Affective norms for 210 British English and Finnish nouns

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This article presents affective ratings for 210 British English and Finnish nouns, including taboo words. The norms were collected with 135 native British English and 304 native Finnish speakers, who rated the words according to their emotional valence, emotional charge, offensiveness, concreteness, and familiarity. The ratings between the two languages were found to be strongly correlated. The present ratings were also strongly correlated with the American English emotional valence and arousal ratings available in the Affective Norms for English Words database (Bradley & Lang, 1999) and the Janschewitz (2008) database for taboo words. These ratings will help researchers to select stimulus materials for a wide range of experiments involving both monolingual and bilingual processing of British English and Finnish emotional words. Materials associated with this article may be accessed as an online supplement from <http://brm.psychonomic-journals.org/content/supplemental>.

Emotional connotations of words influence single-word processing in important ways; a wide range of studies have reported differences between neutral and emotionally charged words, including the impact of emotionality on attention (e.g., Williams, Mathews, & MacLeod, 1996), speed of processing (e.g., Kuchinke et al., 2005), accuracy of word detection (e.g., Ortigue et al., 2004), and memory (e.g., MacKay & Ahmetzanov, 2005). Within the domain of emotionality, emotional valence (sometimes referred to as *evaluation*, *pleasure*, or *positivity*) and arousal (also referred to as *intensity*, *activity*, *activation*, or *emotional charge*) have been identified as the key dimensions in explaining variation between emotional and neutral words (e.g., Kissler, Assadollahi, & Herbert, 2006; Osgood, Suci, & Tannenbaum, 1957; Russell, 1991). Since word stimuli are used in a wide range of experiments, there has been an increasing need to establish norms for those emotional characteristics of the stimuli in order to control for and manipulate them.

One of the most frequently used databases for emotional valence and arousal for English words is Affective Norms for English Words (ANEW; Bradley & Lang, 1999), which provides normative ratings of pleasure, arousal, and dominance for 1,034 English words collected with American English speakers. The emotional connotations of words, however, have been shown to vary from one culture to another (Triandis & Osgood, 1958), as well as between languages (Pavlenko, 2008). As a consequence, it is possible that the ratings for words representing the same

concepts in different languages or, indeed, in variations of the same language (i.e., British English) may differ from those provided in ANEW. For that reason, databases providing affective ratings have been developed in other languages, such as German (Berlin Affective Word List; Vö, Jacobs, & Conrad, 2006) and Spanish (Redondo, Fraga, Padrón, & Comesaña, 2007). However, affective ratings for Finnish words are not currently available, nor have the ratings of British English speakers been compared with those provided in ANEW.

In addition to the differences between languages, emotional connotations can also vary between bilingual speakers' two (or more) languages. Bilingual speakers dominant in a first language (L1) have been found to perceive taboo and swearwords to be stronger in their emotional force in L1 than in their second language (L2; Dewaele, 2004). Furthermore, Harris, Ayçiçeği, and Gleason (2003) have reported greater physiological arousal associated with aurally presented taboo words, as well as childhood reprimands, presented both visually and aurally, in the speakers' L1 (Turkish), when compared with their later acquired L2 (English). These differences between bilingual speakers' two languages, however, may be due to either the speakers' language-learning history or differences between the two languages in their concepts. Grabois (1999), for instance, has shown that associations to words such as *love*, *fear*, and *happiness* vary from one language to another; monolingual Spanish and monolingual English speakers were found to produce different types of associations to

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the words above, with English speakers preferring symbolic and metaphorical associations, whereas Spanish speakers used terms related to sensory cues. In order to disentangle the contributions of language-specific effects from those of language-learning history, more needs to be known about the emotional characteristics of words in each language used in bilingual research. Furthermore, as was highlighted by Grosjean (1998), development of databases for word pairs from different languages would potentially help to avoid inconsistent and conflicting findings.

Taboo words represent a distinctive category of words (e.g., Van Lancker & Cummings, 1999), which are often considered to be some of the most arousing linguistic stimuli. They can be defined as a set of words, the use of which is likely to be avoided and potentially reprimanded in many social settings, and which include terms referring to bodily products, body parts, and sexual acts, as well as ethnic and racial insults, profanity, vulgarity, slang, and scatology (Jay, 1992, 2000).

Taboo words have been found to influence attentional processes, as demonstrated by slower color identification in a taboo Stroop task in both monolingual (MacKay et al., 2004) and bilingual (Eilola, Havelka, & Sharma, 2007) settings. Taboo words have also been found to influence the memorability of linguistic material; they are remembered better than neutral words (Hadley & MacKay, 2006; Jay, Caldwell-Harris, & King, 2008), whereas the immediate recall of words preceding and succeeding taboo words in a rapid serial visual presentation context is reduced (MacKay et al., 2004). The recall and recognition advantages for taboo words have also been reported in bilinguals in both their L1 and L2 (Ayçiçeği & Harris, 2004), although the emotional force associated with taboo words may be reduced in L2 (Dewaele, 2004).

There is also evidence to suggest that taboo words may involve a specialized neural mechanism; in many neurological pathologies, such as severe aphasia, swearing can be one of a small set of linguistic abilities that remain intact (Van Lancker & Cummings, 1999). The opposite has also been reported, where brain damage to the right-hemispheric basal ganglia resulted in the inability to swear (Speedie, Wertman, Ta'ir, & Heilman, 1993). Thus, taboo words are likely to be of interest as a vehicle not only in studying emotional processes, but also in highlighting the differential neural mechanisms involved in processing taboo and nontaboo language.

In a recent study, Janschewitz (2008) collected normative ratings of personal use, familiarity (the use of the word in general), offensiveness (inappropriateness of the word from the point of view of the rater), tabooeness (inappropriateness of the word to society at large), emotional valence, arousal, and imageability for a set of 92 taboo words, as well as 92 positive, 92 negative, and 184 neutral words. These ratings, however, were collected with American English speakers and, thus, may not be fully generalizable to other linguistic contexts, since languages differ substantially in what is considered to be taboo (Jay, 2000). A corpus has been developed providing the frequency data for spoken British English (the Lancaster Corpus of Abuse; McEnery, Baker,

& Hardie, 2000). However, this database does not incorporate affective or concreteness ratings, for those words. The present normative ratings include affective ratings, as well as ratings of familiarity and concreteness, for 34 taboo words from British English and Finnish.

Both negative and taboo words are likely to be rated highly arousing and very negative in their valence. Taboo words, however, by definition, differ from negative words in the sense that the use of these words is perceived as undesirable and offensive in many social situations. Several studies have investigated such offensiveness across English words (Jay, 1992), suggesting that this dimension may be effective in distinguishing between words that are perceived to be taboo and those that are merely negative in their valence. The collection of normative emotional ratings that include offensiveness as an additional dimension will therefore facilitate the comparison of different studies using taboo words, since previously, either studies have used ad hoc ratings for the word stimuli (e.g., MacKay et al., 2004, used obscenity ratings), or no ratings have been provided to describe the offensiveness (or obscenity) of the words used (e.g., Anderson, 2005). It is also of interest to what extent this set of taboo words are perceived to be equally offensive across linguistic contexts.

In summary, a collection of ratings for English and Finnish words is important in several ways: The affective norms collected with American English speakers may not be fully applicable for British English and studies using words from languages other than English. No normative ratings for Finnish words in terms of their emotional characteristics have been published as yet, and, therefore, compiling a database that represents British-English-Finnish word pairs can aid stimulus selection in monolingual and bilingual research with speakers of Finnish and English. Furthermore, no affective database for taboo words is available for British English or Finnish. When bilingual speakers are studied using word stimuli from two different languages, the words ought to be matched along as many dimensions as possible to minimize the effects of lexical differences. Among others, these dimensions include emotional valence, arousal, and, in the case of taboo words, offensiveness.

The first aim of our research was to collect affective ratings for a set of 210 British English and Finnish nouns, including 34 taboo words. We have also included ratings for concreteness and familiarity, since these have been found to influence word processing in important ways (e.g., Altarriba, Bauer, & Benvenuto, 1999; Gernsbacher, 1984) and will, therefore, provide additional information about the words presented here. The second aim was to perform cross-linguistic comparisons among the ratings given by native British English, Finnish, and American English speakers in order to see how universal affective ratings for single words are. The third aim was to investigate the extent to which affective characteristics concur across American English, British English, and Finnish taboo words. The ratings for British English and Finnish from the present study were, therefore, compared with those from the ANEW database (Bradley & Lang, 1999) and with taboo word norms collected by Jansche-

witz (2008), representing affective norms for American English. Finally, the fourth aim was to establish whether offensiveness ratings would differentiate effectively between negative and taboo words, since previous research has suggested that offensiveness ratings may be important in distinguishing taboo words (Jay, 2000).

METHOD

Participants

Three hundred four native Finnish speakers, 220 females and 84 males, 16–45 years of age ($M = 17.4$, $SD = 2.71$), and 135 native English speakers, 105 females and 30 males, 16–35 years of age ($M = 18.7$, $SD = 2.29$), participated in the study. The participants were recruited at the Upper Secondary Schools of Kauhava, Kurikka, Ilmajoki, Nurmo, Seinäjoki, and Vaasa in Finland and at the University of Kent, Canterbury, and Mid-Kent College, Chatham, in the U.K. Undergraduate students at the University of Kent received credit toward a course requirement for their participation; the other participants were volunteers.

Materials

A computer-based questionnaire was used, where participants gave the ratings using individual PCs in a classroom setting in the presence of a researcher. The participants were randomly assigned one of the two versions of the questionnaire: They were asked to rate the 210 words either in terms of their familiarity (the extent to which given words occur in everyday language in either written or spoken form), emotional valence (how positive or negative the words are), and emotional charge (how strong an emotional charge the words evoke) or in terms of their familiarity, offensiveness (how offensive the words are perceived to be), and concreteness (how concrete or abstract the words are perceived to be). Consequently, 135 native Finnish speakers and 81 native English speakers gave emotional valence and emotional charge ratings, and 155 native Finnish and 54 native English speakers gave offensiveness and concreteness ratings. In the present study, the term *emotional charge*, rather than *arousal*, was used, since it could be translated into Finnish in the most unequivocal way.

The questionnaire was split into two in order to avoid exhaustion's affecting the participants' responses. Familiarity ratings always preceded the other two rating tasks, since research has suggested that encountering the words previously is likely to affect their familiarity (e.g., Ratcliff, Hockley, & McKoon, 1985), whereas there is currently no evidence that affective ratings are influenced by preceding rating tasks (Landau & Gunter, 2009). The order of the other two ratings was counterbalanced across participants.

The words were chosen using the following criteria: All of them were nouns, not inflected, and in singular form. As much as possible, compound words and cognates were avoided. Furthermore, the English words had to be translatable into Finnish unambiguously. The latter criterion was especially of concern when taboo words were selected, since words considered taboo vary considerably between languages and cultures. The set of 34 taboo words included in this study contained mainly words referring to sexual acts, body parts, bodily products, and insults, since these had counterparts in both English and Finnish. The words were selected to represent neutral, positive, and negative words, using ANEW (Bradley & Lang, 1999) as a guideline. All 210 words were translated from English to Finnish by a Finnish–English bilingual and back-translated by another Finnish–English bilingual. There was a high level of agreement between the translators in regard to the correspondence between the sets of English and Finnish words.

Procedure

The participants were allocated a PC connected to the Internet and were given unique user numbers that enabled them to access the questionnaire on the University of Kent, Canterbury (U.K.) Web

site. If their connection was terminated before they had completed the study, these unique user numbers enabled them to return to the study without losing the responses that they had already given. A researcher was present throughout the study to provide verbal instructions and help with any technical problems. The rating session lasted approximately 1 h, with all the participants completing the ratings without having breaks in the middle.

The questionnaire started with instructions and a consent form. The participants were unable to proceed unless they ticked a box indicating their consent. At this point, the participants were also warned that some of the words were extremely offensive in nature and were requested not to proceed if they did not wish to be exposed to this type of material. None of the participants, however, refused to take part in the study for this reason. After giving their consent, the participants were asked to indicate their age, gender, native language, and nationality.

The participants were told that they would be presented with a list of words and that their task was to rate them along the three dimensions assigned to them (familiarity, emotional valence, and emotional charge, or familiarity, offensiveness, and concreteness). At the beginning of each section, they were given instructions with examples and the opportunity to practice using the scale. They were also told that there were no right and wrong answers; the best answer would reflect their true opinion about the word. The use of the entire scale was encouraged, but at the same time, the participants were told not to worry about how many times they had used any particular rating.

Instructions for rating familiarity. The familiarity instructions were as follows:

This dimension involves rating how often the given word occurs in everyday language either in written or spoken form. How often do you use the given word in your speech? How often do you hear other people using the given word in their speech? How often do you see the given word in a written form, or use it yourself in writing? For example, the word *football* could be rated as occurring in everyday language very often, whereas the word *memsahib* could be rated as never occurring in everyday language.

Instructions for rating emotional valence. The emotional valence instructions were as follows:

This dimension requires you to estimate how positive or negative the given word is. This will be rated on a scale from "very negative" to "very positive." For example, the word *revolting* could be rated as very negative, whereas the word *bookshelf* could be rated as neutral.

Instructions for rating emotional charge. The emotional charge instructions were the following:

This dimension involves indicating the strength of the emotional charge elicited by the word. For example, the word *paneling* could be rated as having no emotional charge, whereas the word *ecstatic* could be rated as having a very high emotional charge.

Instructions for rating offensiveness. The offensiveness instructions were as follows:

This dimension requires you to rate how rude, obscene or upsetting the word is; how inappropriate the word would be for polite interaction. For example, the word *pantomime* could be rated as not at all offensive, whereas the word *fuckhead* could be rated as very offensive.

Instructions for rating concreteness. The concreteness instructions were as follows:

This dimension involves rating to what extent the word represents an object, animate being, action or other phenomenon that can be perceived directly by the senses. If the word refers

Figure 1. The relationship between emotional valence and emotional charge for British English and Finnish words.

to something that can be perceived via the senses it is considered to be a concrete word, if it cannot then it is considered to be an abstract word. For example, the word *radiator* could be rated as very concrete, whereas the word *logic* could be rated as very abstract.

A visual analogue scale, a fully sliding scale that was anchored from the two ends, was used. A pointer was located at the extreme left of the scale, which participants could move by clicking it with the mouse and dragging it along the scale. The program used converted the responses to a score from 0 to 9. Ten words were presented on each page, the order of the words being randomly assigned. In order to avoid missing data, the participants were unable to proceed from one page to another without moving each pointer. The scale for familiarity ranged from 0 (*never*) to 9 (*very often*), for emotional valence from 0 (*very negative*) to 9 (*very positive*), for emotional charge from 0 (*no emotional charge*) to 9 (*very high emotional charge*), for offensiveness from 0 (*not at all offensive*) to 9 (*very offensive*), and for concreteness from 0 (*very concrete*) to 9 (*very abstract*).

RESULTS AND DISCUSSION

Ratings of emotional valence, emotional charge, offensiveness, familiarity, and concreteness for 210 British English and Finnish nouns can be accessed as a supplement for this article from <http://brm.psychonomic-journals.org/content/supplemental>.

Previous research has shown that the relationship between emotional valence and arousal is best described as a U-shaped curve, where highly negative and highly positive items are perceived to be most arousing, whereas items with low negative or positive rating are perceived to be least arousing (e.g., Bradley & Lang, 1999; Kissler et al., 2006; Redondo et al., 2007). As a consequence, the quadratic effect of emotional valence on emotional charge was studied. A regression analysis was conducted with emotional valence as an independent factor and emotional charge as a dependent factor. The quadratic relationship was highly significant in each language ($R = .872$, $p <$

.001 in English, and $R = .840$, $p < .001$ in Finnish, explaining 76% and 71% of the variance, respectively; see Figure 1). The present norms thus represent both high- and low-arousal words from both positive and negative ends of the valence continuum, as well as words that are moderately or low arousing but neutral in their valence. This replicates the pattern reported previously and supports the view that the present ratings are highly reliable and comparable to previously established word norms.

Previous studies have reported strong correlations between the emotional valence and arousal ratings collected with American English and Spanish speakers ($r = .92$ between emotional valence, and $r = .75$ between emotional arousal ratings; Redondo et al., 2007), as well as with American English and Canadian English speakers ($r = .86$ between emotional valence, and $r = .63$ between emotional arousal ratings; Whissell, 2008). It was therefore of interest to what extent the ratings for British English and Finnish words would be related to each other, as well as to those for American English words presented in ANEW (Bradley & Lang, 1999). ANEW provides norms for 159 of the words included in the present study, and these were subsequently entered into a linear correlation analysis.

The results of the analysis showed highly significant and strong correlations between British English and Finnish in regard to all five dimensions (emotional valence, emotional charge, offensiveness, concreteness, and familiarity). Emotional valence and emotional arousal ratings for British English and Finnish were also strongly correlated with those for American English words available in ANEW (Bradley & Lang, 1999; see Table 1). The correlations among the three languages to emotional charge appeared to be somewhat reduced, relative to emotional valence ratings. Furthermore, between British English and Finnish, there was also slightly lower agreement in regard to concreteness and familiarity than was the case in regard

Table 1
**Linear Correlations Between American English,
 British English, and Finnish Ratings**

Dimension	American English ^a vs.		British English ^b vs. Finnish
	British English	Finnish	
Emotional valence	.97***	.96***	.98***
Emotional charge	.67***	.62***	.92***
Offensiveness	—	—	.96***
Familiarity	—	—	.72***
Concreteness	—	—	.93***

^aAmerican English ratings available in the Affective Norms for English Words database (Bradley & Lang, 1999); $N = 159$. ^bBritish English and Finnish ratings collected in the present study; $N = 210$. *** $p < .001$ (two-tailed).

to emotional valence and offensiveness. These findings are in line with those in previous studies, in that the perceived emotional valence of single words appears to generalize well across different languages, but the level of emotional charge shows greater variability (Redondo et al., 2007; Whissell, 2008). The results also suggest that the extent to which the words are used in everyday language—that is, their familiarity—is more language specific than are the other lexical characteristics studied here.

Taboo words are often assumed to be some of the most potent emotional verbal stimuli, yet affective norms for these words have been lacking until very recently. A set of normative ratings have been collected for 92 taboo words with American English speakers (Janschewitz, 2008), but no such ratings have been available for British English and Finnish. The aim of the present study was therefore to collect norms for British English and Finnish taboo words in regard to their emotional valence, emotional charge, and offensiveness, as well as to establish to what extent these ratings would be comparable among American English, British English, and Finnish. Twenty-four words were present in both our and Janschewitz's word lists and were thus included in the linear correlation analysis. Emotional valence, emotional charge, and offensiveness ratings were found to be strongly correlated across the three languages (see Table 2). The emotional charge ratings were found to be somewhat less strongly correlated than emotional valence ratings. This was especially true for the correlation between American English and Finnish emotional charge ratings, which was substantially lower than the one be-

tween American English and British English. This finding suggests that emotional charge (arousal) is likely to vary more across languages than are emotional valence and offensiveness ratings for taboo words.

Both Janschewitz's (2008) and the present study also included ratings for concreteness/imageability and familiarity. This enabled us to further explore the extent to which taboo words are perceived similarly in American English, British English, and Finnish along these two dimensions. A linear correlation analysis of concreteness ratings revealed a strong relationship between American English, British English, and Finnish ratings (see Table 2). British English ratings of familiarity were found to be moderately correlated with those provided by Finnish speakers and strongly correlated with American English ratings of personal use and familiarity. The familiarity ratings given by Finnish participants, however, did not show a statistically significant correlation with American English ratings.

Familiarity is known to be an important factor in influencing word processing (e.g., Gernsbacher, 1984). In the context of taboo word processing, the role of familiarity ratings is even more pronounced, since frequency indices based on written materials are likely to underestimate the occurrence of this category of words in everyday life. This has led to spoken language corpora being developed for taboo words (e.g., McEnery et al., 2000). The ratings of familiarity in the context of the present study, however, made it possible to compare the perceived occurrence of taboo words in everyday language among American English, British English, and Finnish words.

American English and British English familiarity ratings were found to be moderately correlated. Finnish ratings, however, were only weakly related to British English familiarity ratings, and no significant correlation was found between Finnish and American English ratings. This highlights the possibility that although taboo words are perceived similarly in their emotional valence and offensiveness, their use in everyday life may vary substantially from one language to another. As a consequence, it is important to match them along this dimension when comparing responses to taboo words in different languages, especially since word frequency norms based on written language may be less accurate indicators of the extent to which people encounter these words in everyday life.

Table 2
**Linear Correlations Between American English, British English,
 and Finnish Ratings for Taboo Words**

Dimension		American English vs.		British English vs. Finnish
Present Study	Janschewitz (2008; $N = 24$)	British English	Finnish	
Emotional valence	Valence	.89***	.85***	.93***
Emotional charge	Arousal	.68***	.51*	.84***
Offensiveness	Offensiveness	.93***	.79***	.86***
	Tabooness	.88***	.80***	
Familiarity	Personal use	.61**	.25	.45*
	Familiarity	.56**	.24	
Concreteness	Imageability	-.78***	-.65***	.82***

* $p < .05$. ** $p < .01$. *** $p < .001$ (two-tailed).

The question of whether the additional affective dimension of offensiveness would effectively differentiate between negative and taboo words was also addressed. In order to directly compare negative words and taboo words with respect to their offensiveness, independent groups *t* tests were carried out separately for British English and Finnish words. All words rated 3.0 or less in their valence on a scale from 0 to 9 were included in the analysis as representing negative words. Taboo words included insults, as well as words referring to sexual acts, body parts, and bodily products. The analyses showed that taboo words were rated as significantly more offensive than negative words both in English [taboo, $M = 3.8$; negative, $M = 1.0$; $t(39.06) = 9.41$, $p < .001$] and in Finnish [taboo, $M = 4.7$; negative, $M = 1.4$; $t(39.48) = 11.58$, $p < .001$].

Previous research has shown that although taboo words do not differ from negative nontaboo words in their valence, they are rated overall as more arousing (Jansche-witz, 2008). This has been interpreted to imply that the strong emotionality of taboo words comes from the high level of arousal they elicit. The comparison of emotional valence and emotional charge of taboo words in the present study, however, showed that negative words were perceived as more negative in their valence than were taboo words [in English, negative, $M = 1.3$; taboo, $M = 1.8$; $t(45.20) = 3.09$, $p < .01$; in Finnish, negative, $M = 1.4$; taboo, $M = 2.0$; $t(40.25) = 3.10$, $p < .01$]. Negative words were also rated stronger in emotional charge than were taboo words both in English [negative, $M = 4.0$; taboo, $M = 2.7$; $t(89) = 4.33$, $p < .001$] and in Finnish [negative, $M = 4.3$; taboo, $M = 2.8$; $t(88) = 5.48$, $p < .001$]. Thus, although socially undesirable in their connotations, taboo words are not necessarily perceived to be as negative and arousing as some extremely negative, nonoffensive words (e.g., *cancer*, *death*). This finding supports the view that it is offensiveness, rather than valence or arousal, that sets the taboo words apart from negative words.

In conclusion, the importance of developing affective norms for words in different languages is demonstrated by the increase in the number of such databases (e.g., the Spanish adaptation of ANEW, Redondo et al., 2007; the Berlin Affective Word List, Vö et al., 2006). The ratings presented here will provide a useful database for researchers using emotionally charged words in monolingual or bilingual studies with British English and Finnish participants. Furthermore, the comparisons of American and British English, as well as Finnish, affective ratings demonstrate that emotional valence and offensiveness generalize well across the variations of the same language, as well as the different languages. Words from different languages, however, may be less similarly perceived when it comes to their emotional charge, concreteness, and familiarity. The lack of correlation between Finnish and American English ratings of familiarity, in particular, suggests that the everyday use of words in different languages may vary significantly. As a consequence, it is important to collect normative ratings including affective dimensions, as well as familiarity and concreteness, for the languages studied, since the norms collected for one language may not generalize to others.

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SUPPLEMENTAL MATERIALS

The British English and Finnish word norms discussed in this article may be downloaded from <http://brm.psychonomic-journals.org/content/supplemental>.

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