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Taboo word fluency and knowledge of slurs and general pejoratives: deconstructing the poverty-of-vocabulary myth

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ABSTRACT

A folk assumption about colloquial speech is that taboo words are used because speakers cannot find better words with which to express themselves: because speakers lack vocabulary. A competing possibility is that fluency is fluency regardless of subject matter—that there is no reason to propose a difference in lexicon size and ease of access for taboo as opposed to emotionally-neutral words. In order to test these hypotheses, we compared general verbal fluency via the Controlled Oral Word Association Test (COWAT) with taboo word fluency and animal word fluency in spoken and written formats. Both formats produced positive correlations between COWAT fluency, animal fluency, and taboo word fluency, supporting the fluency-is-fluency hypothesis. In each study, a set of 10 taboo words accounted for 55–60% of all taboo word data. Expressives were generated at higher rates than slurs. There was little sex-related variability in taboo word generation, and, consistent with findings that do not show a sex difference in taboo lexicon size, no overall sex difference in taboo word generation was obtained. Taboo fluency was positively correlated with the Big Five personality traits neuroticism and openness and negatively correlated with agreeableness and conscientiousness. Overall the findings suggest that, with the exception of female-sex-related slurs, taboo expressives and general pejoratives comprise the core of the category of taboo words while slurs tend to occupy the periphery, and the ability to generate taboo language is not an index of overall language poverty.

We cannot help but judge others on the basis of their speech. Unfortunately, when it comes to taboo language, it is a common assumption that people who swear frequently are lazy, do not have an adequate vocabulary, lack education, or simply cannot control themselves (Dumas and Lighter, 1978; Jay, 2000; O'Connor, 2000). As O'Connor describes taboo word use: "It's the sign of a weak vocabulary" (p. 80).

Perhaps because of the nature of the topic, the poverty-of-vocabulary (POV) assumption is not explicitly addressed in scholarly literature, though it abounds elsewhere (such as on blogs and other internet fora, *e.g.*, Schulten, 2010). For one thing, in scholarly literature, there is some basic ambiguity about how to conceptualize taboo language (*i.e.*, ethnic-racial-gender slurs, profanity, blasphemy, expletives, obscenity, insults, swear words, curse words, dirty words, name calling, or scatology). For example, Pinker (1994) concluded that swearing did not constitute "genuine" language, while others (*e.g.*, Jay, 2009) have argued that taboo words are legitimate lexical items because they obey syntactic and semantic rules and are used

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for a variety of purposes (for contextually-determined taboo language use see, *e.g.*, Dewaele, 2011; Jay, 1992, 2000, 2003, 2009; Jay and Janschewitz, 2007, 2008; Jay and Jay, 2013; Stephens et al., 2009). For example, Jay (1992) decomposes observational spoken frequency data for taboo words according to their parts of speech or case roles, demonstrating that while a given taboo word can be used in many ways, connotative or emotional meaning is frequently at the heart of a taboo word's meaning and/or use. Along these lines, some linguists and philosophers of language make the distinction between taboo expressives (*e.g., fuck*), that express heightened emotional states (see Potts, 2007), general pejoratives (*e.g., fucker*), whose meaning is connotative but are person-directed, and slurs (*e.g., slut*), which have both expressive and (derogatory) descriptive elements (Croom, 2011). Inasmuch as slurs are sensitive to features of their targets (*e.g.,* sexual or racial features as in *slut* or *chink*), they are particularly robust examples of context-sensitive taboo words, and recent literature (Croom, 2011, 2013, 2014a, 2014b) has shown that slurs can be distinguished from descriptive expressions (*e.g.*, *African*) as well as expressive expressions (*e.g.*, *ouch!*) or general pejoratives. Fluent use of slurs, therefore, relies on knowledge of both descriptive and expressive appropriateness.

Studies of taboo language use have identified variables that may predict swearing at the individual level, although more fine-grained analysis (of *e.g.,* variables that would predict use of general pejoratives versus use of slurs) has not yet been done. Rather, "swearing" in general is associated with certain personality and psychological variables. For example, religiosity and sexual anxiety are negatively correlated with swearing (Jay, 2009) as are the personality traits agreeableness and conscientiousness from the Big Five Inventory (BFI; John et al., 2008; Mehl et al., 2006). The BFI is a personality inventory that taps five personality factors (openness, conscientiousness, extraversion, agreeableness, and neuroticism) that most psychologists agree are universal, and these traits have been used in psychological research to predict peoples' behaviors and attitudes in different contexts. BFI traits extraversion and neuroticism are positively correlated with swearing (the latter in males; Fast and Funder, 2008), as is Type A personality, which is characterized by impatience, competitiveness, and hostility (Jay, 2009).

Additionally, we may ask how speakers who use taboo language are perceived by others. Much of the research in this area suggests that taboo language use is perceived negatively (although this depends on context and speaker–listener relationship, see *e.g.*, Abrahams, 1962; Fussell, 1989). For example, Mulac (1976) found that speakers who used profanity were rated lower on socio-intellectual status than speakers who were restrained. Heubusch and Horan (1977) reported that counselors who used profanity were judged to be less effective and less satisfying than those who did not use profanity. Baseheart and Cox (1993) found that police who used profanity during a traffic stop were perceived as being less friendly and less just than police officers who did not use profanity. The use of slurs in particular is perceived very negatively; this kind of taboo language is often considered a form of threatening or hate speech (Croom, 2011).

Another negative assumption about swearing is that it is an undesirable alternative to using nontaboo words, the result of a limited vocabulary. Though widely held, the POV view is inconsistent with language research in several ways. First, the assumption that people say taboo words because they have an impoverished vocabulary implies that people say taboo words when lexical access fails. Speech production research (Erard, 2007; Jay, 2003; Levelt, 1989), however, shows that when speakers get stuck, they hesitate, repair mistakes, or utter expressions such as "er" or "um," but do not simply spit out taboo words. Second, recording studies have demonstrated that taboo word use is relatively common among college students (Mehl and Pennebaker, 2003; Mehl et al., 2007), and this population has higher-than-average verbal abilities which selectively qualify them for admission. Finally, the POV view assumes that nontaboo words can achieve the same degree of emotional expression as can taboo words. However, while they can obey grammatical rules like other language, taboo words *are* special in terms of the emotional intensity they deliver—this has been repeatedly demonstrated through subjective rating (Janschewitz, 2008) and biological measures (Jay et al., 2005; LaBar and Phelps, 1998). Thus, while one could argue that nontaboo words, with the possible exception of slurs, allow for more nuanced expression, it does not follow that taboo word use is an indicator of impoverished vocabulary. Rather, taboo language use accomplishes something else entirely: intense and succinct—and sometimes very directed—emotional expression.

At its core the POV argument centers on verbal fluency. Verbal fluency is the hallmark of intellectual acumen; the more words one knows and uses, the greater one's verbal prowess or intelligence. One method for measuring verbal fluency is the Controlled Oral Word Association Test (COWAT; Loonstra et al., 2001). The COWAT prompts participants to say words that begin with given letters (*e.g.,* F, A, or S), and the total number of words generated is summed into a fluency score. Loonstra et al. (2001) reported fluency metanorms across age, education and sex by calculating aggregate scores from numerous fluency studies. They found women generated more words on FAS tasks than did men. Individual differences have also been found based on age, education, and personality traits (Barry et al., 2008; Haugrud et al., 2010; Sutin et al., 2011).

So far measures of verbal abilities have not considered taboo words, though this line of investigation bears directly on the assumptions we commonly make about what taboo words are and who uses them. The purpose of the present set of studies was therefore to measure taboo word fluency and relate this to traditional verbal fluency measured by the COWAT. The POV view predicts a negative correlation between verbal fluency and taboo fluency, while a "fluency-is-fluency" view predicts a positive correlation between the types of fluency—if a person is verbally adept, this should extend across multiple language areas.

In addition to the COWAT as a comparison to taboo fluency, the fluency prompt "animals" was used to control for a possible category effect (as in Jay et al., 2005). The category effect in word generation is that more words tend to be generated from categories than non-categories (Troyer et al., 1997). Taboo words can be thought of as forming their own category, although arguably the basis for their coherence has to do with their connotative and emotional properties, rather than their denotative meaning. In contrast, "words that begin with F" do not form a semantic category, but "animals" forms a coherent semantic category based on denotative meaning. Incorporating both non-category and well-defined-category prompts allowed us to speculate on the size and coherence of the taboo word category. We expected no difference between the number of taboo and

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animal words generated if animals and taboo words form similarly-organized categories and are subject to the same retrieval strategies. If taboo words are generated consistently with their spoken frequencies, we expect the most frequently recorded taboo words, *fuck* and *shit,* to be generated more frequently than slurs (Jay and Jay, 2013). As general expressive terms, the former are less restricted in their use by denotative meaning; that is, these word forms can be used in conjunction with a number of emotional states such as anger, surprise, disgust, frustration, or happiness (see Croom, 2014a, 2014b).

Taboo words are most often spoken; accordingly, Study 1 used a spoken generation format. Since it has been demonstrated that participants are reluctant to say taboo words in a laboratory setting (see Jay, 1992, 2000 for reviews), prompt-generation lag time was measured in Study 1, and it was predicted that lag time would be greater to the taboo prompt. The generation procedure was conducted in written format in Studies 2 and 3. In Study 3, taboo fluency was assessed relative to common personality variables. Given existing findings about personality characteristics associated with swearing frequency (Fast and Funder, 2008; Jay, 2009; Mehl et al., 2006), negative correlations were expected between taboo fluency and the BFI personality traits agreeableness and conscientiousness, and positive correlations were expected with extraversion and neuroticism. We also tested for relationships between religiosity, offendedness and taboo fluency.

Verbal fluency tends to be higher for women (Loonstra et al., 2001). Public taboo word use is more common for men than women, although men and women have taboo lexica of comparable sizes (Jay and Jay, 2013). Thus it was anticipated that, across studies, women would generate more words to the FAS prompts, but, based on the finding about lexicon size, there would be no sex difference in taboo fluency. With respect to the specific taboo words generated, observational recordings of swearing in public (Jay, 1992; Jay and Jay, 2013) have demonstrated that the most commonly-recorded words are largely the same (in terms of rank) between men and women. Therefore, it was expected that men and women would generate similar sets of taboo words in the fluency tasks. Overall sex effects in generation were measured in Studies 1–3 and the content of taboo generation was more closely evaluated by sex in Study 3.

1. Study 1

Study 1 examined fluency as a function of prompt (FAS, animal, taboo) and sex. The POV hypothesis predicted negative correlations between taboo fluency and the other fluency measures while the fluency-is-fluency hypothesis predicted positive correlations between all fluency measures. Sex differences were expected in overall verbal fluency (generation scores for women were expected to be higher) but not taboo fluency. Lag time (prompt-generation latency) was also measured; it was predicted that taboo lag time would be greater than that to the "animal" prompt. The set of taboo words generated was also evaluated according to its constituent subcategories.

2. Method

2.1. Participants

A total of 43 participants (30 women) were recruited from introductory psychology courses at a small liberal arts college and compensated with research participation credit. Their ages ranged from 18 to 22 years (M = 19.2 years). Half of the participants were tested by a male experimenter and half by a female experimenter. Participation was in accordance with the ethical principles of the American Psychological Association (2002).

2.2. Procedure

The experimenter provided initial instructions in person. During the consent process, participants were informed that they would be asked to give examples within language categories and that some of these categories could include offensive language. During data collection, all instructions were given via audio recordings while the experimenter was out of the room to eliminate potential experimenter effects and to minimize participants' self-censoring taboo words. Participants were tested individually and were instructed to recite words into an audio recorder. First, participants were administered the COWAT, which consisted of the generation of words in three letter categories (F, A, S). That is, in response to an auditory letter prompt, participants were told to say, out loud, as many words as they could, as quickly as possible, without using proper names or repeating the same word with a different ending (*e.g.*, *fast* and *fasting*). After 1 min of speaking, participants were told to stop and were given the next two letter prompts in the same manner. Following the COWAT, participants were given the animal prompt (*name as many animals as possible*) and the taboo prompt (*say as many "curse words or swear words" as possible*) in counterbalanced order. Both the animal task and the taboo task lasted for 1 min. The test took approximately 10 min to complete.

3. Results and discussion

Output for the three FAS categories was combined into a mean score for each participant (referred to here as FAS). A 2 (sex) x 3 (prompt) mixed ANOVA was conducted on fluency scores. Only a significant main effect of prompt was obtained (F (2, 69) = 115.21, $p < .001$, MSE = 14.81, $\eta_p^2 = .74$; Greenhouse-Geisser correction for sphericity). Post hoc paired-samples t-tests (all post hoc tests in this paper employed a Bonferroni correction) showed that all fluency scores were significantly different from each other. That is, more animal words (M = 21.61, SD = 5.39) were generated than FAS words (M = 13.51, SD = 3.26; t

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[42] = −9.91, $p < .001$) and taboo words ($M = 9.30$, $SD = 3.80$; t [42] = 14.62, $p < .001$), and more FAS words were generated than were taboo words (t [42] = 7.42, $p < .001$; see Fig. 1). A paired-samples t-test showed significantly longer lag times for taboo words ($M = 4.64$s, $SD = 0.98$) than for animal words ($M = 4.25$s, $SD = 0.86$; t [42] = −2.34, $p < .05$). The magnitude of FAS output in Study 1 can be benchmarked by multiplying our FAS means by 3 which produces a COWAT score ($M = 41$) that is comparable to the Loonstra et al. (2001) metanorms ($Ms = 41–43$).

While there were overall differences in the number of words generated by prompt, all fluency measures here were significantly positively correlated with each other as evaluated with Pearson correlations (FAS-animal r [41] = .31, $p < .05$; FAS-taboo r [41] = .45, $p < .01$; animal-taboo r [41] = .32, $p < .05$). For the POV account of swearing to be supported we would have to find a negative correlation between the other fluency measures and taboo word fluency; this was not the case.

Across all participants, 400 taboo words were generated representing 79 different taboo word types, and 47 of these had a frequency of only 1 or 2. Any intelligible American English taboo terms were considered words (*e.g., asspirate, cockass,* and *pissant*). A few taboo words accounted for most of the data; the 10 most frequent word types (totals in parentheses), which represented 60% of the data, were: *fuck* (42), *shit* (37), *bitch* (33), *cunt* (31), *ass* (18), *asshole* (18), *damn* (18), *bastard* (17), *motherfucker* (17), and *hell* (10). With the exception of the above female-sex-related terms, most slurs occurred at a lower rate than taboo expressives or general pejoratives, for example, *whore* (9), *slut* (8), *faggot* (8), *nigger* (5), *dyke* (2), *retard* (2), *spook* (1), *homo* (1) and *kike* (1).

To test if participants were generating taboo words consistently with what has been recorded in spoken frequency, we correlated the taboo words generated in Study 1 with Jay and Jay (2013) spoken frequency data. The correlation (r [31] = .69, $p < .001$) was highly significant, indicating a strong positive relationship between taboo words generated in the fluency task and those spoken in public.

4. Study 2

In Study 1, lag times were longer to the taboo prompt than the animal prompt, leaving us with a question about whether the difference was due to lexical access and retrieval or a general reluctance to say taboo words in the laboratory setting. Thus Study 2 was designed to examine verbal fluency with a written format. If participants were reluctant to say taboo words in the laboratory, the written format should impose fewer demand characteristics, allowing more taboo words to be generated. The written format is cognitively different than the spoken format in other ways. Writing taboo words is somewhat atypical, as swearing is primarily a spoken, not written, practice. In addition the COWAT procedure is somewhat demanding of working memory because the speaker has to keep track of what has been spoken in order to avoid repetition. The written format alleviates the demand on working memory by providing a visible record. Besides the differences in generation based on reducing working memory demands or demand characteristics, the overall findings of Study 2 were expected to be similar to those of Study 1.

5. Method

5.1. Participants

A total of 49 participants (34 women) were recruited from introductory psychology courses at a small liberal arts college and compensated with research participation credit. Their ages ranged from 18 to 22 years ($M = 19.3$ years). Participation was in accordance with the ethical principles of the American Psychological Association (2002).

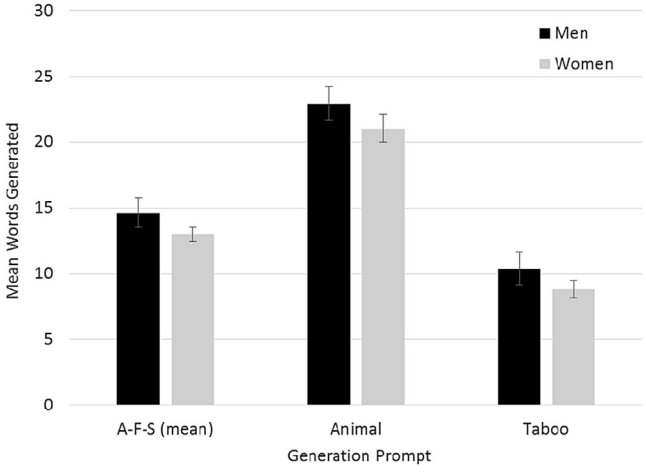

Fig. 1. Means and standard errors for generation by prompt and sex in Study 1 (spoken generation). Generation rates differed significantly between prompts; sex was not associated with differences in generation rate.

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5.2. Materials and procedure

The procedure was similar to Study 1, with changes as needed in order to present instructions and record responses in written format. Participants were tested in two groups and were given booklets with a separate page for each prompt (each FAS letter, animal names, taboo words). The prompt was written at the top of the page (*Write as many words as you can on this page that begin with the letter A, Write down as many CURSE WORDS or SWEAR WORDS as you can on this page, Write down as many ANIMALS as you can on this page*). Participants were instructed to generate words according to the instruction at the top of the page until they were told to stop, at which point they were to turn the page and generate words to the next prompt, and so on. As in Study 1, the order of animal and taboo categories was counterbalanced across booklets. Since it takes longer to write words than it does say them, participants were given 2 min to generate words as opposed to 1 min in Study 1. The testing took approximately 30 min.

6. Results and discussion

Output for FAS categories was combined into a mean score for each participant (FAS). As in Study 1, a 2 (sex) x 3 (prompt) mixed ANOVA was conducted on fluency scores. This test showed a significant main effect of prompt (F (2, 94) = 183.33, $p < .001$, $MSE = 11.23$, $\eta_p^2 = .80$) as well as a prompt-by-sex interaction ($F(2, 94) = 5.48$, $p < .01$, $MSE = 11.23$, $\eta_p^2 = .10$). Post-hoc paired-samples t-tests to evaluate the main effect again showed that fluency scores from all categories were significantly different from each other: animal scores ($M = 25.61$, $SD = 4.55$) were higher than FAS scores ($M = 19.76$, $SD = 4.05$; t [48] = −9.25, $p < .001$) and taboo scores ($M = 10.90$, $SD = 4.14$; t [48] = 19.24, $p < .001$) and FAS scores were higher than taboo scores (t [48] = 12.36, $p < .001$). Post hoc independent-samples t-tests comparing performance by sex in the different conditions showed a sex effect that approached significance in the animal condition ($p = .05$; see Fig. 2). No other sex comparisons were significant.

As in Study 1, the relationships between FAS fluency, animal fluency, and taboo fluency were investigated using Pearson correlations. Here, only FAS and animal fluency scores were significantly positively correlated (r [47] = .47, $p < .001$), although the animal-taboo and FAS-taboo correlations approached significance in the same direction (both $p < .10$). It is possible that these correlations reflect differences in spoken versus written procedures.

Studies 1 and 2 produced the same pattern of output for animal words and taboo words (many more animal words) even though participants had more time to write than to speak. The relative differences between animal and taboo fluency appeared in both written and oral formats, suggesting that low taboo generation in Study 1 was not a function of reluctance to say the taboo words out loud; instead, this may reflect something more basic about the composition of the taboo category.

Participants generated a total of 533 taboo words representing 95 different taboo word types; 65 types had a frequency of only 1 or 2. Any intelligible American English taboo terms were considered words (*e.g., taint, fornicate,* and *cum dumpster*). The top 10 taboo words (totals in parentheses) accounted for 55% of the data: *fuck* (48), *shit* (46), *cunt* (42), *bitch* (41), *asshole* (33), *whore* (21), *slut* (19), *motherfucker* (15), *bastard* (15), and *damn* (14). Female-sex-related slurs were generated relatively often while other slurs were generated at relatively low rates: *faggot* (13*), retard* (4), *gay* (3), *nigger* (1), *dyke* (1), *idiot* (1), and *moron* (1). Also, as in Study 1, the correlation between these taboo fluency data and spoken taboo word frequency data from Jay and Jay (2013) was strong and positive (r [36] = 0.50, $p = .001$).

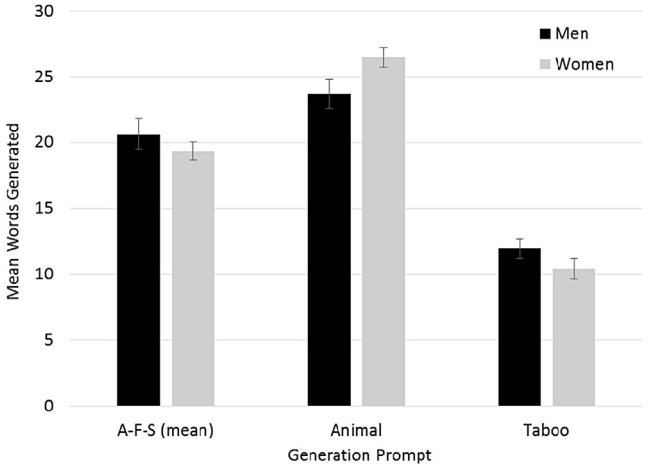

Fig. 2. Means and standard errors for generation by prompt and sex in Study 2 (written generation). Generation rates differed significantly between prompts; generation to only the animal prompt was marginally dependent on sex ($p = .05$).

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7. Study 3

The goal of Study 3 was to replicate the fluency results of the first two studies and to expand our understanding of taboo fluency by assessing personality correlates usually associated with taboo word use. Consistent with the dimensions associated with swearing frequency, we expected to find negative correlations between taboo fluency and agreeableness and conscientiousness but positive correlations with extraversion and neuroticism from the BFI (John et al., 2008). We also expected a positive correlation with taboo fluency and self-reported swearing frequency, and negative correlations with religiosity and offendedness-to-taboo-words. Finally, taboo generation content was compared by sex. Based on a high degree of similarity between taboo spoken frequency and lexical content across the sexes, the most frequently generated taboo words were expected to be similar for men and women.

8. Method

8.1. Participants

Participants were 126 college students aged 18–38 years (86 women, $M = 19.3$ years) enrolled in an introductory psychology course at a small liberal arts college. Students fulfilled a research participation requirement by participating. Participation was in accordance with the ethical principles of the American Psychological Association (2002).

8.2. Materials and procedure

The procedure was the same as in Study 2 with the addition of measures that obtained personality-related information administered after the fluency tasks. Participants were asked to respond on 7-point Likert scales to the questions: *How religious are you? How often do you say swear words? Relative to people your age, how often do you swear?* and *How offended are you by others' use of swear words?* Participants were then administered the 44-item BFI (John et al., 2008) which assesses the personality traits openness, conscientiousness, extraversion, agreeableness, and neuroticism. Participants were tested in four large groups by a male experimenter. The testing took approximately 30 min.

9. Results and discussion

Output for FAS categories was combined into a mean score for each participant (FAS). A 3 (prompt) x 2 (sex) mixed ANOVA was conducted on fluency scores. This test yielded only a main effect for prompt, of the same nature as that in the other two studies ($F\,[2, 216] = 309.70$, $p < .001$, $MSE = 16.11$, $\eta_p^2 = .72$); that is, post hoc paired-samples t-tests showed that participants generated more animal words ($M = 24.08$, $SD = 6.48$) than FAS words ($M = 18.40$, $SD = 4.41$; $t\,[125] = -11.89$, $p < .001$) and taboo words ($M = 11.07$, $SD = 4.00$; $t\,[125] = 23.76$, $p < .001$) and more FAS words than taboo words ($t\,[125] = 18.84$, $p < .001$; see Fig. 3).

As in Study 1, Pearson correlations of fluency scores between all of the conditions were significant and positive supporting the fluency-is-fluency assumption (FAS-animal $r\,[124] = .57$, $p < .001$; FAS-taboo $r\,[124] = 0.47$, $p < .001$; animal-taboo $r\,[124] = .39$, $p < .001$).

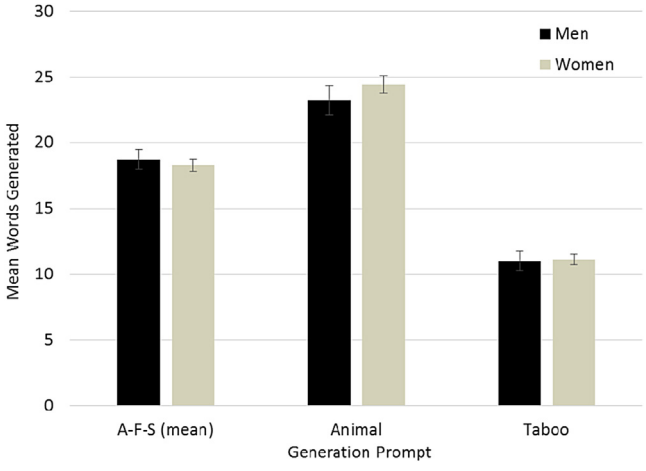

Fig. 3. Means and standard errors for generation by prompt and sex in Study 3. Generation rates differed significantly between prompts; sex was not associated with differences in generation rate.

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The demographic questions and personality questionnaires revealed five significant relationships with taboo word fluency. First, taboo fluency was positively correlated with scores on the item *Relative to people your age, how often do you swear?* (in which higher scores indicate greater swearing relative to peers; r [124] = .20, $p < .05$). However, no relationships were obtained between taboo fluency and religiosity, offendedness-to-swearing, or the question *How often do you swear?* Consistent with existing research (Mehl et al., 2006) taboo fluency was negatively correlated with BFI dimensions of agreeableness (r [124] = −.24, $p < .01$), and conscientiousness (r [124] = −.21, $p < .05$). Taboo fluency was positively correlated with BFI dimensions of neuroticism (r [124] = .28, $p < .001$), as in Fast and Funder (2008), and openness (r [124] = .83, $p < .05$), which was unexpected.

Participants generated a total of 1396 taboo words representing 168 types of taboo words; 114 of these types had a frequency of only 1 or 2. Any intelligible American English taboo terms were considered words (*e.g., crackhead, douche, shitbag*, and *clit*). The top 10 taboo word types represented 57% of the taboo word data (totals in parentheses): *fuck* (124), *shit* (117), *bitch* (108), *cunt* (97), *asshole* (76), *ass* (73), *damn* (56), *motherfucker* (54), *slut* (51), and *whore* (46). When generation patterns were compared by sex, it was found that the top 8 taboo words were the same words for both men and women (note that this analysis was not performed in Studies 1 and 2 due to low numbers of men in those samples). Both men and women generated female-sex-related slurs (*bitch, cunt, slut*, *whore*) at similar high rates. Other slurs were generated less frequently: *faggot* (30), *dyke* (9), *gay* (5), *nigger* (5), *retard* (5), and *idiot* (2). As in Studies 1 and 2, the correlation between these taboo fluency data and spoken taboo word frequency (from Jay and Jay, 2013) was significant and positive (r [37] = .63, $p < 001$).

10. General discussion

The overall finding of this set of studies, that taboo fluency is positively correlated with other measures of verbal fluency, undermines the POV view of swearing. That is, a voluminous taboo lexicon may better be considered an indicator of healthy verbal abilities rather than a cover for their deficiencies. Speakers who use taboo words understand their general expressive content as well as nuanced distinctions that must be drawn to use slurs appropriately. The ability to make nuanced distinctions indicates the presence of more rather than less linguistic knowledge as implied by the POV view.

Participants consistently reported more animal words than taboo words, which may be due to animals forming a more cohesive and readily-accessible category than taboo words. That is, if the quality that unites taboo words as a category has a connotative, generally expressive, rather than denotative or descriptive basis, participants may not have retrieval strategies for taboo words based on their semantic meanings. Animal words, in contrast, may be retrieved using a strategy in which denotative subcategories (*e.g.,* farm animals, wild animals, zoo animals, birds, *etc.*) are systematically accessed. It is also possible that the relatively low taboo output reflects reluctance on behalf of the participants to generate taboo words. Taboo lag time was indeed longer in Study 1 than was lag time for animal words. However, the change to written format in Studies 2 and 3, including the additional minute to respond to each prompt, had no perceptible effect on taboo fluency. Thus we suggest the findings as a whole reflect the structure of the taboo category, which contains a small core of high-frequency words and many peripheral words. For example, in Study 3, while participants as a group produced 168 taboo word types, 60% of the data came from only 10 taboo words. This pattern holds for Studies 1 and 2 as well. This is similar to findings of spoken frequency which show 10 taboo words accounting for approximately 80% of the data (Jay, 1992; Jay and Jay, 2013).

Given the distinction between expressives, general pejoratives and slurs in Croom's work (2011, 2013, 2014a, 2014b), it seems reasonable that expressives and general pejoratives form the core of the category of taboo words and that slurs are less central to the category. That is, central taboo words might represent pure expression, commonly associated with heightened emotional arousal, and/or words in which connotative meaning most salient. Then, as one moves from the central core of the category, one finds words that track the descriptive properties of the target. Consistent with this interpretation, across the three studies, taboo expressives *fuck* and *shit* were consistently first and second in terms of frequency, and they were also generated early. Early generation of the most typical (*i.e.*, central to the category) exemplars is a common finding in tasks in which people are asked to generate examples of category members (Van Overschelde, Rawson & Dunlosky, 2004). Likewise *asshole, damn*, and *motherfucker* appeared frequently and would also represent the expressive/general pejorative core of the category. Slurs such as *dyke* and *faggot* were generated at lower rates.

In this manner the patterns of generation obtained here support an interpretation of the structure of the taboo word category based on relative contributions of connotative versus denotative meaning with the notable exception of female-sex-related slurs, which were generated at consistently high rates. For example, *cunt* and *bitch* were consistently third or fourth in generation and *whore* and *slut* also appeared in the top 10 in two of the three studies. It is possible that female-sex-related terms are generated more frequently because they are used today less restrictively as expressives. For example, *bitch* has been transitioning in its use from the 1980s when it was used mainly as a sexist slur; now *bitch* is used more widely as a more general pejorative (as in *make you my bitch*, Jay, 1992, 2000). Women historically have been treated as second-class citizens in terms of income and political power and feminine characteristics have been used as insults for men, for example, when men tell boys that they are acting like "little girls" or "old ladies" (see Plummer, 2001).

Based on generation content it appears that sex (*fuck*), scatology (*shit*), and pejorative names (*motherfucker, bastard, slut*) constitute categories from which taboo words are generated (see Jay, 2000 for more about semantic domains typically associated with taboo words), but category may be a dimension of limited utility with which to understand taboo expressives and general pejoratives.

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In addition to reflecting the underlying structure of the category of taboo words, another explanation for the present pattern of results concerns the nature of the instructions. In these studies participants were asked to generate curse words or swear words. It is possible that these instructions biased participants to generate taboo expressives and general pejoratives, while instructions to generate insults, slurs, or offensive names would yield higher output of those terms. Differences in prompts should be explored in future research to better understand the structure of the category of taboo words. Also, fundamentally, this procedure involves ambiguity about what each taboo word means to each participant (*e.g.*, is *cunt* a gender-related slur or a body part?). In general taboo words are context sensitive and can be offensive or not depending on speaker–listener relationship and other pragmatic variables (Jay and Janschewitz, 2008). Similarly, recent research by Galinsky and colleagues (2013) demonstrated that self-labeling with slurs can weaken the slur's stigmatizing force, further supporting the indeterminacy of any particular taboo word's expressive force.

Contrary to existing findings, we did not obtain sex differences in COWAT fluency. A potential explanation for this lack of difference, as well as a general limitation of these studies, is the use of college students as participants. Also, college students, by definition, have good verbal skills and may be atypical of older or less educated speakers. However, our spoken COWAT norms were consistent with established fluency norms for educated adults (Loonstra et al., 2001), indicating that our samples were typical of that group. Our written COWAT norms were slightly higher presumably because participants were given an additional minute in that format. The prediction of no sex difference in taboo generation, based on data about taboo lexicon size for men and women (Jay and Jay, 2013), was supported in all three studies. The semantic content of men's and women's taboo word categories in the fluency tasks was very similar: *fuck, shit, cunt*, and *bitch* were most frequently generated by both men and women across studies. Similarly, observational data (Jay, 1992; Jay and Jay, 2013) show that 8 of the 10 most frequently spoken taboo words are the same for men and women, differing only slightly in rank.

For the most part, the present findings agreed with existing research showing links between taboo word use and personality. We found taboo fluency was negatively correlated with agreeableness and conscientiousness, and positively correlated with neuroticism—these all correspond to what would be expected given taboo spoken frequency data. As we think about taboo words, we must keep in mind a variety of psychological, social, and biological variables (Jay, 1992, 2000, 2009; Jay and Jay 2013)—these may apply differently depending on what aspect of taboo language is under consideration. For example, here we found a relationship between openness and taboo fluency. Openness predicts COWAT fluency (Sutin et al., 2011), so may be associated with overall verbal fluency (of which we would argue taboo fluency is a part), but is not associated with swearing in public. On the other hand, no relationship was found between religiosity and taboo fluency, although this variable has been associated with spoken frequency estimates (Janschewitz, 2008). The difference between fluency and frequency is worthy of future exploration; fluency measures speakers' taboo lexica, but frequency counts depend also on pragmatic knowledge (swearing "etiquette;" Jay and Janschewitz, 2008) and cognitive control. Generally, variables associated with knowledge at the lexical level versus those associated with use need to be better defined.

Language researchers are clearly making an effort to decompose taboo words into subcategories. One approach is to consider the manner in which taboo words' meaning varies from strongly connotative, as with expressives and general pejoratives, to involving a mix of denotative and connotative meaning, as with slurs. We suggest that the data presented here may reflect such a distinction, with implications for ease-of-access of retrieval and frequency as an aspect of word representation. However, these conclusions are tentative, and more work combining theoretical and empirical perspectives will be necessary to understand the category of taboo words, if indeed it should be considered one thing. Contributions of the many variables associated with taboo word use can then be more systematically studied.

Even given the limitations in our present understanding, though, the findings of the studies here suggest that it *is* possible to use our tools as researchers to help dispel commonly-held but inaccurate ideas about taboo language. While taboo words can obviously be offensive and can be associated with negative states, it would be a mistake to overgeneralize these negatively-toned phenomena to taint all uses of swear words, or ascribe undesirable traits to those who use them. Fluency is fluency, people who swear aren't necessarily otherwise inarticulate, and, arguably, a good taboo lexicon may be considered a complement to the lexicon as whole, ideally a mechanism for emotional expression of all sorts: anger, frustration, and derogation, but also surprise and elation.

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