NAVEL
			THROAT	PANCREAS
			TONGUE	RIB
			TOOTH	SPINE
				SPLEEN
				STOMACH

Table A4

S1: Stimulus Sorting of SPORTS

*SHOT-PUT	AEROBICS	ARCHERY	HOCKEY	BASEBALL
	WEIGHTLIFTING	DISCUS	ICE SKATING	BASKETBALL
		FRISBEE	SKIING	SOCCER
		JAVELIN	TOBOGGANING	SOFTBALL
				VOLLEYBALL
BADMINTON	CYCLING	BOXING	DIVING	FOOTBALL
BILLIARDS	ROLLER BLADING	FENCING	POLO	LACROSSE
BOCCIE BALL	ROLLER SKATING	JUDO	ROWING	RUGBY
BOWLING	RUNNING	KARATE	SAILING	SQUASH
CRICKET	SKATEBOARDING	WRESTLING	SURFING	
CROQUET			SWIMMING	
GOLF			WATER POLO	
HANDBALL				
PADDLEBALL				
PING-PONG				
POOL				
RACQUETBALL				
TENNIS				

Note. * = not recognized.

Table A5

S1: Stimulus Sorting of MUSICAL INSTRUMENTS

CELLO	BANJO	FLUTE
HARP	GUITAR	HARMONICA
VIOLA	MANDOLIN	PICCOLO
VIOLIN	UKELELE	RECORDER
ACCORDION	BELLS	BASS
DRUMS	CHIMES	BASSOON
ORGAN	CYMBALS	BUGLE
PIANO	GLOCKENSPIEL	CLARINET
TAMBOURINE	HARPSICHORD	FRENCH HORN
	TRIANGLE	OBOE
	XYLOPHONE	SAXOPHONE
		TROMBONE
		TRUMPET
		TUBA

Table A6

S1: Stimulus Sorting of AUTOMOBILES

*MERKUR	+YUGO	FIAT
*MORRIS		ISUZU
*RENAULT		MITSUBISHI
*STERLING		PEUGEOT
*TRIUMPH		SUZUKI
BUICK	ALFA-ROMEO	ACURA
CHEVROLET	BMW	AUDI
CHRYSLER	CADILLAC	EAGLE
DODGE	INFINITI	GEO
FORD	JAGUAR	HONDA
OLDSMOBILE	LAMBORGHINI	HYUNDAI
PLYMOUTH	LEXUS	JEEP
TOYOTA	LINCOLN	MAZDA
VOLKSWAGEN	MERCEDES-BENZ	MASERATI
VOLVO	PORSCHE	MERCURY
	ROLLS ROYCE	NISSAN
	SAAB	PONTIAC
		SATURN
		SUBARU

Note. * = not recognized; + = miscellaneous automobiles.

Table A7

S1: Stimulus Sorting of COUNTRIES

DENMARK	EGYPT	ENGLAND	CHINA
FRANCE	ETHIOPIA	IRELAND	JAPAN
POLAND	ISRAEL	SCOTLAND	PHILIPPINES
SWEDEN	JORDAN	WALES	TAIWAN
			THAILAND
HAITI	ALBANIA	ARGENTINA	ALGERIA
LEBANON	ANGOLA	BRAZIL	BELGIUM
NICARAGUA	BURMA	CHILE	CANADA
PAKISTAN	CAMBODIA	COLOMBIA	CZECHOSLOVAKIA
SAUDI ARABIA	LAOS	COSTA RICA	FINLAND
SUDAN	LIBERIA	CUBA	GERMANY
UKRAINE	MADAGASCAR	ECUADOR	GREECE
	MALAYSIA	EL SALVADOR	GREENLAND
	NEPAL	GUATEMALA	HOLLAND
	QATAR	GUYANA	ICELAND
	SENEGAL	HONDURAS	INDIA
	SYRIA	MEXICO	INDONESIA
	TIBET	PERU	ITALY
		PORTUGAL	JAMAICA
		URUGUAY	MOROCCO
		VENEZUELA	NIGERIA
			PANAMA
			RUSSIA
			SOUTH AFRICA
			SPAIN
			SWITZERLAND
			TURKEY
			UNITED STATES
			ZAMBIA

Table A8

S1: Stimulus Sorting of SEA CREATURES

*ANEMONE	BASS	JELLY FISH
*BARNACLE	CLAM	PUFFER FISH
*HADDOCK	CRAB	SEA TURTLE
*LAMPREY	FLOUNDER	SNAIL
*MANATEE	HERRING	SQUID
*NAUTILUS	LOBSTER	
*SEA CUCUMBER	MUSSEL	
*STURGEON	OYSTER	
	SALMON	
	SCALLOP	
	SHRIMP	
	SWORD FISH	
	TUNA	
DOLPHIN	CORAL	ELECTRIC EEL
OCTOPUS	HALIBUT	MANTA RAY
PORPOISE	PILOT FISH	MORAY EEL
SEAL	SAIL FISH	SARDINE
SHARK	SEA URCHIN	STING RAY
WALRUS	SPONGE	
WHALE		

Note. * = not recognized.

Table A9

S2: Stimulus Sorting of MAMMALS

*CHINCHILLA	+KANGAROO	CHEETAH	AARDVARK
*PLATYPUS	+OPOSSUM	JAGUAR	BEAR
		LEOPARD	COYOTE
		LION	DINGO
		LYNX	DOG
		PANTHER	OTTER
		TIGER	WOLF
BABOON	BEAVER	BISON	
CHIMP	FERRET	CAMEL	
GORILLA	GERBIL	COW	
HUMAN	HAMSTER	DEER	
ORANGUTAN	HARE	ELEPHANT	
	LEMUR	ELK	
	MINK	GAZELLE	
	MOUSE	GIRAFFE	
	MUSKRAT	GNU	
	PRAIRIE DOG	GOAT	
	RABBIT	GUINEA PIG	
	RACCOON	HIPPO	
	SKUNK	HORSE	
	SQUIRREL	LLAMA	
		MOOSE	
		MULE	
		PIG	
		RHINO	
		SHEEP	
		WATER BUFFALO	
		WILD BOAR	
		YAK	
		ZEBRA	

Note: * = not recognized; + = miscellaneous mammals.

Table A10

S2: Stimulus Sorting of STATES

+ALASKA	ARIZONA	MONTANA	ALABAMA
+HAWAII	CALIFORNIA	OREGON	FLORIDA
	NEVADA	WASHINGTON	GEORGIA
	NEW MEXICO	WISCONSIN	KENTUCKY
	TEXAS	WYOMING	LOUISIANA
			MARYLAND
			MISSISSIPPI
			MISSOURI
			TENNESSEE
CONNECTICUT	ARKANSAS		
DELAWARE	COLORADO		
MAINE	IDAHO		
MASSACHUSETTS	ILLINOIS		
NEW JERSEY	INDIANA		
NEW HAMPSHIRE	IOWA		
NEW YORK	KANSAS		
PENNSYLVANIA	MICHIGAN		
RHODE ISLAND	MINNESOTA		
VERMONT	NEBRASKA		
	OHIO		
	OKLAHOMA		
	UTAH		

Note: + = miscellaneous states.

Table A11

S2: Stimulus Sorting of BODY PARTS

ANKLE	ELBOW	BACK	BRAIN
HEEL	FINGER	CHEST	CHEEK
KNEE	PALM	COLON	CHIN
TOE	THUMB	HEART	EAR
	WRIST	KIDNEY	ESOPHAGUS
		LIVER	EYE
		NAVEL	FACE
		PANCREAS	FOREHEAD
		RIB	MOUTH
		SHOULDER	NECK
		SPINE	NOSE
		SPLEEN	NOSTRIL
		STOMACH	THROAT
			TONGUE
			TOOTH

Table A12

S2: Stimulus Sorting of SPORTS

&AEROBICS	DISCUS	DIVING	ARCHERY
&ICE SKATING	JAVELIN	ROWING	BADMINTON
&ROLLER BLADING	RUNNING	SAILING	FRISBEE
&ROLLER SKATING	SHOT-PUT	SURFING	GOLF
		SWIMMING	HANDBALL
		WATER POLO	PADDLEBALL
			PING-PONG
			RACQUETBALL
			TENNIS
			VOLLEYBALL
BILLIARDS	BASEBALL		
BOCCIE BALL	BASKETBALL		
BOWLING	BOXING		
CRICKET	FENCING		
CROQUET	FOOTBALL		
CYCLING	HOCKEY		
POOL	JUDO		
SKATEBOARDING	KARATE		
SKIING	LACROSSE		
TOBOGGANING	POLO		
WEIGHTLIFTING	RUGBY		
	SOCCER		
	SOFTBALL		
	SQUASH		
	WRESTLING		

Note: & = not a sport.

Table A13

S2: Stimulus Sorting of MUSICAL INSTRUMENTS

*GLOCKENSPIEL	+ACCORDION	BASS	BANJO
	+ORGAN	CELLO	GUITAR
	+PIANO	VIOLA	HARP
		VIOLIN	HARPSICHORD
			MANDOLIN
			UKELELE
BELLS	BASSOON		
CHIMES	BUGLE		
CYMBALS	CLARINET		
DRUMS	FLUTE		
TAMBOURINE	FRENCH HORN		
TRIANGLE	HARMONICA		
XYLOPHONE	OBOE		
	PICCOLO		
	RECORDER		
	SAXOPHONE		
	TROMBONE		
	TRUMPET		
	TUBA		

Note: * = not recognized; + = miscellaneous instruments.

Table A14

S2: Stimulus Sorting of AUTOMOBILES

*MORRIS	+FIAT	ALFA-ROMEO	AUDI
	+LAMBORGHINI	JAGUAR	BMW
	+MASERATI	ROLLS ROYCE	MERCEDES-BENZ
	+PEUGEOT	STERLING	MERKUR
	+RENAULT	TRIUMPH	PORSCHE
			SAAB
			VOLKSWAGEN
			VOLVO
ACURA	BUICK		
HONDA	CADILLAC		
HYUNDAI	CHEVROLET		
INFINITI	CHRYSLER		
ISUZU	DODGE		
LEXUS	EAGLE		
MAZDA	FORD		
MITSUBISHI	GEO		
NISSAN	JEEP		
SUBARU	LINCOLN		
SUZUKI	MERCURY		
TOYOTA	OLDSMOBILE		
YUGO	PLYMOUTH		
	PONTIAC		
	SATURN		

Note: * = not recognized; + = miscellaneous automobiles.

Table A15

S2: Stimulus Sorting of COUNTRIES

&SENEGAL	+CANADA	ALGERIA	ARGENTINA
	+UNITED STATES	ANGOLA	BRAZIL
		ETHIOPIA	CHILE
		LIBERIA	COLOMBIA
		MADAGASCAR	COSTA RICA
		MOROCCO	CUBA
		NIGERIA	ECUADOR
		SOUTH AFRICA	EL SALVADOR
		SUDAN	GUATEMALA
		ZAMBIA	GUYANA
			HAITI
			HONDURAS
			JAMAICA
			MEXICO
			NICARAGUA
			PANAMA
			PERU
			URUGUAY
			VENEZUELA
BURMA	ALBANIA		
CAMBODIA	BELGIUM		
CHINA	CZECHOSLOVAKIA		
EGYPT	DENMARK		
INDIA	ENGLAND		
INDONESIA	FINLAND		
ISRAEL	FRANCE		
JAPAN	GERMANY		
JORDAN	GREECE		
LAOS	GREENLAND		
LEBANON	HOLLAND		
MALAYSIA	ICELAND		
NEPAL	IRELAND		
PAKISTAN	ITALY		
PHILIPPINES	POLAND		
QATAR	PORTUGAL		
SAUDI ARABIA	RUSSIA		
SYRIA	SCOTLAND		
TAIWAN	SPAIN		
THAILAND	SWEDEN		
TIBET	SWITZERLAND		
TURKEY	WALES		
UKRAINE			

Note: & = not a country; + = miscellaneous countries.

Table A16

S2: Stimulus Sorting of SEA CREATURES

*ANEMONE	DOLPHIN	BARNACLE	BASS
*HADDOCK	MANATEE	CORAL	CLAM
*LAMPREY	PORPOISE	SEA CUCUMBER	FLOUNDER
*STURGEON	SEAL	SPONGE	HERRING
	WALRUS		MUSSEL
	WHALE		SALMON
			SARDINE
			SCALLOP
			SHRIMP
			SQUID
			TUNA
ELECTRIC EEL	HALIBUT	CRAB	
MANTA RAY	JELLY FISH	LOBSTER	
MORAY EEL	PILOT FISH	NAUTILUS	
OCTOPUS	PUFFER FISH	OYSTER	
STING RAY	SAIL FISH	SEA TURTLE	
	SHARK	SEA URCHIN	
	SWORD FISH	SNAIL	

Note: * = not recognized.

Table A17

S3: Stimulus Sorting of MAMMALS

*LEMUR	&PLATYPUS	BABOON	CHEETAH	DOG
		CHIMP	JAGUAR	FERRET
		GORILLA	LEOPARD	GERBIL
		ORANGUTAN	LION	GUINEA PIG
			PANTHER	HAMSTER
			TIGER	MOUSE
				RABBIT
BEAVER	GNU	BEAR	AARDVARK	
CHINCHILLA	HORSE	BISON	DEER	
COYOTE	HUMAN	CAMEL	DINGO	
HARE	MULE	COW	ELK	
LYNX	OPOSSUM	ELEPHANT	GAZELLE	
MINK	PIG	GIRAFFE	GOAT	
MUSKRAT	ZEBRA	HIPPO	OTTER	
RACCOON		KANGAROO	PRAIRIE DOG	
SKUNK		MOOSE	SHEEP	
		RHINO	SQUIRREL	
		WATER	WILD BOAR	
		BUFFALO	WOLF	
			YAK	

Note. * = not recognized; & = not a mammal.

Table A18

S3: Stimulus Sorting of STATES

+ALABAMA	IDAHO	ARIZONA	CONNECTICUT	ALASKA
+INDIANA	KENTUCKY	ARKANSAS	DELAWARE	CALIFORNIA
+IOWA	LOUISIANA	KANSAS	GEORGIA	COLORADO
+MISSISSIPPI	WASHINGTON	MINNESOTA	MAINE	FLORIDA
+NEW JERSEY		MONTANA	MARYLAND	HAWAII
+OKLAHOMA		NEBRASKA	MASSACHUSETTS	ILLINOIS
		NEVADA	NEW YORK	MICHIGAN
		OHIO	NEW HAMPSHIRE	MISSOURI
		OREGON	PENNSYLVANIA	NEW
		WYOMING	RHODE ISLAND	MEXICO
			TENNESSEE	TEXAS
			VERMONT	UTAH
				WISCONSIN

Note. + = miscellaneous states.

Table A19

S3: Stimulus Sorting of BODY PARTS

+HEEL	ANKLE	BACK	COLON	BRAIN
	CHEST	ELBOW	ESOPHAGUS	CHEEK
	NAVEL	FINGER	HEART	CHIN
	NECK	KNEE	KIDNEY	EAR
	PALM	SHOULDER	LIVER	EYE
	THUMB	STOMACH	PANCREAS	FACE
	TOE	WRIST	RIB	FOREHEAD
			SPINE	MOUTH
			SPLEEN	NOSE
				NOSTRIL
				THROAT
				TONGUE
				TOOTH

Note. + = miscellaneous body part.

Table A20

S3: Stimulus Sorting of SPORTS

BOXING	ARCHERY	BASEBALL	DIVING
FENCING	DISCUS	BASKETBALL	ICE SKATING
JUDO	JAVELIN	FOOTBALL	SKIING
KARATE	RUNNING	HOCKEY	SURFING
WRESTLING	SHOT-PUT	LACROSSE	SWIMMING
		SOCCER	TOBOGGANING
		SOFTBALL	WATER POLO
CRICKET	BADMINTON	AEROBICS	
CROQUET	BOCCIE BALL	BILLIARDS	
GOLF	BOWLING	CYCLING	
POLO	HANDBALL	FRISBEE	
ROWING	PADDLEBALL	POOL	
RUGBY	PING-PONG	ROLLER BLADING	
SAILING	RACQUETBALL	ROLLER SKATING	
SQUASH	TENNIS	SKATEBOARDING	
	VOLLEYBALL	WEIGHTLIFTING	

Table A21

S3: Stimulus Sorting of MUSICAL INSTRUMENTS

ACCORDION	BUGLE	BANJO	FLUTE	BASS
HARPSICHORD	CHIMES	CELLO	GUITAR	BASSOON
ORGAN	GLOCKENSPIEL	HARP	HARMONICA	BELLS
PIANO	UKELELE	MANDOLIN	PICCOLO	CLARINET
		VIOLA	RECORDER	CYMBALS
			SAXOPHONE	DRUMS
			TRIANGLE	FRENCH HORN
			VIOLIN	OBOE
				TAMBOURINE
				TROMBONE
				TRUMPET
				TUBA
				XYLOPHONE

Table A22

S3: Stimulus Sorting of AUTOMOBILES

*MERKUR	+CHEVROLET	AUDI	FIAT
*MORRIS	+HONDA	CADILLAC	ISUZU
*STERLING	+MITSUBISHI	INFINITI	MAZDA
	+PLYMOUTH	LEXUS	NISSAN
	+PONTIAC	LINCOLN	PEUGEOT
	+SUZUKI	VOLVO	
	+TOYOTA		
	+TRIUMPH		
ALFA-ROMEO	ACURA		
BMW	BUICK		
JAGUAR	CHRYSLER		
LAMBORGHINI	DODGE		
MASERATI	EAGLE		
MERCEDES-BENZ	FORD		
PORSCHE	GEO		
ROLLS ROYCE	HYUNDAI		
	JEEP		
	MERCURY		
	OLDSMOBILE		
	RENAULT		
	SAAB		
	SATURN		
	SUBARU		
	VOLKSWAGEN		
	YUGO		

Note. * = does not recognize; + = miscellaneous automobiles.

Table A23

S3: Stimulus Sorting of COUNTRIES

*QATAR	+GERMANY	BELGIUM	ARGENTINA
*SENEGAL	+ALBANIA	DENMARK	BRAZIL
	+ALGERIA	ENGLAND	CHILE
	+ANGOLA	FINLAND	COLOMBIA
	+BURMA	FRANCE	COSTA RICA
	+CAMBODIA	GREECE	CUBA
	+CANADA	HOLLAND	ECUADOR
	+CHINA	IRELAND	EL SALVADOR
	+CZECHOSLOVAKIA	ITALY	GUATEMALA
	+ETHIOPIA	JAMAICA	GUYANA
	+HONDURAS	JAPAN	HAITI
	+INDIA	MEXICO	NICARAGUA
	+LAOS	POLAND	PANAMA
	+LIBERIA	RUSSIA	PERU
	+MADAGASCAR	SCOTLAND	URUGUAY
	+MOROCCO	SPAIN	VENEZUELA
	+NEPAL	SWEDEN	
	+PORTUGAL	SWITZERLAND	
	+TAIWAN	THAILAND	
	+TIBET	UNITED STATES	
	+TURKEY	WALES	
	+UKRAINE		
	+ZAMBIA		
EGYPT	GREENLAND		
ISRAEL	ICELAND		
JORDAN	INDONESIA		
LEBANON	PHILIPPINES		
MALAYSIA			
NIGERIA			
PAKISTAN			
SAUDI ARABIA			
SOUTH AFRICA			
SUDAN			
SYRIA			

Note. * = does not recognize; + = miscellaneous countries.

Table A24

S3: Stimulus Sorting of SEA CREATURES

*ANEMONE	+BARNACLE	DOLPHIN
*LAMPREY	+CORAL	MANATEE
*NAUTILUS	+MANTA RAY	PORPOISE
*PILOT FISH	+PUFFER FISH	SEA TURTLE
*SAIL FISH	+SPONGE	SEAL
*SEA URCHIN	+STING RAY	WALRUS
*SEA CUCUMBER		WHALE
CLAM	BASS	ELECTRIC EEL
CRAB	FLOUNDER	JELLY FISH
LOBSTER	HADDOCK	MORAY EEL
MUSSEL	HALIBUT	OCTOPUS
OYSTER	HERRING	SHARK
SCALLOP	SALMON	SNAIL
SHRIMP	SARDINE	SQUID
SWORD FISH	STURGEON	
	TUNA	

Note. * = does not recognize; + = miscellaneous sea creatures.

Table A25

S4: Stimulus Sorting of MAMMALS

+AARDVARK	BABOON	BISON	DOG	CHEETAH
+GNU	BEAR	DEER	GERBIL	GAZELLE
+LEMUR	CAMEL	ELK	GUINEA PIG	JAGUAR
+LYNX	CHIMP	HARE	HAMSTER	LEOPARD
+MUSKRAT	ELEPHANT	KANGAROO	HUMAN	PANTHER
+PLATYPUS	GIRAFFE	MOOSE	RABBIT	
	GORILLA	PRAIRIE DOG		
	HIPPO	WATER		
	LION	BUFFALO		
	LLAMA			
	ORANGUTAN			
	RHINO			
	TIGER			
	ZEBRA			
BEAVER	FERRET	COYOTE	CHINCHILLA	
HORSE	MOUSE	DINGO	COW	
MULE	OPOSSUM	WILD BOAR	GOAT	
OTTER	RACCOON	WOLF	MINK	
YAK	SKUNK		PIG	
	SQUIRREL		SHEEP	

Note. + = miscellaneous mammals.

Table A26

S4: Stimulus Sorting of STATES

+ARIZONA	ALABAMA	IOWA	ILLINOIS
+DELAWARE	ARKANSAS	KANSAS	INDIANA
+OREGON	LOUISIANA	NEBRASKA	KENTUCKY
	MISSISSIPPI	OKLAHOMA	TENNESSEE
CALIFORNIA	COLORADO	FLORIDA	ALASKA
CONNECTICUT	MISSOURI	GEORGIA	MICHIGAN
MAINE	MONTANA	HAWAII	MINNESOTA
MASSACHUSETTS	RHODE ISLAND	IDAHO	NEW HAMPSHIRE
NEVADA	TEXAS	MARYLAND	VERMONT
NEW JERSEY	UTAH	WISCONSIN	WYOMING
NEW YORK	WASHINGTON		
NEW MEXICO			
OHIO			
PENNSYLVANIA			

Note. + = miscellaneous states.

Table A27

S4: Stimulus Sorting of BODY PARTS

+BACK	CHEEK	BRAIN	CHEST	ELBOW	ANKLE
+NAVEL	EAR	COLON	CHIN	FINGER	HEEL
+RIB	EYE	ESOPHAGUS	FACE	PALM	KNEE
+SPINE	FOREHEAD	HEART	NECK	SHOULDER	TOE
+SPLEEN	MOUTH	KIDNEY	STOMACH	THUMB	
	NOSE	LIVER		WRIST	
	NOSTRIL	PANCREAS			
	TONGUE	THROAT			
	TOOTH				

Note. + = miscellaneous body parts.

Table A28

S4: Stimulus Sorting of SPORTS

+BADMINTON	HOCKEY	CYCLING	BASEBALL	BOXING
+FRISBEE	ICE SKATING	ROLLER SKATING	BASKETBALL	JUDO
+RUNNING	SKIING	ROLLER BLADING	FOOTBALL	KARATE
	TOBOGGANING	SKATEBOARDING	SOFTBALL	WRESTLING
AEROBICS	DIVING	GOLF	ARCHERY	BOCCIE BALL
BILLIARDS	ROWING	HANDBALL	DISCUS	CRICKET
BOWLING	SAILING	PADDLEBALL	FENCING	CROQUET
PING-PONG	SURFING	RACQUETBALL	JAVELIN	LACROSSE
POOL	SWIMMING	SQUASH	SHOT-PUT	POLO
	WATER POLO	TENNIS	WEIGHTLIFTING	RUGBY
		VOLLEYBALL		SOCCER

Note. + = miscellaneous sports.

Table A29

S4: Stimulus Sorting of MUSICAL INSTRUMENTS

+BELLS	BANJO	CHIMES	BASSOON	FLUTE	ACCORDION
	BASS	CYMBALS	BUGLE	HARMONICA	ORGAN
	CELLO	DRUMS	CLARINET	PICCOLO	PIANO
	GUITAR	GLOCKENSPIEL	FRENCH	RECORDER	XYLOPHONE
	HARP	TAMBOURINE	HORN		
	HARPSICHORD	TRIANGLE	OBOE		
	MANDOLIN		SAXOPHONE		
	UKELELE		TROMBONE		
	VIOLA		TRUMPET		
	VIOLIN		TUBA		

Note. + = miscellaneous musical instrument.

Table A30

S4: Stimulus Sorting of AUTOMOBILES

+INFINITI	ACURA	GEO	FIAT
+MERKUR	HONDA	HYUNDAI	LAMBORGHINI
+MORRIS	MAZDA	VOLKSWAGEN	MASERATI
+STERLING	MITSUBISHI	YUGO	PORSCHE
			TRIUMPH
ALFA-ROMEO	ISUZU	BUICK	AUDI
CADILLAC	NISSAN	CHEVROLET	BMW
JAGUAR	PEUGEOT	CHRYSLER	JEEP
LINCOLN	RENAULT	DODGE	LEXUS
ROLLS ROYCE	SUBARU	EAGLE	MERCEDES-BENZ
	SUZUKI	FORD	SAAB
	TOYOTA	MERCURY	VOLVO
		OLDSMOBILE	
		PLYMOUTH	
		PONTIAC	
		SATURN	

Note. + = miscellaneous automobiles.

Table A31

S4: Stimulus Sorting of COUNTRIES

+GREENLAND	DENMARK	CANADA	ALBANIA	EGYPT
+BRAZIL	FINLAND	ENGLAND	CAMBODIA	ISRAEL
	ICELAND	INDIA	CZECHOSLOVAKIA	JORDAN
	SWEDEN	IRELAND	LAOS	LEBANON
		SCOTLAND	POLAND	QATAR
		WALES	RUSSIA	SAUDI ARABIA
			UKRAINE	SYRIA
ALGERIA	BURMA	CUBA	ARGENTINA	BELGIUM
ANGOLA	CHINA	HAITI	CHILE	FRANCE
ETHIOPIA	NEPAL	INDONESIA	COLOMBIA	GERMANY
GUYANA	PAKISTAN	JAMAICA	COSTA RICA	GREECE
LIBERIA	TIBET	JAPAN	ECUADOR	HOLLAND
MADAGASCAR	TURKEY	MALAYSIA	EL SALVADOR	ITALY
MOROCCO		PHILIPPINES	GUATEMALA	PORTUGAL
NIGERIA		TAIWAN	HONDURAS	SPAIN
SENEGAL		THAILAND	MEXICO	SWITZERLAND
SOUTH AFRICA			NICARAGUA	
SUDAN			PANAMA	
ZAMBIA			PERU	
			UNITED STATES	
			URUGUAY	
			VENEZUELA	

Note. + = miscellaneous countries.

Table A32

S4: Stimulus Sorting of SEA CREATURES

*LAMPREY	+MANATEE	BASS	CLAM
*NAUTILUS	+SEA TURTLE	FLOUNDER	CRAB
*PILOT FISH		HADDOCK	LOBSTER
*SAIL FISH		HALIBUT	MUSSEL
*SEA CUCUMBER		HERRING	OYSTER
*SEA URCHIN		SALMON	SCALLOP
		SARDINE	SHARK
		STURGEON	SHRIMP
		SWORD FISH	SNAIL
		TUNA	SQUID
ANEMONE	ELECTRIC EEL	DOLPHIN	
BARNACLE	JELLY FISH	OCTOPUS	
CORAL	MANTA RAY	PORPOISE	
SPONGE	MORAY EEL	SEAL	
	PUFFER FISH	WALRUS	
	STING RAY	WHALE	

Note. * = does not recognize; + = miscellaneous sea creatures.

Table A33

S5: Stimulus Sorting of MAMMALS

*DINGO	+AARDVARK +GNU +LEMUR +PLATYPUS	CHINCHILLA COYOTE DOG MINK WOLF	DEER ELK GAZELLE MOOSE	CHIMP GORILLA HUMAN ORANGUTAN
CAMEL COW GOAT HORSE LLAMA MULE PIG SHEEP YAK	BEAR CHEETAH JAGUAR LEOPARD LION LYNX PANTHER TIGER ZEBRA	BABOON BISON ELEPHANT GIRAFFE HIPPO KANGAROO RHINO WATER BUFFALO WILD BOAR	BEAVER FERRET GERBIL GUINEA PIG HAMSTER HARE MOUSE MUSKRAT OPOSSUM OTTER PRAIRIE DOG RABBIT RACCOON SKUNK SQUIRREL	

Note. * = does not recognize; + = miscellaneous mammals.

Table A34

S5: Stimulus Sorting of STATES

ILLINOIS INDIANA IOWA MICHIGAN MINNESOTA MISSOURI OHIO WISCONSIN	CONNECTICUT DELAWARE MAINE MASSACHUSETTS NEW JERSEY NEW YORK NEW HAMPSHIRE PENNSYLVANIA RHODE ISLAND VERMONT	ALABAMA ARKANSAS FLORIDA GEORGIA KANSAS KENTUCKY LOUISIANA MARYLAND MISSISSIPPI OKLAHOMA TENNESSEE TEXAS	ALASKA ARIZONA CALIFORNIA COLORADO HAWAII IDAHO MONTANA NEBRASKA NEVADA NEW MEXICO OREGON UTAH WASHINGTON WYOMING

Table A35

S5: Stimulus Sorting of BODY PARTS

BACK	COLON	ANKLE	BRAIN
CHEST	ESOPHAGUS	ELBOW	CHEEK
HEART	KIDNEY	FINGER	CHIN
NECK	LIVER	HEEL	EAR
RIB	NAVEL	KNEE	EYE
SPINE	PANCREAS	PALM	FACE
	SPLEEN	SHOULDER	FOREHEAD
	STOMACH	THUMB	MOUTH
		TOE	NOSE
		WRIST	NOSTRIL
			THROAT
			TONGUE
			TOOTH

Table A36

S5: Stimulus Sorting of SPORTS

CYCLING	AEROBICS	BADMINTON
ROLLER BLADING	BOXING	HANDBALL
ROLLER SKATING	JUDO	PADDLEBALL
SKATEBOARDING	KARATE	PING-PONG
	RUNNING	RACQUETBALL
	WRESTLING	SQUASH
		TENNIS
DIVING	BASEBALL	ARCHERY
ICE SKATING	BASKETBALL	CRICKET
ROWING	BILLIARDS	DISCUS
SAILING	BOCCIE BALL	FENCING
SKIING	BOWLING	FRISBEE
SURFING	CROQUET	HOCKEY
SWIMMING	FOOTBALL	JAVELIN
TOBOGGANING	GOLF	LACROSSE
WATER POLO	POOL	POLO
	SOCCER	RUGBY
	SOFTBALL	SHOT-PUT
	VOLLEYBALL	WEIGHTLIFTING

Table A37

S5: Stimulus Sorting of MUSICAL INSTRUMENTS

ACCORDION	BELLS	BANJO	BASSOON
HARPSICHORD	CHIMES	BASS	BUGLE
ORGAN	CYMBALS	CELLO	CLARINET
PIANO	DRUMS	GUITAR	FLUTE
	GLOCKENSPIEL	HARP	FRENCH HORN
	TAMBOURINE	MANDOLIN	HARMONICA
	TRIANGLE	UKELELE	OBOE
	XYLOPHONE	VIOLA	PICCOLO
		VIOLIN	RECORDER
			SAXOPHONE
			TROMBONE
			TRUMPET
			TUBA

Table A38

S5: Stimulus Sorting of AUTOMOBILES

+EAGLE	HONDA	ALFA-ROMEO	BUICK	ACURA
+MERKUR	MAZDA	AUDI	CADILLAC	FIAT
+MORRIS	NISSAN	BMW	CHEVROLET	GEO
+STERLING	RENAULT	JAGUAR	CHRYSLER	HYUNDAI
+SUZUKI	TOYOTA	LAMBORGHINI	DODGE	INFINITI
+YUGO	VOLKSWAGEN	MASERATI	FORD	ISUZU
	VOLVO	MERCEDES-BENZ	JEEP	LEXUS
		PORSCHE	LINCOLN	MITSUBISHI
		ROLLS ROYCE	MERCURY	PEUGEOT
		SAAB	OLDSMOBILE	SATURN
			PLYMOUTH	SUBARU
			PONTIAC	
			TRIUMPH	

Note. + = miscellaneous automobiles.

Table A39

S5: Stimulus Sorting of COUNTRIES

ALBANIA	ALGERIA	EGYPT
CZECHOSLOVAKIA	ANGOLA	ISRAEL
POLAND	ETHIOPIA	JORDAN
RUSSIA	LIBERIA	LEBANON
UKRAINE	MOROCCO	QATAR
	NIGERIA	SAUDI ARABIA
	SENEGAL	SUDAN
	SOUTH AFRICA	SYRIA
	ZAMBIA	TURKEY
BELGIUM	BURMA	ARGENTINA
DENMARK	CAMBODIA	BRAZIL
ENGLAND	CHINA	CANADA
FINLAND	INDIA	CHILE
FRANCE	INDONESIA	COLOMBIA
GERMANY	JAPAN	COSTA RICA
GREECE	LAOS	CUBA
GREENLAND	MADAGASCAR	ECUADOR
HOLLAND	MALAYSIA	EL SALVADOR
ICELAND	NEPAL	GUATEMALA
IRELAND	PAKISTAN	GUYANA
ITALY	PHILIPPINES	HAITI
PORTUGAL	TAIWAN	HONDURAS
SCOTLAND	THAILAND	JAMAICA
SPAIN	TIBET	MEXICO
SWEDEN		NICARAGUA
SWITZERLAND		PANAMA
WALES		PERU
		UNITED STATES
		URUGUAY
		VENEZUELA

Table A40

S5: Stimulus Sorting of SEA CREATURES

CLAM	DOLPHIN	BASS	ANEMONE
LOBSTER	MANATEE	FLOUNDER	BARNACLE
MUSSEL	PORPOISE	HADDOCK	CORAL
OYSTER	SEA TURTLE	HALIBUT	CRAB
SNAIL	SEAL	HERRING	ELECTRIC EEL
	WALRUS	SALMON	JELLY FISH
	WHALE	SARDINE	LAMPREY
		TUNA	MANTA RAY
			MORAY EEL
			NAUTILUS
			OCTOPUS
			PILOT FISH
			PUFFER FISH
			SAIL FISH
			SCALLOP
			SEA URCHIN
			SEA CUCUMBER
			SHARK
			SHRIMP
			SPONGE
			SQUID
			STING RAY
			STURGEON
			SWORD FISH

Table A41

S6: Stimulus Sorting of MAMMALS

+GIRAFFE	CAMEL	DINGO	ELEPHANT
+GNU	HORSE	MINK	HIPPO
+HUMAN	MULE	RACCOON	MUSKRAT
	ZEBRA	SQUIRREL	OTTER
			PLATYPUS
			RHINO
			WATER BUFFALO
BABOON	AARDVARK	CHIMP	CHEETAH
BISON	BEAR	CHINCHILLA	ELK
GORILLA	BEAVER	COYOTE	GAZELLE
LION	COW	FERRET	JAGUAR
MOOSE	DEER	GERBIL	KANGAROO
ORANGUTAN	DOG	GUINEA PIG	LEOPARD
TIGER	GOAT	HAMSTER	PANTHER
YAK	LLAMA	HARE	
	OPOSSUM	LEMUR	
	SHEEP	LYNX	
	WILD BOAR	MOUSE	
		PIG	
		PRAIRIE DOG	
		RABBIT	
		SKUNK	
		WOLF	

Note. + = miscellaneous mammals.

Table A42

S6: Stimulus Sorting of STATES

+ALASKA	KANSAS	ILLINOIS	CONNECTICUT
+FLORIDA	MINNESOTA	INDIANA	MAINE
+GEORGIA	MISSOURI	IOWA	MASSACHUSETTS
+HAWAII	MONTANA	MICHIGAN	NEW HAMPSHIRE
+KENTUCKY	NEBRASKA	OHIO	RHODE ISLAND
+MARYLAND	OKLAHOMA	WISCONSIN	VERMONT
+TENNESSEE	WYOMING		
+TEXAS			
ARIZONA	ALABAMA	DELAWARE	CALIFORNIA
COLORADO	ARKANSAS	NEW YORK	IDAHO
NEVADA	LOUISIANA	NEW JERSEY	OREGON
NEW MEXICO	MISSISSIPPI	PENNSYLVANIA	WASHINGTON
UTAH			

Note. + = miscellaneous states.

Table A43

S6: Stimulus Sorting of BODY PARTS

+BACK	ANKLE	FINGER	COLON	BRAIN
+CHEST	ELBOW	HEEL	ESOPHAGUS	CHEEK
+NAVEL	KNEE	PALM	HEART	CHIN
	SHOULDER	THUMB	KIDNEY	EAR
	WRIST	TOE	LIVER	EYE
			PANCREAS	FACE
			RIB	FOREHEAD
			SPINE	MOUTH
			SPLEEN	NECK
			STOMACH	NOSE
				NOSTRIL
				THROAT
				TONGUE
				TOOTH

Note. + = miscellaneous body parts.

Table A44

S6: Stimulus Sorting of SPORTS

&AEROBICS	BOCCIE BALL	ARCHERY
&BADMINTON	CRICKET	BOXING
&BILLIARDS	CROQUET	DISCUS
&BOWLING	FOOTBALL	FENCING
&FRISBEE	GOLF	JAVELIN
&JUDO	HANDBALL	SHOT-PUT
&KARATE	HOCKEY	WEIGHTLIFTING
&PING-PONG	PADDLEBALL	WRESTLING
&POOL	POLO	
&ROLLER BLADING	RACQUETBALL	
&SKATEBOARDING	SQUASH	
	TENNIS	
	VOLLEYBALL	
BASEBALL	DIVING	CYCLING
BASKETBALL	ICE SKATING	ROLLER SKATING
LACROSSE	ROWING	RUNNING
RUGBY	SAILING	SKIING
SOCCER	SURFING	TOBOGGANING
SOFTBALL	SWIMMING	
	WATER POLO	

Note. & = not sports.

Table A45

S6: Stimulus Sorting of MUSICAL INSTRUMENTS

+BASS	BELLS	ACCORDION	BANJO	BUGLE
+BASSOON	CHIMES	HARMONICA	CELLO	CLARINET
+GLOCKENSPIEL	CYMBALS	HARPSICHORD	GUITAR	FLUTE
+XYLOPHONE	DRUMS	ORGAN	MANDOLIN	FRENCH HORN
	HARP	PIANO	OBOE	PICCOLO
	TAMBOURINE	RECORDER	UKELELE	SAXOPHONE
	TRIANGLE		VIOLA	TROMBONE
			VIOLIN	TRUMPET
				TUBA

Note. + = miscellaneous musical instruments.

Table A46

S6: Stimulus Sorting of AUTOMOBILES

+MORRIS	EAGLE	ACURA	ALFA-ROMEO	BUICK
+YUGO	ISUZU	GEO	AUDI	CADILLAC
	JEEP	HONDA	BMW	CHEVROLET
	SUZUKI	HYUNDAI	FIAT	CHRYSLER
		INFINITI	JAGUAR	DODGE
		LEXUS	LAMBORGHINI	FORD
		MAZDA	MASERATI	LINCOLN
		MERKUR	MERCEDES-	MERCURY
		MITSUBISHI	BENZ	OLDSMOBILE
		NISSAN	PEUGEOT	PLYMOUTH
		SUBARU	PORSCHE	PONTIAC
		TOYOTA	RENAULT	SATURN
			ROLLS ROYCE	STERLING
			SAAB	
			TRIUMPH	
			VOLKSWAGEN	
			VOLVO	

Note. + = miscellaneous automobiles.

Table A47

S6: Stimulus Sorting of COUNTRIES

+QATAR	CANADA CHINA MEXICO RUSSIA UNITED STATES	EGYPT ISRAEL JORDAN LEBANON SYRIA	BURMA INDIA NEPAL PAKISTAN SENEGAL	CUBA GREENLAND HAITI ICELAND JAMAICA
ALBANIA BELGIUM CZECHOSLOVAKIA DENMARK ENGLAND FINLAND FRANCE GERMANY GREECE HOLLAND IRELAND ITALY POLAND PORTUGAL SCOTLAND SPAIN SWEDEN SWITZERLAND UKRAINE WALES	COSTA RICA EL SALVADOR GUATEMALA HONDURAS MADAGASCAR NICARAGUA PANAMA	CAMBODIA INDONESIA JAPAN LAOS MALAYSIA PHILIPPINES TAIWAN THAILAND TIBET	ARGENTINA BRAZIL CHILE COLOMBIA ECUADOR GUYANA PERU URUGUAY VENEZUELA	ALGERIA ANGOLA ETHIOPIA LIBERIA MOROCCO NIGERIA SAUDI ARABIA SOUTH AFRICA SUDAN TURKEY ZAMBIA

Note. + = miscellaneous country.

Table A48

S6: Stimulus Sorting of SEA CREATURES

*ANEMONE	&NAUTILUS	ELECTRIC EEL	BARNACLE
*LAMPREY		MANATEE	CORAL
		MANTA RAY	SAIL FISH
		MORAY EEL	SEA TURTLE
		STING RAY	SEA CUCUMBER
			SEA URCHIN
			SPONGE
CLAM	DOLPHIN	BASS	
CRAB	OCTOPUS	FLOUNDER	
JELLY FISH	PILOT FISH	HADDOCK	
LOBSTER	PORPOISE	HALIBUT	
MUSSEL	SEAL	HERRING	
OYSTER	SHARK	PUFFER FISH	
SCALLOP	SQUID	SALMON	
SHRIMP	WALRUS	SARDINE	
SNAIL	WHALE	STURGEON	
		SWORD FISH	
		TUNA	

Note. * = does not recognize; & = not a sea creature.

Table A49

S7: Stimulus Sorting of MAMMALS

#AARDVARK	CHEETAH	BABOON	COYOTE
	JAGUAR	CHIMP	DINGO
	LEOPARD	GORILLA	DOG
	LION	HUMAN	WOLF
	LYNX	LEMUR	
	PANTHER	ORANGUTAN	
	TIGER		
BEAR	BEAVER	BISON	
ELEPHANT	CHINCHILLA	CAMEL	
HIPPO	FERRET	COW	
KANGAROO	GERBIL	DEER	
OPOSSUM	GUINEA PIG	ELK	
PLATYPUS	HAMSTER	GAZELLE	
RHINO	HARE	GIRAFFE	
	MINK	GNU	
	MOUSE	GOAT	
	MUSKRAT	HORSE	
	OTTER	LLAMA	
	PRAIRIE DOG	MOOSE	
	RABBIT	MULE	
	RACCOON	PIG	
	SKUNK	SHEEP	
	SQUIRREL	WATER BUFFALO	
		WILD BOAR	
		YAK	
		ZEBRA	

Note. # = not sure if item is a mammal.

Table A50

S7: Stimulus Sorting of STATES

ALASKA	ARIZONA	ALABAMA	CONNECTICUT	ARKANSAS
IDAHO	CALIFORNIA	FLORIDA	DELAWARE	COLORADO
MONTANA	HAWAII	GEORGIA	MAINE	ILLINOIS
OREGON	NEVADA	KENTUCKY	MARYLAND	INDIANA
WASHINGTON	NEW MEXICO	LOUISIANA	MASSACHUSETTS	IOWA
	TEXAS	MISSISSIPPI	NEW HAMPSHIRE	KANSAS
		TENNESSEE	NEW JERSEY	MICHIGAN
			NEW YORK	MINNESOTA
			PENNSYLVANIA	MISSOURI
			RHODE ISLAND	NEBRASKA
			VERMONT	OHIO
				OKLAHOMA
				UTAH
				WISCONSIN
				WYOMING

Table A51

S7: Stimulus Sorting of BODY PARTS

BRAIN	CHEEK	ANKLE	BACK
COLON	CHIN	ELBOW	CHEST
ESOPHAGUS	EAR	KNEE	FINGER
HEART	EYE	SHOULDER	HEEL
KIDNEY	FACE	WRIST	NAVEL
LIVER	FOREHEAD		NECK
PANCREAS	MOUTH		PALM
RIB	NOSE		THROAT
SPINE	NOSTRIL		THUMB
SPLEEN			TOE
STOMACH			
TONGUE			
TOOTH			

Table A52

S7: Stimulus Sorting of SPORTS

BASKETBALL	BADMINTON	HOCKEY	CYCLING
BOCCIE BALL	BASEBALL	ICE SKATING	ROLLER BLADING
BOWLING	BILLIARDS	SKIING	ROLLER SKATING
FOOTBALL	CRICKET	TOBOGGANING	SKATEBOARDING
HANDBALL	CROQUET		
RUGBY	GOLF		
SOCCER	LACROSSE		
VOLLEYBALL	PADDLEBALL		
	PING-PONG		
	POLO		
	POOL		
	SOFTBALL		
	TENNIS		
BOXING	ARCHERY	AEROBICS	DIVING
FENCING	DISCUS	RACQUETBALL	ROWING
JUDO	FRISBEE	RUNNING	SAILING
KARATE	JAVELIN	SQUASH	SURFING
WRESTLING	SHOT-PUT	WEIGHTLIFTING	SWIMMING
			WATER POLO

Table A53

S7: Stimulus Sorting of MUSICAL INSTRUMENTS

*GLOCKENSPIEL	BUGLE	BASSOON
	FRENCH HORN	CLARINET
	TROMBONE	FLUTE
	TRUMPET	HARMONICA
	TUBA	OBOE
		PICCOLO
		RECORDER
		SAXOPHONE
ACCORDION	BELLS	BANJO
ORGAN	CHIMES	BASS
PIANO	CYMBALS	CELLO
XYLOPHONE	DRUMS	GUITAR
	HARPSICHORD	HARP
	TAMBOURINE	MANDOLIN
	TRIANGLE	UKELELE
		VIOLA
		VIOLIN

Note. * = does not recognize.

Table A54

S7: Stimulus Sorting of AUTOMOBILES

BUICK	CHRYSLER	ALFA-ROMEO	HONDA	ACURA
CADILLAC	DODGE	AUDI	HYUNDAI	INFINITI
CHEVROLET	EAGLE	BMW	ISUZU	LEXUS
OLDSMOBILE	FORD	FIAT	MAZDA	MERKUR
PONTIAC	GEO	JAGUAR	MITSUBISHI	MORRIS
	JEEP	LAMBORGHINI	NISSAN	STERLING
	LINCOLN	MASERATI	SUBARU	TRIUMPH
	MERCURY	MERCEDES-	SUZUKI	
	PLYMOUTH	BENZ	TOYOTA	
	SATURN	PEUGEOT		
		PORSCHE		
		RENAULT		
		ROLLS ROYCE		
		SAAB		
		VOLKSWAGEN		
		VOLVO		
		YUGO		

Table A55

S7: Stimulus Sorting of COUNTRIES

BURMA	ALGERIA	ARGENTINA	ALBANIA
CAMBODIA	ANGOLA	BRAZIL	BELGIUM
CHINA	ETHIOPIA	CANADA	DENMARK
INDIA	GUYANA	CHILE	ENGLAND
INDONESIA	LIBERIA	COLOMBIA	FINLAND
LAOS	MOROCCO	COSTA RICA	FRANCE
MALAYSIA	NIGERIA	ECUADOR	GERMANY
NEPAL	SENEGAL	EL SALVADOR	GREECE
PAKISTAN	SOUTH AFRICA	GUATEMALA	HOLLAND
TAIWAN	SUDAN	HONDURAS	ITALY
THAILAND	ZAMBIA	MEXICO	PORTUGAL
TIBET		NICARAGUA	SCOTLAND
		PANAMA	SPAIN
		PERU	SWEDEN
		UNITED STATES	SWITZERLAND
		URUGUAY	WALES
		VENEZUELA	
CUBA	CZECHOSLOVAKIA	EGYPT	
GREENLAND	POLAND	ISRAEL	
HAITI	RUSSIA	JORDAN	
ICELAND	UKRAINE	LEBANON	
IRELAND		QATAR	
JAMAICA		SAUDI ARABIA	
JAPAN		SYRIA	
MADAGASCAR		TURKEY	
PHILIPPINES			

Table A56

S7: Stimulus Sorting of SEA CREATURES

+PILOT FISH	DOLPHIN	BASS	BARNACLE
+PUFFER FISH	MANATEE	ELECTRIC EEL	CORAL
+SHARK	PORPOISE	FLOUNDER	SEA CUCUMBER
	SEAL	HADDOCK	SEA URCHIN
	WALRUS	HALIBUT	
	WHALE	HERRING	
		LAMPREY	
		MANTA RAY	
		MORAY EEL	
		SAIL FISH	
		SALMON	
		SARDINE	
		STING RAY	
		STURGEON	
		SWORD FISH	
		TUNA	
CRAB	ANEMONE	CLAM	
LOBSTER	JELLY FISH	MUSSEL	
SEA TURTLE	OCTOPUS	NAUTILUS	
SHRIMP	SQUID	OYSTER	
		SCALLOP	
		SNAIL	

Note. + = miscellaneous sea creatures.

Table A57

S8: Stimulus Sorting of MAMMALS

#PLATYPUS	GNU	BABOON	COYOTE
	KANGAROO	CHIMP	DINGO
	LLAMA	GORILLA	DOG
	YAK	LEMUR	WOLF
		ORANGUTAN	
CHEETAH	BEAR	AARDVARK	
HUMAN	BISON	BEAVER	
JAGUAR	CAMEL	CHINCHILLA	
LEOPARD	COW	FERRET	
LION	DEER	GERBIL	
LYNX	ELEPHANT	GOAT	
PANTHER	ELK	GUINEA PIG	
TIGER	GAZELLE	HAMSTER	
WILD BOAR	GIRAFFE	HARE	
	HIPPO	MINK	
	HORSE	MOUSE	
	MOOSE	MUSKRAT	
	MULE	OPOSSUM	
	RHINO	OTTER	
	WATER BUFFALO	PIG	
	ZEBRA	PRAIRIE DOG	
		RABBIT	
		RACCOON	
		SHEEP	
		SKUNK	
		SQUIRREL	

Note. # = not sure if item is a mammal.

Table A58

S8: Stimulus Sorting of STATES

&DELAWARE	#MINNESOTA&	COLORADO MICHIGAN MONTANA WISCONSIN	ALASKA CALIFORNIA NEW MEXICO WASHINGTON
CONNECTICUT NEW JERSEY NEW YORK PENNSYLVANIA	MAINE MASSACHUSETTS NEW HAMPSHIRE RHODE ISLAND VERMONT	ALABAMA FLORIDA GEORGIA HAWAII KANSAS KENTUCKY LOUISIANA MARYLAND MISSISSIPPI TENNESSEE TEXAS	ARIZONA ARKANSAS IDAHO ILLINOIS INDIANA IOWA MISSOURI NEBRASKA NEVADA OHIO OKLAHOMA OREGON UTAH WYOMING

Note. & = not a state; # = not sure if item is a state.

Table A59

S8: Stimulus Sorting of STATES

ANKLE HEEL KNEE TOE	ELBOW FINGER PALM SHOULDER THUMB WRIST	BRAIN CHEEK CHIN EAR EYE FACE FOREHEAD MOUTH NECK NOSE NOSTRIL TONGUE TOOTH	BACK CHEST COLON ESOPHAGUS HEART KIDNEY LIVER NAVEL PANCREAS RIB SPINE SPLEEN STOMACH THROAT

Table A60

S8: Stimulus Sorting of SPORTS

&AEROBICS	#ROLLER	+CYCLING	HOCKEY	ROWING
&DIVING	BLADING	+FENCING	ICE SKATING	SAILING
		+FRISBEE	SKIING	SURFING
		+ROLLER SKATING	TOBOGGANING	SWIMMING
		+RUNNING		WATER
		+SKATEBOARDING		POLO
		+WEIGHTLIFTING		
BOXING	BASKETBALL	ARCHERY	BADMINTON	
JUDO	FOOTBALL	BILLIARDS	BASEBALL	
KARATE	HANDBALL	BOCCIE BALL	CRICKET	
LACROSSE	POLO	BOWLING	CROQUET	
RUGBY	SOCCER	DISCUS	PADDLEBALL	
WRESTLING	VOLLEYBALL	GOLF	PING-PONG	
		JAVELIN	RACQUETBALL	
		POOL	SOFTBALL	
		SHOT-PUT	SQUASH	
			TENNIS	

Note. & = not a sport; # = not sure if item is a sport; + = miscellaneous sports.

Table A61

S8: Stimulus Sorting of MUSICAL INSTRUMENTS

+CYMBALS	ACCORDION	BELLS
+DRUMS	HARPSICHORD	CHIMES
+TAMBOURINE	ORGAN	GLOCKENSPIEL
	PIANO	TRIANGLE
		XYLOPHONE
BUGLE	BASS	BANJO
FRENCH HORN	BASSOON	CELLO
SAXOPHONE	CLARINET	GUITAR
TROMBONE	FLUTE	HARP
TRUMPET	HARMONICA	MANDOLIN
TUBA	OBOE	UKELELE
	PICCOLO	VIOLA
	RECORDER	VIOLIN

Note. + = miscellaneous musical instruments.

Table A62

S8: Stimulus Sorting of AUTOMOBILES

+SATURN	ALFA-ROMEO	CHRYSLER	JAGUAR
+FORD	FIAT	DODGE	LAMBORGHINI
+LINCOLN	PEUGEOT	EAGLE	MASERATI
+MERCURY	RENAULT	JEEP	MERCEDES-BENZ
+MERKUR	TRIUMPH	PLYMOUTH	PORSCHE
	YUGO		ROLLS ROYCE
BUICK	AUDI	ACURA	
CADILLAC	BMW	HONDA	
CHEVROLET	MORRIS	HYUNDAI	
GEO	SAAB	INFINITI	
OLDSMOBILE	STERLING	ISUZU	
PONTIAC	VOLKSWAGEN	LEXUS	
	VOLVO	MAZDA	
		MITSUBISHI	
		NISSAN	
		SUBARU	
		SUZUKI	
		TOYOTA	

Note. + = miscellaneous automobiles.

Table A63

S8: Stimulus Sorting of COUNTRIES

*QATAR	#ANGOLA	HAITI	CANADA
	#LEBANON	JAMAICA	GREENLAND
		MOROCCO	ICELAND
		TURKEY	UNITED STATES
ALGERIA	BURMA	BELGIUM	ARGENTINA
ETHIOPIA	CAMBODIA	ENGLAND	BRAZIL
LIBERIA	CHINA	FRANCE	CHILE
MADAGASCAR	INDIA	GERMANY	COLOMBIA
NIGERIA	INDONESIA	GREECE	COSTA RICA
SENEGAL	JAPAN	IRELAND	CUBA
SOUTH AFRICA	LAOS	ITALY	ECUADOR
SUDAN	MALAYSIA	SCOTLAND	EL SALVADOR
ZAMBIA	NEPAL	WALES	GUATEMALA
	PAKISTAN		GUYANA
	PHILIPPINES		HONDURAS
	TAIWAN		MEXICO
	THAILAND		NICARAGUA
	TIBET		PANAMA
			PERU
			PORTUGAL
			SPAIN
			URUGUAY
			VENEZUELA
EGYPT	DENMARK	ALBANIA	
ISRAEL	FINLAND	CZECHOSLOVAKIA	
JORDAN	HOLLAND	POLAND	
SAUDI ARABIA	SWEDEN	RUSSIA	
SYRIA	SWITZERLAND	UKRAINE	

Note. * = does not recognize item. # = not sure if item is a country.

Table A64

S8: Stimulus Sorting of SEA CREATURES

&LAMPREY	ELECTRIC EEL	BASS	HERRING
&SEAL	MANTA RAY	FLOUNDER	PILOT FISH
&WALRUS	MORAY EEL	OCTOPUS	PUFFER FISH
	STING RAY	SALMON	SARDINE
MANATEE	ANEMONE	CLAM	DOLPHIN
PORPOISE	BARNACLE	CRAB	HADDOCK
SEA TURTLE	CORAL	LOBSTER	HALIBUT
WHALE	JELLY FISH	MUSSEL	SAIL FISH
	NAUTILUS	OYSTER	SHARK
	SEA CUCUMBER	SCALLOP	STURGEON
	SEA URCHIN	SHRIMP	SWORD FISH
	SPONGE	SNAIL	TUNA
		SQUID	

Note. & = not a sea creature.

Table A65

S9: Stimulus Sorting of MAMMALS

+AARDVARK	CHEETAH	COW	COYOTE
+HUMAN	JAGUAR	GOAT	DINGO
+PLATYPUS	LEOPARD	HORSE	DOG
	LYNX	MULE	WOLF
	PANTHER	PIG	
		SHEEP	
CAMEL	BEAVER	BABOON	
DEER	CHINCHILLA	BEAR	
ELK	FERRET	BISON	
GAZELLE	GERBIL	CHIMP	
GNU	GUINEA PIG	ELEPHANT	
LLAMA	HAMSTER	GIRAFFE	
MOOSE	HARE	GORILLA	
WATER BUFFALO	LEMUR	HIPPO	
YAK	MINK	KANGAROO	
	MOUSE	LION	
	MUSKRAT	ORANGUTAN	
	OPOSSUM	RHINO	
	OTTER	TIGER	
	PRAIRIE DOG	WILD BOAR	
	RABBIT	ZEBRA	
	RACCOON		
	SKUNK		
	SQUIRREL		

Note. + = miscellaneous mammals.

Table A66

S9: Stimulus Sorting of STATES

+ALASKA	CONNECTICUT	MONTANA	ILLINOIS
+HAWAII	DELAWARE	OREGON	INDIANA
+IDAHO	FLORIDA	WASHINGTON	MICHIGAN
+IOWA	MARYLAND	WYOMING	MISSOURI
+KANSAS	NEW JERSEY		NEBRASKA
+MINNESOTA	NEW YORK		OHIO
+OKLAHOMA	PENNSYLVANIA		WISCONSIN
	RHODE ISLAND		
ARIZONA	MAINE	ALABAMA	ARKANSAS
CALIFORNIA	MASSACHUSETTS	GEORGIA	LOUISIANA
COLORADO	NEW HAMPSHIRE	KENTUCKY	TEXAS
NEVADA	VERMONT	MISSISSIPPI	UTAH
NEW MEXICO		TENNESSEE	

Note. + = miscellaneous states.

Table A67

S9: Stimulus Sorting of BODY PARTS

+NAVEL	COLON	BRAIN	ANKLE
	ESOPHAGUS	HEART	HEEL
	KIDNEY	LIVER	KNEE
	SPLEEN	PANCREAS	TOE
	STOMACH		
CHEEK	ELBOW	BACK	
CHIN	FINGER	CHEST	
EAR	PALM	RIB	
EYE	THUMB	SHOULDER	
FACE	WRIST	SPINE	
FOREHEAD			
MOUTH			
NECK			
NOSE			
NOSTRIL			
THROAT			
TONGUE			
TOOTH			

Note. + = miscellaneous body part.

Table A68

S9: Stimulus Sorting of SPORTS

DIVING	BOXING	ICE SKATING	AEROBICS
ROWING	JUDO	ROLLER BLADING	CYCLING
SAILING	KARATE	ROLLER SKATING	RUNNING
SURFING	WRESTLING	SKATE BOARDING	SWIMMING
WATER POLO			
BOCCIE BALL	ARCHERY	BILLIARDS	BADMINTON
GOLF	DISCUS	BOWLING	BASEBALL
HANDBALL	FENCING	CROQUET	BASKETBALL
PADDLEBALL	JAVELIN	FRISBEE	CRICKET
RACQUETBALL	SHOT-PUT	PING-PONG	FOOTBALL
SOFTBALL	SKIING	POOL	HOCKEY
SQUASH	TOBOGGANING		LACROSSE
TENNIS	WEIGHTLIFTING		POLO
			RUGBY
			SOCCER
			VOLLEYBALL

Table A69

S9: Stimulus Sorting of MUSICAL INSTRUMENTS

BANJO	ACCORDION	BASS	BELLS
GUITAR	HARPSICHORD	BASSOON	CHIMES
HARP	ORGAN	BUGLE	CYMBALS
MANDOLIN	PIANO	CELLO	DRUMS
UKELELE		CLARINET	GLOCKENSPIEL
VIOLIN		FLUTE	TAMBOURINE
		FRENCH HORN	TRIANGLE
		HARMONICA	XYLOPHONE
		OBOE	
		PICCOLO	
		RECORDER	
		SAXOPHONE	
		TROMBONE	
		TRUMPET	
		TUBA	
		VIOLA	

Table A70

S9: Stimulus Sorting of AUTOMOBILES

+EAGLE	ALFA-ROMEO	BUICK	AUDI	ACURA
+GEO	BMW	CADILLAC	FIAT	HONDA
+INFINITI	JAGUAR	CHEVROLET	MAZDA	HYUNDAI
+JEEP	LAMBORGHINI	CHRYSLER	PEUGEOT	ISUZU
+MERKUR	MASERATI	DODGE	RENAULT	LEXUS
+MORRIS	MERCEDES-	FORD	SAAB	MITSUBISHI
+SATURN	BENZ	LINCOLN	VOLKSWAGEN	NISSAN
+STERLING	PORSCHE	MERCURY	VOLVO	SUBARU
+TRIUMPH	ROLLS ROYCE	OLDSMOBILE	YUGO	SUZUKI
		PLYMOUTH		TOYOTA
		PONTIAC		

Note. + = miscellaneous automobiles.

Table A71

S9: Stimulus Sorting of COUNTRIES

EGYPT	ALGERIA	BURMA	ARGENTINA	ALBANIA
ISRAEL	ANGOLA	CAMBODIA	BRAZIL	BELGIUM
JORDAN	ETHIOPIA	CHINA	CANADA	CZECHOSLOVAKIA
LEBANON	GUYANA	INDIA	CHILE	DENMARK
QATAR	LIBERIA	INDONESIA	COLOMBIA	ENGLAND
SAUDI	MADAGASCAR	JAPAN	COSTA RICA	FINLAND
ARABIA	MOROCCO	LAOS	CUBA	FRANCE
SYRIA	NIGERIA	MALAYSIA	ECUADOR	GERMANY
	SENEGAL	NEPAL	EL SALVADOR	GREECE
	SOUTH AFRICA	PAKISTAN	GUATEMALA	GREENLAND
	SUDAN	PHILIPPINES	HAITI	HOLLAND
	ZAMBIA	TAIWAN	HONDURAS	IRELAND
		THAILAND	ICELAND	ITALY
		TIBET	JAMAICA	POLAND
			MEXICO	PORTUGAL
			NICARAGUA	RUSSIA
			PANAMA	SCOTLAND
			PERU	SPAIN
			UNITED	SWEDEN
			STATES	SWITZERLAND
			URUGUAY	TURKEY
			VENEZUELA	UKRAINE
				WALES

Table A72

S9: Stimulus Sorting of SEA CREATURES

MANATEE	DOLPHIN	ANEMONE
PORPOISE	FLOUNDER	BARNACLE
SEAL	SAIL FISH	CORAL
WALRUS	SHARK	SEA CUCUMBER
WHALE	SWORD FISH	SEA URCHIN
	TUNA	SPONGE
ELECTRIC EEL	CLAM	BASS
JELLY FISH	CRAB	HADDOCK
LAMPREY	LOBSTER	HALIBUT
MANTA RAY	MUSSEL	HERRING
MORAY EEL	OYSTER	PILOT FISH
NAUTILUS	SCALLOP	PUFFER FISH
OCTOPUS	SEA TURTLE	SALMON
SQUID	SHRIMP	SARDINE
STING RAY	SNAIL	STURGEON

Table A73

S10: Stimulus Sorting of MAMMALS

HIPPO	COYOTE	BABOON	COW
OTTER	DINGO	CHIMP	GOAT
PLATYPUS	DOG	GORILLA	HORSE
WATER BUFFALO	PRAIRIE DOG	LEMUR	HUMAN
	WOLF	ORANGUTAN	PIG
			SHEEP
AARDVARK	CHEETAH	BEAR	DEER
BEAVER	JAGUAR	BISON	ELK
CHINCHILLA	LEOPARD	CAMEL	GAZELLE
FERRET	LION	ELEPHANT	GNU
GERBIL	LYNX	GIRAFFE	LLAMA
GUINEA PIG	PANTHER	KANGAROO	MOOSE
HAMSTER	TIGER	MULE	YAK
HARE		WILD BOAR	
MINK		ZEBRA	
MOUSE			
MUSKRAT			
OPOSSUM			
RABBIT			
RACCOON			
SKUNK			
SQUIRREL			

Table A74

S10: Stimulus Sorting of STATES

ALASKA	COLORADO	CONNECTICUT	ARKANSAS
ARIZONA	IDAHO	DELAWARE	ILLINOIS
CALIFORNIA	MINNESOTA	FLORIDA	INDIANA
HAWAII	MONTANA	GEORGIA	IOWA
NEVADA	NEBRASKA	MAINE	KANSAS
NEW MEXICO	WISCONSIN	MARYLAND	LOUISIANA
OREGON		MASSACHUSETTS	MICHIGAN
UTAH		NEW JERSEY	OHIO
WASHINGTON		NEW HAMPSHIRE	OKLAHOMA
WYOMING		NEW YORK	TEXAS
		PENNSYLVANIA	
		RHODE ISLAND	
		VERMONT	
ALABAMA			
KENTUCKY			
MISSISSIPPI			
MISSOURI			
TENNESSEE			

Table A75

S10: Stimulus Sorting of BODY PARTS

CHEEK	BACK	ESOPHAGUS	ANKLE	ELBOW	BRAIN
CHIN	CHEST	MOUTH	HEEL	FINGER	COLON
EAR	NAVEL	THROAT	KNEE	PALM	HEART
EYE	NECK	TONGUE	TOE	THUMB	KIDNEY
FACE	RIB	TOOTH		WRIST	LIVER
FOREHEAD	SHOULDER				PANCREAS
NOSE	SPINE				SPLEEN
NOSTRIL					STOMACH

Table A76

S10: Stimulus Sorting of SPORTS

CYCLING	HOCKEY	ARCHERY	DIVING
ROLLER BLADING	ICE SKATING	DISCUS	ROWING
ROLLER SKATING	SKIING	FRISBEE	SAILING
SKATEBOARDING	TOBOGGANING	JAVELIN	SURFING
		SHOT-PUT	SWIMMING
			WATER POLO

AEROBICS	BADMINTON
BOXING	BASEBALL
FENCING	BASKETBALL
JUDO	BILLIARDS
KARATE	BOCCIE BALL
RUNNING	BOWLING
WEIGHTLIFTING	CRICKET
WRESTLING	CROQUET
	FOOTBALL
	GOLF
	HANDBALL
	LACROSSE
	PADDLEBALL
	PING-PONG
	POLO
	POOL
	RACQUETBALL
	RUGBY
	SOCCER
	SOFTBALL
	SQUASH
	TENNIS
	VOLLEYBALL

Table A77

S10: Stimulus Sorting of MUSICAL INSTRUMENTS

ACCORDION	CLARINET	BELLS	BASSOON	BANJO
GLOCKENSPIEL	FLUTE	CHIMES	BUGLE	BASS
HARPSICHORD	HARMONICA	CYMBALS	FRENCH HORN	CELLO
ORGAN	OBOE	DRUMS	SAXOPHONE	GUITAR
PIANO	PICCOLO	TAMBOURINE	TROMBONE	HARP
	RECORDER	TRIANGLE	TRUMPET	MANDOLIN
		XYLOPHONE	TUBA	UKELELE
				VIOLA
				VIOLIN

Table A78

S10: Stimulus Sorting of AUTOMOBILES

JAGUAR	AUDI	ALFA ROMEO	ACURA
MORRIS	MERKUR	BMW	HONDA
ROLLS ROYCE	SAAB	FIAT	HYUNDAI
STERLING	SUBARU	LAMBORGHINI	INFINITI
	VOLVO	MASERATI	ISUZU
	YUGO	MERCEDES-BENZ	MAZDA
		PEUGEOT	MITSUBISHI
		PORSCHE	NISSAN
		RENAULT	SUZUKI
		VOLKSWAGEN	TOYOTA

BUICK
CADILLAC
CHEVROLET
CHRYSLER
DODGE
EAGLE
FORD
GEO
JEEP
LEXUS
LINCOLN
MERCURY
OLDSMOBILE
PLYMOUTH
PONTIAC
SATURN
TRIUMPH

Table A79

S10: Stimulus Sorting of COUNTRIES

PHILIPPINES	ALBANIA	CAMBODIA	EGYPT
	CZECHOSLOVAKIA	CHINA	ISRAEL
	POLAND	JAPAN	JORDAN
	RUSSIA	LAOS	LEBANON
	UKRAINE	TAIWAN	SYRIA
ARGENTINA	BELGIUM	ALGERIA	BURMA
BRAZIL	DENMARK	ANGOLA	INDIA
CANADA	ENGLAND	ETHIOPIA	INDONESIA
CHILE	FINLAND	GUYANA	MALAYSIA
COLOMBIA	FRANCE	LIBERIA	NEPAL
COSTA RICA	GERMANY	MADAGASCAR	PAKISTAN
CUBA	GREECE	MOROCCO	THAILAND
ECUADOR	GREENLAND	NIGERIA	TIBET
EL SALVADOR	HOLLAND	QATAR	
GUATEMALA	ICELAND	SAUDI ARABIA	
HAITI	IRELAND	SENEGAL	
HONDURAS	ITALY	SOUTH AFRICA	
JAMAICA	PORTUGAL	SUDAN	
MEXICO	SCOTLAND	ZAMBIA	
NICARAGUA	SPAIN		
PANAMA	SWEDEN		
PERU	SWITZERLAND		
UNITED STATES	TURKEY		
URUGUAY	WALES		
VENEZUELA			

Table A80

S10: Stimulus Sorting of SEA CREATURES

BASS	CLAM	ELECTRIC EEL	CRAB
FLOUNDER	MUSSEL	JELLY FISH	LOBSTER
HADDOCK	NAUTILUS	LAMPREY	OCTOPUS
HALIBUT	OYSTER	MANTA RAY	SCALLOP
HERRING	SNAIL	MORAY EEL	SHRIMP
PILOT FISH		SEA URCHIN	SQUID
PUFFER FISH		SEA CUCUMBER	
SAIL FISH		STING RAY	
SALMON			
SARDINE			
SHARK			
STURGEON			
SWORD FISH			
TUNA			
DOLPHIN	ANEMONE		
MANATEE	BARNACLE		
PORPOISE	CORAL		
SEA TURTLE	SPONGE		
SEAL			
WALRUS			

Table A81

S11: Stimulus Sorting of MAMMALS

#DINGO	CHEETAH	BABOON	CAMEL	BEAVER
	JAGUAR	CHIMP	DEER	CHINCHILLA
	LEMUR	GORILLA	ELK	HARE
	LEOPARD	HUMAN	GAZELLE	MINK
	LYNX	ORANGUTAN	KANGAROO	MOUSE
	PANTHER		LLAMA	OPOSSUM
	TIGER			RABBIT
				RACCOON
				SKUNK
				SQUIRREL
AARDVARK	BISON	COW	DOG	
BEAR	ELEPHANT	GOAT	GERBIL	
COYOTE	GIRAFFE	PIG	GUINEA PIG	
FERRET	HIPPO	SHEEP	HAMSTER	
GNU	LION			
HORSE	RHINO			
MOOSE				
MULE				
MUSKRAT				
OTTER				
PLATYPUS				
PRAIRIE DOG				
WATER BUFFALO				
WILD BOAR				
WOLF				
YAK				
ZEBRA				

Note. # = not sure if item is a mammal.

Table A82

S11: Stimulus Sorting of STATES

ARKANSAS	ARIZONA	ILLINOIS	CONNECTICUT
DELAWARE	CALIFORNIA	INDIANA	MAINE
HAWAII	COLORADO	IOWA	MASSACHUSETTS
MARYLAND	NEVADA	KANSAS	NEW HAMPSHIRE
MISSISSIPPI	NEW MEXICO	KENTUCKY	NEW JERSEY
MISSOURI	UTAH	NEBRASKA	NEW YORK
RHODE ISLAND	WYOMING	OHIO	PENNSYLVANIA
		TENNESSEE	VERMONT
ALABAMA	MICHIGAN	ALASKA	
FLORIDA	MINNESOTA	IDAHO	
GEORGIA	MONTANA	OREGON	
LOUISIANA	WISCONSIN	WASHINGTON	
OKLAHOMA			
TEXAS			

Table A83

S11: Stimulus Sorting of BODY PARTS

NAVEL	COLON	BRAIN	CHEEK	BACK	ANKLE
	ESOPHAGUS	HEART	CHIN	CHEST	ELBOW
	KIDNEY	LIVER	EAR	NECK	FINGER
	STOMACH	PANCREAS	EYE	RIB	HEEL
		SPLEEN	FACE	SHOULDER	KNEE
			FOREHEAD	SPINE	PALM
			MOUTH		THUMB
			NOSE		TOE
			NOSTRIL		WRIST
			THROAT		
			TONGUE		
			TOOTH		

Table A84

S11: Stimulus Sorting of SPORTS

&AEROBICS	ARCHERY	BADMINTON	BASKETBALL
&BOCCIE BALL	CROQUET	BASEBALL	BOWLING
&FRISBEE	CYCLING	BILLIARDS	FOOTBALL
&ICE SKATING	FENCING	CRICKET	HANDBALL
&ROLLER BLADING	HOCKEY	GOLF	SOCCER
&ROLLER SKATING	LACROSSE	PADDLEBALL	VOLLEYBALL
&SKATEBOARDING	POLO	PING-PONG	
&TOBOGGANING	RUGBY	POOL	
	RUNNING	RACQUETBALL	
	SKIING	SOFTBALL	
	WATER POLO	SQUASH	
		TENNIS	
DIVING	DISCUS	BOXING	
ROWING	JAVELIN	JUDO	
SAILING	SHOT-PUT	KARATE	
SURFING	WEIGHTLIFTING	WRESTLING	
SWIMMING			

Note. & = not sports.

Table A85

S11: Stimulus Sorting of MUSICAL INSTRUMENTS

+HARMONICA	BANJO	BASS	BUGLE
	GUITAR	CELLO	FRENCH HORN
	MANDOLIN	VIOLA	TROMBONE
	UKELELE	VIOLIN	TRUMPET
			TUBA
BASSOON	BELLS	ACCORDION	
CLARINET	CHIMES	HARP	
FLUTE	CYMBALS	HARPSICHORD	
OBOE	DRUMS	ORGAN	
PICCOLO	GLOCKENSPIEL	PIANO	
RECORDER	TAMBOURINE		
	TRIANGLE		
	XYLOPHONE		

Note. + = miscellaneous musical instrument.

Table A86

S11: Stimulus Sorting of AUTOMOBILES

GEO	ALFA-ROMEO	BUICK	ACURA	FIAT
ISUZU	AUDI	CHEVROLET	HONDA	HYUNDAI
MERKUR	BMW	CHRYSLER	MAZDA	PEUGEOT
MORRIS	CADILLAC	DODGE	MITSUBISHI	RENAULT
SAAB	INFINITI	EAGLE	NISSAN	TRIUMPH
STERLING	JAGUAR	FORD	SATURN	YUGO
SUBARU	LAMBORGHINI	JEEP	TOYOTA	
SUZUKI	LEXUS	MERCURY	VOLKSWAGEN	
	LINCOLN	OLDSMOBILE	VOLVO	
	MASERATI	PLYMOUTH		
	MERCEDES-BENZ	PONTIAC		
	PORSCHE			
	ROLLS ROYCE			

Table A87

S11: Stimulus Sorting of COUNTRIES

CANADA	ARGENTINA	BELGIUM	ANGOLA	ALGERIA
CHINA	BRAZIL	DENMARK	ETHIOPIA	EGYPT
COSTA RICA	CHILE	FRANCE	HAITI	ISRAEL
CZECHOSLOVAKIA	COLOMBIA	GERMANY	JAMAICA	JORDAN
FINLAND	CUBA	HOLLAND	LIBERIA	LEBANON
GREECE	ECUADOR	ITALY	NIGERIA	MOROCCO
GREENLAND	EL SALVADOR	PORTUGAL	SOUTH AFRICA	SAUDI
GUYANA	GUATEMALA	SPAIN	ZAMBIA	ARABIA
HONDURAS	MEXICO	SWITZERLAND		SUDAN
ICELAND	NICARAGUA			SYRIA
INDIA	PERU			
MADAGASCAR	URUGUAY			
NEPAL	VENEZUELA			
PAKISTAN				
PANAMA				
QATAR				
SENEGAL				
SWEDEN				
TAIWAN				
TIBET				
TURKEY				
UNITED STATES				
INDONESIA	BURMA	ALBANIA	ENGLAND	
JAPAN	CAMBODIA	POLAND	IRELAND	
MALAYSIA	LAOS	RUSSIA	SCOTLAND	
PHILIPPINES	THAILAND	UKRAINE	WALES	

Table A88

S11: Stimulus Sorting of SEA CREATURES

DOLPHIN	BASS	PILOT FISH	CLAM
PORPOISE	FLOUNDER	PUFFER FISH	MUSSEL
SEAL	HADDOCK	SAIL FISH	NAUTILUS
WALRUS	HALIBUT	SWORD FISH	OYSTER
WHALE	HERRING		SCALLOP
	SALMON		SNAIL
	SARDINE		
	TUNA		
CRAB	ELECTRIC EEL	ANEMONE	
LOBSTER	LAMPREY	BARNACLE	
OCTOPUS	MANATEE	CORAL	
SEA TURTLE	MANTA RAY	JELLY FISH	
SHARK	MORAY EEL	SEA CUCUMBER	
SHRIMP	STING RAY	SEA URCHIN	
SQUID		SPONGE	
STURGEON			

Table A89

S12: Stimulus Sorting of MAMMALS

&CHINCHILLA	#GNU	+AARDVARK	CHEETAH	BEAVER
&DINGO		+MINK	JAGUAR	BISON
&FERRET		+MUSKRAT	LEMUR	ELEPHANT
&GERBIL		+PLATYPUS	LEOPARD	ELK
&HAMSTER		+WILD BOAR	LION	GIRAFFE
&HARE			LYNX	MOOSE
&MOUSE			PANTHER	WATER
&OTTER			TIGER	BUFFALO
&RABBIT			ZEBRA	YAK
&RACCOON				
&SKUNK				
&SQUIRREL				
BABOON	BEAR	COYOTE	GUINEA PIG	COW
CHIMP	CAMEL	DOG	HIPPO	GOAT
GORILLA	DEER	PRAIRIE DOG	PIG	HORSE
HUMAN	GAZELLE	WOLF	RHINO	MULE
KANGAROO	LLAMA			SHEEP
OPOSSUM				
ORANGUTAN				

Note. & = not a mammal; # = not sure if item is a mammal; + = miscellaneous mammals.

Table A90

S12: Stimulus Sorting of STATES

ARIZONA	ALASKA	ARKANSAS	DELAWARE
MONTANA	CALIFORNIA	KANSAS	FLORIDA
NEVADA	HAWAII	MISSOURI	GEORGIA
NEW MEXICO	OREGON	NEBRASKA	MARYLAND
UTAH	WASHINGTON	TEXAS	NEW YORK
		WYOMING	NEW JERSEY
IDAHO	ALABAMA	CONNECTICUT	
ILLINOIS	COLORADO	MAINE	
INDIANA	KENTUCKY	MASSACHUSETTS	
IOWA	LOUISIANA	NEW HAMPSHIRE	
MICHIGAN	MISSISSIPPI	PENNSYLVANIA	
MINNESOTA	OKLAHOMA	RHODE ISLAND	
OHIO	TENNESSEE	VERMONT	
WISCONSIN			

Table A91

S12: Stimulus Sorting of BODY PARTS

+NAVEL	ANKLE	COLON	BACK
	HEEL	HEART	CHEST
	KNEE	LIVER	RIB
	TOE	PANCREAS	SHOULDER
		SPLEEN	SPINE
ELBOW	ESOPHAGUS	BRAIN	
FINGER	KIDNEY	CHEEK	
PALM	MOUTH	CHIN	
THUMB	NECK	EAR	
WRIST	STOMACH	EYE	
	THROAT	FACE	
	TONGUE	FOREHEAD	
	TOOTH	NOSE	
		NOSTRIL	

Note. + = miscellaneous body part.

Table A92

S12: Stimulus Sorting of SPORTS

+AEROBICS	BASKETBALL	BOXING	ARCHERY
+CYCLING	BILLIARDS	JUDO	BASEBALL
+ROLLER SKATING	BOCCIE BALL	KARATE	DISCUS
+ROLLER BLADING	BOWLING	POOL	FENCING
+RUNNING	FOOTBALL	WEIGHTLIFTING	JAVELIN
+SHOT-PUT	GOLF	WRESTLING	PADDLEBALL
+SKATEBOARDING	HANDBALL		SOFTBALL
	PING-PONG		TENNIS
	RACQUETBALL		
	SOCCER		
	VOLLEYBALL		
HOCKEY	DIVING	LACROSSE	BADMINTON
ICE SKATING	ROWING	POLO	CRICKET
SKIING	SAILING	RUGBY	CROQUET
TOBOGGANING	SURFING	WATER POLO	FRISBEE
	SWIMMING		SQUASH

Note. + = miscellaneous sports.

Table A93

S12: Stimulus Sorting of MUSICAL INSTRUMENTS

*BASS	&BASSOON	+DRUMS	FRENCH HORN
	&BUGLE		TROMBONE
	&GLOCKENSPIEL		TRUMPET
			TUBA
ACCORDION	BELLS	CLARINET	BANJO
ORGAN	CHIMES	FLUTE	CELLO
PIANO	CYMBALS	HARMONICA	GUITAR
XYLOPHONE	TAMBOURINE	OBOE	HARP
	TRIANGLE	PICCOLO	HARPSICHORD
		RECORDER	MANDOLIN
		SAXOPHONE	UKELELE
			VIOLA
			VIOLIN

Note. * = does not recognize; & = not a musical instrument; + = miscellaneous instruments.

Table A94

S12: Stimulus Sorting of AUTOMOBILES

&ALFA-ROMEO	#MASERATI	BMW	AUDI
&EAGLE	#SUZUKI	MERCEDES-BENZ	FIAT
&MERKUR	#TRIUMPH	VOLKSWAGEN	PEUGEOT
&MORRIS		VOLVO	PORSCHE
&STERLING			RENAULT
&YUGO			SAAB
			SUBARU
CADILLAC	ACURA	BUICK	
INFINITI	HONDA	CHEVROLET	
JAGUAR	HYUNDAI	CHRYSLER	
LAMBORGHINI	ISUZU	DODGE	
LEXUS	MAZDA	FORD	
LINCOLN	MITSUBISHI	GEO	
ROLLS ROYCE	NISSAN	JEEP	
	TOYOTA	MERCURY	
		OLDSMOBILE	
		PLYMOUTH	
		PONTIAC	
		SATURN	

Note. & = not an automobile; # = not sure if item is an automobile.

Table A95

S12: Stimulus Sorting of COUNTRIES

#QATAR	+CANADA +MEXICO +UNITED STATES	EGYPT ISRAEL JORDAN LEBANON SAUDI ARABIA SYRIA	CUBA GUATEMALA HAITI JAMAICA MADAGASCAR MALAYSIA PANAMA PHILIPPINES
ALBANIA BELGIUM CZECHOSLOVAKIA ENGLAND FRANCE GERMANY GREECE ITALY POLAND PORTUGAL RUSSIA SCOTLAND SPAIN UKRAINE WALES	BURMA CAMBODIA CHINA INDIA INDONESIA JAPAN LAOS NEPAL PAKISTAN TAIWAN THAILAND TIBET TURKEY	ALGERIA ANGOLA ETHIOPIA GUYANA LIBERIA MOROCCO NIGERIA SENEGAL SOUTH AFRICA SUDAN ZAMBIA	ARGENTINA BRAZIL CHILE COLOMBIA COSTA RICA ECUADOR EL SALVADOR HONDURAS NICARAGUA PERU URUGUAY VENEZUELA
DENMARK FINLAND GREENLAND HOLLAND ICELAND IRELAND SWEDEN SWITZERLAND			

Note. # = not sure if item is a country; + = miscellaneous countries.

Table A96

S12: Stimulus Sorting of SEA CREATURES

*MANATEE	#MANTA RAY	DOLPHIN	ANEMONE
*NAUTILUS		PORPOISE	BARNACLE
*PILOT FISH		SEAL	CORAL
*PUFFER FISH		WALRUS	JELLY FISH
*SAIL FISH		WHALE	SEA TURTLE
*SEA CUCUMBER			SEA URCHIN
*SPONGE			
ELECTRIC EEL	CLAM	BASS	
LAMPREY	CRAB	FLOUNDER	
MORAY EEL	LOBSTER	HADDOCK	
SHARK	MUSSEL	HALIBUT	
STING RAY	OCTOPUS	HERRING	
	OYSTER	SALMON	
	SCALLOP	SARDINE	
	SHRIMP	STURGEON	
	SNAIL	SWORDFISH	
	SQUID	TUNA	

Note. * = does not recognize; # = not sure if item is a sea creature.

Appendix B

Appendix B contains Tables B1 through B48. These tables contain the scores from all trials in sessions 2 through 5 for each subject. The scores are presented for the five scoring methods described in Method. Tables B1 through B4 contain the scores for S1, Tables B5 through B8 contain the scores for S2, etc. Each table displays the scores for one condition. Mean percent correct is calculated for trials 1, 2, 3, and 4 by session for each condition.

Table B1

Scores for DIFF-3-LONG for Subject S1 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	2	0	0	0	1	2	1	1	3	4	2	2	6	2	1	1	4	2	1	1	3
STATES	3	1	0	0	0	3	2	2	0	6	4	4	0	4	2	2	0	3	2	2	0
BODY PARTS	2	1	1	1	0	3	3	3	1	6	6	6	3	4	4	4	2	3	3	3	2
SPORTS	3	1	1	0	0	3	3	2	0	6	6	4	0	4	4	2	0	3	3	2	0
MUSICAL INSTR.	2	1	0	0	1	3	1	1	3	6	2	3	6	4	1	2	4	3	1	2	3
AUTOMOBILES	3	1	0	1	1	3	1	3	3	6	2	6	6	4	1	4	4	3	1	3	3
COUNTRIES	2	1	0	0	0	3	1	1	0	6	2	2	0	4	1	1	0	3	1	1	0
SEA CREATURES	3	0	0	0	0	2	2	1	2	4	4	2	4	2	2	1	2	2	2	1	2
Session 2 Mean		0.75	0.25	0.25	0.50	2.75	1.50	1.50	1.75	5.50	3.00	3.25	3.75	3.50	1.75	2.00	2.50	2.75	1.50	1.75	2.00
Session 3 Mean		0.75	0.25	0.25	0.25	2.75	2.00	2.00	1.25	5.50	4.00	4.00	2.50	3.50	2.25	2.25	1.50	2.75	2.00	2.00	1.25
Mean		0.75	0.25	0.25	0.38	2.75	1.75	1.75	1.50	5.50	3.50	3.63	3.13	3.50	2.00	2.13	2.00	2.75	1.75	1.88	1.63
Ses 2 Mn % Cor		75	25	25	50	92	50	50	58	92	50	54	63	88	44	50	63	92	50	58	67
Ses 3 Mn % Cor		75	25	25	25	92	67	67	42	92	67	67	42	88	56	56	38	92	67	67	42
Mean % Correct		75	25	25	38	92	58	58	50	92	58	61	52	88	50	53	50	92	58	63	54

Table B2

Scores for SAME-3-LONG for Subject S1 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	5	1	1	1	0	3	3	3	1	6	6	6	2	4	4	4	1	3	3	3	1
STATES	2	1	1	0	0	3	3	2	2	6	6	4	4	4	4	2	2	3	3	2	2
BODY PARTS	5	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
SPORTS	2	1	1	0	0	3	3	0	0	6	6	1	0	4	4	1	0	3	3	1	0
MUSICAL INSTR.	5	0	1	0	1	1	3	1	3	4	6	2	6	3	4	1	4	3	3	1	3
AUTOMOBILES	2	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
COUNTRIES	5	1	0	1	1	3	1	3	3	6	3	6	6	4	2	4	4	3	2	3	3
SEA CREATURES	2	1	1	0	0	3	3	1	2	6	6	2	4	4	4	2	2	3	3	2	2
Session 2 Mean		1.00	1.00	0.25	0.25	3.00	3.00	1.50	1.75	6.00	6.00	3.25	3.50	4.00	4.00	2.25	2.00	3.00	3.00	2.00	1.75
Session 5 Mean		0.75	0.75	0.75	0.75	2.50	2.50	2.50	2.50	5.50	5.25	5.00	5.00	3.75	3.50	3.25	3.25	3.00	2.75	2.50	2.50
Mean		0.88	0.88	0.50	0.50	2.75	2.75	2.00	2.13	5.75	5.63	4.13	4.25	3.88	3.75	2.75	2.63	3.00	2.88	2.25	2.13
Ses 2 Mn % Cor		100	100	25	25	100	100	50	58	100	100	54	58	100	100	56	50	100	100	67	58
Ses 5 Mn % Cor		75	75	75	75	83	83	83	83	92	88	83	83	94	88	81	81	100	92	83	83
Mean % Correct		88	88	50	50	92	92	67	71	96	94	69	71	97	94	69	66	100	96	75	71

Table B3

Scores for DIFF-3-SHORT for Subject S1 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	3	1	0	0	1	3	1	1	3	6	2	4	6	4	1	3	4	3	1	3	3
STATES	4	1	1	0	1	3	3	1	3	6	6	3	6	4	4	2	4	3	3	2	3
BODY PARTS	3	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
SPORTS	4	1	1	0	1	3	3	2	3	6	6	4	6	4	4	2	4	3	3	2	3
MUSICAL INSTR.	3	1	1	1	0	3	3	3	2	6	6	6	4	4	4	4	2	3	3	3	2
AUTOMOBILES	4	0	1	1	0	2	3	3	1	4	6	6	2	2	4	4	1	2	3	3	1
COUNTRIES	3	1	1	0	1	3	3	2	3	6	6	4	6	4	4	2	4	3	3	2	3
SEA CREATURES	4	1	0	0	1	3	2	2	3	6	4	4	6	4	2	2	4	3	2	2	3
Session 3 Mean		1.00	0.75	0.50	0.75	3.00	2.50	2.25	2.75	6.00	5.00	5.00	5.50	4.00	3.25	3.25	3.50	3.00	2.50	2.75	2.75
Session 4 Mean		0.75	0.75	0.25	0.75	2.75	2.75	2.00	2.50	5.50	5.50	4.25	5.00	3.50	3.50	2.50	3.25	2.75	2.75	2.25	2.50
Mean		0.88	0.75	0.38	0.75	2.88	2.63	2.13	2.63	5.75	5.25	4.63	5.25	3.75	3.38	2.88	3.38	2.88	2.63	2.50	2.63
Ses 3 Mn % Cor		100	75	50	75	100	83	75	92	100	83	83	92	100	81	81	88	100	83	92	92
Ses 4 Mn % Cor		75	75	25	75	92	92	67	83	92	92	71	83	88	88	63	81	92	92	75	83
Mean % Correct		88	75	38	75	96	88	71	88	96	88	77	88	94	85	72	85	96	88	83	88

Table B4

Scores for DIFF-4-SHORT for Subject S1 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	4	0	0	0	0	2	3	1	2	5	6	2	4	3	3	1	2	3	3	1	2
STATES	5	0	0	0	0	3	1	1	3	6	3	2	6	3	2	1	3	3	2	1	3
BODY PARTS	4	1	0	0	0	4	3	3	2	8	6	6	6	5	3	3	4	4	3	3	4
SPORTS	5	1	0	0	0	4	0	0	1	8	2	0	2	5	2	0	1	4	2	0	1
MUSICAL INSTR.	4	0	0	0	0	3	1	1	2	6	2	2	4	3	1	1	2	3	1	1	2
AUTOMOBILES	5	0	0	0	0	2	2	3	1	6	4	6	2	4	2	3	1	4	2	3	1
COUNTRIES	4	0	0	0	0	3	2	1	2	6	4	2	4	3	2	1	2	3	2	1	2
SEA CREATURES	5	1	0	0	0	4	0	2	2	8	2	4	4	5	2	2	2	4	2	2	2
Session 4 Mean		0.25	0.00	0.00	0.00	3.00	2.25	1.50	2.00	6.25	4.50	3.00	4.50	3.50	2.25	1.50	2.50	3.25	2.25	1.50	2.50
Session 5 Mean		0.50	0.00	0.00	0.00	3.25	0.75	1.50	1.75	7.00	2.75	3.00	3.50	4.25	2.00	1.50	1.75	3.75	2.00	1.50	1.75
Mean		0.38	0.00	0.00	0.00	3.13	1.50	1.50	1.88	6.63	3.63	3.00	4.00	3.88	2.13	1.50	2.13	3.50	2.13	1.50	2.13
Ses 4 Mn % Cor		25	0	0	0	75	56	38	50	78	56	38	56	70	45	30	50	81	56	38	63
Ses 5 Mn % Cor		50	0	0	0	81	19	38	44	88	34	38	44	85	40	30	35	94	50	38	44
Mean % Correct		38	0	0	0	78	38	38	47	83	45	38	50	78	43	30	43	88	53	38	53

Table B5

Scores for DIFF-3-LONG for Subject S2 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	2	1	1	1	0	3	3	3	2	6	6	6	4	4	4	4	2	3	3	3	2
STATES	3	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
BODY PARTS	2	1	0	1	0	3	2	3	1	6	4	6	2	4	2	4	1	3	2	3	1
SPORTS	3	1	0	1	1	3	1	3	3	6	2	6	6	4	1	4	4	3	1	3	3
MUSICAL INSTR.	2	1	0	0	1	3	1	1	3	6	2	3	6	4	1	2	4	3	1	2	3
AUTOMOBILES	3	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
COUNTRIES	2	1	0	1	1	3	2	3	3	6	4	6	6	4	2	4	4	3	2	3	3
SEA CREATURES	3	1	1	0	0	3	3	1	2	6	6	3	4	4	4	2	2	3	3	2	2
Session 2 Mean		1.00	0.25	0.75	0.50	3.00	2.00	2.50	2.25	6.00	4.00	5.25	4.50	4.00	2.25	3.50	2.75	3.00	2.00	2.75	2.25
Session 3 Mean		1.00	0.75	0.75	0.75	3.00	2.50	2.50	2.75	6.00	5.00	5.25	5.50	4.00	3.25	3.50	3.50	3.00	2.50	2.75	2.75
Mean		1.00	0.50	0.75	0.63	3.00	2.25	2.50	2.50	6.00	4.50	5.25	5.00	4.00	2.75	3.50	3.13	3.00	2.25	2.75	2.50
Ses 2 Mn % Cor		100	25	75	50	100	67	83	75	100	67	88	75	100	56	88	69	100	67	92	75
Ses 3 Mn % Cor		100	75	75	75	100	83	83	92	100	83	88	92	100	81	88	88	100	83	92	92
Mean % Correct		100	50	75	63	100	75	83	83	100	75	88	83	100	69	88	78	100	75	92	83

Table B6

Scores for SAME-3-LONG for Subject S2 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	5	1	1	0	1	3	3	2	3	6	6	4	6	4	4	2	4	3	3	2	3
STATES	2	1	0	1	0	3	1	3	1	6	3	6	3	4	2	4	2	3	2	3	2
BODY PARTS	5	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
SPORTS	2	0	1	1	0	2	3	3	2	4	6	6	4	2	4	4	2	2	3	3	2
MUSICAL INSTR.	5	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
AUTOMOBILES	2	1	0	0	1	3	1	1	3	6	3	4	6	4	2	3	4	3	2	3	3
COUNTRIES	5	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
SEA CREATURES	2	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
Session 2 Mean		0.75	0.50	0.75	0.50	2.75	2.00	2.50	2.25	5.50	4.50	5.50	4.75	3.50	3.00	3.75	3.00	2.75	2.50	3.00	2.50
Session 5 Mean		1.00	1.00	0.75	1.00	3.00	3.00	2.75	3.00	6.00	6.00	5.50	6.00	4.00	4.00	3.50	4.00	3.00	3.00	2.75	3.00
Mean		0.88	0.75	0.75	0.75	2.88	2.50	2.63	2.63	5.75	5.25	5.50	5.38	3.75	3.50	3.63	3.50	2.88	2.75	2.88	2.75
Ses 2 Mn % Cor		75	50	75	50	92	67	83	75	92	75	92	79	88	75	94	75	92	83	100	83
Ses 5 Mn % Cor		100	100	75	100	100	100	92	100	100	100	92	100	100	100	88	100	100	100	92	100
Mean % Correct		88	75	75	75	96	83	88	88	96	88	92	90	94	88	91	88	96	92	96	92

Table B7

Scores for DIFF-3-SHORT for Subject S2 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	3	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
STATES	4	1	1	0	0	3	3	2	2	6	6	4	4	4	4	2	2	3	3	2	2
BODY PARTS	3	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
SPORTS	4	1	1	0	1	3	3	2	3	6	6	4	6	4	4	2	4	3	3	2	3
MUSICAL INSTR.	3	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
AUTOMOBILES	4	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
COUNTRIES	3	1	1	0	1	3	3	2	3	6	6	4	6	4	4	2	4	3	3	2	3
SEA CREATURES	4	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
Session 3 Mean		1.00	1.00	0.75	1.00	3.00	3.00	2.75	3.00	6.00	6.00	5.50	6.00	4.00	4.00	3.50	4.00	3.00	3.00	2.75	3.00
Session 4 Mean		1.00	1.00	0.50	0.75	3.00	3.00	2.50	2.75	6.00	6.00	5.00	5.50	4.00	4.00	3.00	3.50	3.00	3.00	2.50	2.75
Mean		1.00	1.00	0.63	0.88	3.00	3.00	2.63	2.88	6.00	6.00	5.25	5.75	4.00	4.00	3.25	3.75	3.00	3.00	2.63	2.88
Ses 3 Mn % Cor		100	100	75	100	100	100	92	100	100	100	92	100	100	100	88	100	100	100	92	100
Ses 4 Mn % Cor		100	100	50	75	100	100	83	92	100	100	83	92	100	100	75	88	100	100	83	92
Mean % Correct		100	100	63	88	100	100	88	96	100	100	88	96	100	100	81	94	100	100	88	96

Table B8

Scores for DIFF-4-SHORT for Subject S2 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	4	1	0	0	1	4	3	2	4	8	6	6	8	5	3	4	5	4	3	4	4
STATES	5	0	1	1	1	3	4	4	4	6	8	8	8	3	5	5	5	3	4	4	4
BODY PARTS	4	1	1	1	0	4	4	4	3	8	8	8	6	5	5	5	3	4	4	4	3
SPORTS	5	1	1	1	0	4	4	4	1	8	8	8	2	5	5	5	1	4	4	4	1
MUSICAL INSTR.	4	1	1	0	0	4	4	3	2	8	8	6	4	5	5	3	2	4	4	3	2
AUTOMOBILES	5	1	0	1	0	4	2	4	0	8	4	8	0	5	2	5	0	4	2	4	0
COUNTRIES	4	1	0	0	0	4	1	2	3	8	2	4	6	5	2	2	3	4	2	2	3
SEA CREATURES	5	0	0	1	1	2	0	4	4	6	2	8	8	4	3	5	5	4	3	4	4
Session 4 Mean		1.00	0.50	0.25	0.25	4.00	3.00	2.75	3.00	8.00	6.00	6.00	6.00	5.00	3.75	3.50	3.25	4.00	3.25	3.25	3.00
Session 5 Mean		0.50	0.50	1.00	0.50	3.25	2.50	4.00	2.25	7.00	5.50	8.00	4.50	4.25	3.75	5.00	2.75	3.75	3.25	4.00	2.25
Mean		0.75	0.50	0.63	0.38	3.63	2.75	3.38	2.63	7.50	5.75	7.00	5.25	4.63	3.75	4.25	3.00	3.88	3.25	3.63	2.63
Ses 4 Mn % Cor		100	50	25	25	100	75	69	75	100	75	75	75	100	75	70	65	100	81	81	75
Ses 5 Mn % Cor		50	50	100	50	81	63	100	56	88	69	100	56	85	75	100	55	94	81	100	56
Mean % Correct		75	50	63	38	91	69	85	66	94	72	88	66	93	75	85	60	97	81	91	66

Table B9

Scores for DIFF-3-LONG for Subject S3 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	2	1	0	0	1	3	2	1	3	6	4	2	6	4	2	1	4	3	2	1	3
STATES	3	1	0	1	0	3	1	3	2	6	2	6	4	4	1	4	2	3	1	3	2
BODY PARTS	2	1	0	1	0	3	0	3	1	6	0	6	2	4	0	4	1	3	0	3	1
SPORTS	3	1	1	0	1	3	3	1	3	6	6	2	6	4	4	1	4	3	3	1	3
MUSICAL INSTR.	2	1	1	0	0	3	3	1	1	6	6	2	2	4	4	1	1	3	3	1	1
AUTOMOBILES	3	1	1	0	0	3	3	1	2	6	6	2	4	4	4	1	2	3	3	1	2
COUNTRIES	2	0	0	0	1	1	2	1	3	4	4	2	6	3	2	1	4	3	2	1	3
SEA CREATURES	3	1	0	0	0	3	1	1	1	6	2	2	2	4	1	1	1	3	1	1	1
Session 2 Mean		0.75	0.25	0.25	0.50	2.50	1.75	1.50	2.00	5.50	3.50	3.00	4.00	3.75	2.00	1.75	2.50	3.00	1.75	1.50	2.00
Session 3 Mean		1.00	0.50	0.25	0.25	3.00	2.00	1.50	2.00	6.00	4.00	3.00	4.00	4.00	2.50	1.75	2.25	3.00	2.00	1.50	2.00
Mean		0.88	0.38	0.25	0.38	2.75	1.88	1.50	2.00	5.75	3.75	3.00	4.00	3.88	2.25	1.75	2.38	3.00	1.88	1.50	2.00
Ses 2 Mn % Cor		75	25	25	50	83	58	50	67	92	58	50	67	94	50	44	63	100	58	50	67
Ses 3 Mn % Cor		100	50	25	25	100	67	50	67	100	67	50	67	100	63	44	56	100	67	50	67
Mean % Correct		88	38	25	38	92	63	50	67	96	63	50	67	97	56	44	60	100	63	50	67

Table B10

Scores for SAME-3-LONG for Subject S3 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	5	0	0	1	1	2	0	3	3	4	0	6	6	2	0	4	4	2	0	3	3
STATES	2	1	0	1	1	3	1	3	3	6	3	6	6	4	2	4	4	3	2	3	3
BODY PARTS	5	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
SPORTS	2	1	0	0	1	3	2	2	3	6	4	4	6	4	2	2	4	3	2	2	3
MUSICAL INSTR.	5	1	0	1	0	3	0	3	1	6	0	6	2	4	0	4	1	3	0	3	1
AUTOMOBILES	2	1	1	1	0	3	3	3	1	6	6	6	2	4	4	4	1	3	3	3	1
COUNTRIES	5	1	0	0	0	3	2	0	1	6	4	0	2	4	2	0	1	3	2	0	1
SEA CREATURES	2	1	0	1	0	3	1	3	0	6	2	6	0	4	1	4	0	3	1	3	0
Session 2 Mean		1.00	0.25	0.75	0.50	3.00	1.75	2.75	1.75	6.00	3.75	5.50	3.50	4.00	2.25	3.50	2.25	3.00	2.00	2.75	1.75
Session 5 Mean		0.75	0.25	0.75	0.50	2.75	1.25	2.25	2.00	5.50	2.50	4.50	4.00	3.50	1.50	3.00	2.50	2.75	1.25	2.25	2.00
Mean		0.88	0.25	0.75	0.50	2.88	1.50	2.50	1.88	5.75	3.13	5.00	3.75	3.75	1.88	3.25	2.38	2.88	1.63	2.50	1.88
Ses 2 Mn % Cor		100	25	75	50	100	58	92	58	100	63	92	58	100	56	88	56	100	67	92	58
Ses 5 Mn % Cor		75	25	75	50	92	42	75	67	92	42	75	67	88	38	75	63	92	42	75	67
Mean % Correct		88	25	75	50	96	50	83	63	96	52	83	63	94	47	81	60	96	54	83	63

Table B11

Scores for DIFF-3-SHORT for Subject S3 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	3	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
STATES	4	0	0	1	1	2	1	3	3	4	2	6	6	2	1	4	4	2	1	3	3
BODY PARTS	3	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
SPORTS	4	1	1	0	0	3	3	2	1	6	6	4	3	4	4	2	2	3	3	2	2
MUSICAL INSTR.	3	1	0	1	1	3	1	3	3	6	2	6	6	4	1	4	4	3	1	3	3
AUTOMOBILES	4	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
COUNTRIES	3	1	0	0	1	3	1	1	3	6	3	1	6	4	2	1	4	3	2	1	3
SEA CREATURES	4	1	0	0	0	3	1	2	1	6	2	4	4	4	1	2	3	3	1	2	3
Session 3 Mean		1.00	0.50	0.75	1.00	3.00	2.00	2.50	3.00	6.00	4.25	4.75	6.00	4.00	2.75	3.25	4.00	3.00	2.25	2.50	3.00
Session 4 Mean		0.75	0.50	0.50	0.50	2.75	2.00	2.50	2.00	5.50	4.00	5.00	4.75	3.50	2.50	3.00	3.25	2.75	2.00	2.50	2.75
Mean		0.88	0.50	0.63	0.75	2.88	2.00	2.50	2.50	5.75	4.13	4.88	5.38	3.75	2.63	3.13	3.63	2.88	2.13	2.50	2.88
Ses 3 Mn % Cor		100	50	75	100	100	67	83	100	100	71	79	100	100	69	81	100	100	75	83	100
Ses 4 Mn % Cor		75	50	50	50	92	67	83	67	92	67	83	79	88	63	75	81	92	67	83	92
Mean % Correct		88	50	63	75	96	67	83	83	96	69	81	90	94	66	78	91	96	71	83	96

Table B12

Scores for DIFF-4-SHORT for Subject S3 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	4	1	1	0	0	4	4	2	3	8	8	5	6	5	5	3	3	4	4	3	3
STATES	5	0	1	1	0	1	4	4	0	4	8	8	0	3	5	5	0	3	4	4	0
BODY PARTS	4	1	0	1	0	4	3	4	3	8	6	8	6	5	3	5	3	4	3	4	3
SPORTS	5	0	0	1	0	1	3	4	2	3	6	8	4	2	3	5	2	2	3	4	2
MUSICAL INSTR.	4	0	0	1	0	3	3	4	2	6	6	8	4	3	3	5	2	3	3	4	2
AUTOMOBILES	5	1	0	0	0	4	2	3	1	8	4	6	3	5	2	3	2	4	2	3	2
COUNTRIES	4	0	0	0	0	3	2	3	0	6	4	6	1	3	2	3	1	3	2	3	1
SEA CREATURES	5	0	1	0	0	2	4	3	1	5	8	6	2	3	5	3	1	3	4	3	1
Session 4 Mean		0.50	0.25	0.50	0.00	3.50	3.00	3.25	2.00	7.00	6.00	6.75	4.25	4.00	3.25	4.00	2.25	3.50	3.00	3.50	2.25
Session 5 Mean		0.25	0.50	0.50	0.00	2.00	3.25	3.50	1.00	5.00	6.50	7.00	2.25	3.25	3.75	4.00	1.25	3.00	3.25	3.50	1.25
Mean		0.38	0.38	0.50	0.00	2.75	3.13	3.38	1.50	6.00	6.25	6.88	3.25	3.63	3.50	4.00	1.75	3.25	3.13	3.50	1.75
Ses 4 Mn % Cor		50	25	50	0	88	75	81	50	88	75	84	53	80	65	80	45	88	75	88	56
Ses 5 Mn % Cor		25	50	50	0	50	81	88	25	63	81	88	28	65	75	80	25	75	81	88	31
Mean % Correct		38	38	50	0	69	78	85	38	75	78	86	41	73	70	80	35	81	78	88	44

Table B13

Scores for DIFF-3-LONG for Subject S4 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	2	1	0	1	1	3	1	3	3	6	2	6	6	4	1	4	4	3	1	3	3
STATES	3	1	1	0	1	3	3	0	3	6	6	0	6	4	4	0	4	3	3	0	3
BODY PARTS	2	1	0	1	1	3	1	3	3	6	3	6	6	4	2	4	4	3	2	3	3
SPORTS	3	1	0	0	0	3	2	2	0	6	4	4	0	4	2	2	0	3	2	2	0
MUSICAL INSTR.	2	1	0	0	1	3	1	1	3	6	2	1	6	4	1	1	4	3	1	1	3
AUTOMOBILES	3	1	1	0	1	3	3	2	3	6	6	4	6	4	4	2	4	3	3	2	3
COUNTRIES	2	1	1	0	0	3	3	2	2	6	6	4	4	4	4	2	2	3	3	2	2
SEA CREATURES	3	1	1	0	0	3	3	1	1	6	6	2	2	4	4	1	1	3	3	1	1
Session 2 Mean		1.00	0.25	0.50	0.75	3.00	1.50	2.25	2.75	6.00	3.25	4.25	5.50	4.00	2.00	2.75	3.50	3.00	1.75	2.25	2.75
Session 3 Mean		1.00	0.75	0.00	0.50	3.00	2.75	1.25	1.75	6.00	5.50	2.50	3.50	4.00	3.50	1.25	2.25	3.00	2.75	1.25	1.75
Mean		1.00	0.50	0.25	0.63	3.00	2.13	1.75	2.25	6.00	4.38	3.38	4.50	4.00	2.75	2.00	2.88	3.00	2.25	1.75	2.25
Ses 2 Mn % Cor		100	25	50	75	100	50	75	92	100	54	71	92	100	50	69	88	100	58	75	92
Ses 3 Mn % Cor		100	75	0	50	100	92	42	58	100	92	42	58	100	88	31	56	100	92	42	58
Mean % Correct		100	50	25	63	100	71	58	75	100	73	56	75	100	69	50	72	100	75	58	75

Table B14

Scores for SAME-3-LONG for Subject S4 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	5	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
STATES	2	1	0	1	1	3	0	3	3	6	2	6	6	4	2	4	4	3	2	3	3
BODY PARTS	5	1	1	1	0	3	3	3	2	6	6	6	4	4	4	4	2	3	3	3	2
SPORTS	2	1	0	1	0	3	0	3	1	6	3	6	2	4	3	4	1	3	3	3	1
MUSICAL INSTR.	5	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
AUTOMOBILES	2	1	0	0	1	3	2	0	3	6	4	0	6	4	2	0	4	3	2	0	3
COUNTRIES	5	1	1	0	0	3	3	1	2	6	6	4	4	4	4	3	2	3	3	3	2
SEA CREATURES	2	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
Session 2 Mean		1.00	0.25	0.75	0.75	3.00	1.25	2.25	2.50	6.00	3.75	4.50	5.00	4.00	2.75	3.00	3.25	3.00	2.50	2.25	2.50
Session 5 Mean		1.00	1.00	0.75	0.50	3.00	3.00	2.50	2.50	6.00	6.00	5.50	5.00	4.00	4.00	3.75	3.00	3.00	3.00	3.00	2.50
Mean		1.00	0.63	0.75	0.63	3.00	2.13	2.38	2.50	6.00	4.88	5.00	5.00	4.00	3.38	3.38	3.13	3.00	2.75	2.63	2.50
Ses 2 Mn % Cor		100	25	75	75	100	42	75	83	100	63	75	83	100	69	75	81	100	83	75	83
Ses 5 Mn % Cor		100	100	75	50	100	100	83	83	100	100	92	83	100	100	94	75	100	100	100	83
Mean % Correct		100	63	75	63	100	71	79	83	100	81	83	83	100	85	85	78	100	92	88	83

Table B16

Scores for DIFF-4-SHORT for Subject S4 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	4	1	1	0	0	4	4	2	3	8	8	4	6	5	5	2	3	4	4	2	3
STATES	5	1	0	0	0	4	2	2	3	8	4	4	6	5	2	2	3	4	2	2	3
BODY PARTS	4	1	1	1	0	4	4	4	3	8	8	8	6	5	5	5	4	4	4	4	4
SPORTS	5	1	0	1	0	4	3	4	1	8	6	8	3	5	3	5	2	4	3	4	2
MUSICAL INSTR.	4	1	0	0	0	4	2	3	2	8	6	6	4	5	4	3	2	4	4	3	2
AUTOMOBILES	5	1	0	0	0	4	3	1	1	8	6	3	2	5	3	2	1	4	3	2	1
COUNTRIES	4	0	0	0	0	1	3	2	3	3	6	4	6	2	3	2	3	2	3	2	3
SEA CREATURES	5	1	1	1	0	4	4	4	3	8	8	8	6	5	5	5	3	4	4	4	3
Session 4 Mean		0.75	0.50	0.25	0.00	3.25	3.25	2.75	2.75	6.75	7.00	5.50	5.50	4.25	4.25	3.00	3.00	3.50	3.75	2.75	3.00
Session 5 Mean		1.00	0.25	0.50	0.00	4.00	3.00	2.75	2.00	8.00	6.00	5.75	4.25	5.00	3.25	3.50	2.25	4.00	3.00	3.00	2.25
Mean		0.88	0.38	0.38	0.00	3.63	3.13	2.75	2.38	7.38	6.50	5.63	4.88	4.63	3.75	3.25	2.63	3.75	3.38	2.88	2.63
Ses 4 Mn % Cor		75	50	25	0	81	81	69	69	84	88	69	69	85	85	60	60	88	94	69	75
Ses 5 Mn % Cor		100	25	50	0	100	75	69	50	100	75	72	53	100	65	70	45	100	75	75	56
Mean % Correct		88	38	38	0	91	78	69	60	92	81	70	61	93	75	65	53	94	85	72	66

Table B15

Scores for DIFF-3-SHORT for Subject S4 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	3	0	1	0	1	2	3	2	3	4	6	4	6	2	4	2	4	2	3	2	3
STATES	4	1	1	0	1	3	3	2	3	6	6	4	6	4	4	2	4	3	3	2	3
BODY PARTS	3	1	1	0	1	3	3	2	3	6	6	4	6	4	4	2	4	3	3	2	3
SPORTS	4	0	1	1	1	2	3	3	3	4	6	6	6	2	4	4	4	2	3	3	3
MUSICAL INSTR.	3	1	1	1	0	3	3	3	0	6	6	6	1	4	4	4	1	3	3	3	1
AUTOMOBILES	4	1	0	1	1	3	1	3	3	6	2	6	6	4	1	4	4	3	1	3	3
COUNTRIES	3	0	1	1	0	2	3	3	2	4	6	6	4	2	4	4	2	2	3	3	2
SEA CREATURES	4	1	0	1	1	3	2	3	3	6	4	6	6	4	2	4	4	3	2	3	3
Session 3 Mean		0.50	1.00	0.50	0.50	2.50	3.00	2.50	2.00	5.00	6.00	5.00	4.25	3.00	4.00	3.00	2.75	2.50	3.00	2.50	2.25
Session 4 Mean		0.75	0.50	0.75	1.00	2.75	2.25	2.75	3.00	5.50	4.50	5.50	6.00	3.50	2.75	3.50	4.00	2.75	2.25	2.75	3.00
Mean		0.63	0.75	0.63	0.75	2.63	2.63	2.63	2.50	5.25	5.25	5.25	5.13	3.25	3.38	3.25	3.38	2.63	2.63	2.63	2.63
Ses 3 Mn % Cor		50	100	50	50	83	100	83	67	83	100	83	71	75	100	75	69	83	100	83	75
Ses 4 Mn % Cor		75	50	75	100	92	75	92	100	92	75	92	100	88	69	88	100	92	75	92	100
Mean % Correct		63	75	63	75	88	88	88	83	88	88	88	86	81	85	81	85	88	88	88	88

Table B17

Scores for DIFF-3-LONG for Subject S5 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	2	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
STATES	3	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
BODY PARTS	2	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
SPORTS	3	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
MUSICAL INSTR.	2	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
AUTOMOBILES	3	1	0	0	1	3	1	2	3	6	2	4	6	4	1	2	4	3	1	2	3
COUNTRIES	2	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
SEA CREATURES	3	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
Session 2 Mean		1.00	1.00	1.00	1.00	3.00	3.00	3.00	3.00	6.00	6.00	6.00	6.00	4.00	4.00	4.00	4.00	3.00	3.00	3.00	3.00
Session 3 Mean		1.00	0.75	0.75	1.00	3.00	2.50	2.75	3.00	6.00	5.00	5.50	6.00	4.00	3.25	3.50	4.00	3.00	2.50	2.75	3.00
Mean		1.00	0.88	0.88	1.00	3.00	2.75	2.88	3.00	6.00	5.50	5.75	6.00	4.00	3.63	3.75	4.00	3.00	2.75	2.88	3.00
Ses 2 Mn % Cor		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Ses 3 Mn % Cor		100	75	75	100	100	83	92	100	100	83	92	100	100	81	88	100	100	83	92	100
Mean % Correct		100	88	88	100	100	92	96	100	100	92	96	100	100	91	94	100	100	92	96	100

Table B18

Scores for SAME-3-LONG for Subject S5 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	5	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
STATES	2	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
BODY PARTS	5	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
SPORTS	2	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
MUSICAL INSTR.	5	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
AUTOMOBILES	2	1	1	0	1	3	3	2	3	6	6	4	6	4	4	2	4	3	3	2	3
COUNTRIES	5	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
SEA CREATURES	2	1	1	0	1	3	3	2	3	6	6	4	6	4	4	2	4	3	3	2	3
Session 2 Mean		1.00	1.00	0.50	1.00	3.00	3.00	2.50	3.00	6.00	6.00	5.00	6.00	4.00	4.00	3.00	4.00	3.00	3.00	2.50	3.00
Session 5 Mean		1.00	1.00	1.00	1.00	3.00	3.00	3.00	3.00	6.00	6.00	6.00	6.00	4.00	4.00	4.00	4.00	3.00	3.00	3.00	3.00
Mean		1.00	1.00	0.75	1.00	3.00	3.00	2.75	3.00	6.00	6.00	5.50	6.00	4.00	4.00	3.50	4.00	3.00	3.00	2.75	3.00
Ses 2 Mn % Cor		100	100	50	100	100	100	83	100	100	100	83	100	100	100	75	100	100	100	83	100
Ses 5 Mn % Cor		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Mean % Correct		100	100	75	100	100	100	92	100	100	100	92	100	100	100	88	100	100	100	92	100

Table B19

Scores for DIFF-4-LONG for Subject S5 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	3	1	1	0	1	4	4	3	4	8	8	6	8	5	5	3	5	4	4	3	4
STATES	4	1	0	0	1	4	3	3	4	8	6	6	8	5	3	3	5	4	3	3	4
BODY PARTS	3	1	1	1	0	4	4	4	3	8	8	8	6	5	5	5	3	4	4	4	3
SPORTS	4	1	0	0	0	4	3	2	2	8	6	5	4	5	3	3	2	4	3	3	2
MUSICAL INSTR.	3	1	0	0	0	4	2	2	3	8	4	4	6	5	2	2	3	4	2	2	3
AUTOMOBILES	4	1	0	1	1	4	2	4	4	8	4	8	8	5	2	5	5	4	2	4	4
COUNTRIES	3	1	1	1	1	4	4	4	4	8	8	8	8	5	5	5	5	4	4	4	4
SEA CREATURES	4	1	1	1	1	4	4	4	4	8	8	8	8	5	5	5	5	4	4	4	4
Session 3 Mean		1.00	0.75	0.50	0.50	4.00	3.50	3.25	3.50	8.00	7.00	6.50	7.00	5.00	4.25	3.75	4.00	4.00	3.50	3.25	3.50
Session 4 Mean		1.00	0.25	0.50	0.75	4.00	3.00	3.25	3.50	8.00	6.00	6.75	7.00	5.00	3.25	4.00	4.25	4.00	3.00	3.50	3.50
Mean		1.00	0.50	0.50	0.63	4.00	3.25	3.25	3.50	8.00	6.50	6.63	7.00	5.00	3.75	3.88	4.13	4.00	3.25	3.38	3.50
Ses 3 Mn % Cor		100	75	50	50	100	88	81	88	100	88	81	88	100	85	75	80	100	88	81	88
Ses 4 Mn % Cor		100	25	50	75	100	75	81	88	100	75	84	88	100	65	80	85	100	75	88	88
Mean % Correct		100	50	50	63	100	81	81	88	100	81	83	88	100	75	78	83	100	81	85	88

Table B20

Scores for SAME-4-LONG for Subject S5 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	4	1	1	1	1	4	4	4	4	8	8	8	8	5	5	5	5	4	4	4	4
STATES	5	1	1	1	1	4	4	4	4	8	8	8	8	5	5	5	5	4	4	4	4
BODY PARTS	4	1	1	1	1	4	4	4	4	8	8	8	8	5	5	5	5	4	4	4	4
SPORTS	5	1	0	0	0	4	3	3	2	8	6	6	4	5	3	3	2	4	3	3	2
MUSICAL INSTR.	4	1	1	1	1	4	4	4	4	8	8	8	8	5	5	5	5	4	4	4	4
AUTOMOBILES	5	1	0	1	0	4	2	4	3	8	4	8	6	5	2	5	3	4	2	4	3
COUNTRIES	4	0	0	1	1	3	2	4	4	6	4	8	8	3	2	5	5	3	2	4	4
SEA CREATURES	5	1	1	1	1	4	4	4	4	8	8	8	8	5	5	5	5	4	4	4	4
Session 4 Mean		0.75	0.75	1.00	1.00	3.75	3.50	4.00	4.00	7.50	7.00	8.00	8.00	4.50	4.25	5.00	5.00	3.75	3.50	4.00	4.00
Session 5 Mean		1.00	0.50	0.75	0.50	4.00	3.25	3.75	3.25	8.00	6.50	7.50	6.50	5.00	3.75	4.50	3.75	4.00	3.25	3.75	3.25
Mean		0.88	0.63	0.88	0.75	3.88	3.38	3.88	3.63	7.75	6.75	7.75	7.25	4.75	4.00	4.75	4.38	3.88	3.38	3.88	3.63
Ses 4 Mn % Cor		75	75	100	100	94	88	100	100	94	88	100	100	90	85	100	100	94	88	100	100
Ses 5 Mn % Cor		100	50	75	50	100	81	94	81	100	81	94	81	100	75	90	75	100	81	94	81
Mean % Correct		88	63	88	75	97	85	97	91	97	84	97	91	95	80	95	88	97	85	97	91

Table B21

Scores for DIFF-3-LONG for Subject S6 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	2	1	0	0	0	3	2	0	1	6	4	0	2	4	2	0	1	3	2	0	1
STATES	3	0	0	0	0	1	2	1	0	3	4	2	1	2	2	1	1	2	2	1	1
BODY PARTS	2	1	0	0	0	3	1	0	1	6	2	1	2	4	1	1	1	3	1	1	1
SPORTS	3	1	0	0	0	3	0	1	1	6	0	2	2	4	0	1	1	3	0	1	1
MUSICAL INSTR.	2	1	0	0	0	3	1	0	1	6	2	0	2	4	1	0	1	3	1	0	1
AUTOMOBILES	3	1	0	0	0	3	1	0	2	6	2	0	4	4	1	0	2	3	1	0	2
COUNTRIES	2	0	0	0	0	2	2	0	0	4	4	2	0	2	2	2	0	2	2	2	0
SEA CREATURES	3	1	0	1	0	3	1	3	0	6	2	6	0	4	1	4	0	3	1	3	0
Session 2 Mean		0.75	0.00	0.00	0.00	2.75	1.50	0.00	0.75	5.50	3.00	0.75	1.50	3.50	1.50	0.75	0.75	2.75	1.50	0.75	0.75
Session 3 Mean		0.75	0.00	0.25	0.00	2.50	1.00	1.25	0.75	5.25	2.00	2.50	1.75	3.50	1.00	1.50	1.00	2.75	1.00	1.25	1.00
Mean		0.75	0.00	0.13	0.00	2.63	1.25	0.63	0.75	5.38	2.50	1.63	1.63	3.50	1.25	1.13	0.88	2.75	1.25	1.00	0.88
Ses 2 Mn % Cor		75	0	0	0	92	50	0	25	92	50	13	25	88	38	19	19	92	50	25	25
Ses 3 Mn % Cor		75	0	25	0	83	33	42	25	88	33	42	29	88	25	38	25	92	33	42	33
Mean % Correct		75	0	13	0	88	42	21	25	90	42	27	27	88	31	28	22	92	42	33	29

Table B22

Scores for SAME-3-LONG for Subject S6 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	5	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
STATES	2	0	0	0	0	2	0	1	2	4	2	4	4	2	2	3	2	2	2	3	2
BODY PARTS	5	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
SPORTS	2	1	0	0	0	3	2	2	1	6	4	4	3	4	2	2	2	3	2	2	2
MUSICAL INSTR.	5	1	0	0	1	3	0	1	3	6	1	2	6	4	1	1	4	3	1	1	3
AUTOMOBILES	2	0	0	0	0	2	2	0	1	4	4	2	2	2	2	2	1	2	2	2	1
COUNTRIES	5	0	0	1	0	1	0	3	1	3	1	6	2	2	1	4	1	2	1	3	1
SEA CREATURES	2	0	0	0	0	1	1	1	1	4	4	2	3	3	3	1	2	3	3	1	2
Session 2 Mean		0.25	0.00	0.00	0.00	2.00	1.25	1.00	1.25	4.50	3.50	3.00	3.00	2.75	2.25	2.00	1.75	2.50	2.25	2.00	1.75
Session 5 Mean		0.75	0.50	0.75	0.75	2.50	1.50	2.50	2.50	5.25	3.50	5.00	5.00	3.50	2.50	3.25	3.25	2.75	2.00	2.50	2.50
Mean		0.50	0.25	0.38	0.38	2.25	1.38	1.75	1.88	4.88	3.50	4.00	4.00	3.13	2.38	2.63	2.50	2.63	2.13	2.25	2.13
Ses 2 Mn % Cor		25	0	0	0	67	42	33	42	75	58	50	50	69	56	50	44	83	75	67	58
Ses 5 Mn % Cor		75	50	75	75	83	50	83	83	88	58	83	83	88	63	81	81	92	67	83	83
Mean % Correct		50	25	38	38	75	46	58	63	81	58	67	67	78	60	66	63	88	71	75	71

Table B23

Scores for DIFF-3-SHORT for Subject S6 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	3	1	0	0	0	3	0	1	0	6	1	3	2	4	1	2	2	3	1	2	2
STATES	4	0	0	0	0	1	1	1	2	3	2	2	4	2	1	1	2	2	1	1	2
BODY PARTS	3	1	0	0	1	3	1	1	3	6	2	3	6	4	1	2	4	3	1	2	3
SPORTS	4	1	0	0	0	3	2	2	1	6	4	4	3	4	2	2	2	3	2	2	2
MUSICAL INSTR.	3	0	0	0	0	2	1	0	1	4	2	0	2	2	1	0	1	2	1	0	1
AUTOMOBILES	4	1	0	0	0	3	2	0	2	6	4	0	4	4	2	0	2	3	2	0	2
COUNTRIES	3	1	0	0	0	3	2	0	2	6	4	0	4	4	2	0	2	3	2	0	2
SEA CREATURES	4	0	0	0	0	1	2	0	1	3	4	0	3	2	2	0	2	2	2	0	2
Session 3 Mean		0.75	0.00	0.00	0.25	2.75	1.00	0.50	1.50	5.50	2.25	1.50	3.50	3.50	1.25	1.00	2.25	2.75	1.25	1.00	2.00
Session 4 Mean		0.50	0.00	0.00	0.00	2.00	1.75	0.75	1.50	4.50	3.50	1.50	3.50	3.00	1.75	0.75	2.00	2.50	1.75	0.75	2.00
Mean		0.63	0.00	0.00	0.13	2.38	1.38	0.63	1.50	5.00	2.88	1.50	3.50	3.25	1.50	0.88	2.13	2.63	1.50	0.88	2.00
Ses 3 Mn % Cor		75	0	0	25	92	33	17	50	92	38	25	58	88	31	25	56	92	42	33	67
Ses 4 Mn % Cor		50	0	0	0	67	58	25	50	75	58	25	58	75	44	19	50	83	58	25	67
Mean % Correct		63	0	0	13	79	46	21	50	83	48	25	58	81	38	22	53	88	50	29	67

Table B24

Scores for SAME-3-SHORT for Subject S6 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	4	1	1	0	1	3	3	1	3	6	6	2	6	4	4	1	4	3	3	1	3
STATES	5	1	1	0	0	3	3	1	2	6	6	2	4	4	4	1	2	3	3	1	2
BODY PARTS	4	1	0	1	1	3	2	3	3	6	4	6	6	4	2	4	4	3	2	3	3
SPORTS	5	1	0	0	0	3	1	2	0	6	3	4	0	4	2	2	0	3	2	2	0
MUSICAL INSTR.	4	0	0	0	0	0	0	0	1	2	1	1	3	2	1	1	2	2	1	1	2
AUTOMOBILES	5	1	0	1	0	3	2	3	0	6	4	6	1	4	2	4	1	3	2	3	1
COUNTRIES	4	1	0	0	0	3	2	0	2	6	4	2	4	4	2	2	2	3	2	2	2
SEA CREATURES	5	0	1	0	0	2	3	0	1	4	6	2	2	2	4	2	1	2	3	2	1
Session 4 Mean		0.75	0.25	0.25	0.50	2.25	1.75	1.00	2.25	5.00	3.75	2.75	4.75	3.50	2.25	2.00	3.00	2.75	2.00	1.75	2.50
Session 5 Mean		0.75	0.50	0.25	0.00	2.75	2.25	1.50	0.75	5.50	4.75	3.50	1.75	3.50	3.00	2.25	1.00	2.75	2.50	2.00	1.00
Mean		0.75	0.38	0.25	0.25	2.50	2.00	1.25	1.50	5.25	4.25	3.13	3.25	3.50	2.63	2.13	2.00	2.75	2.25	1.88	1.75
Ses 4 Mn % Cor		75	25	25	50	75	58	33	75	83	63	46	79	88	56	50	75	92	67	58	83
Ses 5 Mn % Cor		75	50	25	0	92	75	50	25	92	79	58	29	88	75	56	25	92	83	67	33
Mean % Correct		75	38	25	25	83	67	42	50	88	71	52	54	88	66	53	50	92	75	63	58

Table B25

Scores for DIFF-3-LONG for Subject S7 for All Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	5	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
STATES	2	1	1	0	1	3	3	2	3	6	6	4	6	4	4	2	4	3	3	2	3
BODY PARTS	5	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
SPORTS	2	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
MUSICAL INSTR.	5	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
AUTOMOBILES	2	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
COUNTRIES	5	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
SEA CREATURES	2	1	0	1	1	3	2	3	3	6	4	6	6	4	2	4	4	3	2	3	3
Session 2 Mean		1.00	0.75	0.75	1.00	3.00	2.75	2.75	3.00	6.00	5.50	5.50	6.00	4.00	3.50	3.50	4.00	3.00	2.75	2.75	3.00
Session 5 Mean		1.00	1.00	1.00	1.00	3.00	3.00	3.00	3.00	6.00	6.00	6.00	6.00	4.00	4.00	4.00	4.00	3.00	3.00	3.00	3.00
Mean		1.00	0.88	0.88	1.00	3.00	2.88	2.88	3.00	6.00	5.75	5.75	6.00	4.00	3.75	3.75	4.00	3.00	2.88	2.88	3.00
Ses 2 Mn % Cor		100	75	75	100	100	92	92	100	100	92	92	100	100	88	88	100	100	92	92	100
Ses 5 Mn % Cor		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Mean % Correct		100	88	88	100	100	96	96	100	100	96	96	100	100	94	94	100	100	96	96	100

Table B26

Scores for SAME-3-LONG for Subject S7 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	2	1	1	1	0	3	3	3	1	6	6	6	4	4	4	4	3	3	3	3	3
STATES	3	1	1	1	0	3	3	3	2	6	6	6	4	4	4	4	2	3	3	3	2
BODY PARTS	2	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
SPORTS	3	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
MUSICAL INSTR.	2	1	1	1	0	3	3	3	2	6	6	6	4	4	4	4	2	3	3	3	2
AUTOMOBILES	3	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
COUNTRIES	2	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
SEA CREATURES	3	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
Session 2 Mean		1.00	1.00	1.00	0.50	3.00	3.00	3.00	2.25	6.00	6.00	6.00	5.00	4.00	4.00	4.00	3.25	3.00	3.00	3.00	2.75
Session 3 Mean		1.00	1.00	1.00	0.75	3.00	3.00	3.00	2.75	6.00	6.00	6.00	5.50	4.00	4.00	4.00	3.50	3.00	3.00	3.00	2.75
Mean		1.00	1.00	1.00	0.63	3.00	3.00	3.00	2.50	6.00	6.00	6.00	5.25	4.00	4.00	4.00	3.38	3.00	3.00	3.00	2.75
Ses 2 Mn % Cor		100	100	100	50	100	100	100	75	100	100	100	83	100	100	100	81	100	100	100	92
Ses 3 Mn % Cor		100	100	100	75	100	100	100	92	100	100	100	92	100	100	100	88	100	100	100	92
Mean % Correct		100	100	100	63	100	100	100	83	100	100	100	88	100	100	100	85	100	100	100	92

Table B27

Scores for DIFF-4-LONG for Subject S7 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	3	1	1	1	1	4	4	4	4	8	8	8	8	5	5	5	5	4	4	4	4
STATES	4	1	0	1	0	4	3	4	2	8	6	8	4	5	3	5	2	4	3	4	2
BODY PARTS	3	1	1	0	1	4	4	1	4	8	8	2	8	5	5	1	5	4	4	1	4
SPORTS	4	1	1	0	0	4	4	3	3	8	8	6	6	5	5	3	3	4	4	3	3
MUSICAL INSTR.	3	1	1	0	0	4	4	3	2	8	8	6	4	5	5	3	2	4	4	3	2
AUTOMOBILES	4	0	1	1	0	3	4	4	2	6	8	8	4	3	5	5	2	3	4	4	2
COUNTRIES	3	1	1	1	1	4	4	4	4	8	8	8	8	5	5	5	5	4	4	4	4
SEA CREATURES	4	1	1	1	0	4	4	4	3	8	8	8	6	5	5	5	3	4	4	4	3
Session 3 Mean		1.00	1.00	0.50	0.75	4.00	4.00	3.00	3.50	8.00	8.00	6.00	7.00	5.00	5.00	3.50	4.25	4.00	4.00	3.00	3.50
Session 4 Mean		0.75	0.75	0.75	0.00	3.75	3.75	3.75	2.50	7.50	7.50	7.50	5.00	4.50	4.50	4.50	2.50	3.75	3.75	3.75	2.50
Mean		0.88	0.88	0.63	0.38	3.88	3.88	3.38	3.00	7.75	7.75	6.75	6.00	4.75	4.75	4.00	3.38	3.88	3.88	3.38	3.00
Ses 3 Mn % Cor		100	100	50	75	100	100	75	88	100	100	75	88	100	100	70	85	100	100	75	88
Ses 4 Mn % Cor		75	75	75	0	94	94	94	63	94	94	94	63	90	90	90	50	94	94	94	63
Mean % Correct		88	88	63	38	97	97	85	75	97	97	84	75	95	95	80	68	97	97	85	75

Table B28

Scores for SAME-4-LONG for Subject S7 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	4	1	1	1	1	4	4	4	4	8	8	8	8	5	5	5	5	4	4	4	4
STATES	5	1	1	1	1	4	4	4	4	8	8	8	8	5	5	5	5	4	4	4	4
BODY PARTS	4	1	1	1	0	4	4	4	3	8	8	8	6	5	5	5	3	4	4	4	3
SPORTS	5	1	1	1	1	4	4	4	4	8	8	8	8	5	5	5	5	4	4	4	4
MUSICAL INSTR.	4	1	1	1	1	4	4	4	4	8	8	8	8	5	5	5	5	4	4	4	4
AUTOMOBILES	5	1	0	1	1	4	3	4	4	8	6	8	8	5	3	5	5	4	3	4	4
COUNTRIES	4	1	1	1	1	4	4	4	4	8	8	8	8	5	5	5	5	4	4	4	4
SEA CREATURES	5	1	1	1	0	4	4	4	2	8	8	8	5	5	5	5	3	4	4	4	3
Session 4 Mean		1.00	1.00	1.00	0.75	4.00	4.00	4.00	3.75	8.00	8.00	8.00	7.50	5.00	5.00	5.00	4.50	4.00	4.00	4.00	3.75
Session 5 Mean		1.00	0.75	1.00	0.75	4.00	3.75	4.00	3.50	8.00	7.50	8.00	7.25	5.00	4.50	5.00	4.50	4.00	3.75	4.00	3.75
Mean		1.00	0.88	1.00	0.75	4.00	3.88	4.00	3.63	8.00	7.75	8.00	7.38	5.00	4.75	5.00	4.50	4.00	3.88	4.00	3.75
Ses 4 Mn % Cor		100	100	100	75	100	100	100	94	100	100	100	94	100	100	100	90	100	100	100	94
Ses 5 Mn % Cor		100	75	100	75	100	94	100	88	100	94	100	91	100	90	100	90	100	94	100	94
Mean % Correct		100	88	100	75	100	97	100	91	100	97	100	92	100	95	100	90	100	97	100	94

Table B29

Scores for DIFF-3-LONG for Subject S8 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	5	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
STATES	2	0	0	0	0	1	0	0	1	3	0	1	4	2	0	1	3	2	0	1	3
BODY PARTS	5	1	1	1	0	3	3	3	1	6	6	6	2	4	4	4	1	3	3	3	1
SPORTS	2	0	1	1	1	1	3	3	3	3	6	6	6	2	4	4	4	2	3	3	3
MUSICAL INSTR.	5	1	1	0	0	3	3	0	0	6	6	0	0	4	4	0	0	3	3	0	0
AUTOMOBILES	2	1	0	0	1	3	2	2	3	6	4	4	6	4	2	2	4	3	2	2	3
COUNTRIES	5	1	1	0	0	3	3	0	2	6	6	2	4	4	4	2	2	3	3	2	2
SEA CREATURES	2	1	1	0	1	3	3	1	3	6	6	2	6	4	4	1	4	3	3	1	3
Session 2 Mean		0.50	0.50	0.25	0.75	2.00	2.00	1.50	2.50	4.50	4.00	3.25	5.50	3.00	2.50	2.00	3.75	2.50	2.00	1.75	3.00
Session 5 Mean		1.00	1.00	0.50	0.25	3.00	3.00	1.50	1.50	6.00	6.00	3.50	3.00	4.00	4.00	2.50	1.75	3.00	3.00	2.00	1.50
Mean		0.75	0.75	0.38	0.50	2.50	2.50	1.50	2.00	5.25	5.00	3.38	4.25	3.50	3.25	2.25	2.75	2.75	2.50	1.88	2.25
Ses 2 Mn % Cor		50	50	25	75	67	67	50	83	75	67	54	92	75	63	50	94	83	67	58	100
Ses 5 Mn % Cor		100	100	50	25	100	100	50	50	100	100	58	50	100	100	63	44	100	100	67	50
Mean % Correct		75	75	38	50	83	83	50	67	88	83	56	71	88	81	56	69	92	83	63	75

Table B30

Scores for SAME-3-LONG for Subject S8 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	2	1	1	0	0	3	3	1	0	6	6	4	0	4	4	3	0	3	3	3	0
STATES	3	1	0	0	0	3	2	0	2	6	4	0	4	4	2	0	2	3	2	0	2
BODY PARTS	2	1	1	0	1	3	3	1	3	6	6	4	6	4	4	3	4	3	3	3	3
SPORTS	3	0	1	0	0	1	3	2	2	4	6	4	4	3	4	2	2	3	3	2	2
MUSICAL INSTR.	2	1	0	0	1	3	1	2	3	6	4	4	6	4	3	2	4	3	3	2	3
AUTOMOBILES	3	1	0	1	0	3	1	3	2	6	3	6	4	4	2	4	2	3	2	3	2
COUNTRIES	2	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
SEA CREATURES	3	1	0	0	0	3	2	2	0	6	4	4	0	4	2	2	0	3	2	2	0
Session 2 Mean		1.00	0.75	0.25	0.75	3.00	2.50	1.75	2.25	6.00	5.50	4.50	4.50	4.00	3.75	3.00	3.00	3.00	3.00	2.75	2.25
Session 3 Mean		0.75	0.25	0.25	0.00	2.50	2.00	1.75	1.50	5.50	4.25	3.50	3.00	3.75	2.50	2.00	1.50	3.00	2.25	1.75	1.50
Mean		0.88	0.50	0.25	0.38	2.75	2.25	1.75	1.88	5.75	4.88	4.00	3.75	3.88	3.13	2.50	2.25	3.00	2.63	2.25	1.88
Ses 2 Mn % Cor		100	75	25	75	100	83	58	75	100	92	75	75	100	94	75	75	100	100	92	75
Ses 3 Mn % Cor		75	25	25	0	83	67	58	50	92	71	58	50	94	63	50	38	100	75	58	50
Mean % Correct		88	50	25	38	92	75	58	63	96	81	67	63	97	78	63	56	100	88	75	63

Table B31

Scores for DIFF-3-SHORT for Subject S8 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	3	1	0	0	1	3	2	2	3	6	4	4	6	4	2	2	4	3	2	2	3
STATES	4	0	0	1	0	2	1	3	1	4	3	6	3	2	2	4	2	2	2	3	2
BODY PARTS	3	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
SPORTS	4	0	0	1	0	1	2	3	1	4	4	6	2	3	2	4	1	3	2	3	1
MUSICAL INSTR.	3	1	0	0	1	3	2	1	3	6	4	2	6	4	2	1	4	3	2	1	3
AUTOMOBILES	4	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
COUNTRIES	3	1	0	0	0	3	2	2	2	6	4	4	4	4	2	2	2	3	2	2	2
SEA CREATURES	4	1	1	1	0	3	3	3	0	6	6	6	1	4	4	4	1	3	3	3	1
Session 3 Mean		1.00	0.25	0.25	0.75	3.00	2.25	2.00	2.75	6.00	4.50	4.00	5.50	4.00	2.50	2.25	3.50	3.00	2.25	2.00	2.75
Session 4 Mean		0.50	0.50	1.00	0.25	2.25	2.25	3.00	1.25	5.00	4.75	6.00	3.00	3.25	3.00	4.00	2.00	2.75	2.50	3.00	1.75
Mean		0.75	0.38	0.63	0.50	2.63	2.25	2.50	2.00	5.50	4.63	5.00	4.25	3.63	2.75	3.13	2.75	2.88	2.38	2.50	2.25
Ses 3 Mn % Cor		100	25	25	75	100	75	67	92	100	75	67	92	100	63	56	88	100	75	67	92
Ses 4 Mn % Cor		50	50	100	25	75	75	100	42	83	79	100	50	81	75	100	50	92	83	100	58
Mean % Correct		75	38	63	50	88	75	83	67	92	77	83	71	91	69	78	69	96	79	83	75

Table B32

Scores for SAME-3-SHORT for Subject S8 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	4	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
STATES	5	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
BODY PARTS	4	1	1	1	0	3	3	3	2	6	6	6	4	4	4	4	2	3	3	3	2
SPORTS	5	1	1	1	0	3	3	3	1	6	6	6	2	4	4	4	1	3	3	3	1
MUSICAL INSTR.	4	1	1	0	1	3	3	2	3	6	6	4	6	4	4	2	4	3	3	2	3
AUTOMOBILES	5	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
COUNTRIES	4	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
SEA CREATURES	5	1	0	1	1	3	1	3	3	6	4	6	6	4	3	4	4	3	3	3	3
Session 4 Mean		1.00	1.00	0.75	0.75	3.00	3.00	2.75	2.75	6.00	6.00	5.50	5.50	4.00	4.00	3.50	3.50	3.00	3.00	2.75	2.75
Session 5 Mean		1.00	0.75	1.00	0.75	3.00	2.50	3.00	2.50	6.00	5.50	6.00	5.00	4.00	3.75	4.00	3.25	3.00	3.00	3.00	2.50
Mean		1.00	0.88	0.88	0.75	3.00	2.75	2.88	2.63	6.00	5.75	5.75	5.25	4.00	3.88	3.75	3.38	3.00	3.00	2.88	2.63
Ses 4 Mn % Cor		100	100	75	75	100	100	92	92	100	100	92	92	100	100	88	88	100	100	92	92
Ses 5 Mn % Cor		100	75	100	75	100	83	100	83	100	92	100	83	100	94	100	81	100	100	100	83
Mean % Correct		100	88	88	75	100	92	96	88	100	96	96	88	100	97	94	85	100	100	96	88

Table B33

Scores for DIFF-3-LONG for Subject S9 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	5	1	1	0	0	3	3	1	2	6	6	2	4	4	4	1	2	3	3	1	2
STATES	2	1	0	1	0	3	2	3	2	6	4	6	4	4	2	4	2	3	2	3	2
BODY PARTS	5	1	1	1	0	3	3	3	0	6	6	6	0	4	4	4	0	3	3	3	0
SPORTS	2	1	0	0	0	3	2	1	0	6	4	2	0	4	2	1	0	3	2	1	0
MUSICAL INSTR.	5	1	1	1	0	3	3	3	1	6	6	6	2	4	4	4	1	3	3	3	1
AUTOMOBILES	2	1	0	0	0	3	2	2	2	6	4	4	4	4	2	2	2	3	2	2	2
COUNTRIES	5	1	1	0	1	3	3	1	3	6	6	2	6	4	4	1	4	3	3	1	3
SEA CREATURES	2	1	0	1	0	3	2	3	2	6	4	6	4	4	2	4	2	3	2	3	2
Session 2 Mean		1.00	0.00	0.50	0.00	3.00	2.00	2.25	1.50	6.00	4.00	4.50	3.00	4.00	2.00	2.75	1.50	3.00	2.00	2.25	1.50
Session 5 Mean		1.00	1.00	0.50	0.25	3.00	3.00	2.00	1.50	6.00	6.00	4.00	3.00	4.00	4.00	2.50	1.75	3.00	3.00	2.00	1.50
Mean		1.00	0.50	0.50	0.13	3.00	2.50	2.13	1.50	6.00	5.00	4.25	3.00	4.00	3.00	2.63	1.63	3.00	2.50	2.13	1.50
Ses 2 Mn % Cor		100	0	50	0	100	67	75	50	100	67	75	50	100	50	69	38	100	67	75	50
Ses 5 Mn % Cor		100	100	50	25	100	100	67	50	100	100	67	50	100	100	63	44	100	100	67	50
Mean % Correct		100	50	50	13	100	83	71	50	100	83	71	50	100	75	66	41	100	83	71	50

Table B34

Scores for SAME-3-LONG for Subject S9 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	2	1	0	0	0	3	2	2	2	6	4	4	4	4	2	2	2	3	2	2	2
STATES	3	1	0	0	1	3	2	1	3	6	4	2	6	4	2	1	4	3	2	1	3
BODY PARTS	2	1	1	0	1	3	3	1	3	6	6	3	6	4	4	2	4	3	3	2	3
SPORTS	3	1	1	0	0	3	3	0	0	6	6	1	0	4	4	1	0	3	3	1	0
MUSICAL INSTR.	2	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
AUTOMOBILES	3	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
COUNTRIES	2	1	0	1	0	3	0	3	1	6	2	6	4	4	2	4	3	3	2	3	3
SEA CREATURES	3	1	0	1	0	3	1	3	1	6	4	6	2	4	3	4	1	3	3	3	1
Session 2 Mean		1.00	0.50	0.50	0.50	3.00	2.00	2.25	2.25	6.00	4.50	4.75	5.00	4.00	3.00	3.00	3.25	3.00	2.50	2.50	2.75
Session 3 Mean		1.00	0.50	0.50	0.50	3.00	2.25	1.75	1.75	6.00	5.00	3.75	3.50	4.00	3.25	2.50	2.25	3.00	2.75	2.00	1.75
Mean		1.00	0.50	0.50	0.50	3.00	2.13	2.00	2.00	6.00	4.75	4.25	4.25	4.00	3.13	2.75	2.75	3.00	2.63	2.25	2.25
Ses 2 Mn % Cor		100	50	50	50	100	67	75	75	100	75	79	83	100	75	75	81	100	83	83	92
Ses 3 Mn % Cor		100	50	50	50	100	75	58	58	100	83	63	58	100	81	63	56	100	92	67	58
Mean % Correct		100	50	50	50	100	71	67	67	100	79	71	71	100	78	69	69	100	88	75	75

Table B35

Scores for DIFF-3-SHORT for Subject S9 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	3	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
STATES	4	1	0	1	1	3	2	3	3	6	4	6	6	4	2	4	4	3	2	3	3
BODY PARTS	3	1	0	0	0	3	2	2	2	6	4	4	4	4	2	2	2	3	2	2	2
SPORTS	4	1	1	0	0	3	3	2	1	6	6	4	3	4	4	2	2	3	3	2	2
MUSICAL INSTR.	3	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
AUTOMOBILES	4	1	1	0	1	3	3	2	3	6	6	4	6	4	4	2	4	3	3	2	3
COUNTRIES	3	1	0	1	1	3	2	3	3	6	4	6	6	4	2	4	4	3	2	3	3
SEA CREATURES	4	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
Session 3 Mean		1.00	0.50	0.75	0.75	3.00	2.50	2.75	2.75	6.00	5.00	5.50	5.50	4.00	3.00	3.50	3.50	3.00	2.50	2.75	2.75
Session 4 Mean		1.00	0.75	0.50	0.75	3.00	2.75	2.50	2.50	6.00	5.50	5.00	5.25	4.00	3.50	3.00	3.50	3.00	2.75	2.50	2.75
Mean		1.00	0.63	0.63	0.75	3.00	2.63	2.63	2.63	6.00	5.25	5.25	5.38	4.00	3.25	3.25	3.50	3.00	2.63	2.63	2.75
Ses 3 Mn % Cor		100	50	75	75	100	83	92	92	100	83	92	92	100	75	88	88	100	83	92	92
Ses 4 Mn % Cor		100	75	50	75	100	92	83	83	100	92	83	88	100	88	75	88	100	92	83	92
Mean % Correct		100	63	63	75	100	88	88	88	100	88	88	90	100	81	81	88	100	88	88	92

Table B36

Scores for DIFF-4-SHORT for Subject S9 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	4	0	0	0	0	2	2	2	3	6	4	5	6	4	2	3	3	4	2	3	3
STATES	5	1	0	0	0	4	1	2	1	8	3	4	4	5	2	2	3	4	2	2	3
BODY PARTS	4	1	1	1	1	4	4	4	4	8	8	8	8	5	5	5	5	4	4	4	4
SPORTS	5	0	0	0	0	2	2	1	1	6	4	2	2	4	2	1	1	4	2	1	1
MUSICAL INSTR.	4	1	1	1	0	4	4	4	1	8	8	8	2	5	5	5	1	4	4	4	1
AUTOMOBILES	5	0	0	0	0	2	1	1	3	6	3	2	6	4	2	1	3	4	2	1	3
COUNTRIES	4	1	1	0	0	4	4	2	1	8	8	4	2	5	5	2	1	4	4	2	1
SEA CREATURES	5	1	0	0	0	4	2	2	3	8	4	5	6	5	2	3	3	4	2	3	3
Session 4 Mean		0.75	0.75	0.50	0.25	3.50	3.50	3.00	2.25	7.50	7.00	6.25	4.50	4.75	4.25	3.75	2.50	4.00	3.50	3.25	2.25
Session 5 Mean		0.50	0.00	0.00	0.00	3.00	1.50	1.50	2.00	7.00	3.50	3.25	4.50	4.50	2.00	1.75	2.50	4.00	2.00	1.75	2.50
Mean		0.63	0.38	0.25	0.13	3.25	2.50	2.25	2.13	7.25	5.25	4.75	4.50	4.63	3.13	2.75	2.50	4.00	2.75	2.50	2.38
Ses 4 Mn % Cor		75	75	50	25	88	88	75	56	94	88	78	56	95	85	75	50	100	88	81	56
Ses 5 Mn % Cor		50	0	0	0	75	38	38	50	88	44	41	56	90	40	35	50	100	50	44	63
Mean % Correct		63	38	25	13	81	63	56	53	91	66	59	56	93	63	55	50	100	69	63	60

Table B37

Scores for DIFF-3-LONG for Subject S10 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	5	1	0	0	0	3	1	2	2	6	3	4	4	4	2	2	2	3	2	2	2
STATES	2	1	1	0	0	3	3	2	0	6	6	4	0	4	4	2	0	3	3	2	0
BODY PARTS	5	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
SPORTS	2	1	0	0	0	3	1	2	0	6	2	4	0	4	1	2	0	3	1	2	0
MUSICAL INSTR.	5	1	1	0	1	3	3	2	3	6	6	4	6	4	4	2	4	3	3	2	3
AUTOMOBILES	2	1	0	1	0	3	2	3	1	6	4	6	2	4	2	4	1	3	2	3	1
COUNTRIES	5	1	1	0	0	3	3	1	0	6	6	2	0	4	4	1	0	3	3	1	0
SEA CREATURES	2	0	0	1	0	2	2	3	1	4	4	6	2	2	2	4	1	2	2	3	1
Session 2 Mean		0.75	0.25	0.50	0.00	2.75	2.00	2.50	0.50	5.50	4.00	5.00	1.00	3.50	2.25	3.00	0.50	2.75	2.00	2.50	0.50
Session 5 Mean		1.00	0.75	0.25	0.50	3.00	2.50	2.00	2.00	6.00	5.25	4.00	4.00	4.00	3.50	2.25	2.50	3.00	2.75	2.00	2.00
Mean		0.88	0.50	0.38	0.25	2.88	2.25	2.25	1.25	5.75	4.63	4.50	2.50	3.75	2.88	2.63	1.50	2.88	2.38	2.25	1.25
Ses 2 Mn % Cor		75	25	50	0	92	67	83	17	92	67	83	17	88	56	75	13	92	67	83	17
Ses 5 Mn % Cor		100	75	25	50	100	83	67	67	100	88	67	67	100	88	56	63	100	92	67	67
Mean % Correct		88	50	38	25	96	75	75	42	96	77	75	42	94	72	66	38	96	79	75	42

Table B38

Scores for SAME-3-LONG for Subject S10 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	2	1	0	0	0	3	1	1	1	6	4	3	2	4	3	2	1	3	3	2	1
STATES	3	0	0	0	0	2	2	2	2	4	4	4	4	2	2	2	2	2	2	2	2
BODY PARTS	2	1	1	0	0	3	3	1	1	6	6	4	2	4	4	3	1	3	3	3	1
SPORTS	3	1	1	1	0	3	3	3	1	6	6	6	2	4	4	4	1	3	3	3	1
MUSICAL INSTR.	2	1	0	0	0	3	2	1	0	6	4	2	2	4	2	1	2	3	2	1	2
AUTOMOBILES	3	1	0	0	0	3	2	2	2	6	4	4	4	4	2	2	2	3	2	2	2
COUNTRIES	2	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
SEA CREATURES	3	1	1	1	0	3	3	3	0	6	6	6	0	4	4	4	0	3	3	3	0
Session 2 Mean		1.00	0.50	0.25	0.25	3.00	2.25	1.50	1.25	6.00	5.00	3.75	3.00	4.00	3.25	2.50	2.00	3.00	2.75	2.25	1.75
Session 3 Mean		0.75	0.50	0.50	0.00	2.75	2.50	2.50	1.25	5.50	5.00	5.00	2.50	3.50	3.00	3.00	1.25	2.75	2.50	2.50	1.25
Mean		0.88	0.50	0.38	0.13	2.88	2.38	2.00	1.25	5.75	5.00	4.38	2.75	3.75	3.13	2.75	1.63	2.88	2.63	2.38	1.50
Ses 2 Mn % Cor		100	50	25	25	100	75	50	42	100	83	63	50	100	81	63	50	100	92	75	58
Ses 3 Mn % Cor		75	50	50	0	92	83	83	42	92	83	83	42	88	75	75	31	92	83	83	42
Mean % Correct		88	50	38	13	96	79	67	42	96	83	73	46	94	78	69	41	96	88	79	50

Table B39

Scores for DIFF-3-SHORT for Subject S10 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	3	1	1	0	1	3	3	1	3	6	6	2	6	4	4	1	4	3	3	1	3
STATES	4	1	1	0	0	3	3	1	0	6	6	4	0	4	4	3	0	3	3	3	0
BODY PARTS	3	1	1	0	1	3	3	2	3	6	6	4	6	4	4	2	4	3	3	2	3
SPORTS	4	1	0	1	1	3	1	3	3	6	3	6	6	4	2	4	4	3	2	3	3
MUSICAL INSTR.	3	1	0	1	1	3	2	3	3	6	4	6	6	4	2	4	4	3	2	3	3
AUTOMOBILES	4	1	0	0	0	3	1	2	1	6	2	4	2	4	1	2	1	3	1	2	1
COUNTRIES	3	1	1	1	0	3	3	3	2	6	6	6	4	4	4	4	2	3	3	3	2
SEA CREATURES	4	1	1	1	0	3	3	3	2	6	6	6	4	4	4	4	2	3	3	3	2
Session 3 Mean		1.00	0.75	0.50	0.75	3.00	2.75	2.25	2.75	6.00	5.50	4.50	5.50	4.00	3.50	2.75	3.50	3.00	2.75	2.25	2.75
Session 4 Mean		1.00	0.50	0.50	0.25	3.00	2.00	2.25	1.50	6.00	4.25	5.00	3.00	4.00	2.75	3.25	1.75	3.00	2.25	2.75	1.50
Mean		1.00	0.63	0.50	0.50	3.00	2.38	2.25	2.13	6.00	4.88	4.75	4.25	4.00	3.13	3.00	2.63	3.00	2.50	2.50	2.13
Ses 3 Mn % Cor		100	75	50	75	100	92	75	92	100	92	75	92	100	88	69	88	100	92	75	92
Ses 4 Mn % Cor		100	50	50	25	100	67	75	50	100	71	83	50	100	69	81	44	100	75	92	50
Mean % Correct		100	63	50	50	100	79	75	71	100	81	79	71	100	78	75	66	100	83	83	71

Table B40

Scores for DIFF-4-SHORT for Subject S10 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	4	0	0	0	0	2	2	1	1	5	4	3	2	3	2	2	1	3	2	2	1
STATES	5	0	1	1	0	3	4	4	2	6	8	8	4	3	5	5	2	3	4	4	2
BODY PARTS	4	1	1	1	0	4	4	4	2	8	8	8	4	5	5	5	2	4	4	4	2
SPORTS	5	1	0	0	0	4	3	1	1	8	6	2	2	5	3	1	1	4	3	1	1
MUSICAL INSTR.	4	1	1	0	0	4	4	0	1	8	8	0	3	5	5	0	2	4	4	0	2
AUTOMOBILES	5	0	0	0	0	2	3	1	2	4	6	4	4	2	3	3	2	2	3	3	2
COUNTRIES	4	0	0	0	0	3	3	0	1	6	6	0	2	3	3	0	1	3	3	0	1
SEA CREATURES	5	1	1	0	0	4	4	2	1	8	8	4	2	5	5	2	1	4	4	2	1
Session 4 Mean		0.50	0.50	0.25	0.00	3.25	3.25	1.25	1.25	6.75	6.50	2.75	2.75	4.00	3.75	1.75	1.50	3.50	3.25	1.50	1.50
Session 5 Mean		0.50	0.50	0.25	0.00	3.25	3.50	2.00	1.50	6.50	7.00	4.50	3.00	3.75	4.00	2.75	1.50	3.25	3.50	2.50	1.50
Mean		0.50	0.50	0.25	0.00	3.25	3.38	1.63	1.38	6.63	6.75	3.63	2.88	3.88	3.88	2.25	1.50	3.38	3.38	2.00	1.50
Ses 4 Mn % Cor		50	50	25	0	81	81	31	31	84	81	34	34	80	75	35	30	88	81	38	38
Ses 5 Mn % Cor		50	50	25	0	81	88	50	38	81	88	56	38	75	80	55	30	81	88	63	38
Mean % Correct		50	50	25	0	81	85	41	35	83	84	45	36	78	78	45	30	85	85	50	38

Table B41

Scores for DIFF-3-LONG for Subject S11 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	5	1	0	1	0	3	2	3	0	6	4	6	0	4	2	4	0	3	2	3	0
STATES	2	1	0	0	0	3	1	2	1	6	2	4	2	4	1	2	1	3	1	2	1
BODY PARTS	5	1	1	0	0	3	3	1	1	6	6	2	2	4	4	1	1	3	3	1	1
SPORTS	2	0	0	0	0	2	2	2	2	4	4	4	4	2	2	2	2	2	2	2	2
MUSICAL INSTR.	5	1	0	0	0	3	1	1	0	6	2	2	0	4	1	1	0	3	1	1	0
AUTOMOBILES	2	1	0	0	0	3	2	2	1	6	4	4	2	4	2	2	1	3	2	2	1
COUNTRIES	5	1	0	0	0	3	2	1	1	6	4	2	2	4	2	1	1	3	2	1	1
SEA CREATURES	2	1	0	0	0	3	0	1	2	6	1	3	4	4	1	2	2	3	1	2	2
Session 2 Mean		0.75	0.00	0.00	0.00	2.75	1.25	1.75	1.50	5.50	2.75	3.75	3.00	3.50	1.50	2.00	1.50	2.75	1.50	2.00	1.50
Session 5 Mean		1.00	0.25	0.25	0.00	3.00	2.00	1.50	0.50	6.00	4.00	3.00	1.00	4.00	2.25	1.75	0.50	3.00	2.00	1.50	0.50
Mean		0.88	0.13	0.13	0.00	2.88	1.63	1.63	1.00	5.75	3.38	3.38	2.00	3.75	1.88	1.88	1.00	2.88	1.75	1.75	1.00
Ses 2 Mn % Cor		75	0	0	0	92	42	58	50	92	46	63	50	88	38	50	38	92	50	67	50
Ses 5 Mn % Cor		100	25	25	0	100	67	50	17	100	67	50	17	100	56	44	13	100	67	50	17
Mean % Correct		88	13	13	0	96	54	54	33	96	56	56	33	94	47	47	25	96	58	58	33

Table B42

Scores for SAME-3-LONG for Subject S11 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	2	1	0	0	1	3	2	1	3	6	4	3	6	4	2	2	4	3	2	2	3
STATES	3	0	0	0	0	2	1	2	1	4	3	4	2	2	2	2	1	2	2	2	1
BODY PARTS	2	1	0	1	0	3	2	3	2	6	4	6	4	4	2	4	2	3	2	3	2
SPORTS	3	1	0	1	1	3	1	3	3	6	3	6	6	4	2	4	4	3	2	3	3
MUSICAL INSTR.	2	1	1	0	1	3	3	1	3	6	6	3	6	4	4	2	4	3	3	2	3
AUTOMOBILES	3	1	0	1	0	3	0	3	1	6	0	6	3	4	0	4	2	3	0	3	2
COUNTRIES	2	0	0	1	1	1	0	3	3	3	0	6	6	2	0	4	4	2	0	3	3
SEA CREATURES	3	1	0	0	0	3	1	0	2	6	2	0	4	4	1	0	2	3	1	0	2
Session 2 Mean		0.75	0.25	0.50	0.75	2.50	1.75	2.00	2.75	5.25	3.50	4.50	5.50	3.50	2.00	3.00	3.50	2.75	1.75	2.50	2.75
Session 3 Mean		0.75	0.00	0.50	0.25	2.75	0.75	2.00	1.75	5.50	2.00	4.00	3.75	3.50	1.25	2.50	2.25	2.75	1.25	2.00	2.00
Mean		0.75	0.13	0.50	0.50	2.63	1.25	2.00	2.25	5.38	2.75	4.25	4.63	3.50	1.63	2.75	2.88	2.75	1.50	2.25	2.38
Ses 2 Mn % Cor		75	25	50	75	83	58	67	92	88	58	75	92	88	50	75	88	92	58	83	92
Ses 3 Mn % Cor		75	0	50	25	92	25	67	58	92	33	67	63	88	31	63	56	92	42	67	67
Mean % Correct		75	13	50	50	88	42	67	75	90	46	71	77	88	41	69	72	92	50	75	79

Table B43

Scores for DIFF-3-SHORT for Subject S11 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	3	1	1	0	1	3	3	1	3	6	6	3	6	4	4	2	4	3	3	2	3
STATES	4	0	1	1	0	2	3	3	1	4	6	6	2	2	4	4	1	2	3	3	1
BODY PARTS	3	1	0	0	0	3	2	2	0	6	4	4	0	4	2	2	0	3	2	2	0
SPORTS	4	1	1	0	0	3	3	1	2	6	6	2	4	4	4	1	2	3	3	1	2
MUSICAL INSTR.	3	1	0	1	0	3	1	3	1	6	2	6	2	4	1	4	1	3	1	3	1
AUTOMOBILES	4	1	1	1	0	3	3	3	2	6	6	6	4	4	4	4	2	3	3	3	2
COUNTRIES	3	0	0	0	0	2	2	0	2	4	4	0	4	2	2	0	2	2	2	0	2
SEA CREATURES	4	1	0	0	0	3	1	2	1	6	2	4	2	4	1	2	1	3	1	2	1
Session 3 Mean		0.75	0.25	0.25	0.25	2.75	2.00	1.50	1.50	5.50	4.00	3.25	3.00	3.50	2.25	2.00	1.75	2.75	2.00	1.75	1.50
Session 4 Mean		0.75	0.75	0.50	0.00	2.75	2.50	2.25	1.50	5.50	5.00	4.50	3.00	3.50	3.25	2.75	1.50	2.75	2.50	2.25	1.50
Mean		0.75	0.50	0.38	0.13	2.75	2.25	1.88	1.50	5.50	4.50	3.88	3.00	3.50	2.75	2.38	1.63	2.75	2.25	2.00	1.50
Ses 3 Mn % Cor		75	25	25	25	92	67	50	50	92	67	54	50	88	56	50	44	92	67	58	50
Ses 4 Mn % Cor		75	75	50	0	92	83	75	50	92	83	75	50	88	81	69	38	92	83	75	50
Mean % Correct		75	50	38	13	92	75	63	50	92	75	65	50	88	69	60	41	92	75	67	50

Table B44

Scores for SAME-3-SHORT for Subject S11 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	4	1	1	0	1	3	3	2	3	6	6	4	6	4	4	2	4	3	3	2	3
STATES	5	1	0	1	1	3	1	3	3	6	4	6	6	4	3	4	4	3	3	3	3
BODY PARTS	4	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
SPORTS	5	1	1	1	0	3	3	3	1	6	6	6	4	4	4	4	3	3	3	3	3
MUSICAL INSTR.	4	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
AUTOMOBILES	5	1	0	0	0	3	2	1	2	6	4	2	4	4	2	1	2	3	2	1	2
COUNTRIES	4	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
SEA CREATURES	5	0	1	0	0	2	3	0	1	4	6	2	4	2	4	2	3	2	3	2	3
Session 4 Mean		1.00	1.00	0.75	1.00	3.00	3.00	2.75	3.00	6.00	6.00	5.50	6.00	4.00	4.00	3.50	4.00	3.00	3.00	2.75	3.00
Session 5 Mean		0.75	0.50	0.50	0.25	2.75	2.25	1.75	1.75	5.50	5.00	4.00	4.50	3.50	3.25	2.75	3.00	2.75	2.75	2.25	2.75
Mean		0.88	0.75	0.63	0.63	2.88	2.63	2.25	2.38	5.75	5.50	4.75	5.25	3.75	3.63	3.13	3.50	2.88	2.88	2.50	2.88
Ses 4 Mn % Cor		100	100	75	100	100	100	92	100	100	100	92	100	100	100	88	100	100	100	92	100
Ses 5 Mn % Cor		75	50	50	25	92	75	58	58	92	83	67	75	88	81	69	75	92	92	75	92
Mean % Correct		88	75	63	63	96	88	75	79	96	92	79	88	94	91	78	88	96	96	83	96

Table B45

Scores for DIFF-3-LONG for Subject S12 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	5	1	0	0	1	3	1	0	3	6	2	1	6	4	1	1	4	3	1	1	3
STATES	2	1	0	0	0	3	0	0	1	6	0	0	2	4	0	0	1	3	0	0	1
BODY PARTS	5	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
SPORTS	2	0	0	0	0	2	2	2	0	4	4	4	0	2	2	2	0	2	2	2	0
MUSICAL INSTR.	5	1	0	0	0	3	1	0	0	6	2	1	0	4	1	1	0	3	1	1	0
AUTOMOBILES	2	1	1	0	0	3	3	0	2	6	6	0	4	4	4	0	2	3	3	0	2
COUNTRIES	5	0	0	0	0	2	2	2	2	4	4	4	4	2	2	2	2	2	2	2	2
SEA CREATURES	2	0	0	0	0	2	2	2	1	4	4	4	2	2	2	2	1	2	2	2	1
Session 2 Mean		0.50	0.25	0.00	0.00	2.50	1.75	1.00	1.00	5.00	3.50	2.00	2.00	3.00	2.00	1.00	1.00	2.50	1.75	1.00	1.00
Session 5 Mean		0.75	0.25	0.25	0.50	2.75	1.75	1.25	2.00	5.50	3.50	3.00	4.00	3.50	2.00	2.00	2.50	2.75	1.75	1.75	2.00
Mean		0.63	0.25	0.13	0.25	2.63	1.75	1.13	1.50	5.25	3.50	2.50	3.00	3.25	2.00	1.50	1.75	2.63	1.75	1.38	1.50
Ses 2 Mn % Cor		50	25	0	0	83	58	33	33	83	58	33	33	75	50	25	25	83	58	33	33
Ses 5 Mn % Cor		75	25	25	50	92	58	42	67	92	58	50	67	88	50	50	63	92	58	58	67
Mean % Correct		63	25	13	25	88	58	38	50	88	58	42	50	81	50	38	44	88	58	46	50

Table B46

Scores for SAME-3-LONG for Subject S12 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	2	1	1	0	0	3	3	1	0	6	6	3	2	4	4	2	2	3	3	2	2
STATES	3	0	0	0	0	2	1	2	0	4	3	4	0	2	2	2	0	2	2	2	0
BODY PARTS	2	1	1	1	0	3	3	3	2	6	6	6	4	4	4	4	2	3	3	3	2
SPORTS	3	0	0	0	0	2	1	2	0	4	3	4	3	2	2	2	3	2	2	2	3
MUSICAL INSTR.	2	0	0	0	0	2	1	2	0	4	3	4	1	2	2	2	1	2	2	2	1
AUTOMOBILES	3	1	0	0	0	3	2	2	2	6	4	4	4	4	2	2	2	3	2	2	2
COUNTRIES	2	1	0	0	0	3	2	1	1	6	4	3	4	4	2	2	3	3	2	2	3
SEA CREATURES	3	1	0	0	0	3	2	1	1	6	4	2	3	4	2	1	2	3	2	1	2
Session 2 Mean		0.75	0.50	0.25	0.00	2.75	2.25	1.75	0.75	5.50	4.75	4.00	2.75	3.50	3.00	2.50	2.00	2.75	2.50	2.25	2.00
Session 3 Mean		0.50	0.00	0.00	0.00	2.50	1.50	1.75	0.75	5.00	3.50	3.50	2.50	3.00	2.00	1.75	1.75	2.50	2.00	1.75	1.75
Mean		0.63	0.25	0.13	0.00	2.63	1.88	1.75	0.75	5.25	4.13	3.75	2.63	3.25	2.50	2.13	1.88	2.63	2.25	2.00	1.88
Ses 2 Mn % Cor		75	50	25	0	92	75	58	25	92	79	67	46	88	75	63	50	92	83	75	67
Ses 3 Mn % Cor		50	0	0	0	83	50	58	25	83	58	58	42	75	50	44	44	83	67	58	58
Mean % Correct		63	25	13	0	88	63	58	25	88	69	63	44	81	63	53	47	88	75	67	63

Table B47

Scores for DIFF-3-SHORT for Subject S12 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	3	1	0	1	1	3	0	3	1	6	2	6	6	4	2	4	4	3	2	3	3
STATES	4	1	0	0	0	3	1	1	1	6	3	4	2	4	2	3	1	3	2	3	1
BODY PARTS	3	1	1	0	1	3	3	1	3	6	6	2	6	4	4	1	4	3	3	1	3
SPORTS	4	1	0	1	0	3	2	3	1	6	4	6	2	4	2	4	1	3	2	3	1
MUSICAL INSTR.	3	1	1	0	0	3	3	2	2	6	6	4	4	4	4	2	2	3	3	2	2
AUTOMOBILES	4	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
COUNTRIES	3	0	0	0	0	0	1	2	2	1	3	4	4	1	2	2	2	1	2	2	2
SEA CREATURES	4	1	0	1	0	3	2	3	0	6	4	6	0	4	2	4	0	3	2	3	0
Session 3 Mean		0.75	0.50	0.25	0.50	2.25	1.75	2.00	2.50	4.75	4.25	4.00	5.00	3.25	3.00	2.25	3.00	2.50	2.50	2.00	2.50
Session 4 Mean		1.00	0.25	0.75	0.25	3.00	2.00	2.50	1.25	6.00	4.25	5.50	2.50	4.00	2.50	3.75	1.50	3.00	2.25	3.00	1.25
Mean		0.88	0.38	0.50	0.38	2.63	1.88	2.25	1.88	5.38	4.25	4.75	3.75	3.63	2.75	3.00	2.25	2.75	2.38	2.50	1.88
Ses 3 Mn % Cor		75	50	25	50	75	58	67	83	79	71	67	83	81	75	56	75	83	83	67	83
Ses 4 Mn % Cor		100	25	75	25	100	67	83	42	100	71	92	42	100	63	94	38	100	75	100	42
Mean % Correct		88	38	50	38	88	63	75	63	90	71	79	63	91	69	75	56	92	79	83	63

Table B48

Scores for SAME-3-SHORT for Subject S12 for All Scoring Methods

		Scoring Method																			
		I				II				III				IV				V			
		Trial																			
Category	Ses	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAMMALS	4	1	1	1	1	3	3	3	3	6	6	6	6	4	4	4	4	3	3	3	3
STATES	5	1	1	0	1	3	3	2	3	6	6	4	6	4	4	2	4	3	3	2	3
BODY PARTS	4	1	1	1	0	3	3	3	2	6	6	6	4	4	4	4	2	3	3	3	2
SPORTS	5	1	1	0	0	3	3	0	2	6	6	0	4	4	4	0	2	3	3	0	2
MUSICAL INSTR.	4	1	1	1	0	3	3	3	2	6	6	6	4	4	4	4	2	3	3	3	2
AUTOMOBILES	5	0	0	0	1	2	2	0	3	4	4	0	6	2	2	0	4	2	2	0	3
COUNTRIES	4	1	1	0	1	3	3	2	3	6	6	4	6	4	4	2	4	3	3	2	3
SEA CREATURES	5	1	0	0	1	3	2	1	3	6	4	4	6	4	2	3	4	3	2	3	3
Session 4 Mean		1.00	1.00	0.75	0.50	3.00	3.00	2.75	2.50	6.00	6.00	5.50	5.00	4.00	4.00	3.50	3.00	3.00	3.00	2.75	2.50
Session 5 Mean		0.75	0.50	0.00	0.75	2.75	2.50	0.75	2.75	5.50	5.00	2.00	5.50	3.50	3.00	1.25	3.50	2.75	2.50	1.25	2.75
Mean		0.88	0.75	0.38	0.63	2.88	2.75	1.75	2.63	5.75	5.50	3.75	5.25	3.75	3.50	2.38	3.25	2.88	2.75	2.00	2.63
Ses 4 Mn % Cor		100	100	75	50	100	100	92	83	100	100	92	83	100	100	88	75	100	100	92	83
Ses 5 Mn % Cor		75	50	0	75	92	83	25	92	92	83	33	92	88	75	31	88	92	83	42	92
Mean % Correct		88	75	38	63	96	92	58	88	96	92	63	88	94	88	60	81	96	92	67	88

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