CS 6474/CS 4803 Social Computing: Analyzing Language II

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Gender and Power: How Gender and Gender Environment Affect Manifestations of Power
Summary

- Interplay between gender, gender environment of online conversations and power

Contributions:
- Automatic gender assignment of 87% of the Enron corpus – US Social Security Administration list of names matching the approx. age range of Enron employees; first names gathered from email headers
- Test the sociolinguistic hypotheses: face-saving use of language, and to the use of language to strengthen social relations
- Gender-based features boosts the accuracy of predicting the direction of power between pairs of email interactants
cher than outside the female environments. Communication which includes more conventional directives, and that avoid imperatives and is conventionally polite requests and impersonal. "Face-saving" strategies at work that include some of the more specific (and more interesting) hypothesizes, is entirely due to men. This in fact shows the differences between superiors and subordinates, and the difference between superiors and subordinates is no significant difference between superiors and subordinates. Male superiors use more ODPs than subordinates.

Subordinates tend to use fewer ODPs than male superiors. However, we also see that among women, there is no significant difference between superiors and subordinates. Supreme superiors use fewer ODPs than male superiors. Females actually used slightly more ODP, with an average of 0.096 counts. Male Subordinates had an average of 0.072 counts. Among Subordinates, females actually used slightly more ODP, with an average of 0.135 counts. Somewhat surprisingly, Female superiors had an average of 0.091 ODP counts. Gen-

 equivalence Test. We do not describe the analysis of our features to that depth in this paper due to our hypothesis is not formulated in terms of the gender environment feature.

We thus reformulate our hypothesis as follows: the use of ODP by superiors changes when looking at the splits by gender, but are more similar to each other than to Female Environments. In fact, Male Environments differ, the differences are not significant. In order to ascertain that, we must be a negative result: while the averages by Gender Environment differ, the differences are not surprising, but does not invalidate our Hypothesis 2, since our hypothesis is not formulated in terms of the gender environment feature (ODP). An ODP limits the addressee's range of possible responses, and thus threatens his face. The power prediction system presented in (Prabhakaran and Rambow, 2014) uses a lexical feature-feature interactions, which is very important as we see in Section 5 and 6. We use the Train set to train our models and optimize our parameters. Given a thread of our corpus for our experiments. We use the re-

port of the entire group, with the gender of both persons of the pair and ENV.
Would these results hold in modern enterprise social media contexts?
When Social Networks Cross Boundaries: A Case Study of Workplace Use of Facebook and LinkedIn

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ABSTRACT
The use of social networking software by professionals is increasing dramatically. How it is used, whether it enhances or reduces productivity, and how enterprise-friendly design and use might evolve are open questions. We examine attitudes and behaviors in a large, technologically-savvy organization through a broad survey and thirty focused interviews. We find extensive social and work uses, with complex patterns that differ with software system and networker age. Tensions arise when use spans social groups and the organization’s firewall. Although use is predominantly to support weak ties whose contribution to productivity can be difficult to prove, we anticipate rapid uptake of social networking technology by organizations.

to corporate use. One-third of the employees in the enterprise we studied were in the Facebook company network. We found an equal number of employees with LinkedIn accounts. Professional-oriented LinkedIn had quadrupled in size to over 25 million members in one year [12]. What if anything are all these professional users doing with social networking software?

Enterprise adoption of social networking software is far easier, and preventing it more difficult, than was true for earlier technologies. This raises questions. Do these sites enhance productivity? Can utility for enterprises be increased? What new issues will arise for these new user populations?

In early 2008, we conducted this research in Microsoft, then an organization of 88,000. Although not a typical enterprise, it is typical of the early adopters of email and IM that foreshadowed subsequent wider use. We briefly review social networking

Categories and Subject Descriptors
H.5.3. Group and Organization Interfaces.
A Longitudinal Study of Facebook, LinkedIn, & Twitter Use

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ABSTRACT
We conducted four annual comprehensive surveys of social networking at Microsoft between 2008 and 2011. We are interested in how these sites are used and whether they are considered to be useful for organizational communication and information-gathering. Our study is longitudinal and based on random sampling. Between 2008 and 2011, social networking went from being a niche activity to being very widely and heavily used. Growth in use and acceptance was not uniform, with differences based on gender, age and level (individual contributor vs. manager). Behaviors and concerns changed, with some showing signs of leveling off.

Author Keywords
Social networking; Facebook; LinkedIn; Twitter; Enterprise messaging, and employee blogging were first used mainly by students and consumers to support informal interaction. Managers, who focus more on formal communication channels, often viewed them as potential distractions [4]. A new communication channel initially disrupts existing channels and creates management challenges until usage conventions and a new collaboration ecosystem emerges.

Email was not embraced by many large organizations until the late 1990s. Instant messaging was not generally considered a productivity tool in the early 2000s. Slowly, employees familiar with these technologies found ways to use them to work more effectively. Organizational acceptance was aided by new features that managers appreciated, such as email attachments and integration with calendaring.
Microblogging Inside and Outside the Workplace

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Abstract
Microblogging has recently generated a lot of research interest. Yet very little is known about how corporate employees use microblogging tools. This study examined microblogging in the workplace by conducting a content analysis comparing posts from individuals who were using an internal proprietary tool and Twitter simultaneously. In both settings, posts that provided information or were directed to others were more common than posts on status. Within these categories, it was more frequent to provide information externally than internally but more common to ask questions either through broadcast or directed posts internally than externally. Qualitative interviews explored users’ motivations regarding microblogging behavior. The paper concludes with a discussion of the implications of microblogging for business use.

Grudin 2007; Skeels and Grudin 2009), especially with respect to issues of privacy and confidentiality.

This study sought to understand the use and value of microblogging in the workplace by analyzing over 5000 microblog posts from a group of employees. These employees were unique in that they used both an internal proprietary tool to post internally and Twitter to post externally. By comparing internal and external posts from the same users we explore how posts directed at a workplace only audience might differ from posts that are directed to a broader audience of non-work as well as work colleagues. Interviews with a majority of these employees allowed us to learn more about their reasons for posting internally or externally, and the value they got from posting and reading microblogs.
<table>
<thead>
<tr>
<th>Metaphors of Enterprise Social Media</th>
<th>Processes</th>
<th>Leaky Pipe</th>
<th>Echo Chamber</th>
<th>Social Lubricant</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Social Capital</strong></td>
<td><strong>Advantages</strong></td>
<td>Easy to “keep up” with what others are doing without significant social investment.</td>
<td>Immediate feedback from similar others strengthens existing communities.</td>
<td>Insights into what others are doing and who they know help create conversational fodder that makes it easy to initiate new connections and maintain established connections.</td>
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<td></td>
<td><strong>Advantages</strong></td>
<td>Broad knowledge helps build bridges across non-redundant groups.</td>
<td>Helps to establish common ground that makes interaction and sense of belonging easier.</td>
<td><strong>Disadvantages</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Advantages</strong></td>
<td>Awareness that others see what/whom you know could stop you from contributing so as not to undermine brokerage position.</td>
<td>Self-reinforcing groups may balkanize and splinter into non-redundant communities.</td>
<td><strong>Disadvantages</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Advantages</strong></td>
<td>Potential loss of power from making private rolodexes public</td>
<td>Groupthink could arise from exposure only to similar others</td>
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<tr>
<td><strong>Boundary Work</strong></td>
<td><strong>Advantages</strong></td>
<td>Ability to cross more knowledge boundaries due to visibility into what people are doing in other groups, departments, or locations.</td>
<td>Understanding of people in different parts of the organization, but doing similar tasks, can increase sense of relationships and belonging.</td>
<td><strong>Advantages</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Disadvantages</strong></td>
<td>More generic communication due to awareness that people outside a trusted or known community are watching.</td>
<td>Promote similarity and accessibility in global teams, across cultures.</td>
<td><strong>Disadvantages</strong></td>
</tr>
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<td></td>
<td><strong>Disadvantages</strong></td>
<td>Loss of proprietary information in a particular group.</td>
<td></td>
<td><strong>Disadvantages</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Advantages</strong></td>
<td>More individuals begin to attend to information, knowledge, and communication from others who they would not normally talk with.</td>
<td>Create a “speaker’s corner” in which people only from one side of boundary interact and listen to each other</td>
<td><strong>Disadvantages</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Advantages</strong></td>
<td>Many information inputs means cognitive overload and individuals allocate attention only to specific areas of the organization, or discontinue use of ESM altogether due to overload.</td>
<td>Strengthen boundaries between groups making communication, interaction and identification more difficult.</td>
<td></td>
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<tr>
<td><strong>Attention Allocation</strong></td>
<td><strong>Advantages</strong></td>
<td>Because of public nature of communication to a known community, people provide more accurate and honest information.</td>
<td><strong>Advantages</strong></td>
<td>Due to threaded and temporally ordered nature of conversation, people can focus their attention in ways that allows them to enter conversations more easily at meaningful times.</td>
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<td><strong>Advantages</strong></td>
<td>Information from trusted others increases attention to ideas communicated by others.</td>
<td><strong>Disadvantages</strong></td>
<td>People interject in conversations not intended for them.</td>
</tr>
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<td></td>
<td><strong>Disadvantages</strong></td>
<td>Individuals may believe that information they are attending to is representative of entire organization.</td>
<td><strong>Disadvantages</strong></td>
<td>Too many social-related signals can scatter one’s attention and increases absentmindedness.</td>
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<td></td>
<td><strong>Disadvantages</strong></td>
<td>Construction of sub-optimal attention allocation strategies.</td>
<td><strong>Advantages</strong></td>
<td>Recommendations of connections provides excuse for people to get to know one another.</td>
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<td><strong>Social Analytics</strong></td>
<td><strong>Advantages</strong></td>
<td>Because communication is visible and available, managers can use these digital traces to understand the organization’s informal information economy.</td>
<td>Better understand who are the various communities within the organization, even if those communities are not tied to formal organizations (e.g., departments or divisions).</td>
<td><strong>Advantages</strong></td>
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<td><strong>Advantages</strong></td>
<td>Create strategic opportunities for connecting people who are not yet connected.</td>
<td>Mistaken understanding of what communities are or who key players in them might be because analytics do not sample communication that occurs offline.</td>
<td><strong>Advantages</strong></td>
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<td><strong>Advantages</strong></td>
<td>Increased ability for surveillance and possibility of control.</td>
<td>Knowledge that management is watching may compel people to refrain from communicating on the platform.</td>
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</table>
As people in corporations increasing adopt platforms like Facebook and Twitter, how do you expect these findings to generalize/change?
How can the sociolinguistic findings on gender, gender environment, and power be useful for social computing research?
Class Exercise I

What kind of design considerations could incorporate the sociolinguistic findings on gender, gender environment, and power so that they aid people in the maintenance of social relations as Prabhakaran et al found? You can describe using any social computing platform of choice.
How do the preexisting social/corporate structures and biases at a large corporation impact the data, especially given that less than 35% of the unique discourse participants were women?

The style of communication depends on the context or environment.
Man is to Computer Programmer as Woman is to Homemaker? Debiasing Word Embeddings

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Abstract

The blind application of machine learning runs the risk of amplifying biases present
in data. Such a danger is facing us with word embedding, a popular framework to
represent text data as vectors which has been used in many machine learning and
natural language processing tasks. We show that even word embeddings trained on
Google News articles exhibit female/male gender stereotypes to a disturbing extent.
This raises concerns because their widespread use, as we describe, often tends to
amplify these biases. Geometrically, gender bias is first shown to be captured by
a direction in the word embedding. Second, gender neutral words are shown to
be linearly separable from gender definition words in the word embedding. Using
these properties, we provide a methodology for modifying an embedding to remove
gender stereotypes, such as the association between the words \textit{receptionist} and
\textit{female}, while maintaining desired associations such as between the words \textit{queen}
Semantics derived automatically from language corpora necessarily contain human biases

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ABSTRACT

Artificial intelligence and machine learning are in a period of astounding growth. However, there are concerns that these technologies may be used, either with or without intention, to perpetuate the prejudice and unfairness that unfortunately characterizes many human institutions. Here we show for the first time that human-like semantic biases result from the application of standard machine learning to ordinary language—the same sort of language humans are exposed to every day. We replicate a spectrum of standard human biases as exposed by the Implicit Association Test and other well-known psychological studies. We replicate these using a widely used, purely statistical machine-learning model—namely, the GloVe word embedding—trained on a corpus of text from the Web. Our results indicate that language itself contains recoverable and accurate imprints of our historic biases, whether these are morally neutral as towards insects or flowers, problematic as towards race or gender, or even simply veridical, reflecting the status quo for the distribution of gender with respect to careers or first names. These regularities are captured by machine learning along with the rest of semantics. In addition to our empirical findings concerning language, we also contribute new methods for evaluating bias in text, the Word Embedding Association Test (WEAT) and the Word Embedding Factual Association Test (WEFAT). Our results have implications not only for AI and machine learning, but also for the fields of psychology, sociology, and human ethics, since they raise the possibility that mere exposure to everyday language can account for the biases we replicate here.
Social media is distorting the representation of women in Africa. Here’s what can be done about it
Gender and Jobs in Online Image Searches

Men are overrepresented in online image search results across a majority of jobs examined; women appear lower than men in such search results for many jobs

BY ONYI LAM, BRIAN BRODERICK, STEFAN WOJCIK AND ADAM HUGHES
No Country for Old Members: User lifecycle and linguistic change in online communities
Summary

• The paper proposes a framework for tracking linguistic change as it happens in a community, to understand how specific users react to the community’s evolving norms.

• Results show a two-stage lifecycle of linguistic change in communities (RateBeer and BeerAdvocate):
  • a linguistically innovative learning phase in which users adopt the language of the community
  • a conservative phase in which users stop changing and the evolving community norms pass them by
In order to gain further insight into the relation between a user's language at each life-stage and that of the community, we consider the snapshot language model of the respective month (blue, round markers; error bars indicate the standard error of the mean). Figure 7(a) shows that on average users increasingly stabilize their language as they approach the current language of the community (decreasing cross-entropy). Conversely, users who have recently joined the community or who have not yet stabilized their language will have higher cross-entropy values. This supports the observation that, in both communities under study, users follow a deterministic linguistic pathway from birth to adolescence, with language rigidification after linguistic adolescence. (b) Linguistic progressiveness at each life-stage. Positive values indicate future-leaning users.

Figure 5: Example of community-level change: Predictability of linguistic change. In order to predict a user's susceptibility to react to the evolving norms of the community, we focus on analyzing the predictability of the language model of the respective month (blue, round markers; error bars indicate the standard error of the mean). The predictability of the model is defined as the mean overlap between each post and the previous 10 posts written by the user. Observations show that users have vastly different lifespans, ranging from one day to an indefinite number of years, and interact with the community at very different rates. Moreover, online communities are subject to constant change, and the linguistic distance from the community or, on the contrary, the distance of a user as the percentage of users who wrote their last post in the respective month, can be used to understand the community's evolution over time. Unlike the offline settings where traditional studies of linguistic change can be conducted, online communities provide a rich source of data for analyzing linguistic change, each of them providing different perspectives on the phenomenon. We start by quantifying the extent to which a user is stable in their language use and then analyze the impact of this stability on the predictability of the model.
Community Acceptance and Feedback
Why is this important from the perspective of the social computing field – class exercise and brainstorming examples later...
Danescu-Niculescu-Mizil et al. say that “[their] framework can be used to detect, early in a user’s career, how long she will stay active in the community”

Describe two scenarios where this knowledge will be beneficial and two where it will not be useful/could be harmful. Who are these stakeholders who will be interested in this knowledge?
BUILDING MEMBER ATTACHMENT IN ONLINE COMMUNITIES: APPLYING THEORIES OF GROUP IDENTITY AND INTERPERSONAL BONDS

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Online communities are increasingly important to organizations and the general public, but there is little...
Predicting Continued Participation in Newsgroups

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Turnover in online communities is very high, with most people who initially post a message to an online community never contributing again. In this paper, we test whether the responses that newcomers receive to their first posts influence the extent to which they continue to participate. The data come from initial posts made by 2,777 newcomers to six public newsgroups. We coded the content and valence of the initial post and its first response, if it received one, to see if these factors influenced newcomers’ likelihood of posting again. Approximately 61% of newcomers received a reply to their initial post, and those who got a reply were 12% more likely to post to the community again; their probability of posting again increased from 44% to 56%. They were more likely to receive a response if they asked a question or wrote a longer post. Surprisingly,
Feed Me: Motivating Newcomer Contribution in Social Network Sites

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ABSTRACT
Social networking sites (SNS) are only as good as the content their users share. Therefore, designers of SNS seek to improve the overall user experience by encouraging members to contribute more content. However, user motivations for contribution in SNS are not well understood. This is particularly true for newcomers, who may not recognize the value of contribution. Using server log data from approximately 140,000 newcomers in Facebook, we predict long-term sharing based on the experiences the newcomers have in their first two weeks. We test four mechanisms: social learning, singling out, feedback, and distribution.

is a content feed, which publishes stories about a user or set of users and makes the stories available to others. Such feeds may cause users to increase their rate of content contribution, either by increasing user awareness of product features and the socially acceptable means of using them, encouraging users to contribute content to attract the attention of their peers, or a combination of these effects.

This paper examines the relationship between initial user behavior and content production in a social network environment. Using a set of approximately 140,000 Facebook users who joined in March 2008, we examine the newcomers’ initial content contribution and their friend networks to assess the effects of friends’ behavior, feedback,
Mental Health Support and its Relationship to Linguistic Accommodation in Online Communities

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ABSTRACT
Many online communities cater to the critical and unmet needs of individuals challenged with mental illnesses. Generally, communities engender characteristic linguistic practices, known as norms. Conformance to these norms, or linguistic accommodation, encourages social approval and acceptance. This paper investigates whether linguistic accommodation impacts a specific social feedback: the support received by an individual in an online mental health community. We first quantitatively derive two measures for each post in these communities: 1) the linguistic accommodation it exhibits, and 2) the level of support it receives. Thereafter, we build a statistical framework to examine the relationship between these measures. Although the extent to which accommodation is associated with support varies, we find a positive link between the two, consistent across 55 Reddit communities serving various psychological needs. We discuss how our work surfaces by providing a ‘buffer’ against the potentially adverse effects of stressful or difficult situations [20, 57]. However, outside of therapeutic contexts, vulnerable individuals often have limited ability to access adequate social support [50, 51, 78].

Online mental health communities (OMHCs), in recent years, have emerged as prominent resources for mental health support [84]. In fact, support derived from these communities has been found to causally improve mental wellbeing like reduced likelihood of suicidal thoughts [31]. Such support can range from emotional support (ES) to informational support (IS), often taking the form of empathy, acknowledgment, advice, or situational appraisal around diverse issues like mental illness, crisis, addiction, and abuse [17, 30, 31]. Moreover, due to the high quality of support provided by these OMHCs, they are also considered as a “safe haven”: they enable individuals to express disinhibiting emotions, engage in self-disclosures...
Will the two-phase lifecycle (linguistic innovation learning and conservative phases) hold for/generalize to other online communities?
#anorexia, #anarexia, #anarexyia: Characterizing Online Community Practices with Orthographic Variation

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Abstract—Distinctive linguistic practices help communities build solidarity and differentiate themselves from outsiders. In an online community, one such practice is variation in orthography, which includes spelling, punctuation, and capitalization. Using a dataset of over two million Instagram posts, we investigate orthographic variation in a community that shares pro-eating disorder (pro-ED) content. We find that not only does orthographic variation grow more frequent over time, it also members, then what characterizes the members who accept and advance these changes?
The social meaning of language change in online communities can be better understood by linking language change to community membership dynamics, i.e., the progression of individual community members from new to
What about anonymous communities (like 4chan /b/) where it may be less important whether someone is a newcomer?
What about communities catering to specific needs of people (e.g., mental health)?