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This paper was accepted for publication in Discourse Studies and the final (edited, revised and typset) version of this paper was published in Discourse Studies, Vol 17(1): 64–82, by Sage Publications Ltd, All right reserved © Sage Publications Ltd, 2015.

Discourse Markers in Writing

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Author Note

I thank the students from the Conversations seminar course who made the analysis in Experiment 2 possible. I also thank Marilyn Walker for comments on an earlier draft of this manuscript. Some of the data presented in Experiment 1 appeared in a different form in Abbott, R., Walker, M., Anand, P., Fox Tree, J. E., Bowmani, R., & King, J. (2011). Correspondence can be addressed to Jean E. Fox Tree, foxtree@ucsc.edu, Psychology Department, Social Sciences II room 277, University of California, Santa Cruz, CA, 95064.
Abstract

Words like *well, oh*, and *you know* have long been observed and studied in spontaneous speech. With the proliferation of on-line dialogues, such as instant messaging between friends or back-and-forth postings at websites, there are increasing opportunities to observe them in spontaneous writing. In Experiment 1, the interpretation of discourse markers in on-line debates was compared to proposed functions of those markers identified in other settings. In Experiment 2, the use of discourse markers in spontaneous speech was compared to their uses in spontaneous writing. Results support the conclusion that although they vary in frequency in spoken versus written domains, discourse markers are used similarly across domains, but with particular communicative functions that make them non-interchangeable.

*Keywords:* spontaneous speech, spontaneous writing, discourse markers, production, comprehension
Discourse Markers in Writing

Discourse markers in spontaneous speech are words like well, oh, and you know. Along with related fillers um and uh, discourse markers are solutions to problems of spontaneous talk (Clark, 1996; Fox Tree, 2000, 2010). Tested here is the hypothesis that the function of discourse markers in spontaneous writing is similar to its use in spontaneous speaking. In addition, discourse markers can be broken down into whether they are (1) attitudinal, (2) tailored, (3) temporally-sensitive, or (4) cohesive. These four dimensions predict the frequency with which discourse markers occur in spoken versus written formats. Attitudinal markers such actually, really, and oh (in its attitudinal form) were predicted to occur in spontaneous written settings with functions similar to those observed in speaking (Experiment 1). Tailored and temporally-sensitive markers, such as like, you know, and the fillers um and uh, were predicted to occur in spontaneous written settings, but to a lesser degree than in speaking (Experiment 2). Cohesive markers, such as well and some ohs, were predicted in both settings, with similar functions to spoken uses (as tested here, the function highlighted was the property of being non-attitudinal, Experiment 1) and in similar quantities (Experiment 2). In the current report, the term fillers refers exclusively to ums and uhs.

Four Types of Discourse Markers

Discourse markers affect spoken communication in a variety of ways (Flowerdew & Tauroza, 1995; Fox Tree, 1995, 2001, 2002, 2006, 2007; Fox Tree & Schrock, 1999, 2002; Galley, McKeow Hirschberg, & Shriberg 2004; Groen, Noyes, & Verstraten, 2010; Liu & Fox Tree, 2012). Discourse markers in spontaneous writing may play similar roles to those observed in speaking (Fox Tree, 2010; Fox Tree, Mayer, & Betts, 2011). Although others have cast a wider net (e.g. Louwerse & Mitchell, 2003), the focus in the current report is on markers
typically observed in speaking, and how they may or may not translate to informal written communication, rather than markers that are rarely used in speaking such as *whilst* and *whereupon* (c.f. Louwerse & Mitchell, 2003). The discourse markers looked at here were not specifically addressed in an earlier comprehensive examination of taxonomies (Mitchell & Louwerse, 2003). Only four (*you know*, *well*, *oh*, *actually*) were addressed in another study of discourse marker meaning, from which list *well* received the most attention (Groen, Noyes, Verstraten, 2010).

**Attitudinal Markers**

Discourse markers have been associated with speakers’ expression of emotions or attitudes (Heritage, 1984; Diani, 2010). Not only would attitudes be expected in all forms of communication, there is reason to predict that attitude expression would be even more likely in written communication to make up for the lack of audiovisual information. In one study, written communicators used words to make up for information normally available nonverbally (Walther, Loh, & Granka, 2005). In another study, emoticons with opposite valences to their messages conveyed sarcasm (Derks, Bos, & Grumbkow, 2008). In a third study, sarcastic email exchanges included verbal indicators of sarcastic intent (Whalen, Pexman, & Gill, 2000). Although the discourse markers studied in the current report were not among those listed as sarcasm markers in Whalen et al.’s (2000) study, *really* marked irony in about 9% of ironic instant messaging samples (Hancock, 2004). Sarcasm may be especially likely in on-line debate sites such those tested in Experiment 1. A study of product reviews found that writers used sarcasm as a tool for “‘enlightening’ the mass that are ‘treading the wrong path.’” (Tsur, Davidov, & Rappaport, 2010, p. 169). Functions proposed through analyses of spoken uses, reviewed next, are predicted to be
similar to those used in spontaneous writing, assessed in Experiment 1 with on-line debates among strangers.

Actually. In spoken dialogue and prepared written prose, the basic meaning of actually can be summed up as “unexpectedness” (Oh, 2000, p. 266; see also Aijmer, 2002), as observed in the following pair of instant messaging turns (numbered examples in the current report are from corpora collected in the author’s laboratory; written dialogues are presented exactly as typed by communicators):

(1) A: Hey, so have you been to any parties lately?
B: actually i haven't

Functions ascribed to actually include that it is a contrastive marker, a mitigating marker, a marker of surprising information, and a marker of a speaker’s emotional attitude to the information following actually (Aijmer, 1986, 2002; Smith & Jucker, 2000). An important distinction for actually is whether communication is spontaneous or prepared. In prepared written prose, actually at the beginning of a turn was found to serve a contrastive function (Oh, 2000). But actually at the beginning of spontaneous spoken utterances was found to mitigate face-threatening acts (Oh, 2000). This difference may be related to the amount of back-and-forth in dialogue versus prose (Oh, 2000). With more interaction, there is more possibility of disagreement (Oh, 2000). Another analysis of actually is that it can be used “to counter a claim whose basis appeared to come from outside the conversation” (Smith & Jucker, 2000, p. 231); that is, to coordinate implied common ground. For both the mitigating function and the outside-claim-countering function, actually might be useful in stranger debates, and more so the greater the disagreement. In addition, because of its use in marking unexpectedness, actually may be especially informative for conveying irony or sarcasm, or “the use of words to convey a meaning
that is something other than, and especially the opposite of, the literal meaning of the words” (Bryant & Fox Tree, 2002, p. 100). The *other than* implication can be read as *unexpected*. As a further test of this hypothesis, *actually*’s use in debates was compared to *but*’s, with the prediction that the two function similarly.

**Oh.** In spoken dialogue, the basic meaning of *oh* is to mark a speaker’s change of state (Heritage, 1984). For example, in the environment of a repair, *oh* indicates that information has suddenly been remembered (change of state from not knowing to knowing); accordingly, listeners interpret the upcoming utterance as disjointed from the prior utterance (Fox Tree & Schrock, 1999). In other contexts, *ohs* can be used to indicate a *counterinforming* (Heritage, 1984, p. 312), or the acceptance of alternative information from an interlocutor. The change of state indicated by *oh* can lead to positive and negative emotional inferences (Aijmer, 1987). For example, by suggesting newsworthiness, a reply headed with *oh* might be perceived as more polite than one headed by *yes* (Fox Tree & Schrock, 1999). But it could also be considered ruder if the *oh* were used to sarcastically imply newsworthiness for something the speaker did not really think was newsworthy. Repair use would be less frequent in writing as writers have more time to correct messages, resulting in fewer errors and fewer consequent repairs. But emotional uses would still exist in writing, as in the following instant messaging sequence:

(2)  
A: where does ur boyfriend live  
B: back in l.a  
A: ohhh  
A: that must be tough
Debates may be even more likely to contain *ohs* than other communicative settings as *ohs* can be used “as a signal of a potentially argumentative stance,” (Schiffrin, 1987, p. 100). The attitudinal implications of *oh* were assessed in the debate corpus.

**Really.** In spoken and written academic communication, the basic meaning of *really* is to comment on the propositional truth of the upcoming information (Diani, 2010), which can be seen as orthogonal to attitudes towards the information. As a pure “veracity confirmer” (Diani, 2010, p. 52), *really* should not be related to attitudinal judgements. Instead, its use might be similar to other veracity-related markers, such as turn-initial *yes*. As a further test of this hypothesis in spontaneous written contexts, *really*’s use in debates was compared to *yes*’s, with the prediction that the two function similarly.

However, there is reason to suspect that *really* does convey attitude. *Really* occurred more frequently in academic review articles than academic research articles (Diani, 2010), perhaps because of the “argumentative structure of the genre” (Diani, 2010, p. 38). In fact, when Diani (2010) described *really* as a veracity confirmer, she clarified that *really* “says ‘yes. I’m telling the truth in spite of what you might think’” (Diani, 2010, p. 52). Perhaps the potentially-argumentative “in spite of what you might think” is an important component of the meaning of *really*. The following instant messaging sequence provides an example of this:

(3)  
A: yea, jobs off campus are hard to come by, everyone i know who's actually found a job got it from the school  
B: really, i had like 2 interviews from oncampus jobs and n ever got hired  

Really might occur more often with critical discourse, such as those in the strangers’ debates. The reactive function may be to highlight emotional, negative reaction. There has been no test of
how really is interpreted in spontaneous communication, thus whether really acts like a non-emotional yes or whether really implies emotion is unknown.

**Tailored Markers**

Tailored markers are those that speakers choose when they are able to make predictions about the potential knowledge states of addressees, such as like and you know. Like is used to indicate that upcoming information is loosely related to speakers’ concepts (Andersen, 1998; 2000; Fox Tree, 2006; Jucker, Smith, & Lüdge, 2003). You know is used to indicate the presence of off-record information (Fox Tree, & Schrock, 2002; Jucker & Smith, 1998). For like and you know to serve these functions, however, it must be potentially possible for addressees to figure out the relationship between upcoming information and the speaker’s unexpressed concepts. For example, a joke about violists might merit you know when told in an orchestra but not when told to a general audience. Saying “there was a violist, you know” alludes to the off-record information that violists are frequently the butt of orchestral jokes, implying the additional off-record information that an allusion to poor musical skills would follow, a fact that general audiences may not know. Like, on the other hand, requires even more tailoring. When a speaker says, “there was like a violist at the party,” the speaker could mean numerous things, such as that this is good news, or that this is bad news. As Liu and Fox Tree (2012, p. 897) write, “When a speaker says ‘it’s like a 2 h drive,’ [it can mean] ‘a 2 h drive is too long for something unimportant,’ or the opposite, ‘that’s a short drive for something important.’”

Both like and you know do occur in writing with tailored uses. In the following example, Instant Messager B qualifies the number of off-campus excursions with like, suggesting in the prior turn that the number is low:
A: i live off-campus and its a real B**** to get up here

B: at least you arent stuck on campus

B: like i have been downtown i think 3 times

In the next example, Instant Messager A uses like a number of times in describing a campus club:

A: i think like the only big parties around here are like..

A: the ski and snowboard club ones..

B: Really?

A: yah

B: Weird, why's that?

A: i dunno

A: but like you need tobe a member

A: and itslike 20 bucks

A: but you get a shirt

B: must be big clubs >_<

In the following two examples of you know in writing, the Instant Messager provides additional information explaining the off-record information:

A: well in a trial the lawyers ideally want a panel of jury that would be more inclined to give a verdict you know one way or the other so when they choose potential jurors they ask like a profiling type questions to see which way they would say on certain issues

A: I would probably focus on creating sustainable housing, you know housing that needs little or no outside resources for power or water.
Although they have potential use in writing, there is reason to expect *likes* and *you knows* to be less common in writing than speaking. In prepared writing, concepts are typically worked out more precisely, obviating the need for *like* to mark a loose relationship between the words expressed and the concepts they reflect, or *you know* to indicate off-record information. Spontaneous writing may follow some of these constraints. When answering trivia questions verbally or in writing, people wrote more correct, unchanged answers than they spoke, possibly because they took more care with their writing (Chevalier & Fox Tree, 2012). In addition, because *like* requires more specific tailoring, the difference between its use in speaking and writing may be greater than the difference in use between *you know’s* use in speaking and writing. A speaker may need more immediate feedback, both in terms of timeliness and in terms of seeing or hearing an addressee’s responses, when using a *like* than a *you know.*

Alternative hypotheses for the function of *like* and *you know* are that they are meaningless tics without functions or that they are products of speaker’s speech styles or registers (see Fox Tree, 2006, 2007, for reviews of these approaches). These approaches would predict similar rates of *like* and *you know* in speaking as in writing, as long as the register is the same, such as communicating to friends. A contrasting proposal is that discourse markers in general, including *like* and *you know*, are exclusively products of spontaneous talk (as implied by label like *vocal hiccup*, Croucher, 2004) and therefore should not be found in writing at all, including spontaneous writing. Both of these alternatives will be tested.

**Cohesive Markers**

Cohesive markers provide information about how to relate information before and after markers. For example, *oh* can be used in the environment of repairs to indicate that upcoming information is disjointed from prior information, and listeners’ processing does indeed change
depending on whether or not an *oh* is present (Fox Tree & Schrock, 1999). An example from written communication follows:

(8)  

A: i like going to museums and art exhibits  
A: occasionally shopping  
A: and i love concerts  
A: oh the beach too. what about you?

*Well* is used to indicate that seemingly irrelevant subsequent information is actually relevant to the discourse (Blakemore, 2002), and *well* does affect listeners’ and readers’ interpretations of discourse (Groen, Noyes, & Verstraten, 2010). An example from written communication follows:

(9)  

A: find any good parties while they were up here?  
B: ya we basically walked around campus and hung out with people  
A: well on friday my friend and i decided to go to LA because we were so bored here

Cohesive functions are potentially useful in both spontaneous speech and spontaneous writing. Although *oh* has both attitudinal and cohesive functions, in the corpus of friend’s interactions, the cohesive functions are predicted to be more prominent as people are less likely to be arguing. *Oh* is expected to serve attitudinal functions in the debates. *Well* is the only non-attitudinal marker tested in the debates. The prediction is that *well* will not display attitudinal information. Furthermore, *well* is predicted to be equally likely in spoken and written settings in the friend’s interactions.

An alternative prediction for the use of *well* is that it serves an attitudinal or emotional function such as warning of upcoming frustration or disagreement (Hale, 1999). This alternative
will be tested. Another alternative is that well function like fillers (Van Lancker Sidtis & Postman, 2006). In this case, they should also be temporally sensitive, as discussed below. This alternative will be tested.

**Temporally-Sensitive Markers**

Temporally-sensitive markers are those that are linked to the temporal pressures of communicating with a waiting addressee. When there is a waiting addressee, even a fraction of a second of pause can have meaning. Speakers can be thought of as unintelligent, inattentive, or even dishonest (Fox Tree, 2002; Smith & Clark, 1993). The premium on fluency has fostered a number of spontaneous speech phenomena. For example, spontaneously spoken repetitions are a solution to the problem of speaking in a timely manner when production problems arise (Clark & Wasow, 1998). The repetition allows the speaker to regain fluency after a disruption. *Ums* and *uhhs* warn of upcoming delays in speech (Clark & Fox Tree, 2002; Smith & Clark, 1993). They allow speakers to show that they are aware of the upcoming delay, in an effort to avoid potential negative attributions from an unannounced delay (Fox Tree, 2002; Smith & Clark, 1993).

These helpful spontaneous speech phenomena may not be useful in spontaneous asynchronous writing. For example, because instant messaging conveys messages in prepared message units, written repetitions are meaningless. A pause between typed words in a message unit can simply be continued with the next word as it is available rather than recycling from the beginning of the phrase, as communicators do in speaking (Clark & Wasow, 1998). Similarly, false starts might be corrected within the message window before being sent to an addressee. In a split-screen form of text chat, however, where each keystroke is visible to an addressee, false starts would be expected, although techniques for dealing with them may vary, such as erasing words rather than saying *I mean* and continuing. Repetitions, on the other hand, would still not
be expected as fluency can be regained by simply continuing to type; text reads fluently even if it is not produced in a fluent chunk. *Um* and *uh* would not be expected because there is no need to indicate a delay when messages are sent in packaged bits, although fillers may be used to suggest that responses required thought (Fox Tree et al., 2011), as in the following instant messaging exchange where the first *um* suggests thinking about the answer to the question and the second *um* suggests either thinking about an additional list item or building up tension before producing the word *batman*, depending on whether *badass* is used as a noun or an adjective:

(10)  
A: so...been to any good parties lately?

B: um, i guess... lately ish. you?\ 

A: i went to an interesting one a while ago....the theme was "b"...i showed up in bubble wrap

A: not just bubble wrap....

B: see, that's an important part of that description.

A: hahahaha

B: were there any bananans? or buffalo or whatnot?

A: bananas! thats a good one! no, there were lots of bondage, boobs, beatniks, there was a badass....umm....

A: batman

A: he was clearly the best

A: gotta have a batman at a party

Other theories about the use of *ums* and *uhhs* are that they are used to indicate various things about the speaker or the speech, such as nervousness (Christenfeld & Creager, 1996; Lalljee & Cook, 1973) or discourse complexity (Christenfeld, 1994; Swerts, 1998), rather than
being tightly linked to time sensitivity. These approaches might predict similar uses of fillers in spontaneous speech and spontaneous writing. This will be tested.

**Current Experiments**

Seven markers were studied. Interpretations of *oh, well, actually,* and *really* in a large online debate corpus were compared to predictions about their uses proposed in the research literature (Experiment 1). *Oh, well,* fillers, *like,* and *you know* were studied in a comparison of friends’ spoken and written communication (Experiment 2). Following Louwerse and Mitchell (2003) and Groen, Noyes, and Verstraten (2010), the written markers tested occurred turn-initially. Because neither fillers (Fox Tree, 2006) nor *likes* (informal observation) occur frequently in turn-initial writing, these markers were not tested in the stranger debate study (neither were tested in Görska’s 2007 study of discourse markers in instant messaging). *You know* was not tested in the stranger debates because the sample selection was made by a computer, and thus propositional *you know* could not be distinguished from discourse marker *you know.*

**Experiment 1**

Judgements of the emotional characteristics of posts to an online debate website were compared depending on the marker used at the beginning of the post. Posters were presumed to be strangers.

**Method**

**Materials.** Materials were selected from a corpus of debates taken from the website 4forums.com (see Abbott, Walker, Anand, Fox Tree, Bowmani, & King, 2011, and Walker, Anand, Fox Tree, Abbott, King, 2012, for details). Each quote-response sequence involved a quotation from a prior writer’s contribution plus a new contribution responding to that quotation.
A subset of this corpus was used for the current analyses. This subset included all response posts that contained turn-initial discourse markers. The turn-initial position was intended to ensure salience of the markers when readers evaluated the posts (cf. Fox Tree and Schrock, 2002; Groen et al., 2010). Seventeen discourse markers were represented in turn-initial position (the number of posts beginning with that marker is in parentheses): well (605), and (582), so (583), actually (322), but (265), oh (228), I think (182), because (162), just (113), really (100), I believe (69), I know (59), you know (49), you mean (50), I see (47), I dunno (10), and you think (7). In addition, 233 items beginning with yes were selected, and 220 items beginning with no were selected. A sample of 2,576 items without any of these markers among the first ten words was also included as an unmarked control. Because items were selected via a computer program (see Abbott et al., 2011, and Walker et al., 2012, for details), some items may represent propositional rather than discourse marker uses.

The definition of discourse marker was kept deliberately broad in order to assess ratings of the markers of interest –oh, well, actually, and really – against the backdrop of markers in general (see Fox Tree, 2010, or Louwerse & Mitchell, 2003, for discussion of defining discourse markers). The broad testing of markers also allowed testing of two supplemental hypotheses, that actually was related to but and that really was related to yes.

For each of the 6,462 items, between five and seven anonymous Amazon Mechanical Turk annotators (henceforth Turkers; Snow, O’Connor, Jurafsky, & Ng, 2008) answered five questions (see Abbott et al., 2011, and Walker et al., 2012, for more details). This number of judgements per item has been shown to be sufficient to mimic experts’ ratings in various linguistic tasks including affective labelling (Callison-Burch, 2009; Snow et al., 2008). Four
questions were responded to using a slider tool with endpoints labeled -5 and 5 through a midpoint labeled 0:

Question 1. Does the respondent agree or disagree with the prior post? -5 = strong disagreement, +5 = strong agreement

Question 2. Is the respondent being supportive/respectful or are they attacking/insulting in their writing? -5 = strong attack, +5 = strong support

Question 3. Is the respondent attempting to make a fact based argument or appealing to feelings and emotions? -5 = feeling, +5 = fact

Question 4. Is the respondent attempting to be nice or is their attitude fairly nasty? -5 = nasty, +5 = nice

In addition, Turkers responded to the yes-no question Is the respondent using sarcasm? This question was not represented by a slider because it was difficult to instruct Turkers in how to quantify sarcasm. For example, sarcasm could be interpreted as more or less biting, or more or less prevalent in the sentences of a post, or both.

For all of these questions, respondents had the option of clicking a button marked unsure. Unsure answers were removed from analysis.

Results

As can be expected from a public debate site, unmarked posts were more disagreeing than agreeing (see Table 1; to ensure accuracy, unequal variances methods were used for all response variables). However, they also were more supportive than attacking, more fact-based than feeling-based, and nicer rather than nastier. On average, only 15% of respondents agreed that an unmarked post was sarcastic. This could be because sarcasm was infrequent in postings, as was found with emails (Whalen et al., 2009), or because sarcasm is something that is hard for
people to identify or agree on. Sarcasm may be more common on debate websites than in other venues (cf. Tsur, Davidov, & Rappaport, 2010), but sarcasm may be infrequent in general: The majority of respondents tested here did not identify the posts as sarcastic.

Table 1. Average Ratings Across Marker-Initial Posts and Unmarked Posts Followed by Test Statistics Comparing the Marker Cell to the Unmarked Cell

<table>
<thead>
<tr>
<th></th>
<th>Disagreement vs. Agreement</th>
<th>Attacking vs. Supporting</th>
<th>Feelings vs. Facts</th>
<th>Nasty vs. Nice</th>
<th>Percent Sarcastic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well</td>
<td>-1.02</td>
<td>.71</td>
<td>.29</td>
<td>.97</td>
<td>17%</td>
</tr>
<tr>
<td></td>
<td>(t(938.2) = -1.34)</td>
<td>(t(888.1) = -.94)</td>
<td>(t(935.3) = 1.07)</td>
<td>(t(913) = -1.09)</td>
<td>(t(898.6) = -1.68)</td>
</tr>
<tr>
<td>Oh</td>
<td>-1.47*</td>
<td>-.27*</td>
<td>-.43*</td>
<td>.07*</td>
<td>35%*</td>
</tr>
<tr>
<td>(t(266.8) = 2.87)</td>
<td>(t(259) = 8.17)</td>
<td>(t(261.7) = 6.85)</td>
<td>(t(260.6) = 7.88)</td>
<td>(t(248.9) = -10.25)</td>
<td></td>
</tr>
<tr>
<td>Actually</td>
<td>-1.85*</td>
<td>.73</td>
<td>1.07*</td>
<td>.96</td>
<td>11%*</td>
</tr>
<tr>
<td>(t(459.5) = 8.71)</td>
<td>(t(415) = -1.02)</td>
<td>(t(407.8) = -7.76)</td>
<td>(t(415.4) = -.71)</td>
<td>(t(456.8) = 4.04)</td>
<td></td>
</tr>
<tr>
<td>Really</td>
<td>-2.37*</td>
<td>-.36*</td>
<td>.23</td>
<td>.17*</td>
<td>26%*</td>
</tr>
<tr>
<td>(t(115.5) = 9.89)</td>
<td>(t(106.4) = 6.61)</td>
<td>(t(105.7) = .79)</td>
<td>(t(106.7) = 5.09)</td>
<td>(t(105.6) = -4.48)</td>
<td></td>
</tr>
<tr>
<td>Unmarked</td>
<td>-1.12</td>
<td>.64</td>
<td>.37</td>
<td>.90</td>
<td>15%</td>
</tr>
</tbody>
</table>

*Indicates a difference from the unmarked category at or better than the \(p = .05\) level, Bonferroni corrected for 20 tests.

The cohesive marker tested, "well," was predicted to be unrelated to attitudinal or emotional judgements. The judgements of the posts headed by "well" support this prediction. "Well" was neither more disagreeing, more attacking, more feeling-oriented, more nasty, nor more likely to be identified as sarcastic than unmarked posts (see Table 2). In fact, it was the only critical
discourse marker that was not linked to attitudinal or emotional judgements. These results go against the prediction that *well* warns of upcoming frustration or disagreement (Hale, 1999).

All three of the attitudinal markers tested – *oh*, *actually*, and *really* – were related to attitudinal judgements, but not necessarily emotional expression. *Actually* was related to disagreeing, but not feelings or sarcasm. Although both *oh* and *really* were related to feelings and sarcasm, they expressed things differently. As shown below, each attitudinal markers is interpreted differently.

The attitudinal marker *oh* was more disagreeing, attacking, feeling-based, and nasty than unmarked posts, as well as being more likely to be identified as sarcastic (see Table 2). In fact, *oh* stood out as preceding some of the most feeling-oriented, nasty, and sarcasm-identified posts. Of all the 17 discourse markers studied, the only marker preceding more feeling-oriented posts was *I dunno* (average rating of -.80). The only marker preceding more nasty-leaning posts was *you mean* (average rating of -.13). Only *I dunno* and *you mean* preceded posts with more agreement on sarcasm (*I dunno* = 37%; *you mean* = 38%). When *oh* is read at the beginning of a post, the upcoming information is likely to be emotional and expressing a negative, sarcastic attitude. This supports observations that *oh* is used in emotional inferences (Aijmer, 1987; Schiffrin, 1987), as well as the hypothesis that *oh*-initial turns will be judged as emotional communication.

The attitudinal marker *really* was more disagreeing, attacking, and nasty than unmarked posts, as well as being more likely to be identified as sarcastic (see Table 2). Unlike *oh*, it was not more likely to be feeling-based than unmarked posts. *Really* was the next-highest marker to *oh* in terms of percentage of respondents labeling the posts as sarcastic. This supports the claim that *really* is used to mark irony (Hancock, 2004). Posts beginning with *really* were rated as
more disagreeing than all but one other marker \((\text{you think} = -2.46)\) and more attacking than all but one other marker \((\text{you mean} = -0.48)\). \textit{Really} followed \textit{oh} in preceding nasty-leaning posts. These data support the hypothesis that \textit{really} co-occurs with critical discourse, highlighting negative emotional reaction.

Comparison to \textit{yes} reveals that \textit{really} precedes posts that are more disagreeable \((\text{yes} = -0.02, t(280.6) = -13.6, p < .001)\), more attacking \((\text{yes} = 1.16, t(181.2) = -8.6, p < .001)\), nastier \((\text{yes} = 1.34, t(173.8) = -7.08, p < .001)\), and more likely to be identified as sarcastic \((\text{yes} = 15\%, t(180.6) = 4.04, p < .001)\) than \textit{yes}-initial posts. \textit{Really} is not more likely to be based on feeling over fact \((\text{yes} = .54, t(163.6) = -1.57, p = .12)\). These findings go against the hypothesis that \textit{really} is mainly a veracity marker similar to \textit{yes} (cf. Diani, 2010).

\textit{Actually} was the fourth most frequent discourse marker, after \textit{well}, \textit{and}, and \textit{so}. This supports the usefulness of \textit{actually} in mitigating disagreements and coordinating common ground (Oh, 2000; Smith & Jucker, 2000). While \textit{actually} was related to the attitude of disagreeing \((\text{actually} preceded more disagreeing posts than unmarked posts)\), it headed posts that were less likely to be feeling-based than unmarked posts, with fewer identifications as sarcastic than unmarked posts (see Table 2). These data do not support the prediction that \textit{actually} is especially informative for conveying sarcasm; in fact, \textit{actually} was the marker with the lowest percentage of respondents labeling the posts as sarcastic of all 17 markers tested.

The data do, however, support the claim that \textit{actually} marks unexpectedness (Oh, 2000). Respondents’ ratings for \textit{actually} were similar to ratings for \textit{but} for disagreement \((\text{but} = -1.64, t(578.1) = -1.91, p = .06; \text{p-level of .01 needed for five tests})\), supportiveness \((\text{but} = .68, t(570.6) = .45, p = .75)\), niceness \((\text{but} = .99, t(573.3) = -.24, p = .81)\), and sarcasm agreement \((\text{but} = 12\%, t(543.1) = -.27, p = .80)\). \textit{Actually} was much more likely to precede a fact-based post than \textit{but}
was, however \( \text{but} = .26, t(578.7) = 6.72, p < .001 \). Taken as a whole, actually can be seen as expressing the attitude of disagreement, but not further emotional attitude (cf. Aijmer, 1986, 2002; Smith & Jucker, 2000).

Across attitudinal markers, both oh and really anticipated disagreement and sarcasm, but only oh anticipated feelings over fact. Actually anticipated disagreement but not sarcasm, and went in the opposite direction from oh and really with respect to feelings versus facts: It was more likely to anticipate facts. Although it may seem that disagreement and sarcasm should be positively correlated, in fact they were not. There was no relationship between the degree of disagreement and the percentage of people who identified the post as sarcastic, \( r(18) = -.11, p = .64 \) (tested on 19 discourse markers plus the None category; see also Walker et al., 2012). There was also no relationship between the degree of disagreement and whether the post leaned towards feeling or towards fact, \( r(18) = -.06, p = .81 \). There was, however, a relationship between fact-feeling and sarcasm. The more a post leaned towards fact, the less likely it was to be identified as sarcastic, \( r(18) = -.67, p = .001 \).

**Discussion**

The most prevalent of the turn-initial discourse markers of interest was well. Next most common was actually, which occurred about half as frequently as well. Ohs were about a third the rate of well. Really was about one-sixth the rate of well.

With the exception of well, each of the markers shows a distinct pattern when compared to posts with no marker among the first ten words. Oh was associated with disagreement, feeling over fact, and sarcasm. Really was associated with disagreement and sarcasm. Actually was associated with disagreement but not sarcasm. Although at attitudinal function has been proposed for well (Hale, 1999), the evidence suggests that well has a non-attitudinal, cohesive
function (Blakemore, 2002; Groen et al., 2010). As such, the pattern for well should have been similar to the pattern for the unmarked posts, and it was.

**Experiment 2**

Discourse marker use in spontaneous conversation was compared to discourse marker use in instant messaging. Communicators in each dialogue were friends. Speakers and writers were cotemporaneous with each other.

**Method**

**Participants.** Participants were college students at UCSC or friends of college students at UCSC. Data were collected anonymously.

**Procedure.** Students in two seminar courses, taught in 2006 and 2008, collected five to ten minutes of conversational dialogue among friends (mostly two-party) and five to ten minutes of instant messaging communication. The seminar was designed to allow students to test hypotheses about the use of spontaneously produced phenomena using a communal dataset. Overall, 44 samples of spoken dialogue and 44 samples of text communication were evaluated. Because transcripts were created before hypotheses were developed, and because students worked on different hypotheses, it is unlikely that transcripts were biased to support a particular hypothesis.

Recorded conversations were transcribed following a standardized scheme developed in class, including anonymizing names. Coding and counting of spontaneously produced elements was accomplished by each student for the transcripts that student collected. Only discourse marker uses of words were evaluated. So, for example, the like in I like that was not counted. Across the two iterations of the course, the use of five common discourse markers was evaluated: (1) ums and uhs, (2) you knows, (3) likes, (4) wells, and (5) ohs.
Results

The average number of words spoken in the spontaneous dialogues was 994 ($SE = 48$). The average number of words in the written dialogues was 580 ($SE = 70$). Treating student, setting (spoken or written), and discourse markers as within variables, and the course a student was in as a between variable, there was no effect of course on the discourse markers rate, $F(1, 42) = .01, p = .91$, nor was there an interaction between (1) marker rate and course, $F(2, 85.1) = .93, p = .40$ (here and elsewhere, when Mauchly’s test of sphericity was significant, the Greenhouse-Geisser correction was used), (2) setting and course, $F(1, 42) = .49, p = .49$, or (3) marker rate, setting, and course, $F(2.1, 87.5) = .51, p = .61$.

See Table 2 for mean rates and standard errors of the discourse markers across spoken and written conditions. Collapsed across conditions, the rate of use of different discourse markers varied, $F(2, 85.1) = 38.85, p < .001$. Collapsed across discourse markers, markers were used less frequently in instant messaging than in spontaneous speech, $F(1, 42) = 182.2, p < .001$. Most important, the rate of marker use interacted with condition, $F(2.1, 87.5) = 40.37, p < .001$.

_Likes_, fillers, and _you knows_ differed more across spoken versus written conditions than _wells_ and _ohs_, $t(43) = 9.6, p < .001$ for _likes_, $t(43) = 9.1, p < .001$ for fillers, and $t(43) = 5.3, p < .001$ for _you knows_, versus $t(43) = 2.4, p = .02$ for _wells_ and $t(43) = 2.0, p = .06$ for _ohs_, with a Bonferonni correction to .01 for five tests. Collapsing across the temporally-sensitive and tailored markers and comparing them to cohesive markers reveals that temporally-sensitive and tailored markers are less likely in spontaneous writing than cohesive markers, $t(43) = 4.42, p < .001$.

| Table 2. Spoken and Written Marker Use Expressed as |
The most common discourse marker in spontaneous speech was *like*, representing 2% of all words spoken. Almost 1% of all words spoken were the fillers *um* and *uh*. Next most common were *oh*, *well*, and *you know*. In spontaneous writing, the most common discourse marker was *oh* (half of 1%), followed by *well*, *like*, *you know*, and fillers.

**Discussion**

In the settings of friends’ interactions where addressee-tailoring should be high, both *likes* and *you knows* were used in spontaneous writing, although both were more frequently spoken. Their written use suggests that even in writing, some information is well-served by being marked as loose or off-record. This goes against the hypothesis that *likes* and *you knows* are exclusively products of spontaneous speech. At the same time, their diminished use suggests that the planning time available in the message boxes was sufficient for communicators to clarify concepts enough that *likes* and *you knows* were not as useful as in spontaneous speech. This goes against the hypothesis that *likes* and *you knows* are a product of style or friend-stranger register choices, which were held constant in the spoken and written settings. Finally, the presence of *like*
and *you know* in writing suggests that they are neither meaningless tics nor the exclusive purview of spoken dialogue (cf. Croucher, 2004).

The fact that *likes* and *you knows* were much less common in writing suggests that these discourse markers may also be temporally sensitive. Written *likes* were a tenth as common as spoken *likes* and written *you knows* were a quarter as common as spoken *you knows*. Fillers showed similar proportion disparities. These data hint that the pressure of a waiting addressee may drive speakers to speak more loosely while leaving more information off-record than they might otherwise, although it’s still clear that there are times when loosely expressed utterances and off-record utterances can be desirable (Fox Tree, 2006; Fox Tree & Schrock, 2002).

*Wells* and *ohs* were used at similar rates in spontaneous speech and spontaneous writing. This supports the hypothesis that *wells* are not temporally-sensitive and therefore not a type of filler. The cohesive function of *wells* and *ohs* was highlighted by the observation that *wells* and *ohs* were more common in writing than the temporally-sensitive and tailored markers, fillers, *likes*, and *you knows*. Cohesion is important across sentences no matter what the mode of communication. Temporally-sensitive markers, on the other hand, will be more common when the pressure of a waiting addressee is the primary motivation for their use. Tailored markers appear to also rely more on the immediacy of a speaking partner.

As predicted, *ums* and *uhhs* were more common in talk than in writing. This supports the hypothesis that fillers are temporally sensitive, and disconfirms the hypothesis that fillers are a product of speaker personality or speaker nervousness, as the populations of friends speaking and friends writing were similar. The data also support the hypothesis that earlier findings of fewer fillers in writing (Fox Tree et al., 2011) were not a result of decreased familiarity between communicators. The hypothesis that fillers are linked solely to discourse complexity could only
be sustained with the additional hypotheses that instant messaging text is radically less complex than speaking (nine times fewer fillers in instant messaging).

**General Discussion**

Spontaneously written discourse markers have similar functions to spoken discourse markers. In addition, discourse markers can be broken down into whether they are (1) attitudinal, (2) tailored, (3) temporally-sensitive, or (4) cohesive, and their membership in a category is predictive of the likelihood that they will be used in speaking or writing.

With respect to attitudinal markers, results support the hypothesis that turn-initial *really* is a marker of attitudinal stance, more specifically negative attitude. For *actually*, results support the hypothesis that turn-initial *actually* mitigates face-threatening acts; *actually* is used for non-sarcastic disagreement. In addition, the similarity between *actually* and *but* supports the argument that *actually* conveys unexpected information (Oh, 2000). Turn-intial *oh* was the discourse marker with the highest ratings of feeling over fact, supporting its hypothesized role as a marker of emotion (Aijmer, 1987). The role of *oh* in indicating sarcasm, observed in Experiment 1, may also be related to its role in expressing emotion.

With respect to the tailored and temporally-sensitive markers, *like*, *you know*, and *um* and *uh*, there was evidence that these markers were much more useful in speech than writing. This can be understood as a result of the pressing presence of a cotemporal, simultaneous addressee, which makes it necessary for speakers to warn of upcoming delays with *ums* and *uhs* and to speak before concepts are fully fleshed out, resulting in marking looseness with *like* or off-record information with *you know*. However, it was not predicted a priori that *like* and *you know* would necessarily be less useful in writing.
Finally, the cohesive markers *oh* and *well* were used at similar rates in writing and speech. They were the most useful elements in spontaneous writing and were common among both instant messages between friends and turn-initial posts to strangers. While it is not clear exactly how the *oh* was used in friends’ writing, it is more likely to have served its change of state function (Heritage, 1984) in instant messaging than at the beginning of turns in debates, as in the following examples from instant messaging (names changed from original):

(11)  
A: amy is going to be here this weekend....she is gonna be here tomorrow actually  
B: oh thats cool is she still friends with becky?  

(12)  
A: i failed bio 20c twice and got dropped from the department  
B: oh

*Well* did not express emotions in debates, which fits with its predicted use as a marker of highlighting the relevance of seemingly irrelevant subsequent information (Blakemore, 2002).

In addition to the support found in the current experiments for existing and new hypotheses about discourse marker use, evidence was also found against some hypotheses proposed in the literature. The hypothesis that discourse markers would not be observed in spontaneous writing was not supported, although discourse markers were much less common in spontaneous, asynchronous writing than spontaneous speech. At the same time, the hypothesis that some discourse markers might be more common in spontaneous writing, as they may be used to overcome the lack of audiovisual cues, was also not supported. There were no markers that were more common in writing than in speech.

Some specific hypotheses about markers were also not supported. Comparison to *yes* suggests that *really* is not simply a veracity confirmer. There was also no evidence that *actually*
was especially informative for conveying sarcasm, or that *well* warns of upcoming frustration or disagreement. Although more common in speaking, *likes* and *you knows* were not exclusively products of spontaneous speech; they were found in spontaneous writing as well. Differences in rates of use across the two spontaneous settings suggest that using *like* and *you know* is not merely a friend-stranger register choice, because both settings involved conversations with friends. Similarly, a strong hypothesis that fillers are mostly a product of speaker personality or speaker nervousness is not supported, because these characteristics are presumably stable over spoken and written spontaneous contexts, yet they are not expressed to a similar degree in the two settings. The lesser role of fillers in instant messaging can also be seen as going against a strong prediction that fillers are used only for discourse complexity, unless writing is argued to be less complex. Finally, there was no evidence that *wells* were a kind of filler.

The conversational data has some advantages, but also some failings. The data collected were far broader and more naturalistic than typically collected in a lab. Students could record interactions that took place anywhere, at any time, on any topic. But the cost of this breadth was that many details of each student’s choices were not recorded, details that may have further elucidated how discourse markers were used. Also, although the students were serious seniors fulfilling capstone requirements with the seminar courses, there may have been systematic failures in identification of discourse markers. The similarity in responses across courses, and the lack of an interaction between courses and the predictor variables, however, suggests that this is unlikely.

Potential avenues for further research include comparing the spontaneous spoken and written interactions of friends and strangers, in both genial and argumentative circumstances, and with both synchronous and asynchronous written communication. The work done here suggests
that friends will also use attitudinal markers in the way observed in the stranger debates, and that the markers may be more likely to show up in argumentative circumstances. In addition, tailored markers are predicted to be more likely in friends’ communications than strangers, because friends have the common ground advantage that allows tailored markers’ meanings to be interpreted successfully. Time-sensitive markers would be much more likely in synchronous communication than asynchronous. In synchronous writing, fraction-of-a-second delays likely carry similar consequences to delays in face-to-face speaking. Cohesive markers are likely to vary based on communicator’s needs for them. Communicating details quickly may result in more *ohs* for example as speakers may face an increasing risk of forgetting information with subsequent need to repair.

More broadly, research like this can be used to inform a wide variety of fields, from second language instruction into how to use these common communicative devices to technological applications geared towards designing more human-like interactive communication, including determining what people mean by what they say and write. Experimental testing of how discourse markers are produced and understood is essential for an accurate picture of how these ubiquitous phenomena influence human communication.


Snow, R., O'Connor, B., Jurafsky, D., & Ng, A. Y. (2008). Cheap and fast - but is it good?


