

# Category norms for 500 Spanish words in five semantic categories

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This study presents a database of 500 words from five semantic categories: animals, body parts, furniture, clothing, and intelligence. Each category contains 100 words, and data on lexical availability, age of acquisition, imageability, typicality, concept familiarity, written word frequency, and word length in number of syllables are provided with each word. The full set of norms may be downloaded from [www.psychonomic.org/archive](http://www.psychonomic.org/archive).

The study of semantic or natural categories became a central theme in cognitive research following the pioneering prototype theory proposed by Rosch (1973). This theory suggests that we group our knowledge of the world into semantic categories, the most prominent characteristic of which is that some members are better examples of a category than others are (e.g., a *robin* is a better example of the category *birds* than a *penguin* is). Since the formulation of this theory, a large amount of effort has been devoted to the study of the components and the organization of semantic categories in cognitive research (e.g., Casey, 1992; Laiacona, Capitani, & Caramazza, 2003; Loftus & Suppes, 1972; McFarland, Kellas, Klueger, & Juola, 1974; Mervis, Catlin, & Rosch, 1975) and neuropsychological research (e.g., Adrados, González, Sánchez, & Galeote, 2001; Monsch et al., 1994; Tröster, Salmon, McCullough, & Butters, 1989). In order to investigate the semantic world and its organization, a number of tasks have been used, such as the category generation task, in which participants have to generate as many members of a given category as possible, or the category verification task, in which participants are required to decide whether a stimulus belongs to a given category or not. The principal characteristic of these tasks is that in order

for them to be completed, participants need to access information about the meaning of the target words. That is, the tasks require semantic activation, and this activation is assumed to be reflected in the outcome of the tasks. However, they also involve the production or recognition of a verbal item, and as a consequence, investigations in semantic memory have to take into account the lexical and semantic properties of the experimental materials used.

The semantic property most widely studied in categorization research is typicality (Koivisto & Laine, 1999; McFarland, Duncan, & Kellas, 1978; Mervis & Rosch, 1981; Smith, Shoben, & Rips, 1974). *Typicality* refers to the degree to which a concept (e.g., *dog*) is representative of a given category (e.g., *animals*). The frequency of occurrence of category names and its instances ("category dominance" and "instance dominance," respectively) are factors also taken into consideration from early studies (Loftus, 1973; McFarland et al., 1974). Recent studies, however, have revealed the influence of additional variables on semantic memory and/or on the formation of categories. For example, a number of studies have argued that age of acquisition (AoA) is an important factor influencing the speed of word recognition and production, with faster processing times for words acquired first or early in life than for words acquired some time later (Barry, Morrison, & Ellis, 1997; Izura & Ellis, 2002; Monaghan & Ellis, 2002), and recent research has demonstrated that AoA affects performance in semantic tasks (Brysbaert, Van Wijnendaele, & De Deyne, 2000; Izura & Ellis, 2004). Other variables, such as concept familiarity and imageability, have been reported to contribute to the performance of the lexico-semantic system with more effective or rapid processing of familiar and highly imageable concepts (Coltheart & Winograd, 1986; Ellis & Morrison, 1998; Mulligan, 1998).

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Norms for words organized into categories for adult speakers are scarce, and they provide a limited number of variables. In English, Battig and Montague (1969) and, in Spanish, Soto, Sabastián, García, and del Amo (1982) have reported measures of instance frequency and mean rank position. The present study provides normative data for 500 words in five categories for the Spanish language. At present, there is no other study of these characteristics, in either the English or the Spanish language. Our motivation to elaborate the present norms arose from the experimental need for standardized material for words and categories. Our main aim now is to provide researchers in different fields (psychology, linguistics, and neuropsychology) with a useful tool with which to investigate the organization and processes of the lexico-semantic system. Whether this database is used for specific categorization studies or for more general language-processing research, the crucial aspect of the norms presented here is that they were collected in a category context, which means that all the variables have been rated within category boundaries. This is important if we consider the relation between word forms and meanings. These associations are not unambiguous. We find that different meanings can be expressed with a single word form (called *polysemic* words; e.g., *present* as a *gift* and as an *indication of time*), and we also find that different word forms can evoke the same meaning (e.g., *sofa*, *settee*). Measures collected out of a particular category context, such as randomly selected word lists, have insufficient meaning information. As a consequence, researchers are at risk of obtaining imprecise measures especially for polysemic words. For instance, the concept evoked by the Spanish word *radio* could be more typical, familiar, and acquired earlier as a sound device (English *radio*) than as a body part (English *radius*, a bone in the forearm). Typicality, familiarity, and AoA values might depend on the category, the idea, or the concept that the word is trying to convey. Thus, here we present norms for lexical research that are semantically more precise than other normative data collected out of category boundaries. These data will help researchers to design experiments more accurately.

The categories included in our norms are commonly used in cognitive, neuropsychological, and linguistic research. These categories are *body parts*, *clothing*, *furniture*, *animals*, and *intelligence*. The *intelligence* category was included in the study to act as a source of a more abstract vocabulary and, thus, provide researchers with material comprising a vocabulary with a wide range of abstract and concrete words. Our aim was accomplished, since intelligence was the category that elicited the higher number of low-imageable words (71% out of 100 words have an imageability value ranging from 2.52 to 4.48).

One hundred words were selected per category from the study by Hernández-Muñoz (2002), which is an exploration of the common vocabulary shared by the Spanish community of Cuenca. It comprises 5,873 different words organized in 11 categories and analyzed following different linguistic criteria, such as frequency of occur-

rence and lexical availability (LA). The selection criterion for the present norms was based on LA values. LA refers to the ease with which a word can be accessed and produced as a member of a given category. The first 100 words with the highest LA scores in each category were selected for the present study. The computation procedure for LA values will be described below.

In a study of category fluency, based on the data presented in this article, Hernández-Muñoz, Izura, and Ellis (2005) found that LA, or the ease of production of instances of a given category in Spanish, is well predicted (56% of the variance) by typicality, familiarity, and rated AoA, with a small contribution from written word frequency. This evidence is consistent with the established notion of typicality as a major factor determining categorization processes but also indicates the importance of other variables, such as concept familiarity and AoA, that might influence the performance of the lexico-semantic system.

The objective of this study was to cover the basic categories used in language research and to offer a complete range of variable values known to affect the structure and/or dynamics of the lexico-semantic system. Values on seven variables are reported: AoA, concept familiarity, typicality, imageability, LA, written word frequency, and word length.

#### Database Variables

The Appendix lists each word included in the database, along with typicality, concept familiarity, AoA, LA, imageability, word frequency, and word length.

**Age of acquisition.** Following the methodology used by Ghyselink, De Moor, and Brysbaert (2000), 50 monolingual native Spanish speakers with a mean age of 23 years (range, 18–42) were asked to indicate the age at which they believed they had first learned each word. This strategy was adopted as a less restricted and, therefore, more accurate measure of AoA than is the 5- or 7-point scales commonly utilized in AoA studies, where late-acquired word ratings suffer the restriction of a limited scale. Every word was presented under its corresponding category label. The 500 words were divided into two sets of 250. Each set comprised 50 words from each of the five semantic categories and was completed by half the participants (25 per set). A number of researchers have reported a high correlation between AoA ratings and objective AoA measures, confirming the validity of AoA estimations (Carroll & White, 1973; Gilhooly & Gilhooly, 1980; Izura & Ellis, 2002; Morrison, Chappell, & Ellis, 1997).

Split-half intergroup reliability for these ratings was calculated by correlating scores (for the total 500 words) from half the participants (25) with scores from the other half (25). Reliability was .88. We also consulted Cuetos, Ellis, and Alvarez's (1999) Spanish norms for picture names as an extra assessment of the reliability of the AoA values presented here. Cuetos et al.'s norms were based on 144 pictures taken from Snodgrass and Van-

derwart's (1980) set. They provided values for a set of variables, such as AoA, familiarity, word frequency, and so forth, and we found 55 words in common with the present study. The AoA values in the present study correlated highly ( $r = .73$ ) with Cuetos et al.'s AoA values.

**Lexical availability.** LA denotes the readiness with which a word is produced as a member of a given category. LA values are calculated from the results of category fluency tasks in which participants are asked to produce the highest number of instances of a particular category in a given time (e.g., 2 min). An equation (see below) developed by López-Chávez and Strassburger-Frías (1987) was applied to the results of this task. The formula computes LA values, taking into consideration the position of the word in a given list/category for a given participant, the frequency of word production in a list/category, the total number of participants, and the lowest position in which a word has been produced across participants. The values resulting from the formula were less than zero and were multiplied by 100 for ease of presentation. The formula is

$$D(P_j) = \sum_{i=1}^n e^{\left[-2.3 \times \left(\frac{i-1}{n-1}\right)\right]} \times \frac{f_{ji}}{I_1}$$

where  $D(P_j)$  is the LA of the word  $j$  for a given category,  $I$  is the total number of participants who completed the task,  $i$  is the position of word  $j$  in a given list,  $f$  is the number of participants who wrote word  $j$  at that position in their list,  $n$  is the lowest position occupied by word  $j$  in any list produced for the category in question, and  $e$  is the natural number (2.718181818459045).

The LA values presented here were taken from Hernández-Muñoz (2002), who collected written category generation data from 117 Spanish native speakers 17 to 18 years of age.

**Concept familiarity.** Values were collected for the familiarity of the concept evoked by each of the 500 words. Ratings were gathered from a new group of 50 monolingual Spanish native speakers (mean age, 20 years; range, 17–53), using the same instructions (but translated) as those in Snodgrass and Vanderwart (1980). The participants were asked to estimate the degree to which they thought about or came into contact with a concept, using a 7-point scale (from 1 = *less than once a month* to 7 = *many times a day*). The 500 words were divided into sets of 250 (with 50 words per category in each set), each completed by half the participants.

Split-half intergroup reliability was .92. Reliability was also assessed by correlating the familiarity values presented here with Cuetos et al.'s (1999) reported familiarity for the 55 words found in both studies. The significant correlation ( $r = .89$ ) indicates that concept familiarity values are highly reliable.

**Word frequency.** Frequency values were taken from Alameda and Cuetos (1995), which is a corpus of written Spanish text comprising 2 million words. Concepts with more than one entry (singular and plural; masculine and feminine) were averaged in one value, and all frequency

values were divided by 2 in order to present frequency per million words. Those words not included in Alameda and Cuetos's corpus were assigned a frequency of zero.

**Typicality.** Typicality ratings were collected from a third group of 50 Spanish native speakers (mean age = 24 years; range, 18–36). The participants were divided into two groups, and each rated a set of 250 words, with 50 words per category. Instructions were adapted from Hampton and Gardiner (1983). The participants received an explanation on the meaning of *typicality* with some examples and were asked to rate each word on a scale ranging from 1 (*very atypical example*) to 7 (*very typical example*). Split-half intergroup reliability was .92.

**Imageability.** Ratings were obtained on a scale ranging from 1 (*very difficult to arouse a mental image*) to 7 (*very easy to arouse a mental image*; from Morrison et al., 1997). A final group of 50 monolingual native Spanish speakers (mean age = 23 years; range, 17–58) rated the 500 words presented in this study. The words were divided into two sets of 250 randomized words, with half the participants rating each set. Split-half intergroup reliability was .91.

**Word length.** The number of syllables in a word is presented in these norms. Number of syllables was the word length measure of choice, since Cuetos et al. (1999) reported its influence on a picture-naming task.

## Results and Discussion

One-way analyses of variance were used to compare the scores of the words in each category on each of the variables. There were significant differences among the categories on all of the predictor variables. These were analyzed further by using post hoc tests (Tukey's HSD) to compare the categories pairwise on each of the factors.

**Age of acquisition.** The categories differed significantly on AoA [ $F(4,452) = 8.03$ ,  $MS_e = 35.61$ ,  $p < .001$ ]. Items in the animals category were rated as earlier acquired than those in all the other categories, which did not differ significantly from each other on AoA.

**Lexical availability.** The categories differed overall on LA [ $F(4,452) = 5.70$ ,  $MS_e = 0.12$ ,  $p < .001$ ]. Post hoc tests showed that the words from the intelligence category had significantly lower LAs than did the words from the other four categories, which did not differ significantly. This relates to the fact, noted above, that the words generated for the intelligence category were much more variable across participants than the words generated for the other categories. High variability means that individual words have been produced by fewer participants than words from the other categories. The formula for determining LA is such that smaller numbers of participants writing each word makes for smaller values of  $f$  in the equation and, therefore, a lower value of LA.

**Familiarity.** The categories differed in the familiarity ratings given to the items within them [ $F(4,452) = 42.57$ ,  $MS_e = 71.23$ ,  $p < .001$ ]. Items in the intelligence category received the highest familiarity ratings, fol-

lowed by furniture and body parts. Animals received the lowest familiarity ratings. Clothing items were intermediate between body parts and animals.

**Word frequency.** The categories differed significantly on word frequency [ $F(4,452) = 37.24, MS_e = 16.01, p < .001$ ]. Items in the intelligence category had the highest word frequencies, followed by body parts and furniture. Clothing and animals had the lowest frequencies.

**Typicality.** The categories differed significantly on typicality [ $F(4,452) = 9.72, MS_e = 16.85, p < .001$ ]. Items generated in the animals, body parts, and intelligence categories had the highest typicality ratings, whereas furniture and clothing had lower ratings. This implies that furniture and clothing are more widely dispersed categories in which items tend to stay further from the core of the category than is the case for animals, body parts, and intelligence.

**Imageability.** The categories differed significantly on imageability [ $F(4,452) = 155.34, MS_e = 90.44, p < .001$ ]. Items in the clothing, animals, and furniture categories were rated as most imageable. Body parts were less imageable, whereas items in the intelligence category had the lowest imageability ratings.

**Word length.** The categories differed significantly on word length [ $F(4,452) = 6.97, MS_e = 5.30, p < .001$ ]. Intelligence and furniture items had the longest names, whereas animals and body parts had the shortest. Clothing items were intermediate in length between furniture and animals.

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**ARCHIVED MATERIALS**

The following materials and links may be accessed through the Psychonomic Society's Norms, Stimuli, and Data archive, <http://psychonomic.org/archive/>.

To access these files or links, search the archive for this article using the journal (*Behavior Research Methods*), the first author's name (Izura), and the publication year (2005).

FILE: Izura-BRM-2005.zip

DESCRIPTION: izuranorms.xls, containing the norms developed by Izura, Hernández-Muñoz, and Ellis, as a 75K tab-delimited text file

generated by Excel 1997 for PCs. The five categories (animals, body parts, clothing, furniture, and intelligence) are represented in five different sheets. Each row represents one of 100 words per category. Each column represents one of the seven variables of interest (typicality, concept familiarity, age of acquisition, imageability, lexical availability, word frequency, and word length). The contents of izuranorms.xls are also available in csv format.

izuraaboutnorms.txt, a full description of the content of izuranorms.xls.

The Category Norms program may be used to select sets of stimuli comprising Spanish words belonging to five categories.

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**APPENDIX**

**Words Included in the Database Separated by Category and Their Values in Typicality (Typ), Concept Familiarity (CFam), Age of Acquisition (AoA), Imageability (Imag), Lexical Availability (LA), Word Frequency (WFreq), and Word Length (Len)**

Spanish Word (English Translation)	Typ	CFam	AoA	Imag	LA	WFreq	Len
Animals							
Abeja (bee)	4.28	3.56	4.48	6.76	7.672	4	3
Águila (eagle)	4.84	3.24	5.24	6.80	19.365	15	3
Araña (spider)	3.96	4.16	4.12	6.92	12.969	8	3
Ardilla (squirrel)	4.28	2.56	5.24	6.84	5.977	21	3
Avestruz (ostrich)	3.68	1.92	6.72	6.76	7.158	4	3
Avispa (wasp)	3.60	3.64	4.48	6.88	4.123	1	3
Ballena (whale)	5.00	3.00	5.08	6.84	11.232	4	3
Buey (ox)	4.40	2.04	5.56	6.32	3.278	6	1
Búho (owl)	3.92	2.64	5.40	6.80	6.917	12	2
Buitre (vulture)	3.60	2.92	6.24	6.64	8.827	2	2
Burro (donkey)	5.56	4.28	3.72	6.92	23.995	17	2
Caballo (horse)	6.48	4.20	3.64	7.00	34.723	93	3
Cabra (goat)	5.32	3.64	3.88	6.96	12.242	10	2
Calamar (squid)	2.48	3.40	5.64	6.24	6.510	1	3
Camello (camel)	4.20	2.84	5.68	6.80	2.916	4	3
Canario (canary)	4.24	3.40	4.96	6.68	15.616	7	3
Cangrejo (crab)	3.28	2.88	4.96	6.56	2.777	2	3
Canguro (kangaroo)	3.92	2.48	5.96	6.84	3.801	1	3
Cebra (zebra)	4.32	2.84	6.04	6.84	6.838	3	2
Cerdo (pig)	6.48	5.28	3.76	6.88	17.991	17	2
Ciervo (deer)	4.92	3.08	4.98	6.84	11.601	4	2
Cigüeña (stork)	4.60	3.84	4.82	6.64	2.644	5	3
Cocodrilo (crocodile)	4.20	2.36	5.16	6.76	7.753	6	4
Codorniz (quail)	3.12	2.80	7.44	5.44	5.091	2	3
Colibrí (hummingbird)	2.32	1.68	9.48	5.16	4.832	0	3
Colorín (goldfinch)	1.88	1.68	7.56	4.32	4.516	1	3
Conejo (rabbit)	6.12	4.20	3.54	6.84	30.302	9	3
Cordero (lamb)	5.76	4.28	3.84	6.80	7.306	14	3
Cucaracha (cockroach)	2.80	3.20	4.56	6.84	3.545	2	4
Cuervo (crow)	3.56	2.76	4.88	6.64	10.398	4	2
Culebra (snake)	3.84	3.24	4.68	6.84	7.098	1	3
Delfín (dolphin)	5.44	3.20	5.40	6.88	8.164	2	2
Elefante (elephant)	6.32	3.36	4.36	6.92	21.565	9	4
Foca (seal)	4.84	3.52	5.00	6.88	3.533	1	2
Gallina (hen)	5.88	4.88	3.36	6.88	25.464	19	3
Gallo (rooster)	5.56	4.48	3.52	6.92	11.802	16	2
Gamba (prawn)	2.56	4.52	5.72	6.76	3.811	1	2
Gamo (fallow deer)	3.08	1.64	8.04	5.36	2.892	1	2
Gato (cat)	6.72	5.48	3.00	6.84	76.056	70	2
Gaviota (seagull)	4.32	2.76	5.08	6.72	5.783	6	3
Golondrina (swallow)	4.32	3.28	5.04	6.36	6.082	6	4
Gorila (gorilla)	4.64	2.88	5.60	6.56	5.408	4	2
Gorrino (pig)	3.64	3.00	5.32	6.40	6.804	1	3
Gorrión (sparrow)	3.92	3.32	5.00	6.28	11.579	1	2

## APPENDIX (Continued)

Spanish Word (English Translation)	Typ	CFam	AoA	Imag	LA	WFreq	Len
Guepardo (cheetah)	3.32	2.64	7.08	5.68	2.746	0	3
Gusano (worm)	3.12	4.12	4.00	6.72	5.827	6	3
Halcón (falcon)	3.76	2.64	6.68	6.40	3.029	2	2
Hamster (hamster)	3.92	3.60	7.56	6.68	8.385	1	2
Hiena (hyena)	3.08	2.28	7.16	6.24	7.051	1	2
Hipopótamo (hippopotamus)	4.44	2.28	6.16	6.84	10.631	2	5
Hormiga (ant)	4.28	3.68	4.64	6.96	9.531	5	3
Iguana (iguana)	3.72	1.88	9.16	5.72	3.109	7	3
Jabalí (wild boar)	5.28	2.32	8.32	6.68	12.549	5	3
Jirafa (giraffe)	5.40	2.16	6.48	7.00	18.874	1	3
Koala (koala)	4.52	1.68	9.00	6.67	4.209	0	3
Lagartija (lizard)	4.04	2.64	5.64	6.68	6.384	4	4
Lagarto (lizard)	3.80	2.04	6.76	6.32	4.210	4	3
Langostino (prawn)	3.16	3.56	8.36	6.72	4.634	0	4
Lechuza (owl)	4.68	2.24	7.96	6.40	3.313	1	3
León (lion)	6.80	3.12	5.28	6.92	37.723	27	2
Leopardo (leopard)	6.28	2.24	7.16	6.28	12.136	1	4
Liebre (hare)	6.40	3.00	6.16	6.52	17.270	5	2
Lince (lynx)	5.80	2.00	8.08	6.20	3.930	2	2
Lobo (wolf)	6.76	3.20	5.44	6.72	9.537	24	2
Loro (parrot)	5.24	2.88	6.32	6.76	7.277	7	2
Mariposa (butterfly)	4.20	3.44	4.84	6.96	8.377	8	4
Mono (monkey)	5.96	3.32	4.92	6.80	19.337	24	2
Mosca (fly)	3.64	5.68	4.52	6.96	10.921	16	2
Mosquito (mosquito)	3.40	4.80	5.12	6.56	5.761	4	3
Orangután (orangutan)	5.52	1.88	7.36	6.13	4.282	2	4
Oso (bear)	6.68	2.88	5.32	6.88	16.204	22	2
Oveja (sheep)	6.64	3.40	4.36	6.92	20.824	5	3
Pájaro (bird)	6.12	5.60	4.08	6.80	18.035	35	3
Paloma (pigeon)	5.64	4.88	4.96	6.92	17.684	16	3
Pantera (panther)	5.96	1.68	7.08	6.52	17.211	13	3
Pato (duck)	6.04	3.48	4.80	6.92	9.480	5	2
Perdiz (partridge)	5.20	1.96	6.96	6.08	12.093	3	2
Periquito (budgerigar)	4.92	2.16	7.12	6.12	18.087	0	4
Perro (dog)	6.92	6.04	3.88	7.00	82.771	112	2
Pez (fish)	5.52	5.00	4.20	6.92	13.734	30	1
Pollo (chicken)	5.76	4.96	4.56	6.84	12.675	14	2
Potro (colt)	5.64	2.48	7.20	6.64	3.285	4	2
Puma (puma)	5.40	1.44	7.96	5.40	3.645	0	2
Rana (frog)	4.80	2.80	5.24	6.64	6.324	5	2
Rata (rat)	5.60	3.20	5.80	6.68	14.897	17	2
Ratón (mouse)	5.72	3.16	5.08	6.80	20.367	18	2
Rinoceronte (rhinoceros)	5.20	1.60	7.92	6.60	6.872	1	5
Salmón (salmon)	4.12	2.84	8.80	5.56	5.836	3	2
Saltamontes (grasshopper)	3.48	2.20	6.64	6.56	4.558	2	4
Sapo (toad)	4.12	2.28	6.40	6.44	5.616	5	2
Sardina (sardine)	3.92	3.36	6.32	6.12	3.826	3	3
Serpiente (snake)	4.76	2.88	5.60	6.84	19.985	18	3
Tiburón (shark)	5.00	2.16	6.68	6.72	10.960	1	3
Tigre (tiger)	6.52	2.44	6.04	6.88	25.222	7	2
Toro (bull)	6.48	4.20	5.28	6.96	11.169	16	2
Tortuga (turtle)	5.56	3.04	5.68	7.00	8.514	8	3
Trucha (trout)	4.00	3.00	7.32	5.92	7.759	3	2
Vaca (cow)	6.72	4.32	4.52	6.96	27.320	14	2
Yegua (mare)	6.00	2.88	7.08	6.64	7.900	15	2
Zorro (fox)	6.52	3.20	5.72	6.52	10.864	4	2
Body Parts							
Abdomen (abdomen)	4.92	3.32	8.68	5.08	4.195	5	3
Ano (anus)	3.36	3.00	8.36	5.08	2.672	2	2

## APPENDIX (Continued)

Spanish Word (English Translation)	Typ	CFam	AoA	Imag	LA	WFreq	Len
Antebrazo (forearm)	4.12	2.92	8.20	6.08	11.107	6	4
Arteria (artery)	2.88	2.52	8.88	4.68	1.423	1	3
Articulaciones (joints)	3.40	3.92	8.72	4.60	1.611	3	5
Axila (armpit)	4.24	4.48	7.84	6.32	2.444	2	3
Barba (beard)	3.52	4.80	4.04	6.88	1.045	36	2
Barbilla (chin)	5.04	4.84	4.36	6.88	1.639	16	3
Biceps (biceps)	4.48	4.00	8.80	5.76	2.067	0	2
Bigote (moustache)	3.72	4.68	3.88	6.92	1.106	34	3
Boca (mouth)	6.84	6.36	3.02	6.92	39.497	200	2
Brazo (arm)	7.00	6.32	2.98	6.92	71.694	96	2
Cabello (hair)	5.40	5.60	4.72	6.84	1.078	44	3
Cabeza (head)	7.00	6.28	2.98	6.80	71.287	418	3
Cadera (hip)	5.76	4.88	5.84	6.72	12.007	7	3
Cara (face)	6.70	6.52	3.14	6.76	8.897	315	2
Ceja (eyebrow)	4.20	5.72	3.92	6.92	12.159	8	2
Cerebelo (cerebellum)	2.44	1.68	9.79	4.16	1.001	1	4
Cerebro (brain)	4.28	4.36	7.44	5.28	7.956	87	3
Cintura (waist)	5.20	5.16	5.72	6.00	5.811	34	3
Clavícula (collarbone)	4.48	3.24	8.68	5.36	1.143	1	4
Codo (elbow)	5.28	4.92	5.48	6.28	29.918	17	2
Colon (colon)	2.48	2.04	10.44	3.68	1.058	0	2
Corazón (heart)	5.36	5.44	5.44	6.40	17.079	190	3
Costilla (rib)	4.92	4.20	6.48	6.44	1.918	2	3
Cubito (fibula)	2.32	2.24	9.60	4.64	1.253	1	3
Cuello (neck)	5.88	5.60	4.08	6.64	31.656	99	2
Culo (bottom)	6.04	5.76	3.12	6.76	13.216	37	2
Dedo (finger)	6.36	6.04	3.04	6.92	53.948	66	2
Diente (tooth)	5.56	6.40	3.78	6.88	19.575	8	2
Esófago (esophagus)	2.84	2.72	8.84	4.40	3.474	2	4
Espalda (back)	6.48	5.92	4.40	6.76	19.081	92	3
Esqueleto (skeleton)	4.00	3.32	6.56	6.56	0.982	14	4
Esternocleidomastoideo (a neck muscle)	2.44	2.04	10.95	2.60	4.144	0	9
Estómago (stomach)	4.84	5.32	6.56	5.28	12.166	43	4
Extremidades (extremities)	4.76	4.04	7.04	6.28	3.855	5	5
Falange (phalange)	2.64	2.52	9.13	4.76	4.685	4	3
Faringe (pharynx)	3.04	2.60	9.12	4.24	2.642	1	3
Fémur (femur)	3.36	2.48	9.24	5.08	2.564	0	2
Frente (forehead)	5.56	4.96	4.88	6.48	5.747	375	2
Gemelo (calf muscle)	4.08	4.76	8.68	6.12	3.222	3	3
Glúteo (gluteus)	4.24	3.88	8.92	6.48	4.044	1	3
Hígado (liver)	4.16	4.00	7.92	5.56	7.299	12	3
Hombro (shoulder)	5.72	5.32	4.68	6.80	29.002	45	2
Hueso (bone)	4.96	5.08	4.40	6.68	5.329	22	2
Húmero (humerus)	2.96	2.40	8.60	4.60	1.576	0	3
Incisivo (incisor)	2.80	2.44	8.60	5.00	93.5	2	4
Ingle (groin)	4.00	3.48	8.60	5.56	110	3	2
Intestino (intestine)	3.64	3.04	8.08	4.92	6.1	3	3
Labio (lip)	6.08	6.04	4.30	6.92	8.3	12	2
Laringe (larynx)	3.36	2.00	9.84	4.36	3.3	2	3
Lengua (tongue)	5.44	5.80	4.72	6.88	13.5	177	2
Mano (hand)	6.92	6.56	3.96	6.96	63.0	550	2
Mejilla (cheek)	5.52	4.96	6.56	6.84	0.9	27	3
Moflete (chubby cheek)	5.16	4.48	5.80	6.80	1.0	4	3
Muela (molar)	3.92	4.12	6.20	6.96	2.4	2	3
Muñeca (wrist)	5.64	4.20	5.56	6.88	21.2	16	3
Músculo (muscle)	4.60	4.04	7.44	5.68	6.5	9	3
Muslo (thigh)	5.40	3.84	7.36	6.76	6.7	11	2
Nariz (nose)	6.48	5.48	4.16	6.96	50.4	71	2
Nuca (nape)	5.12	3.48	6.80	6.36	2.1	23	2
Oído (ear)	5.48	5.24	5.16	5.80	2.9	107	3

## APPENDIX (Continued)

Spanish Word (English Translation)	Typ	CFam	AoA	Imag	LA	WFreq	Len
Ojo (eye)	6.64	6.24	4.08	6.76	60.1	96	2
Ombigo (belly button)	4.68	4.12	5.40	6.96	8.3	8	3
Omóplato (shoulder blade)	3.48	2.16	9.24	5.52	2.6	1	4
Oreja (ear)	6.56	4.92	4.32	6.84	48.1	35	3
Ovario (ovary)	3.32	3.16	10.48	4.44	1.6	1	3
Pancreas (pancreas)	3.12	1.72	10.80	4.04	4.7	0	3
Pantorrilla (calf)	4.68	2.40	8.92	5.92	1.4	2	4
Párpado (eyelid)	4.16	3.36	7.92	6.68	2.4	3	3
Pecho (chest)	6.12	4.08	6.76	6.56	21.7	94	2
Pechos (breasts)	5.96	4.96	7.52	6.72	2.2	34	2
Pelo (hair)	5.36	6.24	4.40	6.92	27.9	153	2
Pelvis (pelvis)	4.00	2.32	10.48	5.64	1.1	1	2
Pene (penis)	5.36	3.52	9.68	6.72	16.1	7	2
Peroné (fibula)	3.40	1.96	9.76	5.12	2.2	0	3
Pestaña (eyelash)	3.92	4.20	6.44	6.88	8.7	1	3
Pie (foot)	6.60	5.96	4.08	7.00	61.8	193	1
Piel (skin)	4.52	5.40	5.44	6.20	1.0	163	1
Pierna (leg)	6.68	5.92	4.64	6.60	58.1	39	2
Pulmón (lung)	4.36	4.08	8.28	5.84	13.2	6	2
Radio (radius)	2.88	2.44	8.52	5.20	1.9	75	2
Riñón (kidney)	4.24	2.80	9.04	5.52	11.7	5	2
Rodilla (knee)	5.92	4.04	6.00	6.56	31.7	11	3
Rótula (kneecap)	3.48	2.36	10.28	5.80	1.5	0	3
Talón (heel)	4.60	2.36	8.24	6.52	2.6	3	2
Tendón (tendon)	3.36	2.36	9.84	5.04	2.2	1	2
Testículo (testicle)	4.28	2.64	9.68	6.72	4.1	4	4
Tibia (tibia)	3.56	1.92	9.24	5.40	2.8	14	2
Tobillo (ankle)	5.36	3.24	6.84	6.48	20.9	4	3
Tórax (thorax)	4.52	2.00	9.60	6.00	3.2	6	2
Trasero (bottom)	5.60	3.56	7.12	6.88	1.3	19	3
Triceps (triceps)	3.36	2.24	10.95	5.56	1.4	0	2
Tripa (belly)	5.24	4.52	6.32	6.72	3.4	9	2
Tronco (trunk)	5.24	2.80	8.14	6.36	15.3	18	2
Uña (nail)	4.80	5.28	6.18	6.84	27.6	8	2
Vagina (vagina)	4.16	2.96	9.95	6.28	3.8	4	3
Vejiga (bladder)	3.72	2.92	9.73	5.56	1.0	1	3
Vena (vein)	3.48	3.24	8.73	5.88	2.4	5	2
Furniture							
Alacena (cupboard)	3.36	1.92	8.23	5.28	2.394	4	4
Alfombra (rug)	3.40	5.64	4.58	6.60	9.652	22	3
Aparador (sideboard)	3.68	2.76	8.00	5.44	7.180	7	4
Arca (chest)	3.40	2.28	6.88	6.08	2.423	11	2
Arcón (chest)	3.40	2.80	7.04	6.32	1.355	3	2
Armario (wardrobe)	7.00	6.36	4.00	6.72	63.039	38	3
Balancín (seesaw)	2.88	2.52	6.48	5.92	2.785	1	3
Banco (bench)	4.92	5.52	4.04	6.72	0.870	52	2
Banqueta (stool)	4.92	4.08	5.38	6.44	5.731	3	3
Bañera (bath)	3.60	5.96	4.08	6.88	4.623	8	3
Barandilla (railing)	2.64	4.72	4.64	6.72	0.910	5	4
Barra (bar)	1.88	4.52	5.32	6.16	0.719	45	2
Baúl (trunk)	5.04	3.60	4.80	6.64	9.128	8	2
Bidé (bidet)	3.44	4.72	5.68	6.40	2.313	1	2
Buró (bureau)	3.16	1.16	11.00	4.16	1.574	1	2
Butaca (armchair)	5.60	4.32	5.96	6.44	4.788	18	3
Cajón (drawer)	5.76	5.84	3.88	6.84	5.344	18	2
Cajonera (chest of drawers)	5.12	4.12	6.13	6.52	3.218	2	4
Cama (bed)	6.92	6.76	3.08	6.84	67.877	199	2
Cocina (stove)	4.36	6.24	3.16	6.72	4.895	112	3
Cómoda (sideboard)	5.68	4.08	6.80	6.32	13.009	14	3



## APPENDIX (Continued)

Spanish Word (English Translation)	Typ	CFam	AoA	Imag	LA	WFreq	Len
Comodín							
(chest of drawers)	3.52	2.68	7.30	4.96	3.633	1	3
Consola (console table)	3.44	3.28	10.92	4.92	1.424	7	3
Coqueta (dressing table)	3.36	2.88	10.56	4.20	2.281	4	3
Cortina (curtain)	3.68	5.36	4.00	6.68	0.745	20	3
Cuadro (picture)	3.80	5.24	3.76	6.56	16.830	61	2
Descalzadora (shoe horn)	1.84	1.84	8.86	4.68	0.850	1	5
Diván (divan)	3.92	1.92	10.52	5.76	1.468	10	2
Ducha (shower)	3.24	6.52	5.56	6.76	1.870	21	2
Encimera (worktop)	4.48	5.12	7.79	6.40	9.094	0	4
Entradita (entrance hall)	2.68	2.92	9.19	5.44	2.156	0	4
Escabel (footstool)	2.00	1.16	11.18	2.88	0.641	2	3
Escritor (desk)	5.88	5.80	7.46	6.76	28.341	14	4
Escurreplatos (plate rack)	3.24	4.52	7.88	6.68	0.842	0	5
Espejo (mirror)	4.56	6.32	3.76	6.92	13.704	74	3
Estante (shelf)	5.52	5.04	5.46	6.80	0.699	4	3
Estantería (shelves)	6.28	6.24	5.28	6.88	44.794	5	5
Flexo (reading lamp)	3.52	6.12	8.20	6.32	1.925	2	2
Fogón (ring)	2.64	3.16	7.71	6.08	0.679	4	2
Fregadero (sink)	4.08	4.76	5.52	6.80	1.464	6	4
Fregador (sink)	2.08	3.00	7.08	4.96	1.343	0	3
Frigorífico (fridge)	4.52	5.68	5.08	6.84	6.182	3	5
Guardarropa (wardrobe)	4.96	3.08	8.63	6.52	1.304	3	4
Hamaca (hammock)	3.44	2.60	8.00	6.60	7.290	5	3
Horno (oven)	3.36	4.76	5.08	6.80	5.384	6	2
Jarrón (vase)	2.88	4.44	4.44	6.76	0.857	5	2
Lámpara (lamp)	3.80	5.64	3.96	6.76	24.219	22	3
Lavabo (washbasin)	3.80	6.16	4.27	6.68	6.246	18	3
Lavadora							
(washing machine)	2.80	5.16	7.16	6.64	6.740	2	4
Lavaplatos (dishwasher)	2.88	4.44	8.33	6.60	0.935	1	4
Lavavajillas (dishwasher)	2.56	4.00	9.16	6.84	3.946	1	5
Librería (bookcase)	5.40	4.76	7.04	6.68	3.829	9	4
Litera (bunk bed)	5.08	2.36	8.28	6.92	4.466	1	3
Mecedora (rocking chair)	5.16	2.24	8.20	6.76	5.343	4	4
Mesa (table)	6.92	6.76	4.20	7.00	78.615	228	2
Mesita (bedside table)	6.36	5.48	5.04	6.84	42.025	2	3
Microondas (microwaves)	2.64	5.32	11.42	7.00	8.237	3	4
Minicadena (mini hi-fi)	2.28	5.44	10.88	6.96	1.890	0	5
Mural (mural)	2.00	2.12	9.00	5.04	0.641	3	2
Nevera (fridge)	2.72	5.96	6.52	6.96	6.282	12	3
Nido (trundle bed)	3.28	1.88	6.92	6.00	0.900	13	2
Ordenador (computer)	2.24	6.44	10.75	6.96	4.671	67	4
Papelera (waste basket)	2.84	6.00	6.24	7.00	2.398	4	4
Paragüero							
(umbrella stand)	3.04	3.28	7.60	6.76	1.694	1	4
Percha (hanger)	2.76	5.28	6.40	6.96	4.559	7	2
Perchero (clothes stand)	3.84	3.88	7.12	6.68	5.286	4	3
Piano (piano)	2.20	3.28	6.04	7.00	1.858	31	3
Portalibros (book shelf)	2.84	2.28	11.15	5.20	0.641	0	4
Posaplatos (place mat)	2.04	2.36	11.64	5.36	0.679	0	4
Puerta (door)	3.48	6.56	4.24	7.00	4.876	301	2
Puf (pouffe)	3.00	2.48	10.86	5.08	3.812	0	1
Pupitre (school desk)	5.44	3.68	6.00	6.76	1.752	9	3
Radio (radio)	2.24	5.76	5.68	6.96	1.787	75	2
Recibidor (hall)	3.88	3.16	8.72	5.96	2.872	7	4
Reloj (clock)	2.52	6.24	4.92	7.00	2.519	43	2
Repisa (shelf)	3.60	4.04	7.84	6.64	1.000	3	3
Retrete (toilet)	1.80	3.36	8.64	7.00	1.261	14	3
Revistero (magazine rack)	3.44	2.80	10.25	6.20	0.914	0	4
Rinconera (cornerboard)	4.84	2.44	11.58	5.76	1.990	0	4
Ropero (wardrobe)	6.08	3.32	9.84	6.48	2.893	6	3

## APPENDIX (Continued)

Spanish Word (English Translation)	Typ	CFam	AoA	Imag	LA	WFreq	Len
Secreter (writing desk)	4.44	1.36	16.89	4.12	1.215	0	3
Silla (chair)	6.80	6.72	4.64	7.00	78.805	58	2
Sillón (armchair)	6.76	5.84	5.00	7.00	61.626	31	2
Sinfonier (chest of drawers)	4.20	1.64	13.69	3.24	3.479	0	3
Sofá (sofa)	6.80	6.36	6.24	7.00	56.795	4	2
Taburete (stool)	5.72	4.48	6.08	6.96	18.160	2	4
Taquillón (traditional Spanish table)	4.84	2.32	9.95	5.52	2.278	0	3
Televisión (television)	4.00	6.24	4.35	6.80	14.852	85	4
Televisor (television)	2.88	5.76	6.52	6.96	2.819	25	4
Tiestos (flowerpots)	1.56	3.48	5.80	6.92	0.641	3	2
Tocador (dressing table)	5.24	1.80	9.16	6.32	5.394	5	3
Tresillo (sofa)	6.04	2.88	9.96	5.96	8.622	4	3
Tumbona (deck chair)	4.32	2.04	9.72	6.52	1.454	2	3
Váter (toilet)	1.68	5.80	5.36	6.56	2.025	1	2
Ventana (window)	2.20	6.56	4.36	6.96	3.336	120	3
Video (video)	1.84	5.52	10.60	7.00	1.808	30	3
Vidriera (stained glass window)	1.72	2.36	10.36	6.56	1.463	5	3
Vitrina (glass cabinet)	4.12	2.64	10.60	6.44	2.906	6	3
WC (toilet)	1.88	3.64	9.69	6.68	2.658	0	2
Zapatero (shoe rack)	4.56	2.60	7.24	6.20	8.043	0	4
Clothing							
Abrigo (coat)	6.00	5.56	3.80	6.76	33.065	78	3
Albornoz (bathrobe)	3.00	4.20	8.32	6.84	0.796	2	3
Americana (jacket)	4.16	1.80	9.40	6.52	4.846	27	5
Anillo (ring)	2.20	4.36	4.44	6.96	0.938	20	3
Anorak (anorak)	3.88	3.00	8.40	6.32	6.798	2	3
Bañador (swimsuit)	3.76	2.20	4.32	6.92	6.461	5	3
Bata (robe)	3.40	3.04	4.60	6.96	1.399	25	2
Bermudas (bermuda shorts)	3.52	1.84	8.28	6.80	2.927	0	3
Biquini (bikini)	3.44	2.76	8.12	6.92	3.990	1	3
Blusa (blouse)	5.76	2.76	6.56	6.80	9.950	15	2
Body (body stocking)	2.76	2.04	10.42	5.88	1.137	0	2
Boina (beret)	2.16	1.52	6.04	6.72	1.246	7	2
Bolsa (bag)	1.40	5.44	4.28	6.52	0.807	34	2
Bolso (bag)	2.56	5.76	4.72	6.92	2.066	19	2
Bota (boot)	3.44	5.80	4.36	6.92	17.199	26	2
Botines (ankle boot)	2.48	2.96	7.72	6.80	2.672	4	3
Botón (button)	1.60	3.60	4.40	6.92	1.662	25	2
Bragas (panties)	4.44	5.28	3.64	6.88	45.394	9	2
Bufanda (scarf)	4.16	5.16	3.88	6.84	31.043	6	3
Calcetines (socks)	4.92	5.80	3.44	6.92	58.667	12	3
Calzoncillos (underpants)	4.64	4.04	3.84	6.88	46.910	5	4
Calzones (underpants)	3.88	2.40	6.24	6.52	1.592	2	3
Camisa (shirt)	6.48	4.80	4.28	6.84	62.484	61	3
Camiseta (T-shirt)	6.64	6.16	3.64	7.00	64.236	12	4
Camisón (night dress)	3.80	2.12	4.68	6.76	7.354	8	3
Capa (cloak)	2.60	1.52	6.16	6.44	0.928	43	2
Cazadora (jacket)	6.00	6.16	6.84	6.80	20.456	16	4
Chal (shawl)	3.13	2.36	9.76	6.40	2.255	2	1
Chaleco (vest)	4.20	2.68	6.72	6.72	13.603	18	3
Chancla (flip-flop)	2.36	3.08	7.24	6.68	6.211	1	2
Chandal (track suit)	5.64	5.16	6.60	6.68	30.959	0	2
Chaqueta (jacket)	6.16	4.92	4.64	6.76	37.792	33	3
Chaquetón (short coat)	4.88	2.88	6.52	6.56	3.743	2	3
Chubasquero (raincoat)	4.36	3.00	7.76	6.64	6.823	1	4
Chupa (leather jacket)	3.92	3.00	12.76	6.48	1.920	2	2
Cinturón (belt)	3.16	4.64	5.60	6.84	7.745	23	3
Collares (necklaces)	1.72	4.12	4.52	6.80	1.265	6	3

## APPENDIX (Continued)

Spanish Word (English Translation)	Typ	CFam	AoA	Imag	LA	WFreq	Len
Corbata (tie)	3.60	2.60	5.36	6.84	7.711	26	3
Correa (belt)	1.96	1.76	6.20	6.52	8.000	4	3
Corsé (corset)	2.32	1.20	10.64	6.12	0.831	2	2
Deportivas (trainers)	3.80	5.92	8.20	6.60	4.521	1	4
Diadema (hairband)	1.84	2.72	5.16	6.44	1.288	4	3
Ejecutivos (sock)	2.20	2.08	13.10	5.68	0.843	7	5
Faja (girdle)	2.60	1.36	8.00	6.04	5.029	3	2
Falda (skirt)	6.44	4.32	4.04	6.84	34.140	36	2
Frac (tailcoat)	3.12	1.24	11.68	6.04	0.831	2	1
Fular (foulard scarf)	3.04	1.96	11.65	6.04	3.544	2	2
Gabardina (raincoat)	5.00	2.52	8.28	6.64	4.663	9	4
Gorra (cap)	3.64	4.20	4.84	6.60	8.258	13	2
Gorro (hat)	3.60	4.00	4.96	6.72	19.931	7	2
Guante (glove)	3.28	4.36	5.64	6.88	24.063	16	2
Impermeable (raincoat)	3.68	2.92	7.61	6.44	2.088	4	4
Jeans (jeans)	5.92	3.08	10.29	6.64	1.284	0	1
Jersey (pullover)	6.56	5.52	5.78	6.84	70.819	10	2
Leotardo (woolen tights)	3.16	2.76	7.83	6.48	5.250	1	4
Liga (garter)	1.76	1.16	10.21	6.56	1.823	8	2
Mallas (leotard)	3.28	1.72	10.16	6.48	4.771	2	2
Manoplas (mittens)	2.68	2.04	7.20	6.56	3.166	0	3
Medias (tights)	3.44	3.64	7.08	6.92	25.545	49	2
Minifalda (miniskirt)	5.48	3.20	9.28	6.96	5.097	5	4
Mono (dungarees)	3.76	1.92	8.83	6.56	2.196	24	2
Muñequera (wristband)	1.28	1.80	9.60	6.64	1.647	0	4
Niqui (T-shirt)	5.84	3.48	9.92	6.44	1.913	0	2
Orejas (earflaps)	1.72	1.40	9.08	6.56	3.677	3	4
Pajarita (bow tie)	1.64	1.44	8.92	6.80	1.787	2	4
Palestina/o (Palestinian scarf)	1.72	2.92	13.55	5.96	1.449	2	4
Pantaloon (trousers)	6.72	6.68	4.44	6.76	70.674	35	3
Panty (tights)	3.36	2.56	9.52	6.20	4.560	1	2
Pañuelo (handkerchief)	2.44	5.08	5.76	6.80	5.489	27	3
Pareo (beach wrap)	2.84	2.20	14.26	6.29	0.843	0	3
Peto (dungarees)	4.68	1.96	9.48	6.60	2.732	3	2
Peúcos (bootees)	1.92	1.04	15.60	2.00	0.963	0	3
Pichi (pinafore dress)	4.00	1.28	8.58	4.67	1.025	1	2
Pijama (pyjama)	5.16	5.84	4.80	6.84	10.423	9	3
Plumas (quilted anorak)	5.16	4.72	7.92	6.76	12.881	23	2
Plumífero (quilted anorak)	4.52	3.84	11.88	6.24	0.894	0	4
Polar (fleece)	5.48	5.00	11.79	6.48	10.771	2	2
Polo (polo shirt)	6.12	3.60	9.92	6.72	7.966	25	2
Poncho (poncho)	3.76	2.20	12.33	6.64	1.769	2	2
Pulsera (bracelet)	1.32	4.00	6.24	6.64	1.216	7	3
Rebeca (cardigan)	5.20	2.72	10.17	5.92	1.847	1	3
Reloj (watch)	1.48	6.48	5.12	6.96	1.842	72	2
Rodillera (kneeband)	1.28	2.08	8.64	6.12	0.799	1	4
Rokys (rokys)	2.00	1.00	14.14	2.68	0.883	0	2
Sandalia (sandal)	2.92	2.48	7.48	6.44	3.759	2	3
Shorts (shorts)	4.80	1.80	12.54	5.88	1.737	0	1
Slips (slips)	4.24	3.08	11.46	6.36	1.412	0	1
Sombrero (hat)	2.76	2.80	5.48	6.92	5.212	44	3
Sudadera (sweater)	6.40	5.04	8.83	6.92	37.104	0	4
Suéter (sweater)	6.56	3.88	9.92	6.60	19.007	3	2
Sujetado (bra)	4.40	5.04	8.84	6.96	36.895	5	4
Tanga (g-string)	3.60	4.52	15.46	6.96	11.866	1	2
Tejano (jeans)	6.24	3.52	12.76	6.48	1.700	2	3
Tirantes (braces)	2.24	3.08	7.76	6.84	1.226	6	3
Tobillera (ankleband)	1.20	1.76	9.84	6.60	0.987	0	4
Top (top)	4.88	3.48	12.00	6.48	8.293	0	1

## APPENDIX (Continued)

Spanish Word (English Translation)	Typ	CFam	AoA	Imag	LA	WFreq	Len
Traje (suit)	6.60	3.84	9.00	6.80	7.340	63	2
Vestido (dress)	6.72	4.52	6.20	6.92	14.336	85	3
Zapatilla (gym shoes)	3.60	6.52	5.08	6.84	23.294	17	4
Zapato (shoe)	3.76	6.00	4.76	6.80	39.132	69	3
Intelligence							
Abundante (abundant)	2.76	5.56	7.92	4.12	1.399	23	4
Alma (soul)	2.96	5.48	6.80	2.52	1.983	165	2
Amistad (friendship)	3.48	6.52	5.34	3.56	2.348	53	3
Amor (love)	3.80	6.52	5.02	3.96	2.042	378	2
Analizar (to analyze)	5.52	4.08	8.76	2.76	2.113	25	4
Aplicado (conscientious)	5.04	3.08	8.24	3.24	1.550	12	4
Aprender (to learn)	6.04	6.04	5.18	3.60	8.345	27	3
Aprendiz (learner)	5.72	4.92	10.16	3.28	3.398	30	5
Aprobado (passing grade)	4.60	5.56	6.88	5.08	1.427	3	4
Aprobar (to pass)	5.08	6.48	6.64	4.48	3.124	3	3
Atención (attention)	5.40	6.44	5.44	3.28	1.815	158	3
Atento (attentive)	5.36	6.16	5.56	3.88	1.470	18	3
Cabeza (head)	5.84	6.60	4.20	6.72	5.958	416	3
Capacidad (capacity)	5.92	6.16	8.13	3.48	4.713	114	4
Carisma (charisma)	3.76	4.44	11.32	3.24	1.470	0	3
Carrera (career)	4.48	6.52	8.84	4.72	2.268	77	3
Cerebro (brain)	6.12	5.40	7.04	5.48	23.892	87	3
Ciencia (science)	5.16	5.32	8.36	3.52	3.037	203	2
Científico (scientist)	5.12	4.64	8.52	6.24	2.268	85	4
Comprender (to understand)	6.00	6.00	6.52	3.60	2.972	67	3
Concentración (concentration)	5.20	6.00	8.00	3.64	1.635	40	4
Conocer (to know)	5.56	5.88	5.92	3.36	3.845	104	3
Conocimiento (consciousness)	6.08	5.52	6.84	3.24	2.265	203	5
Conocimientos (knowledge)	5.20	5.12	9.52	3.36	3.535	36	5
Copiar (to cheat)	2.60	5.36	5.80	4.80	1.692	5	2
Culto (cult)	4.96	5.60	8.12	4.04	2.574	30	2
Cultura (culture)	5.36	6.68	7.48	4.08	5.333	165	3
Descubrir (to discover)	5.20	6.12	6.20	4.00	1.854	55	3
Diez (ten)	4.32	6.76	3.96	6.36	1.732	134	1
Dinero (money)	2.72	6.56	4.04	6.56	2.845	199	3
Empollón (grind/nerd)	3.92	3.60	6.56	5.24	3.461	0	3
Escasa (slim/limited)	2.44	4.48	7.28	3.08	1.372	23	3
Escribir (to write)	4.12	6.68	4.00	5.60	1.345	128	3
Espabilado (sharp)	4.84	5.48	6.28	4.68	1.441	3	5
Estímulo (stimulus)	3.48	5.12	9.28	3.88	1.680	16	4
Estudiante (student)	4.52	5.84	5.96	6.28	2.454	19	4
Estudiar (to study)	5.40	6.52	5.56	4.68	12.902	45	3
Estudio (study)	4.84	6.32	6.00	5.36	8.888	144	3
Estudios (career)	4.48	6.28	8.52	3.80	5.360	75	3
Estudioso (expert)	4.80	4.76	6.80	4.76	2.717	3	4
Exámen (examination)	3.76	5.72	6.64	6.68	3.246	21	3
Familia (family)	2.68	6.28	3.72	6.52	1.474	250	3
Felicidad (happiness)	3.44	5.84	5.64	3.76	1.652	85	4
Filosofía (philosophy)	4.68	3.64	10.00	3.32	1.343	117	5
Futuro (future)	3.44	5.60	7.04	3.24	2.169	131	3
Genio (genius)	6.24	3.72	7.80	4.64	1.620	28	2
Historia (history)	3.00	4.80	6.52	3.68	1.695	406	3
Hombre (man)	4.08	6.24	4.24	6.68	2.652	869	2
Idea (idea)	5.76	5.36	6.00	3.40	3.505	128	3
Imaginación (imagination)	5.28	5.20	5.68	3.56	4.886	83	5

## APPENDIX (Continued)

Spanish Word (English Translation)	Typ	CFam	AoA	Imag	LA	WFreq	Len
Instituto (secondary school)	3.16	4.44	7.60	6.52	2.257	42	4
Inteligencia (intelligence)	7.00	6.00	8.04	3.24	2.586	3	5
Inteligente (intelligent)	6.72	4.88	6.76	3.68	3.140	3	5
Lectura (reading)	5.32	5.32	4.68	4.72	2.810	83	3
Leer (to read)	4.76	6.72	5.12	5.24	2.482	97	2
Letras (letters)	3.20	6.56	4.80	6.64	2.761	51	2
Libro (book)	3.92	6.76	4.68	6.96	10.342	199	2
Listo (clever)	6.20	5.32	5.20	3.84	22.067	16	2
Lógica (logic)	6.16	4.12	10.28	3.00	2.795	74	3
Matemáticas (mathematics)	4.44	3.60	6.64	4.48	5.845	21	5
Memoria (memory)	4.96	5.32	6.48	3.20	13.008	203	3
Memorizar (to memorize)	4.60	5.24	7.60	3.40	2.235	2	4
Mente (mind)	6.24	4.68	8.20	2.68	10.509	87	2
Mujer (woman)	2.92	6.48	5.24	6.52	1.626	511	2
NASA (NASA)	3.48	2.68	12.16	4.64	1.616	1	2
Nervio (nerve)	2.44	4.08	9.56	3.92	1.445	15	2
Neurona (neurone)	5.04	3.08	11.48	4.16	5.987	14	3
Notas (grades)	4.00	5.08	6.84	6.08	1.451	39	2
Números (numbers)	3.76	5.16	4.76	6.76	2.725	28	3
Ordenador (computer)	3.40	6.48	9.88	6.96	2.894	67	4
Palabras (words)	4.28	6.56	5.40	6.08	1.538	354	3
Pensamiento (thought)	5.72	5.56	8.32	3.28	14.611	134	4
Pensar (to think)	6.24	5.76	7.44	3.08	11.034	218	2
Poder (power)	3.32	4.72	6.96	2.96	1.903	388	2
Profesor (teacher)	3.24	6.16	5.44	6.28	3.667	55	4
Rapidez (speed)	5.24	5.24	6.40	3.44	3.960	24	3
Razón (reason)	5.76	5.44	8.60	2.84	1.695	275	2
Razonamiento (reasoning)	6.60	5.00	10.32	2.96	1.602	8	5
Razonar (to reason)	6.64	5.16	10.04	3.04	1.763	5	3
Recordar (to remember)	4.64	5.12	7.16	3.32	2.805	83	3
Recuerdo (memory)	3.52	5.84	7.40	4.08	1.418	177	3
Reflexión (reflection)	5.92	4.64	9.80	3.16	1.488	41	3
Representación (play)	3.48	3.44	9.72	3.72	2.235	46	5
Resolver (to solve)	6.04	4.76	8.68	3.12	1.627	30	3
Responsabilidad (responsibility)	3.48	5.52	9.04	2.92	3.498	39	6
Respuesta (answer)	4.60	5.28	6.32	3.44	1.527	95	3
Saber (to know)	5.52	5.64	6.36	3.00	14.086	287	2
Sabiduría (wisdom)	5.76	3.96	8.56	2.92	17.492	26	5
Sabio (wise)	5.92	3.32	7.56	5.16	5.051	22	2
Sobresaliente (excellent)	4.92	3.60	7.76	5.72	2.998	3	5
Soñar (to dream)	3.04	6.04	5.76	3.92	2.090	16	2
Superdotado (extremely gifted)	5.96	3.12	9.00	5.12	4.178	1	5
Test (test)	4.04	3.04	11.04	6.52	2.317	5	1
Tonto (fool)	2.88	4.96	4.48	5.12	6.932	19	2
Trabajar (to work)	2.92	5.72	5.56	4.84	1.714	74	3
Trabajo (work)	3.08	5.88	5.56	5.56	7.890	354	3
Universidad (university)	3.88	6.56	10.36	6.24	3.585	109	5
Vida (life)	3.16	6.36	6.24	3.92	1.538	1,145	2
Voluntad (will)	3.16	4.60	9.04	3.28	1.324	117	3
Yo (I)	3.40	6.32	4.16	4.32	3.600	1,857	1