

Familiarity and relatedness of word meanings: Ratings for 110 homographs

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Although prior research has provided descriptive statistics for homographic words, most studies have concentrated only on dominance or frequency of meanings. The present study extended such research by examining homograph meanings, particularly subordinate meanings, in finer detail. Common English words ($N = 110$) were rated for meaning familiarity and relatedness among meanings. In a meaning collection task, subjects listed all possible meanings for each word. The number of meanings provided for words varied widely. In a familiarity rating task, other subjects rated each meaning on its familiarity. It was expected (and found) that familiarity ratings would be more sensitive than meaning collection to knowledge of subordinate meanings. In a comparison task, subjects made relatedness judgments for all meaning pairs within each word. The results provide a database of complex relationships among word meanings that can be used to investigate the effects of relatedness and other semantic variables.

Words with multiple meanings, known as *homographs* or *ambiguous* words, are ubiquitous in English. All word meanings, however, are not created equal; they vary widely along many dimensions. Word meanings vary in number. For example, *lion* has only one common meaning, whereas *draw* has several common meanings. Meanings also vary in their perceived familiarity. For the word *bank*, most people are familiar with the meaning, “a financial institution,” but not everyone is familiar with the meaning “the land alongside a river,” and still fewer know the meaning “a shot off the backboard in basketball.” Meanings also share varying degrees of relatedness with one another. For example, the two meanings for *bark*, “the outer covering of trees” and “the sharp sound made by a dog” seem quite unrelated, whereas the two meanings for *dress*, “a woman’s garment” and “to put clothes on,” seem closely related.

In many norming studies, familiarity of meanings is estimated by how frequently they are provided in a meaning collection task. These studies emphasize *dominance* of meaning, or the salience of one meaning relative to others. Most researchers have collected single responses to words by having subjects provide an associate or the first meaning that comes to mind. Dominance is determined by the frequency of all possible responses across

all subjects (see, e.g., Gawlick-Grendell & Woltz, 1994; Nelson, McEvoy, Walling, & Wheeler, 1980; Twilley, Dixon, Taylor, & Clark, 1994; Wollen, Cox, Coahran, Shea, & Kirby, 1980). The primary focus of the present study was not to determine dominance of meanings (other published norms already establish such dominance ratings), but rather to measure other aspects of word meanings that have been previously overlooked.

Norming studies that establish dominance do not typically strive to determine the total number of meanings (NOM) for words. This is evinced by the single-response procedure used in most studies. Although this method reveals dominant meanings, it often disregards many subordinate meanings. Total NOM for words has been a variable of empirical interest in lexical decision studies (e.g., Azuma & Van Orden, 1996; Jastrzembski, 1981; Millis & Button, 1989; Rubenstein, Garfield, & Millikan, 1970; Rubenstein, Lewis, & Rubenstein, 1971), but there is some controversy over the method by which total NOM is established. Millis and Button (1989) used three different polysemy metrics and studied their relations to lexical decision times. When only one meaning was collected from subjects (a single-response procedure), NOM did not significantly affect response times. However, when subjects provided all the meanings they could think of for each word (a multiple-response procedure), a significant NOM effect emerged. Millis and Button argued that the multiple-response procedure, which reflects both dominant and subordinate meanings, is a better estimate of the meanings actually known to subjects. The single-response procedure often fails to detect one or more subordinate meanings.

Nickerson and Cartwright (1984) published one of the few meaning counts that used a multiple-response method of meaning collection, providing an excellent compilation of total word meanings. In the present study, the

This research was partially funded by an NIH FIRST award (CMS 5 R29 NS26247-03) to Guy Van Orden and by an ARCS award to T.A. I gratefully acknowledge the assistance of P. Dixon, Guy Van Orden, Greg Stone, Don Homa, Sue Somerville, Lisa Cramer, and two anonymous reviewers. I also thank Steve Goldinger for many helpful suggestions and comments on this paper. Correspondence should be addressed to T. Azuma, Department of Psychology, Box 871104, Arizona State University, Tempe, AZ 85287-1104 (e-mail: azuma@chet.shs.arizona.edu). A disk copy of the norms will be sent in lieu of a paper copy if a 3.5-in. disk (DOS format only) is enclosed with the request.

multiple-response procedure was used to determine the total NOM for each word. Although the method was similar to Nickerson and Cartwright's, most of the selected words were different. Of the 90 words tested by Nickerson and Cartwright, only 8 overlap with the 110 words in this study. Also, their words ranged in length from 4 to 11 letters. In the present study, letter length ranged from 4 to 6 letters, allowing word length to be more easily controlled for in experiments.

In addition to establishing the total NOM for each word, *familiarity ratings* for all meanings were also collected. Subjects judged the familiarity of word meanings on a 7-point scale using the same method as Gilhooly and Logie (1980). Several researchers have found familiarity to be an influential variable in word recognition (e.g., Connine, Mullennix, Shernoff, & Yelen, 1990; Gernsbacher, 1984). Although there is little doubt that familiarity ratings and frequency counts are correlated, familiarity ratings can provide more detailed information. Most studies (reasonably) assume that dominant meanings are the most familiar to subjects. However, the relationship between the omnibus word frequency in published counts and the familiarity of subordinate meanings is not as clear. It is possible that meanings provided by only a few subjects in a meaning collection task (especially a single-response task) are nonetheless familiar to all subjects. A meaning collection task is rather artificial and relatively difficult. Many factors could hinder the retrieval of meanings, such as competition with other meanings: Accessing an extremely dominant meaning could inhibit the subsequent retrieval of subordinate meanings. For example, presented with the word *rose*, a subject may have no trouble thinking of the meaning "a type of flower," but may have subsequent difficulty thinking of another meaning (e.g., "to get up" or "a woman's name"). Judging the familiarity of a provided meaning requires only recognition; the decreased task demands may allow a more valid measure of meaning knowledge, especially for subordinate meanings.

Another contribution of the present study is the collection of *relatedness ratings* among meanings. A majority of researchers who collect meaning norms inevitably run into the dilemma of how to break down (or, conversely, how to group together) their collected meanings. In one recent norming study, Twilley et al. (1994) based their determination of meaning distinctiveness on shared semantic features. The authors acknowledged, "Distinctiveness of meanings was easier to judge for some homographs than for others. [Some words] have meanings with virtually no semantic overlap... [other words] which have several meanings that are somewhat similar, were more difficult to categorize reliably," and "raters had the overall goal of distinguishing categories as consistently as possible. . ." (p. 113). Twilley et al. were forced to rely on intuition to determine the meaning categories.

The authors of another recent list of meaning norms (Gawlick-Grendell & Woltz, 1994) also faced the dis-

tinctiveness dilemma. They used a dictionary to determine whether different meanings should be collapsed into single categories. If two entries were derived from the same root, they were classified in the same category. However, the dictionary could not provide a straightforward solution for all problems. In their deliberations, they "found it necessary, albeit difficult, to make judgements about the relatedness of different senses of stimulus words listed in the dictionary (several senses are often listed under each entry)" (p. 6). However, the psychological validity of relatedness based on etymological derivations found in dictionaries may be inadequate. Gernsbacher (1984) criticized past NOM studies for using dictionaries to determine word meanings, arguing that a dictionary measure lacks psychological validity because dictionaries often list meanings that are not familiar to people. Indeed, Gawlick-Grendell and Woltz were faced with a similar problem. They found some meanings that were considered related by the dictionary, but that seemed unrelated intuitively. For example, according to the dictionary, a meaning for the word *strike*, "to hit something," was related to another meaning, "a worker's protest." The experimenters chose to follow their intuition and put those meanings in different categories.

One problem with different experimenters deciding how to classify meanings is that a potentially arbitrary element is introduced into meaning counts. In the present study, the NOM for words was maximized by avoiding (as much as possible) the grouping of meanings. Instead, all meanings were considered distinct, and relatedness ratings were collected for all meaning pairs within each word. Thus the relatedness ratings in this study will allow experimenters to determine similarity of meanings with a measure that is subject (not experimenter) based, increasing both validity and reliability.

Recently, there have also been empirical studies on the influence of related meanings on processing. Williams (1992) used a priming paradigm to see if words with related meanings (polysemous words) would result in the same amount of priming as words with unrelated meanings (homonyms). In a typical priming experiment using homonyms, subjects are presented with an ambiguous word preceded by context (e.g., "The gardener watered the *plant*.") and then a target word for lexical decision. The target word could be congruent (*leaf*) or incongruent (*factory*) with the context. When the delay between the ambiguous word and target is very short, both congruous and incongruous targets benefit from priming. However, when the delay is lengthened, only congruous targets show priming (see, e.g., Seidenberg, Tanenhaus, Leiman, & Bienkowski, 1982; Swinney, 1979). These results suggest that all meanings are initially activated, but the contextually inconsistent meanings are quickly suppressed.

In Williams's (1992) experiment, a central and a non-central meaning were selected for each polysemous word. These polysemous words primed words related to either central meanings (e.g., *firm-solid*) or to related, but noncentral meanings (e.g., *firm-strict*). The results were

compared with priming effects obtained when the words were preceded by a sentence context (e.g., "The couple wanted a bed that was firm."—*strict*). When noncentral meanings primed central targets (e.g., "The schoolteacher was criticized for not being firm."—*solid*), the priming effects were significant at all delays (up to 1,100 msec). When central meanings primed noncentral targets (e.g., "The couple wanted a bed that was firm."—*strict*), priming effects were significant only when collapsed over all delays. Williams suggested that words with related meanings may be processed differently than words with unrelated meanings. In the presence of an incongruous context, related meanings seem to remain activated longer than unrelated meanings.

Durkin and Manning (1989) also studied words with related meanings. In their study, subjects were presented sentences with either a polysemous word (e.g., "The *addition* was the easiest part of the exam."/"The *addition* to the team proved invaluable.") or a homonym (e.g., "The *beam* was heavy."/"The *beam* was dazzling."). Under each sentence was a phrase referring to one meaning of the word (e.g., "arithmetic operation" or "extra") and a 10-point scale ranging from *very important* to *very unimportant*. Subjects read the sentence and the following phrase and then rated "how important the sense identified was to the use of the target word in the sentence." In irrelevant contexts, phrases for polysemous words were still judged to be important, but phrases for homonyms were judged as unimportant. The relatedness metric used in the present study was inspired by Durkin and Manning (1989). Unfortunately, Durkin and Manning collected relatedness ratings only of dominant word meanings paired with subordinate meanings, omitting any information about the relationships among subordinate meanings. This information is provided by the present study.

Not many experiments have studied polysemous words. One of the reasons might be the difficulty in determining related and unrelated meanings. How should relatedness be determined? Panman (1982) proposed that relatedness can be determined only by native speakers' intuitions. The relatedness ratings provided in this study may encourage researchers to further study the differences between the processing of related and unrelated meanings.

The relatedness ratings may also reveal whether subjects recognize that some meanings are metaphorically related. Most people would probably agree that the meaning "an enjoyable time or experience" for the word *ball* came from the meaning "a formal social dance." Thus, these two meanings should be considered related to each other. However, consider the following examples: (1) *blank*, "to be unmarked" and "unable to remember a particular thing"; (2) *cover*, "a blanket" and "to provide an alibi for another person"; (3) *slip*, "to slide accidentally on a surface" and "to say or tell without intending to." Although each latter meaning is a metaphorical extension of the former, do subjects perceive their relatedness? The ratings collected in the present study may provide some insight into questions of this type.

MEANING COLLECTION

Method

Subjects. One hundred sixty undergraduate students enrolled in introductory psychology at Arizona State University participated for partial course credit.

Stimulus materials. One hundred eighty common 4-, 5-, and 6-letter words were selected from a dictionary. These words were selected so a wide range of NOMs could be obtained. The words were typed into six different booklets; each booklet was 7 pages long and contained 30 words. Three different word orders were derived for each booklet.

Procedure. Each subject completed one booklet. Subjects were told to write down all the meanings they could think of for each word. The first page of the booklet contained the instructions and five examples. The examples were words demonstrating a range of NOMs and specified the part of speech for each meaning (e.g., by using "to..." or "a..."). Subjects wrote down meanings in blank spaces provided under each word. Subjects usually expressed meanings by definitions (e.g., *lean*, "to be thin") or example sentences ("The girl had on a pretty *dress*"). No time limit was imposed; subjects usually took about 45 min to complete the booklet.

Results

Forty subjects provided meanings for each word. The total number of different meanings supplied for each word was determined as follows: Each provided meaning was matched to an equivalent entry listed in *Webster's New World Dictionary* (1991). The dictionary was used to detect erroneous responses. Meanings that could not be matched to any dictionary entry were not included in the count. [However, five meanings that were not listed in the dictionary, but that were provided by 4 or more subjects, were included. These meanings and the number of subjects that provided them are *coast*, "a soap brand name" (10); *dump*, "to abruptly end a relationship with someone" (13); *smoke*, "to beat someone in a competition" (4); *stick*, "to hit someone hard, to tackle" (4); and *tank*, "a large person" (5).]

If a subject provided two meanings that obviously corresponded to the same dictionary entry, the meaning was counted only once. For example, if a subject wrote "a jazz *band*" and "a rock-and-roll *band*," only one meaning of *band* ("a group of musicians") was added to the frequency count. (Note that this criterion was based on specific definitions, not derivational roots.) After all responses were recorded, the number of subjects that provided each meaning was determined. Although some meanings were obviously a more specified instance of another meaning (e.g., for *fine*, "to be adequate" and "to be in good health and/or mood"), for the purposes of this study, such meanings were considered distinct. Many of the subjects who provided the specified meaning also provided the more general meaning, suggesting that subjects do distinguish between such meanings.

It was expected, and found, that the multiple-response metric would generate more subordinate meanings than the single-response method. The total number of meanings provided for words in this study ranged from 1 to 13. In contrast, the number of meanings for words in

Table 1
Distribution of Number of Meanings (NOM)

| NOM | This Study | Nelson et al. (1980) | Gawlick-Grendall & Woltz (1994) | Wollen et al. (1980) |
|------|------------|----------------------|---------------------------------|----------------------|
| 1 | | 27 | 0 | 0 |
| 2 | 15 | 171 | 5 | 26 |
| 3 | 8 | 88 | 37 | 43 |
| 4 | 36 | 21 | 47 | 23 |
| 5 | 6 | 9 | 25 | 13 |
| 6 | 18 | 2 | 4 | 5 |
| 7 | 13 | 0 | 3 | 5 |
| 8 | 7 | 0 | 0 | 0 |
| 9 | 4 | 0 | 0 | 1 |
| 10 | 2 | 0 | 0 | 0 |
| 13 | 1 | 0 | 0 | 0 |
| Mean | 5.02 | 2.43 | 3.96 | 3.55 |

many single-response studies had a smaller range. A subset of 110 words that were provided two or more meanings were selected for the next rating studies. Table 1 presents the distribution of numbers of provided meanings in this study, compared with other norms. The broader range of NOMs in this study, relative to those of other studies, suggests that more subordinate meanings were provided for words. Although the multiple-response procedure generated more meanings, the present data resemble prior data. The present study tested subsets of words in common with prior studies: Correlations of the meaning frequencies in this study and other studies for such common words are presented in Table 2. The different meanings for each word, and the number of subjects that supplied each meaning, are shown in the Appendix.

MEANING FAMILIARITY

Method

Subjects. Forty-two undergraduate students enrolled in introductory psychology at Arizona State University participated for partial course credit. Twenty-one subjects provided familiarity ratings for each meaning.

Stimulus materials. From the initial list, 110 words given more than one meaning in the meaning collection task were used. The meanings used in this study were based on the wording found in *Webster's New World Dictionary* (1991), although the wording was occasionally shortened or clarified. Each word and its meanings were typed into one of two booklets (A or B), in the following manner:

jerk

1. a sharp, abrupt movement

not familiar 1 2 3 4 5 6 7 *very familiar*

2. a rude or mean person

not familiar 1 2 3 4 5 6 7 *very familiar*

Table 2
Correlations of Meaning Frequency With Other Studies

| Study | Number of Comparisons | r^* |
|---------------------------------|-------------------------|-------|
| Gilhooly & Logie (1980) | 90 meanings (39 words) | .54 |
| Nelson et al. (1980) | 170 meanings (69 words) | .66 |
| Wollen et al. (1980) | 79 meanings (24 words) | .65 |
| Twilley et al. (1994) | 203 meanings (89 words) | .65 |
| Gawlick-Grendall & Woltz (1994) | 105 meanings (36 words) | .67 |

* $p < .01$.

Booklet A contained 53 words and Booklet B contained 57 words. Both booklets had three different word orders and intraword meaning orders, to reduce the chance of ordering effects. In addition to the true meanings, 10 counterfeit meanings (e.g., for the word *broke*, the counterfeit meaning was "to talk into a microphone") were included in each booklet. These were used to identify any subjects who did not understand the task or who did not adequately read the meanings before responding.

Procedure. Each subject completed one booklet. Subjects were instructed to carefully read each word and meaning and to judge the familiarity of the meaning on a 7-point scale. If subjects were very familiar with the meaning (i.e., they had often seen the word used as shown), the appropriate rating was a 6 or 7. If they were somewhat familiar with the meaning (i.e., they had sometimes seen the word used as shown), the appropriate rating was a 3 or 4. If they were not familiar with the meaning (i.e., they had never seen the word used as shown), the appropriate rating was a 1. Subjects responded by circling the appropriate rating on the scale provided under each meaning and were encouraged to use the entire range of the scale.

The first page of the booklet contained instructions and four examples demonstrating a range of possible familiarity ratings for a sample subject. The subjects were also warned to judge carefully because some "fake" meanings were present in the booklet. No time limit was imposed; subjects usually took about 40 min to complete the booklet.

Results and Discussion

Two subjects who rated one or more of the counterfeit meanings higher than 2 were not included in further analyses. The analyses were performed on the remaining 20 subjects. The mean familiarity rating for each meaning was computed; they ranged from 1.50 to 7.00, with a mean standard deviation of 1.34. All ratings are presented in the Appendix.

It was expected that familiarity ratings might be more sensitive to subordinate meaning knowledge than were frequency of responses in the meaning collection task. A meaning that only a few subjects provide in a meaning collection task could still be familiar to many subjects. The familiarity ratings yielded some evidence to support this idea. For example, for the word *brush*, the meaning "a tool used for painting" was provided by only 4 out of 40 subjects, but received a high familiarity score (6.95 out of 7.00). Overall, frequency and familiarity were strongly correlated ($r = .67, p < .01$). Separate correlations were also performed to see if the relationships between familiarity and frequency were different for dominant and subordinate meanings. For the most dominant meanings (meanings with the highest frequency for each word), frequency and familiarity were strongly correlated ($r = .62, p < .01$). The correlation was slightly weaker for all subordinate meanings ($r = .57, p < .01$) and for the most subordinate meanings (meanings with the lowest frequency for each word) ($r = .55, p < .01$). It seems that familiarity ratings can provide insight overlooked in meaning collection; using both metrics in tandem may provide more valid stimulus sets.

The familiarity ratings collected in this study were also correlated with the ratings collected in Gilhooly and Logie's (1980) study. Familiarity ratings for 90 different meanings (for 39 words) common to both norms were

analyzed and revealed a significant correlation ($r = .52$, $p < .01$). Although the correlation was significant, it was not as strong as expected. There are two possible reasons for this result. One reason is that the Gilhooly and Logie ratings were collected 15 years ago, and the subject population's familiarity with the meanings may have changed. The second (more probable) reason for the lower correlation is that Gilhooly and Logie's subjects were from Scotland and the subjects in the present study were from the United States. Speakers from different countries certainly use words differently and their familiarity with specific meanings will differ. The standard deviation of the ratings in this study was relatively low ($SD = 1.34$), so it seems that ratings reliably reflect subjects' intuitions. In the next study, the meanings were paired up and subjects rated their degree of relatedness.

RELATEDNESS JUDGMENTS

Method

Subjects. One hundred twenty-five students enrolled in introductory psychology at Arizona State University participated for partial course credit.

Stimulus materials. The same 110 words and meanings that were rated for familiarity were used. For a given word, each meaning was paired with all other meanings so that all pairwise comparisons were represented. The words and meaning pairs were presented with 7-point rating scales in the following manner:

lean
 1. to be thin
 2. to stand at a slant
not related 1 2 3 4 5 6 7 *very related*

Initially, the meaning pairs were presented in booklets. Later, a program was developed to present the meaning pairs on a computer monitor. The greatest advantage to the computer presentation was that each subject was shown a different random ordering of the meaning pairs. Thus, the relatedness ratings were obtained in one of two ways: Either by booklet (Procedure A) or by computer (Procedure B). Approximately half of the responses were collected by means of each procedure.

Procedure. In Procedure A, each subject completed one of three booklets, ranging from 30 to 40 pages in length. Four different orderings of word-meaning pairs were derived for each booklet. The first page of the booklet presented instructions and three examples. The examples were three meaning pairs demonstrating a range of relatedness for a sample subject. Subjects were instructed to read each word and meaning pair and to judge the degree of relatedness (or feeling of similarity) between the meanings, using a 7-point scale in the following manner: If the two meanings were *very related* to each other, the appropriate rating was a 6 or 7. If the meanings were *somewhat related* to each other, the appropriate rating was a 3 or 4. If the meanings were *not at all related* to each other, the appropriate rating was a 1. Subjects indicated their responses by circling one of the numbers on the scale presented under each meaning pair and were encouraged to use the full range of the scale.

The subjects were cautioned to read each meaning pair carefully because they might see a particular meaning more than once, but none of the meaning pairs were the same. There was no time limitation imposed; it generally took subjects 1 h to complete the booklet.

In Procedure B, subjects viewed all the materials on a computer screen. The subjects were first presented the instructions and ex-

amples, followed by the word meaning pairs. The instructions and examples were the same as those used in the booklet procedure. On each trial, a word, a pair of its meanings, and a 7-point rating scale were displayed in the center of the screen. Subjects recorded their responses by pressing the appropriate number key on the top row of the keyboard. Each subject received a different random ordering of word meaning pairs. No time limitation was imposed; subjects usually took 1 h to complete the task.

Results and Discussion

Twenty-five subjects provided relatedness judgments for each meaning pair. The mean relatedness ratings for all meaning pairs were calculated and are presented in the Appendix. There was no evidence that responses collected by booklet differed from responses collected by computer. The mean relatedness ratings ranged from 1.00 to 6.28 and the mean standard deviation was 1.35. Table 3 describes the presentation of all the data in the Appendix.

The purpose of collecting the relatedness ratings was to discover the relationships among meanings within words. The results provide not only confirmation (or disconfirmation) of intuitions about meaning relatedness, but also a way to quantify relatedness. Although the relationships among some word meanings are relatively straightforward (e.g., the meanings for *spoke* are unrelated and the meanings for *dull* are related), other relationships are more complicated. For example, consider the following meanings for the word *major*:

- (a) the primary subject or field of study in college
- (b) to be important
- (c) a high-ranking officer

Subjects judged the meanings (a) and (b) to be related and the meanings (b) and (c) to be related. However, (a) and (c) were not judged to be related. This type of relationship is known as a *chaining relationship* (Lakoff,

Table 3
Description of Data Presented in the Appendix

| Word | Description of Data Presented in the Appendix | |
|--------------|---|--|
| freq | fam rating (<i>SD</i>) | 1. Meaning 1 rel rating m1-m2 (<i>SD</i>) rel rating m1-m3 (<i>SD</i>) |
| freq | fam rating (<i>SD</i>) | 2. Meaning 2 rel rating m2-m3 (<i>SD</i>) |
| freq | fam rating (<i>SD</i>) | 3. Meaning 3 |
| Example: | | |
| Freq | Familiarity | Relatedness |
| <i>steer</i> | | |
| 40 | 6.85 (0.37) | 1. to guide a vehicle 1.20(0.50) 4.24(2.09) |
| 31 | 6.00 (1.49) | 2. male cattle 1.28(0.61) |
| 06 | 5.15 (1.79) | 3. to keep someone away from; to avoid |

Note—Freq = number of subjects who provided the meaning (maximum = 40); fam rating = mean familiarity rating; rel rating = mean relatedness rating of meaning pair; m = meaning number (e.g., m1 = Meaning 1); *SD* = standard deviation.

1987; Taylor, 1989). Other words showed evidence of meaning *clusters*. For example, *fine* has a cluster of meanings that all seem related by the aspect of "good quality," but the other frequently provided meaning, "a sum of money paid to settle a matter," was not judged to be related to any other meanings.

Interestingly, subjects showed greater agreement when the meanings were slightly related than when they were highly related. As the relatedness ratings increased (more related), the standard deviation increased ($r = .54, p < .001$). This finding is consistent with Durkin and Manning's (1989) results. They observed that low-related meaning pairs almost always received low ratings, but high-related meanings pairs had a much wider range of ratings.

Williams (1992) showed that related meanings may be processed differently from unrelated meanings. The provided ratings will allow experimenters to test for such relatedness effects within words. For example, subjects could be presented with sentences such as, "In the attic, they found an old *trunk* full of pictures," followed by (a) a word consistent with the context meaning (e.g., *chest*); (b) a word inconsistent with, but related to, the context meaning (e.g., *car*); or (c) a word inconsistent with and unrelated to the context meaning (e.g., *elephant*). Meanings (b) and (c) both have comparable familiarity and frequency scores, but meaning (b) was judged to be related to meaning (a) and meaning (c) was not. It would be interesting to see if meaning (b) remains active longer than meaning (c) (i.e., *car* would show priming at all delays, but *elephant* would show priming only at short delays).

GENERAL DISCUSSION

The results of the meaning collection task suggest that a multiple-response method is better than a single-response method for detecting subordinate meanings. There was a broader range of NOMs for words in this study relative to other studies. The familiarity ratings added more information about those subordinate meanings. In past studies, meaning frequency was used to estimate subjects' familiarity with word meanings. Although this estimate is not problematic for dominant meanings, it may be misleading for subordinate meanings. Subjects may be familiar with subordinate meanings not provided in a meaning collection task. The analysis of the familiarity ratings suggests that this task provides a more accurate picture of subjects' familiarity with subordinate meanings.

The relatedness judgments were used to investigate the relationships among word meanings. The relatedness ratings reveal that, for some words, relationships among meanings are far from straightforward. Instead, there is often a complex web of relatedness among meanings, particularly for words with several meanings. Taken together with the collected meanings and familiarity ratings, the relatedness data should help researchers investigate the intricacies of word meanings and (hopefully)

encourage more investigations into the complex effects of intraword meaning relatedness on lexical processing.

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APPENDIX
Relatedness and Familiarity Ratings of Word Meanings
(See Table 3 for a description of how the data
for each word are presented.)

| Freq | Familiarity | Relatedness |
|--------------|-------------|--|
| <i>ball</i> | | |
| 40 | 7.00 (0.00) | 1. a round or egg-shaped object used in sports 1.28(0.54) 1.52(0.71) 1.92(1.29) |
| 20 | 5.70 (1.26) | 2. a formal social dance 4.48(1.73) 1.40(1.04) |
| 15 | 5.80 (1.28) | 3. an enjoyable time or experience 1.12(0.33) |
| 01 | 5.20 (1.51) | 4. the rounded part of the foot |
| <i>band</i> | | |
| 39 | 6.95 (0.22) | 1. a group of musicians 2.84(1.62) 2.00(1.68) 3.56(1.89) 1.92(1.66) 5.32(1.57) |
| 11 | 4.20 (1.74) | 2. something that binds 2.92(1.68) 4.40(1.96) 3.20(2.31) 2.80(1.96) |
| 11 | 3.40 (2.21) | 3. a narrow strip of cloth that one wears 2.12(1.64) 2.88(1.62) 2.12(1.62) |
| 09 | 4.60 (1.90) | 4. to gather or unite for a purpose 2.28(1.79) 5.00(1.58) |
| 07 | 5.65 (1.31) | 5. a finger ring 2.12(1.76) |
| 06 | 4.85 (1.90) | 6. a group of people |
| <i>bark</i> | | |
| 40 | 6.75 (0.55) | 1. the outer covering of trees 1.08(0.28) 1.04(0.20) 1.12(0.33) |
| 33 | 6.95 (0.22) | 2. the sharp sound made by a dog 4.64(1.32) 6.52(1.01) |
| 11 | 4.75 (1.65) | 3. to speak or shout loudly 4.32(1.77) |
| 08 | 5.15 (1.95) | 4. to make the cry of a dog |
| <i>bill</i> | | |
| 34 | 6.60 (0.60) | 1. a statement of fees for goods or service 1.12(0.33) 6.40(0.71) 4.04(0.88) 4.92(1.12) 1.16(0.37) |
| 32 | 6.25 (1.45) | 2. a shortened name for William 1.00(0.00) 1.24(0.83) 1.08(0.28) 1.12(0.60) |
| 13 | 6.70 (0.57) | 3. to charge for items or service 1.80(1.00) 3.32(1.31) 1.16(0.62) |
| 13 | 5.65 (1.42) | 4. the draft of a proposed law 1.08(0.40) 1.16(0.80) |
| 11 | 6.10 (1.37) | 5. a piece of paper money 2.04(1.43) |
| 03 | 5.25 (1.80) | 6. the horny jaws of a bird |
| <i>blank</i> | | |
| 23 | 6.35 (0.88) | 1. to be unmarked 6.12(0.88) 4.00(1.38) 2.24(1.39) 4.16(1.00) 1.60(0.65) |
| 28 | 6.10 (1.29) | 2. an empty space 4.08(2.04) 3.04(1.95) 3.76(1.90) 2.80(1.89) |
| 13 | 5.85 (1.18) | 3. unable to remember a particular thing 1.88(1.62) 3.24(1.92) 1.36(0.70) |
| 08 | 4.75 (1.83) | 4. a powder filled cartridge without a bullet 1.80(1.32) 2.16(1.49) |
| 03 | 5.25 (1.62) | 5. having no facial expression 1.40(0.76) |
| 01 | 2.10 (1.89) | 6. the middle of a target |
| <i>bold</i> | | |
| 27 | 5.45 (1.32) | 1. showing readiness to take risks 2.20(1.76) 4.40(1.89) 4.32(1.73) |
| 17 | 6.40 (0.75) | 2. printed in dark ink 5.28(1.51) 2.28(1.57) |

Appendix (Continued)

| Freq | Familiarity | Relatedness |
|--------------|-------------|--|
| 13 | 6.15 (1.46) | 3. striking and sharp; to stand out 4.20(1.85) |
| 08 | 3.90 (2.05) | 4. shameless; brash or rude |
| <i>bolt</i> | | |
| 27 | 5.95 (1.39) | 1. a metal rod usually used with a metal nut 2.12(1.67) 2.60(1.78) 4.68(2.10) 5.36(1.25) 2.00(1.68) |
| 26 | 5.80 (1.24) | 2. to dash out suddenly 4.16(1.91) 1.80(1.41) 2.04(1.70) 2.20(1.87) |
| 25 | 5.95 (1.50) | 3. a flash of lightning 1.92(1.61) 2.12(1.69) 1.92(1.50) |
| 07 | 5.05 (1.76) | 4. to fasten down 4.08(1.93) 1.88(1.13) |
| 02 | 6.20 (1.20) | 5. a sliding bar used for locking a door 2.16(1.82) |
| 02 | 2.30 (1.89) | 6. a roll of cloth or paper |
| <i>bomb</i> | | |
| 38 | 6.95 (0.22) | 1. an explosive weapon used for dropping or hurling 2.24(1.51) 5.96(1.06) 4.12(1.59) |
| 18 | 5.70 (1.30) | 2. to suffer a complete failure 2.20(1.55) 1.92(1.26) |
| 15 | 6.70 (0.57) | 3. to attack, damage, or destroy with artillery 4.00(1.61) |
| 02 | 3.00 (1.95) | 4. a sudden, surprising event |
| <i>bond</i> | | |
| 24 | 5.05 (1.79) | 1. to connect or fasten together 2.32(2.01) 4.60(2.04) 4.60(1.78) 5.28(1.74) 1.92(1.58) 6.04(1.14) |
| 21 | 5.45 (1.47) | 2. an interest-bearing certificate 2.00(1.50) 2.36(1.96) 2.08(1.58) 3.28(2.11) 2.84(1.80) |
| 12 | 6.45 (1.00) | 3. to become very close to someone 6.20(1.32) 3.20(1.78) 2.08(1.80) 4.08(1.80) |
| 11 | 6.60 (0.68) | 4. an emotional tie with someone 3.00(1.83) 2.20(1.66) 3.80(2.10) |
| 04 | 3.80 (2.14) | 5. a glue-type substance 1.96(1.57) 5.04(1.90) |
| 04 | 4.30 (1.78) | 6. an amount paid as bail 2.44(1.80) |
| 02 | 4.40 (1.70) | 7. something that fastens or restrains |
| <i>bound</i> | | |
| 26 | 5.65 (1.57) | 1. to be confined by binding; tied 2.52(1.58) 2.92(1.12) 1.52(0.82) 1.32(0.75) 6.28(0.89) 4.92(1.44) 5.40(1.08) 4.48(1.16) |
| 18 | 5.10 (1.41) | 2. to be headed toward a destination 4.96(1.51) 3.56(1.73) 2.96(1.70) 1.56(1.00) 1.24(0.66) 2.20(1.22) 3.28(1.65) |
| 11 | 5.75 (1.65) | 3. inevitable; the most likely outcome 1.36(0.64) 1.40(0.71) 1.40(1.04) 1.20(0.41) 2.52(1.42) 3.16(2.03) |
| 10 | 4.10 (1.89) | 4. to move with leaps 5.40(1.50) 1.16(0.47) 1.36(0.76) 1.40(0.58) 1.44(0.65) |
| 07 | 3.80 (2.19) | 5. a jump or leap 1.32(0.63) 1.12(0.33) 1.84(1.14) 1.48(0.82) |
| 05 | 4.15 (1.95) | 6. to tie something up 4.04(1.86) 2.08(1.47) 2.52(1.42) |
| 04 | 5.15 (1.60) | 7. provided with an attached cover, as a book 2.52(1.71) 1.36(0.70) |
| 04 | 3.45 (2.11) | 8. a boundary or limit 2.84(1.93) |
| 03 | 3.45 (2.19) | 9. to be obliged; under compulsion |

Appendix (Continued)

| Freq | Familiarity | Relatedness |
|--------------|-------------|--|
| <i>brand</i> | | |
| 28 | 6.45 (0.89) | 1. a label identifying a certain company 4.36(1.68) 5.32(1.52) 4.12(2.05) 4.40(1.68) |
| 24 | 5.10 (1.80) | 2. to mark something by burning 3.68(1.77) 6.20(1.44) 3.72(1.86) |
| 13 | 6.80 (0.52) | 3. a special variety or type 3.80(1.98) 4.52(1.36) |
| 10 | 4.55 (2.01) | 4. a mark burned into the skin 3.92(1.89) |
| 03 | 3.70 (2.41) | 5. to categorize someone/something as disgraceful |
| <i>broke</i> | | |
| 35 | 6.90 (0.31) | 1. to have no money 1.76(1.23) 3.04(1.51) |
| 30 | 6.70 (0.57) | 2. to have split into pieces 4.64(1.87) |
| 17 | 6.30 (1.03) | 3. to have stopped functioning |
| <i>brush</i> | | |
| 32 | 6.90 (0.31) | 1. a device with bristles used for grooming 5.44(2.04) 2.64(2.00) 2.80(1.91) 3.24(1.85) 4.32(2.15) 2.16(1.80) |
| 23 | 6.95 (0.22) | 2. to smooth one's hair with a bristled object 3.08(2.04) 2.64(1.73) 3.44(1.64) 3.88(2.05) 2.12(1.54) |
| 16 | 5.25 (1.55) | 3. to touch or graze in passing 2.56(1.89) 3.84(1.65) 2.84(2.05) 2.76(1.90) |
| 13 | 5.25 (1.59) | 4. small bushes or scrub growth 2.12(1.72) 2.48(1.78) 2.16(1.68) |
| 07 | 4.30 (1.95) | 5. to sweep out of the way 2.72(1.90) 5.20(1.50) |
| 04 | 6.95 (0.22) | 6. a tool used for painting 1.96(1.51) |
| 01 | 3.65 (1.95) | 7. to dismiss or get rid of abruptly |
| <i>cable</i> | | |
| 35 | 6.90 (0.31) | 1. television programming that is received over wires 5.08(1.78) 3.72(2.23) 4.20(1.98) |
| 23 | 6.45 (0.76) | 2. a wire over which electricity, etc., can be transmitted 5.08(1.80) 4.32(1.68) |
| 21 | 6.35 (1.04) | 3. a thick, heavy wire 2.56(1.96) |
| 03 | 4.00 (2.36) | 4. to send a message to someone |
| <i>calf</i> | | |
| 39 | 6.35 (0.81) | 1. a young cow or bull 1.28(0.54) |
| 40 | 6.45 (0.76) | 2. the fleshy part of the lower leg |
| <i>cast</i> | | |
| 34 | 6.75 (0.72) | 1. a plaster form for immobilizing broken limbs 1.16(0.37) 1.24(0.52) 1.12(0.33) 1.04(0.20) 4.72(1.62) 4.72(1.74) 1.16(0.37) |
| 33 | 6.70 (0.57) | 2. a set of actors in a play or movie 1.56(1.36) 5.52(1.53) 1.16(0.47) 1.84(1.40) 1.72(1.31) 2.00(1.08) |
| 13 | 4.75 (1.86) | 3. to throw off or away 1.48(1.36) 4.64(1.91) 1.28(0.54) 1.28(0.54) 4.20(2.18) |
| 10 | 6.30 (1.42) | 4. to select actor(s) for a production 1.60(1.04) 1.80(1.00) 1.64(1.04) 2.08(1.66) |
| 09 | 3.90 (1.74) | 5. to toss out or drop at the end of a rope 1.12(0.33) 1.44(0.77) 3.12(2.28) |
| 05 | 3.70 (2.05) | 6. the mold of an object 5.44(1.92) 1.72(1.06) |

Appendix (Continued)

| Freq | Familiarity | Relatedness |
|--------------|-------------|---|
| 02 | 4.70 (1.92) | 7. to form by pouring into a casing 1.80(1.04) |
| 01 | 2.60 (1.96) | 8. to set free |
| <i>charm</i> | | |
| 28 | 6.75 (2.97) | 1. a small trinket worn on a necklace or bracelet 2.69(1.31) 4.56(1.26) 3.16(1.28) |
| 22 | 6.10 (1.45) | 2. a quality in someone that attracts others 3.24(1.61) 5.72(1.31) |
| 17 | 5.40 (1.82) | 3. an object thought to have magical powers 3.72(1.86) |
| 17 | 5.65 (1.87) | 4. to enchant or allure people |
| <i>check</i> | | |
| 36 | 6.80 (0.52) | 1. a written order to a bank for money 2.36(1.29) 1.84(1.03) 1.72(1.02) 3.92(1.47) 1.48(0.87) 1.32(0.75) 1.44(0.87) |
| 34 | 6.20 (0.95) | 2. to examine, test, or verify 3.72(1.74) 3.84(2.03) 2.24(1.39) 1.64(1.04) 4.80(1.68) 1.76(1.39) |
| 22 | 6.35 (0.99) | 3. a mark to show approval 4.32(1.65) 1.84(1.11) 1.40(0.82) 2.56(1.36) 1.84(1.52) |
| 06 | 4.65 (1.81) | 4. to mark or call attention to 1.96(1.10) 2.16(1.57) 3.28(1.88) 1.88(1.17) |
| 05 | 6.55 (1.00) | 5. one's bill at a restaurant or bar 1.12(0.44) 1.56(0.92) 1.00(0.00) |
| 04 | 2.80 (2.12) | 6. the blocking of an opponent in hockey 1.28(0.54) 2.68(1.55) |
| 03 | 5.50 (1.47) | 7. to look at a person closely 1.60(0.91) |
| 02 | 4.10 (1.77) | 8. in chess, to have the king piece at risk |
| <i>chest</i> | | |
| 40 | 7.00 (0.00) | 1. the part of the body enclosed by the ribs 1.84(1.21) |
| 37 | 6.35 (0.88) | 2. a large box with a lid used for storing items |
| <i>chop</i> | | |
| 35 | 6.95 (0.22) | 1. to cut into tiny bits 3.32(2.19) 5.12(1.48) 2.88(1.54) |
| 14 | 5.50 (1.67) | 2. a slice of meat with a piece of bone 2.60(1.94) 1.96(1.43) |
| 11 | 6.20 (0.95) | 3. to cut with an ax 3.88(1.83) |
| 04 | 5.40 (1.93) | 4. a fast, sharp blow of the hand |
| <i>clean</i> | | |
| 35 | 6.95 (0.22) | 1. free from dirt and contamination 5.36(1.38) 5.32(1.65) 4.36(1.75) 4.16(1.84) 4.68(1.65) 4.52(1.50) |
| 31 | 6.95 (0.22) | 2. to make neat and orderly 3.56(1.58) 2.56(1.92) 3.08(1.71) 4.16(1.34) 3.44(1.80) |
| 04 | 4.95 (1.79) | 3. morally pure; not indecent 4.76(1.83) 4.64(1.75) 3.44(1.78) 2.08(1.38) |
| 02 | 5.70 (1.38) | 4. to not drink alcohol or take illegal drugs 3.00(1.66) 2.24(1.36) 2.52(1.53) |
| 01 | 4.10 (2.07) | 5. to be proper; sportsmanlike 2.20(1.32) 1.48(0.77) |
| 01 | 3.25 (1.86) | 6. having few corrections; legible 1.28(0.54) |
| 01 | 3.00 (1.84) | 7. to take away everything |
| <i>club</i> | | |
| 32 | 6.10 (1.17) | 1. a heavy stick used as a weapon 1.44(1.00) 1.08(0.28) 4.56(1.23) 1.08(0.40) 1.32(0.63) |

Appendix (Continued)

| Freq | Familiarity | Relatedness |
|--------------|-------------|--|
| 29 | 6.70 (0.47) | 2. an organization for people with common interests 5.36(1.58) 1.28(0.89) 1.12(0.33) 1.92(1.26) |
| 20 | 6.65 (0.75) | 3. a dance place 1.20(0.50) 1.04(0.20) 1.04(0.20) |
| 16 | 5.05 (1.70) | 4. to hit or beat 1.00(0.00) 1.04(0.20) |
| 11 | 6.25 (0.97) | 5. a type of sandwich 1.20(0.71) |
| 02 | 6.25 (1.12) | 6. one of four playing card suits |
| <i>coast</i> | | |
| 40 | 6.65 (0.67) | 1. the land along the ocean 1.40(0.76) 1.56(1.19) 1.40(0.87) |
| 35 | 5.20 (1.77) | 2. to move by momentum 1.04(0.20) 5.72(1.67) |
| 10 | 5.90 (1.55) | 3. a soap brand name 1.20(0.50) |
| 05 | 5.55 (1.23) | 4. to continue without effort |
| <i>coat</i> | | |
| 40 | 7.00 (0.00) | 1. A sleeved outer garment worn for warmth 4.36(1.55) 4.92(1.61) 5.20(1.47) |
| 20 | 6.10 (0.85) | 2. to cover with a layer of something (e.g., paint) 5.76(1.39) 4.08(1.82) |
| 12 | 5.90 (1.37) | 3. a layer of some substance over a surface 5.00(1.63) |
| 10 | 6.10 (1.07) | 4. the natural covering of an animal; fur |
| <i>cover</i> | | |
| 31 | 6.35 (0.75) | 1. to place one thing over another; to conceal 5.56(1.45) 5.84(0.94) 4.56(1.19) 1.72(1.14) 2.68(0.77) 2.84(1.60) 2.64(1.55) 6.08(0.86) 2.32(1.43) |
| 21 | 6.35 (0.59) | 2. a blanket 3.64(1.96) 3.12(1.45) 1.44(0.77) 2.00(1.32) 2.16(1.82) 1.20(0.50) 3.36(2.18) 1.60(1.08) |
| 14 | 5.90 (1.59) | 3. a top to a container 3.48(1.85) 1.32(0.75) 1.68(1.25) 1.56(1.39) 1.76(1.59) 3.00(1.76) 1.60(1.04) |
| 10 | 5.90 (1.07) | 4. the hard or soft binding of a book 1.16(0.47) 1.36(0.91) 1.40(0.87) 1.12(0.44) 2.76(1.74) 1.48(0.92) |
| 05 | 5.55 (1.43) | 5. the price for entering an establishment 1.20(0.65) 1.56(1.16) 1.28(0.46) 1.04(0.20) 1.20(0.41) |
| 05 | 3.80 (2.04) | 6. a false identity 4.16(2.13) 1.52(1.01) 2.00(1.41) 1.60(1.26) |
| 04 | 5.85 (1.46) | 7. to provide an alibi for another person 2.60(1.63) 1.80(1.32) 1.88(1.13) |
| 03 | 4.90 (1.86) | 8. to guard with a gun 1.56(0.82) 1.68(0.99) |
| 02 | 4.85 (1.98) | 9. to put clothing on 1.92(1.61) |
| 01 | 5.50 (1.47) | 10. to include or deal with a topic |
| <i>cream</i> | | |
| 39 | 6.90 (0.31) | 1. a thick dairy product 1.60(1.15) 3.76(2.09) 4.36(1.98) 2.64(2.08) 3.00(2.18) |
| 17 | 4.65 (2.41) | 2. to defeat or beat soundly 1.68(1.38) 1.72(1.46) 2.80(1.96) 2.16(1.65) |
| 08 | 6.35 (0.81) | 3. a lotion or moisturizer 4.20(1.94) 2.72(1.95) 2.32(1.31) |
| 07 | 6.10 (1.45) | 4. a yellowish-white color 2.28(1.59) 2.28(1.59) |
| 06 | 4.40 (2.19) | 5. to mix together 1.96(1.51) |

Appendix (Continued)

| Freq | Familiarity | Relatedness |
|--------------|-------------|--|
| 03 | 4.15 (1.84) | 6. the best or finest part |
| <i>cross</i> | | |
| 30 | 6.75 (0.44) | 1. a T-shaped religious symbol 2.60(1.80) 1.20(0.65) 1.64(1.38) 1.56(0.92) 3.24(2.05) |
| 27 | 6.45 (0.76) | 2. to go from one side to the other 1.84(1.52) 4.72(1.81) 2.40(1.50) 4.00(1.98) |
| 14 | 4.50 (1.96) | 3. ill tempered; cranky or irritable 1.28(0.61) 3.68(1.75) 1.28(0.89) |
| 12 | 4.30 (2.15) | 4. to meet and pass each other 1.40(0.82) 2.84(1.93) |
| 07 | 4.00 (2.05) | 5. to oppose or disobey 2.60(1.73) |
| 03 | 5.85 (1.60) | 6. to put a line through |
| <i>date</i> | | |
| 39 | 6.95 (0.22) | 1. the day of the month or year 1.40(0.82) 3.28(1.54) 2.48(1.26) |
| 26 | 5.25 (1.65) | 2. a sweet, fleshy fruit with a large seed 1.40(1.04) 1.24(0.72) |
| 25 | 6.95 (0.22) | 3. a social engagement with someone of the opposite sex 5.88(1.39) |
| 16 | 6.65 (0.75) | 4. to regularly go out with someone |
| <i>down</i> | | |
| 39 | 6.65 (0.75) | 1. in a lower place; not up 3.44(1.94) 2.00(1.80) 4.40(2.02) 2.32(1.77) 2.28(2.03) |
| 15 | 5.70 (1.30) | 2. sad or dejected 1.92(1.78) 3.24(1.85) 1.84(1.60) 2.00(1.73) |
| 11 | 4.70 (2.32) | 3. soft, fine feathers 1.96(1.54) 1.72(1.46) 1.88(1.72) |
| 03 | 3.85 (1.90) | 4. to become a less amount 3.32(2.12) 2.52(1.81) |
| 01 | 5.20 (1.70) | 5. to gulp or eat quickly 1.92(1.55) |
| 01 | 5.00 (1.65) | 6. a single play in football |
| <i>draw</i> | | |
| 40 | 6.90 (0.31) | 1. to create something with a writing tool 1.16(0.47) 1.36(0.70) 1.12(0.33) 1.32(0.56) 1.32(0.56) 1.32(0.63) 1.20(0.50) 1.28(0.46) |
| 16 | 5.00 (1.95) | 2. to pull out a weapon (e.g., a gun) 2.60(1.66) 2.08(1.44) 3.20(1.58) 1.48(0.92) 4.80(1.29) 1.28(0.54) 1.84(1.07) |
| 13 | 4.05 (2.06) | 3. a tie or stalemate 1.68(1.18) 1.52(0.96) 1.48(0.96) 1.44(0.77) 1.20(0.58) 1.16(0.62) 1.80(1.04) |
| 06 | 6.15 (0.81) | 4. to pick out a name or number at random 3.96(1.97) 1.64(0.86) 1.60(0.96) 4.32(1.68) 1.40(0.65) 1.20(0.41) |
| 05 | 5.60 (1.35) | 5. to take a number of playing cards 2.20(1.35) 1.32(0.48) 3.88(1.96) 1.48(1.05) 1.52(0.92) |
| 04 | 2.15 (1.53) | 6. to make move toward 3.48(1.92) 2.00(1.22) 1.40(1.00) 5.92(1.08) |
| 03 | 4.70 (1.66) | 7. to attract or charm 1.72(1.31) 1.80(1.19) 3.80(1.71) |
| 03 | 4.70 (2.30) | 8. to remove or extract 2.08(1.58) 2.04(1.43) |
| 01 | 3.00 (1.84) | 9. to breathe in air or smoke 1.68(1.11) |
| 01 | 2.95 (1.85) | 10. to come closer or approach |
| <i>dress</i> | | |
| 38 | 7.00 (0.00) | 1. a woman's garment 4.56(1.98) 5.44(1.45) 4.16(1.60) |

Appendix (Continued)

| Freq | Familiarity | Relatedness |
|--------------|-------------|--|
| 26 | 6.75 (0.55) | 2. to put clothes on 4.36(1.75) 5.00(1.68) |
| 09 | 6.00 (1.12) | 3. a style of clothing 4.56(1.56) |
| 05 | 5.15 (1.60) | 4. to decorate or adorn |
| <i>dull</i> | | |
| 39 | 6.60 (0.82) | 1. boring and uninteresting 3.40(1.76) 4.16(1.37) 5.12(1.20) |
| 29 | 6.45 (1.00) | 2. not sharp; blunt 3.56(1.87) 4.08(1.96) |
| 09 | 6.35 (0.88) | 3. not shiny; unpolished 6.08(1.00) |
| 04 | 6.35 (1.18) | 4. not a bright color |
| <i>dump</i> | | |
| 35 | 6.35 (1.39) | 1. a trashpile; a junkyard 6.04(1.10) 4.08(1.53) 4.72(1.79) 2.16(1.34) 2.68(1.60) |
| 22 | 6.30 (0.92) | 2. an ugly, messy place 3.40(2.16) 3.00(1.83) 2.04(1.46) 3.20(1.50) |
| 15 | 5.60 (1.57) | 3. to get rid of something that is unwanted 5.44(1.58) 5.28(1.51) 5.20(1.61) |
| 13 | 6.20 (0.95) | 4. to throw down or unload in a heap 3.68(1.84) 3.84(1.57) |
| 13 | 6.55 (0.69) | 5. to abruptly end a relationship with someone 1.60(1.29) |
| 04 | 5.50 (1.64) | 6. to pass bodily waste |
| <i>faint</i> | | |
| 39 | 6.65 (0.93) | 1. to suddenly fall into unconsciousness 3.84(1.18) 5.96(1.02) 2.72(1.40) |
| 24 | 5.65 (1.42) | 2. to be dim or unclear; barely there 4.00(1.71) 5.20(1.66) |
| 08 | 6.60 (0.94) | 3. feeling weak and dizzy 2.48(1.61) |
| 02 | 3.85 (2.18) | 4. far from certain |
| <i>felt</i> | | |
| 34 | 6.80 (0.41) | 1. to have touched something 2.60(1.94) 3.84(1.82) 3.00(1.91) |
| 33 | 6.40 (1.23) | 2. a fabric that is fuzzy and springy 1.28(0.54) 1.28(0.68) |
| 11 | 6.60 (0.75) | 3. to have experienced an emotion 5.72(1.21) |
| 04 | 6.10 (1.07) | 4. to have thought or believed |
| <i>fight</i> | | |
| 22 | 6.30 (1.30) | 1. to take part in physical combat 5.52(1.12) 6.32(0.95) 4.20(1.80) 4.48(1.61) 5.16(1.62) |
| 22 | 6.60 (0.99) | 2. to argue or quarrel 5.72(1.28) 4.12(1.79) 6.00(1.53) 5.08(1.44) |
| 08 | 6.45 (1.05) | 3. a physical struggle 5.16(1.46) 5.16(1.43) 5.20(1.68) |
| 08 | 5.20 (1.58) | 4. to work to overcome obstacles 3.52(1.87) 4.32(1.55) |
| 07 | 6.55 (0.83) | 5. a verbal disagreement 4.48(1.50) |
| 02 | 6.00 (1.21) | 6. to stand up for oneself |
| <i>file</i> | | |
| 27 | 6.50 (0.76) | 1. to arrange papers into a certain order 1.12(0.33) 1.48(0.92) 4.72(1.10) 4.48(1.19) 6.16(0.94) 2.56(1.42) 4.04(1.72) |
| 18 | 5.60 (1.54) | 2. a steel tool with a rough ridged surface 3.92(2.14) 1.04(0.20) 1.20(0.58) 1.24(0.52) 1.20(0.50) 1.36(0.86) |

Appendix (Continued)

| Freq | Familiarity | Relatedness |
|--------------|-------------|--|
| 17 | 5.75 (1.21) | 3. to smooth or grind down 1.20(0.65) 1.12(0.44) 1.76(1.30) 1.24(0.44) 1.88(1.13) |
| 15 | 6.05 (1.23) | 4. a collection of papers on a certain person or subject 5.80(1.38) 3.92(1.82) 2.76(1.69) 1.40(0.71) |
| 14 | 6.75 (0.44) | 5. a folder for containing documents 4.04(2.11) 2.84(1.77) 1.64(1.35) |
| 02 | 3.95 (2.35) | 6. an orderly arrangement 2.44(1.58) 5.76(1.30) |
| 02 | 5.45 (1.57) | 7. to initiate a legal action 1.48(0.87) |
| 01 | 5.30 (1.45) | 8. to move into line |
| <i>fine</i> | | |
| 24 | 6.05 (1.43) | 1. to be adequate; good or OK 1.80(1.00) 4.20(1.44) 5.36(1.00) 4.96(0.84) 2.48(1.36) 1.80(1.12) 2.48(1.50) 3.76(0.83) |
| 23 | 6.15 (1.09) | 2. a sum of money paid to settle a matter 1.20(0.50) 1.44(0.77) 1.12(0.33) 1.20(0.58) 1.20(0.58) 1.44(0.77) 1.28(0.74) |
| 14 | 5.50 (1.54) | 3. to be extremely attractive (usually a person) 2.88(1.48) 4.88(1.51) 5.76(1.27) 1.44(0.77) 1.56(0.82) 3.48(1.61) |
| 13 | 6.30 (0.86) | 4. to be in good health and/or mood 4.60(1.53) 3.20(1.66) 1.28(0.61) 1.64(1.00) 1.68(0.90) |
| 07 | 4.80 (1.99) | 5. superior in quality 2.56(1.66) 2.92(1.78) 3.52(1.92) 5.44(1.56) |
| 07 | 5.15 (1.63) | 6. to be fragile or delicate 3.92(1.80) 3.88(1.69) 3.32(2.15) |
| 06 | 6.15 (1.39) | 7. not coarse; in very small particles 3.04(1.74) 1.92(1.26) |
| 04 | 4.70 (1.95) | 8. involving precise accuracy 2.32(1.55) |
| 03 | 4.40 (2.06) | 9. elegant or showy |
| <i>firm</i> | | |
| 32 | 6.30 (0.73) | 1. to be physically solid or hard 1.72(0.84) 3.44(1.80) 3.72(1.95) |
| 29 | 6.40 (0.82) | 2. a business company or partnership 1.76(0.97) 1.52(0.71) |
| 13 | 5.30 (1.69) | 3. showing determination 5.72(1.21) |
| 10 | 5.85 (1.39) | 4. unchanging; remaining constant |
| <i>flat</i> | | |
| 40 | 6.85 (0.37) | 1. having a smooth level 2.04(1.57) 2.84(1.77) 2.56(1.96) 2.68(1.84) 3.28(1.79) 4.16(2.32) |
| 11 | 4.00 (2.20) | 2. an apartment 1.64(1.50) 1.84(1.65) 1.84(1.52) 1.84(1.46) 1.72(1.31) |
| 10 | 5.00 (2.34) | 3. emptied of air 5.32(2.10) 2.32(1.63) 3.48(2.16) 2.08(1.44) |
| 05 | 5.60 (1.67) | 4. having no carbonation 2.32(1.97) 2.60(1.94) 2.28(2.03) |
| 03 | 4.55 (1.61) | 5. to sing or play below true pitch 1.88(1.62) 1.52(1.19) |
| 02 | 5.75 (1.74) | 6. not thick; thin 3.20(1.89) |
| 01 | 5.90 (1.12) | 7. a shoe having little or no heel |
| <i>floor</i> | | |
| 38 | 6.90 (0.31) | 1. the bottom surface of a room 5.24(1.54) 2.80(1.04) 3.48(1.56) 2.44(1.36) 1.84(1.18) |

Appendix (Continued)

| Freq | Familiarity | Relatedness |
|---------------|-------------|---|
| 15 | 6.55 (0.83) | 2. the level or story of a building 1.28(0.89) 1.48(0.77) 1.52(0.82) 1.24(0.52) |
| 11 | 6.10 (1.12) | 3. to suddenly press down on the gas pedal 3.36(2.00) 1.04(0.20) 1.96(0.98) |
| 08 | 3.55 (2.24) | 4. to knock someone or something down 1.44(0.65) 3.24(1.76) |
| 04 | 4.60 (1.98) | 5. permission to speak in an assembly 1.52(1.05) |
| 05 | 3.00 (2.34) | 6. to be shocked or amazed |
| <i>form</i> | | |
| 32 | 6.30 (0.86) | 1. a standard document with blank spaces 2.24(1.39) 2.08(1.44) 2.36(1.44) 2.04(1.06) 2.40(1.55) |
| 22 | 6.05 (1.15) | 2. the shape of something 5.68(1.41) 3.52(1.92) 3.08(1.91) 3.20(1.68) |
| 21 | 5.95 (1.15) | 3. to give shape to; to put together 3.28(1.97) 5.40(1.73) 3.68(1.55) |
| 19 | 5.80 (1.64) | 4. the proper style or technique 2.16(1.11) 6.04(1.14) |
| 06 | 5.35 (1.81) | 5. to gather together and create (such as a club) 2.24(1.30) |
| 02 | 5.00 (1.75) | 6. the particular mode or method |
| <i>game</i> | | |
| 38 | 6.50 (1.00) | 1. an amusement involving mental or physical competition 3.28(1.49) 3.64(1.55) 3.88(1.74) |
| 26 | 5.75 (1.25) | 2. wild animals hunted for sport or food 1.68(1.03) 1.52(0.87) |
| 07 | 5.25 (1.83) | 3. to be willing to participate 2.04(1.34) |
| 03 | 5.80 (1.40) | 4. something that is not taken seriously |
| <i>grave</i> | | |
| 40 | 6.85 (0.37) | 1. a hole in the ground in which a body is buried 3.48(1.96) 2.40(1.94) 2.88(2.01) |
| 12 | 5.15 (1.87) | 2. to be sad or somber 3.12(1.83) 4.04(1.74) |
| 07 | 4.40 (2.33) | 3. of a threatening nature; dangerous 4.70(1.91) |
| 02 | 4.65 (1.93) | 4. serious or important |
| <i>ground</i> | | |
| 36 | 6.70 (0.80) | 1. the surface of the earth 2.16(1.75) 2.24(1.96) 4.24(2.17) 2.84(2.10) 2.00(1.22) 3.36(1.98) |
| 24 | 5.60 (1.47) | 2. to have crushed into bits 2.44(1.96) 2.92(2.08) 2.04(1.70) 2.24(1.64) 1.96(1.72) |
| 12 | 6.45 (1.00) | 3. to punish by not allowing one to go out 2.60(2.04) 2.04(1.70) 2.92(1.87) 4.28(2.03) |
| 10 | 4.60 (2.04) | 4. the lowest part; the bottom 2.36(1.93) 3.32(1.84) 2.88(1.81) |
| 06 | 4.45 (2.01) | 5. a conducting body connected to an electric circuit 2.72(1.70) 2.20(1.76) |
| 03 | 4.35 (1.84) | 6. the logical basis of a conclusion or action 2.44(1.94) |
| 01 | 3.75 (1.97) | 7. to keep someone from flying |
| <i>hail</i> | | |
| 37 | 6.45 (0.89) | 1. small, rounded pieces of ice 2.12(1.90) 2.04(2.01) 1.80(1.53) |
| 20 | 5.35 (1.23) | 2. to salute; to honor 5.20(1.50) 6.16(0.90) |
| 07 | 4.70 (1.92) | 3. to call out; to signal to 5.56(1.66) |

Appendix (Continued)

| Freq | Familiarity | Relatedness |
|---------------|-------------|--|
| 04 | 4.40 (1.67) | 4. to welcome or greet with cheers |
| <i>hard</i> | | |
| 39 | 6.60 (0.94) | 1. firm to the touch 3.00(1.85) 3.84(1.84) |
| 29 | 6.45 (1.05) | 2. demanding great physical or mental effort 2.68(1.89) |
| 05 | 3.95 (1.82) | 3. unfeeling or unfriendly |
| <i>hide</i> | | |
| 40 | 7.00 (0.00) | 1. to put or keep out of sight; to conceal 1.64(1.04) |
| 31 | 5.55 (1.54) | 2. an animal skin or pelt |
| <i>horn</i> | | |
| 32 | 6.95 (0.22) | 1. a loud warning device on a vehicle 1.76(1.36) 4.12(1.92) 5.44(1.76) |
| 29 | 5.35 (2.23) | 2. a hard bone found on an animal's head 2.00(1.63) 1.36(0.64) |
| 29 | 6.30 (1.08) | 3. a brass, musical instrument 4.88(1.88) |
| 03 | 3.90 (1.71) | 4. an amplifier; a megaphone |
| <i>jerk</i> | | |
| 39 | 6.65 (0.93) | 1. a rude or mean person 2.28(1.65) |
| 34 | 6.45 (0.60) | 2. a sharp, abrupt movement |
| <i>labor</i> | | |
| 26 | 4.65 (1.73) | 1. physical or mental exertion 4.76(2.05) 5.88(1.64) 4.36(1.89) |
| 18 | 6.50 (1.19) | 2. to work; to toil 4.52(1.85) 2.20(1.96) |
| 18 | 5.05 (1.79) | 3. wage earning workers 4.40(1.87) |
| 03 | 6.35 (1.39) | 4. the process of childbirth |
| <i>land</i> | | |
| 35 | 6.60 (0.94) | 1. the solid part of the earth's surface 3.16(1.18) 3.16(1.46) 4.52(1.16) |
| 20 | 6.50 (1.00) | 2. to set an aircraft down on ground or water 4.32(1.86) 2.40(1.96) |
| 16 | 5.65 (1.98) | 3. to come to rest after a jump or fall 1.40(0.71) |
| 14 | 5.30 (1.59) | 4. a country or region |
| <i>lean</i> | | |
| 24 | 5.55 (1.67) | 1. to be thin 6.12(1.39) 2.28(1.88) 2.36(2.10) 1.88(1.59) |
| 20 | 6.70 (0.66) | 2. having little or no fat (as in meat) 2.16(1.80) 1.88(1.59) 2.16(1.75) |
| 14 | 6.30 (0.86) | 3. to rest one's weight on something 5.12(1.81) 3.68(1.95) |
| 11 | 6.00 (1.38) | 4. to stand at a slant 3.32(1.70) |
| 03 | 4.75 (2.05) | 5. to depend on someone for encouragement |
| <i>letter</i> | | |
| 40 | 6.95 (0.22) | 1. a written message to a person or group 2.24(1.64) 2.64(1.89) |
| 36 | 6.90 (0.31) | 2. a member of the alphabet 2.72(1.90) |
| 12 | 5.85 (1.53) | 3. an award presented for superior performance in a sport |
| <i>limp</i> | | |
| 33 | 6.40 (0.94) | 1. to walk with a disabled leg 3.36(1.93) |
| 32 | 6.65 (0.59) | 2. without stiffness; droopy |

Appendix (Continued)

| Freq | Familiarity | Relatedness |
|---------------|-------------|---|
| <i>litter</i> | | |
| 33 | 6.40 (1.35) | 1. to leave garbage strewn about 2.20(1.89) 2.72(2.19) 6.04(1.24) |
| 23 | 5.95 (1.23) | 2. a group of animal babies 2.36(1.87) 2.32(1.97) |
| 14 | 6.60 (0.94) | 3. the sand used for cats' hygiene purposes 3.44(2.22) |
| 12 | 5.45 (1.88) | 4. bits or scraps of rubbish |
| <i>lock</i> | | |
| 32 | 6.85 (0.49) | 1. to securely fasten 5.52(1.33) 1.68(0.90) 5.20(1.35) 4.16(1.21) 5.04(1.14) |
| 31 | 6.55 (1.47) | 2. a security device that requires a key to open 1.12(0.33) 4.64(1.85) 2.56(1.80) 3.88(1.83) |
| 15 | 4.25 (2.05) | 3. a curl or small amount of hair 1.16(0.37) 1.20(0.65) 1.12(0.33) |
| 07 | 5.00 (2.15) | 4. to keep someone out 1.52(0.96) 4.16(2.01) |
| 03 | 1.50 (0.89) | 5. a sure thing 2.56(1.64) |
| 01 | 2.65 (1.66) | 6. no escape; no way out of a situation |
| <i>major</i> | | |
| 37 | 6.95 (0.22) | 1. the primary subject or field of study in college 1.88(1.30) 4.04(2.01) 3.08(1.55) 1.52(0.96) 3.76(1.67) |
| 34 | 6.05 (1.36) | 2. a high-ranking officer 5.76(1.20) 3.80(1.87) 1.16(0.37) 2.84(1.93) |
| 21 | 6.20 (0.83) | 3. to be important 5.00(1.47) 1.56(1.08) 5.00(1.61) |
| 19 | 5.65 (1.35) | 4. of great size or amount 1.56(1.08) 6.32(1.35) |
| 05 | 4.05 (2.33) | 5. a type of musical scale or chord 1.48(0.92) |
| 03 | 5.95 (1.15) | 6. most; the greater part of |
| <i>mine</i> | | |
| 40 | 6.85 (0.49) | 1. belonging to me 1.00(0.00) 1.20(0.82) 1.52(1.29) |
| 26 | 5.50 (1.64) | 2. a hole in the earth where precious metals are found 2.16(1.34) 5.52(1.69) |
| 11 | 4.60 (2.16) | 3. an explosive device that is buried in the ground 2.72(1.90) |
| 11 | 5.20 (1.54) | 4. to dig for resources |
| <i>miss</i> | | |
| 26 | 6.55 (0.94) | 1. to feel sad because of someone's absence 2.12(1.72) 2.24(2.09) 2.48(1.92) 2.56(1.78) 3.96(1.77) 2.44(2.00) |
| 21 | 6.35 (1.23) | 2. a young woman or girl 6.00(1.61) 1.56(1.12) 2.00(1.80) 1.88(1.74) 1.84(1.72) |
| 14 | 6.25 (1.41) | 3. a title for an unmarried woman 2.04(1.93) 1.92(1.66) 1.88(1.72) 1.96(1.79) |
| 13 | 6.40 (0.88) | 4. to fail to hit 3.88(2.09) 4.24(2.31) 4.24(1.96) |
| 11 | 2.45 (1.64) | 5. to forget to do something 4.68(1.73) 3.52(1.96) |
| 05 | 6.20 (1.58) | 6. to not hear or see something 3.84(2.08) |
| 03 | 5.55 (1.64) | 7. to not answer correctly |
| <i>mold</i> | | |
| 35 | 6.55 (0.60) | 1. a furry fungus 2.28(2.03) 2.20(1.89) 1.64(1.29) 1.56(1.16) |

Appendix (Continued)

| Freq | Familiarity | Relatedness |
|--------------|-------------|---|
| 28 | 6.55 (0.60) | 2. to make or shape 5.44(1.53) 5.48(1.45) 4.76(2.09) |
| 06 | 5.00 (1.86) | 3. a hollow casing 4.60(2.00) 4.32(2.06) |
| 06 | 3.15 (1.84) | 4. to make an imprint or copy of something 4.52(1.56) |
| 03 | 4.35 (2.23) | 5. a gelatin dessert formed by a container |
| <i>nail</i> | | |
| 39 | 6.80 (0.52) | 1. a small, metal spike 2.44(2.00) 2.92(1.87) 3.56(1.94) 1.92(1.66) |
| 30 | 6.80 (0.41) | 2. the thin, hard substance on the ends of fingers 2.12(1.88) 2.28(1.90) 1.76(1.39) |
| 13 | 5.35 (1.57) | 3. to hit something 3.16(2.21) 3.36(1.89) |
| 07 | 4.15 (2.28) | 4. to attach or fasten together 3.08(2.06) |
| 03 | 4.55 (1.84) | 5. to capture or catch (a thief) |
| <i>order</i> | | |
| 27 | 6.20 (1.28) | 1. to request food or things 3.00(2.25) 4.80(1.66) 5.44(1.76) 2.64(1.96) 2.44(1.78) 1.96(1.54) |
| 17 | 6.85 (0.37) | 2. the sequence of things 3.28(2.07) 3.72(2.01) 4.96(1.74) 6.32(0.69) 2.76(1.64) |
| 17 | 5.95 (1.54) | 3. to give a command 6.28(1.14) 3.48(2.08) 2.68(1.95) 2.40(1.76) |
| 08 | 6.20 (1.24) | 4. a command or instruction 4.56(2.06) 2.68(1.65) 2.16(1.52) |
| 05 | 5.25 (1.94) | 5. to organize or arrange 6.12(1.05) 3.24(1.88) |
| 05 | 6.50 (0.89) | 6. the proper arrangement 3.48(1.92) |
| 04 | 4.80 (1.67) | 7. a state of peace and serenity |
| <i>pack</i> | | |
| 32 | 6.75 (0.55) | 1. to put things into a suitcase 5.28(1.46) 3.76(1.88) 2.36(1.96) 2.08(1.87) 4.92(1.75) 5.72(1.37) |
| 15 | 3.20 (1.51) | 2. a large bundle of things wrapped for carrying 4.32(1.80) 3.16(2.08) 3.08(2.06) 4.36(1.58) 4.88(1.88) |
| 14 | 4.70 (2.08) | 3. a collection of similar items (e.g., cards) 4.40(1.94) 4.24(1.42) 2.36(1.63) 3.68(1.84) |
| 09 | 5.55 (1.36) | 4. a number of wild animals living together 5.12(1.72) 2.72(1.86) 2.76(2.22) |
| 07 | 3.60 (1.60) | 5. a group of people; a gang 2.88(1.67) 2.40(1.96) |
| 04 | 4.45 (1.57) | 6. to press tightly 4.32(1.57) |
| 01 | 5.25 (1.68) | 7. to put things into a container (e.g., a lunchbox) |
| <i>park</i> | | |
| 37 | 6.95 (0.22) | 1. to leave a car in a designated place 1.76(1.05) |
| 37 | 6.95 (0.22) | 2. an open area for public recreation |
| <i>peer</i> | | |
| 38 | 6.65 (0.59) | 1. a person of the same standing; an equal 1.60(0.91) |
| 31 | 5.20 (1.88) | 2. to look closely |
| <i>pitch</i> | | |
| 37 | 6.20 (1.20) | 1. to throw or toss 1.44(0.65) 2.12(1.27) 1.32(0.80) 5.36(1.50) 3.28(1.46) 1.16(0.47) |

Appendix (Continued)

| Freq | Familiarity | Relatedness |
|--------------|-------------|---|
| 26 | 6.20 (0.83) | 2. the quality of a tone or sound 3.04(1.74) 1.20(0.50) 1.28(0.74) 1.32(0.75) 2.24(1.56) |
| 12 | 5.35 (1.76) | 3. a persuasive speech used by salesmen 1.28(0.84) 1.44(1.08) 1.72(1.37) 1.28(0.74) |
| 06 | 2.60 (2.60) | 4. a dark, sticky substance 1.36(0.76) 1.44(1.33) 4.16(2.06) |
| 04 | 3.95 (2.09) | 5. to discard 2.24(1.36) 1.48(0.96) |
| 02 | 1.95 (1.19) | 6. to fall or plunge headlong 1.52(0.77) |
| 02 | 4.40 (2.26) | 7. to be very dark or black |
| <i>place</i> | | |
| 28 | 6.60 (0.68) | 1. a particular area or region 3.76(1.85) 4.72(1.90) 2.20(1.68) 5.20(1.53) |
| 23 | 5.50 (1.82) | 2. to put something in its proper space 4.80(1.00) 3.84(1.34) 2.88(1.92) |
| 09 | 6.20 (1.28) | 3. to come in first, second, or third in a competition 2.84(1.93) 4.84(1.52) |
| 08 | 5.25 (2.00) | 4. a residence or home 1.76(1.59) |
| 06 | 5.05 (1.54) | 5. the space occupied by something |
| <i>play</i> | | |
| 33 | 6.45 (0.83) | 1. to engage in recreation 4.04(2.07) 5.92(1.22) 3.88(1.67) |
| 30 | 6.70 (0.57) | 2. a dramatic performance 3.20(1.68) 4.40(1.73) |
| 17 | 6.80 (0.41) | 3. to take part in a game or sport 4.04(2.11) |
| 10 | 6.45 (0.94) | 4. to perform on a musical instrument |
| <i>plot</i> | | |
| 34 | 6.50 (0.69) | 1. the story line of a play or novel 3.68(1.49) 2.04(1.10) 1.32(0.69) 4.28(1.49) 1.32(0.63) |
| 16 | 5.60 (1.54) | 2. to conspire against; to scheme 1.52(0.96) 1.12(0.44) 6.32(1.18) 1.92(1.26) |
| 16 | 5.90 (1.41) | 3. to mark the location of points on a graph 2.48(1.42) 2.40(1.55) 5.48(1.45) |
| 14 | 5.45 (1.73) | 4. a small area of land 1.32(0.63) 2.04(1.27) |
| 06 | 5.05 (1.85) | 5. a secret plan 3.24(1.56) |
| 02 | 3.65 (1.79) | 6. a chart or diagram |
| <i>punch</i> | | |
| 40 | 6.65 (0.67) | 1. to hit with the fist 1.20(0.50) |
| 39 | 6.40 (0.68) | 2. a sweetened beverage |
| <i>pupil</i> | | |
| 38 | 6.65 (0.67) | 1. a person who is taught; a student 1.04(0.20) |
| 33 | 6.95 (0.22) | 2. the dark center of the eye |
| <i>rake</i> | | |
| 30 | 6.85 (0.37) | 1. to scrape or sweep leaves or grass 5.16(1.43) |
| 30 | 6.90 (0.45) | 2. a long handled tool used to gather loose debris |
| <i>rare</i> | | |
| 39 | 6.80 (0.52) | 1. not frequently encountered 1.40(0.65) 3.96(2.05) |
| 30 | 6.45 (0.69) | 2. only partially cooked; underdone 1.52(0.82) |
| 06 | 3.00 (2.03) | 3. to be exceptionally good |

Appendix (Continued)

| Freq | Familiarity | Relatedness |
|--------------|-------------|--|
| <i>rich</i> | | |
| 40 | 6.85 (0.37) | 1. to own much money and property; wealthy 1.04(0.20) 2.32(1.14) 6.36(0.86) |
| 22 | 5.05 (1.32) | 2. having a lot of sugar or fat 1.92(1.22) 1.16(0.47) |
| 21 | 5.90 (1.17) | 3. a shortened name for Richard 1.00(0.00) |
| 09 | 5.25 (1.92) | 4. well supplied; having an abundance of |
| <i>ring</i> | | |
| 39 | 6.95 (0.22) | 1. a metal band worn around the finger 1.28(0.54) 5.32(0.95) 5.08(1.29) 1.28(0.54) 1.24(0.44) 1.44(0.82) 1.32(0.63) 4.32(1.22) |
| 20 | 6.50 (0.89) | 2. the sound of a bell 1.32(0.56) 1.16(0.37) 5.28(2.01) 4.04(1.84) 5.96(1.37) 1.16(0.47) 1.28(0.84) |
| 19 | 5.10 (2.07) | 3. a circular line or figure 4.68(1.80) 1.28(0.61) 1.36(1.08) 1.12(0.33) 1.84(1.68) 4.76(1.92) |
| 10 | 4.15 (2.13) | 4. to call by telephone 1.68(1.44) 3.64(1.96) 4.44(1.87) 1.28(0.61) 1.44(1.00) |
| 07 | 3.10 (1.37) | 5. to surround or to encircle 1.56(1.19) 1.32(0.63) 2.16(1.34) 5.00(1.47) |
| 06 | 6.25 (0.85) | 6. to make a resonant sound; to chime 6.20(1.35) 1.08(0.28) 1.12(0.33) |
| 05 | 5.95 (1.96) | 7. to cause a bell to sound 1.28(1.02) 1.32(0.48) |
| 03 | 3.55 (1.82) | 8. a group of people involved in illegal activities 2.64(1.73) |
| 02 | 3.40 (2.01) | 9. a number of things or people grouped in a circle |
| <i>rose</i> | | |
| 40 | 6.95 (0.22) | 1. a type of flower 1.28(0.46) 4.08(2.16) 2.00(1.61) |
| 25 | 4.80 (1.85) | 2. to have gotten up 1.28(0.61) 1.24(0.44) |
| 18 | 5.05 (2.04) | 3. a pinkish, red color 1.56(1.12) |
| 14 | 5.75 (2.38) | 4. a woman's name |
| <i>round</i> | | |
| 34 | 6.00 (1.59) | 1. shaped like a circle or ring 6.20(1.04) 1.44(0.77) 5.36(1.44) 4.44(1.53) 1.92(1.44) 3.56(1.56) 3.04(1.24) 2.20(1.41) 3.96(1.57) 2.60(1.29) 1.36(0.64) 2.00(1.26) |
| 08 | 6.70 (0.57) | 2. formed like a ball or sphere 1.44(1.00) 4.20(1.66) 5.64(1.58) 1.48(0.77) 3.88(1.81) 2.16(1.62) 1.52(0.77) 3.64(1.82) 1.32(0.75) 1.32(0.75) 1.48(0.92) |
| 08 | 5.60 (1.90) | 3. a period or division in certain sports 1.32(0.75) 1.36(0.76) 2.04(1.43) 1.56(0.96) 1.72(0.94) 1.68(1.03) 1.60(1.04) 1.32(0.63) 1.40(0.76) 1.64(1.25) |
| 07 | 3.70 (2.13) | 4. a movement involving a circular motion 1.80(1.26) 1.72(1.10) 3.32(1.89) 4.48(1.76) 2.68(1.60) 2.76(1.81) 2.20(1.63) 1.12(0.33) 2.20(1.55) |
| 04 | 4.90 (1.33) | 5. to be plump or stout 1.32(0.85) 2.60(1.73) 1.28(0.54) 1.48(1.01) 1.68(0.99) 1.04(0.20) 1.12(0.33) 1.08(0.28) |
| 03 | 5.00 (1.81) | 6. to express in even units rather than exactly 3.12(1.54) 1.32(0.63) 1.56(0.92) 2.00(1.50) 1.36(0.91) 1.56(1.12) 1.68(1.25) |
| 03 | 5.30 (1.49) | 7. to smooth edges 1.84(1.11) 1.16(0.37) 2.56(1.56) 1.44(0.77) 1.12(0.33) 1.32(0.56) |

Appendix (Continued)

| Freq | Familiarity | Relatedness |
|---------------|-------------|--|
| 03 | 3.05 (1.61) | 8. to make a turn around (a corner) 2.08(1.85) 1.32(0.85) 1.92(1.47) 1.44(0.77) 1.44(0.96) |
| 02 | 2.95 (2.06) | 9. a short repeated song for two or more people 1.48(0.82) 1.48(0.77) 1.36(0.91) 1.96(1.46) |
| 01 | 2.35 (1.93) | 10. not lacking a part; complete 1.60(1.04) 1.28(0.46) 1.72(1.24) |
| 01 | 3.65 (2.43) | 11. a customary course for a doctor 1.24(0.52) 2.36(1.50) |
| 01 | 4.30 (2.13) | 12. a single outburst of applause 1.40(0.65) |
| 01 | 5.65 (1.98) | 13. a serving of drinks for everyone in a group |
| <i>scale</i> | | |
| 33 | 6.90 (0.31) | 1. a machine that weighs objects 1.04(0.20) 1.32(0.48) 4.24(1.56) 4.36(1.44) 2.64(1.55) 5.28(1.31) 1.04(0.20) 1.56(0.77) |
| 17 | 5.25 (2.17) | 2. a thin plate found on fish and reptiles 1.28(0.74) 1.28(0.61) 1.40(1.00) 1.12(0.44) 1.24(0.72) 5.36(1.68) 1.16(0.47) |
| 13 | 5.00 (1.62) | 3. to climb up and/or over 1.44(0.87) 1.44(1.12) 1.60(1.32) 1.24(0.44) 1.20(0.50) 2.24(1.71) |
| 10 | 4.55 (1.99) | 4. a series of marks used in measuring 3.20(1.96) 4.68(1.93) 5.28(1.51) 1.52(0.96) 3.84(1.40) |
| 10 | 5.30 (1.45) | 5. a classification by quality (by size or amount) 4.76(1.56) 4.16(2.12) 1.52(0.96) 4.40(1.80) |
| 08 | 6.00 (1.41) | 6. a ratio between representation and actual distance 4.36(1.89) 1.08(0.28) 1.80(0.87) |
| 04 | 3.60 (2.21) | 7. to measure with a device 1.12(0.60) 3.12(1.69) |
| 03 | 4.70 (2.11) | 8. to strip or scrape the skin off a fish 1.12(0.44) |
| 01 | 4.90 (2.25) | 9. a tonal series of rising or falling pitches |
| <i>seal</i> | | |
| 39 | 6.80 (0.70) | 1. a sea mammal that eats fish 1.08(0.28) 1.08(0.28) 1.12(0.33) |
| 29 | 6.15 (1.09) | 2. to close, shut, or fasten 1.60(0.87) 6.20(1.00) |
| 20 | 5.25 (2.10) | 3. a mark of genuineness or authenticity 2.88(1.54) |
| 12 | 4.70 (2.41) | 4. something that closes tightly or securely |
| <i>second</i> | | |
| 37 | 6.90 (0.31) | 1. coming next after first 2.72(2.32) 2.44(1.89) |
| 33 | 6.90 (0.45) | 2. 1/60 of a minute 2.08(1.73) |
| 03 | 4.10 (1.80) | 3. to formally indicate one's approval |
| <i>shake</i> | | |
| 31 | 6.65 (0.67) | 1. a drink of blended ice cream and milk 2.92(1.68) 2.44(1.89) 3.44(1.89) 1.92(1.75) 2.80(1.78) 2.36(1.89) |
| 26 | 4.50 (2.24) | 2. to cause to move up and down or side to side 5.20(1.66) 5.20(1.58) 4.16(1.95) 4.60(1.76) 3.92(1.93) |
| 12 | 6.80 (0.41) | 3. to tremble or quiver 4.08(2.14) 3.08(1.91) 4.16(1.80) 3.96(1.93) |
| 10 | 6.50 (1.19) | 4. to mix by moving the container briskly 3.44(2.00) 4.56(1.78) 3.92(2.12) |
| 06 | 6.75 (0.72) | 5. to clasp one's hand in greeting 2.32(1.55) 2.04(1.93) |

Appendix (Continued)

| Freq | Familiarity | Relatedness |
|--------------|-------------|--|
| 01 | 5.25 (2.20) | 6. to scatter (salt) about with quick movements 3.28(1.72) |
| 01 | 3.45 (1.47) | 7. to disturb or upset someone |
| <i>share</i> | | |
| 33 | 5.20 (1.88) | 1. part ownership of a corporation 3.84(1.75) 4.92(1.47) 5.68(1.18) 2.48(1.42) 4.40(0.91) |
| 26 | 5.20 (2.09) | 2. to receive, use, or experience with others 3.68(1.82) 2.92(1.55) 4.76(1.76) 2.64(1.47) |
| 14 | 6.30 (1.56) | 3. to divide and distribute equally 4.56(1.58) 2.40(1.44) 4.48(1.56) |
| 07 | 5.35 (1.73) | 4. a part or portion that belongs to someone 2.80(1.55) 3.84(1.72) |
| 04 | 5.20 (1.79) | 5. to tell or express thoughts 1.72(1.10) |
| 01 | 3.50 (1.82) | 6. a reasonable or just amount |
| <i>sharp</i> | | |
| 39 | 6.55 (1.00) | 1. having a thin edge (for cutting or piercing) 1.56(0.82) 1.36(0.70) 4.28(1.49) 4.12(2.01) 2.80(1.22) 1.40(.58) |
| 30 | 5.95 (1.15) | 2. to be clever or smart 2.40(1.55) 1.84(1.11) 3.08(1.58) 4.40(1.22) 1.20(0.65) |
| 11 | 5.90 (1.07) | 3. to be attractively or stylishly dressed 1.48(0.92) 3.72(1.72) 2.76(1.76) 1.44(0.87) |
| 06 | 5.20 (1.85) | 4. harsh, biting, or severe 3.16(1.68) 2.20(1.44) 1.48(0.71) |
| 05 | 4.25 (1.89) | 5. clearly defined; distinct 6.40(0.96) 2.36(1.32) |
| 03 | 5.15 (1.60) | 6. precisely or exactly 2.32(1.25) |
| 01 | 5.20 (1.74) | 7. a musical notation for a higher pitch |
| <i>shell</i> | | |
| 39 | 6.90 (0.31) | 1. a hard outer covering 2.28(1.65) 2.84(1.72) 4.08(1.82) |
| 09 | 4.60 (2.06) | 2. an explosive that is hurled in the air 1.92(1.75) 2.32(1.93) |
| 02 | 1.75 (1.16) | 3. a shy or reserved manner 2.32(2.01) |
| 02 | 3.80 (1.67) | 4. to remove the outer covering |
| <i>ship</i> | | |
| 40 | 6.65 (1.35) | 1. a vessel that travels through water 4.16(1.52) |
| 38 | 6.65 (0.75) | 2. to send or mail something |
| <i>show</i> | | |
| 34 | 6.25 (1.07) | 1. a theatrical production 4.24(1.81) 2.96(1.74) 6.00(1.08) 2.36(1.44) 1.76(1.42) |
| 34 | 6.35 (1.14) | 2. to bring into vision; to display 5.00(1.58) 4.40(1.66) 4.60(1.68) 1.80(1.08) |
| 14 | 6.45 (0.76) | 3. a television program 3.12(2.19) 1.92(1.63) 1.08(0.28) |
| 10 | 6.40 (0.82) | 4. to guide or demonstrate 4.92(1.53) 1.64(0.91) |
| 05 | 6.00 (1.26) | 5. to prove to someone 2.88(2.01) |
| 03 | 2.90 (2.10) | 6. to finish third or better in a race |
| <i>slip</i> | | |
| 37 | 6.45 (0.83) | 1. to slide accidentally on a surface 1.44(0.92) 1.20(0.41) 3.28(1.57) 3.08(1.26) 3.12(1.67) 1.80(1.08) 3.72(1.59) |

Appendix (Continued)

| Freq | Familiarity | Relatedness |
|---------------|-------------|---|
| 30 | 6.40 (0.88) | 2. a woman's sleeveless undergarment 1.28(0.84) 1.16(0.47) 2.08(1.53) 1.24(0.66) 1.12(0.33) 1.64(1.22) |
| 23 | 6.50 (0.76) | 3. a small piece of paper 1.52(1.19) 1.36(0.81) 1.52(0.82) 1.40(1.04) 1.12(0.33) |
| 09 | 6.05 (1.10) | 4. to say or tell without intending to 2.72(1.81) 2.60(1.83) 1.08(0.28) 2.76(1.74) |
| 04 | 4.70 (2.30) | 5. to pass unmarked or unnoticed 3.56(1.87) 1.32(0.69) 3.84(1.95) |
| 03 | 5.20 (1.44) | 6. to put or insert quickly 1.68(1.38) 2.24(1.51) |
| 02 | 2.00 (1.81) | 7. a pier sloping into the water for boats 1.48(0.71) |
| 01 | 4.00 (2.15) | 8. to become free of; to get loose |
| <i>smoke</i> | | |
| 38 | 6.90 (0.31) | 1. the vapor rising from something burning 5.36(1.15) 5.20(1.35) 1.52(0.77) 5.12(1.81) 1.64(0.95) 3.16(1.60) 1.92(1.21) |
| 31 | 6.65 (1.35) | 2. to inhale from a cigarette, cigar, or pipe 4.52(1.78) 1.32(0.63) 3.48(2.24) 1.36(0.81) 1.36(0.76) 1.68(1.31) |
| 05 | 5.35 (1.98) | 3. another name for a cigarette 1.36(0.91) 1.92(1.61) 1.20(0.65) 1.48(1.16) 1.80(1.32) |
| 04 | 4.25 (1.92) | 4. to beat someone in a competition 1.16(0.47) 3.80(1.83) 3.00(1.55) 4.00(1.41) |
| 03 | 5.10 (2.10) | 5. a dusky, gray color 1.68(1.35) 1.60(1.15) 1.36(1.11) |
| 02 | 2.15 (1.79) | 6. to be left behind 2.56(1.58) 2.40(1.66) |
| 01 | 2.00 (1.21) | 7. to make angry 3.20(1.68) |
| 01 | 1.70 (1.26) | 8. to drive or force someone out |
| <i>sock</i> | | |
| 40 | 6.50 (1.00) | 1. a short stocking 1.16(0.37) |
| 36 | 5.25 (1.25) | 2. to hit with force |
| <i>soil</i> | | |
| 40 | 6.85 (0.37) | 1. the surface layer of earth; dirt 3.76(1.30) |
| 32 | 6.15 (1.46) | 2. to make dirty or unclean |
| <i>spoke</i> | | |
| 39 | 6.80 (0.41) | 1. to have said; the past tense of "to speak" 1.32(0.75) |
| 37 | 6.40 (1.43) | 2. a metal wire rod found on a wheel |
| <i>spring</i> | | |
| 39 | 7.00 (0.00) | 1. the season between winter and summer 2.96(2.25) 1.96(1.78) 2.48(1.81) |
| 29 | 6.10 (1.29) | 2. to move suddenly; to leap 3.84(1.86) 2.00(1.55) |
| 23 | 6.85 (0.49) | 3. a coil that tends to return to its original form 2.08(1.98) |
| 11 | 5.95 (1.15) | 4. a small body of fresh water |
| <i>stable</i> | | |
| 37 | 6.65 (0.75) | 1. a building in which animals are housed 2.00(1.61) 2.16(1.97) 2.32(1.86) |
| 15 | 6.70 (0.57) | 2. not easily thrown off balance; firm 5.56(1.42) 5.80(0.96) |
| 15 | 6.10 (1.07) | 3. steadfast and sane 5.36(1.68) |
| 14 | 6.70 (0.57) | 4. not likely to change; lasting and enduring |

Appendix (Continued)

| Freq | Familiarity | Relatedness |
|--------------|-------------|---|
| <i>steep</i> | | |
| 40 | 6.40 (1.39) | 1. having a sharp rise or decline 4.56(1.85) 1.68(1.28) |
| 07 | 6.20 (0.89) | 2. unreasonably large or high (prices) 1.88(1.51) |
| 04 | 2.70 (2.15) | 3. to soak in hot liquid |
| <i>steer</i> | | |
| 40 | 6.85 (0.37) | 1. to guide a vehicle 1.20(0.50) 4.24(2.09) |
| 31 | 6.00 (1.49) | 2. male cattle 1.28(0.61) |
| 06 | 5.15 (1.79) | 3. to keep someone away from; to avoid |
| <i>stick</i> | | |
| 36 | 6.85 (0.49) | 1. a long, slender piece of wood 1.20(0.41) 1.60(1.22) 1.40(0.91) 1.24(0.52) 1.12(0.33) 4.12(1.64) 1.56(1.08) |
| 30 | 5.95 (1.39) | 2. to fasten or attach by gluing or pinning 1.96(1.17) 4.56(1.94) 2.04(1.06) 4.60(1.53) 1.20(0.41) 1.20(0.65) |
| 13 | 4.45 (2.19) | 3. to wound someone by stabbing; to poke 1.44(.87) 3.80(1.47) 1.28(0.61) 1.12(0.33) 1.24(0.52) |
| 07 | 3.50 (2.06) | 4. to persevere; to remain 1.84(1.31) 4.36(1.82) 1.44(0.87) 1.36(1.08) |
| 04 | 3.80 (2.12) | 5. to hit someone hard; to tackle 1.76(1.13) 1.08(0.40) 1.36(0.76) |
| 03 | 4.05 (1.90) | 6. to remain in close association with someone 1.12(0.33) 1.16(0.62) |
| 02 | 4.90 (1.65) | 7. to be very skinny 1.40(0.76) |
| 01 | 6.25 (1.55) | 8. a name for standard transmission |
| <i>sting</i> | | |
| 28 | 4.70 (2.45) | 1. to prick or wound 4.40(1.94) 2.52(1.85) 5.84(1.18) |
| 25 | 5.45 (1.88) | 2. a burning sensation 2.32(1.63) 4.92(1.80) |
| 06 | 5.10 (1.62) | 3. a secret operation; a scam 2.68(1.75) |
| 05 | 5.80 (1.40) | 4. to feel a sharp, smarting blow |
| <i>stock</i> | | |
| 34 | 6.20 (0.95) | 1. part ownership in a company that is bought and sold 2.20(1.22) 2.36(1.15) 1.88(1.01) 1.60(0.87) 2.64(1.52) 1.92(1.32) |
| 29 | 6.00 (1.52) | 2. to put items in supply for sale or future use 5.20(1.55) 2.92(1.50) 1.20(0.50) 1.92(1.44) 1.92(1.32) |
| 18 | 6.05 (1.36) | 3. the total amount of goods or inventory in a store 2.64(1.58) 1.44(1.00) 1.52(1.16) 2.20(1.47) |
| 13 | 5.15 (1.95) | 4. animals kept and used on a farm 1.48(1.26) 1.16(0.47) 1.60(0.96) |
| 05 | 3.55 (2.31) | 5. a broth used for the base of soup or gravy 1.12(0.33) 2.64(1.55) |
| 04 | 2.10 (1.45) | 6. to have faith in something 1.64(0.95) |
| 03 | 3.15 (2.21) | 7. a basic or standard model |
| <i>strip</i> | | |
| 36 | 6.35 (1.31) | 1. to remove clothing; to undress 2.04(0.98) 1.40(0.76) 5.88(0.93) 4.16(1.91) 4.96(1.34) 1.04(0.20) |
| 26 | 6.30 (0.73) | 2. a long piece of some material 3.28(1.70) 2.08(1.50) 1.08(0.28) 1.72(1.28) 2.88(2.01) |

Appendix (Continued)

| Freq | Familiarity | Relatedness |
|---------------|-------------|---|
| 11 | 5.10 (1.55) | 3. a narrow road or portion of land 1.44(0.65) 1.56(0.92) 1.20(0.41) 1.72(1.40) |
| 09 | 5.90 (1.74) | 4. to pull, tear, or take off 4.00(1.68) 5.12(1.62) 1.20(0.58) |
| 04 | 4.55 (1.70) | 5. to deprive someone of something 3.44(2.31) 1.08(0.28) |
| 02 | 5.75 (1.41) | 6. to take apart piece by piece for stealing 1.28(1.02) |
| 01 | 5.75 (1.45) | 7. a newspaper comic |
| <i>tank</i> | | |
| 37 | 6.30 (0.73) | 1. a large container for liquid or gas 3.20(1.78) 2.00(1.44) 3.04(1.95) |
| 37 | 6.95 (0.22) | 2. a heavily armored combat vehicle 1.88(1.90) 2.96(2.03) |
| 11 | 5.00 (2.15) | 3. a sleeveless shirt 1.40(0.76) |
| 05 | 4.00 (1.97) | 4. a large person |
| <i>temple</i> | | |
| 38 | 6.80 (0.52) | 1. a building used for religious purposes 1.88(1.81) |
| 30 | 6.45 (0.69) | 2. part of the forehead |
| <i>term</i> | | |
| 30 | 6.10 (1.12) | 1. a division of a school year 1.52(1.01) 4.20(1.94) 2.60(1.47) |
| 28 | 5.75 (2.05) | 2. a word (or phrase) with a specified meaning 1.96(1.57) 4.08(1.98) |
| 13 | 6.45 (1.10) | 3. the period of time that a political office is held 3.64(1.63) |
| 08 | 6.25 (1.07) | 4. the conditions of a contract or agreement |
| <i>tick</i> | | |
| 39 | 6.80 (0.41) | 1. a light clicking sound from a watch or clock 1.44(0.87) 1.68(0.95) |
| 38 | 6.50 (0.89) | 2. a blood-sucking mite 1.84(1.03) |
| 07 | 5.45 (1.43) | 3. to make someone mad |
| <i>track</i> | | |
| 34 | 6.75 (0.55) | 1. a circular path for running or racing 2.40(1.44) 4.08(1.91) 5.64(1.52) 2.36(1.85) 1.92(1.19) 1.88(1.05) 2.04(1.24) |
| 21 | 4.85 (1.84) | 2. to follow someone/something using evidence 2.48(1.73) 1.64(0.81) 4.20(2.10) 1.52(1.12) 5.60(1.55) 4.28(2.11) |
| 15 | 6.25 (1.29) | 3. sets of rails used by trains 1.84(1.28) 2.04(1.02) 1.88(1.27) 1.60(0.87) 2.08(1.61) |
| 14 | 6.75 (0.44) | 4. a running sport 1.72(1.14) 1.40(0.96) 2.00(1.19) 1.48(0.77) |
| 11 | 6.55 (0.69) | 5. a mark left by something (such as an animal) 1.92(1.44) 2.76(1.64) 2.08(1.44) |
| 10 | 4.95 (1.93) | 6. a song on a CD 1.32(0.63) 1.80(1.26) |

Appendix (Continued)

| Freq | Familiarity | Relatedness |
|--------------|-------------|---|
| 09 | 5.30 (1.98) | 7. to watch the progression of; to keep an eye on 4.12(1.83) |
| 02 | 4.10 (1.86) | 8. the correct progression of ideas |
| <i>trap</i> | | |
| 34 | 6.75 (0.44) | 1. a device for catching animals 5.96(1.10) 5.96(1.34) 1.60(0.87) |
| 22 | 6.60 (0.68) | 2. to lure and capture 5.84(1.40) 1.84(1.43) |
| 16 | 6.50 (0.61) | 3. a strategy designed to trick unsuspecting people 1.48(1.01) |
| 04 | 4.20 (2.04) | 4. a reference to the human mouth |
| <i>trip</i> | | |
| 38 | 6.85 (0.49) | 1. a journey or vacation 1.28(0.46) 3.04(2.15) 1.76(1.27) |
| 36 | 6.75 (0.44) | 2. to stumble or fall 2.24(1.51) 1.96(1.10) |
| 16 | 5.40 (1.57) | 3. hallucinations experienced under the influence of drugs 2.20(1.55) |
| 03 | 3.70 (3.23) | 4. to start or release a mechanism |
| <i>trunk</i> | | |
| 35 | 6.00 (1.34) | 1. a large box used for packing or storing 1.56(1.00) 5.88(1.24) 2.08(1.78) 2.08(1.68) 1.40(0.96) |
| 33 | 6.70 (0.73) | 2. the long, flexible snout of an elephant 1.60(1.26) 2.60(1.80) 2.80(1.61) 1.24(0.52) |
| 32 | 6.95 (0.22) | 3. the storage compartment of a car 1.72(1.34) 1.88(1.54) 1.32(0.69) |
| 10 | 6.70 (0.73) | 4. the thick stem of a tree 3.96(2.13) 1.32(0.69) |
| 05 | 3.40 (1.82) | 5. the body of a human 2.04(1.40) |
| 04 | 5.95 (1.43) | 6. shorts worn for swimming |
| <i>watch</i> | | |
| 40 | 7.00 (0.00) | 1. a small timepiece carried or worn on the wrist 2.00(1.32) 1.72(1.10) 1.60(0.96) |
| 36 | 6.75 (0.44) | 2. to look or observe closely 4.48(1.66) 4.24(1.94) |
| 07 | 4.65 (1.73) | 3. the act of staying awake to protect 5.84(1.57) |
| 01 | 4.20 (1.70) | 4. a person who is a guard |
| <i>well</i> | | |
| 34 | 6.45 (1.10) | 1. a hole from which water or oil is taken 1.36(0.70) 1.32(0.69) 1.28(0.68) 1.28(0.54) |
| 28 | 6.60 (0.75) | 2. to be in good health 2.64(1.85) 1.28(0.68) 2.16(1.43) |
| 16 | 5.65 (1.93) | 3. to do a favorable job 1.40(0.76) 1.92(1.41) |
| 10 | 4.95 (2.14) | 4. a word used to preface thoughts 1.24(0.44) |
| 02 | 6.40 (0.82) | 5. to be thoroughly cooked |