Evidence for a basic level in event taxonomies

ANTHONY RIFKIN

City University of New York, New York, New York

The proposition that event taxonomies have a "basic" level was tested. In the first two tasks of the experiment, taxonomically related event categories were elicited. Nine taxonomies were constructed from subjects' responses on these tasks. In the third task, subjects listed attributes for events categories from the three levels of abstraction of these taxonomies. A single, common level of abstraction (the basic level) was identified. Subjects listed significantly more attributes for basic categories than for superordinate categories, but not significantly more attributes for the lower, subordinate-level categories. Further analyses showed that basic and subordinate categories elicited a greater number of concrete and event-related features than action and person-related features, and that superordinate categories showed the opposite trend. These findings are discussed in terms of general principles of categorization applied to events, objects, and scenes, and the particular characteristics of events.

Research has shown that people organize their knowledge of everyday activities in terms of the generic and stereotypical characteristics of these activities. The typical sequence of actions within activities is commonly agreed upon, and the actions of these events are sequentially organized in memory as "scripts" (Barsalou & Sewell, 1985; Bower, Black, & Turner, 1979). Additionally, the actions of events are hierarchically organized. Galambos and Rips (1982) found actions to be hierarchically ordered based on their centrality within activities, and Abbott, Black, and Smith (1985) found a hierarchical structuring of actions in terms of their generality.

The hierarchical organization of actions as "parts" of events indicates that event knowledge is organized in partonomies. It has been suggested that the partonomic organizations of event knowledge have a "basic" level comparable to the taxonomic organizations of object knowledge. Along these lines, Abbott et al. (1985) found a level of abstraction within event partonomies which people prefer to use for describing events. For example, they found that general act descriptions or "scene headers" such as "ordering" a meal, were frequently inferred for a "restaurant" event, while more specific actions, such as "reading a menu" and "discussing what to eat," were less frequently inferred. From this evidence, Abbott et al. suggested that this general level of abstraction may be a "basic" level similar to that found in object taxonomies by Rosch, Mervis, Gray, Johnson, and Boyes-Braem (1976). Rosch (1978) arrived at a similar conclusion when

she found that people use a particular level of act description for reporting their previous days' activities. For example, she found that people reported that they "got dressed" rather than "prepared to go out," a more general description, or "put on shoes," a more specific description.

However, Abbott et al. (1985) noted also that object partonomies may have a basic level similar to that found in event partonomies. This basic level could be determined by the "goodness" of an object's parts, based on the parts' perceptual salience and functional significance (Tversky & Hemenway, 1984). For example, "arms" and "legs" may be basic parts of the "body" because they are perceptually and functionally distinct from other parts of the body. In contrast, basic acts within events may not be perceptually distinct due to their temporal definitions, but they have distinct functional significance (Abbott et al., 1985). For example, "entering" and "ordering" describe basic acts with distinct functions for "going to a restaurant."

As object knowledge is organized taxonomically and partonomically, event knowledge may be similarly organized. For example, "getting dressed" may be a basic-level event category (as suggested by Rosch, 1978). Although "putting on shoes" has a partonomic relation to "getting dressed," "getting dressed for work," and "getting dressed for school" would be event categories that are taxonomically subordinate to "getting dressed." If taxonomic relations can be identified for event categories, it then would be possible to test for basic-level events using the operational criteria that Rosch et al. (1976) used for studying object categories.

In particular, Rosch et al. (1976) found that basic-level categories are the most inclusive (highest) level within taxonomies at which attributes are taken as common to all or most members of a category. For example, they found that a number of features were listed as common to a basic category, such as "chairs," whereas few if any features were listed as common to a superordinate category one

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level higher, such as "furniture." A number of features also were listed as common to categories subordinate to the basic categories, such as "kitchen chairs." But the number of features attributed to subordinate categories was not significantly greater than the number of features attributed to the basic categories. As such, Rosch et al. (1976) found the basic level to be the highest level of abstraction at which clusters of features are attributed to categories.

The aim of the present research, therefore, was to find evidence for a basic level in event taxonomies. In addition, the specific types of features listed for event categories were examined. Cantor, Mischel, and Schwartz (1982) had found that a greater number of person-related features are listed for event categories than are features describing the events per se. Person-related features included the social roles, actions, and feelings associated with events, and event-related features included the physical aspects, locations, and atmosphere of events. However, all of Cantor et al.'s (1982) superordinate categories matched a "major personality dimension frequently obtained in person-perception studies" (p. 48), such as "a social situation." Also, Cantor et al. (1982) asked subjects to list the characteristics of "being in" a situation rather than to list the characteristics of the events per se. For example, they asked for the characteristics of "being in a social situation" and "being at a party" rather than asking for the characteristics of "a social situation" or "a party." Therefore, it was of interest to see whether more event-related features would be listed for event categories if reference was made only to the events per se, and not to being in the events.

In the first two tasks of the present experiment, event categories were elicited in terms of their taxonomic relations. The first task was modeled after Battig and Montague's (1969) collection of category norms. In this task, subjects listed the instances of superordinate event categories. These instances were assumed to provide the ordinate (basic) level of the taxonomies. In the second task, the most frequently mentioned instances from the first task were given to subjects who were asked for superordinate and subordinate terms for each. This task was used to determine a "taxonomic depth" of three levels of abstraction within the event taxonomies. On the basis of the most frequently produced responses in these first two tasks, nine taxonomies were constructed with three levels each. The third task tested Rosch et al.'s (1976) basic-level hypothesis for these event taxonomies, that is, whether there is a "most inclusive level in taxonomies at which clusters of attributes, believed to be common to the class named, would be listed" (p. 390). Based on the data of this task, basic-level event categories were identified. It was also predicted that more event-related features than person-related features would be listed for these categories, if no explicit reference was made to "being in" these events.

METHOD

Taxonomic Relations

All subjects in the first two tasks were students in undergraduate psychology courses at Brooklyn College of the City University of New York. Subjects participated in the experiment for course credit. In the first task (the superordinate task), 27 subjects were given nine superordinate event categories and were asked to list the members of these categories. Appendix A shows the nine superordinates given to each of the subjects. The phrasings for the superordinate stimuli (e.g., "A Type of Meal" and "A Sport") were adopted to follow the phrasing format used by Battig and Montague (1969) for their stimuli. The instructions were similar to those used by Battig and Montague (1969), but included examples of activities and events rather than items and objects (i.e., the example "A Type of Medical Activity" was given, with the possible members of this category being "a check-up," "surgery," "a shot," "a blood test," and "taking X rays"). Subjects were given 90 sec per item. Appendix A shows all of the instances of the superordinates generated two or more times, the frequency with which they were produced, and the number of instances that were listed only once. The responses shown in parentheses in Appendix A are alternative forms of the instances that were commonly mentioned.

In the second task (the taxonomic depth task), a different group of 27 subjects were asked to list superordinate and subordinate categories for ordinate- (basic-) level categories. The basic-level category stimuli in this task were the six most frequently produced instances for each of the superordinates in the superordinate task. The only exceptions to this criterion were the use of "furniture shopping" as an instance of "shopping," and of "walking" and "running," which were used in place of "motorcycle" and "bicycle," because they are types of "transportation" that do not involve a vehicle. Appendix B shows the basic-level terms that were tested in this task.

Each of the subjects responded to 24 stimulus items, and each stimulus item was responded to by 12 subjects. Each stimulus set contained the six basic-level categories from four of the nine superordinates. Each subject responded to either a different set of stimuli or a different order of a set. Each stimulus item was printed on a separate page of a testbooklet. "This is a type of what?" was printed to the left of each item for the superordinate responses. "What are examples of this activity?" was printed to the right of each item for the subordinate responses. Subjects were given the basic category example "surgery," with "medical activity" as an example of a superordinate category to which it belongs, and "heart surgery" and "exploratory surgery" as examples of subordinates of "surgery." Subjects were given 1 min per item. Appendix B shows all the categories generated by 2 or more subjects, the frequency with which these categories were produced, and the number of categories that were listed only once. The responses shown in parentheses in Appendix B are alternative forms of the categories that were mentioned.

Attribute Listings

Subjects. Subjects were 50 students in undergraduate psychology courses at Brooklyn College of the City University of New York. All subjects received course credit for participating in the experiment. None of the subjects who had taken part in the other tasks participated in this task.

Stimuli. The stimuli were 45 event-category terms (see Appendix C). The categories were the nine superordinates, with two basic/ordinate-level categories for each superordinate and one subordinate category for each of the basic categories. The following criteria were used for selecting the stimuli. First, the basic-level categories were among the six most frequently listed instances of the superordinates in the superordinate task, except for "furniture

shopping" (see Appendix A). Second, the basic-category terms elicited the superordinates in the taxonomic depth task with a frequency equal to or greater than any other superordinate (see Appendix B). However, in the taxonomic depth task, all of the basic-level categories under the superordinate "housework" elicited another superordinate more frequently. In particular, "cleaning activity" was named more often. Nonetheless, the superordinate "housework" was used in this experiment, because "cleaning activity" did not encompass all of the instances generated for "housework" in the superordinate task (e.g., "cooking" and "ironing"; see Appendix A and B), and instances of "hygienic activities" also were classified as "cleaning activities" (see Appendix B). All of the original superordinates from the superordinate task, therefore, were used as stimuli in the present experiment.

The third criterion for selecting the basic-level stimuli was the number of subordinates generated for them by 2 or more subjects in the taxonomic depth task (see Appendix B). For the basic categories under the superordinate "transportation," the criterion was two or more agreed-upon subordinates. For the basic categories under the other superordinates, the criterion was four or more agreed-upon subordinates. The subordinate-level stimuli for the present experiment then were selected from the agreed-upon subordinates of the basic categories (see Appendix B). The subordinate terms selected were those that labeled events rather than objects (e.g., "quick breakfast" was used as the subordinate under "breakfast" rather than "bacon and eggs").

The phrasings of the basic-level stimuli were those received in the superordinate task. The terminology used for the superordinate and subordinate stimuli were phrasings received for these categories in the taxonomic depth task.

Procedure. The stimuli were divided into five sets of nine items each: one set of superordinate items, two sets of basic-level items, and two sets of subordinate items. For the basic- and subordinate-level sets, there was one item per set from each of the nine taxonomies. Ten subjects responded to each set. Subjects were run in groups of 2 to 20. Each item was printed at the top of a page. The nine pages of items were assembled in a different random order for each subject. Subjects were given 2 min per item.

The instructions were printed on the first page of each test booklet. For each event-category term, subjects were asked to list the characteristics common to that activity. For the basic-level items, the examples "basketball" and "camping vacation" were given. For "basketball," subjects were given the example responses "dribbling," "running," "throwing," "tall players," "teams," "baskets," and "bleachers," and for "camping vacation," they were given "time off from work (or school)," "planning for it," "tent," "sleeping bags," "campsite," "buying equipment," "packing equipment," and "traveling." The instructions warned subjects against responding in terms of associations (e.g., "basketball" reminding them of their "brothers"). After the subjects read the instructions, they also were asked not to write narratives (e.g., not to write that "my brother played for the varsity basketball team, and that he was really good," etc.). The subjects who responded to the subordinate and superordinate items received the same instructions. The examples for the subordinate items were "intramural basketball" and "family camping trip." The example for the superordinate items was "vacation." "Sports" was not used as a superordinate example because this item was tested in the study.

Item tally. For each category, only the attributes listed by at least 3 subjects were counted in the final tabulation. This criterion is similar to that used by Rosch et al. (1976). The responses that reached this criterion are shown in Appendix C. The number of features that did not reach this criterion also are shown in Appendix C. It should be noted that the features shown are exactly those that were listed for the categories. For example, while "pancakes" and "bacon" were listed for "breakfast," they were not listed for its subordinate category, "quick breakfast." Therefore, the feature norms in Appendix C do not necessarily depict transitive relations between the taxonomically related categories, as are found in Rosch et al.'s

(1976) "judge amended" norms. That is, all of the features shown for a category (e.g., "breakfast") are not necessarily properties of all the categories under it (e.g., "quick breakfast").

In addition, the attributes that made it to the final tally were classified as objects (such as "books"), persons (such as "family" or "actors"), actions (such as "skating"), physical attributes (such as "noisy" or "dirty"), locations (such as "stadium"), outcomes (such as "touchdowns" or "passing/failing"), personal states (such as "nervous"), time (such as "late"), and abstract states or things (such as "expensive" or "grammar"). The classification of each attribute that reached the final tally is shown in Appendix C. A graduate-student judge independently coded 40% of the features using the above classifications without the examples. The judge was given an equal number of features from each of the classifications, except for the abstract and time features, each of which had only 3. There was an 87.5% agreement on the classifications of these features.

Along with the attributes listed for the categories, subjects also listed instances of the categories. For example, "football" and "baseball" were listed for "sports," along with the attributes of this category. Also, categories to which the basic and subordinate terms belong were listed for these terms. For example, "crime" was listed for "murder," and "murder" was listed for "homicide."

These responses that are taxonomically related to the category stimuli were classified as follows and tabulated separately. For the superordinate categories, responses were classified as "basic" categories if they were received as instances of the superordinates in the superordinate task (see Appendix A). None of the subordinate categories received in the taxonomic depth task were listed with the attributes of the superordinates. For the basic categories, responses were classified as "superordinate" or "subordinate" if they had been generated as superordinates or subordinates of these basic categories in the taxonomic depth task (see Appendix B). For the subordinate categories, responses were classified as "basic" if the subordinate category had been listed as an instance of that basic category in the taxonomic depth task. Also, for the subordinate categories, responses were classified as "superordinates" or "subordinates" if they had been generated in the taxonomic depth task as superordinates or subordinates of a basic category to which the subordinate term belongs. Appendix C shows all of the "superordinate," "basic," and "subordinate" taxonomic terms that reached the final tabulation criterion of being listed by at least 3 subjects. Appendix C also shows the number of taxonomic terms that were listed once or twice for the category stimuli.

RESULTS

Table 1 shows the mean number of attributes reaching the final tabulation at each level of abstraction. The basic-level hypothesis for this study was that the basic level would be the most inclusive level in taxonomies at which clusters of features are attributed to categories. T tests showed that the ordinate (basic) level was the "basic" level. These categories elicited significantly more attributes than did the superordinate categories [$t(8) = 5.74$, $p < .001$], and no difference was found between the number of attributes listed for the basic categories and the number listed for the subordinates [$t(8) = .28$]. The increase in the number of attributes between the superordinate and basic levels was significantly greater than the difference between the number of attributes listed for the basic categories and the number listed for the subordinates [$t(8) = 4.53$, $p < .01$]. (This basic-level analysis is the same as that performed by Tversky & Hemenway, 1983).

Similar basic-level differences were found when the taxonomic terms that had been listed with the attributes of

Table 1
Number of Attributes in Common at Each Level of Abstraction

Category	Number of Attributes in Common					
	Without Taxonomic Terms			With Taxonomic Terms		
	Superordinate	Basic Level	Subordinate	Superordinate	Basic Level	Subordinate
Meal	4	9.5	8	6	9.5	8
Entertainment	1	5.5	7.5	6	9	7.5
School Activities	1	6	5.5	3	7	5.5
Sports	3	10	7.5	8	10	7.5
Hygiene	3	7.5	4.5	4	7.5	4.5
Shopping	2	6	5	3	6	5
Crime	1	5.5	6.5	5	6.5	7
Transportation	0	3.5	7.5	5	3.5	7.5
Housework	2	5.5	5	5	5.5	5
Averages	1.9	6.6	6.3	5.0	7.2	6.4

the categories were included in the analyses (e.g., the "basic" category instances listed for the superordinates; see Appendix C). The difference between the superordinate and basic levels was significant [$t(8) = 2.48$, $p < .05$], and no difference was found between the basic and subordinate-level categories [$t(8) = .94$]. The increases between the superordinate and basic levels were significantly greater than the differences between the basic and subordinate levels [$t(8) = 2.48$, $p < .05$].

The finding of taxonomic (superordinate, basic, and subordinate) terms being generated in the attribute listings for the categories had not been predicted. These taxonomic terms appeared to be given more often for the superordinate categories. T tests were performed to test this difference. Again, there was a significant difference between the superordinate and basic levels [$t(8) = 3.65$, $p < .01$], but in the opposite direction: the superordinate categories elicited more taxonomic terms. No difference was found between the basic and subordinate levels [$t(8) = 1.40$].

Analyses were then performed on the types of attributes that had been listed for the categories. Table 2 shows the number of different types of attributes that were generated for the categories at the different levels of abstraction.

T tests were performed to determine whether there were significant differences between the number of attributes

describing people (persons, actions, and personal states) and those describing the events (objects, physical attributes, locations, outcomes, time, and abstract states or things). For the basic categories, there was a significantly greater number of event-related than person-related features [$t(17) = 3.40$, $p < .01$]. A significantly greater number of event-related than person-related features also was listed for the subordinate categories [$t(17) = 3.27$, $p < .01$]. More person-related features than event-related features were listed for the superordinates, but this difference was not significant [$t(8) = 1.94$]. In addition, the categories at the different levels of abstraction were compared in terms of whether they received more event-related than person-related features. Proportionally more of the basic categories received more event-related features in contrast to the superordinates which elicited a greater or equal number of person-related features [$\chi^2(1) = 6.69$, $p < .01$]. No such difference was found between the basic and subordinate level categories [$\chi^2(1) = .13$].

DISCUSSION

The hypothesis was confirmed that there is a basic, highest level of categorization within event taxonomies at which clusters of features are attributed to events. The superordinate categories received few, if any, attributes that are taken as common to their members. In contrast, more features were listed for the basic- and subordinate-level categories, and no differences were found between these levels. These findings are similar to those found by Rosch et al. (1976) for object categories and by Tversky and Hemenway (1983) for scene categories. The present findings, therefore, suggest that people apply a similar categorization process to events, scenes, and objects for organizing featural information within these domains.

An unexpected finding was that a number of category and instance terms were listed with the attributes of the event categories. For example, "movies" was frequently listed as an instance of "entertainment" in the superordinate task (see Appendix A) and was also listed with the attributes of "entertainment" in the attribute listing task (see Appendix C). Conversely, "entertainment" was listed in the taxonomic depth task as a category to which "movies"

Table 2
Number of Attributes in Classifications
at Each Level of Abstraction

Classifications	Number of Attributes		
	Superordinate	Basic Level	Subordinate
Event-related			
Objects	4	55	57
Physical Attributes	0	8	7
Locations	1	10	6
Outcomes	0	7	0
Abstract	0	1	4
Time	0	2	2
Totals	5	83	76
Person-related			
Persons	3	17	19
Actions	4	16	14
Personal States	5	2	5
Totals	12	35	38

belong (see Appendix B), and was listed with the attributes of "movies" in the attribute listing task (see Appendix C). The superordinate categories in particular received a greater number of taxonomic terms in their attribute listings, with basic-level "instances" being listed for the superordinate categories. However, a significant difference was still found between the basic- and superordinate-level categories, when the taxonomic terms received with the attributes were included in the attribute analysis. Therefore, the "basic-level" difference between the superordinate- and basic-level event categories was not based on subjects listing taxonomic terms rather than features for the superordinates. Many more basic-category instances could have been listed for the superordinates (see Appendix A) but were not.

Further research will be necessary to find out why taxonomic terms are listed with the attributes for event categories, especially for the superordinate categories. Basic categories may be listed for the superordinates because they are typical exemplars of the superordinates. As evidence of this, the most frequently listed instances of the superordinates (see Appendix A) were the instances most likely to be included in the attribute listings for the superordinates (Appendix C). These typical exemplars may be reported because of the absence of features common to the superordinates.

Differences also were found in the types of information reported for the different levels of event categorization. The basic- and subordinate-level categories elicited more event-related than person-related features (i.e., more features describing objects, physical attributes, locations, outcomes, time, and abstract states). No difference was found between the number of event-related and person-related features listed for the superordinate categories. However, more of the superordinate level categories had a greater or equal number of person-related features listed for them (i.e., features describing persons, actions, and personal states) in contrast to the basic categories that had elicited more event-related features. No such difference was found between the basic- and subordinate-level categories.

Of particular interest was the large number of objects received as features of the basic and subordinate categories (see Table 3 and Appendix C). Given the large number of objects generated for these categories, the basic-event categories appear to be the highest level of abstraction at which concrete features of events are organized. In contrast, more abstract person-related features are attributed to superordinate-level categories. For example, "competition" and "fun" were used to describe "sports." This difference between the superordinate- and basic-level categories is similar to what Rosch et al. (1976) found for their object categories. More abstract functional features were listed for their object superordinates (e.g., "makes things" for "tools"), and more concrete part descriptions and physical features were listed for their basic- and subordinate-level object categories (e.g., "blade" and "sharp" for "saw"). A single type of

taxonomic-feature organization may therefore exist that is applied to both event and object taxonomies, based on the attribution of abstract features at higher levels and more concrete features at and below the basic level.

The finding of more event-related features being produced for basic- and subordinate-event categories is in contrast to Cantor et al.'s (1982) finding of more person-related features being generated for event categories. However, Cantor et al.'s (1982) event categories were based on personality dimensions obtained in person-perception studies. In line with these personality dimensions, the researchers had asked subjects for the characteristics of "being in" a situation (e.g., the characteristics of "being at a party" rather than the characteristics of "a party"). Such a "participatory" perspective toward events may quite naturally elicit person-related features such as the feelings and actions of people within events. Further research will be necessary to determine how event-related and person-related features are organized within event categories. For example, the objects listed for event categories may be "slotfillers" related to particular actions within the scripts for these events, such as the different types of food that one eats for breakfast (Nelson & Gruendel, 1981). Or, these objects may be the "parts" of scenes (Tversky & Hemenway, 1983) that the events are related to. For example, the objects listed for "food shopping" may be those encountered in a "grocery store."

In conclusion, it was found that people taxonomically organize their knowledge of events, and that this organization is similar to that found in other domains. The taxonomic organization of event knowledge may serve specific purposes in the retrieval of event information (Schank, 1982), such as the retrieval of autobiographical memories (Reiser, Black, & Abelson, 1985). It should be noted, however, that the event taxonomies found here may not be as stable as the object taxonomies studied by Rosch et al. (1976). As can be seen in the results of the taxonomic depth task (Appendix B), many of the agreed-upon subordinate categories were generated by only 2 out of 12 subjects. In addition, a single most dominant superordinate was not always produced for the basic-level categories. Event taxonomies may not be as stable as object taxonomies because of the other types of organizational principles, such as partonomic and script organizations, which play strong roles in the organization of event knowledge (Abbott et al., 1985; Barsalou & Sewell, 1985). As such, event knowledge may be organized in a number of different ways. But, as indicated in the present study, one of these ways is taxonomic.

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APPENDIX A

Instances Listed for Superordinates and Their Production Frequency*

Instances	Frequency	Instances	Frequency
A TYPE OF MEAL			
Breakfast	16	Vegetables	3
Lunch	16	Rice	3
Dinner	16	Luncheon	2
Supper	12	Bacon & Eggs	2
Snack	10	Soup	2
Brunch	5	Salad	2
Fish	4	Meat	2
Dessert	3	Potatoes	2
Sandwich	3	Preparation	2
Hamburgers	3	Conversation	2
Steak	3	Instances listed	
Chicken	3	once	48
A TYPE OF ENTERTAINMENT			
Movies (Seeing a movie)	19	Cardplaying (Cards)	4
Television (TV, TV show)	13	Concerts	3
Dancing	10	Records (Playing records)	3
Theatre	7	Playing a musical instrument	3
A party (Parties)	7	Conversation (Talking)	3
A play	7	Baseball (Baseball game)	3
Reading	6	Tennis	2
Radio (Listening to radio)	6	Football	2
Sports (Sports event)	5	A dance	2
Music	5	Amusement parks	2
Circus (Circus show)	5	Book reading	2
Games (Playing a game)	4	Magazines	2
Singing	4	Drinking	2
		Instances listed once	42
A GENERAL SCHOOL ACTIVITY			
Studying	12	Memorizing	3
Classes (Attending classes, Being in classroom)	10	Answering questions	3
Writing	9	Attendance (Taking attendance)	3
Taking tests (Tests)	8	Going to library	3
Reading	8	Carrying school books	3
Doing homework (Homework)	7	Being with friends (Talking with friends)	3
Observing (Watching, Paying attention)	7	Gym	3
Taking notes	6	Socializing	2
Thinking	5	Discussion (Discussing topics)	2
Doing research (Doing experiment)	5	Analyzing	2
Lectures	4	Understanding	2
		Walking	2
		Rules (Regulations)	2

APPENDIX A (Continued)

Learning	4	Reading textbooks	2
Listening	4	Swimming	2
Clubs	4	Instances listed once	36
A SPORT			
Football	21	Volleyball	4
Baseball	18	Badminton	4
Swimming	18	Softball	4
Tennis	16	Jogging	3
Basketball	15	Wrestling	3
Hockey	15	Ice-skating	3
Soccer	15	Bowling	3
Boxing	10	Waterskiing	3
Handball	8	Boating	3
Golf	8	Karate	3
Raquetball	7	Gymnastics	3
Ping-Pong (Table tennis)	7	Roller-skating	2
Horseback riding	7	Hunting	2
Running	7	Sailing	2
Paddleball	6	Squash	2
Cycling (Bicycle riding)	6	Cricket	2
Skiing	6	Polo	2
Fishing	5	Throwing	2
Horse racing	5	Jumping	2
Car racing	4	Getting tired	2
		Instances listed once	40
A TYPE OF HYGIENIC ACTIVITY			
Bath (Bathing, Taking a bath)	18	Shaving	6
Brushing teeth	17	Washing face (Cleaning face)	6
(Brushing your teeth)		Combing (Combing your hair)	5
Shower (Showering,	15	Changing clothes	4
Taking a shower)		Brushing hair	3
Washing hair (Washing your	11	Cleaning ears	3
hair, Shampooing your hair)		(Cleaning your ears)	
Washing hands	8	Washing	2
(Cleaning hands)		Soaping	2
Cutting nails	6	Instances listed once	30
A TYPE OF SHOPPING			
Clothes shopping	17	Furniture shopping	4
(Shopping for clothes)		Shopping at supermarket	3
Food shopping	17	(Go to supermarket)	
(Shopping for food)		Houseware shopping	2
Cars (For car, Automobile)	11	(Household implements)	
Grocery shopping	9	Shop for hardware	2
(Shopping for groceries)		For bicycle	2
Sports equipment	7	Toy shopping	2
(Athletic gear shopping)		Business	2
Window shopping	6	Jewelry	2
Shoes shopping (Shoes)	5	Books	2
Looking for house	5	Drugs (Drugs & cosmetics)	2
(For house)		Christmas	2
Comparison (Shopping	4	Instances listed once	48
around for best price)			
A CRIME			
Rape	18	Manslaughter	2
Murder	16	Homicide	2
Robbery (Theft)	12	Larceny	2
Stealing (Steal,	9	Trespassing	2
Steal something)		Child abuse	2
Mugging	9	Kidnapping	2

APPENDIX A (Continued)

Assault	8	Hijacking	2
Arson	6	Libel	2
Shoplifting	6	Purgery	2
Burglary	5	Bigamy	2
Embezzlement	4	Felony	2
Bribery	3	Cheating	2
Stabbing (Knifing)	3	Instances listed once	58
Killing	2		

A TYPE OF TRANSPORTATION

Bus (Taking a bus, By bus)	25	Helicopter	7
Car (Automobile, Motorcar, By car)	24	Horse (Horseback)	5
Train (Taking a train, By train)	23	Running	4
Plane (Airplane, By plane)	23	Rocket (Rocketship)	4
Bicycle (Bike, By bicycle, Bicycle riding, Biking, Riding bike)	20	Ship	3
Motorcycle (Motorbike, By motorcycle)	16	Roller-skates (Roller-skating)	3
Boat (By boat)	11	Truck	2
Walking	9	Taxi (Taxicab)	2
		Balloon (Ballooning)	2
		Horse & buggy	2
		Jet	2
		Ferry	2
		Subway	2
		Move (Moving)	2
		Instances listed once	29

A TYPE OF HOUSEWORK

Laundry (Doing laundry, Washing clothes, Doing the wash)	18	Making beds	7
Dusting	15	Cleaning mirrors	5
Cooking (Cook)	15	Taking out garbage	4
Sweeping (Sweep)	13	(Throwing out garbage)	
Vacuuming (Vacuum, Hoovering)	12	Painting	3
Washing dishes (Doing dishes, Dishes)	11	Cleaning floors	3
Clean windows (Washing windows)	11	Ironing	2
Mopping (Mopping floors)	9	Sweeping the floor	2
		Dusting furniture	2
		Waxing floors	2
		Waxing	2
		Cleaning the bathtub	2
		Shopping	2
		Baking (Bake)	2
		Instances listed once	32

Note - 27 subjects generated instances for each superordinate.

APPENDIX B

Superordinate Categories and Subordinate Instances Listed for Basic Categories*

Superordinates	Freq.	Subordinates	Freq.	Superordinates	Freq.	Subordinates	Freq.
MEALS							
		Breakfast				Snack	
Meal (Mealtime)	8	Bacon & eggs	3	Meal	3	Chips (Potato chips)	5
Eating activity	3	Eggs, juice & toast	2	Eating	2	Cookies	3
Nourishment (Nutrition)	2	Quick breakfast	2	Food (Food consumption)	2	Candies	2
Superordinates listed once	4	Cereal & milk	2	Enjoyable activity (Enjoyment)	2	Pretzels	2
		Going out for pancakes	2	Superordinates listed once	5	In-between-meals snack (Tide-over snack)	2
		Brunch	2				

APPENDIX B (Continued)

		Making snack	2			Midnight	2
		Subordinates	13			(Nightcap)	
		listed once				Subordinates	14
						listed once	
		Lunch				Supper	
Meal (Mealtime)	5	Sandwiches	4	Meal (Mealtime,	5	Steak (Steak &	4
Midday meal	2	(Soup &		Eating a meal)		potatoes)	
Eating	2	sandwich,		Eating activity	3	Subordinates	14
Superordinates	4	Sandwich		Final meal of the	2	listed once	
listed once		& soda)		day (Night			
		Tuna sandwich	2	meal)			
		Pizza	2	Food	2		
		Subordinates	14	Superordinates	5		
		listed once		listed once			
		Dinner				Brunch	
Meal (Mealtime,	5	Family dinner	2	Meal (Mealtime)	5	Early lunch	2
Type of meal)		Banquet dinner	2	Eating activity	4	Subordinates	16
Eating activity	3	Hamburgers	2	Social (Social	2	listed once	
Superordinates	6	Fries	2	activity)			
listed once		Subordinates	19	Superordinates	6		
		listed once		listed once			
ENTERTAINMENT							
		Movies				Theatre	
Entertainment	6	Comedies	4	Entertainment	6	Comedy plays	4
(Form of		Horror	4	(Form of		(Seeing	
entertainment)		Drive-in	2	entertainment)		comedy plays)	
Leisure activity	2	movies		Leisure (Leisure	2	Drama	4
Superordinates	5	Thrillers	2	activity)		(Seeing	
listed once		Love stories	2	Superordinates	5	dramatic	
		Dramas	2	listed once		performances)	
		Science fiction	2			Musical	2
		Western movies	2			Dance theatre	2
		Subordinates	12			Opera theatre	2
		listed once				Subordinates	13
						listed once	
		Television				A Party	
Entertainment	7	Color television	3	Enjoyment (Fun,	5	Birthday party	7
(Daily enter-		Comedies	3	Enjoyable		(Birthday)	
tainment,		(Sit-coms)		activity)		Surprise party	3
Form of		B & W	2	Social gathering	3	Graduation party	3
entertainment)		television		Social activity	2	Anniversary	2
Leisure	4	Cable television	2	Entertainment	2	party	
(Leisure		Soap operas	2	event		Halloween party	2
activity)		Special events	2	(Entertaining		Subordinates	16
Superordinates	8	Game shows	2	experience)		listed once	
listed once		News	2	Superordinates	2		
		Movies	2	listed once			
		Subordinates	15				
		listed once					
		Dancing				A Play	
Physical activity	7	Disco dancing	9	Entertainment	6	Comedy	2
(Physical		Ballet	6	(Entertaining)		Musical	2
movement)		Modern	3	Performance	2	(A musical	
Entertainment	4	dancing		Artistic produc-	2	play)	
(Form of		Classical	2	tion (A form		Chorus line	2
entertainment)		dancing		of art)		Subordinates	16
Superordinates	6	Tap dancing	2	Enjoyment (Fun)	2	listed once	
listed once		Waltz	2	Superordinates	2		
		Subordinates	11	listed once			
		listed once					

APPENDIX B (Continued)

SCHOOL ACTIVITIES							
Studying				Reading			
Mental activity (Mental exercise)	5	Reading a book (Reading texts, Book studies)	4	Learning (Learning activity)	5	Pleasurable reading (Reading for enjoyment, Leisure reading)	5
Learning (Learning work, Learning experience, Learning activity)	4	Rereading notes	3	Mental (Mental activity)	2	Reading textbook	4
School (Scholastic activity)	2	Studying for tests (Studying for final)	3	Superordinates listed once	12	Schoolwork (Reading for school)	2
Superordinates listed once	7	Memorization work (Memo-rization)	2			Reading a book	2
		Written studies (Writing a problem)	2			Reading newspaper	2
		Subordinates listed once	8			Reading journals	2
						Novel reading	2
						Subordinates listed once	11
Taking Test				Doing Homework			
Measure of learning	2	Aptitude test	4	Learning (Learning activity, Learning experience)	4	Reading texts	3
School requirement (Scholastic chore)	2	Intelligence tests (IQ tests)	3	Learning		Math homework (Working on math problems)	3
Knowledge query (Finding out how much you know)	2	Multiple choice Exams	3	Studying	3	English homework	2
Examination activity (Testing activity)	2	Essays (Writing essays, Written tests)	3	Schoolwork (Scholastic chore)	2	Reading	2
Tiring (Strenuous)	2	Midterms	2	School (School activity)	2	Writing papers	2
Superordinates listed once	7	Achievement tests	2	Concentrating (A concentrating process)	2	Assignments	2
		Subordinates listed once	13	Superordinates listed once	3	Subordinates listed once	8
Classes				Writing			
School activities (School situation, School)	6	Psychology (Psychology class)	5	Form of expression (Way of expression, Means of expression, Expressive activity)	4	Letter writing	5
Categories (Categorization, Subcategories, Subdivisions)	4	English (English classes)	4	Communication (Means of communication)	4	Writing	2
Learning experience	2	Math (Math class)	4	Art (Artform)	3	compositions	2
Superordinates listed once	7	History classes	3	Superordinates listed once	5	Writing novels	2
		Dancing classes	2			Poems	2
		Biology classes	2			Script (Cursive)	2
		Subordinates listed once	20			Print	2
						Taking notes	2
						Subordinates listed once	18
A SPORT							
Football				Basketball			
Sport (Sports activity)	9	Touch football	3	Sport (Sports activity)	10	Professional games	2
Game	5	Tackle football	2	Game	4	Professional basketball	2
Physical activity	2	Professional football	2	Physical (Physical activity)	3	Subordinates listed once	20
Superordinates listed once	5	Soccer	2	Superordinates listed once	3		
		Subordinates listed once	13				

APPENDIX B (Continued)

Baseball				Swimming			
Sport	9	Softball	3	Sport	7	Backstroke	7
(Sports activity)		Hardball	2	(Sports activity)		Butterfly stroke	5
Game	4	Major League	2	Exercise (Physical exercise)	5	(Butterfly)	
Recreation	2	baseball		Physical activity	3	Freestyle	4
(Recreational)		Professional	2	Enjoyment	2	Crawl	3
Superordinates	4	baseball		(Fun activity)		Swimming under	3
listed once		Little League	2	Superordinates	2	water	
		baseball		listed once		Breaststroke	2
		World Series	2			Sidestroke	2
		games				Dog paddle	2
		Bats (Base-	2			Subordinates	4
		ball bats)				listed once	
		Subordinates	12				
		listed once					
Hockey				Tennis			
Sport	8	Ice hockey	4	Sport	9	Table tennis	4
(Sports activity)		Street hockey	2	(Sports activity)		(Ping-Pong)	
Game	4	Professional	2	Game	2	Wimbledon	2
Physical activity	2	hockey		Physical activity	2	matches	
Superordinates	7	Winter Olym-	2	Superordinates	3	(Wimbledon)	
listed once		pics hockey		listed once		Hardcourt tennis	2
		Competitive	2			(Claycourt	
		hockey				tennis)	
		(Competitive)				Subordinates	16
		Subordinates	11			listed once	
		listed once					
HYGIENIC ACTIVITIES							
Bathing				Showering			
Hygiene (Hygienic activity, Personal hygiene)	8	Showering	3	Hygienic activity	6	Hot shower	3
(Taking a shower)		Bathing in a tub	2	(Personal hygiene)		Quick shower	2
Cleansing activity	5	Sunbathing	2	Cleansing activity	5	(Quick showering)	
(Cleaning activity)		(Sunning)		(Cleaning activity)		Long shower	2
Superordinates	7	Soaking for	2	Cleanliness	2	(Long showering)	
listed once		relaxation		Superordinates	6	Locker room	2
		(Soaking in a hot tub)		listed once		shower (Showering in a locker room)	
		Subordinates	15			Shampoo hair	2
		listed once				Subordinates	10
						listed once	
Brushing Teeth				Washing Hair			
Hygiene	6	Vertically	3	Cleansing activity	5	Shampooing	2
(Hygienic activity, Personal hygiene)		(Moving brush up and down,		(Cleaning activity, Cleaning routine)		(With shampoo)	
Cleansing activity	4	Downward)		Hygiene (Hygienic activity, Personal hygiene)	5	Showering	2
(Cleaning activity)		Horizontally	2			(Shampooing in shower)	
Dental activity	3	(Across)				Bathing	2
Dental care	2	Dental	2	Cleanliness	2	Subordinates	13
Habit	2	Subordinates	11	Grooming	2	listed once	
(Good health habit)		listed once		(Grooming activity)			
Superordinates	4			Superordinates	6		
listed once				listed once			

APPENDIX B (Continued)

Washing Hands				Cutting Nails			
Hygiene	8	Washing with soap & water	3	Grooming (Personal grooming)	6	Filing (Filing nails)	3
(Hygienic activity, Personal hygiene)		(Using soap & water)		Hygienic (Personal hygiene, Hygienic activity)	5	Manicure	2
Cleaning activity (Cleansing activity)	5	Lathering hands	2			Trimming (Trimming nails)	2
Grooming	2	Washing hands quickly	2	Superordinates listed once	4	Shortening	2
Superordinates listed once	5	Rinsing hands	2			Using Clippers (With a nail-clipper)	2
		Rinsing hands in a river (Rinsing in a stream or creek)	2			Subordinates listed once	7
		Subordinates listed once	11				
SHOPPING							
Clothes Shopping				Shopping for Car			
Shopping activity (Necessary shopping)	3	Buying Shoes (Buying a pair of shoes)	2	Shopping Providing transportation (Acquiring a form of transportation)	2	Shopping for a sports car	2
Necessary activity (Necessary)	2	Shopping for shirts (Buying a new shirt)	2			Going to a used-car lot	2
Leisure activity (Using money)	2	Shopping for pants (Buying pants or skirts)	2	Superordinates listed once	7	Subordinates listed once	11
Selecting (Choosing)	2						
Superordinates listed once	5	Subordinates listed once	13				
Food Shopping				Shopping for Sports Equipment			
Shopping (Shopping activity, Necessary shopping activity)	4	Buying meat (Buying meat products, Meat shopping)	6	Shopping activity Leisure activity (Free-time activity)	3	Outfitting a team (Buying uniforms for a team)	3
Domestic activity (Household activity)	2	Fruit shopping (Buying fruit)	4	Superordinates listed once	7	Shopping for basketball	2
Necessity (Essential activity)	2	Going to butcher	2			Shopping for tennis racket	2
Superordinates listed once	7	Buying vegetables	2			Buying a baseball bat & glove	2
		Buying milk	2			Subordinates listed once	14
		Subordinates listed once	10				
Grocery Shopping				Furniture Shopping			
Shopping activity (Necessary shopping activity)	3	Going to meat market (Buying meat at the butcher)	3	Shopping activity Decorative activity (Decorating activity)	3	Shopping for bedroom furniture	2
Domestic activity (Household chore, Caring of home)	3	Buying meat, milk, etc.	2	Purchasing (Buying or purchasing)	2	Buying a dining room set (Buying a new dining room set)	2
Superordinates listed once	9	Going to buy milk	2	Furnishing an apartment (Getting things to furnish an apartment)	2	Table (Looking or shopping for a table)	2
		Going to buy eggs	2			Chair (Looking or shopping for)	2
		Shopping for fruit	2				

APPENDIX B (Continued)

		Shopping for breads	2	Superordinates listed once	7	a chair)	
		Subordinates listed once	11			Subordinates listed once	12
CRIME							
	Rape				Assault		
Crime (Criminal activity)	8	Statutory rape	3	Crime (Criminal activity,	10	Rape	5
		Assault	2	Crime act)		Mugging	5
Sexual activity	2	Mental rape	2			Assault with a	3
Superordinates listed once	8	Forcing someone to have sexual intercourse	2	Aggressive behavior (Aggressive act)	2	deadly weapon	
		Subordinates listed once	15	Superordinates listed once	6	Sexual assault	2
						Murder	2
						Physical assault	2
						Stabbing someone	2
						Subordinates listed once	14
	Murder				Mugging		
Crime (Criminal activity)	10	Homicide	3	Crime (Criminal activity)	10	Stealing (Theft, Robbing)	4
		Shooting someone (Shooting person)	3	Aggressive behavior (Illegal aggressive act)	2	Stealing a purse (Taking a woman's purse)	3
Superordinates listed once	7	Genocide	2			Stealing money	2
		Patricide	2	Physical abuse (Bodily assault)	2	Assault	2
		1st degree murder	2	Superordinates listed once	6	Murder	2
		Manslaughter	2			Rape	2
		Stabbing someone	2			Subordinates listed once	15
		Strangling	2				
		Rape	2				
		Burglary	2				
		Killing	2				
		Subordinates listed once	19				
	Stealing				Robbery		
Crime (Criminal activity, Criminal offense)	11	Stealing money (Taking money)	3	Crime (Criminal activity, Criminal offense)	10	Stealing	3
						Pickpocketing	3
Superordinates listed once	4	Mugging	3	Illegal activity (Unlawful activity)	2	Mugging	3
		Pickpocketing	3	Superordinates listed once	3	Car theft (Stealing a car)	3
		Stealing a car	3			Bank robbery	3
		Raping	2			House (Breaking into a house)	3
		Shoplifting	2			Armed robbery	2
		Burglarizing	2			Theft	2
		Robbing a bank	2			Petty theft	2
		Breaking into a house	2			Shoplifting	2
		Subordinates listed once	11			Assault	2
						Grand larceny	2
						Subordinates listed once	11
TRANSPORTATION							
	Traveling by Bus				Traveling by Plane		
Transportation (Transportation activity, Way to get to destination, Way to	5	Traveling to school (Taking a bus to school)	3	Type of travel (Travel activity, Way to get to destination)	3	Travel by helicopter (Use of helicopter)	2
		City buses	2	Vacation activity	2	Subordinates listed once	16

APPENDIX B (Continued)

get from one place to another)		(Traveling by city bus)		Leisure activity	2		
Way of getting to work (Commuting to work)	2	Taking a bus to work	2	Business activity (Job requiring travel)	2		
Superordinates listed once	5	Bus tour (Taking a bus on vacation/Bus tour)	2	Superordinates listed once	5		
		Subordinates listed once	7				
Traveling by Car				Walking			
Means of transportation (Transportation activity, Way to get to destination)	4	Driving from Brooklyn to N.Y.C. (Driving to the city, Going to Manhattan)	3	Exercise (Physical exercise, Physical exercising activity)	5	Walking fast (Walking briskly)	3
Vacation activity	2	Going on vacation	2	Transportation activity (Means of transportation, Way to get somewhere)	3	Walking slow	2
Leisure activity	2	Taxi (Taxi driving)	2			Race walking (Walking fast in a race)	2
Superordinates listed once	7	Subordinates listed once	12	Fitness activity	2	Subordinates listed once	9
				Physical activity	2		
				Superordinates listed once	4		
Traveling by Train				Running			
Transportation activity (Way to travel, Way to get to destination)	3	Subway travel (Subway to the City)	3	Exercise (Exercise activity, Form of exercise)	5	Jogging	6
Subordinates listed once	7	Train to Washington (Amtrak to D.C.)	2	Sports activity	3	Marathon	2
		Subordinates listed once	7	Physical activity	2	Track (Track meet)	2
				Superordinates listed once	5	Subordinates listed once	13
HOUSEWORK							
Laundry				Sweeping			
Cleaning (Cleaning activity)	3	Chinese laundry	2	Cleaning activity (Cleaning action)	4	Sweeping floor	3
Doing housework (Household chore)	2	Dry clean (Cleaners)	2	Housework (Household chore)	2	Sweeping dirt into a dustpan	2
Superordinates listed once	7	Colored wash (Dark)	2	Superordinates listed once	6	Sweeping rug (Sweeping carpet)	2
		White wash (Light)	2			Vacuuming (Using an electric broom)	2
		Subordinates listed once	16			Subordinates listed once	10
Dusting				Vacuuming			
Cleaning (Cleaning activity, Cleaning method)	6	Dusting cloth (Rag)	3	Cleaning activity (Cleaning action)	5	Vacuuming rugs (Rug)	4
Housework	3	Dusting under bed (Cleaning under bed)	2	Housework (Household chore)	2	Vacuuming carpet (Vacuuming carpet in your house)	3
Superordinates listed once	2	Featherdusting (Wiping furniture with a featherduster)	2	Superordinates listed once	6	Vacuuming car (Vacuuming your car)	3

APPENDIX B (Continued)

		Dust furniture (Wipe furniture)	2			Vacuuming drapes	2
		Dust room (Clean room)	2			Dusting	2
		Subordinates listed once	12			Vacuum cleaner	2
						Subordinates listed once	10
		Cooking				Washing Dishes	
Act of preparing meal (Eating preparations)	2	Frying	2	Cleaning activity (Cleanliness activity)	4	Dishwasher (Loading dishwasher)	3
Enjoyable activity (Enjoyment)	2	Boiling	2				
Superordinates listed once	7	Baking a cake (Making a cake)	2	Household chore (Housework)	3	Washing pans (Scrubbing pots & pans)	3
		Cooking for family	2	Superordinates listed once	5	Washing dinner dishes (Dinner dishes)	2
		Subordinates listed once	21			Subordinates listed once	12

Note – 12 subjects generated responses for each basic category.

APPENDIX C
Final Tally of Attributes for Each Item in the Nine Taxonomies*

Superordinate	Freq.	Basic Level	Freq.	Subordinate	Freq.
Meal		Breakfast		Quick Breakfast	
Food (o)	5	Toast (o)	6	Milk (o)	5
Table (o)	5	Coffee (o)	6	Cereal (o)	4
Family (p)	4	Eggs (o)	6	Coffee (o)	4
Enjoyment (ps)	3	Juice (o)	5	Juice (o)	3
Dinner (bas)	5	Milk (o)	4	Toast (o)	3
Breakfast (bas)	4	Bacon (o)	4	Late (t)	3
Features listed twice	3	Pancakes (o)	4	Features listed twice	2
Features listed once	42	Orange juice (o)	3	Features listed once	34
Tax. terms listed twice	2	Diner (l)	4	Tax. terms listed twice	1
Tax. terms listed once	11	Early (t)	4	Tax. terms listed once	0
		Morning (t)	3		
		Features listed twice	10		
		Features listed once	40		
		Tax. terms listed twice	3		
		Tax. terms listed once	3		
		Dinner		Family Dinner	
		Meat (o)	4	Food (o)	7
		Vegetables (o)	3	Knives (o)	3
		Food (o)	3	Forks (o)	3
		Restaurant (l)	3	Glasses (o)	3
		Family (p)	5	Table (o)	3
		Eating (a)	5	Sister (p)	5
		Drink (a)	3	Mother (p)	3
		Cooking (a)	3	Brother (p)	3
		Features listed twice	4	Conversation (a)	3
		Features listed once	48	Washing dishes (a)	3
		Tax. terms listed twice	1	Features listed twice	9
		Tax. terms listed once	4	Features listed once	39
				Tax. terms listed twice	2
				Tax. terms listed once	1
Entertainment		The Movies		Horror Movie	
Friends (p)	5	Popcorn (o)	9	Blood (o)	5
Movies (bas)	8	Seats (o)	5	People (p)	3

APPENDIX C (Continued)

TV (bas)	6	Screen (o)	4	Screaming (a)	5
Parties (bas)	4	Film (o)	3	Scared (ps)	3
Dancing (bas)	3	Tickets (o)	3	Features listed twice	9
Concerts (bas)	3	Actors (p)	4	Features listed once	53
Features listed twice	3	Entertainment (super)	3	Tax. terms listed twice	0
Features listed once	31	Mysteries (sub)	3	Tax. terms listed once	0
Tax. terms listed twice	7	Features listed twice	10		
Tax. terms listed once	11	Features listed once	64		
		Tax. terms listed twice	2		
		Tax. terms listed once	5		
		Theatre		Comedy at the Theatre	
		Tickets (o)	6	Costumes (o)	4
		Expensive (ab)	3	Lights (o)	3
		Actors (p)	3	Scenery (o)	3
		Audience (p)	3	Tickets (o)	3
		Applause (a)	3	Stage (l)	5
		Broadway (sub)	5	Actors (p)	8
		Movies (sub)	5	Audience (p)	4
		Drama (sub)	4	Actresses (p)	4
		Comedy (sub)	4	Laughing (a)	8
		Musical (sub)	4	Jokes (a)	5
		Features listed twice	7	Enjoyment (ps)	3
		Features listed once	36	Features listed twice	3
		Tax. terms listed twice	3	Features listed once	35
		Tax. terms listed once	7	Tax. terms listed twice	1
				Tax. terms listed once	0
School Activities		Classes		English Class	
Friends (p)	3	Books (o)	5	Books (o)	4
Studying (bas)	4	Desks (o)	5	Pen (o)	3
Football games (bas)	3	Teacher (p)	3	Grammar (ab)	3
Features listed twice	0	Tests (a)	5	Teacher (p)	3
Features listed once	31	Writing (a)	4	Reading (a)	4
Tax. terms listed twice	4	Taking notes (a)	3	Writing (a)	3
Tax. terms listed once	12	Homework (a)	3	Boring (ps)	3
		Features listed twice	7	Features listed twice	9
		Features listed once	52	Features listed once	35
		Tax. terms listed twice	3	Tax. terms listed twice	0
		Tax. terms listed once	5	Tax. terms listed once	0
		Tests		Essay Tests	
		Grades (ou)	3	Pen (o)	4
		Passing (ou)	3	Paper (o)	3
		Failing (ou)	3	Writing (a)	3
		Studying (a)	8	Nervous (ps)	3
		Nervous (ps)	4	Features listed twice	6
		Essays (sub)	4	Features listed once	38
		Multiple choice (sub)	3	Tax. terms listed twice	0
		Features listed twice	4	Tax. terms listed once	4
		Features listed once	40		
		Tax. terms listed twice	2		
		Tax. terms listed once	12		
Sports		Football		Touch Football	
Exercise (a)	3	Football (o)	6	Football (o)	4
Competition (ps)	3	Helmets (o)	5	Running (a)	4
Fun (ps)	3	Cold (pa)	4	Falling (a)	3
Baseball (bas)	5	Stadiums (l)	4	Features listed twice	8
Football (bas)	5	Field (l)	4	Features listed once	38
Tennis (bas)	4	Touchdowns (ou)	6	Tax. terms listed twice	0
Basketball (bas)	3	Cheerleaders (p)	4	Tax. terms listed once	3
Swimming (bas)	3	Players (p)	3		
Features listed twice	2	Big men (p)	3		

APPENDIX C (Continued)

Features listed once	33	Features listed twice	11
Tax. terms listed twice	7	Features listed once	52
Tax. terms listed once	11	Tax. terms listed twice	1
		Tax. terms listed once	6
		Hockey	
		Ice (o)	8
		Sticks (o)	8
		Puck (o)	7
		Skates (o)	4
		Madison Square	3
		Garden (1)	
		Goals (ou)	4
		Score (ou)	3
		Players (p)	5
		Goalie (p)	5
		NY Islanders (p)	3
		Skating (a)	3
		Features listed twice	7
		Features listed once	37
		Tax. terms listed twice	0
		Tax. terms listed once	2
		Professional Hockey	
		Ice (o)	6
		Uniforms (o)	6
		Ice skates (o)	4
		Hockey sticks (o)	4
		Sticks (o)	4
		Puck (o)	3
		Net (o)	3
		Madison Square	4
		Garden (1)	
		NY Rangers (p)	5
		Fans (p)	3
		Players (p)	3
		Fighting (a)	6
		Features listed twice	8
		Features listed once	42
		Tax. terms listed twice	1
		Tax. terms listed once	4
		Hygiene	
		Soap (o)	3
		Clean (a)	4
		Cleanliness (ps)	4
		Shower (bas)	3
		Features listed twice	2
		Features listed once	21
		Tax. terms listed twice	1
		Tax. terms listed once	8
		Washing Hands	
		Soap (o)	9
		Towel (o)	9
		Sink (o)	9
		Water (o)	6
		Dirty (pa)	3
		Bathroom (1)	5
		Clean (a)	4
		Features listed twice	6
		Features listed once	19
		Tax. terms listed twice	0
		Tax. terms listed once	1
		Shower	
		Soap (o)	6
		Water (o)	5
		Towel (o)	3
		Wet (pa)	3
		Hot (pa)	3
		Bathroom (1)	3
		Clean (a)	5
		Refreshing (ps)	4
		Features listed twice	10
		Features listed once	28
		Tax. terms listed twice	1
		Tax. terms listed once	4
		Locker Room Shower	
		Soap (o)	6
		Towels (o)	6
		Water (o)	5
		Clothes (o)	5
		Gym (1)	3
		Features listed twice	10
		Features listed once	40
		Tax. terms listed twice	0
		Tax. terms listed once	1
		Shopping	
		Money (o)	3
		Fun (ps)	4
		Clothes (bas)	5
		Features listed twice	2
		Features listed once	46
		Tax. terms listed twice	4
		Tax. terms listed once	16
		Food Shopping	
		Shopping cart (o)	7
		Coupons (o)	6
		Money (o)	5
		Food (o)	4
		Cash register (o)	4
		Fruit (o)	3
		Groceries (o)	3
		Cars (o)	3
		Supermarket (1)	4
		People (p)	3
		Lines (p)	3
		Features listed twice	11
		Shopping at Butcher Shop	
		Meat (o)	7
		Blood (o)	4
		Scales (o)	3
		Sawdust (o)	3
		Knife (o)	3
		High prices (ab)	3
		Butcher (p)	5
		Features listed twice	5
		Features listed once	40
		Tax. terms listed twice	0
		Tax. terms listed once	0

APPENDIX C (Continued)

		Features listed once	43		
		Tax. terms listed twice	1		
		Tax. terms listed once	1		
		Furniture Shopping		Shopping for Bedroom Furniture	
		Colors (pa)	3	Bed (o)	5
		Features listed twice	6	Lamps (o)	3
		Features listed once	44	Expensive (ab)	3
		Tax. terms listed twice	1	Features listed twice	8
		Tax. terms listed once	10	Features listed once	45
				Tax. terms listed twice	0
				Tax. terms listed once	1
Crime		Murder		Homicide	
N.Y.C. (1)	3	Gun (o)	7	Gun (o)	4
Stealing (bas)	3	Knife (o)	7	Knife (o)	3
Drugs (bas)	3	Blood (o)	5	Blood (o)	3
Raping (bas)	3	Jail (1)	3	Morgue (1)	3
Mugging (bas)	3	Death (ou)	3	Police (p)	6
Features listed twice	4	Victim (p)	5	Victim (p)	3
Features listed once	34	Police (p)	3	Detectives (p)	3
Tax. terms listed twice	4	Witnesses (p)	3	Murder (bas)	3
Tax. terms listed once	14	Kill (a)	3	Features listed twice	4
		Crime (super)	3	Features listed once	39
		Features listed twice	8	Tax. terms listed twice	0
		Features listed once	52	Tax. terms listed once	4
		Tax. terms listed twice	0		
		Tax. terms listed once	5		
		Assault		Assault with a Deadly Weapon	
		Subway (1)	3	Gun (o)	8
		Battery (a)	3	Knife (o)	6
		Mugging (sub)	3	Blood (o)	4
		Features listed twice	6	Jail (1)	6
		Features listed once	44	Police (p)	5
		Tax. terms listed twice	3	Victim (p)	3
		Tax. terms listed once	6	Features listed twice	7
				Features listed once	38
				Tax. terms listed twice	2
				Tax. terms listed once	5
Transportation		Train Travel		Subway Travel	
No attributes		Tokens (o)	4	Tokens (o)	3
Car (bas)	8	Seats (o)	4	Seat (o)	3
Train (bas)	7	Books (o)	3	Graffiti (o)	3
Bus (bas)	7	Noisy (pa)	5	Cars (o)	4
Airplane (bas)	5	Dirty (pa)	5	Hot (pa)	5
Subway (bas)	3	People (p)	6	Dirty (pa)	5
Features listed twice	2	Features listed twice	13	Noise (pa)	3
Features listed once	22	Features listed once	53	Crowded (pa)	3
Tax. terms listed twice	10	Tax. terms listed twice	3	Conductor (p)	3
Tax. terms listed once	13	Tax. terms listed once	2	Pushing (a)	3
				Features listed twice	9
				Features listed once	55
				Tax. terms listed twice	0
				Tax. terms listed once	3
		Bus Travel		Traveling by City Bus	
		Sleeping (a)	3	Hot (pa)	7
		Features listed twice	10	Crowded (pa)	6
		Features listed once	47	Expensive (ab)	3
		Tax. terms listed twice	1	Late (t)	3
		Tax. terms listed once	4	Bus driver (p)	4
				Features listed twice	10

APPENDIX C (Continued)

				Features listed once	44
				Tax. terms listed twice	0
				Tax. terms listed once	2
Housework		Vacuuming		Vacuuming Carpet	
Cleaning (a)	7	Carpet (o)	6	Dirt (o)	5
Washing (a)	7	Rug (o)	5	Noise (pa)	4
Dusting (bas)	5	Dirt (o)	4	Moving furniture (a)	4
Ironing (bas)	4	Dust (o)	4	Changing bag (a)	3
Dishes (bas)	3	Machine (o)	3	Features listed twice	6
Features listed twice	3	Noise (pa)	3	Features listed once	30
Features listed once	25	Cleaning (a)	4	Tax. terms listed twice	0
Tax. terms listed twice	3	Features listed twice	5	Tax. terms listed once	1
Tax. terms listed once	21	Features listed once	45		
		Tax. terms listed twice	0		
		Tax. terms listed once	3		
		Sweeping		Sweeping Floor	
		Broom (o)	7	Broom (o)	8
		Dirt (o)	6	Dustpan (o)	8
		Dustpan (o)	5	Dirt (o)	6
		Dust (o)	4	Dust (o)	4
		Features listed twice	5	Mop (o)	3
		Features listed once	29	Floor (l)	3
		Tax. terms listed twice	2	Features listed twice	3
		Tax. terms listed once	1	Features listed once	32
				Tax. terms listed twice	0
				Tax. terms listed once	0

Note—10 subjects generated responses for each category. Attribute types are shown as follows: *o* = objects, *pa* = physical attributes, *l* = locations, *ou* = outcomes, *ab* = abstract, *t* = time, *p* = persons, *a* = actions, *ps* = personal states. Taxonomic terms are as follows: *super* = superordinates, *bas* = basic, and *sub* = subordinates.

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