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Syntactic Constraints in the Selection of Homophone Orthography

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Abstract

This experiment investigated syntactic constraints on the selection of orthography using homophones embedded in sentence contexts. Participants typed auditorily-presented sentences that included a contextually-appropriate homophone that either shared part of speech with its homophone partner or had a different part of speech. Each homophone was preceded by an unrelated word or a prime, where primes were orthographically related to the partner and shared or differed from the partner's part of speech. When homophones shared part of speech, more errors occurred overall, and priming increased errors independent of the prime's part of speech. When homophones did not share part of speech, priming occurred only following primes that shared part of speech with the partner. These results parallel findings with respect to syntactic constraints on spoken production and demonstrate that part of speech is critical for determining when orthographic errors are more or less likely to occur.

Syntactic Constraints in the Selection of Homophone Orthography

Substantial research has demonstrated the importance of syntactic information in constructing spoken discourse (e.g., Bock, 1986; see Pickering & Ferreira, 2008). For example, syntactic priming research shows that people tend to repeat phrases with specific syntactic structures that they have recently produced (for a review, see Pickering & Ferreira, 2008), suggesting that syntactic information influences lexical selection when the to-be-retrieved words are produced in contexts where syntax is meaningful, such as phrases. However, recent research has shown that a word's grammatical class, i.e., part of speech, can also influence lexical selection in single-word production tasks (Abrams & Rodriguez, 2005; Abrams, Trunk, & Merrill, 2007; Melinger & Koenig, 2007). Finding that part of speech can discriminate between candidates for lexical selection when only a single word is produced is intriguing because it suggests that syntax not only influences sentence structure (e.g., noun-verb-object), but also constrains access to a word's phonology. Research has yet to address whether syntax has parallel influences on the selection of a word's orthography. It is debatable whether speech and writing share or do not share syntactic representations (e.g., Bonin, Fayol, & Gombert, 1998; Caramazza & Hillis, 1991; Cleland & Pickering, 2006; Rapp & Caramazza, 1997; 2002). However, if syntax is accessed in the same way for spoken and written production (e.g., Cleland & Pickering, 2006), then syntactic priming, defined here as priming from part-of-speech, on lexical selection should be observable during written language production. The present study investigated syntactic influences on the selection of homophones' orthography in the context of writing sentences.

Within the domain of spoken language, several production paradigms have provided evidence for the importance of part of speech on lexical selection, including speech errors, word naming, and tip-of-the-tongue (TOT) states. Research using both naturally-occurring and

experimentally-induced speech errors has shown that spoken errors are much more common when the words share part of speech (e.g., nouns are more likely to swap with nouns than with verbs; Dell, Burger, & Svec, 1997; Fromkin, 1971; Garrett, 1975; Harley & MacAndrew, 2001). This effect of *syntactic constraint* is evidence that lexical selection is guided at least in part by the syntactic category of the intended word. When planning to articulate a noun phrase, for example, a word must be chosen to fill the noun slot. Activation will be sent from the noun slot to all nouns in the lexicon, increasing the likelihood that a noun (and not a verb, adjective, etc.) will be produced in the appropriate place. Melinger and Koenig (2007) demonstrated this syntactic constraint experimentally, using syntactically ambiguous words to investigate how part of speech influences lexical selection in a single-word pronunciation task. Participants named homograph target words (e.g., *record*) containing two parts of speech that each had a unique pronunciation. Targets were preceded by a syntactically unambiguous prime word with one strong part of speech (e.g., noun prime such as *thorn* or verb prime such as *send*). They found that people's pronunciation of the target words depended on the prime's part of speech, with more noun pronunciations following noun primes and more verb pronunciations following verb primes. The residual activation from the prime word increased the probability of selecting a pronunciation that corresponded to the prime's part of speech, demonstrating that lexical selection of single words can be influenced by syntactic information.

In all of the above studies, the syntactic constraint effect demonstrates that part of speech is selected early in language production, but does not necessarily disentangle how grammatical class interacts with other linguistic factors (e.g., phonology, orthography) during construction of an utterance. Two studies (Abrams & Rodriguez, 2005; Abrams et al., 2007) used tip-of-the-tongue (TOT) states to examine whether part-of-speech interacts with phonological features in

influencing TOT resolution. In these studies, general-knowledge questions were presented to induce TOT states for specific target words, e.g., *rosary*, after which participants read a list of words and made some judgment on each word, e.g., its pronunciation difficulty. One word in the list was either a phonological prime that shared part of speech (e.g., *robot*) or did not share part of speech (e.g., *robust*) with the target. The results showed that part of speech played a significant role in determining the impact of phonologically-related words on resolution of TOT states. Relative to an unrelated word, different part-of-speech primes, but not same part-of-speech primes, increased TOT resolution. These findings suggest that in conjunction with phonological features, syntactic features such as part of speech constrain the influence that activation from phonologically-related words can have in resolving TOT states.

The goal of the present research was to explore whether grammatical class exerts a parallel role in the selection of a word's orthography, i.e., when producing homophones in writing. We investigated written homophone errors (e.g., writing *beach* in place of *beech*) and used the context of a sentence to constrain the correct spelling to one particular part of speech. Previous research on factors that influence homophone errors has shown that homophone errors can be increased by orthographic priming, i.e., if the contextually-appropriate homophone (*beech*) is preceded by a prime (e.g., *teacher*) that overlaps in orthography with the contextually-inappropriate homophone (*beach*) (White, Abrams, Zoller, & Gibson, 2008). However, this research did not control for either the homophones' or the prime's part of speech.

Using written homophone errors to investigate the role that grammatical class plays in lexical selection offers a unique advantage over paradigms that have traditionally been used to investigate spoken errors. Homophones consist of two words that have identical phonology but are differentiated by their orthography. With respect to grammatical class, homophone pairs such

as *real* and *reel* are syntactically ambiguous because they have multiple parts of speech (*real* is an adjective and *reel* is a verb). In contrast, syntactically unambiguous homophone pairs like *route* and *root* share one specific part of speech (e.g., both are nouns). Previous research has used spoken words that are syntactically ambiguous (e.g., pronunciation of *record* depends on whether the noun or verb is selected; Ferreira & Humphreys, 2001; Melinger & Koenig, 2007), but there is no spoken analog of syntactically unambiguous homophones. The ambiguity of homophone pairs' part of speech is critical for predicting the relevance of the syntactic constraint effect when writing homophones in sentences. When homophones are syntactically unambiguous, the sentence context will activate a single (e.g., noun) slot, sending activation to both homophones within a pair, which should increase the probability of producing an error. Specifically, the contextually-inappropriate homophone is especially likely to be produced when it is the dominant (i.e., higher-frequency) homophone (see White et al., 2008). In contrast, when homophones are syntactically ambiguous, sentence context will constrain production to one part of speech, sending activation to words that can fill that slot. Since only the contextually-appropriate homophone has the relevant part of speech, producing the error (i.e., dominant homophone) should be less likely.

Melinger and Koenig (2007) proposed that lexical selection of a phonological form can be influenced by syntax if syntax is “relevant” for selection. When speaking, syntax would be relevant for single-word production when a word’s pronunciation depends on its part of speech because a speaker must determine the word’s part of speech in order to produce the word. Support for this view comes from multiple studies finding effects of syntax when words are presented in context but not in isolation (e.g., Pechmann & Zerbst, 2002; Schriefers, 1993). If the selection of orthographic forms and the selection of phonological forms are similarly dependent

on syntax (Melinger & Koenig, 2007), we would expect a prime's part of speech to influence homophone spelling when homophones are syntactically ambiguous, i.e., have multiple parts of speech. For written production, when homophones are syntactically ambiguous, syntax becomes relevant because the spelling produced will differ depending on which part of speech is selected. Therefore, a prime that is the same part of speech as the contextually-inappropriate homophone will activate the wrong homophone, resulting in more spellings consistent with the prime's part of speech even if that selection is inappropriate for a sentence context.

In contrast, syntactically unambiguous homophones should not be influenced by a prime's part of speech because part of speech is no longer relevant to the task. That is, since both homophones share part of speech, syntax would no longer be necessary to discriminate which homophone should be produced, making selection of the to-be-produced homophone's orthographic form independent of selection of its part of speech. Although more errors are expected following orthographic primes that share part of speech with the contextually-inappropriate homophone relative to unrelated words (as in White et al., 2008), the grammatical class of the primes should be irrelevant. In other words, orthographic primes should not lead to more priming than primes that do not share part of speech with the contextually-appropriate homophone.

Method

Participants

Seventy-two undergraduate psychology students from the College of Charleston participated in this experiment. Participants ranged in age from 18 to 26 years ($M = 19.06$, $SD = 1.12$) and education level from 12 to 16 years ($M = 13.34$, $SD = 0.83$). The sample consisted of 45 females and 27 males, and participants were given partial course credit for their participation.

All participants expressed their comfort using a computer keyboard and had good typing skills. Two participants were excluded from data analyses because they did not report English as their first language.

Materials

Sentence-typing task. Eighty total homophones (40 homophone pairs) were chosen, and each homophone was categorized as either dominant or subordinate within its pair, based on normative estimates (White & Abrams, 2004). In order to ensure consistency between dominance and frequency measures, homophone pairs were chosen with the criteria that the dominant homophone must have at least twice the frequency as the subordinate homophone, using the frequency norms developed by Zeno, Ivens, Millard, and Duvvuri (1995).

Sentences were constructed so that the subordinate homophone (target) was contextually appropriate, as previous research revealed extremely low error rates when dominant homophones were contextually appropriate (White et al., 2008). Target homophones had a mean frequency of 18.99 ($SD = 48.16$) (Zeno et al., 1995) and a mean word length of 4.45 letters ($SD = 0.93$). Error homophones had a mean frequency of 335.90 ($SD = 617.82$) and a mean word length of 4.45 letters ($SD = 1.098$). Twenty of the homophone pairs shared part of speech (e.g., *root* and *route* are both nouns), and 20 of the pairs differed in part of speech (i.e., *reel* is a verb and *real* is an adjective).¹ For homophone pairs that shared part of speech, 18 pairs were nouns and two pairs were verbs. For homophone pairs that differed in part of speech, eight targets were nouns, 10 targets were verbs, and two targets were adjectives.

Each sentence was written so that an orthographic prime or an unrelated control word preceded the target homophone by four to eight words ($M = 5.0$, $SD = 1.5$). Primes overlapped in both orthography and phonology (e.g., *ideal* and *real*) with the contextually-inappropriate (or

dominant) homophone.² The number of overlapping letters between primes and contextually-inappropriate homophones was similar for shared part-of-speech homophones ($M = 3.10$, $SD = 0.67$) and different part-of-speech homophones ($M = 3.05$; $SD = 0.64$). Control words (e.g., perfect) did not overlap in phonology or orthography with the target but were contextually appropriate for the sentence. Primes had a mean frequency (Zeno et al., 1995) of 95.78 ($SD = 258.63$) and a mean word length of 5.48 letters ($SD = 1.68$). Control words had a mean frequency of 178.20 ($SD = 364.09$) and a mean word length of 5.53 letters ($SD = 1.08$).

Two sentences were created for each prime and control word. Half of the sentences were written so that the prime (or control) word shared part of speech with the dominant homophone (e.g., *ideal* and *real* are both adjectives). The other half of the sentences were written so that the prime (or control) word did not share part of speech with the dominant or the subordinate homophone (e.g., *appeal* is a noun). Thus, when homophones differed in part of speech, the prime did not match either homophone's part of speech. Example homophone pairs, primes and controls, and sentences are presented in Table 1.

Four versions of the sentence-typing task were created by counterbalancing across participants whether sentences contained the prime or control and whether the prime/control matched or did not match the error homophone in part of speech. Each version contained 40 sentences, 10 sentences in each of the four conditions, and was equally divided between homophone pairs sharing or not sharing part of speech.

Sentences were audiotaped by a female experimenter and were presented to participants through headphones via a computer program written in Visual Basic 5.0.

Homophone recognition test. A homophone recognition test was created in order to assess participants' knowledge of the spelling and meaning of individual homophones. For each of the

80 homophones, a sentence was constructed (different from the sentences in the typing task) so that it could only be completed with the contextually-appropriate homophone. Sentences were presented visually with a blank space in the place of each homophone. Both homophones in each pair followed the sentence and so that participants could choose the correct homophone, by circling the one that is contextually appropriate. Counterbalancing of the homophone order and of the contextually-appropriate homophone resulted in four versions of the recognition test.

Design

This experiment utilized a 2 (prime condition) x 2 (prime part of speech) within-participants factorial design. Prime condition represented sentences containing either an orthographically-related prime or unrelated control. Prime part of speech reflected the relationship between the prime/control and the error homophone's part of speech, where they were either the same or different in part of speech. An additional within-participants variable (although not included in the overall design because it varied between items) was homophone part of speech, which was defined by whether the subordinate homophone (i.e., target) did or did not share part of the speech with its dominant partner homophone (i.e., the error). The dependent variable was the percentage of homophone errors made, i.e., when the contextually-inappropriate, dominant homophone was typed.

Procedure

Participants were given the sentence-typing task first, where they listened to sentences presented one at a time in random order and were asked to type each sentence word-for-word. They were instructed to begin typing as soon as the sentence began playing. Participants could replay each sentence once if desired. Participants were given unlimited time to type each

sentence and were instructed to use the backspace to make any corrections. Following the completion of the sentence-typing task, participants were given the homophone recognition test.

Results

The homophone recognition test was used to determine any homophones with which participants were unfamiliar or of which they did not know the correct spelling. Homophone pairs that were not correctly discriminated between on the recognition test by each participant were excluded from analyses ($M = 0.43$ homophone pairs per participant). Other exclusions included targets misheard as a different word or that were not produced (3.4%), targets whose primes were misheard as a different word or not produced (0.4%), and targets whose primes were misspelled in the area that overlapped orthographically with the error homophone (1.5%).

Because the homophone pairs that shared part of speech were different items from those that differed in part of speech (and were subsequently used in different sentences), direct comparisons of them would not be meaningful. We therefore conducted separate analyses for each target type.

Homophone Pairs that Differed in Part of Speech

The top half of Figure 1 illustrates the percent of homophone errors for syntactically ambiguous homophone pairs (with multiple parts of speech), as a function of the prime's part of speech and the prime condition. A 2 (prime condition: primed, control) x 2 (prime part of speech: shared, different) repeated-measures analysis of variance (ANOVA) was performed on the mean proportion of whole-word homophone errors by participants (F1) and by items (F2)³. A whole-word homophone error was defined as writing the entire contextually-inappropriate homophone in its correct spelling (e.g., writing *real* in place of *reel*). The means and standard errors from this analysis are reported in the left half of Table 2. The ANOVA revealed a main effect of prime

condition, $F_1(1, 69) = 5.79$, $MSE = .04$, $p < .019$; $F_2(1, 18) = 8.68$, $MSE = .01$, $p < .009$, and a main effect of prime part of speech (marginal in the item analysis), $F_1(1, 69) = 4.44$, $MSE = .03$, $p < .039$; $F_2(1, 18) = 3.03$, $MSE = .01$, $p < .099$. These main effects were moderated by a significant Prime Condition x Prime Part of Speech interaction, $F_1(1, 69) = 6.14$, $MSE = .02$, $p < .015$; $F_2(1, 18) = 5.62$, $MSE = .01$, $p < .029$. Planned comparisons showed that more errors occurred following prime than control words, i.e., significant priming, when primes matched the error homophone in part of speech ($p_1 < .004$, $p_2 < .005$), but no priming occurred when primes were a different part of speech from the error homophone ($p_1 > .669$, $p_2 > .686$)

A more liberal analysis was then conducted where in addition to whole-word errors, “partial” errors were also included. The computer program tracked partial errors by recording each key press made while typing. Partial errors were defined as beginning to spell the error but backspacing to correct the spelling before completing the word (e.g., typing *rea* and backspacing to re-write *reel*). Partial errors were identified as typing at least one of the letters (e.g., “a” in *real*) that disambiguated the error homophone from the target homophone, before backspacing. Means and standard errors from this ANOVA are presented in the right half of Table 2. Although adding partial errors to the analysis increased the percentage of errors overall, this ANOVA demonstrated the identical pattern of results as the whole-word error analyses.

Homophone Pairs that Shared Part of Speech

The bottom half of Figure 1 illustrates the percent of homophone errors for syntactically unambiguous homophones (with one part of speech), as a function of the prime’s part of speech and the prime condition. A 2 (prime condition: primed, control) x 2 (prime part of speech: shared, different) repeated-measures ANOVA was conducted on the mean proportion of whole-word homophone errors.⁴ The means and standard errors are reported in the left half of Table 3.

This analysis revealed a main effect of prime condition (marginal in the participant analysis), $F_1(1, 69) = 3.56, MSE = .06, p < .063$; $F_2(1, 18) = 7.71, MSE = .00, p < .012$, where more errors were made following prime words ($M = 29.1\%$) than control words ($M = 23.5\%$). There was no main effect of prime part of speech, $F_1(1, 69) = 1.26, MSE = .06, p > .266$; $F_2 < 1$, nor a Prime Condition x Prime Part of Speech interaction, $F_1 < 1, F_2 < 1$.

Analyzing partial errors in addition to whole-word errors revealed the same pattern of results as the analysis for whole-word errors, with the exception that the main effect of prime condition in the participant analyses became significant, $F_1(1, 69) = 5.67, MSE = .06, p < .02$. Means and standard errors from this analysis are presented in the right half of Table 3.

Comparing Homophone Pairs that Share and Differ in Part of Speech

We compared overall error rates when homophone pairs shared vs. differed in part of speech. Because the two types of homophone pairs consisted of different items, paired-sample t-tests were conducted by participants only. The t-tests on whole-word errors revealed that significantly more errors occurred when homophone pairs shared part of speech ($M = 26.2, SE = 1.4$) than when they differed in part of speech ($M = 16.2, SD = 1.3$), $t(69) = 6.79, p < .001$. A paired-samples t-test on partial errors also revealed more errors when homophone pairs shared part of speech ($M = 28.5, SD = 1.5$) than when they differed in part of speech ($M = 19.1, SD = 1.4$), $t(69) = 5.95, p < .001$.

Discussion

The goal of this study was to determine the role that grammatical class plays in the selection of orthography. Previous research on spoken production has demonstrated that part of speech can constrain selection of semantics (e.g., Dell, Burger, & Svec, 1997; Fromkin, 1971; Garrett, 1975; Harley & MacAndrew, 2001) and phonology (e.g., Abrams & Rodriguez, 2005;

Abrams et al., 2007; Melinger & Koenig, 2007). It was unclear whether similar constraints would apply in the selection of orthography, since speech and writing may or may not share syntactic representations (e.g., Caramazza & Hillis, 1991; Rapp & Caramazza, 1997; 2002). Our results demonstrated that when the task involves selecting a homophone to produce within a sentence context, grammatical class does appear to constrain lexical selection: Independent of priming, more homophone errors occurred when homophone pairs shared part of speech than when they did not. Finding more errors for shared part-of-speech homophones supports the proposal that a part of speech “slot” is activated during sentence production (e.g., Dell, 1986; Stemberger, 1985). When homophone pairs differ in part of speech, activation of one slot will constrain production to the contextually-appropriate homophone, thus decreasing the likelihood that the contextually-inappropriate homophone will be selected. In contrast, homophone pairs that share part of speech will both receive activation, thus increasing the chance of selecting the inappropriate homophone, especially if that homophone is dominant (White et al., 2008). These findings also demonstrate that grammatical class can indirectly influence lexical selection, i.e., through the part of speech of the inappropriate homophone, which is never presented. Although the sentence constrains activation to a particular homophone, the grammatical class of the partner homophone can affect when lexical selection proceeds accurately or when errors in selection might occur.

Our results also suggest that syntactic influences on lexical selection are not solely constrained to activating a particular slot, or production errors for syntactically ambiguous homophones would never occur. The findings of the present experiment show that selection of the inappropriate homophone can be encouraged even when homophones are syntactically ambiguous because of priming from similarly-spelled words. However, it is the part of speech of

the primes, not their orthography, that is most critical when spelling syntactically ambiguous homophones. Only orthographic primes that overlapped in part of speech with the inappropriate homophone increased the likelihood of making a homophone error. Theoretically, these results can be explained by activation spreading from the prime to the error, which leads to competition during homophone selection. That is, the part-of-speech slot for the prime word receives activation when the prime is produced. When a syntactically ambiguous homophone subsequently has to be produced, residual activation from the prime will transmit activation to the inappropriate homophone because it shares part of speech with the prime (while the appropriate homophone does not). However, the context of the sentence is also simultaneously sending activation to the appropriate homophone because it fits the slot for the to-be-produced phrase. Thus, a situation arises where there is competition for selection between the two homophones, similar to findings where shared grammatical gender leads to competition for selection in speech production (e.g., Cubelli, Lotto, Paolieri, Girelli, & Job, 2005). Our data suggest that syntactic priming can sometimes override activation from the appropriate homophone's part-of-speech slot, most likely because of the combination of syntactic and orthographic overlap between the prime and the error, facilitating selection of the error. Furthermore, orthographic overlap appears to play an important role in selection when there is syntactic ambiguity *and* competition for selection in what can be produced. In comparison, when competition is reduced by eliminating syntactic priming, then orthographic priming is insufficient by itself to increase homophone errors.

In contrast to influences on the selection of ambiguous homophones, syntactic priming did not increase errors for syntactically unambiguous homophones, where an orthographic prime was sufficient to influence selection. One explanation for the lack of syntactic priming for

syntactically unambiguous homophones is that part of speech was not relevant in this task due to the homophones sharing part of speech (Melinger & Koenig, 2007). That is, with unambiguous homophones, access to syntax is not necessary to produce the correct spelling. Because both homophones share part of speech, part of speech does not influence which homophone gets selected (and subsequently spelled). Instead, only orthographic competition arises, and errors occur because of residual activation from the prime's orthography.

In conclusion, unlike syntactically ambiguous homophones whose errors are influenced by an orthographically-related prime's part of speech, syntactically unambiguous homophone errors are influenced solely by the prime's orthography. Specifically, syntactic (i.e., part of speech) priming occurs when syntax is relevant for selection, i.e., when the to-be-produced word's part of speech must first be selected in order to produce the contextually-appropriate spelling. The present results extend research on syntactic influences on spoken production (e.g., Abrams & Rodriguez, 2005; Abrams et al., 2007; Melinger & Koenig, 2007) to written production. These results also demonstrate similarities in how syntax is represented between the spoken and written modalities (e.g., Cleland & Pickering, 2006). That is, the syntactic constraints that have been shown to influence spoken production (e.g., Dell, Burger, & Svec, 1997; Fromkin, 1971; Garrett, 1975; Harley & MacAndrew, 2001) also appear to influence both written production of homophones, and a prime's part of speech can constrain selection when relevant to the task (Melinger & Koenig, 2007). Future research on syntactic priming of nouns versus verbs in written production could determine whether certain grammatical categories are more or less vulnerable to syntactic constraints (e.g., Rapp & Caramazza, 2002). As demonstrated here, the homophone error paradigm offers a methodology to compare written language production with spoken production, and it provides an intriguing situation where

people produce an error that is in direct violation of the semantic/syntactic context in which the word is given (e.g., producing the verb spelling when the noun spelling is appropriate).

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Footnotes

1. Subordinate homophones were allowed to have more than one part of speech because the intended part of speech was indicated by the sentence context. However, because the dominant (error) homophone was never presented, we attempted to find homophone pairs where the dominant homophone had only one possible part of speech. Because of the difficulty in finding syntactically unambiguous homophones, some of the dominant homophones had more than one part of speech. In these cases, the part of speech that was chosen for the error was at least 15 times more common than the alternative part of speech (see Mahon, Costa, & Peterson, 2007, for similar methodology). Furthermore, the less frequent part of speech occurred only one or two times per million (Kucera & Francis, 1967).
2. Because of difficulty in finding prime words that fit the other design constraints of the study, three prime words did not overlap in phonology with the error homophone; however, White et al. (2008) found that orthographic overlap, but not phonological overlap, between primes and errors was sufficient to increase errors.
3. One homophone, *poll*, was excluded from analyses with different part-of-speech homophone pairs because it was misheard as *pull* by the majority (69%) of participants.
4. One homophone, *shone*, was excluded from analyses with shared part-of-speech homophone pairs because we noticed (post-hoc) that the sentence was misleading, and the error (*shown*) could be interpreted as correct in the sentence.

Table 1

Example Primed and Control Sentences for Shared and Different Part-of-Speech Homophone Pairs.

Shared Part-of-Speech Homophone Pairs (root = target, route = error)			
	Shared Part of Speech Prime	Different Part of Speech Prime	
Primed	While walking to class, David dropped his <u>flute</u> and damaged it on the <i>root</i> of a tree.	The <u>cute</u> dog was sniffing around the <i>root</i> of the tree.	
Control	While walking to class, David dropped his <u>clarinet</u> and damaged it on the <i>root</i> of a tree.	The <u>big</u> dog was sniffing around the <i>root</i> of the tree.	
Different Part-of-Speech Homophone Pairs (reel = target, real = error)			
	Shared Part of Speech Prime	Different Part of Speech Prime	
Primed	Amanda had met the <u>ideal</u> man, but she wasn't sure how to <i>reel</i> him in.	I don't understand the <u>appeal</u> of spending an entire day hoping to <i>reel</i> in just one fish.	
Control	Amanda had met the <u>perfect</u> man, but she wasn't sure how to <i>reel</i> him in.	I don't understand the <u>value</u> of spending an entire day hoping to <i>reel</i> in just one fish.	

Note. Primed and control words are underlined, and target homophones are italicized.

Table 2

Mean Percent of Whole-Word and Partial Homophone Errors for Syntactically Ambiguous Homophone Pairs as a Function of Prime Part of Speech and Prime Condition

Prime Condition	Whole-Word Errors		Partial Errors	
	Shared Part of Speech Primes	Different Part of Speech Primes	Shared Part of Speech Primes	Different Part of Speech Primes
Primed				
<i>M</i>	23.7	14.4	27.3	17.6
(<i>SE</i>)	(2.9)	(2.0)	(3.0)	(2.0)
Control				
<i>M</i>	13.3	13.3	15.5	16.0
(<i>SE</i>)	(2.0)	(2.0)	(2.2)	(1.9)
% Priming	10.4	1.1	11.8	1.6

Table 3

Mean Percent of Whole-Word and Partial Homophone Errors for Syntactically Unambiguous Homophone Pairs as a Function of Prime Part of Speech and Prime Condition

Prime Condition	Whole-Word Errors		Partial Errors	
	Shared Part of Speech Primes	Different Part of Speech Primes	Shared Part of Speech Primes	Different Part of Speech Primes
Primed				
<i>M</i>	30.7	27.4	34.0	30.0
(<i>SE</i>)	(3.1)	(2.5)	(3.1)	(2.6)
Control				
<i>M</i>	25.0	21.9	27.9	22.2
(<i>SE</i>)	(3.1)	(2.9)	(3.0)	(2.9)
% Priming	5.7	5.5	6.1	7.8

Figure Caption

Figure 1. The percent of homophone errors (e.g., writing *route* for *root*) for syntactically ambiguous and unambiguous homophone pairs as a function of prime part of speech and prime condition (primed, control).

