EMOTIONS ARE RELATIONAL: POSITIONING AND THE USE OF AFFECTIVE LINGUISTIC RESOURCES

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Abstract

To understand human beings is to understand the variety and complexity of emotional experiences they have. Understanding how language is both shaped by and used in creating and coping with these experiences is the focus of this dissertation. It offers three case studies about affective linguistic resources, advancing a theoretical framework (positioning) and a series of quantitative methodologies that grow out of information-theoretic approaches to language.

The first case study shows how many different linguistic resources have prominent affective aspects by examining a single emotional relationship conversation between two friends, showing how we might confidently make claims that one section of conversation is more emotionally intense than another and how we might get experimental data about connected discourse rather than being stuck in analyses of disconnected individual sentences.

The second case study focuses on the word *little*, which allows speakers to position themselves closer to their audiences and others through affectionate uses, allows them to hedge positions they aren't prepared to give full illocutionary force to, and which can also be used to demean and be-little. I show the factors important to determining *little*'s meaning through three experiments and analysis of seven conversational corpora. I look at the socio-pragmatics of its use, focusing especially on power and gender.

In the third case study I show that emoticons occur in about 10% of posts on Twitter that are sent by people that are actually involved in real interactions (that is, they are sending messages and receiving messages back from at least four but no more than 100 other users). In addition to describing who uses which emoticons and how, I use the emoticons to describe the major dimensions of affective meaning in Twitter using hierarchical cluster analysis, factor analysis, and topic modeling. These dimensions—positivity/negativity, immediacy, teasing, and flirting—are all positional in nature.

People use language to position themselves, their audiences, and their topics relative to one another. Expressions of emotions are more than internal states made visible, they are actions that have particular interpersonal causes and consequences, which are understood linguistically ("I'm mad/happy/scared") and which collective add up. This has important ramifications for any given interaction and at a more general level, these linguistic actions reveal and perturb the affective aspects of the cultural and cognitive systems they are part of.

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I am sure I'm not including everyone I should. There are names that are absent by some slip of forgetfulness and others because I didn't know how to include them. I don't really know how to thank my family, for example, who have given me unconditional love and support not just during the writing of this dissertation but from long before.

Chapter 1: Introduction

Who is this dissertation for?

If you have absolutely no interest in "emotion" or "language", you are almost certainly in the wrong place. For almost everyone else—whether evangelist, skeptic, bystander, or other—welcome. This dissertation is intended to cover a lot of ground, which means that it is probably not easy to place it in a single subdiscipline of linguistics, though the most likely candidates are sociolinguistics, pragmatics, psycholinguistics, and computational linguistics. In addition to practical applications (like emotion detection and sentiment mining), this dissertation offers a theoretical corrective to the prevalence of reference-only theories of meaning and theories of interlocutors as mere information-processors. I would like to believe that the quantitative methods and theoretical frameworks that I make use of here will give you new ideas for projects and new tools to tackle them.

Because it is inter-sub-disciplinary, my hope is that this work will connect with and promote research across linguistics fields and in other disciplines, too, since demonstrating how people use linguistic forms to communicate emotions is broadly relevant to psychologists, anthropologists, and many others concerned with how individuals relate to themselves and the people around them. If I have been successful, then those of you who are socially inclined will still feel at home with information-theoretic approaches, and those who are computationally or formally inclined will be delighted by the complications of social theory.

Overview

This dissertation uses a variety of experimental and corpus linguistic methods to demonstrate the meaning of various affective linguistic resources. Chapter 3 is a turn-by-turn analysis of an emotional section of a phone conversation between two friends. I adapt the Gtrace tool by McKeown, Valstar, Cowie, Pantic, & Schroder (2011) in order to gather judgments about the entire 30-minute phone conversation. The Gtrace tool records subjects' ratings of the conversation's emotional intensity continuously (every 0.006 seconds), resulting in over 275,000 judgments per subject. This method can be used to hone in on the most affective moments in an interaction.

The real purpose of Chapter 3 is to show how affect is communicated at every linguistic level and the sorts of approaches one might take to understand situated uses, both in terms of their local context and as larger patterns used by the wider speech community. To do this, I use techniques from corpus linguistics to explain how the interlocutors change in their use of linguistic resources across different sections of talk and I show how these uses are connected to patterns of other speakers in other corpora. For example, one of the friends in the telephone conversation is a big user of discourse *like* throughout the whole 30-minute conversation but during in the most emotional section (when she's talking about a guy she's interested in) her *like* spikes, drawing attention to *like*'s role in the expression and regulation of emotion.

One of the clearest results is that affect is multiply marked. In Chapter 3, I demonstrate how emotion terms (*crazy*, *annoying*, and *love*) and affect bursts (*ooh, ach*) can be used as guideposts. They are clear signs of affect and their presence in an utterance directs our attention to other phenomena in those utterances that are also be worth examining in terms of affect. The turn-by-turn analysis covers a lot of different phenomena, including trivializing *just*, question/answers, pitch and intonation, lipsmacks, unfinished propositions and disfluencies, constructed dialog, repetitions, and the use of various discourse markers. There is also an extended discussion of laughter.

We also see how agency and immediacy are constructed over the course of the conversation—when the interlocutors take up the first person pronoun and the types of verbs, adjectives, and constructions they use. The importance of immediacy (e.g., *I am scared* vs. *it was frightening*) will come back again throughout the dissertation. In Chapter 6, we see that one of the important dimensions of affective meaning in Twitter is between shorter, more basic emotion terms and longer, more morphologically complex ones.[1]

The ways that speakers take and avoid agentive positions through language and the degree of immediacy they use are both ways in which they are doing "positioning". All of the chapters concern themselves with positioning, though Chapter 4's pursuit of *little* is the most focused. I show that interlocutors are positioned relative to one another through the object of *little*. In Experiment #1, I manipulate the presence/absence of *little* and whether it modifies a noun that is possessed by *my* or *your*. In judgments about speaker confidence, speaker likeability, and overall emotional intensity, subjects are sensitive to the target of the *little*. We see this in the other

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[1] And we see that hashtags—a device Twitter users employ to mark topics tend to behave like nominalizations and construct a non-immediate kind of affective stance (e.g., *#sadface, #ouch*).

experiments, too, including Experiment #3, which tests real-life examples of *little* to demonstrate how *little* is deployed among friends and family.

Chapter 4 develops experimental pragmatics to measure what happens when *little* is present and absent. I run three different experiments. Two experiments have controlled stimuli to test specific hypotheses about the role of positioning and collocational strength. Another experiment is based on stimuli from real speech—every utterance with *little* that is in the CALLHOME corpus (Canavan, Graff, & Zipperlen, 1997). Using mixed-effects linear regression models, I show the contribution of a number of factors to measures of (i) speaker confidence, (ii) speaker likeability, (iii) utterance emotional intensity, (iv) utterance valence (positive/negative). Traditionally, experiments have been performed using undergraduates. By using crowdsourcing technologies and techniques (Schnoebelen et al., 2011; Schnoebelen & Kuperman, 2010), I am able to get much broader coverage. They come from all over the United States and have a range of ages/education levels—they are also numerous. The results for the three experiments are based on participation from 527, 75, and 735 subjects, respectively.

Earlier in this chapter, I discussed the use of collocates in approaching affective phenomena and I develop that in each of the subsequent chapters—for understanding the meaning of utterances in the relationship conversation (Chapter 3), for understanding the meaning of *little* (Chapters 4 and 5), and for understanding emoticons and other linguistic resources in Twitter (Chapter 6).

The basic notion behind collocation is that some words appear with each other more often than they would by chance—a prime example would be *white* and *black* appearing together or *salt* and *pepper*. One of the other roles of Chapter 4 is to describe *little* by its collocates, contrasting it with previous research in languages with morphological diminutives (Dressler & Merlini Barbaresi, 1994; Jurafsky, 1996). Looking at the spoken portion of the Corpus of Contemporary American English (M. Davies, 2008), I find that *little* tends to modify nouns people feel positively towards but with adjectives that people find negative. Moreover, when it is used with negative term it can actually be a sign of affection (*bugger*→*little bugger*). This role of teasing turns out to be a major affective dimension in Twitter, so it is further developed in Chapter 6.

In information theoretic terms, we would expect that collocates—by dint of appearing together all the time—carry less information. That is, there shouldn't be much of a difference between asking someone *how's your little baby* and *how's your baby* compared to asking someone *how's your little project* and *how's your project*. As you'd expect from this example, Experiment #2 (and the other experiments) find that non-collocates that appear with *little* are interpreted negatively. But a

surprising result—one that has consequence for psycholinguistic models—is that adding/removing *little* from one of its common collocates makes a difference. Common collocates are more positive when they appear with *little* even though in information theoretic terms that *little* is doing very little.

Any discussion of positioning will eventually require us to grapple with issues of power and I test the role of power not just in the experiments but through investigations of corpora with very clear power differentials: an academic organization structured with a hierarchy of education (Janin et al., 2003) and the CHILDES corpus of parent-child interactions (MacWhinney, 2000). In the ICSI meeting corpus, all education levels use *little* but it's speakers at the extreme ends that use it the most (professors and people with an undergraduate education). But they use *little* in very different ways. The *little* that the professors use target others, while the people at the low-end of the totem pole use *little* about themselves. I also look at parent-child interactions and find that it's really parents who are pushing and enforcing littleness, which they apply to the children and their world as well as to emotions like fear, which they reframe as part of teaching kids emotional regulation. To the extent that kids talk about size, it is to make themselves *big*, not small.

In Chapter 5, I describe *little* in terms of gender across a variety of corpora—face-to-face sociolinguistic interviews (Pitt et al., 2007), telephone conversations between friends and family (Canavan et al., 1997), and telephone conversations between strangers (Cieri, Miller, & Walker, 2004).[2] The results reveal the pitfalls of doing demographic correlation work based on a single corpus. While women do tend to use *little* more across the corpora, I show how corpus-specific the role of interlocutor gender and topic are.

At a coarse level, women do use *little* more than men. But what I show is that this rather misses the point. There are significant interactions between the speaker, audience, and topic. For example, in some corpora, it is the women who are talking to other women who are using lots of *little*, while the women talking to men are constrained. In other corpora, that's reversed. And while it may be tempting to imagine that women are using *little* to belittle themselves, that is not a safe generalization to make. When we look at the topics under discussion, men and women actually mostly use *little* at the same rate, regardless of the gender of their interlocutor. I demonstrate the exceptions (like talk about terrorism and fitness) and how they are connected to the construction of femininity and masculinity.

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[2] With references to the CHILDES and ICSI academic meeting corpora discussed in Chapter 4.

In Chapter 6, I use a corpus of 3,775,174 tweets that have at least one of 28 emoticons (102,304 authors using 18,559 part-of-speech-tagged words). I demonstrate the meaning of emoticons by uncovering the patterns of how they are used with other words. I use hierarchical cluster analysis, factor analysis, and topic modeling. In addition to describe the use of emoticons and other linguistic resources, I am able to show the dimensions of affective meaning that are most important for characterizing the emotional universe of Twitter.

I have already alluded to some of the findings from Chapter 6. Part of what the chapter offers is a careful examination of the meaning and use of emoticons.[3] I uncover emoticon "dialects", focusing in particular on the meaning of emoticons with and without noses. But the broader theme here is affective dimensions. Anyone dealing with affect must deploy some sort of notion of "negative" and "positive". These emerge in Twitter, as well, but a few other dimensions that are less common do, too. Immediacy is one of them—how close or far away do they position themselves from an emotional incident/description? Is it the very direct *I'm sad* or the more distant *Then they took it away #sadface*? Flirting and teasing also emerge as important affective dimensions, and these too are positional. Desire (with a target) has a role to play in affect and emotional regulation, as does positioning through teasing—where a positive emotion of familiarity is constructed out of pieces that are conventionally negative. Teasing is inherently a gathering together of conflicting signals.

Understanding expressions of emotion means understanding how people use collections of linguistic resources to position themselves, their audiences, and their topics relative to one other. Expressions of emotion are not just internal states made visible. They are positional: reflecting, creating, and changing relationships.

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[3] Over the course of this chapter, I also discuss non-emoticons, including new terms like *lmao* ('laugh my ass off') and *<3* (a heart on its side), and more common English words. For example, *feel* is actually most commonly used for expressing negative emotions and negation (e.g., *can't*) is also markedly negative. I demonstrate the affective uses of *would* and the affective differences of various intensifiers like *really*, *so*, and *very*.

Chapter 2: Emotion in linguistics and related fields

Linguistic meaning covers a great deal more than reports of events in the real world. It expresses, sometimes in very obvious ways, other times in ways that are hard to ferret out, such things as what is the central part of the message as against the peripheral part, what our attitudes are toward the person we are speaking to, how we feel about the reliability of our message, how we situate ourselves in the events we report, and many other things that make our messages not merely a recital of facts but a complex of facts and comments about facts and situations. (Bolinger, 1977, p. 4)

A world experienced without any affect would be a pallid, meaningless world. We would know that things happened, but we could not care whether they did or not. (Tomkins, 1995, p. 88)

Introduction

This chapter offers a review of how "emotion" and "affect" have been treated in linguistics and in related fields. The major point is that whether one is attuned to the cognitive or the social aspects of language, a theory of language has to come to terms with emotion. This chapter attempts to draw together both a variety of data and a variety of theoretical approaches, as well as to give background on "positioning", which I believe provides the most useful framework. To speak more practically for a moment, the odds are that if you are perusing this dissertation, you have in-depth knowledge of some subset of what is touched upon in this chapter—one of my hopes is that you can use this chapter to connect your existing knowledge with areas and ideas that you aren't as familiar with. The chapter is also a record of what I believe must be considered in undertaking the large project of understanding the affective aspects of language.

In the first part of this chapter, I review work in major linguistics journals since 2005 and find research on affect to be sorely underdeveloped. This first section can also be thought of as tuning our ears to the wide variety of affective linguistic phenomena. Affective linguistic phenomena exist at all linguistic levels.

Studies touching upon affect and emotion are not restricted to major linguistic journals since 2005, so the second part of this chapter reviews work from other sources that is relevant for developing theories and frameworks that systematize and enhance our understanding of the role

of affect in language. In particular, I look at concepts at work in sociolinguistics (indexical fields, style, persona, identity, communities of practice, negotiation, agency), pragmatics (expressives, performatives, conceptual baggage, cooperation, politeness), psychology (affective dimensions, basic emotions, appraisals, selective attention, priming), and computational linguistics (emotion detection/recognition, opinion mining/sentiment analysis, polarity lexicons, hot spots). As well as some concepts that are more widely shared—reference, involvement/engagement, coordination/accommodation, alignment, audience design, common ground, situation models, informativeness and markedness.

In the third part of the chapter, I build out the notion of "positioning" to account for affective phenomena by situating it within the previous literature on stance and positioning and by describing its relationship to broader social theories on performance, practice, and structuration.

A survey of recent linguistic work touching on emotion/affect

Between January 2005 and May 2012, there were 1,273 articles published in *Language*, *Linguistic Inquiry*, *The Journal of Linguistics*, and *Lingua*.[4] Of these, 74 had some mention of "emotion*" or "affective".[5] By contrast, there were 278 articles about ellipsis in that time period. But this is a much bigger gap than the numbers alone suggest. The articles on ellipsis generally grapple with that phenomenon in quite substantive ways, while the articles mentioning emotion almost exclusively used the term one time only. Despite this, emotion often plays a crucial, even definitional, role in describing a linguistic phenomenon. But the single-sentence mentions of emotion leave it undefined and untheorized, with researchers (in most cases) neither proposing a way to handle emotion/affect nor even referring to another body of literature.

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[4] I count articles, short reports, discussions, remarks/replies, squibs, but not reviews or review articles.
[5] In this opening section, I shall refer to "emotion" because that is the more common word in recent work. My own preference is to treat linguistic phenomena as "affective" rather than "emotional" because that seems to be a more general term. Researchers in many fields use these terms interchangeably, although within the psychological literature it is common to use "emotion" to refer to passing states that have names like *angry*, *sad*, and *happy*, while reserving "affect" for polarity/valence/ pleasantness (its categories are therefore more general, and include *positive* and *negative*).

Articles in major linguistics journals

	All articles	"Ellipsis"	"Emotion*", "Affective"
Value	1,273	278	74
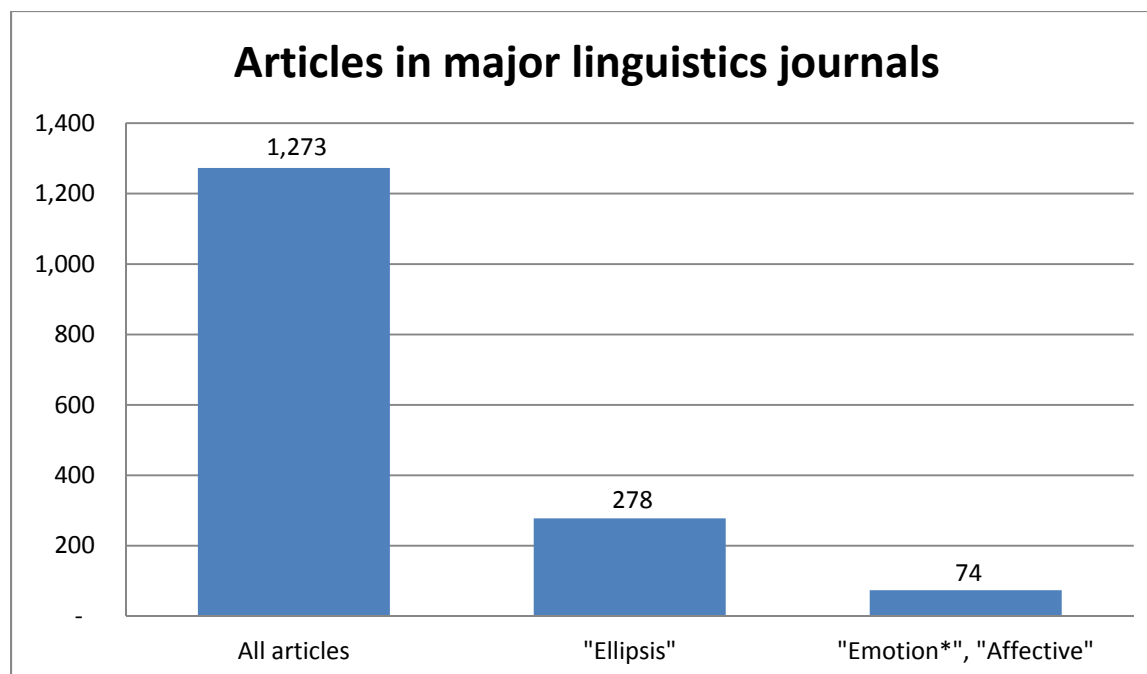
Figure 1: Articles in *Language*, *Linguistic Inquiry*, *Journal of Linguistics*, and *Lingua*, May 2005-May 2012.

Emotion-in-language is left outside the field—it's someone else's job, though linguists don't really borrow their work, either. As a field, we are formally inclined and emotion doesn't feel like the kind of thing that can be formalized. We have been persuaded by an old ideology that puts emotion and reason in opposition. How could emotion get us anything but messiness? And so very few linguists approach emotion with curiosity, confidence, or precision. Ultimately, my aim is change the field's tools, approach, and perspective. For the time being, however, I will walk through the various uses of "emotion" in these articles, which provide tantalizing possibilities. I cannot dwell on any particular phenomenon too long, but I believe this guided summary will demonstrate both how emotion is treated currently and provide tantalizing possibilities.

I'll begin by mentioning two studies where emotion plays a role in the methodological descriptions. In Pellegrino, Coupé, & Marsico (2011) emotion comes in a caveat to their data—they analyzed speech that came from reading and observe "Reading probably lessens the impact of paralinguistic parameters such as attitudes and emotions and smooths over their prosodic correlates (e.g. Johns-Lewis 1986)". It is rare for researchers to mention the emotional range of their data, whether their work is corpus-based or experimental. There are three possibilities. The first is that the caveat is usually unnecessary. That is, researchers do consider the types of stances involved in their experiments/corpora/intuitions and (correctly) diagnose them to be irrelevant enough to not even need mentioning. The second possibility is that emotional facts are playing a

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role in the data but the effect is hidden or misattributed because researchers aren't attending to speakers' orientations to their speech and the speech of their interlocutors. Finally, the third possibility is that researchers aren't attending to emotion in the data but that is (luckily) okay because it wouldn't make any difference even if they had attended. It's that middle possibility that is worrisome.

In a study of whether mothers change their rate of speech based on the language development of their children, Ko (2012) observes that so many factors affect speech rate that experimental controls are impractical—her three chief examples are emotion, sentence length, and information status of the utterance. But the broader findings relate well to work in the present dissertation—particularly Chapter 5, which looks at how genre and other features complicate treating gender as having a static effect on language use. Looking at longitudinal data from CHILDES (MacWhinney, 2000), Ko finds shifts in speaking rates corresponding to when children start putting words together (and possibly a shift at the first onset of speech). In other words, Ko's research suggests that treating child-directed speech as if it is a single, static register is a mistake. The individual interactions that make up the data involve a range of propositions and stances towards those propositions—though it may safely be assumed that the distribution of affective stances change dramatically over time (e.g., one cannot debate a preverbal child).

Pronouns

Wechsler (2010) works to simplify first and second person pronouns—one piece of evidence he cites is the difficulty that children with autism have with "theory of mind" phenomena such as seeing the world through someone else's eyes. In language, this manifests itself as a high rate of pronoun reversals, e.g., the children use *you* to refer to themselves. Wechsler's proposal is that first person pronouns are used for self-ascription by the speaker, requiring the addressee to build a model of the speaker's belief state (that is, a first-person pronoun is not specified for referring TO the person who is speaking). The kind of perspective-taking Wechsler is describing fits nicely with the theory of positioning I develop, though notice that the only actual mention of emotion is in describing autism, not a linguistic phenomenon ("Childhood autism is a severe developmental disorder characterized by specific social, emotional, cognitive, and linguistic impairments" Wechsler, 2010, p. 359).

Heine & Song (2011) discuss how pronouns evolve and shift in uses, giving examples of personal deixis coming from (i) spatial deixis, (ii) human nouns, and (iii) intensifiers. Affect comes into their descriptions in two places, the first is the Thai second-person marker *tuá* ('body self') which

is used affectionately/intimately and or in anger (see Cooke, 1968). The second is in a discussion of the positional roles of spatial terms and pronouns. Here they quote Claude Hagège:

> [There are] languages which use spatial adverbs with the meaning of personal pronouns: Japanese *kotira* 'here' often refers to the speaker, Vietnamese *Hây* 'here' and *Hây* [sic] (or *Hó* 'there') are used with the meanings 'I' and 'you' respectively when one wants to avoid the hierarchical or affective connotations linked to the use of personal pronouns. (Hagège, 1993, pp. 216–217)

While I had intended "positioning" to be a theoretic metaphor, it is interesting to note the actual role of such a metaphor is natural language itself. Fundamental to deixis (whether metaphoric or not), is the carving out of different spaces. That is, a given deictic exists in opposition with others (*here* is not *there*). Understanding the space of alternatives—what could have been said but wasn't—is crucial for interpretation.

Verbs and case marking

Emotions are often discussed when talking about case-marking of experiencers and categorization of verbs:[6]

- It's common for languages to use dative case to mark experiencers—as in Telugu (Haddad, 2009). In Icealandic, as Barðdal (2011) describes, marking experiencers of cognitive/emotion verbs is relatively recent and still exists in variation with marking them with accusative case.

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[6] Staying with verbs, we also find:
- In middles like the bread cuts easily, there is a patient (the bread), but no agent specified. Every language that has a middle voice also has a class of media tantum or deponent verbs—verbs that don't have an active form. Kaufmann (2007) points out that media tantum verbs occur in particular semantic classes, and at the top of the list are emotion verbs.
- In looking at how language learners figure out what to do with strings that could have either a raising or control structure, Becker (2006) points out that control verbs don't usually occur with inanimate subject since they are usually about properties of sentient beings—like emotions.
- Object-experiencer verbs like those of emotion often allow both stative and eventive readings that offer good tests for aspectual theories (Meltzer-Asscher, 2010).
- Classes of emotion verbs are also used in analyzing complement development in Surinamese Creoles in (Migge & Winford, 2012).
- In comparing bare nominal in English and Arabic, Salem (2010) makes use of Laca (1990)'s distinction between existentially interpreted bare nominal (focused) and generically interpreted bare nominal (topical). Affective verbs like *like, admire,* and *hate* pose a problem, however, since their objects can be focused even with a generic interpretation.

More generally, it's difficult to talk about factive verbs without talking about emotional factive verbs (Giorgi, 2009; Haegeman, 2006; Mastropavlou & Tsimpli, 2011; Siegel, 2009; Wiklund, Bentzen, Hrafnbjargarson, & Hróarsdóttir, 2009).

- As van den Berg (2005) describes, the East Caucasian languages actually split emotion verbs from perception verbs and mark the experiencers with different case (in Godoberi and Tsakhu, the emotional experiencer gets dative case, while the perception experiencer gets affective case, in Avar, the perception experiencer gets the superessive case).

- The use of dative-purposive case in Manambu can really be a "frustrative" ('in vain'), says Aikhenvald (2008).

- Escobar (2012) looks at judicial complaints in Andean Spanish and finds that the present perfect is used to narrate events close to the experience—in Escobar's terms, events that have "affective charge". Escobar finds that the present perfect is only used in the complaints during the description of wrongs that the writer is elaborating. And this parallels nicely the findings that in English narratives, the present perfect is especially used in the "complicating" part of the narrative (Labov & Waletzky, 1967). The complicating part of the narrative can be understood through a positional metaphor as a place where speakers "locate hearers in a virtual present or to make them virtual observers of a virtual present speech event" (Ritz & Engel, 2008, p. 132).

Specific words and morphemes

One of the most common ways for emotion to come up is in the description of a particular word or morpheme. Probably the most comprehensive version of this is Xiang (2011)'s work on utterance-final *lāh* in Shishan (spoken on Hainan Island, China). *Lāh* is used to mark obviousness, resignation, resolve, regret, and indignation. Xiang derives all these meanings from "the central relational notion of restrictivity: a subjective representation of a 'constraint reality' where nothing else is possible" (Xiang, 2011, p. 1378). And as Xiang also notes, utterances with *lāh* may express the speaker's attitude to their audience (e.g., dismissiveness or challenge).[7]

Here are some other words/morphemes:

- The Dutch particle *tet* "underscores the polarity of the clause and expresses either irritation or surprise, as if he or she had expected the opposite state of affairs" (Craenenbroeck & Haegeman, 2007, p. 175).

- The *–k* that's appended to Cantonese particles is an "emotion intensifier" (Sybesma & Li, 2007).

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[7] Xiang also relates the discussion to Singapore English *lor* (Platt & Ho, 1989; Wee, 2002), Cantonese *lo* (Luke, 1990; Matthews & Yip, 1994)), and Mandarin *me* (Chappell, 1991; Chu, 1998).

- Tongan has several determiners, including *si'i* and *si'a*, which are said to express sympathy to the DP they head (Hendrick, 2005).

- Thai has two complementizers—verbs of evaluation and emotion use *thîi* (Singhapreecha, 2010).

- In Olmos & Ahern (2009), the authors analyze *but* and *although* as ways to get addressees to suspend or eliminate assumptions. These connectives have meaning, they say, by indicating a contrast between an explicitly expressed proposition and possible alternative propositional representations. Olmos and Ahern explain how the *pero* in the following utterance suggests the speaker's "positive emotional stance": *María vive muy legos, pero hay un autobús* ('Mary lives very far away, but there is a bus'). The *pero* marks a contrast between there being a bus and there being no bus. The fact that the 'there is a bus' proposition is explicit indicates the positive emotional stance. (Olmos and Ahern offer a similar analysis of *aunque* ('although'), except that the contrast is between the house being far away and 'it's not possible to get there'.)

- Icelandic has a prenominal marker, *hin*, which Katzir (2011) says is hard to give a precise meaning of, "my informants reported that the use of this marker implies some emphatic or emotional value, in addition to definiteness" (Katzir, 2011, p. 70).

- In Navajo, *=go* normally serves as a subordinate marker, but it can also appear in utterances where there is no matrix sentence. When it is used this way (as in narration), it marks emotional evaluation and background information. Mithun (2008) analyses the Navajo as well as other languages that have similarly behaving subordinate markers.

- Muysken (2011) reviews Spanish affixes in Quechua languages and notes a number of affixes with affective meanings/uses. For example, *-into* is used as part of "characterizing". For example, in *macha-q-nyintu*, 'drunkard'—the first morpheme means 'imbibe' and the second morpheme is the 'agentive' marker). Also on the list of affective morphemes are diminutive markers—these are realized in a variety of ways in various Quechua languages.

- Baker (2011) is interested in degrees of nominalization in Sakha (Yakut) and proposes a continuum of finite CP < participial clause < gerund < noun phrase. In the course of this argument, he observes that one use of finite CPs is to express the cause of an emotion.[8]

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[8] The present dissertation uncovers "immediacy" as a major dimension of affective meaning and counts nominalizations as "non-immediate". For that reason, it is intriguing to observe that emotion causes in Sakha are described in terms of the least-nominalized form. Clearly finite CPs have other uses, so further work is required to see if this is anything more than a coincidence.

- Chung (2010) points out that simple psyche predicates in Korean are rarely used to describe a third person. That is, *coh* ('be good') and *sulphu* ('be sad') almost always describe the speaker's emotions.[9] These predicates can be used with or without evidential markers, but it is non-evidential sentences that are more assertive and seem to offer "new information" to the hearer. Evidential sentences with simple psyche predicates—even though they are reporting the speaker's feelings—seem more "expressive" and "spontaneous". More broadly, Chung (2010) is showing that evidentials don't seem to be purely epistemic—not only are they used for direct witnessing, but they are also used to show the speaker's attitude, their "psychological distance", "weakened reliability", and "lack of responsibility".
- It's worth noting that it's difficult to talk about negative polarity items without getting into emotion (Chierchia, 2006; Kishimoto, 2008; Schapansky, 2002, 2010; Von Fintel & Iatridou, 2007). Several of these build upon Klima (1964)'s notion of affective elements, which allows *It is {not possible/impossible} for him to do any more* without allowing **It is possible for him to do any more*.

Phonetics and phonology

We can't do phonetics or phonology without mentioning emotion:

- We know that pitch plays an important role is signaling and interpreting emotions as Grice, Baumann, & Jagdfeld (2009) mention in passing.
- Beaver & Velleman (2011) present a pragmatic account of pitch accent that combines focus and predictability. Over the course of it, they suggest that the emotional weight a speaker attaches to an expression will affect the prosodic realization and briefly speculate that some notion of "emotional importance" may be useful.
- Extra-strong stress in German helps speakers indicate emotional involvement (Frey, 2010).
- In discussing possible genetic relationships between languages around the Kamchatka region of far eastern Russia, Fortescue (2011) mentions that Nivkh has a distinct palatal series that the nearby Chukotko-Kamchatkan languages do not—although there seems to be some residue of a distinct plosive /c/ used (especially in Koryak) for affective purposes.

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[9] Describing a third person's emotion involves *–eha-* psyche predicates and this is true for both evidential and non-evidential sentences.

- Watching sign language in use, one is bound to notice the expressivity and ask, as a number of researchers do, how manual and nonmanual signals are used (Cecchetto et al., 2009; Demey & van der Kooij, 2008; Meir, Padden, Aronoff, & Sandler, 2007; Quinto-Pozos, 2007). Meir (2010)'s work on constraints on metaphorical extensions of iconic signs returns to emotions a number of time, discussing how cultural constraints on emotional display rules affect spoken and signed metaphors.

- Sandler, Meir, Dachkovsky, Padden, & Aronoff (2011) look at a relatively recent sign language to learn about the relationship between prosody and syntax. In the course of this, they distinguish "linguistic facial intonation" from "affective or emotional expression". The former is said to reflect discourse functions and discourse relations like questions, topics, and shared information, with the affective expressions reflect feelings and attitudes (they say "of the speaker" but that is probably a little too specific given the ability to 'make faces' like someone else being described/quoted). They use Ekman's Facial Action Coding System and find the linguistic facial intonation to involve the upper face (inner and outer brows, upper and lower eyelids) while the affective expressions involve more actions overall and the whole face. For their purposes, the linguistic facial intonations are much more closely aligned with prosodic constituents.

- Pope, Meyerhoff, & Ladd (2007) find that there is more centralization of (ay) and (aw) among farmers on Martha's Vineyard than Labov had found in 1963. They suggest that as farming has become increasingly unprofitable, farmers may have picked up on the fishermen's centralization as a way to distinguish themselves from tourists. That is, the changes in farming increased the "instrumental and affective impact of centralization for farmers too" (Pope et al., 2007, p. 620).

Additional ways to encode meaning

There are also other ways that languages encode emotional information:

- Adverbs, for example, luminously give off emotional and evaluative meaning, as Ernst (2007) faintly mentions.[10]

- Diminutives, as in Spanish, have emotional uses and consequences (Oltra-Massuet & Arregi, 2005).[11]

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[10] Emotion adverbs have a small role to play in Compton & Pittman (2010)'s discussion of wordhood in Inuit.

- Metaphors also get used to express emotions, as in the languages of Southeast Asia, which Gerner (2005) points out even have a special word order.
- In fact, word order also plays a role in Romanian, where switching word order and inserting a definite order increases the "emotional weight" (Hill, 2007). For example, turning *dragi cititori* ('dear readers') into *cititorillor dragi* ('readers-the-VOC dear') makes it more evocative.
- Fleisher (2011) is mainly concerned with gradeability in sentences like *Middlemarch is a long book to assign*, but takes a detour into infinitival clauses under *for*, as in *This is a small room for there to be so many chairs in*. As Fleisher points out, this complementizer-like *for* has a modal meaning. He cites Kiparsky & Kiparksy (1970) who identify its emotive quality—"[e]motive complements are those to which the speaker expresses a subjective, emotional, or evaluative reaction" (Kiparsky & Kiparsky, 1970, p. 169). That is, it's more about affective orientation towards a proposition than knowledge about it or its truth value.

More extended discussions

Of the 74 recent papers, Blakemore (2009) has one of the most extended analyses of emotion. Her paper is about free indirect thought representations in fiction. She's interested in interjections that authors use while describing their characters' thoughts: *ah*'s, *oh*'s, and *good heavens!* Interjections offer authors a useful way of capturing what may otherwise prove difficult to express—emotions that are new to a character or mixtures of emotions like excitement and regret.

The use of expressions "encodes a procedure for activating a range of emotional attitudes" (Blakemore, 2009, p. 22). Most of the work is done by readers, who narrow down the range of emotions on their own, given only the interjection, the context of the book so far, and their own experiences outside the fiction-reading activity. Blakemore suggests that the fact that so much is left up to the reader may give more emotional immediacy/involvement:

> As Sperber & Wilson (1995) and Pilkington (2000) have shown, the more responsibility the reader/hearer is given for the interpretation process, the greater the sense of intimacy that is communicated between communicator and audience. (Blakemore, 2009, p. 23)

Immediacy is a theme throughout the present dissertation, which I define in terms of the ways speakers/authors position themselves and their audiences relative to each other and the topics

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[11] See also Chapters 4 and 5 on the meaning and use of *little* in English; Chapter 4 situates the discussion within the broader literature on morphological diminutives.

they're talking about. Increasing the reader/hearer's responsibility for interpretation is unlikely be solely a source of intimacy. For example, requiring reading between the lines (in the case of understatement) or hacking through the weeds (in the case of non sequiturs, garrulousness, etc.) may inspire hostile rather than intimate feelings. Nevertheless, the idea that particular linguistic resources are likely to activate affective interpretations is worth pursuing further.

When we build models to explain how sentences mean the things they do, we analyze the parts and add them up. Each part has a role to play, but some parts do more heavy lifting than others. This is particularly obvious when we move from idealized sentences to situated utterances. People aren't capable of giving equal attention to everything they're doing, nor to each word in an utterance, nor to each utterance in a conversation. Adding up the parts of an utterance requires us to look not only at the sounds, words, and syntax but at the contexts in which they appear.

One class of linguistic resources that is overwhelmingly used to index affective stances is taboos. Hoeksema and Napoli (2008) write about constructions like:[12]

(1) I can't see a {damned/fucking/bloody} thing.
(2) They didn't {say dick/know jack shit} about it.
(3) They did {dick/shit} about it, that's what they did.
(4) give a {damn/hoot in hell/(flying) fuck/rat's ass/crap/shit}

As they point out, these constructions vary quite a bit. The taboo words that are possible in these constructions are also a diverse lot, but it isn't a complete free-for-all.

> [The constructions] have very little in common, apart from the fact that they all appear to have an emotionally charged character. In these constructions, the taboo terms behave like syntactic silly putty that can be bent and shaped every which way. Normally, the enlistment of lexical items by a construction is based on the category and features of the items in question... in part determined by lexical semantics, and in part arbitrary. In taboo constructions, however, lexical meaning appears to play no role. If anything, these constructions show the victory of connotation over denotation. The fact that taboo terms have a certain rude quality about them is more relevant than their meaning. This is quite obvious when we consider the many constructions where *fuck* may be used instead of *hell*. Semantically, the words are rather different, apart from their taboo status.
> (Hoeksema & Napoli, 2008, pp. 351–352)

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[12] Napoli takes up taboo terms with a different set of colleagues to compare and contrast spoken and signed languages (Mirus, Fisher, & Napoli, 2012).

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To characterize the meanings of expressions in (1)-(4), we can't ignore the taboo-ness of the lexical items. These expressions, like all emotional expressions, can only really be understood by looking at the contexts in which each occurs. Such contexts make us consider the speaker's relationship to the hearer, to the topic of conversation, and to the speech setting. These are very local concerns, but the expressions are also uninterpretable if we don't think about the broader context— "taboos on certain forms of speech arise from authorities that have the power to restrict speech and can act as arbiters of harmful speech...Authorities who define taboo speech exercise their power to do so policing and punishing those who violate prohibitions" (Jay, 2009, p. 153). That is, these constructions are also part of a bigger story of power and society.

The Hoeksema and Napoli constructions in (1)-(4) are all negative, though they can have consequences and intentions behind them that are positive—for example, building familiarity or solidarity with the hearer. The lexical items themselves include some of the most common swear words in America.[13] As Jay (2009) points out, "swearing" is like honking a car horn—it can signify anger, frustration, joy, or surprise. That said, the distribution is not even or random— "two-thirds of our swearing data are linked to personal and interpersonal expressions of anger and frustration, which seem to be the main reason for swearing" (Jay 2009, p. 155, but see Jay 1992, 2000 for details).[14]

Taboo words are particularly effective in getting the hearer's attention. Moving from social to cognitive concerns, we know from Jay, Caldwell-Harris, & King (2008) that taboo words produce a higher level of arousal than other words. Experiments that divide participants' attention find that arousing words like swears don't get affected the way "non-arousing" words do (Kensinger & Corkin, 2004). However these words are stored and retrieved, they seem to carry with them the imprint of power, authority, and rebellion. Arousal itself is, of course, related to predictability,

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[13] *Fuck* and *shit* account for one third to one half of all the episodes of swearing that Jay and colleagues have recorded between 1986 and 2006. If *hell, damn, goddamn, Jesus Christ, ass, oh my god, bitch,* and *sucks* are added, these ten taboo words account for about 80% of the data (Jay 2009: 156).

[14] Taboo words get their power partly from the fact there is "someone" in power saying the terms aren't to be used. But it is the fact that they keep occurring in intense emotional situations that perpetuates their power. Since individuals have different relationships to power and censorship, we would predict variation of swearing by, say, personality type and demographic profile. That is indeed what we find.
Swearing is negatively correlated with high scores on the Big Five personality features of agreeableness and conscientiousness (Mehl, Gosling, & Pennebaker, 2003) but big swearers tend to be extraverts (Fast & Funder, 2008; Mehl et al., 2003). McEnery (2006) finds that socially low-ranking speakers produced higher rates of swearing than high-rank people. Swearing peaks in the teens and declines afterwards. Men tend to swear more than women, though the gap has narrowed between 1986 and 2006 from 67% of public swearing episodes to 55%—but the distribution of swear words is different (women are five times more likely to say *oh my god* than men). Also of interest: men and women swear more frequently in same-gender than mixed-gender contexts (Jay, 2009).

offering the psycholinguistically inclined a rich site to build up models that do more than simply analyze individual sentences. We'll see examples of the role of expectation in Chapter 4, which shows that the degree of mutual information between *little* and its head noun has affective consequences.

Relevant theoretic frameworks for studying affective linguistic phenomena

There's a basic critique of the field of linguistics underlying the discussion so far: by focusing on language as a system for denotation and reference, we have rendered important phenomena peripheral. Whether we look to the origins of language, the acquisition of language, the synchronic uses of language, the correlates of social structure and language, or the cognitive processing of language, we see that the need to express and understand affective stances is fundamental. We need to know more than the events and states described in predications, we need to understand how people are positioned relative to these predications.[15]

But the underlying critique needs caveats—certainly it paints with too broad of a brush, erasing scholars who have been attending to affect in language. The critique also perpetuates a divide between "**referential**" and "**non-referential**" aspects of language. This is an old division and we can see it in earlier linguistic theories that gave a more prominent role for the emotive/expressive aspects of language (Firth, 1957; Jakobson, 1960; Jesperson, 1923; Malinowski, 1923; Sapir, 1927; Trubetzkoy, 1939). For example, Bühler (1939) and Trubetzkoy (1939) distinguished the representational function of language from two others: the expressive function, which we might describe as expressing emotion, identity, and the like, and the conative function, for influencing hearers. There is something appealing about this division. It allows, as in Jakobson (1960), a distinction between message-orientation, speaker-orientation, and listener-orientation. Yet it is probably a mistake to try to divide these. There is no expression of inner states that doesn't influence listeners and there are no purely representational, non-social uses of signs. Meaning isn't determined by holding sentences up and squinting at them for their truth conditions. It is achieved collaboratively over the course of an interaction. These interactions aren't a game of 20 questions about what the world is like, they actually make the world.

Dividing referential and non-referential likely means that non-referential aspects will continue to be neglected step-children in the field. More troubling is that the divide ignores how reference

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[15] Points made by Ochs & Schieffelin (1989) along with a host of cross-linguistic examples.

itself is always embedded in a social context.[16] Whatever is happening in an interaction is always about the people in the interaction and this fact transforms the critique to something a bit more radical than "we need to pay more attention to non-referential phenomena". It implies that even referential-looking phenomena are probably doing more than marking referents. One prominent connection between the two aspects is "**indexing**", which has long been a staple of referential approaches and has also been adopted in the study of social phenomena (Eckert, 2008; Johnstone, Andrus, & Danielson, 2006; Mendoza-Denton, 2002; Ochs, 1996; Silverstein, 2003)—the basic idea is that linguistic resources "point" to ranges of things—people, places, and times in the case of words like *I, here, now*. Indexes also point to social information—consider the vowels and vocabularies that dialectologists have studied for centuries, in which the use of a particular word or pronunciation is taken as indicative of geographic origin/orientation.

Linguistic resources have ranges of meaning, but these ranges aren't given from on-high: they are built out of individual interactions. The studies included in this dissertation are revealing of cultural concepts—structured routines that are discussed by Bourdieu as "habitus" and by Giddens as "practical consciousness" (Bourdieu, 1977; Giddens, 1984). For both of these authors, structure only exists because of what has come before it, so individuals are shaped by the social structures around them, just as the social structures are shaped by the individuals. People are capable of improvising using the affective linguistic resources at their disposal—there is wiggle room—but what exists tends to keep existing.[17] Positioning, as discussed in this dissertation, is built from frequency and demonstrates the routine uses of language that give rise to felicity and appropriateness of use.

At the heart of the approach is an idea that linguistic resources are used in a variety of contexts. But that means that we can gather together these contexts and describe the resources in terms of their distribution across contexts. For a given linguistic resource, the proposal is to pay attention to what other linguistic (and non-linguistic) resources it co-occurs with as well as to pay attention

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[16] Even "reasoning" and "cognition" no longer seem to stand on their own as distinct domains. Emotions either form the basis of rationality and thinking or they are inextricably bound up in it (A. R. Damasio, 1994; Kahneman, 2003; LeDoux, 1998; Wells & Matthews, 1994; Zajonc, 1980).

[17] This provides a connection between practice theory and David Lewis' approach to conventions. The status quo doesn't perpetuate itself because we are continually actively agreeing to it but because conventions solve coordination problems (D. Lewis, 2002). But our coordination problems are not entirely in our control. And the fact that there is flexibility and ambiguity not only allows a more tractable cognitive system but it solves a social problem that—especially in the domain of affective stances—we wouldn't want to have to choose between explicit and complete expression and out-right lying. People need and make great use of "resources of ambiguity" (Burke, 1969).

to what kinds of people are using the resource. This takes seriously the idea that the meaning is determined by use (Wittgenstein, 1953, p. 25).

Pragmatics and sociolinguistics

"Having recognized that different people talk differently," says Woolard, "and that the same people talk differently at different times, a central problem of sociolinguistics is—or ought to be—to understand why people talk the way they do" (Woolard, 1985, p. 738). In particular, we want to know why people use the linguistic resources they do (Kiesling, 2009, p. 171). This is a central concern of sociolinguists, as seen, for example in Bell (1984) and Fishman (1968), who ask speakers say something a particular way on a particular occasion.

That question—and this dissertation—speaks to researchers outside of sociolinguistics, too. For example, in their review of linguistic emotivity, Caffi & Janney (1994) explicitly state that explaining how linguistic resources are used to reach different ends in interaction is a fitting goal for research in pragmatics (1994, p. 327).

Actually, even pragmaticists and sociolinguists tend to avoid emotion, though Potts and Eckert have each been swerving dangerously close to the topic. Potts' work on **expressives** includes a wide-range of phenomena: epithets like *the jerk*, attributive adjectives like *damn*, honorifics, diminuitive suffixes, words like *wow*, affective demonstratives (*that woman*), and even pragmatically negative negation (Constant, Davis, Potts, & Schwarz, 2009; Davis & Potts, 2010; Potts, 2007a, 2007b; Potts et al., 2009; Potts, 2011; Potts & Schwarz, 2010a). The most definitional work is Potts (2007a), which attempts to handle the following qualities of expressives:

1. They have an immediate and powerful impact on the context.

2. They are performative.

3. They are revealing of the perspective from which the utterance is made, and they can have a dramatic impact on how current and future utterances are perceived.

4. People can't easily articulate their meaning.

5. They are volatile.

6. They are indispensible to language.

These are the qualities that permeate this dissertation—whether we are looking to account for affect in the flow of a conversation (Chapter 3), the affective uses of *little* (Chapters 4 and 5), or the use of emoticons (Chapter 6). I take these issues head on by looking at the patterns of particular affective lexical items, including how and when they arise, taking Wittgenstein's famous "don't ask for the meaning, ask for the use" to heart.

This line or research suggests that there is more structure to expressive phenomena than linguists have assumed. Kaplan (1999) spoke about expressions that seemed to fall outside of semantics yet may still be formalizable. Potts' work explicitly takes up Kaplan's idea: defining expressives requires us to think about their conditions of use. To this end, Potts identifies corpora that have affective metadata and sees how expressives pattern. For example, in a corpus of Amazon reviews, *wow* has a U-shaped curve—it's over-represented in 1- and 5-star ratings and under-represented in 3-star ratings (Davis & Potts, 2010). *Damn*, by contrast, is a reverse-J where it is decidedly negative but does have a secondary peak in 5-star ratings where it is positively emphatic (Potts & Schwarz, 2010a). This dissertation grows out of the principles Potts has used in his investigations, both in order to understand particular phenomena and to show how one might investigate overall structure (e.g., what are the major dimensions of meaning when we use emoticons to find the structure of the emotional universe of Twitter?).

To expand beyond the classes of expressives that Potts has identified means uncovering the "**conceptual baggage**" that even everyday words carry with them as they travel through the world. McConnell-Ginet (2008) discusses such conceptual baggage as the interactionally-oriented parts of words that combine with semantic representation and reference (which are mind- and world-oriented, respectively). Referring to both reference and conceptual baggage, McConnell-Ginet argues that "much of a word's content and significance must be seen as loaded into it during the course of its deployment in social practice, loading that underlies (sometimes…unintended) communicative effects in situated discourse" (McConnell-Ginet, 2008, p. 500).[18] For conceptual baggage, McConnell-Ginet has in mind phenomena like generic *he* and redefinitions of *marriage*, but a good part of her approach could apply to affective items, as well—*dude* and *awesome* seem to carry a great deal of interactional weight because of the way they have made their way through the world.

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[18] Given this and attendant notions of how conceptual baggage can be a central part of the significance of what is said and how, it is curious, that McConnell-Ginet explicitly rejects conceptual baggage as part of a word's "meaning". Understanding why conceptual baggage doesn't get to be part of a word's meaning requires us to look at the definition of meaning and that takes us a little too far afield at the moment. I will simply flag it as problematic and move on.

In sociolinguistics, Eckert has begun to ask how social meaning in variation is connected to affective meaning (Eckert, 2010). She poses such questions as whether social meaning leads to affective meaning, whether children learn social uses of variation through affect before extrapolating to categories of speakers, and whether affective meaning is actually separable from social meaning. Part of the complication is that display rules of emotions—and probably the experiences of emotions themselves—are not independent of a person's place in the social order. Eckert's examples include Colette, who uses more high and back /ay/ and /o/ when being "negative" than when being "nice". By contrast, Rachel's backed vowels seem to be used for sadness and poutiness. In any given analysis, we can't really separate the affective meaning from social categories like gender and age.

Eckert's study also shows something that we will be grappling with quite a lot: there is no 1:1 mapping between linguistic cues and affect. "Backed /o/" is not something we can plant a flag in and declare "Negative" or "Pouty". In fact, in much of the literature around acoustic correlates of emotion, researchers find emotions as different as "anger" and "joy" to be indistinguishable in terms of acoustic cues. Yet indeterminacy does not mean chaos.

Indexical fields are a useful conceptual tool since we can treat each linguistic feature as having "a field of potential meanings" (Eckert, 2008, p. 453).[19] Presumably indexical fields have limits—these can and do change over time, but some developments will be harder to achieve and less likely to occur. For example, given the content of the indexical field for "fast speech", it is difficult for "fast speech" to express depression (Schnoebelen, 2010a) . So an indexical field does have structure even if its historical character makes it resist neat dividing lines and hierarchies. What's more, indexical fields can be thought of as combining to produce the meanings we observe. In Eckert's discussion of the indexical field of /t/-release, for example, it is not the sharp /t/ that tells us someone is angry, prissy, or a nerdy girl. Such interpretations are only possible based on co-occurrences with other features. The importance of contextual cues comes up in Chapter 3's close reading of a conversation as well as in Chapters 4, 5, and 6, where the goal is to discover the range of meanings particular lexical items (e.g., *little* and various emoticons) and explain why they have the distribution that they do.

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[19] Indexical fields may also be able to replace or subsume the notion of conceptual baggage. Both carry with them the fact that the particular significance of a something uttered may have components that are not intended. This also connects with Potts' point about expressives—that different people will use and receive them differently and the ability for our theories to handle this is a virtue.

It's not really possible to talk about indexical fields without talking about **styles** and **personae**. Style has to do with what an individual does with language in relation to other people. Researchers in style ask how people construct themselves, but we might also expand to ask how they construct their relationship to their listeners, too. Style is partly a correction of other theories that have seen the meanings of variables as rather short lists. In thinking about style, variationists expand their scope to see many meanings possible for a variable and try to understand how they are actually used in particular interactions. If a variable has a field of meanings, that field is built up from specific interactions, after all. In using variables, speakers draw on fields that exist "out there" to construct a persona (and the relationship to their listeners, I argue). The actual use of a variable activates part of its indexical field, but because interlocutors are already socially positioned, the meaning is getting morphed and the field itself is updated for the people involved in the interaction.

Psychology and phonetics

Emotion is directly approached by computational linguists, phoneticians, and psychologists under the heading of **emotion detection/recognition**—although it might be more accurate to call the field "emotion attribution" (overviews can be found in Cowie & Cornelius, 2003; Juslin & Laukka, 2003; Russell, Bachorowski, & Fernández-Dols, 2003; Scherer, 1986, 2003; Schroder, 2004; Ververidis & Kotropoulos, 2006).

The detection work started in earnest among psychologists in the late 1970s and was strongly influenced by Ekman's work on facial expressions of emotion (Ekman, 1972; Ekman & Friesen, 1969a, 1969b, 1971; Ekman, Sorenson, & Friesen, 1969). This work adopted Darwin (1872)'s ideas that "many vocalizations have evolved from by-products of the organism's adaptive functional response to environmental stimuli, such as deep inhalation in surprise (to prepare for prolong exertion) or blowing air out of the mouth or nostrils in contempt or disgust (to expel noxious matter or smell)" (Scherer, 1979, pp. 495–496). Likewise, a call for assistance will be "loud, prolonged and high, so as to penetrate to a distance" (Darwin, 1872, p. 95). In this literature, affective signals can be traced to animal communication. In modern humans, a more flexible and complicated symbolic signaling system is superimposed on the primitive system. Various aspects of brain structure and development are pointed to as further evidence of the divisibility.[20]

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[20] Such a division finds a natural corollary in Potts' division of expressive and non-expressive levels of meaning, though I am not entirely comfortable with this division since it seems to me that the affective and

There are two main approaches to the structure of emotions—one is **dimensional** (Schlosberg, 1954), typically decomposing emotions into valence (pleasantness/unpleasantness) and action readiness/activation/arousal (active/passive) (Cowie et al., 2000; Cowie & Cornelius, 2003; Ellsworth & Scherer, 2003; Mauro, Sato, & Tucker, 1992; Russell et al., 2003; Scherer, 2005; Schröder, Cowie, Douglas-Cowie, Westerdijk, & Gielen, 2001; Smith & Ellsworth, 1985). Other researchers pursue a discrete model, where there are fundamental **basic emotions** that have discrete physiology. In a review of 21 different theories of basic emotions, I count 51 different emotions posited as basic. Researchers often talk about the "big six" (though the actual big six change based on the researcher), but the average number of basic emotions across the 21 studies I examined is more like 9. The most common are:

- Anger/rage/hostility (18)

- Fear/fright/terror (17)

- Joy/happiness/elation/enjoyment (14)

- Sadness/sorrow/distress/dejection (14)

- Disgust (12)

- Shame (9)

- Love/tender emotion (8)

- Anxiety/worry (7)

- Surprise (7)

- Guilt (6)

Most psychological theories of emotion are highly cognitive, seeing emotions as processes of **appraising** the organism's surroundings (Arnold, 1974; Ellsworth & Scherer, 2003; Ellsworth & Smith, 1988; Frijda, 2007; Frijda, Kuipers, & Ter Schure, 1989; Mauro et al., 1992; Parkinson, 2001; Reisenzein, 2006; Roseman, Spindel, & Jose, 1990; Scherer, 1999; Smith & Ellsworth, 1985). It's therefore not surprising to have **selective attention** be at the core of these processes, as

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non-affective meaning get encoded and decoded at the same moment. Of course it is possible to say, *She said she wasn't angry but she sounded angry*. Does that mean these "levels" of meaning are separate or simply separable?

it is for me and, for example, Izard (2009). If we see organisms as automatically processing change in the environment, then it is easy to see why attention is a cornerstone of cognitive science (Dolan, 2002; Kensinger & Corkin, 2004; Pessoa, 2008; Phelps, 2004, 2006; Vuilleumier, 2005; Wells & Matthews, 1994). Without it, we can't have exploration, learning, or other high-order examples of cognition. In linguistics, we know that attention has consequences on both the p-side (stress, intonation, articulation) and the s-side (information structure, for example). It may help us understand ideologies (what gets noticed, how it gets interpreted) and processing (what are expectations, how do surprises get dealt with). The claim I am making is that people are very attuned to cues for affect since the consequences can be dramatic.

Most research has focused on "hot" anger, sadness, joy, fear, and disgust. Whether the researcher's framing is dimensional or discrete, all results suggest that emotions are far more easily distinguishable along an axis like arousal than one of valence.[21] That is, it is relatively easy to distinguish anger from sadness, but harder to distinguish anger from joy. Disgust and shame are hard to recognize, period.

Part of the issue is methodological—in an effort to sidestep the difficulty in getting actually emotional speech and to control for factors beyond immediate vocal cues, most studies have used acted speech. Juslin & Laukka (2003) reviewed 104 studies of vocal expression and found that only 12% used natural speech samples (mainly fear expressions in aviation accidents). Work on naturalistic corpora has increased through the efforts of the HUMAINE project, which serves as a repository of emotion corpora (Douglas-Cowie et al., 2007). However, in putting together a special issue on real-world affect in speech, Devillers & Campbell (2011) found that even today most materials are constructed and very few research groups try to deal with data collected in the wild.[22]

The emotions that are studied do change when one switches to naturalistic data. While acted data tends to investigate rage and sorrow, naturalistic data expresses irritation and resignation (Ang, Dhillon, Krupski, Shriberg, & Stolcke, 2002; Benus, Gravano, & Hirschberg, 2007; Laukka, Neiberg, Forsell, Karlsson, & Elenius, 2011).

It is striking, however, to read computational approaches alongside even the early psychology-based literature like Scherer (1979). In the psychological work, physiological effects of emotion

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[21] There are suggestions that including voice quality will help distinguish the pleasant emotions from the unpleasant ones.
[22] This dissertation is formulated around natural and naturalistic data and supplemented with experimental data.

are predicted to drive vocal expressions, creating predictions for what any given phonetic cue might do. In modern computational methods, the norm is to put in all possible acoustic measures and let the statistical models decide what matters.[23] Of course the research goals of these programs are quite different: one is to understand human psychology, the other is to create applications that can detect and respond to human emotions. As Scherer suggests, however, a lack of understanding of the psychological theory is likely to hamper any attempts to improve detection (Banse & Scherer, 1996; Scherer, 1986, 2003).

Computational linguistics and sentiment analysis

Opinion mining and **sentiment analysis** are vibrant fields in computational linguistics, both in and out of the academy. **Polarity lexicons** are central to getting the sentiment/opinion right and researchers use a variety of methods to develop them. At one end, there are those who use manually constructed lexicons, at the other end those that discover the lexicon automatically using machine learning methods. Almost all combine these approaches. It is very uncommon for sentiment analysis work to *not* have a positive and negative set of "seed words." The work in this dissertation does not use seed words. That is because computational efforts usually focus on classifying texts correctly ("Is this a positive or negative product review"), while I am interested in what we can learn about the dimensions of affective meaning themselves.[24]

Kim & Hovy (2004) begin with lists of words that are either positive (38 in number) or negative (40 in number) and then expand this using synonyms and antonyms of these words as found on WordNet and thus consider 5,880 positive adjectives, 6,233 negative adjectives, 2,840 positive verbs, and 3,239 negative verbs, which are then listed with "strength" of polarity so that ambiguous words—those which are as strongly negative as they are positive—can be discarded. Given an unseen word that has entries in WordNet, they can predict the probability that it is either negative or positive. Baccianella, Esuli, & Sebastiani (2010), Blair-Goldensohn et al. (2008), and Hu & Liu (2004) use WordNet similarly.

In the case of Velikovich, Blair-Goldensohn, Hannan, & McDonald (2010), a graph propagation algorithm is used to find words that are like each other (so no part of speech tagging or other

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[23] For example, **46** acoustic features were extracted in Grimm, Kroschel, Mower, & Narayanan (2007); **73** in Petri Laukka et al. (2011); **87** features in Ververidis, Kotropoulos, & Pitas (2004); **100** features in Amir & Cohen (2007); **116** in Vidrascu & L. Devillers (2008); **173** features in Sobol-Shikler (2011); **534** features for voiced content and **518** for unvoiced content in Clavel, Vasilescu, L. Devillers, Richard, & Ehrette (2008); **1,280** features were extracted in Vogt & André (2005). These are the raw features that were extracted—the studies then went about determining the most useful for classification.

[24] In the present dissertation, dimensions of affective meaning are pursued most systematically as part of Chapter 6's analysis of emoticons in Twitter.

language-dependent resources). As with Turney (2002), Velikovich et al. (2010) begin with two sets of seed words, which are expanded through co-occurrence statistics rather than with WordNet.[25] For Velikovich et al., phrases that were connected to multiple positive seed words over short paths received high positive values, those connected loosely to negative seed words got slight negative values, and those phrases that weren't really connected to either were given "0" polarity. After using frequency and mutual information of word boundaries, they ended up with 20 million candidate phrases (their data was 4 billion web pages), 178,104 of which they treated as their polarity lexicon. Because they considered unigrams to 10-grams, they ended up with multiword expressions like *pain in my ass* and *just what the doctor ordered* in addition to more traditional one-word items (that one might be limited to just using WordNet, for example).[26]

There are other ways to take context into account. Wilson, Wiebe, & Hoffmann (2005) began with a lexicon compiled from other sources, but rather than directly classifying a sentence as positive/negative based on this lexicon, they first classified the sentence as simply neutral/polar based on the presence of "strongly" or "weakly" subjective items in their lexicon. Then all phrases that were marked as polar were disambiguated from their context (positive/negative/both/neutral). This allowed them to build in a number of things that really do make a difference in the interpretation of the words: for example, local negation (*not good*), longer-distance proposition negation (*it doesn't look very good*), subject negation (*no one thinks that it's good*), diminishers (*little good*), word sense (*Envirnomental Trust* vs. *They trust him*), and the like. What is surprising, given all of the features they include is that classifications using only the word tokens (and their positive/negative polarity) outperformed the others by a number of measures.

Recent work by Councill, McDonald, & Velikovich (2010) also attempted to improve sentiment analysis through improved negation detection. But something gets lost in the reporting of recall/precision/F1 as percentages. Of 1,135 sentences with positive/negative/mixed/neutral ratings, they looked at improvements in classification from a subset that involved negation—114 classified as negative, 73 classified as positive. Among the 187 sentences, using their negation

system improved the sentiment classification in the following way: among positive sentiment sentences, false positives were reduced from 26 to 11, while with negative sentiment sentences, false positives dropped from 11 to 6. In terms of recall, without their negation correction techniques, only 40 sentences were correctly identified as positive (out of 73) versus 47 with negation correction. Among sentences with negative sentiments, 24 out of 113 were correctly classified by the token-only technique, while 30 were correctly identified using the negation techniques. These are clear improvements, though the scale is smaller than the precision/recall/F1 percentages that Councill et al. report since they must be considered relative to the full 1,135 sentences rather than the smaller set of 187. In that light, adding negation detection improves performance of a system by only about 3%.

Work on negation is important—if we want to understand how words are used, we do need to know how they pattern with various negation devices and we need to be able to distinguish these uses. "Not good" may not be exactly equal to "bad", but it is certainly not the same as "good". This dissertation does not address this at all—it is entirely token-based. My discussion should not be taken to mean that my method is better, just that it is a venial sin that I commit. Councill et al. (2010) and Wilson et al. (2005) are grappling with something that is clearly necessary. However, progress so far suggests that the token-only approach I am taking is not—for the moment— appreciably different. And of course the method that I am employing can be augmented with contextual information like negation. It bears a family resemblance to what I call "affective scope", in which something positive is embedded in a negative context or vice versa—a machine parsing *Leave the cute little groundhogs alone* as a bag of words misses the fact that there is a relationship between the positive *cute little* and the negative *leave x alone*, as described in Chapter 6.[27]

Involvement, engagement, audience design, and accommodation

Conversations involve us to different degrees. We enfold and are enfolded, we envelope and are enveloped, we entangle and are entangled. Sometimes the surrounding substance fixes us, other times it is a mist. We can walk away or we cannot. Conversations engage us—they are pledges, as when we use the word "engage" about servants and rooms. At our most engaged, we persuade, charm, attract, and fascinate. But even failing this, we find ourselves urging and exhorting, urged

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[27] Note that Yu & Hatzivassiloglou (2003) also experimented with ignoring all sentences with negative particles and obtained "a small increase in precision and recall" (Yu & Hatzivassiloglou, 2003, p. 135). Pang et al. (2002) also model the contextual effects of negation—they find that removing the negation tag had a negligible but on average slightly harmful effect on performance. Note, however, that their negation tag was fairly simple: the tagged every word between not/n't and the next punctuation mark as "NOT_".

and exhorted. When we engage, cogs interlock with corresponding parts. But "engagement" is not just relevant for cogs, but also for troops and weapons against our enemies. When we engage, we embark on business or find ourselves bound in promises of marriage. The couplings can be tight or so loose as to fall apart.

The ideas around "positioning" that I will develop are useful to the degree that they give us ways to understand how the same linguistic resource can be interpreted differently depending upon its context. That is, inherent in the notion of "positioning" is the idea that people have stronger and weaker reactions to various positionings. And as we can see in Chapter 3's analysis of conversational intensity, engagement itself comes and goes over time.

Much of the literature relevant for studying affective linguistic resources attempts to understand phenomena in decontextualized ways. Yet whether someone is reading or writing a product review or whether they are recording or responding to an "emotional alphabet" experiment, these acts are socially embedded. They happen within a flow of "conversation", even if they are fairly different than the kinds of conversations that happen around a dinner table or at a water cooler. One way in which these sorts of situations differ is by the amount of involvement/engagement.

The claim that researchers work on contextually impoverished data (e.g., simple sentences rather than extended discourse) is not entirely fair, of course. Consider the literature on "**hot spots**" (Cetin & Shriberg, 2006; Enos, Shriberg, Graciarena, Hirschberg, & Stolcke, 2007; Wrede & Shriberg, 2003a, 2003b). The basic notion is that over the course of any given interaction, there are points of greater and lesser engagement, which can be detected by a host of features, including F0, energy, dialog acts, interaction genre, and utterance length. "Hot spots" give computational linguists a way of determining when a caller to a voice-recognition system is getting frustrated or what parts of a business meeting are most important. But hot spots are a good idea for theoretical pursuits, as well. Whether we are taking a cognitive or a social perspective, hot spots offer us clusters of cues that are especially evocative in communicating who we are as individuals and what it is that we care about. They shape the immediate contexts they are placed in and they likely have a special role both directing attention and in reflecting/creating larger social realities.

Hot spots may be the areas where we see linguistic resources acquiring and expressing their most affective aspects. That is, if the goal is to separate affective linguistic signals from noise, then identifying areas of increased involvement/engagement is a worthy task. But what do the terms "involvement" and "engagement" really mean? And how do they relate to automatic processes?

For a variety of disciplines, concepts like accommodation, audience design, coordination, affiliation, participation, alignment resonate more than involvement/engagement. The disciplines differ, of course, in whether they care more about looking at language as being something "social" versus "in the brain". We know that language is both, but our models often don't show this. Affect offers an excellent opportunity to synthesize social and cognitive models.

Involvement

For Tannen (1989), **involvement** is "an internal, even emotional connection individuals feel which binds them to other people as well as to places, things, activities, ideas, memories, and words" (Tannen, 1989, p. 12). In other words, involvement is something that a conversational interaction can achieve or fall short of. Tannen brings us firmly into the realm of emotion, but I am unsatisfied. It is certainly important to understand how people feel connected to the people, places, things, and ideas around them, but my interest is in the process that leads to such achievements—as well as to opposite states of affairs where you don't want anything to do with someone.[28]

Cegala (1989) describes involvement as a process, but notes that he and others tend to treat it as a personality trait since that's a lot more tractable. Nevertheless, his definition is closer to what we might think of as the role of emotion in conversation:

> To be involved in interaction is to be attentive to the other and responsive to the evolving circumstances of conversation. In contrast, to be low in interaction involvement is to be preoccupied with internal issues or matters external to the conversation (see Goffman, 1967) and, thus to be less able to track the flow of meanings and the implications of messages. (Cegala, 1989, pp. 311–312)

It would be convenient if the diagnostics of involvement could be clearly delineated. Something like "overlaps, whether they are supportive *uh-huh*'s or interruptive *yeah-but*'s—signal involvement". But intense concentration is a type of involvement, too. That is, I may remain mute, but if I am staring at you intently, odds are you'd agree I'm involved. If I'm giving you a lot of overlaps but I'm looking elsewhere, I may not be involved at all.

It's in the concepts of involvement/engagement that we bring alive the interactional aspects of emotion, where subject-internal perspectives have often carried the day. What we find is that the

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[28] My predisposition is to believe that such achievements are inherently unstable. So I'm led to wonder how they are created, maintained, and toppled.

process of involvement in conversation is similar to involvement in live performances of music, theatre, dance, and the like, which are emotional interactions themselves that are not merely speaker-internal.[29]

There are three main points to carry forward from this discussion of involvement: (1) involvement is a cline—you can be more or less involved, (2) signs of involvement are wickedly multifarious, such that it's hard to pin them down to one meaning per sign, (3) thus the best way to detect involvement is to look at clusters of signs—what it is that co-occurs.

Engagement

I tend to prefer the word "engagement" to "involvement", though the difference between them may be slight. With "engagement" it's a little easier to talk about the different relationships between interlocutors. People are engaging or disengaging all the time.[30] I have already noted that there are different ways to be highly engaged—you can enact engagement while mad or madly in love. If we see engagement as a process, we also have to accept that engagement ebbs and flows. Certainly, all conversations eventually end and before this there comes a period of disengagement. But let me back up: even in the most boring exchange you've ever been a part of, there has been at least some engagement and that level of engagement has risen and fallen over the course of the conversation.

How does this word, **engagement**, get treated in the literature? Psycholinguists may have encountered it in research about emotions and the brain. This line of research helps us get in touch with something a bit different from involvement. In neuroscience, engagement is the lighting up of different parts of the brain like the amygdala. Other psychologists talk about the "engagement" of fight-or-flight processes. Vuilleumier (2005) discusses engagement and disengagement of attention, which plays a crucial role in both the cognitive and social aspects of language.

The word "engagement" comes up in the language of people concerned primarily with social phenomena, too. For example, the three things that distinguish **communities of practice** from speech communities or other types of groups are "engagement", "joint enterprise", and "shared

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[29] E.g., "The backchannel of audience members shapes the structure and content of the performance as speakers assess the involvement and comprehension of their interlocutors" (Bauman & Briggs, 1990, p. 70).

[30] Choosing "engagement" also preserves the word "involvement" for those who want to use it to indicate an interactional achievement as Tannen (1989).

repertoire" (Meyerhoff, 2005, p. 597).[31] Communities of practice are useful for linguists because it's in such communities that norms and relationships emerge. These norms and relationships are mutually constitutive. They build upon each other to help form and maintain a community of practice—this is impossible without emotional engagement of the participants. For our purposes, the main thing to keep in mind is that norms include linguistic norms—for example, the creation, borrowing, or rejection of linguistic innovations, as in the reference to

Pope, Meyerhoff, & Ladd (2007) above, which discusses the meaning of different variants on Martha's Vineyard.

It's easy to see how a community of practice is made up of individuals, but it may be more accurate to say that communities of practice are made up of the interactions of individuals. And these interactions most commonly take the form of conversations. To understand any group is to understand the interactions between each pair, triple, quadruple, and so forth. These are what social network theorists map and it is clear from their graphs that some ties are stronger than others, just as some nodes are more connected than others. Two individuals who, over the course of their interactions, consistently display passivity and indifference have the weakest of ties. A graph of zero engagement is made up of people that don't interact at all. Though there were 300 people in the Ethiopian village where I did fieldwork, there were sharp divisions among those who interacted (e.g., Schnoebelen, 2010b). Speakers of Shabo and Majang (the "locals") never spoke to speakers of Amharic or Oromo ("interlopers"). Not even the international language of soccer helped—the village soccer team was made up exclusively of Shabo and Majangir. Only Amhara who lived <u>outside</u> of Yeri came to watch. There is structure to degrees of engagement, including (close-to) zero engagement. In a situation like this, it's easy to see group-based divisions, but the separation is actually something that is enacted each day through the choices of individuals.

Accommodation/audience design

Niederhoffer and Pennebaker (2002) offer one way to understand engagement as it emerges from individual choices. They investigate "linguistic style matching" in order to develop a measure of conversational engagement and dominance that goes beyond self-reports. Specifically, they propose a **"coordination-engagement" hypothesis**.

> The more that two people in a conversation are actively engaged with one another—in a
> positive or even negative way—the more verbal and nonverbal coordination we expect.

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[31] See also Wenger (1998, pp. 72–73) about mutual engagement, joint enterprise, shared repertoire.

Two people who are angry with one another are highly likely to talk in the same way and mimic each other's nonverbal behaviors. However, if either or both are simply not engaged in the conversation, including not listening, thinking about something else, and/or under the influence of psychoactive agents, we would expect a significant drop in both verbal and nonverbal coordination. Degree of engagement, then, rather than rapport should be predictive of both linguistic and nonverbal coordination. (Niederhoffer & Pennebaker, 2002, p. 358)

Their coordination-engagement hypothesis is consistent with **Communication Accommodation Theory** (Giles & Coupland, 1991), in which people can converge on some features for social needs, but diverge on others for identity management. In both Niederhoffer & Pennebaker's coordination-engagement hypothesis (CEH) and Communication Accommodation Theory (CAT), people can converge, diverge, or maintain distance. But CEH doesn't necessarily mean that two interlocutors are converging to help each other out or to look more attractive to one another—indeed, they could hate each other's guts but still be coordinating. In other words, accommodation isn't about rapport. This is an important insight for handling how emotions develop in conversation—there are more than just positive emotions that are getting signaled and reacted to in conversations.

Niederhoffer & Pennebaker are basically looking at **priming**. The usual interpretation of priming is that once something is mentioned, it is activated in the listener's brain and it's easier to retrieve something that is active than something that is inactive. Priming plays an important role in Pickering & Garrod (2004)'s proposal to take psycholinguistics out of dead sentences and into dialogue. The main concern in dialogue is how interactive **alignment** happens. Picking up Clark (1996)'s notion of language as a joint activity, they seek to spell out the psychological processes that allow it to happen. Central to their account is the alignment of situation models as well as other representational levels like the lexical and the syntactic. Alignment, on their account, is achieved by a primitive and resource-free priming mechanism. Modeling the interlocutor's mental state only happens when the primitive mechanisms fail.[32]

There are several observations to make here. The first is to note that Pickering & Garrod's definition of "**situation model**" comes from Zwaan and Radvansky (1998). As Pickering & Garrod use it, the situation model is comprised of space, time, causality, intentionality, and reference to main individuals under discussion. This doesn't seem to leave room for emotions. In

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[32] Misaligned representations are repaired interactively.

fact, Zwaan and Radvansky explicitly do provide room in their situation models for the emotions of entities (Zwaan & Radvansky, 1998, p. 180). They propose a division of "situation models" in three parts: framework (spatio-temporal information), content (entities, including their emotional states), and relations (how content is placed in the framework—for example, where are objects in the room?).[33]

In light of this clarification, we might ask what the last step is all about—when does modeling the mental state happen if mental states are already part of the situation model? What Pickering & Garrod are really talking about is **common ground**. In their scheme, repairs are only used when it's necessary to build out "full common ground"—otherwise "implicit common ground" suffices.[34]

Let's return to the issue of priming. Is it truly automatic and resource-free? For something to become automatic, there must be consistent mapping between input patterns and responses, as Shintel & Nusbaum (2004) point out in their response to Pickering & Garrod. The easiest case to model is when there is a consistent 1:1 mapping. Yet that is not what we get in affective phenomena. The notion of indexical fields is more descriptively accurate. Affective cues involve highly variant mappings—increased volume doesn't necessarily mean anger, it can also mean joy. We may have to reconcile claims about automaticity with views of emotion that view it as more active processing, drawing upon attention mechanisms and memory.[35]

Pickering & Garrod offer a great deal to think about and stand as a beacon of hope in the transition of psycholinguistics into a discipline that studies interactive language phenomena. The social implications of Pickering & Garrod's theory are dialogic priming are significant. Their account makes agentive language choices a special case rather than the norm. That is, decisions in language production like word choice and structure are driven by contextualized stimuli instead of being internally generated. The role of **agency** is an important question, which plays a greater

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[33] See also Zwaan, Radvansky, & Whitten (2002).

[34] In actual studies of emotionally engaging conversations, it isn't clear that interlocutors' speech will become more similar. As Gumperz (1982) wrote, most of our analyses of conversations involve people who get along.

[35] Here's a rough sketch. In a conversation no /u/ is going to be realized exactly the same way. In general, most of the little differences are inconsequential. But that doesn't stop speakers from using /u/ in ways that will get noticed and which do carry more social (interactional) meaning. If you have never heard a fronted /u/ in your life, you can't really do much with it other than register that it's "weird." But upon that registration, you begin to build up a representation. This is how indexical fields get populated. If you regularly heard /u/-fronting by people who seemed sad, it's likely that sadness would become part of your indexical field of fronted-/u/. Emotions are not things that are typically pinned to one variable, though. That's why work must analyze clusters of variables that co-occur and co-confirm their emotional significance.

or lesser role depending upon the theoretical framework. For example, "audience design" sounds quite agentive.

Bell's **audience design** model posits that "intraspeaker variation is a response to interspeaker variation, chiefly as manifested in one's interlocutors" (Bell, 1984, p. 158). Jaeger (2009) gives a general definition of audience design that psycholinguists use: "Speakers consider their interlocutors' knowledge and processor state, presumably to improve the chance of successfully achieving their goals (including, but not limited to, the transmission of information)" (Jaeger, 2009, p. 34). As Jaeger points out, most studies fail to find audience design, at least for syntactic ambiguity. But Jaeger, like Wasow & Arnold (2003) posits that syntactic ambiguity just might not be a good place to look.

Notice that this is formulated in terms of reducing processing difficulty. Psycholinguists like to think about processing—what cognitive processes make it possible to generate sentences and which ones make it possible to understand them? The predominant form of psycholinguistic stimuli has been in the processing of words and sentences. Such stimuli are fairly lifeless. They occur in relative isolation and without interactivity. They aren't very similar to the actual language that people process and produce.

Nor do we really think that speakers only take the listener's brain into consideration. Certainly, Bell (1984) had the core question of "Why did this speaker say it this way on this occasion?"[36] A more full-bodied version of audience design would look at how our utterances demonstrate our interpretation of our listener.[37] They also demonstrate our interpretation of the larger context, the topic we're talking about, etc. Utterances can also assert **identities**, bringing us back to issues of styles and personae. Coupland explained that his Cardiff radio host was designing his accent for his audiences, yet we might suggest an alternative: that the radio host was doing "persona projection". Eventually we need to grapple more fully with how much design and agency there is in conversation, but there must be room for at least some. Underneath the affiliation-building of audience design theory and accommodation theory is something we want to preserve. We may design our utterances to reflect an aspect of ourselves and to assert claims, but we also design

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[36] Reminiscent of what Fishman said sociolinguistics was in 1968.
[37] In this way, an utterance can reveal (i) something that the speaker intends to convey, (ii) something that the speaker intends to convey but wants to be able to deny, and (iii) something that the speaker isn't even aware they are conveying (whether it is "true" or not). I might point out that (ii) is gradient—there are ways of talking about people that will get challenged but can be denied; there are also more subtle ways of talking to people so the listener can't quite put their finger on what's happening so as to offer a challenge. More on this later.

utterances to transform our situations. It is difficult to ignore the affective causes and consequences of such phenomena.

Performance, markedness, and politeness

For Goffman, people are constantly performing presence—people are always "tracking one another and acting so as to make themselves trackable" (Erving Goffman, 1978, p. 802). This is why people are ready to say "Oops" when they drop something—or when someone else drops something.

> We owe to any social situation in which we find ourselves, evidence that we are reasonably alive to what is already in it—and furthermore to what may arise, whether on schedule or unexpectedly. If need for immediate action is required of us, we will be ready—if not mobilized, then mobilizable. A sort of communication tonus is implied. If addressed by anyone in the situation, we should not have far to go to respond, if not to reply. All in all, a certain respect and regard is to be shown to the situation at large. These demonstrations confirm that we are able and willing to enter into the perspective of the others present, if no more than is required to collaborate in the intricacies of talk and pedestrian traffic. (Erving Goffman, 1978, p. 791)

The claim here is that we monitor our engagement and the engagement of our interlocutors—or in my terms, that we are monitoring our positions. In truth, we are probably rarely in complete accord with our interlocutor's views on a given situation, maybe never. One of the fascinating things about heated arguments is that this discrepancy comes to the fore so dramatically. Utterances can clearly designed for particular interlocutors in particular places, but it is possible for each speaker to insist that the conversational dance be the one of their choosing.

Conversations are co-constructed by the participants in them and emotion is one aspect of what is driving and being shaped by this co-construction.[38] While I prefer "construction", it is possible to see this process as a **negotiation**. Myers Scotton (1983) uses the idea of negotiation to recast convergence and divergence in terms of **markedness**.

> The model relies on the premise that participants in conversation interpret all code choices in terms of a natural theory of markedness. That is, as part of their communicative competence (Hymes, 1972), speakers recognize choices as either

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[38] This is true even if a lot of the ebb and flow turns out to be dominated by automatic mechanisms described by Pickering & Garrod.

unmarked or marked in reference to the norms of their speech community. (Myers
Scotton, 1983, p. 115)

Speakers adhering to the negotiation principle choose forms of conversational contributions that
symbolize the set of rights and obligations that they wish to be in force between speaker and
addressee for the current exchange. In her model, marked choices can elicit affective responses,
while unmarked ones cannot. In the negotiation principle, Myers Scotton seeks something more
general than **Grice's Cooperative Principle** or Brown and Levinson's **politeness theory**.[39] As
Brown & Levinson (1978) write, if the cooperative principle were the only thing in force,
language should be maximally efficient, with one way to say each thing. Yet there are many ways
to "say the same thing". For Brown and Levinson, speakers are not just cooperating, they are also
maintaining each other's face (Brown & Levinson, 1978, p. 65).

Readers of Haspelmath (2006) hear "markedness" and may narrow their eyes. It's not necessary
to narrow too much: Haspelmath would consider Myers Scotton's use of markedness among the
least problematic of the 12-flavors of markedness that he critiques. In reality, Myers Scotton's
notion of markedness is basically about distributions. Take two ways of "saying the same thing"
and imagine them in context. One of them is unrestricted in its distribution or acts as the "default"
for a given context. The other is somehow marked, if only in the context where it is used. In
Myers Scotton's approach, there is an inflection point each time a marked choice occurs— a
Swahili speaker who switches into English is proposing that the set of rules and obligations shift,
and perhaps that the marked choice become the unmarked choice. In this view, unmarked choices
establish or affirm the status quo associated with the conversation.

One of the reasons I stress engagement-as-a-process is because any interaction must involve some
involvement/engagement/alignment/accommodation/coordination.[40] To communicate with
someone requires common ground and signals of emotion build the common ground.

The pragmatically inclined may hear the **Principle of Accommodation** ringing in their ears:
speakers can treat *q* as part of the common ground even when it isn't. Stalanker's early
description of this has to do with a speaker who pretends that the hearer knows the
presupposition—his point is that speakers don't want to spell out a presupposition if it would be

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[39] Grice's cooperative principle is a super-maxim from which all other pragmatic facts flow, "Make your
conversational contribution such as is required, at the stage at which it occurs, by the accepted purpose or
direction of the talk exchange in which you are engaged" (H. Grice, 1975, p. 45). As Myers Scotton
suggests, speakers who follow the cooperative principle necessarily maintain the status quo.
[40] This may even be fundamental to conversation—indeed, if you try to respond to a question with a
genuine non sequitur, people will do acrobatics to render your remark intelligible.

tedious or indiscreet to do so (Stalnaker, 1974, p. 202). Stalnaker's use of the verb "pretend" suggests a very intentional, agentive view of accommodation. This contrasts with Lewis's early formulation of pragmatic accommodation, which is agency-agnostic:

> If at time *t* something is said that requires presupposition *P* to be acceptable, and if *P* is not presupposed just before *t*, then – *ceteris paribus* and within certain limits— presupposition *P* comes into existence at *t*. (D. Lewis, 1979, p. 340)

This definition is compatible with constructivist notions of meaning that extend speech act theory beyond **performatives**. These approaches hold that we bring things (positions) into existence by saying them. This is important in thinking about emotional engagement and emotions in general—we bring a new state of affairs into being as we express or are seen to express emotions. You may not know that I am happy or sad or angry, but if you hear it in my voice, it becomes part of the common ground. All the problems of common ground occur—I may think you know I'm upset without you really knowing, you may think I'm upset without me really knowing, too.[41]

Loewer (1976) talks about accommodation as a **pragmatic pressure**.[42] Essentially, if an utterance doesn't make sense under its semantic interpretation, it's natural to associate it with some other interpretation. As he points out, "It may be that certain pragmatic pressures almost always operate on utterances of a particular kind. In such cases the pragmatic interpretation may become the standard interpretation" (Loewer, 1976, p. 535).

The notion of common associations is one that I will return to in a moment, but while I'm discussing Loewer it is worth specifying his other two pragmatic pressures: (i) one should be prepared to defend one's assertions, (ii) one should be as informative as the situation allows.

The most obvious way to interpret (i) is that people shouldn't say things that they can't defend. But there is another aspect, which I might call the principle of plausible deniability. It is undesirable and impossible to communicate everything you know/feel in a situation. But the same thing that is bad to communicate in one situation may be useful to communicate in another.[43]

Guerilla tactics are common in communication. Blakemore (2009) is right that by making the reader/listener do the work it is possible to build intimacy. But when the listener is doing the

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[41] As formulated above, Lewis' accommodation is almost certainly true—the parenthetical *ceteris paribus* and the unspecified limits assure accuracy but leave too much wiggle room.
[42] The notion of pragmatic pressure is borrowed from Hintikka (1969).
[43] **Principle of plausible deniability**: When it's inappropriate to communicate everything you feel, communicate the information using codes that allow you to throw your hands up in the air and say, "I didn't say that" if confronted with them. See also Goffman (1959).

work they can also be left with uncertainty—or even if they are certain, the speaker can still defend themselves against charges: *I didn't say I hated you; I'm not in love with him, why would you think that?; I said your plan is fine and we should go ahead and do it that way.*

Part of an utterance situation is always the evaluation of the emotions of self and other. Since these evaluations define the realm of possible actions and drive the actions that actually occur, it would seem to be important to encode the emotions. This is Loewer's "**maximal informativeness**", which does seem to be in conflict with Grice's maxim of quantity ("make your contribution as informative as is required"), since Grice's focus is on not saying more than is necessary. A conservative position is that emotions leak and are leaked into utterances. But it is possible to deny that anything leaks—for example, one could claim that there is no unintentional communication or alternatively, that what we see as displays of emotion are constructed through the interactions of individuals and the world around them.

Let's return to the idea of associations that come out of accommodating.

> A consequence of the Principle of Accommodation is that a sufficient frequency of speaker contempt associated with the use of a particular word or phrase can infect the word with semantic contempt. This is a reflection of semantic dynamics, the processes by which expressions change in meaning, i.e., in the semantic information they carry. (Kaplan, 1999, p. 32)

Each word has its own history and part of its history is how it is used. That's really what meaning is. As far as I know *sehqwalep* has no meaning because it has never been used. Let's say that I decide that it has a meaning, say 'red screwdriver'. As listeners interpret the word, it gains its meaning. Words that are used only once are rarely acquired unless there is something dramatic in their usage. But as a word is used, its meaning shifts to accommodate how it is used. Thus, if swear words are habitually used in frustration, they carry that as part of their meaning. If I only say *sehqwalep* when I'm frustratedly asking for someone to pass me a red screwdriver, it's likely that the meaning of *sehqwalep* is taken to involve frustration.

This leads us to a central insight with both theoretical and methodological implications. Variation is the norm—in phonetics, lexical choice, and syntax. But variations are not in random distribution, they are and they come to be associated with those things they co-occur with.[44] So

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[44] I am arguing, in parallel to Selting (1994, p. 384), that global markedness has probably been overvalued at the cost of more situational/interlocutor-defined particular markedness.

we accept, in large part, Myers Scotton's concept that interlocutors know, in any given circumstance, which variant is to be expected. The unexpected choice gets attention—it is, in information theoretic terms, more informative than its alternatives.

Positioning and the social order

I develop a notion of **positioning** to connect linguistic forms to each and to social structures. A parallel term is **stance**, which is usually defined as an expression of a speaker's relationship to their talk and their interlocutors (e.g., Bednarek, 2008; Du Bois, 2007; Kiesling, 2009) and can also be taken to connect linguistic forms and social structures. To my ears, "stance" is rather too static and "stance-taking" is a little too agentive, but since there is more work under the heading of "stance" than under the heading of "positioning", I'll begin there.

Stance

Most of the work on "stance" and "positioning" can be fairly easily translated into the other framework. One distinction within the stance literature, however, has to do with dividing stances into those about knowledge and those about affect.[45] Consider Ochs (1996), for whom any situation has time, place, social identities, social acts and activities, as well as participant stances.

> **Affective stance** refers to a mood, attitude, feeling, and disposition, as well as degrees of emotional intensity vis-à-vis some focus of concern...**Epistemic stance** refers to knowledge or belief vis-à-vis some focus of concern, including degrees of certainty or knowledge, degrees of commitment to truth of propositions, and sources of knowledge, among other epistemic qualities. (Ochs, 1996, p. 410)

It's not entirely clear how Ochs further defines affective stance. For example, at one point she seems to be willing to reduce it two axes: positive/negative and intensity. At other points, she labels affective stances more specifically: "sadness" or "sympathy", for example.

Kiesling's division of stance is between how a speaker relates to the content of an utterance and how they are relating to the listener they are speaking to.

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[45] This parallels one of the trends in computational linguistics, as well. In order to improve classification, many researchers try to distinguish sentences that have polarity from those that don't. This is thought of as distinguishing subjective sentences, which present opinions and evaluations, from objective sentences, which present factual information. The task then becomes classifying the subjective documents/sentences/phrases as either negative or positive (see, for example, Riloff & Wiebe, 2003; Wiebe, 2000; Yu & Hatzivassiloglou, 2003). Subjectivity and objectivity are generally detected through elements like parts of speech, e.g., gradable adjectives are used to detect subjectivity.

A person's expression of their relationship to their talk (their epistemic stance—e.g., how certain they are about their assertions), and a person's expression of their relationship to their interlocutors (their interpersonal stance—e.g., friendly or dominating). (Kiesling, 2009, p. 172)

As Kiesling points out, these are related—someone being patronizing is also likely to be expressing certainty. This is a Goffmanesque idea: certain stances require particular **social roles** and particular social roles require certain stances. Ochs calls these "clusters". In addition to being apt, her description helps to block simplistic analyses that would describe linguistic forms and social meanings as having a 1:1 mapping.

In all societies, members have tacit understanding of norms, preferences, and expectations concerning how situational dimensions such as time, space, affective stance, epistemic stance, social identity, social acts, and social activities cluster together. (Ochs, 1996, p. 417)

This is different than the traditional variationist sociolinguistic position, which sees contexts as fixed features that determine speech. Instead, Ochs thinks about how speech contributes to defining the context itself. We do see **genres** emerge, but genres are structured expectations (Bauman, 1999). And just as Goffman points out that some roles go with some situations and vice versa (Erving Goffman, 1959), some linguistic resources go with some contexts. Language is flexible, however, and using a linguistic resource can actually alter the context. *Bequeath* conjures up formality and the dead, yet I can say an old roommate bequeathed me his couch—in so doing, I am drawing upon the conceptual baggage/indexical field of the word. Other linguistic resources—breathiness, intonation, etc.—can be deployed similarly.

We may say that stance is itself a form of **social action**, where speakers are evaluating something and thereby positioning themselves to align (or not) with the listener—this is, for example, the position of Du Bois (2007). And in fact, Kiesling makes stance a primitive. For him, stance is the main interactional meaning being created and it's a precursor to any sociolinguistic variation. "That is, sociolinguistic variants are initially associated with interactional stances and these stances become in turn associated with a social group meaning in a community over time and repeated use"(Kiesling, 2009, p. 172).[46] Kiesling wants to know how far he can go with the idea

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[46] "The social meaning of linguistic forms is most fundamentally a matter not of social categories such as gender, ethnicity, age, or region but rather of subtler and more fleeting interactional moves through which speakers take stances, create alignments, and construct personas" (Bucholtz, 2009, p. 146)

that the choice of a linguistic form is ultimately based on the interpersonal/epistemic stance they want at a particular time. Ultimately, I believe that even epistemic stances will be shown to be ultimately about interpersonal negotiation, as suggested both in Chung (2010) as we saw above and as Chapter 3 suggests in the course of examining how claims about knowledge are deployed over the course of a conversation.

Harré and the social world

I did not have Rom Harré's work in mind when I began thinking about positioning, however I find that the work he and his colleagues have done is similar enough to my own thoughts that I am happy to position myself as building upon their insights. In particular, I am interested in the idea that even words like *I* and *you* aren't references to objects independent of time and space—they are more like "**momentary status updates**" (Harré, 1983; Shotter, 1990). And even when these words are not explicitly present, the *you* and *I* of the interacting people are still implicitly there. Our talk relates us to ourselves, each other, and the world around us.

> Whenever somebody positions him/herself, this discursive act always implies a positioning of the one who is addressed. And similarly, when somebody positions somebody else, that always implies a positioning of the person him/herself" (Harré & Van Lagenhove, 1999, p. 398)

I would add the following clarification—people do not merely position themselves and their addressees, nor do they merely position these entities plus people who aren't present. Things, ideas, actions, and attributes are also positioned and it is through such positionings that individuals' and dyads' realities are created, deployed, and perturbed. Conversations are opportunities for positioning—consider the way gossip positions the person being gossiped about against the moral order, how it positions the gossiper as someone who "wouldn't do that" and communicates that the gossiper trusts the audience in some way (Harré & Van Lagenhove, 1999, p. 403; Sabini, Silver, & others, 1982).

The notion of "positioning" begs the question: what sort of space are we moving and being moved around in? The answer is a multidimensional **social grid**. Social structures are created, maintained, and changed by specific interactions. But these structures do impose constraints on interactions (Bourdieu, 1977; Butler, 1999; Giddens, 1984). People enter into an interaction already positioned along a multiplicity of lines. They make use of conversational forms and strategies that are available to them (Harré, 1986; Vygotsky, 1962), but not all forms and strategies are available to all people but the ones that are employed in interactions change the

positions of the interactants—sometimes dramatically, sometimes subtly—and people are attentive to such changes.[47] Over time, different linguistic resources come to be associated with different positionings. This is what makes them available to be reiterated.[48]

One of the consequences of being finite is that we can only attend to so much. That means that we tend to do what we and others have usually done. Distributions of experiences are usually maintained, in turn maintaining expectations. These expectations enable and constrain people. And of course the maintenance and disruption of expectations have affective consequences.

One way of thinking about this is to see that people acquire conventions, norms, and habits—feeling rules and display rules in terms of Hochschild (1979) and Ekman & Friesen (1975). Cultures give us words and beliefs about emotions and people appropriate these. But there are ideologies about who can feel which emotions, when, for how long, and with what intensity—the keywords here are "**emotional management**" and "**emotional regulation**" and these turn out to be quite important in understanding affective linguistic resources, as will see in each chapter of this dissertation. Display rules aren't uniform across social categories, as we'll see, and what's more, individuals have their own styles of expression.

One tends to see the world from the point of view of the positions that they occupy, in particular the parts of the positions that are most contextually relevant. The processes surrounding this are outlined by Davies & Harré (1990) and include (i) learning categories, (ii) associating meanings with categories through interactions, (iii) positioning the self relative to the categories, (iv) recognizing and identifying with subclasses of categories and having an emotional commitment to them.

To develop this a bit further, we might add **distributions** and **probabilities**. That is, we come into a corner of the world in which particular sets regularly do or do not co-occur and as we move through the world, these distributions change. Over time, we learn which differences and

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[47] Goffman discusses this in terms of "footing", starting and ending his famous essay with serious newswoman Helen Thomas pirouetting for Richard Nixon and the rest of the White House Press Corps. "A change of footing implies a change in the alignment we take up to ourselves and to others present as expressed in the way we manage the production and reception of an utterance" (E. Goffman, 1981, p. 128). Throughout most of his career, Goffman focused on "roles" rather than "footings", which for Davies and Harré is rather too static, formal, and ritualistic. For them, the social meaning of an utterance depends "upon the positioning of interlocutors which is itself a product of the social force a conversation action is take 'to have'" (B. Davies & Harré, 1990, p. 45)—their own example is of two people of good faith and intelligence getting trapped into positions of something like "you're a paternalistic sexist" and "you're a priggish feminist".

[48] Though it should be added that each iteration provides the possibility of shift or change. If a way of expressing sincerity comes to be parodied enough, it may not be able to express sincerity any more.

similarities to attend to and in which situations. And we come to associate meanings with these categories—we naturalize and rationalize the inclusions and exclusions of the categories. We are ourselves entities in others' worlds and positioned by them, but we also have agency in positioning ourselves. All these aspects hang together as ideologies but underlying these ideologies are affective orientations about what is pleasing, a bit off, worthy of esteem, repulsive, etc. But "the rights for self-positioning and other-positioning are unequally distributed and not all situations allow for or call for an intentional positioning of the participants" (Harré & Van Lagenhove, 1999, p. 399). And as Harré and Van Lagenhove point out later, people are more and less talented at positioning and differ in their willingness/intentions to position and be positioned.
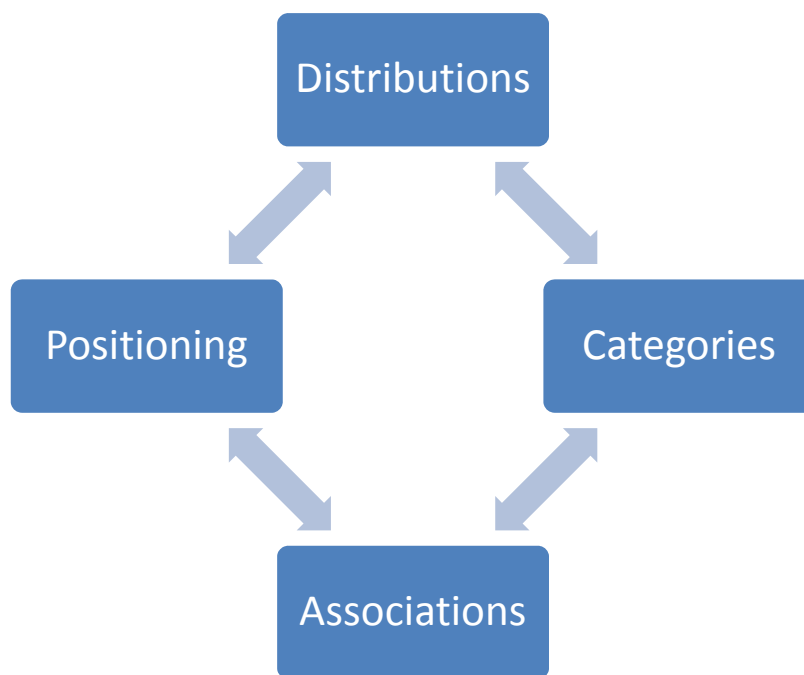
Figure 2: "Positioning" exists in a network of other concepts.

Some of the ideas I've been talking about can be found in the literature with keywords like **circulation** (how texts—understood largely—travel through society as in Spitulnik, 1996; Urban, 1991), **intertextuality** (the relationship between texts as in Bakhtin, 1981; Bauman & Briggs, 1990; Briggs & Bautnan, 1992), and **enregisterment** (how forms of speech come to be recognized as pointing to particular groups as in Agha, 2003, 2005; Johnstone, Andrus, & Danielson, 2006). These ideas reflect an associative mindset and the any such associations are based on distributions of experiences. I will not have a lot to say about circulation, intertextuality, or enregisterment in the body of the dissertation—but I will be developing methods and analyses that are very much about expectations based on the distribution of experiences.

The central insight of **theories of practice, performance, and structuration** is that without specific interactions, there is no structure to talk about—but structures also impose constraints on those interactions (Bourdieu, 1977; Butler, 1999; Giddens, 1984). As a consequence, each individual enacts/embodies/represents traditions in ways that continuously alter those traditions. And among traditions are "word use", "pronunciation patterns", and "syntactic constructions". In general, the shifts caused by using a resource in a new context are small and the status quo is maintained. Words and other linguistic resources change their meaning but in the grand scheme of things, not very often. Coherence is maintained. Distributions of experiences are maintained. So, too, are expectations. People are both enabled and constrained by expectations. And as I'll show, the maintenance and disruption of expectations has affective consequences.

Expectations

One way of thinking of expectation with regard to affect is to consider groups who purportedly don't express (or even feel) some emotion. How would we validate or invalidate claims that Tahitians and/or Utkuhikhalik Inuit don't really have anger (J. L. Briggs, 1970; Levy, 1973, 1984)?[49] Or to make it more specifically linguistic: how would we show the presence/absence of affective linguistic resources used to express anger?

In philosopher Robert Solomon's take on the data, we must consider context. He doesn't use words like "co-occurrence", but that's how I will end up developing and formalizing the intuition and making it quantitative.

> We want to know whether the word (Tahitian *riri*) is used in precisely the same contexts and with the same reference and significance as our own word (anger)…To understand an emotion, in other words, one must understand much more about a person or a people than their behavior in an isolated incident. It may be reasonable to suppose that a man who gnashes his teeth and shakes his fist—after he has been sideswiped by an ox—is angry. But that supposition is reasonable only insofar as we assume that he shares a substantial set of concepts with us; this is not always reasonable, and it is often incomplete. (Solomon, 1984, p. 251)

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[49] The details have more nuance than the broad brush I've used here that is common in literature citing Briggs and Levy. For Levy, the Tahitians have an elaborate fear of anger—and therefore a rich vocabulary of "anger" words, but a bunch of ways to avoid feeling/expressing it. Briggs observes almost no occurrences of anger herself (outside of children) and an episode of anger that she has gets her ostracized for months.

To compare *riri* and *anger*, one must compare how they are actually used. In the domain of language, one would look for co-occurrence symmetries and asymmetries. Imagine we found that in English, *anger* was disproportionately used next to words like *frustration, pain, felt, rising, hostility*, and *hate*.[50] Would the Tahitian collocates for *riri* be similar? And what about the users of *anger* and *riri*? Surely it would have great bearing on how we described these words if we found—even though *riri* and *anger* had similar word collocates—that *anger* was disproportionately used by American women and *riri* by Tahitian men.[51] The meaning of words and other linguistic resources is bound up in the contexts they are used in, including who is using them, with whom, and talking about what. The site of meaning is where co-occurring resources set—or defy—expectations.

As Solomon points out, we aren't really analyzing feelings, we're analyzing interpretations. That's because what we have out in the world are linguistic resources. An emotion word (like all words) is "a system of concepts, beliefs, attitudes, and desires, virtually all of which are context-bound, historically developed, and culture-specific (which is not to foreclose the probability that some emotions may be specific to *all* cultures)" (Solomon, 1984, p. 249). This is a major part of Solomon's analysis: expressions of affect may be more or less faithfully related to underlying feelings, may be more or less constructive of those feelings, but we are analyzing things out in the world. Instead of concerning ourselves with what's in speakers' heads, the study of affect in language concerns us with the range of possible meanings hearers might assign to linguistic resources situated in contexts.

The other example in the quote above is about gnashing teeth and shaking fists. To interpret these actions we would need to know how teeth gnashing and fist shaking were used across different contexts. The foreign anthropologist who interprets these as markers of anger is drawing upon the distribution of uses in their experience. But imagine you stay with the ox-swiped man for a year and record every time he gnashes teeth and every time he shakes fists. You find that he performs these actions at baptisms and as his closest friend gets married. You find that he performs them at grave sites and before going hunting. You find him doing it when his son is clobbered on the soccer field. Finally, you ask him what the gestures mean to him and you ask other villagers, too, whether they perform these gestures or not. Perhaps they say they don't know. Or perhaps the

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[50] And of course, 'anger' is also defined by the relationship it bears to alternatives—'joy', 'fear', 'sadness', etc.

[51] My basic point is not that gender systems across cultures (or even within cultures) are inherently comparable—the point is that how words are used (what other words they occur with) isn't the only thing that matters—so does who is using them.

villager or his neighbors say the gestures are a kind of prayer, a way to ward off bad luck, a nervous tic.

Interpretations are more or less plausible based upon the distribution of the gesture across contexts. This sketch of a quantitative approach is what we'd use for assessing more traditional linguistic resources like words and intonation melodies. Linguistic resources do not have single meanings, but ranges of meanings and these ranges are defined by the distribution of uses across contexts. Eckert (2008)'s work on "indexical fields" is about ranges of meanings in sociolinguistic variables—what I am saying here is that this "range of meanings" idea is broadly applicable. And as Eckert discusses, the shapes of these fields/ranges are themselves ideologically structured and structuring. Broad generalizations only exist because of micro-interactions, but those micro-interactions are themselves shaped by larger structures (returning us to Bourdieu, 1977; Butler, 1999; Giddens, 1984). Getting a handle on such duality is crucial for understanding the flexibility and the constraints of linguistic resources in, for example, positioning speakers and others.

Chapter 3: Linguistic affect in a close reading

Introduction

The central goal for this chapter is to demonstrate what sort of analytical and methodological tools linguists need in order to understand how people use linguistic resources to construct and cope with affective experiences. To accomplish this, I give a close analysis of an emotional exchange between two friends. Putting a conversation under a microscope offers a number of benefits: (i) looking at real-life discourse gives us a wide variety of phenomena to consider; (ii) such diversity also lets us explore a number of different methods; and (iii) connected discourse means that we get to see how these phenomena unfold over time. One disadvantage to a close reading is that we cannot say everything there is to say—the analysis cannot be anything other than partial. Nor can we linger too long on any one phenomenon. For that reason, only this chapter is meant to operate this broadly, while the chapters on the affective meaning of distribution of *little* and the use of emoticons on Twitter pursue their topics in great detail.

Before getting into the data, let me highlight some of the guiding analytical principles and methodological techniques.

i. **Affect can be conveyed at every linguistic level**. You'll hear it in the voice quality, in the word choices, and in the syntax.

ii. **Affect is multiply indexed, but some cues are stronger than others**. Rather than saying that a linguistic resource "means" something affective, it is probably better to say that it "points to" an area of affect, which we can specify further by considering accompanying cues. That said, certain cues are so strongly associated with affect that they can serve as guideposts for our analysis—words like *love* and *ooh* or intonation contours with extreme pitch variation, for example. The presence of such guideposts suggests looking more closely for other, more subtle signals of affect. To establish affectivity of a cue, we can look at how it patterns with strong cues both inside and outside of the conversation.

iii. **Affect is reactive**. Affect does not stay still, it responds to the flow of events. This means that we have to pay attention to the time course of the interaction as well as to repetitions that emerge in a particular conversation as keywords. Reactions and interactions are very much shaped by ideologies governing how and when to manage emotions (yours and your interlocutors'). Affective linguistic resources can be used to express emotion as well as to cope with the aftermath of such an expression. We want to look not just at conventionally affective resources but also how linguistic resources distinguish particular sections of talk—the concept of markedness seems indispensable.

iv. **Affect is interpersonal**. Expressions of affect end up relating some target to both the speaker and the listener, forming what Du Bois (2007) calls a "stance triangle." To understand the deployment of affective linguistic resources, we need to pay attention to the speaker, the listener, and the target—and each of the relationships between those. Utterances can build solidarity between interloctuors, but they can also push them apart. It's by looking at stance that we start seeing more specifically how affect and identity come together in the construction of self and others.

The analysis that follows is meant to tune the ear and eye to affect. Each of the principles above suggests how impossible a "complete analysis" of affect would be. There could be a whole dissertation about the conversation I'm analyzing here and it still would not be "complete". So I do not attempt to exhaust the conversation—what I cover is necessarily eclectic. It is worth specifying that I am not attempting to get into the speakers' heads. What we want to focus on here is what a hearer could hear. What is out there able to be interpreted? Therefore my goal is to show what sorts of linguistic phenomena we can think of in terms of affect and how we might approach them.

Determining where to look

In what follows, I demonstrate a method for quantitatively assessing emotional intensity so that the conventional emotional impact of affective linguistic resources can be studied. I will demonstrate that the relationship section of Rachel and Ariel's phone call that I focus on is, in fact, consistently heard as the most emotional section of their conversation. Rachel and Ariel are friends from New York. At the time of the call, Rachel is still in New York (in college), but Ariel is living in Israel. The conversation covers a number of topics, including difficulty of getting through to Ariel, news about friends and families (especially engagements), extracurricular

activities and social life, relationships, and homesickness. There are very animated periods as well as slower stretches filled by just breathing and sometimes yawns.

Methods

In 2010, Cowie and colleagues released the Gtrace system, an update to their FEELtrace program for subjects to indicate how happy/sad/angry/etc a person in a video/audio clip was (McKeown et al., 2011; Cowie et al., 2000). In Gtrace, a subject is able to watch/listen to a stimulus and move a mouse cursor in order to give a judgment about some aspect of the stimulus. The Gtrace system collects data on the mouse position at the millisecond level. The tool is very flexible, which meant that it was very easy to customize it to focus on the question of emotional intensity.

Figure 3 demonstrates what subjects saw. Each subject first listened to three short practice clips to show them how to use the software. After that, they listened to the entire phone conversation between Ariel and Rachel. The phone conversation was broken into 6 sections, approximately 5 minutes—I chose natural boundaries based on lulls and topic shifts. Each subject heard all six sections in the order they were given. Subjects took short breaks after each section and afterwards filled out questionnaires to see if they had been paying attention and to get a sense of what they thought about the two speakers and their conversation.
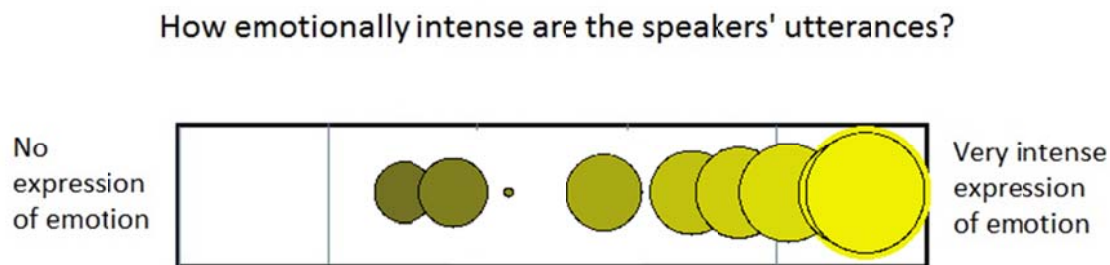
Figure 3: Subjects moved their mouse to the left or right to indicate emotional intensity of the telephone conversation they were listening to. The Gtrace program leaves a memory trace of where the subject's cursor has been.

Subjects were six male and four female undergraduates at Stanford University and they received credit for an introductory linguistics course by participating. Because of the resolution of the Gtrace software, almost 3 million judgments were collected for the thirty-minute conversation. As an example, there were a total of 284,586 data points for Subject 1—judgments were recorded

continuously, an average of every 0.006326 seconds[52]. To make ratings comparable, each subject's ratings were z-scored based on their ratings across all six sections of talk.

Getting to know the data
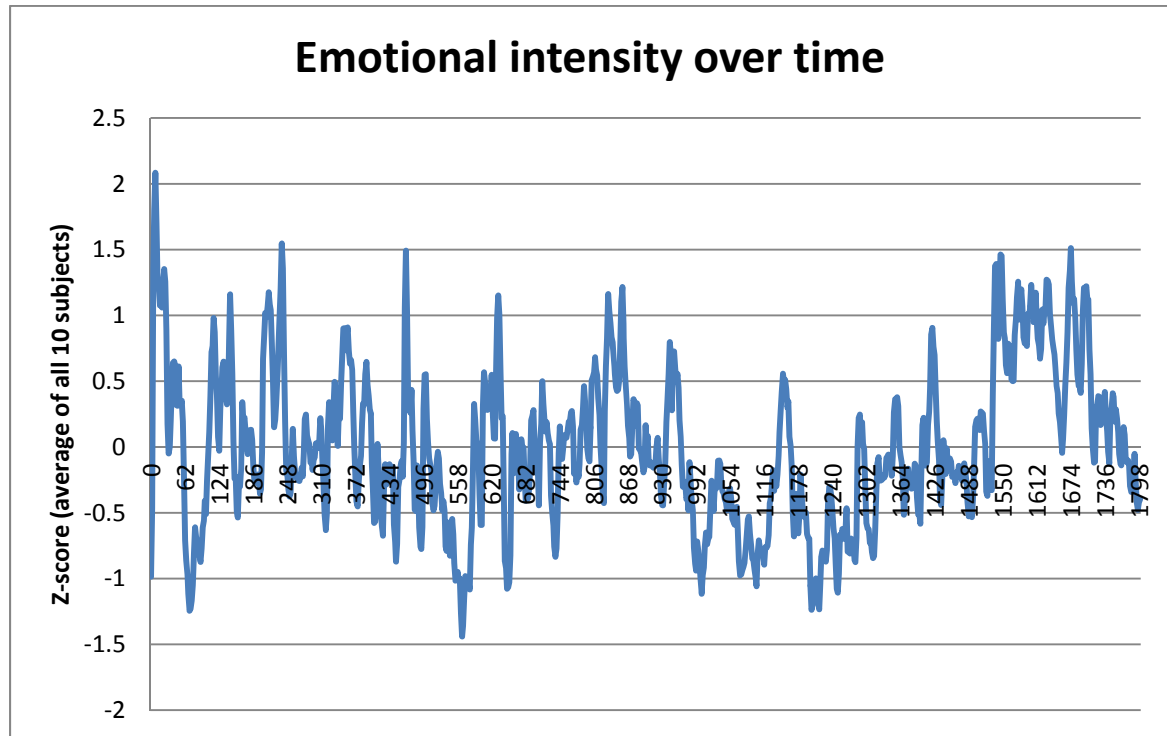
Figure 4: The average emotional intensity that subjects gave to the telephone conversation. The extended peaks towards the end are the relationship section that the rest of the chapter will focus on.

To see how emotionality varied over the course of the telephone conversation, let's look at how each subject's ratings patterned. Because we are working with z-scores, big positive numbers indicate a very intense section and big negative numbers indicate a section that is less emotionally intense than the overall average. Here, I simply report sections that have z-scores of greater than 0.33 or less than -0.1.

Subject	Top sections (> 0.33)	Bottom sections (< -0.1)
1	3, 1, 6	4, 5
2	6, 1	5, 4, 2

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[52] Even if we restrict ourselves to shifts—that is to only count movements to a new intensity level (and therefore drop a rating if it is the same as the previously recorded rating)—there are still 16,541 data points to consider for Subject 1.

Subject	Top sections (> 0.33)	Bottom sections (< -0.1)
3	6	2, 4, 3
4	6	4, 2
5	1, 6	2, 4, 3, 5
6	6, 1	3, 4, 5, 2
7	6	2, 4
8	3	4, 1, 2
9	6	4, 5, 3
10	6, 3	1, 2, 5

Table 1: The telephone conversation was divided into 6 five-minute sections. The relationship conversation occurs in Section 6. The table reports the sections with the greatest and smallest overall emotional intensity averages per subject.

The relationship conversation that I will ultimately focus on occurs in section 6. As you can see, the data show that for all but one of the subjects, section 6 has a particularly high intensity average. The runner-up is section 1, which appears in the top list for four subjects—but it also appears in the bottom list for two. Section 3 is the most contentious: for three subjects it has intensely emotional content, but it is on the bottom list for four other subjects. Meanwhile, it looks like the sections with the least emotional intensity are section 4 (nine subjects) and 2 (eight subjects). Section 5 also seems relatively unemotional (six subjects).

As you can imagine, this sort of methodology allows us to find sections of discourse that are consistently recognized as emotional. The actual data certainly fits with my assumption that the relationship conversation between Rachel and Ariel has some interesting emotional content—however, the relationship conversation is only 125 seconds of section 6. So having determined that section 6 is worth further inquiry, let's dive into it and find out what parts of it are having the most effect on the intensity ratings.

Since z-ratings are calculated across all thirty minutes of ratings, most sections are above the cut-off of 0.333. To make it more obvious which parts of section six are the most and least emotionally intense, I raise the threshold to 1.0 for "top topics."

Subject	Top topics (> 1.0)	Bottom topics (< -0.1)
1	1, 4, 3, 6	17, 16, 15, 19, 18, 8, 10
2	9, 11, 12, 8, 14, 18, 10, 7, 1, 5	19
3	6, 14, 9, 4, 11, 5	15, 19, 12, 17
4	14, 9, 15, 16, 4, 1, 12, 17, 13	19, 7
5	6, 8, 14, 7, 4, 1	8, 10, 19, 2, 12
6	8, 9, 10, 11, 7, 15, 14, 16, 18, 17, 5, 12, 6, 13, 3, 4, 19	
7	9, 7, 8, 3, 2, 6, 1, 14, 5	19, 18, 13, 15, 12
8	12, 13	17, 10, 15, 8, 9
9	1, 13, 14, 6	16, 19, 18, 17
10	9, 8, 14, 5, 4, 7, 10, 11	1, 18, 17

Table 2: Top and bottom topics within section 6. Note that the relationship conversation starts in topic 3 and goes until topic 13 (including 13).

The data suggests that topic 14 is the most emotional (eight subjects).[53] The next runners up are topic 4 and 6 (six subjects each). Topic 1 and 9 also have six out of ten subjects giving it high intensity (and one subject for each giving low intensity ratings). Topic 5 has five subjects giving it high intensity with no detractors. Topic 8 is a top topic for five subjects, but a bottom topic for three.

The topics that seem to be the least emotional are 19 (bottom list for seven, top list for 1) and 17 (bottom list for five, top list for two). Topics 15 and 18 are ranked in the bottom list for four subjects, but the top lists for two other people. In other words, the topics inside the relationship part of the conversation are the most emotional.

Next, we can examine the average ratings per topic. Again, recall that any positive numbers are more emotionally intense than the subject's "average". That means only topic 19 rates as "unemotional"—all the other topics are above average, though the actual intensities vary.

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[53] This is the topic directly following the wrap-up of the relationship section. It is about homesickness so it does sound fairly emotional, however a large portion of the high ratings come from the early parts of it, in other words as lag from the content in relationship topic #13.

Type	Topic Num	Average z-score
Relationship	Topic9	1.196
Post	Topic14	1.176
Relationship	Topic6	1.102
Relationship	Topic4	1.037
Pre	Topic1	0.932
Relationship	Topic8	0.922
Relationship	Topic5	0.914
Relationship	Topic7	0.910
Relationship	Topic12	0.765
Relationship	Topic11	0.763
Relationship	Topic3	0.745
Relationship	Topic13	0.709
Pre	Topic2	0.579
Relationship	Topic10	0.547
Post	Topic16	0.280
Post	Topic15	0.275
Post	Topic18	0.191
Post	Topic17	0.169
Post	Topic19	-0.192
OVERALL AVG		**0.594**

Table 3: Overall emotionality of topics in the last five minutes of the conversation.

What's happening in the most intense clips?

- Topic 9: Ariel asks why Eric does what he does and both agree that it isn't fair to Rachel.
- Topic 14: Ariel is homesick and asks why Rachel can't come and get her.
- Topic 6: Ariel jokes that Rachel should propose and Rachel says that Eric knows she likes him ("he totally knows").
- Topic 4: Rachel says that Eric is "such a little complainer".
- Topic 1: An announcement that a male friend is engaged, which is taken as shocking/ridiculous.

At this point, we begin to be particularly interested in which of the huge number of constantly unfolding cues are prompting a subject to move their mouse. To answer this, we must confront two methodological problems. The first is that ratings of emotional intensity, while continuous, are not instantaneous. That is, there is lag between hearing something emotionally intense and registering it with the movement of a mouse. This is a function of what's happening in the stimulus (changes of topic, volume, pitch; the suddenness or gradualness of change) and properties of the rater, too (attention, speed of cognitive-emotional processing, manual dexterity). The second is that cues themselves are made meaningful by context, so if you want to understand the meaning of a cue, you need to understand what other cues are occurring around it.

The biggest jumps in average ratings are between topics 3-4, 8-9, and 13-14. The biggest drops are between 9-10, 14-15, and 18-19. In the case of topics 15 and 19, it does seem like the intensity ratings are lowering in less intense topics—that is, I believe that if you listen to these sections you will agree that 18 is more emotionally intense than 19 and that 14 is more emotionally intense than 15. The ratings are not a lag from the previous topics in these cases, but a reflection of less emotional stuff happening with the particular topic being rated. It is not as clear what to do with pairs like 3-4, 8-9, and 13-14, where it could really be the case that the effects seen in the second member of each pair are mostly from stimuli that occur in the topic before.

The question then becomes how best to assess the lag between stimulus and response with the methodology? Cowie & McKeown (2010) examine what happens with intensity ratings based on the size of the bins they are put in. Their results suggest that the most reliable correlations happen with bins that are 1-3 seconds in size. Their concern is about high correlations across the whole time course of the clips their subjects saw. In the next section, I attempt to make this more precise by focusing on five utterances that are rated highly by a separate group of subjects who are rating the conversation utterance-by-utterance rather than moment-to-moment.

The conversation[54]

We begin *in medias res*. Rachel and Ariel are friends who are far apart from each other and talking on the phone. At the moment we join them, they have been talking for 26 minutes—most

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[54] Before reading this analysis, I recommend listening to the conversation and reading through the uninterrupted transcript. The transcript and links to the audio can be found in Appendix A.

recently about a bunch of different people getting married. In particular, an acquaintance named Menachem is getting married and he may have turned religious. In turn #265 Ariel says, "This is just so ʔ weird. {breath}". Here's what Rachel says in response.

266   RACHEL   Yeah. And ach Eric, {breath} ooh.
267   RACHEL   {breath}

What's happening in this utterance? First, *yeah* serves to acknowledge Ariel's statement. Then there's a bunch of stuff that is pretty disfluent but certainly communicative. Normally, the *and* here would be taken to help with discourse coherence (Carston, 1993; Fraser, 1999; Hobbs, 1985; Schiffrin, 1988; Wolf & Gibson, 2005). But this is an *and* to nowhere. It's followed by a very marked sound (*ach*), a name, a breath, and then a very pronounced *ooh*. It is an *ooh* of exasperation. And it's followed by another breath.

There is no proposition explicitly stated in this turn. The closest repair is *And Eric*, but this is just a fragment. I would like to advance a hypothesis that fragmentary, incomplete propositions are a clue to an affective situation. Like most things we have to say about affect, this is not a necessary fact, but it is a strong tendency, so we want to be aware of propositions in discourse that are left unfinished. In this case, the fragment is interspersed with affect bursts, *ach* and *ooh*.[55] *And Eric* could go in a number of directions but the disgust of *ach* and the at-the-end-of-her-rope *ooh* let us know that the affect key is negative. We do not have a proposition, but we do have an affective stance.

268   ARIEL   What?

When you demonstrate a stance, you are demonstrating a stance with regard to <u>something</u> (and with regard to your interlocutor). So there is something there even if we, Ariel, and even Rachel don't know what. Once Rachel has publically committed to a stance about an unspecified proposition, there is an expectation that it will be specified.[56] Ariel's action here is to prompt Rachel to continue.

Later on in the conversation, Ariel has some exceptionally high-pitched questions. Those future questions will seem to express sympathy, curiosity, and ire. The *what* here is flat, though there is

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[55] For more on affect bursts, see Scherer (1994) and Schröder (2003).
[56] Consider Clark and colleagues' work on communication in terms of negotiating common ground and performing joint action (H. Clark, 1996; H. H. Clark & Brennan, 1991; H. H. Clark & Carlson, 1982; H. H. Clark & Krych, 2004; H. H. Clark & Wilkes-Gibbs, 1986).

a subtle smiley voice quality to it.[57] This smiley voice seems to be at least partly in response to the performativity of #266.

269   RACHEL: {breath} He's just so annoying. I can't[58]

This next utterance starts with *he's*, which serves a referential function—we're still talking about Eric. The proposition is that he's *annoying*. As analysts we're going to need to hold on to the fact that some words carry affective meaning because affect is central to their semantics. What is *annoying* if we don't put affect in its center?

Annoying calls our attention to subjectivity. Annoying is more than a negative attribute tied to *he*. The word applies through a particular judge's eyes (Rachel) and is said in relationship to the audience that is present (Ariel). 'Eric is annoying' is short-hand for 'Eric annoys me and I am willing and capable of saying this in front of you'. The intensity of the utterance is shaped by the relationship of the speaker, the object, and the listener before the utterance is spoken. This theme will be picked up more in a future chapter on positioning, but the main point is that we want to be sensitive to the relationship between the speaker and *he* as well as the listener and *he*. There is a difference between *X is annoying* when it refers to the speaker's husband, the listener's sister, or a stranger on the street.

But the predication is actually *he's just so annoying*. *Just* has a lot of uses in English. Often it is trivializing—a different way of saying 'merely'.[59] Here it is closer to 'absolutely', as in *The painting is just beautiful* or *I just can't take it*. While there is ambiguity for *just*, it pairs with a *so* that is an unambiguous intensifier in this context. What happens when these two elements go before *annoying*? In part, they intensify it, yet if you listen to the creaky voice quality and intonation that Rachel is using, she doesn't sound truly, deeply annoyed. Once again there is a sense of performativity, which comes across mostly because Rachel's intonation is a known and exaggerated exasperation melody.[60]

Two techniques are useful in considering affective information. One is to consider variations of a phrase with and without elements. Another is to look for collocates. Wilson, Wiebe, and Hoffman

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[57] That is, we can hear that the lips are spread, creating a raised first formant.
[58] I will pass over this very quiet, overlapped *I can't* for the moment, though it fits in well with the analysis of Rachel's construction of agentivity that I will build out later on.
[59] For examples and taxonomies of *just*, see Aijmer (2002), Kishner & Gibbs (1996), and Lee (1987).
[60] The "annoyance" melody actually starts with the breath. As analysts, we should be tuned in to things that are repeated. There is a lot of breathing going on in this transcript for Rachel. But in truth, the breaths in #266-267 are not very noticeable, though they probably play an important role in making the *ooh* possible as well as in recovering from it. But this breath in #269 is very long and carries a rising intonation.

(2005) categorize 8,221 words as strongly or weakly subjective and negative/positive/neutral. We can turn to the Spoken section of the Corpus of Contemporary American English (M. Davies, 2008) and look for adjectival collocates for *just/so/just so* that have (i) mutual information higher than 2.0 and (ii) 5 or more tokens. As the table below shows, we see that *just so* skews more positive than the others in both token and type analyses.[61]

	Ratio of strongly subjective positive: strongly subjective negative—tokens	Ratio of strongly subjective positive: strongly subjective negative—types
Just so	242 / 114 = 2.12	16 / 13 = 1.23
Just	2,038 / 2,207 = 0.92	32 / 70 = 0.46
So	4,892 / 4,296 = 1.14	54 / 102 = 0.53

Table 4: *Just so* seems to appear more often in positive contexts.

Ultimately, we want to be able to account for the positive-skew of *just so* and its consequences. In this particular context, we can see that this reading fits nicely with hearing Rachel as not fully committed to criticism of Eric. Note also that this echoes Ariel's phrasing after hearing about Menachem's religious conversion in #265: *this is just so {pause} weird*. That phrase, too, is negative on its face without having the speaker be fully committed to the negativity.

There is more to be said about the differences between *just, so,* and *just so*—for example, how they establish comparison sets.[62] But there are two main points here: (i) we can use guideposts— like exaggerated intonation and lexical items like *annoying*—to focus in on other linguistic

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[61] And this is true whether we restrict ourselves to just the strongly subjective positive/negative or allow in weakly subjective positive/negative words.
[62] Consider possible responses to:

    (i)   He's a real prick and I hope he burns in hell.

You can respond with *he's so American* or *he's just so American* and be agreeing with the speaker. But if you say *he's just American*, then you are doing something more like excusing or calming the first speaker down and you are doing this by selecting an alternative frame. Any response with *so* takes the frame in (i) and carries it forward, even if it is a bit of a different angle. You could do something like *He's so wonderful* if you also include a *no* or a *but* or an explanation. But a *He's so {negative}* is fine without any extra context. *He's so {neutral}* will even take on the affect key of (i).
As for *he's just so American*, it seems to suggest some sort of recognition has dawned upon its utterer. It marks a type of "new information". All things being equal, *just so* is likely to be more intense than *so* based on the principle that "longer and/or more complicated is more intense".

elements that may be doing affective work, (ii) we can get a sense of a linguistic resource's affective meaning by looking for collocates, and (iii) we will continue to consider what an utterance would be like if some of its components were dropped.

270   ARIEL   Why, what you p- what was his comments on that?

This question is also relatively flat for Ariel, though it ends with a kind of smiley voice. That suggests that Ariel's understanding is in concert with the interpretation I've built from Table 4—Rachel is not completely committed to *annoying*. Rachel is performing annoyance and has more to say.

The idea that disfluency is a signal of affect is consistent with the literature on disfluency (e.g., Devillers & Vidrascu, 2006), though there aren't any other strong signals of affect here to confirm that's what's going on. The disfluency here suggests that Ariel doesn't immediately know how to begin—is it a why or a what question? Is Rachel's proposition about Rachel herself (Ariel's uncontinued *you*) or about Eric (*his*)? Ariel settles on asking about Eric. The false start are consistent with Ariel knowing that something is up and that Rachel is communicating more than just a proposition about Eric. Rachel is communicating something about herself as well.

271   RACHEL: No, like he he's like oh it's very nice. But like every night on the phone like {breath}
272   RACHEL: he's such a little complainer. {laugh} Like he's like {breath} he's like I'm tired of sleeping alone, he's like I just want a family and ((da da da da da da da da dum)). you know I'm like

No doesn't actually answer a *what* or a *why* question. It answers an unstated question—'is Eric annoying because he said something about Menachem or one of the weddings that we were talking about?' Looking backwards, we can see that from Rachel's perspective the turn-initial *yeah* in #266 may well have closed off those topics.

Earlier I noted that repetition is one of the analyst's guideposts and I suggested that disfluency is as well. In this turn we have a lot of both. First, there are nine uses of *like*. Four of these are discourse *like*'s while the other five introduce constructed dialog. Both of these types of *like* have indexical fields associated with particular social identities and we could well imagine—given the ideologies supporting and opposing these words and identities—that affect is part of *like*'s indexical field, too.

Constructed dialog introduces other perspectives and it gives the speaker a chance to also construct an oppositional or supportive character. In this case, constructed-Eric's first word is *oh*. For Schiffrin (1987), *oh* occurs when speakers shift their orientation to information. For Trester

(2009), its presence in constructed dialogue marks stance work and identity construction. Here, constructed-Eric's first utterance is relatively agreeable and the intonation is very high.[63] But for the other snippets of constructed dialogue, Rachel makes her voice low like a man's, but it's not just a low voice, it's the kind of voice you use to represent someone who is taking themselves too seriously.[64] We can tell something about affectivity from such intonational embellishments. Even if we didn't know this particular tune, we'd know that it was distinctly different from every other utterance Rachel had made.[65] Markedness will continue to be a crucial tool throughout this close reading.

We also look at the propositions themselves. We understand the cultural scripts that have to do with sleeping alone and wanting a family and we know that they are prime candidates for conveying and constructing an affective exchange. If we didn't know about American culture or even human culture, but we did know the semantics, we would still want to consider (i) the affectivity of the *tired of* construction based on collocations, (ii) what it means to modify *sleeping* by *alone*, and (iii) what happens when a volitional verb like *want* is used. *Tired* is reliably associated with emotional states (Schnoebelen, 2010c) and the *tired of* construction is especially so. Elaborations like adverbs often convey the speaker's attitude about the modified part of speech. And verbs of volition give us explicit information about what is desirable and what is repulsive.

Notice also that we have an explicit evaluative beyond the intonation—*he's such a little complainer*. I'll chase down what this *little* is doing in the next chapters, so let me move on to a few quick other notes. This is the first explicit laughter we've heard in this section of the conversation. Laughter is a cue like *ooh* and *ach*. Like them, it is more than just a reflection of an inner state—it is also how interlocutors construct affective understanding.

Technically, the *you know* is the first time in this section that Rachel addresses Ariel in any way. In truth, it is much louder on the page than in the speech. Still, the idea of tracking how Rachel and Ariel are relating to each other is important in describing how they are relating over the course of this topic. Ariel talks directly to Rachel a lot—both by name (three times) and by pronoun (nine times). Rachel doesn't name Ariel and though she uses the word *you* seven times,

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[63] The only thing vaguely disagreeable in this first constructed dialogue is that it continues the *no*. That is, it gives evidence that Menachem or other topics are all fine in contrast to Ariel's expectations.
[64] This comes out also in the *da da da*'s, which are really a version of *blah blah blah* here.
[65] A point developed in Günthner (1999), Klewitz & Couper-Kuhlen (1999), and Lewis (2009).

only #295, #313, and #339 are really directed at Ariel specifically (and perhaps the *you know* of #309).

| 273 | ARIEL | And why is he telling this to you if |

Part of what's happening with the distribution of terms-of-address is that this is really Rachel's show. The topic is her relationship and so Ariel is going to direct a lot more attention to Rachel than Rachel is likely to direct to Ariel. One form that takes is in questions—Ariel asks a number of questions in this topic (nine as opposed to Rachel's three).

This is the first question we've seen that has lots of intonation—in fact, its intonation contours are among the most pronounced in the topic. This is not a simple request for information or clarification, there's stance being conveyed here and action being called for. Questions are never mere fact-finding missions. They embed the listener's perspective, which demonstrates the listener's attention and care (or the opposite). And giving someone a prompt to reply to can be welcomed as a chance to expand on a topic or taken as a challenge or a threat.

We also see the discourse marker *and* that establishes discourse coherence. In this case, Ariel is building upon Rachel's statement to ask her question. Although as with the *and* in #266, the speaker doesn't completely finish her thought—the *you* is really drawn out and Rachel uses the opportunity to take back the floor before the *if* clause is continued.[66]

274	RACHEL:	I don't
275	RACHEL:	know. {laugh}
276	RACHEL:	{breath} He's just

This is a turn that also has a lot of intonation contours and laughter, too. The *know* is greatly elongated, which signals something worth paying attention to: elongated items go with emphasis and intensity.[67] It's possible to use such lengthening to communicate negative affect, but here it's done with a child-like playful contour that disarms a reading of "stressed out not-knowing". The laughter confirms that as well.[68]

In listening to this turn you may feel—as I do—that something else is going on. So this serves as a reminder that all we really have as analysts are the surface signals and replies. We can't really

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[66] This could be Rachel seizing the floor, but Ariel's use of tempo and length suggest she is opening a space for Rachel. Ariel's offer and Rachel's acceptance signal, in many ways, a joint action to reach common ground.
[67] Affective lengthening will play an important role in Twitter later.
[68] Notice that Rachel's long up-and-down *know* in #275 picks up the length and intonation embellishment of Ariel's long *you* in #273, though Rachel's is more exaggerated.

suggest that Rachel is hiding some other feeling—or at least not with much confidence. It is worth noting, however, that the laughter and playful intonation are not entirely congruous with the worries and frustrations that Rachel will start voicing unplayfully in a few moments. Such incongruity doesn't necessarily mean that this is a veil of laughter behind which there are tears. It may just as well be the case that the later negative emotions are compelled by social pressures and Rachel is actually underlyingly playful in her regard for this liminal relationship with Eric. And there is another possibility, which is that Rachel's emotions shift as she goes. Like Hamlet or Lear or Cleopatra, it may be speaking itself that makes her aware of her feelings or shifts them. Emotions are complicated. Our job as linguists analyzing affect is not to get to the heart of speakers' interior states, but to reflect upon how they deploy linguistic resources, regardless of how genuine or stable the connection is between any particular speaker's underlying affect and their affective expressions.

277   ARIEL   oh
278   ARIEL   God.

There are all sorts of *oh god*'s in the world, though their meaning is generally negative. The falling intonation and breathy voice also carry negativity. We can identify the likely target of this expression—Eric and/or the situation between him and Rachel. This lets us do some triangulation. Ariel's affect towards the topic seems to be negative here. Rachel is on the record for finding Eric *annoying* and the situation seems to be constructed as kind of laughably ridiculous and difficult to articulate—not easy in any case. Taken together, part of what Ariel accomplishes here is not just a positioning relative to some target but also a positioning relative to Rachel. In this case, something in the family of sympathy.

279   RACHEL: He makes me crazy.

Crazy is an emotion term, but here it is relatively quiet and flat. In #276, we saw the re-appearance of *just* and another incomplete proposition: *he's just* (something). In #279, Rachel continues takes a different framing—instead of what Eric is, she'll talk about what Eric does to her. Relating subjects and objects is a crucial part of syntax. Often these relationships are emotional. Rachel did not say *I feel crazy*, but that Eric causes craziness. When we say that a syntactic construction gives us relationships, we should attend to how those syntactic relationships reflect and construct affective relationships. In this particular case, we have an utterance with some lexical and syntactic cues but without much in the way of vocal cues

(intensity, pitch, etc.). This is certainly an utterance that can take on very strong affect in its spoken realization, but it doesn't here.

280   ARIEL   Rachel just
281   ARIEL   propose already.

Pragmaticists often consider what contexts make sentences infelicitous and that's a useful way of thinking for affective inquiries, too. If #279 had been intensely negative, Ariel's response would be far out of line—for it suggests a proposal and it has a high-pitch, light quality to it that wouldn't match dark distress.

The *already* suggests that Rachel's been waiting around, failing to do the obvious and unavoidable thing. And anyhow, it's not much—it's *just* a proposal. But of course a proposal is not easy or inevitable. This is, of course, a facetious suggestion. We get that from the tone of voice and the mismatch of the proposition to the context.

282   RACHEL: Propose?

The proposal for a proposal takes a moment of adjustment for Rachel. Later on, in hindsight, we can see how pivotal #281 was in directing the conversation into something more serious and less playful. As analysts with the transcript, we can see that Ariel's leap was not a huge one—Rachel indicated all sorts of exasperated affect in Eric's direction (*ooh*, *annoying*, *makes me crazy*), she indicated that they're close (they talk *every night on the phone*), and she said that he wants to get serious (all the constructed dialogue in #272). And don't forget that immediately before this section of talk the two friends had been discussing a bunch of engagements and weddings.

283   ARIEL   Yes.

One word questions are wonderful things. Rachel's previous turn could just as easily have been short for *Did you say, 'propose'?*, *What do you mean 'propose'?*, or more in keeping with the laughter co-occurring with the question, *How could you possibly suggest 'propose'?* Ambiguity is a tremendously useful feature of language and nowhere is it more useful than in discussing things that are affective, where you may want to be pinned down or even yourself know how you would say more.

One word answers are also wonderful. Here, Ariel takes the question to be *Did you say, 'propose'?* Her response is a high-pitched but definitive *yes*. She gives no further clarification. She neither directs Rachel to a particular conversational path nor rescues her from it.

284	**RACHEL:**	**He knows I want to**
285	**RACHEL:**	**be with him.**

I had 75 subjects listen to this conversation.[69] Unlike the lab experiments, each of these participants heard only four (contiguous) utterances at a time and I asked them to rate the emotional intensity and describe what emotions were being conveyed. #284-285 is one of the five most emotional utterances. In it, people hear a speaker who is 'desperate', 'hurt', 'sad', 'hesitant', 'upset', as well as conveying some sort of 'amusement'. Emotions are not unitary, simple things. The parent who watches her child pedal off for the first time may be both proud and worried. Nor will we be able to get everyone to agree about what emotions they're hearing—there are too many cues and each individual cue is rather indeterminate. There are some things this phrase cannot mean but there are multiple, different affective states that are compatible.

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[69] More specifically, I split up the relationship section of Rachel and Ariel's conversation into 27 audio clips (starting with utterance *he knows I want to be with him* and ending with *thanks, I really want you to come get me*).

Subjects were recruited from and used Amazon's Mechanical Turk service. Each was randomly assigned to give feedback on four utterances. The particular four utterances that a subject judged were always presented in the actual order they appeared in the phone conversation. But for any given utterance, *u*, 3 raters heard it as the first of four utterances, 3 as the second of four, 3 as the third of four, and 4 as the four of 4. In other words, subjects in this experiment had some context about the conversation, though not nearly as much as the continuous monitoring subjects.

Subjects were 75 monolingual English speakers born and raised in the United States. Their ages ranged from 17 to 71 (average 31.72, median 30). There were 44 women and 31 men. They came from a range of educational backgrounds, from 3 with "Some high school" to 11 with a "Graduate degree (Masters, Doctorate, etc.)", but the most common was for them to have a Bachelor's degree (27 subjects).

For each clip, subjects were asked to provide a rating for emotional intensity on a scale of 1-7. They were also asked to give a free form description of what emotion was being expressed. Each subjects' ratings were z-scored and then the average z-score rating per utterance was used to determine the five most emotionally intense utterances. Here are the utterances, starting with the highest rated utterance:

Rachel: I know, but I love being with him so much. It's so much fun.

http://www.stanford.edu/~tylers/misc/turk/56_AO_.wav

Rachel: I'm totally getting like his wit and giving it back to him. It's awesome. Like it has taken a really long time, {breath} but like I finally get him like as good as he gets me.

http://www.stanford.edu/~tylers/misc/turk/96_A_a.wav

Rachel: {laugh} You're so cute.

http://www.stanford.edu/~tylers/misc/turk/133_AO.wav

Rachel: Yeah. ((Like the whole))

http://www.stanford.edu/~tylers/misc/turk/37_O_y.wav

Ariel: {moan} Why does he do that?

http://www.stanford.edu/~tylers/misc/turk/66_B_o.wav

Melancholy stereotypically accompanies slow, low speech.[70] In this case, the speaker uses a tense, high-pitched voice that has an uneven tempo. Let me call out the pitch (its average is 249.17 Hz in a section that averages 198.48 Hz for non-questions) and the sharp /b/ release, which are consistent with the annoyance we've heard Rachel expressing previously and the fact that Rachel pauses and looks for the right way to phrase what it is that Eric knows that she wants.

Note also the importance of syntactic structures that allow embedding. It's these structures that let us relate people hierarchically. The verbs that are capable of embedding are not random. They are verbs of *thinking, saying, believing, deciding, agreeing, feeling, knowing* and they embed verbs of *needing, thinking, wanting, feeling, believing, saying, knowing, showing*. Establishing relationships of perception, belief, and feelings—especially between people—often comes from an affective orientation to a situation and it carries affective consequences. In this case, Rachel's wants occur under Eric's knowledge. This is emphasized by *knoooows*.

286   ARIEL   He does?

This is a clarification question asked rather quietly. Its tone is a departure from Ariel's last few utterances. As the conversation progresses, we can track back to this moment as Ariel expressing dissatisfaction—she will soon explicitly state, in a number of ways, that she doesn't like this state of affairs at all.

287   RACHEL: Yeah.

This utterance was also heard as one of the most intense—listeners heard 'excited', 'happiness', 'joy', 'shocked', 'surprise'. Some of the relevant cues include high pitch (226.85 Hz), strong intensity (77.07 dB in a section that is usually 70.22 dB), and rising intonation, which add up to something fairly assertive.

288   ARIEL   Does he know

This turn barely registers, but it is said with a low pitch. Variations in pitch are worth tracking as they suggest patterns.[71] In this conversation we are getting the sense that low pitch conveys controlled displeasure for Ariel. We can only arrive at this, however, by looking at converging and co-occurring evidence.

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[70] These are common and long-standing findings (see reviews in Juslin & Laukka, 2003, pp. 792–799; Rong, Li, & Chen, 2009, p. 318; K. Scherer, 1986, 2003; Ververidis & Kotropoulos, 2006, p. 1171).
[71] In fact, should we find someone who is varying very little, that is also worth remarking upon. Affectlessness is also an affective stance.

289	RACHEL:	((Like with the whole))
290	RACHEL:	Like the first time when like he turned --
291	ARIEL	mm.
292	RACHEL:	-- he turned it down. Like he knows. He totally knows.
293	RACHEL:	{breath} But like I have totally have legitimate reasons to think that he wants to be with

me too. Like

Words that are repeated are often keywords and *like* is certainly a keyword for Rachel. Across ten minutes of conversation she uses discourse *like* 68 times. In the two-minute relationship section that we're examining, she uses it 27 times. On the surface, this looks like a very high percentage. We can quantify it a little better by considering that the relationship section here accounts for about 20% of the transcribed words. So we might expect 20% of the *like*'s—in that case, we'd get 13 *like*'s. As I mentioned, we get 27. We could also just look at the number of turns with *like*. This section includes 21% of Rachel's speaking turns, so we'd expect about 10 turns to have *like* in them. Instead, there are 16 such turns. The lesson here is that we can quantify how strongly associated a section of talk is with particular words. If we were discussing repetitions of the word *telemetry*, we would just say that this is a section about *telemetry*. However, when we're talking about words or phrases that are discourse markers or interjectives, odds are that a section of talk with a lot of them is also an affectively-laden section of talk.[72]

The lemma *know* is also turning up a lot. Many researchers separate epistemic and affective stance but looking at how knowledge is constructed in this conversation suggests that these are awfully intertwined—is it useful to separate them? Here, there are affective antecedents and consequences for (i) who knows what and (ii) how convinced a speaker is of this knowledge.[73] Certainly, *totally*—used twice here, both times with *knows*—is endowed with an emotional punch in terms of length, intonation, and in the way it is typically deployed in discourse. Epistemic markers may just be a specialized form of affective marker.

Finally, in passing I note that this is Ariel's first real back-channel. Generally, back-channels are worth tracking in an analysis of affect. I do not have much to say about how they are used here, though their relative absence does seem unusual. I also pass over the construction *to be with {someone}*, which is used for the second time here and is surely an interesting choice, given all the other ways of phrasing and conceptualizing Rachel's desire for Eric.

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[72] James Pennebaker's work on the importance of function words for personality and sentiment also include this kind of thinking, as do Shriberg and colleagues' work on hot spots (e.g., Cetin & Shriberg, 2006; Chung & J. W. Pennebaker, 2007; J. Pennebaker, Mehl, & Niederhoffer, 2003; Wrede & Shriberg, 2003).
[73] Notice also the discourse around rationality (*legitimate reasons*). Rachel and Ariel orient themselves to these considerations throughout the conversation.

294   ARIEL   Well you should. Rachel I think this has to stop unless he makes a (( )) decision.

It feels appropriate to adopt Jucker (1993)'s proposal that discourse *well*'s basic meaning is "what seems to be the most relevant context is not appropriate" (438). Jucker goes on to say that in question-and-answer sequences, *well* prefaces a comment that the speaker knows is "not giving directly the information which the questioner has requested" (440). Rachel has not asked Ariel a question but there's a way in which Ariel is introducing unwelcome information—Ariel is not pursuing Rachel's feelings or Eric's actions, she's about to tell Rachel what she should do.

The turn is very assertive. The tempo patterns, pitch falls, and the words themselves give us information of a strong declaration. In other parts of the conversation, Ariel uses a nickname for Rachel (*Rach*), but here she uses Rachel's full name. No-naming, nick-naming, and full-naming are important linguistic resources, though their meaning depends upon what standard they depart from.

295   RACHEL: You're right it does. But like I I mean

The first sentence here is certain, though perhaps perfunctory. It is one of the few times that Rachel addresses Ariel. But Rachel immediately opens an escape hatch from the certainty using a contrastive *but*, a discourse *like*, a stutter of *I* and an *I mean* to nowhere. Utterance final *I mean*'s (and utterances that are only made up of *I mean*) are often associated with that which a speaker is unwilling or unable to actually articulate. This is common in affective situations and even when it happens in a fact-finding conversation (*just how does a carburetor work?*) its presence indicates a searching and such searching indicates a certain pressure for response. *I mean* can reflect and create an affective relationship because of those pressures.

296   ARIEL   It's not healthy --

Ariel continues to make her case. She isn't pulling any punches by invoking medical language (*health*). Again, this is something that is generally interesting, though we don't have evidence in this particular conversation to say much about the role of health. If there were more discussion elsewhere in the phone call about health, we may be able to say something, but here we need to pass over it with a mere acknowledgement that Ariel could've made another claim—*it's not right, it's not legal, it's not self-respecting, it's not good*. Note that the choice of *not healthy* instead of *unhealthy* is also potentially interesting—partly because *not* gives a speaker a chance to give the negative more stress. It is possible to separate *unhealthy* and treat *un* as a stressed syllable, but that seems more likely when the previous turn has asserted the antonym (*it's healthy/no, it's*

*un*healthy). Contrasts, contradictions, and struggles for definitions are affectively charged phenomena. But perhaps the main point here is that we have to accept the limits of our analysis given the fact that we don't have a record of how Rachel and Ariel orient themselves to discourse about emotional health.

297   RACHEL: I know, but I love being with him so much. It's so much fun.

This turn is also rated as one of the five most emotionally intense. You can see why. Rachel acknowledges Ariel's statement, but contrasts it with *love*. She uses *so much* twice. It's also spoken in a slow, pleading-child voice.

298   ARIEL   -- for you.
299   ARIEL   ((I know. So you can))
300   ARIEL   You can still be with him.
301   ARIEL   Just in a different way. {laugh}

In this turn, Ariel has switched back to talking directly to Rachel. It turns out that her very general statement (*it's not healthy*) has been personalized (*for you*) and she is trying to propose an alternative. Ariel picks up the language of *be with him* and tries to combine it with the earlier sentiment of *it has to stop*. But that results in the suggestion that Rachel can be with Eric *in a different way*. Actually, that *way* is modified by a trivializing *just* to make it seem like not such a big deal. Ariel also adopts a gentle-explaining-mother intonation in response to Rachel's baby talk. In truth, the suggestion in #300 and its evaluation in #301 don't make a lot of sense and once they're spoken, Ariel acknowledges the strangeness of the content and/or the motherese with laughter.

302   RACHEL: But he holds me very tight.

We might first briefly note that we are getting a lot of contrastive *but*'s in these turns. In this one, Rachel continues to speak with the tiny voice of a little girl. She is performing a helplessness and a desire or need to be taken care of both in the words and in the way she is saying them. Another possible interpretation of this little-girl performance is that she is acknowledging the ridiculousness of her desire. Whether this is helplessness, desire for care, or acknowledgment of ridiculousness (or a mixture), all of these interpretations are consistent with Rachel expressing a lack of control.

303   ARIEL   {lipsmack} {breath}
304   ARIEL   {moan} Why does he do that?

The only other time Ariel uses a lipsmack is in the discussion of the friend's play that isn't very good, specifically in response to a mutual friend not having time to talk to Rachel.

149	RACHEL:	She's
150	RACHEL:	busy busy busy.
151	RACHEL:	Like she hasn't had a moment to like speak to me.
152	ARIEL	{lipsmack}, really?
153	RACHEL:	yeah, like I went to see the play.
154	ARIEL	How was it?
155	RACHEL:	{lipsmack}.
156	RACHEL:	It was eh
157	RACHEL:	not really good.

Even though we don't have as much data on how Ariel uses lipsmacks, we do have a fairly strong sense from other conversations that it is endowed with negativity.[74] More locally, we can be confident that lipsmacks are a sign of negative affect for Rachel. Rachel has a total of five lipsmacks. There's one in #155 I just cited, which is before saying a friend's play isn't good. Rachel also uses a lipsmack at the start of a turn about how inconvenient a Wednesday night learning time is, a lipsmack follows a confession of feeling distant from a chorus she was once in, and it occurs before announcing the date of a wedding that is *like the most inconvenient time ever*. It also occurs in #312, which will come up in a moment.

Even without having a lot of data for Ariel smacking her lips, we know something negative is happening. The moan gives us that as do the question (this is something that needs explanation) and the plaintive question intonation.

| 305 | RACHEL: | {laugh} |

Ariel has asked a question, but Rachel does not treat it as a real one or at least doesn't feel obliged to articulate a clear answer. Instead, Rachel laughs. This is incongruous, although we may find it coherent if we see "embellished expressions" like Ariel's #304 as attracting jocular response—either because they actually are funny or because intense emotion expressions trigger emotional management schemes like laughter.

| 306 | ARIEL | Why does he do it if he doesn't -- it's not fair to you. |

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[74] Compare the use of clicks in Chicano English (Flores-Bayer, 2012) and "suck teeth" in African-American English (Rickford & Rickford, 1976)

But Ariel persists. The question shifts into an unfinished conditional and is then resolved into a critique based on fairness. Notice that the hardest part to say is elided—*if he doesn't* what? Love her? Care for her? It's not easy to know what to say to someone in this situation. Part of what makes a word ineffable is not knowing which to pick, partly it's not wanting to force our audience to hear it, or commit ourselves to a particular framing. This can backfire, of course, because it means that the listener is called upon to fill in the blank. In this case, Rachel does not seem to pick up the unfinished conditional, rather she attends to the final phrasing.

307   RACHEL: I know, it's not fair to me at all.

One of Rachel's main forms of agreement is *I know*. In addition to this, she reflects Ariel's proposition *it's not fair to (me|you)*. But notice the addition of *at all*, which intensifies it. Words like *all, any, every, never, totally, completely, nothing, none, zero* easily function as intensifiers because they point to extremes. It seems to me a mistake not to consider how often these are used for affective ends. For example, if we look at collocates within a 5 word (left and right) of *at all* in the spoken portion of COCA, we find 39 words that have greater than ten occurrences. These include 13 highly affective terms: *surprised, concerned, bother, doubt, surprise, worry, unusual, nervous, surprising, embarrassed, regrets, bothered, sympathy*.

308   ARIEL   So why are you let- [distortion]

Ariel doesn't retreat with #308—this utterance heads into a distinctly challenging question. The *so* asserts that Rachel and Ariel have found common ground (the unfairness), but the rest of the phrase shifts the focus from Eric's behavior to Rachel's. This turn demonstrates a new positioning of the two interlocutors. Even with *it's not healthy—for you*, Ariel had been working to preserve the sense of being on Rachel's side. Having established solidarity through a number of turns, Ariel has just begun to question Rachel.

309   RACHEL: It's very unlike him, you know.
310   RACHEL: But

Rachel does not answer Ariel's question and her tone of voice is quite different—not helpless little-girl at all, here she is much more assertive—the F0 is lower and there isn't any creak. The *you know* does some last-moment repositioning between Rachel and Ariel, but those first words serve as a bulwark for Eric. It is hard to guess where the *but* might lead: it's another connective to nowhere. All we know is that some sort of contrast is relevant. We are getting a sense that Rachel's prosecution of Eric is half-hearted. In this and in moments to come, she acts as an attorney for his defense. That said, this *but* could also indicate a defense that isn't whole-hearted,

either. That's the nature of emotional situations—they can be deeply ambiguous and contradictory.

311   ARIEL   ((What)) is he scared? Is like is is it like this whole law school thing?

Ariel accepts the switch back to Eric and tries to puzzle out reasons why Eric may be acquitted of his unfairness to Rachel—pressure and fear, perhaps. Again, we can treat very clear emotion terms as guideposts. They let us know that participants in a conversation see emotion as relevant themselves and they help us tune in to what more subtle cues accompany them.

In this case, *scared* leads us to notice the construction *this whole X thing*. The Google Ngram corpus (Michel et al., 2011) puts the first appearances of this construction in the 1930s with *this whole damn thing* and that phrasing continues to be the most popular to the modern day (the other variant, *this whole damned thing* appears in the 1940s). This is an affective *this* (Davis & Potts, 2010; Lakoff, 1974a; Liberman, 2008; Potts & Schwarz, 2010a), though it works not to draw the speaker and listener closer with something they identify with but rather to draw them closer together with something they mutually <u>dis</u>-identify with.

	TOTAL	1930s	1940s	1950s	1960s	1970s	1980s	1990s	2000s
this whole damn thing	**238**	3	4	9	17	33	29	45	98
this whole fucking thing	**59**				2	5	14	16	22
this whole damned thing	**55**		2	2	3	9	5	12	22
this whole goddamn thing	**49**					6	8	17	18

Table 5: *This whole (x) thing* **skews negatively in the Google Ngram corpus. The first and major adjectives in the** *x* **position are taboo words.**

312   RACHEL: {lipsmack} I don't know. There's only so far he can take this whole law school thing. {breath}

313   RACHEL: You know what I'm saying?

Here, as promised, is Rachel's fifth lipsmack. It also occurs in an unhappy reflection. Rachel has adopted Ariel's *this whole X thing* construction and added more to it. First, an acknowledgement of not knowing, which really serves as a distancing device. But Rachel doesn't stay at a complete remove—she's engaged enough to attempt an answer to Ariel's question and she ends with a collaborative *you know what I'm saying?* In truth, I have no idea what she's saying. My best guess is that they are saying that law school or law school applications have Eric stressed out and therefore he can't imagine being in a relationship right now.

| 314 | ARIEL | Yeah. |
| 315 | ARIEL | That's true. |

Whether or not Ariel understands what Rachel is saying, here she is double-marking agreement— both an affirmative *yeah* and an explicit *that's true*. This also gives Rachel the floor again to take the conversation where she will. On the surface, these forms are about states of knowledge, but epistemic information is placed in the service of higher interactive goals. In this case, the interactional meaning of affirmation is foremost, ahead of anything about actual truth or certainty.

316	RACHEL:	Like when you're a good friend of his like you know like {laugh} there's a point where
317	RACHEL:	{breath} you know it's like enough already with the law school.
318	RACHEL:	{laugh} He
319	**RACHEL:**	**I'm totally getting like his wit and giving it back**
320	**RACHEL:**	**to him. It's awesome. Like it has taken a really long time, {breath} but like I finally**

get him like as good as he gets me.

| 321 | RACHEL: | It's great. |

Recall where we've been—Eric and Rachel have an ambiguous relationship, Ariel doesn't like it and Rachel doesn't like much of it, either. In this section we have another burst of *like* as Rachel carries through the idea that *it's like enough already with the law school* (note the stylistically marked location of *already*). There is a *point* and the point has passed. Rachel also includes an implicit assertion that she should be counted as a *good friend* of Eric's.

These thoughts—and perhaps the marked construction *enough already*—seem to trigger a laugh in #318, perhaps a memory. Suddenly Rachel's not just talking about what Eric's friends are thinking and saying, she's talking about actual interactions between her and Eric—*I'm totally getting like his wit and giving it back to him*. This is marked with *totally* and includes a get-and-give-back relationship that is *awesome*. The give-and-get is salient enough to be mentioned twice (*giving it back to him* and *as good as he gets me*). Part of its salience is that it has been hard-won

(*taken a really long time*). Notice that this is the first time Rachel has cast herself as really agentive. Let's compare when she has and hasn't used the first person.

- Rachel as object (*me*): 279, 293, 302, 307, 320

- Rachel embedded (*he knows I want to*): 284

- Low agentivity verbs: *I have, I know, I love*: 293, 297, 297, 307

- Irrealis situation (if…then there's no way I'd do this): 335

- *I can't, I don't know, I don't think, I could be wrong*: 269, 274, 312, 334, 336, 336

- Unfinished *I* statements: 272, 295

So these two *I+[get/give]* expressions in #319-320 are among the most agentive for Rachel. Notice that Rachel is, as I pointed out earlier, present implicitly in the evaluative statements like *he's so annoying*, though again the filling of that phrase is *to me* (as opposed to *I find him…* or *I am annoyed by him*). Paying attention to Rachel's use and non-use of the first person, we also see that in #292, she takes herself out of Eric's refusal: *he turned it down*—not *me* or even *my idea*. And of course, I already noted how she parries Ariel's question in #308 (*why do you let—*) by interrupting Ariel and focusing on Eric.

Ariel doesn't score particularly high in terms of agentivity, either, but intuitively we know that there is a different feeling: Rachel's construction of self here is much more lost and put-upon, while Ariel is playing the role of questioner and supporter. These intuitive differences show up in the actual record if we contrast the distribution of Rachel's first persons and Ariel's. Ariel doesn't use *me* at all and only uses *I* three times:

- *I think this has to stop* (#294), which is very assertive, though the use of *think* is not the most declarative way of putting this. So we might also consider imperatives: those include the jocular *just propose already* (#280-281), the encouraging *have a good time* (#326), and the gentle and polite admonishment *just please be careful of your little heart* (also in #338).

- *I know* of agreement in #338.

- Also in #338, *I don't want anything bad*, also not particularly agentive.

And if we count different kinds of speech acts, we also get the sense of the two very different roles they are playing in the conversation:

	Rachel count	Ariel count
Questions	2 (282, 313)	12 (268, 270, 273, 286, 288, 304, 306, 308, 311, 322, 331, 333)
Evaluations	~20 (266, 269, 272, 276, 279, 293, 295, 297, 302?, 307, 309, 312?, 317, 320, 321, 323, 325, 330, 335-336?, 339)	~10 (277-278, 294, 296, 303, 304, 306, 315?, 324, 328, 338)
Suggestions	0 from Rachel to Ariel	3 from Ariel to Rachel (280-281, 300-301, 338)

Table 6: A comparison of types of turns show that Rachel and Ariel are doing different things in the conversation.

It would be unusual to have Rachel make suggestions to Ariel in a conversation about Rachel's relationships, though for different people the relative proportion of questions and evaluatives may be different. For example, Rachel could have asked Ariel a lot of questions in order to get Ariel's perspective on Rachel's own motivations and/or Eric's. And of course Ariel could have given a lot more direct evaluations of the situation. These exist as roads not taken.

Strong affective markers like laughter, *it's awesome*, and *it's great* suggest a section worth digging into. In fact, it's worth reading these lines twice because so much happens in them (#319-320 are also among the five utterances people rated as most emotionally intense). But what if we took out the laughter and the explicit evaluations? The next guidepost is probably *totally*. Strip it out, too. Adjectives and adverbs can be telling—strip out the *good*, the *already*, the *really long* and the *finally*. We treated the *like*'s as indicators, too. Remove them. We are left now with:

(1) When you're a friend of his you know there's a point where, you know it's enough with the law school. He. I'm getting his wit and giving it back to him. It has taken time, but I get him as good as he gets me.

What's left after all this stripping is fairly bland—the only affective cues left may be the repeated *you know*'s, the *enough with the X* construction, and the incomplete sentence that begins with *He*. We also might use the ideas of getting and giving wit back, especially since it's mentioned twice. But try to say (1) in a relatively even pitch, tempo, and intensity. It's odd that way—the words we're left with still don't quite go with affectlessness. The main problem, I think, lies in the last part of the turn—there is a great amount of positioning between Rachel and Eric.

The lessons here, I think, are that there are multiple cues for affect, they work in tandem, but they have different levels of strength. There also seem to be co-occurrence constraints, though these aren't simple to state—can (1) be voiced in an angry voice? Is it possible to voice the first half <u>or</u> the second half in anger, but not all of it together? Where could you swap *that bastard's* for *his/him*?

322   ARIEL   Really?

This is a very upbeat question. It's pretty striking given where Ariel has been about the whole damn thing.

323   RACHEL: Yeah. It's awesome. Like it's so much fun.

Rachel confirms and repeats the evaluation that *it's awesome*. We've heard that *it's so much fun* earlier in #297. Here is again. In the previous instance, Rachel was full of lament, here the lament has been transformed into joy (or something like it).

324   ARIEL   Yay, go Rach

The happiness we detected in Ariel's *really?* is supported in her next turn where she repeats the affirmative *yeah* and cheers Rachel on. The cheering is intonational, it uses a nickname, and a common cheer formula of *way to go*.

325   RACHEL: It's so much fun.

A third repeat of *it's so much fun*. In each of these cases, the statement closes down the turn without any example or other elaboration.

326   ARIEL   It's your party, have a good time. {laugh}
327   RACHEL: {laugh} {breath}
328   ARIEL   That must be so much fun {inhale}

In 1994, Luther Campbell released a song called *It's Your Birthday* under the artist name Luke.[75] Ariel adapts the words and melody from that song for #324 and #326. The song's lyrics repeat the construction *Go X, it's your birthday* 12 times, all but one with a two-syllable *X* (*Freddie, Annette, Derrick, Tracy, Leos, Virgos*—the monosyllable *X* is *Twins*). So in general, using Rachel's full name (*Go Rachel, it's your birthday*) would've been closer to the source. This choice seems to underline the importance of the nicknaming—it's worth disrupting the scheme to choose *Rach* over *Rachel*. Ariel is much more light-hearted in this line than in either of the other two full-name namings (*Rachel just propose already* and *Rachel I think this has to stop*). So we can suggest that a great deal of what's happening here—from the citation of a hip-hop song to the nickname, *Rach*—indicates a playful stance.[76]

There's joint laughter after this citation, though Rachel doesn't add anything. Ariel finally adopts Rachel's language and makes the statement *that must be so much fun*.

At the first Annual Meeting of the Berkeley Linguistics Society, Elinor Ochs delivered a paper called "Making It Last: Repetition in Children's Discourse" (Ochs Keenan, 1975). That title may lead you to think she's going to talk about drawing out topics to savor them, but she doesn't really address that. Her general intention is to counter psycholinguistic claims at the time that made children's repetitions seem like merely training attempts (adults as masters, children as apprentices). Part of the point, though, is that if you want someone to know that you've understood, then repetition is a pretty good communication check. And as Ochs points out, everyone needs these communication checks—head nods, back channels, etc.—though children have a particularly hard time getting messages across so repetition to get or confirm communication would be especially important. We'll see some of the ways repetition is used between parents and children in the chapter on *little*, but at the moment, I'd like to draw your attention to the fact that communication checks like repetitions turn an utterance into shared knowledge. "In many cases (though by no means in all cases), the first mention of a referent by a child or by an adult talking to a child is simultaneously a claim and a request to be ratified as a topic candidate" (Ochs Keenan, 1975, p. 292).

Rachel began with playful complaints about Eric, which then turned earnest, then she found some explanations in law school, and then shifted into talking about how good the pseudo-relationship

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[75] See http://www.allenrothschild.com/blog/2011/07/lyrics-to-its-your-birthday-by-luke-luther-campbell-finally-hit-the-web/ for lyrics and a link to the music video.

[76] Ariel's "other-voicing" is a register shift and its meaning depends upon the field of meanings of the song itself as well as the more particular use: a young Jewish woman drawing upon a hip-hop song made famous by an African-American man (Agha, 2005).

is. *Fun* seems to be a touchstone for her given how she returns to it again and again. Around turn #319, she starts to deliver some upbeat evaluations in an upbeat form. By the time that Ariel's turn #328 comes around, Ariel has shifted out of moaning and questioning and into a more affiliative stance of laughter, singing, and encouragement. Turn #328 represents the most explicit alignment, though, since it actually recycles Rachel's own words.

If we had more examples of "inhale", we might try to do something with it, but in this particular case, we must pass over it. There may also be more to be said about the *that must be* construction, but for the moment I think the main point is that the repetition in turn #328 signals that Ariel has ratified where Rachel has taken the conversation. It offers Rachel the option to continue or to completely change topics.

| 329 | RACHEL: | Like |
| 330 | RACHEL: | If nothing like we're just amazing amazingly close friends. And s- just |

Rachel doesn't change topics. In fact, she clarifies the relationship with Eric. In #316, she was implicitly among Eric's good friends. Here the relationship is not just *good* nor even *close*, it's *amazingly close*. If Rachel had kept *amazing* it would've been grammatical with *amazing friends*; the adverbial form is required only in order to get the *close* to fit in, indicating that the distinction between *amazing friends* and *amazingly close friends* may be meaningful.

Notice also that there are two *just*'s here—the one attached to *amazingly close friends* echoes *if nothing* by simultaneously evoking both the 'merely' and 'absolutely' meanings of *just*. Both *just* and *if nothing* work as emphasizers-under-the-guise-of-minimizers. #330 is an assertion of what Rachel and Eric are, but it's also a reminder of what they are not. It's clear where Rachel might have been heading with *And s- just*, but now we come to my favorite moment, which unfolds over three turns.

331	ARIEL	Is he dating at all?
332	RACHEL:	What?
333	ARIEL	Is he dating at all?

#331 grows from Rachel reflecting on their closeness but limiting it (implicitly *if nothing* means *it may not be a romance* as does the *just*). But listen to the way Rachel asks *what?* It's not clear to me that it is actually a real request for clarification. In any case, the eliding could conceal *what did you say* or *what the hell are you asking me that for?* Ariel's habit is not to explain, just to restate, with much the same intonation, though a bit dampened from the initial falsetto.

334   RACHEL: I don't think so.

335   RACHEL: Like it would be one thing like if he was dating other people, then like th- th- i- then there's no way I'd like ever do this. But like he's not.

336   RACHEL: At least as far as I know, but like, I could be wrong.

Another burst both in length and *like*'s. Ariel gives Rachel time to talk, time to search for things to say. Notice again the role of contrast sets—*it would be one thing if X*. And the use of extremes *no way…ever*.

The path of certainty is rocky here, as well. #334 is a 'no' that ends in creaky voice and is followed by a pause. Next, there's a clarification in #335 that ends with a more definitive *he's not*. Then #336 slides into uncertainty again—*as far as I know*, *I could be wrong*.

337   ARIEL   Right.

338   ARIEL   {breath} I know, just please be careful of your little heart. Because it's so cute and I don't want anything bad

The *right* is mostly swallowed and difficult to say much about. But what is it that Ariel *knows* in #338 and says is *right* in #337? Presumably she is responding more to the uncertainty than the facts of whether or not Eric is dating. In here, we have another affective use of *little* (the last one was in #272). This time it is affectionate. All the markers point in that direction—the caution to take care is gentle and includes both a *just* and a *please*. And she gives a because-clause as well. The because-clause includes two affective items—*cute* and *bad*—both of which have intensifiers associated with them. *Cute* is modified by *so*, which we have seen already, while *bad* is put in an *anything bad* construction.[77]

Ariel is clearly positioning herself relative to Rachel in an affective way, but it is a bit circuitous. Ariel never talks about Rachel directly here—the imperative could have been *you be careful*, but the *you* is elided. And what Rachel is supposed to take care of is not herself but her heart. It is also only implicit that Ariel is saying she cares for Rachel—the because-clause focuses on the heart (*it*) being cute.

339   RACHEL: {laugh} You're so cute.

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[77] *Cute* usually picks out something aesthetically pleasing—but here it is modifying a heart. There is an oddness to modifying an internal organ with the word *cute*, but of course this isn't really a literal matter. Hearts used in valentines could be said to be *cute*. I suspect there is much more to be said about this matter, but I will close by saying that it does seem affiliative and affectionate though the diminutive aspects of *cute* complicate the interpretive range.

If Ariel's framing in #338 seems a little odd to us, we can see that it strikes Rachel as funny, too. Here, Rachel replies with a laugh and a direct comment to Ariel: *you're so cute*. Why do people rate it as one of the most emotional utterances? There are multiple cues to affect: laughter and the way the brightness of voice carries on through the utterance. Lexically, the predication involves the affective *cute* which is modified by the intensifier *so*.

Let's take a moment to look at one kind of cue laughter is for listeners. There are 16 turns in Section 6 that have laughter in them. Starting with the beginning of the turn that has laughter and ending five seconds after the turn ends, we see that laughter does seem to go with higher emotional intensity ratings. That said, Subjects 6 and 8 both seem to be doing something rather different by this measure.

	AvgAll	s1	s2	s3	s4	s5	s6	s7	s8	s9	s10
Laughter+5sec	0.89	0.76	1.19	0.98	1.18	0.56	1.43	0.94	0.13	0.64	1.02
Other	0.43	-0.16	0.75	0.19	0.54	0.34	1.38	0.52	0.16	0.12	0.42
Diff	0.46	0.92	0.44	0.79	0.63	0.22	0.04	0.41	-0.03	0.52	0.60

Table 7: Z-score ratings of post-laughter and non-post laughter turns by subject. Talk after laughter is more emotionally intense.

Although there are 16 turns that include laughter, it is the nature of laughter to occur close to other laughter. The post-laughter ratings overlap such that there are actually only 7 stretches. Here's how they break down:

Turn #s	Avg	s1	s2	s3	s4	s5	s6	s7	s8	s9	s10
252 (Rachel), 260 (Ariel)	1.01	1.79	1.31	0.92	1.51	0.64	0.69	1.52	0.46	1.12	0.09
264 (Rachel)	0.61	0.75	0.62	0.58	0.03	0.08	0.86	1.77	0.60	0.63	0.26
272 (Rachel), 275 (Rachel)	0.96	1.33	0.89	1.01	1.02	0.99	1.24	0.79	0.47	0.55	1.26
301 (Ariel), 305 (Rachel)	1.11	0.62	1.54	0.98	1.52	0.52	2.00	2.04	-0.20	0.14	1.85
316 (Rachel), 318 (Rachel)	0.22	-0.15	1.06	1.12	0.35	-0.75	1.84	-1.20	-1.21	0.47	0.48
326 (Ariel),	1.28	1.18	1.96	0.96	1.59	0.76	1.52	1.47	1.17	0.55	1.54

Turn #s	Avg	s1	s2	s3	s4	s5	s6	s7	s8	s9	s10
327 (Rachel)											
339 (Rachel), 341 (Ariel), 344 (Rachel), 346, (Ariel) 351 (Ariel)	1.04	-0.09	1.05	1.09	1.90	1.42	1.60	0.85	0.11	1.07	1.32

Table 8: Emotional intensity ratings following turns with laughter.

As you can see, the aggregated pattern shown in Table 7 still holds up when we separate it into its components. The ratings following turns 326-327 and 301-305 are particularly intense. The lowest average ratings happen after turns 316, 318, but there is actually a split here between subjects who find this intense (Subjects 2, 3, 6, in particular) and those who absolutely do not (Subjects 1, 5, 7, 8).[78] There is also a split in how people regard the laughter at the end of the relationship conversation (beginning of the homesickness conversation). Subjects 4, 5, 6, and 10 consider these parts highly intense.

One of the things we can do with laughter is to see who initiates laughter and whether they are joined by the other interlocutor.[79] As Table 8 shows, Rachel has 10 turns in section 6 that have laughter, while Ariel has six. Four of the laughter-stretches involve both women laughing—the other three just involve Rachel. Notice that the stretches with the highest ratings are those that have the women both laughing, though as we'll see in a moment, there's a fairly significant difference in 252-260 and 326-327 on the one hand and 301-305 on the other. The former involve the women laughing together, while the latter is the women doing a kind of distancing laughter. That is, in 301-305, laughter is temporally together but the women are laughing separately.

At this point, it is worth adding that laughter isn't the only affiliative trigger or response to laughter. There are other kinds of laughter-like cues that can be understood as a type of invitation or response to laughter. Ford & Fox (2010) describe "laughables" as utterances that invite

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[78] In terms of subjects, again we see that Subject 8 is doing something rather different than others (his ratings are lower than the average for each row).

[79] Across the entire ten minutes of transcribed speech, there are 51 turns with laughter. 34 of these occur within three seconds of each other (11 different stretches of laughter). In other words, laughter is unevenly distributed in conversation and tends to be clumped together. Moreover, it tends to be shared. Of the 11 stretches of laughter, 7 of them involve both Ariel and Rachel laughing (there are two instances involve Ariel laughing over several turns and two of Rachel laughing over several turns).

recipient laughter and investigate what linguistic resources happen in and around these laughable utterances. They suggest smiley voice, breath particles, small modulations of pitch and loudness, high pitch, audible breathing, laryngealization in phonetic cues and exaggerations and contrasts in content cues. The clearest ratification of a "laughable" is laughter, but these other resources are also important to keep track of.[80] Let me begin with the first and last rows of Table 8, since those include turns that weren't analyzed in the turn-by-turn analysis.

Section 6 begins with Rachel introducing news to Ariel that one of their male friends got engaged. They can't really believe it. The laughter in turns 252, 260, and 264 all happen as part of this discussion, which is also accompanied by many of the cues that Ford & Fox discuss.

242	Rachel	Oh, Adam Hofstetter is engaged.
243	Ariel	To Sara?
244	Rachel	Yeah. {breath}
245	Ariel	Are you serious?
246	Rachel	Yeah, they got engaged Thanksgiving weekend.
247	Ariel	Are you s- how old are they?
248	Rachel	Twenty.
249	Ariel	Oh my god.
250	Rachel	Isn't that crazy, or what?
251	Ariel	{breath} **Hof** is engaged?
252	**Rachel**	****Hof**, like that's ridiculous. {laugh}**
253	Ariel	{breath}
254	Ariel	{breath} When are they getting married?
255	Rachel	{breath}
256	Rachel	Oh, I don't think they have a date yet, but probably like
257	Ariel	Is Menachem invited?
258	Ariel	Are you invited?
259	Rachel	Mena- I'm definitely not going to be invited like because I'm not really in touch with them. But Menachem is like in the wedding party or something.
260	**Ariel**	**{laugh}**
261	Ariel	Are you seriou- I can't believe they're enga- is he like religious now?

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[80] Again, in keeping with the spirit of indexical fields, we have to acknowledge that "High pitch can indicate emphasis and stance part from laugh-relevant stance. Lengthened and loud aspiration on stops, and lengthened fricatives, can be used for other emphatic ends" (Ford & Fox, 2010, p. 342). These are "diffuse and cumulative practices rather than discrete and contrastive structural slots, segments, or units. Laughable practices are regularly distributed across strips of activity rather than discretely bounded in single units" (Ford & Fox, 2010, p. 344). Similar discussions occur in Selting (1994)'s work in which emphasis is established through context-sensitive interpretations of bundles of relevant resources. And Wilkinson & Kitzinger (2006) observe something similar with *(oh) (my) god*—interpretations of surprise, disgust, or sympathy depends upon "the deployment and calibration of prosodic features and upon its local sequential context" (Wilkinson & Kitzinger, 2006, p. 153).

262	Rachel	Yeah, I guess so.
263	Ariel	Oh my god.
264	**Rachel**	**{laugh}**
265	Ariel	This is just so ʔ weird. {breath}

Table 8 may make it seem like turn 264 is Rachel doing something off on her own, but really her laughter is prepared by Ariel's dramatic *oh my god* and the general fun of gossiping about a "crazy", "ridiculous" engagement. What we have here is a section of cooperative, affiliative laughter.

The turn-by-turn analysis left off with turn 339—Rachel's laughter in it is cued by Ariel's gentle admonishment to be careful of her little heart. The conversation goes on for another 72 seconds, but it is definitely a winding down of the conversation and the only laughter is right at the beginning. After Ariel makes her statement in turn 342, there are over three seconds with only paralinguistic cues like breath, yawns, laughter, and a telephone button pressing. It is Ariel who turns the implicit request of 342 into a direct question—the question is very plaintive. Although Ariel follows it up with laughter, Rachel's reply in 350 is simultaneous with that laughter and it comes out with a very gentle and subdued prosody. This stretch of talk moves in and out of lament and compensatory laughter, with Ariel turning super-chipper in her reassurance about how soon Pesach is coming.[81]

338	Ariel	{breath} I know, just please be careful of your little heart. Because it's so cute and I don't want anything bad
339	**Rachel**	**{laugh} You're so cute.**
340	Ariel	(( )) [distorted]
341	Ariel	{breath}
342	**Ariel**	**{laugh} Thanks, I really want you to come get me [distortion]**
343	Rachel	{breath}
344	**Rachel**	**{laugh}**
345	Rachel	{yawn}
346	**Ariel**	**{laugh}**
347	Rachel	{beep}
348	Rachel	{yawn}
349	Ariel	How come you can't?
350	Rachel	How come I can't?
351	**Ariel**	**{laugh}**

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[81] Rachel doesn't pick this brightness up, though—she offers more subdued reassurances of "time flies". In fact, Rachel continues to be fairly subdued for the rest of the conversation, while Ariel shifts in and out of sorrowful and cute/upbeat.

352	Ariel	{breath}
353	Ariel	You know
354	Rachel	{breath}
355	Ariel	But I'll see you for at Pesach for sure.

Although these laughter tokens occur near each other, they are not that unified as a group. Each one seems to respond to the exaggerated form of something that has just been said (with the exception of 346, which may be Ariel responding to Rachel's laugh, yawn, or silence). It is not so much "you have said a funny thing" as it is "you have said it in a funny way". It also seems to be part of an emotional management scheme to "lighten things up".

Let's return to the laughter tokens that we already saw in the turn-by-turn analysis.

Rachel's laughter in 272 and 275 occur as she's introducing the topic of Eric (being such a little complainer and not knooooowing after Ariel asks why he's telling Rachel about wanting a family). Ariel does not respond with laughter, but her question in 273 and her subsequent *Oh god* are laughter compatible.

The next two instances involve very different reactions. In turn 301, Ariel is laughing at her strange idea that Rachel can still be with Eric *just in a different way*. Rachel does not respond with laughter. Instead, she has a tiny girl voice and says that Eric holds her very tight. In some ways this is compatible with laughter because it is so stylized and exaggerated, but it doesn't seem to be related to Ariel's invitation to laughter in any clear way. If anything Rachel is offering rebuttal. After declaring that Eric holds her tight, Ariel does not laugh. Rachel does in turn 305, but Ariel's actual reaction in 304 is a moan with a lament of *Why does he do that?* And if Rachel is laughing away Ariel's concern or merely laughing at Ariel's dramatic moan, Ariel cannot be said to pick it up. She continues by describing the unfairness of the situation in turn 306, which Rachel does adopt in 307. By this point, laughter and laughter-like cues are absent.

They don't reappear until turn 316, when it prefaces Rachel's *it's like enough already with the law school* and turn 318 when it prefaces her getting Eric's wit and giving it back to him. These two laughter moments happen in a very long (16 seconds) stretch of Rachel talking. Ultimately, Ariel does join in and they laugh together in turns 326 and 327.

Notice that the conclusion of the relationship part of the conversation is the laughter and *you're so cute* of 339, which is only picked up with a fair amount of delay and in some ways heralds the

start of the move towards the topic of homesickness and the conversation continues for a few more minutes on this topic.[82]

Besides the laughter, we also have the matter of Rachel's uptake of *cute.* Throughout this analysis, we have seen the importance of repetition, illustrating that repeats are not dull, mechanical things. They are engagements and grapplings, rejections and affirmations. It is not merely the laughter, the voice, the *so cute* that raise the emotionality of this utterance. It is also the fact that Ariel's phrase—a funny comment both impersonal and personal about the cuteness of a heart—is taken up and transformed into something much more direct: *you*. It is a turn away from Rachel and towards Ariel.

Concluding remarks

How would a Martian anthropologist know that this was an emotional segment of talk? What would they be able to point to? Here are some techniques used over the course of the close analysis:

- Look up individual lexical items that the dictionary says are affective—in this case, items like *annoyed*, *scared*, *complainer, crazy, love, fun, awesome, great, amazingly, cute,* and *bad* can serve as guideposts (as can *ach* and *ooh*). What do they evaluate? How are Rachel and Ariel positioned relative to those targets?

- Consider how else Rachel and Ariel are positioning themselves—how do they use *I* and *you*? How are discourse markers deployed? How do they ask and answer questions, offer suggestions, use imperatives? How is constructed dialogue used?

- Compare prosody—for example, identify how speech rates and pitch ranges vary across different topics of conversation. This particular section of talk has Rachel speaking at her fastest, Ariel at her slowest. And it's the section of talk with the widest range of pitch, too.[83]

- Look for indications of limits and extremes—*so, just, just so*, *only, at all, if nothing*, *totally*.

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[82] Well, Ariel laughs and says *thanks*, though this segues immediately into a new topic with barely a pause: *Thanks, I really want you to come get me*.

[83] The overall mean pitch isn't too different, but the standard deviation is higher than all the other sections and it has the lowest "bottom quartile" and the highest "top quartile".

- When are there disfluencies and incomplete propositions?

- Look for repeated elements—for example, Rachel has far more *like*'s in these two minutes than in any other section of talk.

- Compare turn lengths—turns in the relationship section are longer than we'd expect from other sections of talk (1.70 sec/turn instead of 1.42 sec/turn) and there are fewer of them than we'd expect (76 instead of 91). There's more overlap and shorter lags between speaking. We'd expect a total of 7.34 seconds of silence between turns but there's a lot more action going on in the relationship section—there's only 2.07 seconds of inter-turn silence. The turns are over 3.5 times faster.

- How do utterances change if various pieces are removed? More specifically, what changes about the felicity condition?

- What are the local and global collocates for different cues? For example, how are the constructions *this whole X thing* or *enough already with the X* used elsewhere? What are the indexical fields for a particular voice quality like creaky voice? What does a given intonational contour cite or conjure?

The classic variationist study describes how different demographic categories use particular variables. Turning our attention to affect helps reveal that linguistic resources cannot be seen as markers of static social identities. Emotions and expressions of emotions change over the course of a conversation and force us to get a handle on meaning-in-interaction. A resource never means one thing—male, female, upper class, poor, Southern, urban, gay, Orthodox. Nor do we gain a 1:1 meaning mapping when we shift our attention to affect. Instead, affect alerts us to considering how multiple cues come together. We take each cue and see how it patterns for the speakers throughout a conversation and a topic. Then we see how the cue works for other speakers, as well. We are interested, then, in the fact that young women disproportionately use *cute*, but in looking at specific interactions like #338 and #339, we can see that Rachel and Ariel aren't using *cute* to 'do young female' but to express closeness, concern, and playfulness.[84]

The close reading in this chapter placed multiple linguistic resources beside each other, considered how they were deployed in other contexts, and observed responses they evoked. My chief goal was to illustrate the kinds of things we have to take into account when dealing with

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[84] These interactional meanings themselves come from and give shape to our notions of gender.

affect—and I hope to have also shown the potential for studying affect linguistically. In the following chapters, I focus on particular linguistic phenomena in much greater detail, but the principles and techniques used in this close reading will guide the way.

Chapter 4: Positioning interlocutors with *little* nudges and shoves

Introduction

If you went looking for affective linguistic resources, you might head straight for *mad* or *happy* or *depressed*. You might look at pitch, voice quality, or lengthening. To my mind, the best way to show off the importance of affectivity in language is to head someplace slightly more obscure. And in what follows, I make a big deal out of *little*.

There are a lot of ways to use *little*. It can modify nouns (*look at the little kid over there*), adjectives *(it's a little red)*, or verbs (*I talked about it a little*). If we look only at truth conditions, then across spoken and written corpora, we find that in almost every sentence where you have *little*, a variation without *little* would also be true.[85] In canonical examples like those above, what *little* seems to be adding is evaluation and specificity about the size/amount/degree of the phrase it modifies. But to stop here rather misses how *little* is used to manage and reflect interpersonal relationships. Recall the affectively-laden utterances we saw in the conversation between Rachel and Ariel:

> He's **such a little complainer**. He's like, "I'm tired of sleeping alone", he's like, "I just want a family" and da da da da da da da dum.

> Just please be careful of **your little heart**. Because it's so cute and I don't want anything bad to happen to it.

In these examples, *little*'s contribution is not really about the physical smallness of Eric or of Rachel's heart. *Little* can describe (*it was a little tree*), but very often it does more. It can minimize a request or a feeling (*can I have a little water?; he was a little scared*), insult someone (*how's your little project?*), or establish/reflect intimacy (*look at your little toes!*). For any given instance of *little*, how do we know which of these functions it's serving?[86] Why is it that *little* can do all three of these things? In pragmatic terms, we want to investigate the mechanisms by which

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[85] The reverse isn't true, of course. *I saw a little bird* means that you saw a bird, but *I saw a bird* doesn't mean that you saw a little bird. This is the nature of intersective adjectives, which are now most often analyzed as one-place predicates of type <e,t> (Partee, 2009, p. 8).
[86] Note that I am not claiming it serves only one function per instance. Consider teasing, for example, which seems to establish intimacy through insult.

a sentence with *little* can mean more than "the thing being modified is small." And having recognized that we could drop most *little*'s without a change in truth conditions, it is also worth asking the sociolinguistic questions of who drops it, who includes it, and why. What does *little* tell us about how individuals create and orient to the social circumstances they find themselves in?

The work here turns on two notions: positioning and predictability.

I develop positioning to address why it is that *little* can be used affectionately, insultingly, and as a hedge and why the adjectival collocates of *little* skew negatively. The answers I propose grow out of two facts: (i) every utterance is a claim that the speaker occupies a role that has the rights/obligations necessary to express the utterance to their interlocutor, (ii) at its core, *little* is about size. The combination of (i) and (ii) is how *little* makes the leap from physical objects to social relations—the speaker, their interlocutor, and some action/thing modified by *little* are related in the utterance. It is when the thing being modified by *little* is most clearly identified with the speaker and/or their interlocutor that the strongest effects of positioning are felt. For example, when a noun modified by *little* is also possessed by a *my* or *your*, the speaker will be seen to have greater control and confidence, as we'll see in Experiment 1, below.

Positioning serves as a metaphor for describing the relationships that get established between speaker, audience, and topic. And throughout all the work below, I trace how *little* is used to do that. As we saw in Rachel and Ariel's conversation, the role of "change"—a shift from something predictable to something unpredictable is itself a signal of an affective situation. And one of the conditioning elements for *little* is the large-scale relationship between *little* and the word it modifies: the stronger a noun collocates with *little*, the more friendly it is to include the *little*. By contrast, non-collocates—things that are surprising to find modified by *little* are face-threatening and negative, as shown in Experiment 2, below.[87]

While these first two experiments use stimuli created to sound as natural as possible, Experiment 3 uses every utterance with *little* from a corpus of telephone conversations between friends and families (CALLHOME, Canavan, Graff, & Zipperlen, 1997). By testing the utterances both with and without *little* we can see more clearly the distribution of functions that *little* is having in assessments of speaker confidence, speaker likeability, and overall emotional intensity of the utterance. The same factors that mattered in Experiment 1 and 2 matter in this corpus as well—

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[87] "Face-threatening" turns out to be just one of the ways that interlocutors use positioning to create or avoid certain interpersonal effects.

how is the utterance related to the speaker, the audience, and what is the collocational strength between *little* and the word it is modifying.

The ways people position themselves and others is socially conditioned. For that matter, what is "predictable" and how people orient to predictability is also related to social roles and categories. To examine the role of power, I look to two corpora that have very clear power differentials: team meetings for an academic association, which are made up of people with a variety of academic backgrounds (the ICSI corpus, Janin et al., 2003), and interactions between parents and children (the CHILDES corpus, MacWhinney, 2000).[88] This sociolinguistic approach helps situate the findings from the "experimental pragmatics" methods. I hope to show that positioning and predictability offer perspicuous accounts of how micro-moments of interpersonal interactions construct and reflect bigger social categories. And when all is said and done, I also hope you will leave having appreciated the rich affective life of *little*.

Scales, scalar implicatures, alternatives, and optionality

One of the first things to observe about *little* is that it exists on a scale of terms about size.[89] Scalars may suggest to us that the relevant pragmatic meanings are scalar implicatures—but the actual contrast set relevant for *little* doesn't have the right kind of scale structure to trigger scalar implicature, as I'll develop here.

The general idea for a scalar implicature is that people say what's relevant without saying too much or too little, so if a stronger statement could've been uttered but wasn't, the implication is that the stronger statement doesn't hold.[90] Thus *some people left the party early* has the scalar implication that "not all" of the people left the party early.

So the first question for scalar implicature and *little* is what scale we're talking about. One could imagine a variety of scales. Since it's a gradeable adjective, there's a way in which it exists in a scale of {*infinitesimal*, *teeny tiny*, *little*, *average*, *big*, *huge*, *enormous*}.[91] Perhaps we want to reduce this to just one pole—if we think in terms of entailments or the *if not* test (*it's little if not*

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[88] In the next chapter, I also look at gender across these corpora, the CALLHOME corpus and two others: a corpus of sociolinguistic interviews (the Buckeye corpus, Pitt et al., 2007), and one of phone conversations between strangers (the Fisher corpus, Cieri, Miller, & Walker, 2004).
[89] Though these are deployed in a relative way; a *little elephant* is still massively larger than a *big toaster*.
[90] For other definitions, consider
Carston (1998, p. 179); Hirschberg (1985, p. 1); L. R. Horn & Ward (2006, p. 6); S. C. Levinson (2000, p. 36); Papafragou & Musolino (2003, p. 3).
[91] These words vary by much more than size, though—*infinitesimal* is a long, fancy word while *teeny-tiny* sounds like child-directed speech.

infinitesimal; *it's infinitesimal if not little), then *little* is part of a set including {*infinitesimal, teeny tiny, little*}.[92]

But consider:

> (2) You didn't tell me about your little baseball game.
>
> (3) I'm a little nervous.
>
> (4) How's your little grandson?
>
> (5) Can I have a little water?

If scalar implicature were involved, we would get some sort of reasoning like, "Ah, well if it were actually a teeny tiny baseball game/degree of nervousness/etc, the speaker would have said that, so that must not hold". But this kind of thinking seems beside the point. Pragmatic reasoning always requires alternatives and the interesting contrast set for interpreting these kinds of sentences seems to be something like (a) *little x*, (b) *x*, (c) saying nothing at all, and maybe (d) *big/really x*.

In examples (2)-(5), the speakers are doing more than referencing size/degree—they are positioning themselves and their interlocutors. In (2), the *little* belittles the game and therefore the addressee. In (3), *little* mitigates the degree of nervousness (at least on the surface). In (4), the *little* is heard as affiliative (the default interpretation is <u>not</u> that of disambiguation in which the speaker is specifying one grandson out of several). Finally, (5) seems to be more about politeness than about the actual number of milliliters being requested.

We can also see the problems of trying to use scalar implicature by examining Levinson (1983, pp. 134–135)'s account of scalar implicature:

> i. S has said p[93]

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[92] As Hirschberg (1985) details, there are problems with using "entailment" to define scales. For example, consider the scale of {hideous, ugly, plain, pretty, beautiful, stunning}. We're probably happy to have *stunning* entail *beautiful*, but we clearly don't want *stunning* to entail *hideous*. One solution is to keep scales restricted to particular poles. This would axe *hideous* and *ugly*—Hirschberg asks whether it would get rid of *plain* or not. And if it doesn't belong, is it still the case that *stunning* entails *pretty*? Nor is she entirely happy with the *if not* test (which she calls "Horn's Suspenders") and says can't handle cardinal numbers and allows in too many other kinds of phenomena like conventional implicature, presupposition, and entailment. Hirschberg's own proposal is to use partially ordered sets, allowing her to handle relationships that aren't describable in terms of entailments and relationships that aren't linear (e.g., hierarchical relationships like *general/colonel* or *misdemeanor/felony*).

ii.   There is an expression q, more informative than p (and thus q entails p), which might be desirable as a contribution to the current purposes of the exchange (and here there is perhaps an implicit reference to the maxim of Relevance)

iii.   q is of roughly equal brevity to p; so S did not say p rather than q simply in order to be brief (i.e. to conform to the maxim of Manner)

iv.   Since if S knew that q holds but nevertheless uttered p he would be in breach of the injunction to make his contribution as informative as is required, S must mean me, the addressee, to infer that S knows that q is not the case (K¬q), or at least that he does not know that q is the case (¬Kq).

The trouble starts in (ii). If p has *little* in it, what expression, q, would be <u>more</u> informative? If it were some smaller degree (*teeny tiny*), perhaps. The easier comparison between utterance p (with *little*) is utterance q that lacks *little*. But if p=+*little* and q=-*little*, informativeness doesn't seem to be immediately relevant. Nor does it help to define p as –*little* and q as +*little*; that would just mean we were constantly asking why people weren't using *little* all the time. The most relevant question is more like "Why did someone use *little* here?" That gets us closer to the fact that it's the very inclusion of *little* that is an interesting (informative) contribution—marking as it does the affective orientation of the speaker.

This returns us to the general requirement for pragmatic reasoning—a speaker says *x* when they could've said *y*. Scalar implicature is one example of such reasoning, but it isn't the right one to use to understand *little*. The most relevant contrast set is {+*little*, -*little*}. In all of the cases we're talking about *little* is optional and so there were briefer ways of making utterances. This is Horn's "division of pragmatic labor", in which unmarked forms get unmarked meanings while marked forms get marked meanings (Horn, 1984). An important thing to note in the findings below is that the presence of *little* is not always the marked form. With many collocates (e.g., those having to do with children), the dropping of *little* is the marked form.

In what follows, I pursue the difference between utterances with and without *little* to understand the range and distribution of its expressiveness. The core meaning of *little* does have to do with size—which makes it different than morphological diminutives. Even though people rarely use *little* as a contribution to truth-conditional content, they are still making use of this core meaning around size. The use of *little* is a claim that size/degree is relevant and that the size/degree is

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[93] As you might expect, I would prefer to add a little bit to this, "S has said p to H".

small for the context. In emotional management schemes, reporting oneself or someone else as *a little nervous* is meant to attenuate the degree of nervousness; asking for *a little water* is meant to lessen the request; and depending upon the context, talking about *a little boy* may highlight aspects associated with smallness such as cuteness or immaturity. *Little x* does draw attention to aspects of smallness, which means that it is a subset *x*. Hearers can therefore follow general pragmatic reasoning having to do with why a more restrictive phrasing was used. What claim is this particular speaker staking relative to their audience and with regard to this particular *x*?

Some definitions

To understand any given meaning/interpretation of *little*, we need to know what it is modifying and who it's about. I will call these, respectively, the object and target of *little*. The object is the actual word being modified (e.g., a magazine), the target is who that object is associated with (the speaker when it is *my little magazine*).

> (6) It seems like ___{my | your | Ryan's | Acme Publishing's}___ little magazine is
>   really taking off.

In (6), *little* is modifying *magazine* and who it's about varies according to how we fill in the blank. *Little*'s meaning depends upon these other elements—for some objects, being little is positive (a baby's toes), for others it is more problematic (my favorite sports team's championship match is <u>not</u> a *little game*). Of course the same object may be positively or negatively appraised relative to its *little*-ness, depending upon the context. In the next several paragraphs, however, I will focus on how much the meaning depends upon the relationship between the speaker and the target.[94]

Intuitively, when we ask about the function of *little*, we are thinking about the difference between an utterance having it or not having it.[95] When we contrast (6) with (7) and (8), at first glance it looks like *little* simply deprecates the magazine and it's just a matter of whose magazine gets deprecated.

> (7) It seems like my magazine is really taking off.

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[94] As I will develop later, the interlocutor is always involved in this, too, even if they are not the object or the direct target.

[95] "The significance of what is said depends on what is not said. The utterance actually uttered stands in contrast with and takes its shape from what is not but could without deviation be uttered" (Ziff, 1960, p. 147 cited in Pitkin 1985, p. 11-12).

(8) It seems like your magazine is really taking off.

But the possessive establishes a target for the *little* and there is a more complex interaction. The difference between *my little magazine* and *your little magazine* is not simply who is responsible for the magazine. These utterances make claims about the relative position of the speaker and the target. So to understand *little* requires us to get a sense of the participants' relative positions going into the utterance and how the utterance reiterates or shifts those positions. There is an asymmetry between adding *little* to (7) and adding it to (8). Consider that I utter *my little magazine* or *your little magazine* in the following contexts.

a)   Context: I'm your boss.

   o   Here, I am in a one-up position. Describing <u>my</u> efforts as *little* minimizes the distance between us. It's probably friendly (if it's received badly it's because that friendliness is seen as inappropriate or insincere). If I describe <u>your</u> efforts as *little*, it exaggerates the distance between us—it puts you in your place.

b)   Context: You're my boss.

   o   Here, I am in a one-down position. Describing <u>my</u> efforts as *little* reiterates that you are above me—I put myself in my place. But describing <u>your</u> efforts as *little* undermines the order of things—it shrinks the distance between us. The former can be friendly or sycophantic. The second one is hostile.

c)   Context: We are friends. We both know the sweat and tears that have gone into the magazine.

   o   Given the common ground, my talking about <u>your</u> magazine is ironic and it's a kind of friendly teasing similar to walking into a mansion and saying *I love your little house*.[96] It is harder to get a pleasant reading for this common ground if I am talking about *my little magazine*—the implication of saying something that is the opposite of what we both believe is true is to call attention to that truth and exaggerate the phantom proposition underneath. The intimate and friendly part of this is that we are both "in on the joke". The first-person case shares this possibility of connection with the *your little magazine* case, but carries a greater

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[96] This could be taken as a subtle jab about the house being too big, of course, and that interpretation depends on our dispositions given the situation, topic, and speaker.

risk of feeling exclusionary. In this example, what is explicitly said is all about me and my magazine. A joke is meant to bring us together, but there's a mismatch between this metamessage and what is actually said. The actual utterance can be heard as sufficiently self-aggrandizing so as to leave little room for you.

d) Context: We are peers who have a history of one-upping each other.

o Here there is little doubt that *my little magazine* will seem like an insincere self-deprecation. True self-deprecation would bring me lower, but insincere self-deprecation—especially if it is obviously insincere—increases the power differential between us. *Your little magazine* in this context is the most obviously insulting of those we have seen.[97] Note that the way *your little magazine* works to insult is a lot more direct than the roundabout way *my little magazine* does.

When I talk about *your little magazine*, it is particularly obvious that there is you-and-me positioning going on. The me-part is easy: I'm speaking. The you-part is doubled: you're both the person my speech is directed to and the target of *little*. Of all the connections that occur in an interaction, the you-and-me is the one that is always there. Any of the connections in an interaction can be emotionally laden—what if in (6) Ryan is your son or if you hate Acme?—but the you-and-me relationship is especially affecting.

It seems clear that whatever is happening in an interaction is about the people participating in that interaction.[98] I do not mean that it is wholly about them, but by working so much on the sentence-level, linguists can forget that my saying (9) is not just about me and John. It's also about me and my listener.

(9) John is a little rat bastard.

Saying (9) to you is making a claim that I <u>can</u> say (9) to you. It will have consequences locally (how will you respond?) and globally (it adds to your conception of me, as well as your

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[97] In many ways the default power differential between relative equals is the most contestable. And of course, the power differential between equals who don't like each other is likely to create the most contests (and reiterate the dislike).

[98] Thomason (1990) draws a distinction between thinking of interactions in terms of (i) participants working on each other, and (ii) participants collaborating together. This is a relatively common distinction. Thomason prefers the latter, but I don't see how (i) and (ii) are mutually exclusive.

conception of "us"[99]). The key here is that in saying (9), I am positioning you and me through John. And while I'm focused on the targets, objects, and relationships established by *little*, my broader claim is that all utterances do positioning—certainly (9) is whether or not *little* and/or *rat* are taken off. The amount of positioning, of course, varies.

The relationships I'm tracing sound like a triangle, but it is not quite Du Bois (2007)'s stance triangle. That concept, schematized in Figure 5, involves a stancetaker's evaluation and positioning relative to a stance object and to other subjects. Note that Du Bois uses "other subjects" instead of "interlocutors". This move allows him to capture how stances and identities relate (if I say I really like something, I align with all other people who really like that thing), but I would like to focus upon the generalization that every utterance is made for some particular audience or audiences.
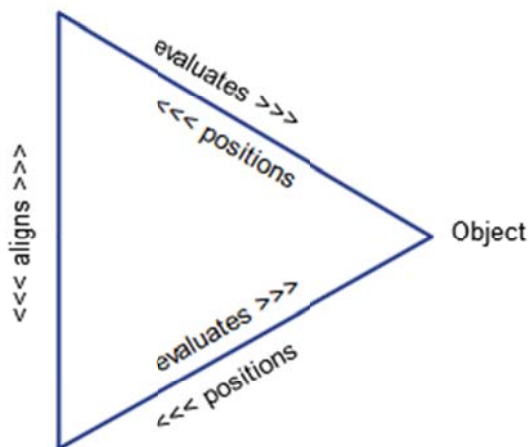
Figure 5: Du Bois' stance triangle posits three key entities in a stance act: a first subject, a second subject, and a shared stance object (Du Bois, 2007, p. 26).

On the surface, (9) does not say that it is affecting the relationship between us: there is no "you", "we", or "us" in it, but positioning is one of the mechanisms by which utterances mean more than what they say on the surface. The schema I'm proposing is more like the following, which privileges what's happening for you-and-me. In this scheme, anything I choose to talk about exists as a link to you.

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[99] Most of the time this is a small addition, but of course there are moments were there are dramatic updates/reversals. You have never heard your friend Sue say anything racist. Suddenly, she bursts forth with a tirade. Or possibly worse, just a small side-comment about "those people". If you have a strong aversion to racist rhetoric, then this calls for a more substantial update/grappling than learning that Sue prefers strawberry jam to grape jelly.
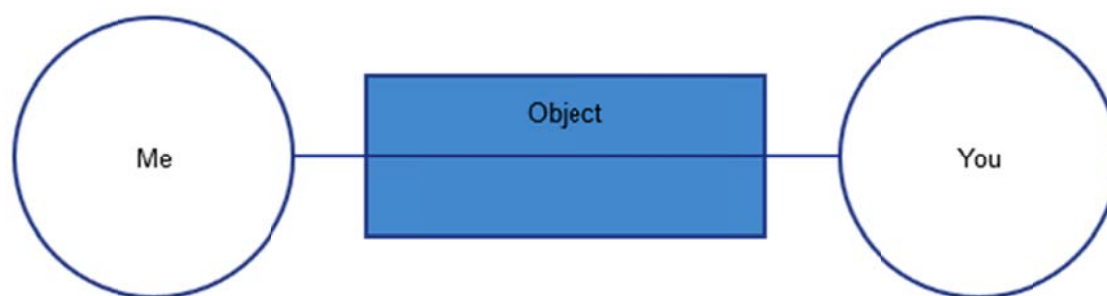
Figure 6: An alternative schematic.

The line between us is dynamic. We walk into a situation with a particular distance or closeness and it varies over the course of a particular interaction.[100] How each of us relates to the link between us, how we lengthen or shrink it is an important part of what is going on. Let's switch back to our *little magazine* example and add a concept of vertical distance. For the time being, let's focus on a context where I'm positioned above you. What does this really mean? Here, I am interpreting vertical space to be about power and I am defining power as the ability to get and do what you want. Our positioning may appear relatively long-standing (I'm your boss) or it may be much more temporary (I have the jar of peanut butter you want).

On my account, linguistic resources are interpreted in terms of how they position us relative to each other and how those positions allow or block us getting what we want. Changes in position are therefore particularly affecting. When we talk about affective linguistic resources, it's the change of positioning that makes them affecting. Positions come with rights, responsibilities, and constraints (Fraser & Nolen, 1981; Erving Goffman, 1959; Myers Scotton, 1983). Repositioning (or calling an old position to the front) can help us get what we want or it can block us from it.

The use of the possessive pronoun *my* specifies that the target is the speaker. There are other ways to know who the target is besides an explicit pronoun—but there is a difference between (10) and (11), even if in both cases everyone knows the magazine is my baby. In the case of (10), I am not calling upon that background knowledge. In (11) I am calling attention to it and reiterating the connection between me and the magazine.

> (10) It seems like the magazine is really taking off.

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[100] The "default" distance that you and I start with will also change over time—having to do with the history of our interactions, as well as outside forces. Some changes to default happen gradually, as in the example of daily stresses that erode our closeness, others are sudden, as in the shared meaningful event that brings us together. And there are also circumstances outside our interactions that affect us, for example, after years of being colleagues, I am promoted to a senior position.

(11) It seems like my magazine is really taking off.

Now what happens if we add *little*? (10)-(13) all require a magazine to be succeeding. (11) and (13) additionally require that the speaker be able to claim some credit/responsibility for the magazine (and presumably by extension, its success). (10) and (12) are options in many cases when (11) and (13) are not, but whenever (11) and (13) *are* felicitous, (10) and (12) are, too.

(12) It seems like the little magazine is really taking off.

(13) It seems like my little magazine is really taking off.

Imagine a context in which I am your boss and in which (10)-(13) are all felicitous: in other words, we both know that I am the person most responsible for the magazine. The most dramatic change happens with the *my* and *little*. In the friendly situation, it is understood as the boss diminishing the size of his work and thereby closing the distance. But if this movement is seen as insincere or inappropriate, then the move is interpreted as actually distancing.

This is not a symmetrical relationship. When the person with more power narrows the distance by minimizing something associated with them, it is friendly. By contrast, when the person with less power narrows the distance, it is hostile. When the person with more power belittles the other, it reiterates a power structure, forcing it upon the person with less power. By contrast, when the person with less power reiterates the power distance by minimizing themselves, it is a non-hostile move (reassuring the power structure and therefore potentially even friendly).[101]

In all of the studies conducted in this chapter (and indeed this dissertation), probability plays an important role. To get a handle on affective linguistic resources means understanding when things are unusual and when they are simply trucking along. As you can imagine, surprises offer key moments of attention shift and appraisal. We can capture the notion of predictability by looking at how often linguistic resources and contexts occur together. The simplest measure for this is the idea of contrasting what we observe against what we'd expect if distributions were at random. If I have a fair coin and I flip it 1,000 times on Sunday and 1,000 times on Monday, I expect that I'll get roughly the same number of heads on both days. The observed/expected value would be about

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[101] At the end of this chapter, I will demonstrate how these dynamics play out in terms of two power structures: academic environments and the family.

1.0. The greater the departure from 1.0, the more facilitated/constrained the linguistic resource is in terms of the context.[102]

This idea of "observed/expected" (OE) is essentially just a plain form of "pointwise mutual information" (PMI), which takes the log of it. That is, PMI quantifies the difference between observations and expectations by taking two elements that occur together, *x* and *y*, and describing that joint probability in terms of the individual probabilities.

$$\mathrm{pmi}(x;y) \equiv \log \frac{p(x,y)}{p(x)p(y)} = \log \frac{p(x|y)}{p(x)} = \log \frac{p(y|x)}{p(y)}.$$

Figure 7: Definition of pointwise mutual information.

These measures give a sense of how skewed distributions can be. They will be used in several different ways as this chapter proceeds, but in general they will help highlight especially strong connections. For example, in the next section, I use a high PMI (>3.0) to identify words that occur disproportionately often with *little*. It is an operationalization of Wittgenstein's definition: the meaning of a word is in its usage (Wittgenstein, 1953, p. 25).

Diminutives

One of the consistent findings in the research of synthetic diminutives (e.g., *-ito* in Spanish, *-ino* in Italian) is that despite their ability to be used pejoratively, they seem to have an underlyingly positive connotation. Dressler & Merlini Barbaresi (1994) describe the general meaning of diminutives—at least in German and Italian—as [non-serious].

> A [non-serious]-feature added is, among other things, a strategy for lowering one's responsibility towards the speech act being performed, or, more specifically, for lowering one's commitment to its illocutionary force...In other words, the speaker or author evaluates the speech act as non-serious, which allows the use of the evaluative diminutive suffix." (Dressler & Merlini Barbaresi, 1994, p. 144)

By this line of reasoning, positive connotations would seem to come about because the diminutives lighten the mood and distance the speaker from their statements. Dressler & Merlini

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[102] Imagine that you didn't know the probability of the coins. You would take measurements: let's say 51 heads on Sunday and 49 heads on Monday. Those are the observed values. You'd then calculate the expected values by taking the sum of heads (51+49) and dividing by the total number of trials (200) and then multiplying by the number of trials for each day. So the OE values would be 51/50 for Sunday and 49/50 for Monday (1.02 and 0.98, respectively).

Barbaresi spend the most time with ludic (playful) types of mitigation strategies. In the case of loving-teasing, a diminutive can help signal that a negative statement is actually affectionate and meant to be jocular. But of course something like *fammi un piacerino* ('Could you do me a little favor?') can be, as the authors note, a "cajoling device" (1994: 151) and the authors have a long line of examples where speaker commitment doesn't seem to be lowered despite the presence of a diminutive.[103]

Dressler & Merlini Barbaresi actually have a clearer account for the default positive connotations for diminutives than "non-seriousness". Though it is said in passing, they offer an assumption that the association between children and diminutives is what gives diminutives a positive default connotation (1994, p. 166). The link between children and morphological diminutives is developed fully by Jurafsky (1996) who puts CHILD at the center of the diminutive meaning.
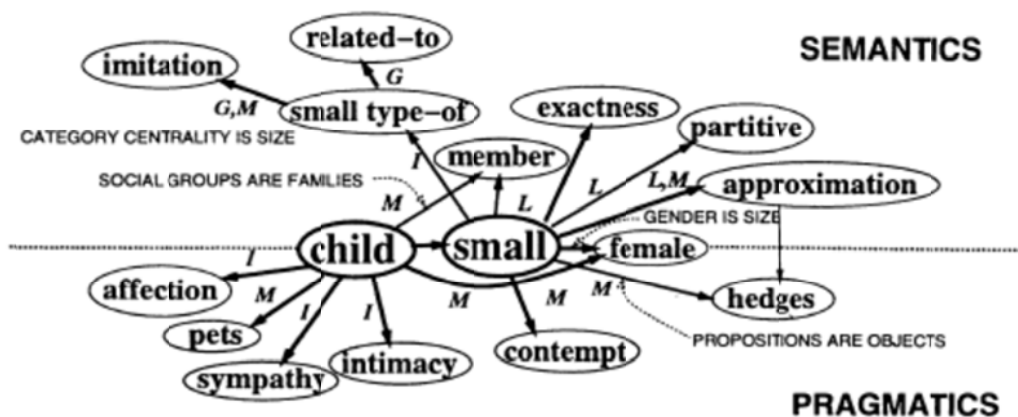
Figure 8: Jurafsky's proposed universal structure for the semantics of the diminutive (1996, p. 542).

Jurafsky's radial categories help him reconcile diachronic and synchronic models as well as the various contradictions between meanings. By his account, the positive connotations with diminutives follow as a natural extension of CHILD since we are nurturers of children and we extend such affection towards other loved ones. We might also add that since adults use diminutives with children, the children use diminutives and will be heard using diminutives: the link between children and diminutives is strengthened by such feedback loops.[104]

What is the relationship between Jurafsky's model of diminutives and English *little*? There are several reasons why we can't just adopt his model wholesale. First is that it would be a little perverse to put CHILD in the center of *little* and then link to SMALL afterwards. What does *little*

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[103] For example, they don't believe that someone who offers you 'a little cake' means to lessen their offer.
[104] We'll look at the empirical facts about parent-child interactions around *little* in the "Parents and children" section, below.

mean if SMALL isn't at its very heart? That isn't to say there is no link to children—consider *little*'s most common collocations in the Spoken portion of the British National Corpus (Oxford University Computing Services, n.d.):[105]

Rank	Lemma	Ct w/ *little*	All	%	MI
1	[BIT]	1,523	7,749	19.66	6.38
2	**[GIRL]**	**192**	**2,621**	**7.33**	**4.96**
3	**[BOY]**	**182**	**2,462**	**7.39**	**4.97**
4	[WHILE]	143	2,488	5.75	4.61
5	[TINY]	89	394	22.59	6.58
6	**[BABY]**	**54**	**1,161**	**4.65**	**4.30**
7	[PIECE]	54	1,803	3.00	3.67
8	[BOX]	49	1,714	2.86	3.60
9	[DOG]	47	1,329	3.54	3.91
10	**[KID]**	**44**	**1,619**	**2.72**	**3.53**

Table 9: Top collocations with "little" in the Spoken portion of the BNC (3-lemma window to the right of *little*, minimum pointwise mutual information score of 3.0).

For a moment, let's restrict ourselves to the nouns that *little* most often modifies.[106] These divide into a number of classes.

- Foods: *salt, sugar, butter, pepper, lemon, garlic, cream, wine, juice, sauce, onion, flour*

- Proper nouns: *Little League, Little Havana, Little Babaji*

- Animals: *dog, puppy, kitten, critter, duck*

- People: *girl, boy, baby, kid, angel, bugger, lad*

- Child-related items: *puppet, doll, lamb*[107]

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[105] In the top ten collocates for the Spoken part of the Corpus of Contemporary American English ("COCA", Davies, 2008), GIRL, BOY, and BABY appear as child-related collocates (#3, #4, #10). Note that the Spoken portion of COCA is mainly from unscripted television/radio interviews, unlike the Spoken portion of the BNC, which is smaller (10 million words versus 83 million words) but includes informal conversations between volunteers.

[106] These are nominal collocates that appear within a three-lemma window to the right of *little*, with a minimum PMI of 3.0 and a minimum token count of 25 in COCA+BNC.

[107] Nearly all tokens of *little lamb* come from the nursery rhyme "Mary had a little lamb".

- Others: *bit, while, piece, box, flower, trick, flavor, humor, dot, button, sympathy, twist, insight, bump, bag, hole, patience, cottage, note, dirt, montage*

One of the first things to leap out is the effect of corpus choice.[108] If, for example, NPR hadn't done a special about a children's book by Helen Bannerman called *Little Babaji*, *babaji* wouldn't have appeared as a major collocate.[109] And clearly, the food-related nouns rise to prominence because the corpora have a lot of conversations about cooking.

The cooking examples call attention to the SMALL meaning of *little* and while I will be looking a great deal at the role *little* plays in marking stance, I don't want to lose sight of its more straight-forward, quantifying aspects. In the cooking conversations, *little* is used to describe how much of an ingredient to use and to accomplish this without giving a more precise measurement (e.g., *a quarter teaspoon*).[110]

While *little* in cooking instructions may help specify an amount, in many cases, *little* isn't being used to specify a subgroup. For example, notice how many nominal collocates themselves involve smallness in their own semantics: *girl, boy, baby, kid, lad, puppy, kitten, critter, dot, cottage, note* and possibly a few others. Referring to a *little puppy* is not usually about calling attention to the fact that some particular puppy, compared to all other puppies, is small. We can say that the smallness is being highlighted by including *little*, but the *little* is also accomplishing something more affectionate, as we'll see in the upcoming experimental data. Broadly, the nouns that co-occur with *little* involve the speaker taking a positive stance. This even works for *bugger*—and other words like *devil, bastard, sneak,* and *sod* that also co-occur with *little*. These uses of *little* plus a negative term are "affectionately negative".

Consider the adjectives that occur before *little*.

[TINY]	[SWEET]
[NICE]	[LOVELY]
[CUTE]	[POOR]
[DIRTY]	[NEAT]

---

[108] I pursue the consequences of corpus choice more fully in the next chapter.

[109] There's actually a fair amount of interesting positioning happening in *Little Babaji*, which is basically a variation of *Little Black Sambo*, The construction of children and race are of interest but must be passed over here.

[110] That said, it is not clear how much information really comes across by including *little*—for example, contrast *add a little salt, add some salt*, and *add salt*. Would people following along be tempted to add too much salt if *little* wasn't used? Or is it part of a construction of casualness and simplicity to make the cooking approachable?

Most of the examples of these *adjective+little* combinations involve a fairly positive stance (*they sell nice little socks in there*; *he had given her a lovely little candle*). In fact, even though *poor* is generally a negative polarity item, when it is paired with *little*, it is part of a sympathetic stance (*poor little child!*; *your poor little legs*; *poor little things!*).[111]

Contrast this with the adjectival collocates that <u>follow</u> *little*. These involve unpleasant evaluations. To demonstrate this, examine Table 11, which shows the adjectives regularly occurring to the right of *little*—they are overwhelming negative. We can validate that intuition by consulting work on sentiment analysis. Wilson, Wiebe, & Hoffmann (2005) are ultimately interested in contextual polarity of opinions but to model this, they construct a lexicon with prior polarity information—is a word generally positive, negative, or neutral? Nearly all of the words in Table 11 are listed in their lexicon as "negative"—the few that are not, simply do not appear in their polarity lexicon.[112] None of their positive/neutral words make it into the list of collocates that occur to the right of *little*.

[NERVOUS]	[WEIRD]	[CONFUSING]	[RELUCTANT]
[TINY]	[WORRIED]	[TRICKY]	[CHILLY]
[EXTRA]	[SKEPTICAL]	[SILLY]	[FRIGHTENING]
[SURPRISED]	[DISAPPOINTED]	[SHY]	[MINI]
[STRANGE]	[BITTY]	[CYNICAL]	[ANXIOUS]
[CRAZY]	[ROUGH]	[PINK]	[NAIVE]
[SCARY]	[EMBARRASSED]	[BROWN]	[INTIMIDATING]
[TIRED]	[SUSPICIOUS]	[SHAKY]	[APPREHENSIVE]
[UNCOMFORTABLE]	[HARSH]	[RED]	[UNCLEAR]
[COMPLICATED]	[PREMATURE]	[AWKWARD]	[THICK]
[ODD]	[CAUTIOUS]	[EMBARRASSING]	[TEENY]
[SCARED]	[DISINGENUOUS]	[RISKY]	[JEALOUS]

Table 11: Adjectives that *little* modifies are negative (adjectival collocates of *little* within a 3-lemma window to the right, minimum pointwise mutual information score of 3.0, minimum of 25 tokens in BNC+COCA).[113]

At the heart of all uses of *little* is something like SMALL. Consider the contrast with morphological diminutives, which are said to have CHILD at their core. These morphological diminutives can be used negatively, but the relationship is CHILD->SMALL->CONTEMPT or

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[111] The exception here is *dirty*, which appears overwhelmingly as part of the phrase *dirty little secret(s)*.
[112] The ones that aren't in Wilson et al. (2005)'s polarity lexicon are: *extra, surprised, bitty, embarrassed, premature, pink, brown, red, mini, thick,* and *teeny*.
[113] I have removed a single word from this list: *olive*. This word isn't really used in the corpus as a free-standing adjective, rather it appears in cooking discussion as part of the phrase *a little olive oil*.

CHILD->SMALL->(APPROXIMATION)->HEDGES. The relationship between morphological diminutives and children keeps the negativity from growing too big. *Little* is more denotational than that, and that keeps drawing speakers back to the core meaning of SMALL. It's one less hop for *little* to get to negative meanings than the morphological diminutives.

One of the reasons why *little* is occurring with so many negative adjectives is because its core meaning of SMALL can be recruited to serve as a hedge. And what sort of things need hedging? Certainly we can hedge positive evaluations to not sound sycophantic or self-aggrandizing, but the corpora suggest that it is much more common to hedge negative evaluations—whether they are about the speaker themselves, the listener, or some other person.

> (14) Melissa Leo (after winning an Oscar):
>
> I don't know, I'm **a little nervous** going in, they asked if I was **nervous**, I'm **a little nervous** going in.

> (15) A woman appears to be trying to get her daughter to buy a "racially appropriate" doll (they are actresses). A male shopper intervenes.
>
> MALE SHOPPER: I think you're **a little crazy**.
>
> FEMALE ACTRESS: You think I'm **crazy**?
>
> MALE SHOPPER: **A little bit**.

In these examples, we can see how the act of stance-taking ends up positioning speakers, audiences, and others. Notice that in (14), the speaker is identifying herself as nervous, though this is (on the surface) a kind of minimization—not *nervous*, but *a little nervous.* In (15), a confrontation between strangers involves a man actually articulating a face-threatening critique but also softening it.

At this point, it may look like *little* simply shifts things to a more positive meaning—*he's a little awkward* is more positive than *he's awkward*, after all, and the uses of *you little {insult term}* are more positive than those of *you {insult term}*. But of course, in the right context, even something like *you bastard* can be affectionate. If *little* is simply shifting or reducing illocutionary force, then it should work for other insults, as well. That makes a word like *cunt* interesting since it is

very hard to construct affectionate examples of *you cunt*. But inserting *little* (i.e., *you little cunt*) doesn't seem to lessen or shift the illocutionary impact in any straight-forward way.[114]

We are tempted to see the main contrast as being between saying *X* and *a little X*, but the data also suggest a different comparison set. *Little* and other hedge-like devices can make things sayable that wouldn't be sayable without them. In other words, the contrast isn't always between *X* and *a little X*, it is sometimes between *a little X* and saying nothing. So when I speak of *little* skewing negatively with adjectives, I am <u>not</u> saying that it does so because it is, itself, some sort of positive operator. And this is clear enough in "ironic" uses, as well. While *little angel* seems to generally be positive, you may hear in the back of your head examples like this:

> (16) An interview about an adult mother and daughter living with each other:
>
> George Stephanopoulos: So what's it been like for your 10-year-old son?
>
> Melissa Rivers: Oh, he's loved it. He has learned to work the system, **the little angel**.
>
> George Stephanopoulos: Yeah he's costing you a fortune.
>
> Joan Rivers: And he has a swear jar, he has a swear jar, so he is so rich now, you know.
>
> George Stephanopoulos: So, what, every time you swear?
>
> Joan Rivers: Oh, 'cause I don't stop. He just goes, go, grandma.
>
> Melissa Rivers: Yeah, he's all about the money.

It's clear that (16) is an ironic—and an obviously ironic—use of *little angel*. It is different than (17), which seems meant to be straight-forwardly friendly.

> (17) Chris Matthews interviewing a mother:
>
> Let me go to Norah. You've got **three little angels** at home there. I've met them. And I have to ask you about this question. They're so young. Have you made a decision on this? Are you going be Chinese and like Ms. Chua, Amy Chua, are you going to be more like "Ozzie & Harriet," or whatever?

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[114] Perhaps it belittles the referent, lessening her power to be *a cunt*.

What we've seen in the collocates of *little* is that it is part of a negative stance when it modifies adjectives and part of a positive stance when it modifies nouns.[115] Ironic language and other kinds of teasing suggest that characterizing affect purely in terms of "positive" and "negative" is inadequate. These terms are basic and crucial, but without building in some notion of how interlocutors are oriented to the stances they take, we will miss the ways affective linguistic resources are actually interpreted. Negativity can be deployed not just to distance but to draw people together and by contrast mismanaged attempts at solidarity can highlight and extend chasms.

Throughout this chapter, I aim to show how *little* goes beyond denoting size and into reflecting and creating relationships among people and things. *Little* is part of how a speaker constructs a relationship among themself, their audience and the topic at hand. As I suggest in the next section, utterances always position interlocutors and *little* targets not only the thing that it modifies but anyone associated with it. This is how physical size moves into the domain of social relations.

Experiment #1: My/your little/Ø

There are not actually a lot of down-right insulting uses of *little* in the BNC/COCA data described above. The experimental data in the following sections will show that people are well attuned to demeaning uses of *little*.

A broad question is whether there are systematic differences based on whether *little* is present or not. We may operationalize our interest in power, personality, and affect by asking English speakers about their perceptions of speaker likeability, speaker confidence, and the overall emotional intensity of utterances in the with/without conditions. We can treat each measure, in turn, as a dependent variable and see how linguistic factors influence them. Based on the positioning framework described above, the predictions are:

1. *Your (little) x* will be less likeable but more confident and more emotionally intense than *my (little) x*. Second-person possessives are more face-threatening.

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[115] In upcoming sections, I will discuss insulting uses of *little* and use experimental data to show how well people are attuned to belittling. Its absence in the COCA and BNC data is partly about the nature of corpora and cultural pressures for politeness. It is also partly due to the fact that belittling uses of *little* are more internally heterogeneous, making it harder for any individual lemma or set of lemmas to rise to the level of "collocate".

2. There should be an interaction such that *your little x* will be less likeable but more confident and emotionally intense than *your x*; it is not as clear what will happen for *my little x* versus *my x* for ratings since the *little* can be heard as a kind of unconfident hedging or as a type of self-aggrandizing false modesty. False modesty would lead to unlikeability and confidence. Hedging would lead to lack of confidence and if it's seen as polite, potentially to greater likeability.

3. There should also be an interaction between *your/my* and *little/Ø* based on the affectivity of the head word they are modifying—the affectively-laden words should pack more of a punch. In particular, a word that is affectively laden should be particularly strong with *your little*: less likeable, more confident, more emotionally intense. In terms of operationalization, a word was marked as "affective" if it appeared in any one of 13 lists of emotion words.[116] There are 54 words that are considered "affective" by this method. These include *tradition, contradiction, injury, victory, grin, trauma, ego, fist, brat, hug,* and *surprise*.

As you can see, we are plotting the relationship between three elements—the possessive pronoun, the presence/absence of *little*, and the nature of the head noun they modify. We can describe the head noun in terms of affectivity by looking at words that other researchers have categorized as affective, but we can also assess how well it "fits" alongside *my/your/little/big*. As described below, models have been tested to see whether they are improved by adding collocational strength.[117]

Consider what it would mean to have something collocate with *my little*. There are 24 nouns in our stimuli with pointwise mutual information with *my little* of > 3.0, they include such items as *puppy, kitten, angel, grandson, hobby,* and *pal*. One interpretation of a my-little-PMI predictor is that things that collocate with *my little* are "friendly" kinds of things. We can take collocation— that is, frequent co-occurrence—to stand-in for a type of social ratification: littleness is approved as a quality relevant for this word. Furthermore, since the pointwise mutual information is high,

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[116] You can find these affective lexicons using the following citations:
Altarriba, Bauer, & Benvenuto (1999); Bednarek (2008); Dahl & Stengel (1978); DeRose (2005); Heise, (2 001); Kamvar & Harris (2011); Morgan & Heise (1988); Ortony, Clore, & Foss (1987); Scherer, Wallbott, & Summerfield (1986); Shaver, Schwartz, Kirson, & O'Connor (1987); Storm & Storm (1987); the 13th wordlist was created using COCA (M. Davies, 2008) to identify the top collocates within a three-word window of *emotion, express, sound, feel,* and *feeling*.
[117] Please note that the inclusion of pointwise mutual information measures is a post-hoc addition—PMI wasn't part of how the experimental stimuli were designed. For more about mutual information, see "Some definitions" above and/or "Experiment #2: The tense friends howdy-do test", below.

we could predict that the presence of the *little* doesn't really do much, so *little*'s presence/absence shouldn't make too much of a difference. In this example, since the collocational strength is based on the first-person, we may predict that using it with the second person will not show much of a difference.[118] Thus we will predict that non-collocates of *my little* will be less likeable, more confident, and more emotionally intense than collocates when *little* is present.[119]

Participants and materials

Subjects were 527 adult, monolingual American English speakers ranging from age 18-74 (median 31.5 years old), 63.2% women. The participants had a range of educational backgrounds though most had a BA (314 people) or some college without a degree (172). They hailed from 49 states—the most common were California (55), New York (42), and Illinois (39). Subjects were recruited through Amazon's Mechanical Turk service and performed the tasks there (see Schnoebelen and Kuperman, 2010 for details on reliability and best practices).

A total of 972 unique, pseudo-randomized questionnaires were created. Subjects were able to fill out multiple questionnaires and saw a median number of 5 target stimuli (mean of 6.3) out of 32 stimuli overall (mean of 35.5).

There were 8 conditions for each of 57 different sentence frames. Sentence frames were varied by possessive pronoun, presence/absence of *little*, and the head noun being modified. In these examples, *album* is non-affective but *shortcoming* is affective.

a) Look at how much we agree about **my little album**.

b) Look at how much we agree about **my album**.

c) Look at how much we agree about **your little album**.

d) Look at how much we agree about **your album**

e) Look at how much we agree about **my little shortcoming**.

f) Look at how much we agree about **my shortcoming**.

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[118] The only reason we would predict the opposite would be if we decided that collocations with *my little* tended to be items of false modesty, in which case they would be fairly face-threatening in the second person. But this doesn't seem to be the case.
[119] Another example: if a word collocates strongly with something like *your important*, we would expect that for it to show up with *your little* will cause the speaker/utterance to be seen as less likeable, more confident, and more intense. Here we have a head noun showing up in a context (your little) where it is maximally likely to be hostile.

g) Look at how much we agree about **your little shortcoming**.

h) Look at how much we agree about **your shortcoming**.

After each sentence, subjects were asked to give answers to three questions, using a scale of 1-7.

- How <u>confident/in control</u> is the speaker?

- How <u>likeable</u> do you find the speaker?

- How <u>emotionally intense</u> is what they are saying?

Methods

The data was analyzed using linear mixed-effects models in order to allow for random effects (like subjects and items) and fixed effects (e.g., the presence/absence of *little*) and to avoid the assumptions of homogenous variance and sphericity that are inherent in ANOVA analyses (Baayen, 2004). Markov-chain Monte Carlo (MCMC) sampling was used to estimate p-values for the fixed and random effects (see Baayen, Davidson, & Bates, 2008 for more; the reported p-values as well as effect sizes were generated with the pvals.fnc() of the languageR package, Baayen, 2010).

Ratings are given as z-scored judgments. That is, each individual rating given by a subject had the subject's overall average rating subtracted from it and then this was divided by the standard deviation of all of the subject's ratings.

All fixed effect predictors were centered by subtracting the mean from each predictor and then dividing it by 2 standard deviations (Gelman & Hill, 2007, p. 56). This allows us rough comparability in coefficients, whether the predictor in question is binary or continuous.

Results

Because each subject gave responses to three different variables (speaker likeability, speaker confidence, utterance emotionality), I will report the best predictors for each separately.

But before getting into mixed-effects models, let's look at a few first charts. In Figure 9, we see that our zLike, zConf, and zEmo measures are related, but they are not identical. As we'll see in the actual statistical models, likeability and emotional intensity are important predictors for confidence, and confidence is an important predictor of each of them, but likeability and emotional intensity do not predict each other.
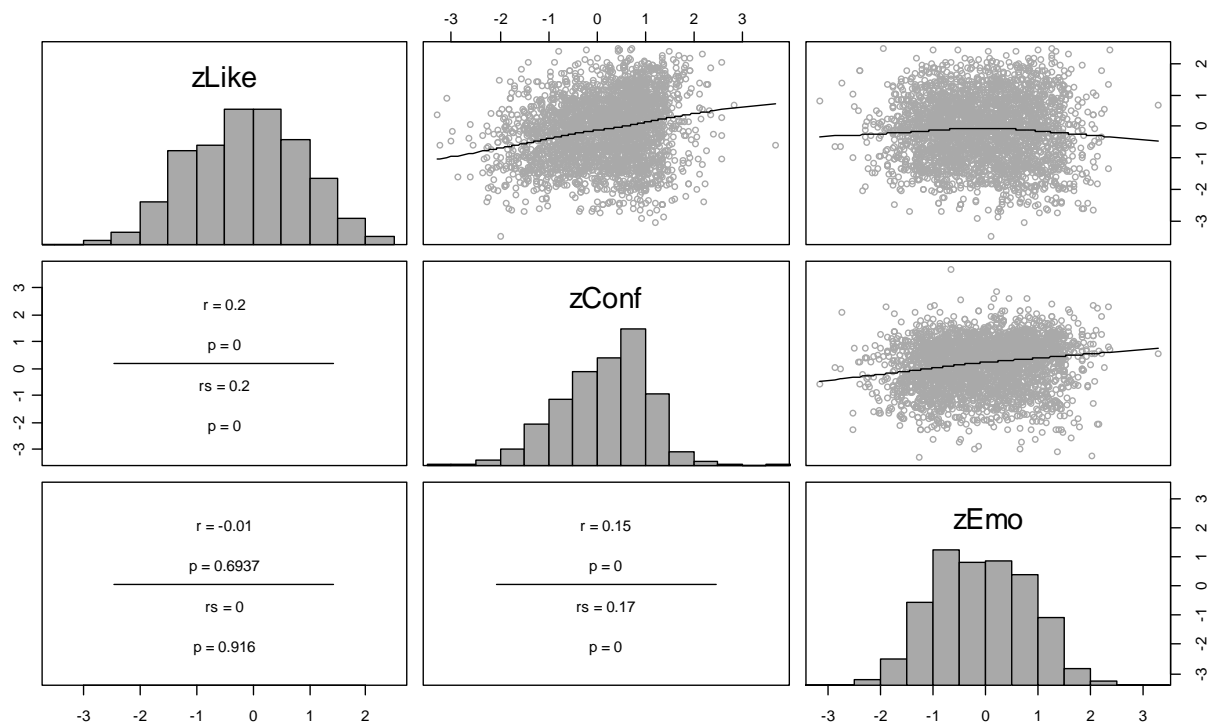
Figure 9: Panels at the diagonal report histograms of distributions of ratings; panels above the diagonal plot the locally weighted scatterplot smoothing lowess functions for a pair of correlated variables; panels below the diagonal report correlation coefficients (the "r" value is Pearson's r, the "rs" value is Spearman's rho) and respective p-values. The highest correlation is between zLike and ZConf, but this is only 0.20, which is not particularly high. These ratings each seem to get at something different in the subjects' interpretations of the stimuli.

The real confirmation/refutation of the predictions will come in the examination of the mixed-effects models, but it is worth looking at what simple boxplots can tell us.
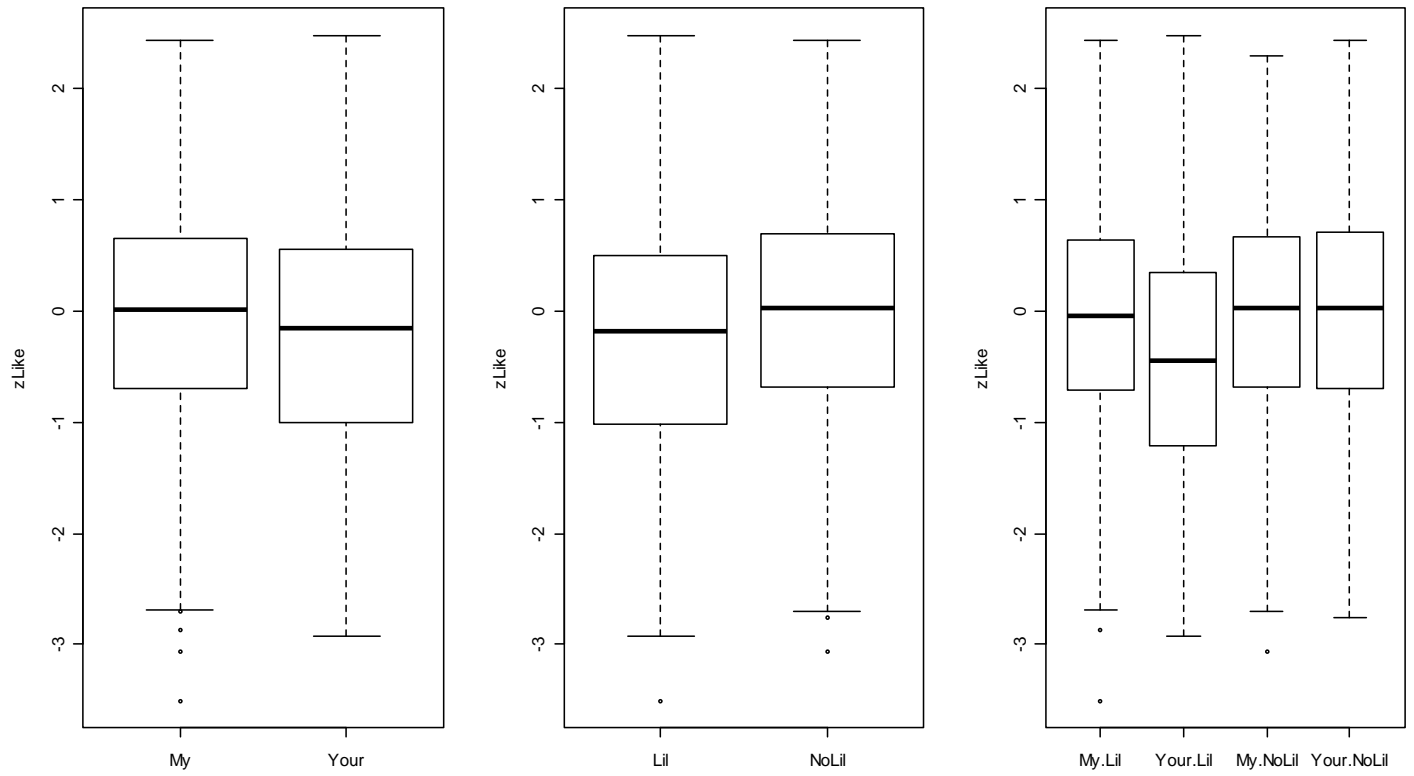
Figure 10: Differences of normalized likeability scores across conditions.
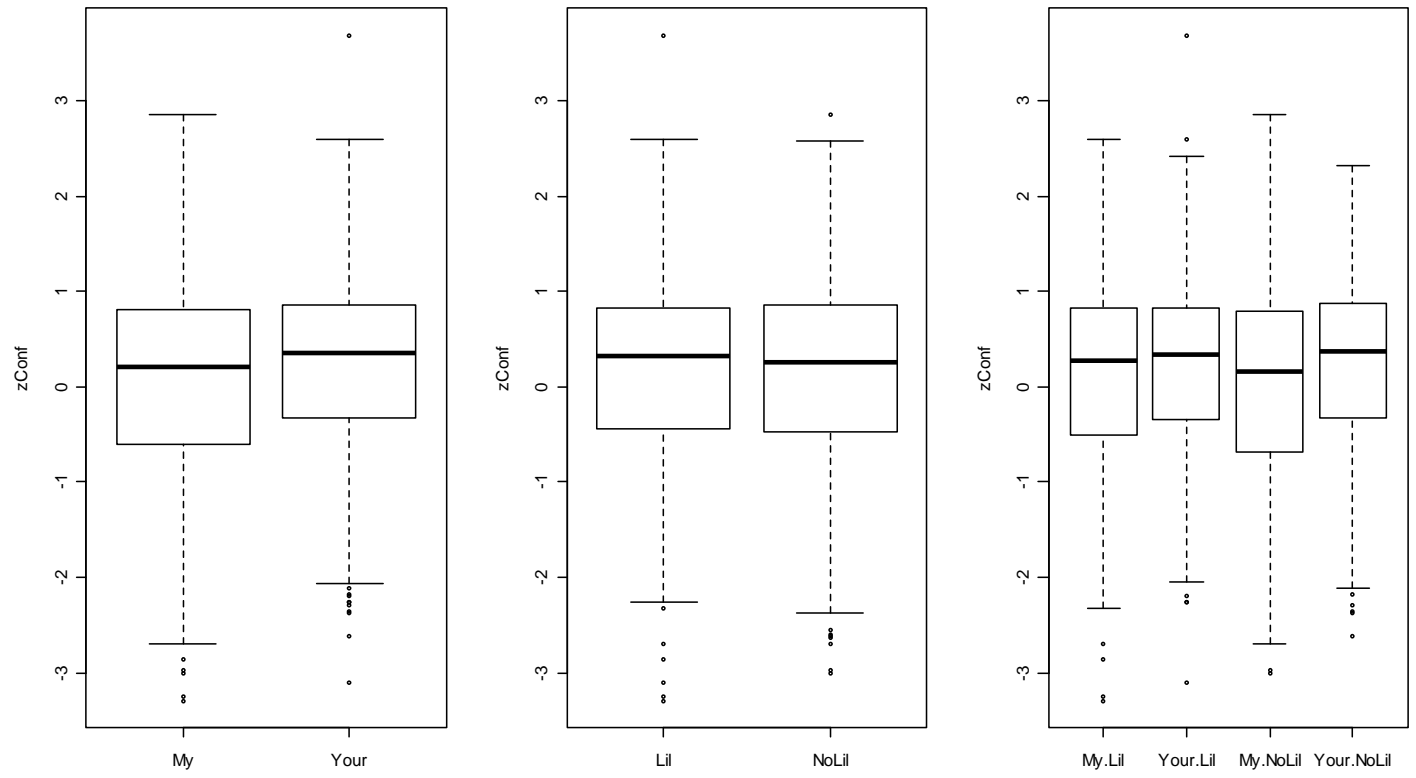
Figure 11: Differences of normalized confidence scores across conditions.
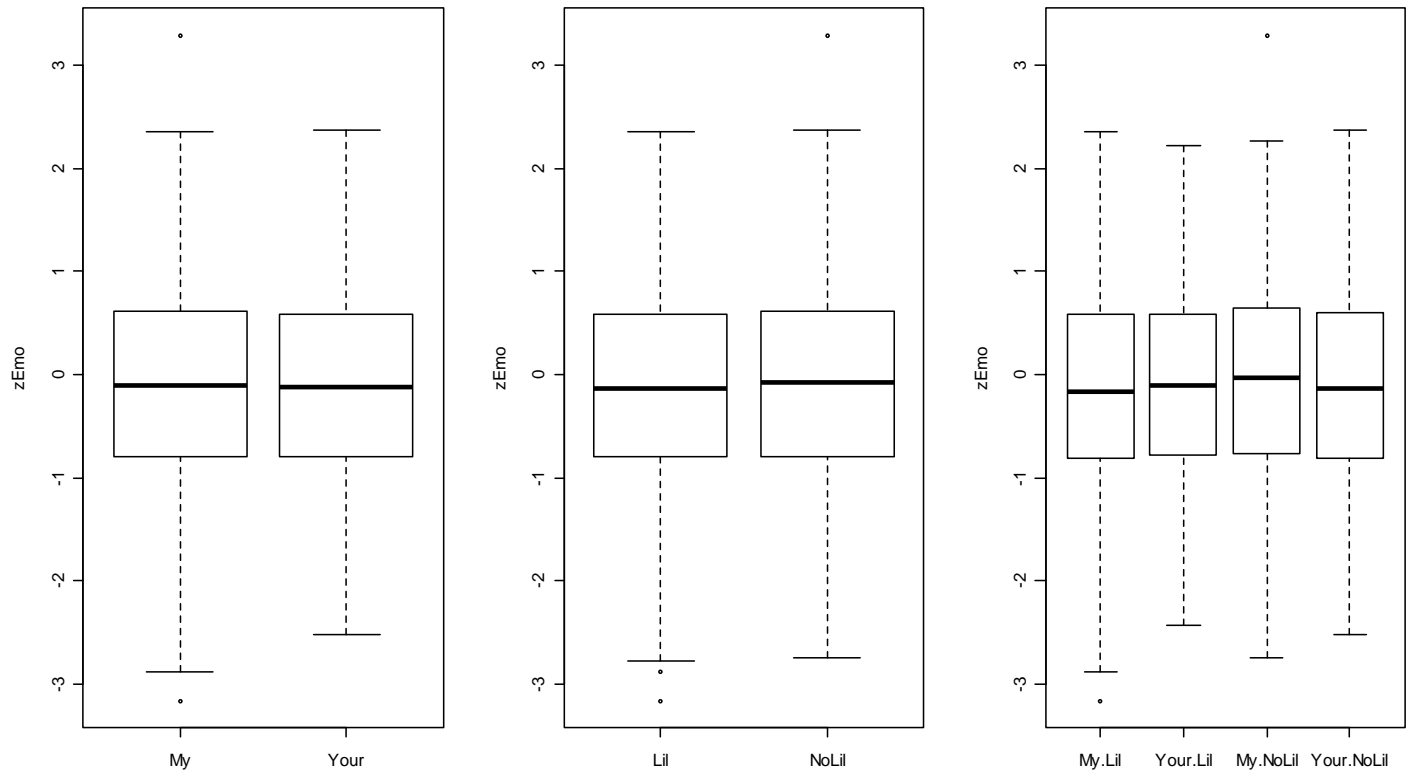
Figure 12: Differences of normalized emotional intensity scores across conditions.
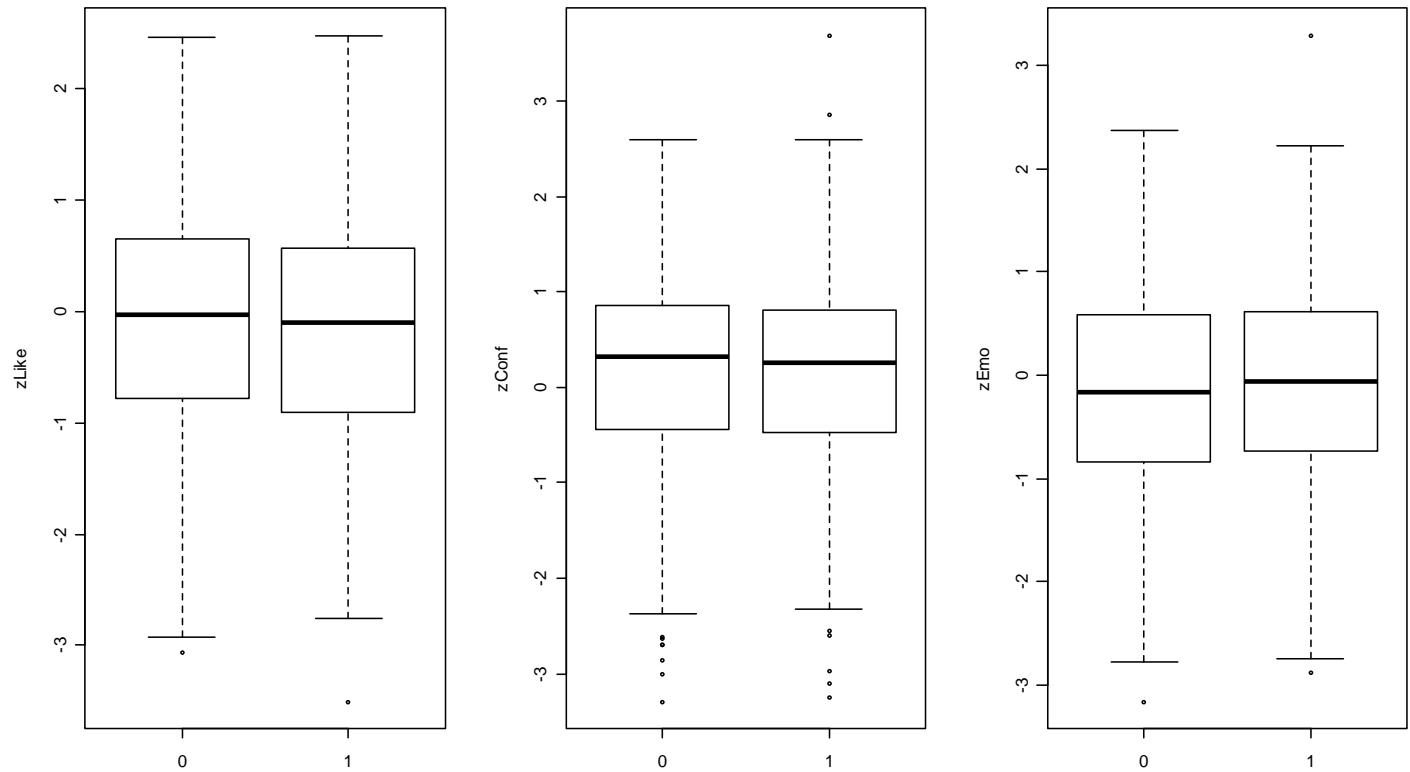
Figure 13: Differences of normalized likeability, confidence, and emotionality scores based one the affectivity of the head noun—"0" indicates non-affective, "1" indicates affective.

Here's a summary of what the boxplots indicate—1a, 1b, 3a, 3c, and 4a are the best matches for the predictions.

(1) My vs. Your

    a. *Your* looks less likeable than *My*

    b. *Your* looks more confident than *My*

    c. They look the same for emotional intensity

(2) Little vs. Ø

    a. *Little* looks less likeable than *Ø*

    b. *Little* looks more confident than *Ø*

    c. *Little* looks less emotional than *Ø*

(3) Affectivity

    a. Utterances with affective head nouns are less likeable

    b. Utterances with affective head nouns are less confident

    c. Utterances with affective head nouns are more emotionally intense

(4) Interactions

    a. The most dramatic effect is that *your little* looks rather unlikeable

    b. *My Ø* looks to be the least confident

    c. *My Ø* seems to be the most emotionally intense

Now let's look at the mixed-effects models that provide the best fit for the various ratings.

Likeability

The following model of likeability has an approximate R-squared of 0.297.[120] Effect sizes and significance tests can be found in Table 12.

> like.lmer<-lmer(zLike ~ LilOrNot*LilPron*Emocode2 + czConf +
> cLgContextualDiversity + cMyLilMI + Month +
> (1|Subject)+(1|StimulusFrame)+(1|HeadWord), REML=F, le)

I'll begin by describing the random effects and then proceed to the fixed effects, working from smallest to largest. Among the three random effects are:

- Subject: Individual raters are affected by stimuli differently.
- StimulusFrame: Our stimuli were comprised of 57 different sentence frames. Each sentence frame had multiple conditions: *my* vs. *your* and *little* vs. *Ø*, each combined with two different words (eight conditions total).

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[120] The fixed effects in this model do not have any collinearities—the only two pairswise correlations above 0.10 are (i) between Emocode2 and cLgContextualDiversity, r=0.19 (rs=0.22), and (b) cLgContextualDiversity and cMyLilMI, r=0.16 (rs=0.29). Anova tests suggest that no other predictors improve the model when added.

We can also remove data points that have residuals with an absolute value greater than 2.5. There are 43 such data points in this model. Although such outliers can have a dangerous effect on models, that isn't the case here. Even after outliers are removed, all of the predictors remain significant and the effect estimates change very minimally.

- HeadWord: What is the word that the possessive and *little/Ø* modify?

It turns out that even after treating subjects as a random effect, the month that they took part in the experiment mattered. The reference month here is "April", so the -0.0746 effect estimate is saying that subjects in March gave lower likeability scores than subjects in April. Because predictors are centered, we can compare effect sizes and see that Month has half of the effect size of the next most significant predictor and one-sixth the effect size of the largest predictor.

The next predictor is cMyLilMI, which is the amount of mutual information between the head word and *my little*. This will be tested more thoroughly in "Experiment #2: The tense friends howdy-do test", but the predictor captures the idea that words that often occur with *my little* behave differently. In particular, stimuli that involve collocates are rated as more likeable. No interactions are significant, so this predictor is saying that the collocation effect holds under all permutations of (*my|your*) (*little|Ø*), not just simply *my little*.

$fixed						
	Estimate	MCMCmean	HPD95lower	HPD95upper	pMCMC	Pr(>|t|)
(Intercept)	0.0996	0.0977	-0.0408	0.2286	0.1484	0.1521
Your little (non-aff)	**-0.4507**	-0.4525	-0.5721	-0.3354	**0.0001**	**0**
Your Ø (non-aff)	**0.4458**	0.4521	0.2916	0.6266	**0.0001**	**0**
czConf	**0.3761**	0.3746	0.3081	0.4401	**0.0001**	**0**
Your Ø (aff)	**-0.278**	-0.2766	-0.529	-0.0427	**0.0276**	**0.0233**
Contextual diversity	**0.2355**	0.2329	0.1022	0.3675	**0.0004**	**0.0009**
My little (aff)	**-0.2266**	-0.2226	-0.3983	-0.0454	**0.0148**	**0.015**
Your little (aff)	**0.2083**	0.2061	0.0216	0.3655	**0.0198**	**0.0164**
cMyLilPMI	**0.1892**	0.1911	0.0474	0.3206	**0.0068**	**0.0104**
My Ø (aff)	0.1253	0.1205	-0.049	0.2909	0.1616	0.1474
My Ø (non-aff)	0.0001	-0.0021	-0.1158	0.1176	0.9746	0.9988
MonthMar	**-0.0746**	-0.0766	-0.1355	-0.0117	**0.0152**	**0.0244**
$random						
Groups	Name	Std.Dev.	MCMCmedian	MCMCmean	HPD95lower	HPD95upper
Subject	(Intercept)	0.1275	0.0525	0.0515	0	0.1064
HeadWord	(Intercept)	0.282	0.2576	0.2591	0.201	0.3187
StimulusFrame	(Intercept)	0.2354	0.2301	0.2299	0.1448	0.3131
Residual		0.86	0.871	0.871	0.8488	0.8926

Table 12: Significant effects for predicting likeability (like.lmer).

The next simple fixed effect to talk about is contextual diversity.[121] This works as a word frequency measure, though instead of absolute counts, it looks at contextual diversity of words—how many different places a word shows up in.[122] As a predictor in this model, it says that the more frequent the head word is, the more likeable the whole stimulus is rated as being. Note that this effect is separate from the mutual information above. Like that predictor, this one is not involved in any interactions, so frequency has its effect under all conditions.

The final simple fixed effect is the z-scored rating of confidence that the subject gave the stimulus. The greater the confidence rating, the greater the likeability rating.

The interaction effects are made up of three terms. The first two are relatively simple: the presence of *my* versus *your* and the presence of *little* or not. The third is about the affectivity of the head word—recall that these affect words include *tradition, contradiction, injury, victory, grin, trauma, ego, fist, brat, hug,* and *surprise*.

The reference level is *my little {non-aff}*. So what we see is that the biggest effect is switching to *your little non-aff*. These are much less likeable. If we hold the *your* and *non-aff* constant, then we see that *little* decreases the likeability. Together, these support our hypothesis that *your little* is face-threatening.

When it comes to *your* and affective words, however, the effect is the opposite: *your little aff* is more likeable than *your aff*.

> (18)   I'm sure your (little) gut will be just fine.

The first person possessive has less going on. There is a significant difference between *my little aff* and *my little non-aff*: stimuli with affective head words are less likeable—perhaps because *my little triumph* and *my little shortcoming* both sound self-aggrandizing. At any rate, this effect seems to require the presence of *little*. There's no significant difference among *my little non-aff, my Ø aff,* and *my Ø non-aff*.

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[121] This is the centered, logarithmic value given by Brysbaert & New (2009) as "LgSUBTLCD"—their word frequencies come from a corpus of English film subtitles. Contextual diversity measures how many films a word appears in and was a better measure than "LgSUBTLWF", which is based on absolute tokens.
[122] To see more about the use of this measure, particularly contrasted with other popular measures of frequency like CELEX, see Brysbaert & New (2009). Other critiques of CELEX and Kučera and Francis can be found in Balota, Cortese, Sergent-Marshall, Spieler, & Yap (2004); Zevin & Seidenberg (2002). For more about the use of contextual diversity, see Adelman, Brown, & Quesada (2006).

Confidence

The following model of confidence ratings has an approximate R-squared of 0.263.[123]

> conf.lmer<-lmer(zConf ~ Question + czEmo + LilPron + cYourMI+ LilOrNot + cpQuesNumOverall+Month+(1|Subject)+(1| StimulusFrame)+czLike*Emocode2, REML=F, le)

To predict confidence, we use two of the random effects used for predicting likeability—Subject and StimulusFrame, as described above. Adding a random effect for HeadWord does not significantly improve the model so it was dropped. I'll again start with simple fixed effects, from the smallest to largest effect size.

- Month seems to matter, although in a different direction: while March got lower likeability ratings than April, it got higher confidence ratings than April.

- The next effect has to do with experimental fatigue. As a subject rated more and more stimuli, they gave smaller confidence ratings.

- There's a similarly modest effect based on the presence/absence of *little*. Stimuli that have *little* are actually rated as more confident, in keeping with our initial hypothesis, although no interaction term with possessive pronoun turned out to be significant.

- cYourMI is the mutual information between the head word and *your*. The more the head word collocates with *your*, the less confident stimuli involving that head word are—regardless of whether it is appearing with *your* or *my*. The most ready interpretation for this is that face-threatening utterances are relatively uncommon, so the words that occur frequently with *your* are particularly unlikely to be interpreted as threatening.

- In the next simple fixed effect, we see that our prediction that *your* is more confident than *my* is borne out.

- The more emotionally intense a stimulus is rated as being, the more confident it is rated as well.

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[123] There is no collinearity between these terms (the only to above 0.1 are Question ~ czEmo at r=-0.11/rs=-0.11) and LilOrNot and czLike (r=0.11, rs=0.11). If we remove outliers with greater than 2.5 residual, then we remove 51 points. The results do not change in any appreciable way.

- The final simple fixed effect is whether or not the stimulus is a question—questions are rated as having lower confidence.

- There is also a significant interaction between likeability ratings and the affectivity of the head word. The more likeable a stimulus is rated, the more confident it is rated, as well. This is true for all sorts of words. However, the effect size is different based on the nature of the head word. Likeability has a stronger effect for stimuli with non-affective heads than for those with affective heads.

$fixed						
	Estimate	MCMCmean	HPD95lower	HPD95upper	pMCMC	Pr(>|t|)
(Intercept)	0.2031	0.1986	0.0913	0.3123	0.001	0.0004
Questions	-0.368	-0.366	-0.5297	-0.2149	**0.0001**	**0**
czLike (non-aff)	0.2577	0.2592	0.1774	0.3393	**0.0001**	**0**
czEmo	0.2504	0.2512	0.1932	0.3113	**0.0001**	**0**
Your (not "my")	0.1845	0.1862	0.1288	0.2392	**0.0001**	**0**
czLike (aff)	0.1555	0.1513	0.0412	0.267	**0.0088**	**0.0078**
cYourPMI	-0.1231	-0.1177	-0.1949	-0.0426	**0.0018**	**0.0015**
No "little"	-0.0819	-0.0798	-0.1337	-0.0252	**0.0038**	**0.0033**
cpQuesNumOverall	-0.0801	-0.0819	-0.1351	-0.0264	**0.0018**	**0.0043**
Month: March	0.0766	0.0793	0.0252	0.1386	**0.008**	**0.0123**
(aff)	-0.011	-0.0121	-0.0925	0.0681	0.772	0.7882
$random						
Groups	Name	Std.Dev.	MCMCmedian	MCMCmean	HPD95lower	HPD95upper
Worker	(Intercept)	0.1248	0.048	0.0479	0	0.1012
ItemNum	(Intercept)	0.2771	0.2654	0.2677	0.2133	0.3221
Residual		0.7866	0.7961	0.7963	0.7763	0.8166

Table 13: Significant effects for predicting confidence (conf.lmer).

Emotional intensity

The following model for predicting emotional intensity has an approximate R-squared of 0.236.[124]

emo.lmer<-lmer(zEmo ~ czConf + cYourBigMI+cQuesNumOverall+

(1|Subject)+(1|StimulusFrame)+(1|HeadWord)+ LilOrNot*Emocode1, REML=F, le)

The random effects are the same as the ones shown in "Likeability", above.

In terms of fixed effects:

- As with confidence, there is a small effect for experimental fatigue—stimuli that the subjects rate later on are given lower emotional intensity scores.

- Like the previous models, this model also has a mutual information value that was added post-hoc and will be pursued more in Experiment 2. The term cYourBigMI has to do with the mutual information score between the head word alongside *your {big|large|important|significant|huge|tall|considerable|enormous}*. The idea behind this measure is to identify words that are rarely spoken of as *little*—in fact, as close to the opposite. The prediction you are most likely to make is that if something that is *big*/*important* is instead modified by *little*—and especially if it is given a second-person possessive pronoun—it should be particularly emotionally intense. No interaction is significant, however, between presence/absence of *little* and/or *your* vs. *my*. Instead, all conditions seem to decrease in emotional intensity when these words are used and this is above and beyond the individual slopes that the HeadWord random effect puts in place. This effect seems to be driven by the following stimuli, which are a mix of friendly and not-so-friendly (hostile or teasing): *grandson*, *pal, pet, gut, ego, butt*, *foot, printer, workout, pooch*.

- And for the final simple fixed effect, the more confident a stimulus is rated, the higher it is for emotional intensity, too. Notice that while confidence ratings can predict and be predicted by emotional intensity and likeability, there does not seem to be any direct relationship between emotional intensity and likeability.

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[124] There are no collinearities between these factors. After removing 39 outliers with residuals greater than 2.5, we get very similar results.

- In terms of interactions, there is an interaction based on whether *little* is present or not and whether the word it is modifying is affective or not. Affective words that are modified by *little* are much more emotionally intense, while non-affective words are not. Here we distinguish between "strongly affective" (appears on more than two of the "emotion terms" lists and/or is marked as "strongly subjective" in Wilson et al., 2005), "weakly affective" (only appears on one list and/or is marked as "weakly subjective" in Wilson et al., 2005), and non-affective (appears on no lists). A handful of examples:

    o Strongly affective: ploy, joke, fantasy, monster, drama, dishonesty, wisdom, grin

    o Weakly affective: angel, pal, adventure, bum, spirit, injury, risk, mistress

    o Non-affective: kitten, poster, oven, essay, blueprint, coat, driveway, choir

Note that when *little* is absent, the difference between affective and non-affective words is not statistically significant. The presence of *little* seems to bring the affectivity of the word into play in a way that doesn't happen when *little* is absent. The effect is really a contrast between the *strongly* and the *non-affective*—the weakly affective group isn't separately distinguishable.

$fixed						
	Estimate	MCMCmean	HPD95lower	HPD95upper	pMCMC	Pr(>|t|)
(Intercept)	-0.1782	-0.1786	-0.2907	-0.0693	0.0012	0.0028
Little (strongly aff)	0.2547	0.2566	0.0932	0.4277	**0.0036**	**0.0041**
czConf	0.2516	0.2525	0.193	0.313	**0.0001**	**0**
cYourBigPMI	-0.1612	-0.1635	-0.2737	-0.0509	**0.0036**	**0.0056**
cQuesNumOverall	-0.082	-0.0825	-0.1401	-0.0272	**0.0038**	**0.0035**
No little (strongly aff)	-0.0989	-0.0988	-0.2406	0.0313	0.1504	0.1565
No little (weakly aff)	0.0985	0.0975	-0.0429	0.2304	0.1632	0.1529
No little (non-aff)	0.0581	0.0587	-0.0158	0.1339	0.1308	0.1341
Little (weakly aff)	-0.0104	-0.0114	-0.158	0.1435	0.8932	0.8963
$random						
Groups	Name	Std.Dev.	MCMCmedian	MCMCmean	HPD95lower	HPD95upper
Worker	(Intercept)	0	0.014	0.0186	0	0.0557
Head	(Intercept)	0.1708	0.1625	0.1633	0.1095	0.2171
ItemNum	(Intercept)	0.3257	0.2991	0.3013	0.238	0.3732
Residual		0.8003	0.8028	0.8029	0.7836	0.8228

Table 14: Significant effects for predicting emotional intensity (emo.lmer).

Discussion

The most fundamental question to answer is whether or not *little* is doing anything at all. The answer is a resounding rejection of the null hypothesis. *Little*'s presence has a particularly large effect size in judgments of likeability and emotional intensity. The effect is significant in changing judgments about confidence, too, but not nearly as large.

The experiment went about testing the notion of positioning by varying not just the presence/absence of *little* but also the target (*my/your*) and the object (affective or not). The predictions were largely upheld, but there were a few surprises in the interactions and non-interactions.

Likeability is the best example of surprises among interactions. Likeability varied depending on a three-way interaction of possessive pronoun, presence/absence of *little*, and the affectivity of the head noun. When I laid out my basic predictions, they were fairly straight-forward: (i) *your (little) x* will be less likeable than *my (little) x*; (ii) *your little x* will be less likeable than *your x*; and (iii) *pron (little) affective* would be less likeable than *pron (little) non-affective*.

Prediction (i) was really about the face-threatening nature of talking about *your* compared to *my*. I took it for granted that this would be a blanket effect, but it turns out that the face-threateningness depends a great deal upon the affectivity of the head noun. Among non-affective items, *my little x* is more likeable than *your little x* and among affective items, *my x* is more likeable than *your x*. The unanticipated complication is that when the head word is affective, *your little* is actually more likeable than *my little*. And when the head word is non-affective, *your Ø* is more likeable than *my Ø*.

In prediction (ii), the assumption was that *little* would be particularly face-threatening when paired with *your*. And this held for non-affective items. But again, affectivity changes things so that when the head noun is affective, *your little x* is actually more likeable than *your x*.[125] In prediction (iii), the assumption was that *pron (little) x* would be less likeable if *x* was affectively-laden. But this is true only when you leave *little* off. If you include *little* then *your little aff* is more likeable than *your little non-aff*.

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[125] I made no predictions about *my little x* vs. *my x* because it wasn't clear whether people would interpret polite hedging or irritating self-aggrandizement. The results were that among stimuli with non-affective head words, *my little x* was no different than *my x*. But among the affective terms, *my little x* was much less likeable than *my x*.

It seems that participants are giving speakers the benefit of the doubt when it comes to affective items—*your **little** ploy/joke/drama/dishonesty* somehow comes across as more agreeable than *your Ø ploy/joke/drama/dishonesty*. Perhaps they read in a reduction of illocutionary force in a way that they do not when the noun is *poster, blueprint,* or *article*. This also suggests that affective words have a greater interpretive range than non-affective words: affective items, whether they themselves are positive or negative, can get rescued more easily—they may be interpreted as minimizing the subject's responsibility or they may simply sound more like teasing, which could be understood positively.

Among confidence ratings, we saw that *your (little) x* was more confident than *my (little) x*, which fits the predictions. These predictions grew out of the theory that each utterance stakes a claim that the speaker is entitled to utter it. I looked at possessive pronouns in particular because there is a great difference in talking about oneself and talking about someone else, especially if that person is right there (as the second-person possessive pronouns suggest in our stimuli). Whether or not a speaker really is ratified to talk about *your (little) x*, the fact that they have used it implies the claim that they can. The consequence of this stance manifests itself in this experiment as ratings about "speaker confidence". In addition to a difference between *my* and *your*, I predicted a difference between the presence and absence of *little*. Specifically, I predicted that *your little x* would be heard as more confident than *your x* and this indeed turned out to happen.[126]

I did predict that the affectivity of the head noun would matter for confidence and that is true, although it didn't turn out to interact with the *my/your* and/or *little/Ø*, instead it interacted with likeability scores—for all items, as likeability ratings increased, so did confidence ratings. But the effect was significantly greater for stimuli with strongly affective head nouns.

The most straight-forward results come from models of emotional intensity. What mattered the most in this model was the presence/absence of *little* depending upon what it was modifying— emotional intensity ratings went up significantly when the head noun was "strongly affective". Unlike likeability and confidence, however, the possessive pronoun didn't seem to make a difference. I believe this has to do with the fact that *your* was capable of signaling friendliness and hostility (the latter particularly intense), and *my* was capable of signaling friendliness and irritating pseudo-self-effacement (the latter particularly intense). Thus while possessive pronouns did have different emotional consequences, they were not distinguishable in terms of <u>intensity</u>.

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[126] Actually, there was no significant interaction between little and the possessive pronoun, so *my little x* was also more confident than *my x*.

Finally, there were some post-hoc predictions around collocational strength that were borne out, though the particular measure differed between models: non-collocates were less likeable than those that were strongly collocated with *my little*; non-collocates were more confident than those strongly collocated with *your*; and non-collocates were more emotionally intense than those that collocated with *your big/important/etc*. This last result is curious and since these measures were themselves added after the experiment had been run, they were not particularly well controlled for. To ascertain the real role of predictability, we turn to collocational strength and pleasantness.

Collocational strength and pleasantness

One of the recurring themes in this dissertation is the relationship between change and emotion. Change itself is defined against expectations—a backdrop established by both a particular unfolding interaction and larger personal and cultural contexts. Why can linguistic resources carry a punch sometimes but sometimes be nothing special?

Part of what we know about a word (or any other linguistic resource) is its distribution. This knowledge is a set of expectations about how a word is likely to get used. So when it's used that way, there's really not often much to be said about it. The biggest emotional punch comes when a word shows up in a place it doesn't "belong".

This line of thinking prevents us from predicting that *little* always makes a difference. Sometimes nothing special's going on. Compare the difference between *your boy* and *your little boy*—not much of a difference compared to *your husband* vs. *your little husband*. Speakers of English have heard lots of people talk about *little boys* but far fewer refer to *little husbands*. Given the word *little* in a string of speech, one isn't terribly surprised by *boy* following it and given a topic of *boys*, one isn't terribly surprised to find them modified by *little*. Not so with *husband*.

One way to operationalize this is to look at pointwise mutual information. Building from a corpus—in this case COCA—we can see which words *little* occurs with the most, controlling for the frequency of the particular words. Here I repeat Figure 7 from the end of the section "Some definitions":

$$\mathrm{pmi}(x;y) \equiv \log \frac{p(x,y)}{p(x)p(y)} = \log \frac{p(x|y)}{p(x)} = \log \frac{p(y|x)}{p(y)}.$$

Figure 14: The definition of pointwise mutual information.

This formula measures how much knowing about one thing tells you about another. The more often two words occur near each other, the higher the number. It's also responsive to the probabilities of the words on their own—if you hold the probability of two co-occurring terms constant but make the overall probability of one of the terms much smaller, then you'll end up with a higher pointwise mutual information score. That's because now that one of them is so rare, knowing about either gives you a lot more information about the other.

But what does it mean to be a collocate? A very simple answer is that it means that there is a convention among speakers. The terms "go together". Words that are collocates both represent and become pairs that are appropriate to be spoken of together. A collocation both reflects and produces such a relationship. And such relationships are ideologically structured and structuring. In our toy example, we have two different nouns used to refer to males. But *boy* and *husband* are different social roles. *Your boy* is (typically) a young son, *your husband* is an adult.[127] The nouns refer, then, to social roles that have different baggage for what makes good and bad instantiations. *Little* happens to be compatible with the ideologies around boys in a way that it isn't with husbands. Boys are young, so even if they'd rather be *big boys*, *littleness* is a natural fit; husbands are meant to be physically big, masculine, adult, and providers for their families—*little* doesn't sit well with these attributes.[128]

If we woke up next year and found that *your little husband* had lost its attitude and was not so different than *your husband* in its affective punch, what story would we have to tell about this turn of events? There are two main places we'd look for answers. The first would be to see if the attributes associated with husbands had changed to either become more consistent with diminuation or at least less incompatible. The second would be to see if everyone had started insulting everyone else's husbands with the phrase—this would, definitionally, rob it of its unexpectedness and likely its power.

In the following experiment, I examine the impact *little* has based upon how often the noun it modifies occurs with it. The prediction is that words that have high mutual information with *little*

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[127] *How's your boy* is compatible with a situation where it doesn't refer to a young son, but to a boyfriend. But notice that in that context—where the social role referent is more similar to *husband*—that *how's your little boy* is going be quite jarring.

[128] The most frequent adjectival collocates for *husband* (three-word window to the left and right) in COCA are *estranged, loving, abusive, devoted, jealous, beloved, deceased, faithful, supportive, unfaithful*. By contrast, the top collocates of *boy* tend to be around age and size: *little, young, unidentified, teenage, 13-year-old, 12-year-old, golden, 14-year-old, dear, 6-year-old*.

will have similar affectivity whether the *little* is there or not (*little boy ≈ boy*), but that non-collocates will have a dramatic difference when *little* is added (*little husband ≠ husband*).

Experiment #2: The tense friends howdy-do test

Materials and participants

In this experiment, I attempt to hold context as constant as possible and there is only one basic sentence frame (rather than 57 different ones as in the last experiment). The context and ratings scale were chosen to allow *little* to be interpreted in a friendly, neutral, or insulting manner:

> A and B are friends involved in an ongoing disagreement. One day they meet on the street and after saying hello, A asks B the following question:
>
> **How's your** *(modifier) noun***?**
>
> What is B's most likely reaction to the question?
>
> | | |
> |---|---|
> | +3 | Very positive |
> | +2 | |
> | +1 | |
> | 0 | Neutral |
> | -1 | |
> | -2 | |
> | -3 | Very negative |

The context allows Rachel's question to be friendly (as it is interpreted when someone asks *How's your grandson*) or unfriendly (*How's your jealousy?* is rated as very negative), depending on the nature of the noun. The key question is how much of an effect *little* has—and when.

142 nouns were selected to have a range of collocational strength with *little*. First, a list was assembled of all the nominal collocates that appeared within a two-word window to the right of *little*, *your little*, or *my little*. 51 nouns were selected that had a PMI ≥ 3.0 with at least one of *little/your little/my little*. 24 nouns were selected that had weak PMI: $2.0 \leq PMI < 3.0$. And 67 nouns were selected that had PMI < 2.0.

A total of 142 unique, pseudo-randomized questionnaires were created. Each contained two stimuli with *little*, four with a bare noun, and four with some other modifier (one of 163 different modifiers, each used between 2 and 36 times). Subjects saw a median number of 40 stimuli overall (mean of 56.7).

Subjects were 75 adult, monolingual American English speakers ranging from age 18-67 (median 32 years old; 64% female). The participants had a range of educational backgrounds though most had a B.A. (27 people) or some college without a degree (20). They hailed from 33 states—the most common were Illinois (6), California (5), Ohio (5), New Jersey (4) and New York (4). The experiment and subjects used Amazon's Mechanical Turk service.

Results

Here are the ten words that *little* has the biggest and smallest effect on.[129] In other words, the z-score average for *How's your father?* was 1.351 (a pleasant question). The z-score average for *How's your little father?* was -0.692 (an unpleasant question).

Num	Word	Bare N	Little N	BareMinusLil	Collocate?
1	father	1.351	-0.692	2.043	Non-collocate
2	life	0.774	-1.136	1.910	Non-collocate
3	husband	0.927	-0.754	1.682	Non-collocate
4	holiday	1.280	-0.321	1.601	Non-collocate
5	blog	1.043	-0.556	1.599	**Strong collocate**
6	parent	0.805	-0.731	1.536	Non-collocate
7	leg	0.839	-0.647	1.486	**Weak collocate**
8	workout	0.808	-0.643	1.450	**Strong collocate**
9	brain	-0.240	-1.686	1.446	**Strong collocate**
10	fiancée	1.056	-0.325	1.381	Non-collocate
11	paper	0.720	-0.657	1.377	Non-collocate
12	kitchen	0.737	-0.594	1.331	Non-collocate
13	idea	0.438	-0.859	1.296	Non-collocate
14	eye	0.714	-0.576	1.290	Non-collocate
15	break	0.811	-0.476	1.288	Non-collocate
…					
127	grandson	1.611	1.516	0.096	**Strong collocate**
128	mistress	-1.095	-1.001	-0.094	Non-collocate
129	bungalow	0.036	0.129	-0.093	**Strong collocate**
130	boy	1.373	1.463	-0.091	**Strong collocate**
131	regret	-1.144	-1.214	0.070	Non-collocate

[129] There are 69 nouns that switch from pleasant to unpleasant interpretations when *little* is add; there are 29 that are unpleasant whether *little* is there or not, and 44 that are positive with and without *little*. There are none that switch from unpleasant to pleasant when *little* is added. This seems to further support the notion of "negative skew" for *little*.

Num	Word	Bare N	Little N	BareMinusLil	Collocate?
132	princess	0.663	0.725	-0.062	**Strong collocate**
133	cleaner	0.079	0.027	0.052	Non-collocate
134	jealousy	-0.898	-0.859	-0.039	**Weak collocate**
135	angel	1.142	1.117	0.025	**Strong collocate**
136	costume	0.302	0.278	0.024	**Strong collocate**
137	pinky	0.410	0.387	0.023	**Strong collocate**
138	youngster	1.015	0.994	0.021	Non-collocate
139	group	0.161	0.142	0.019	Non-collocate
140	fear	-0.712	-0.720	0.008	Non-collocate
141	lad	0.833	0.838	-0.005	**Strong collocate**
142	rose	0.396	0.399	-0.003	Non-collocate

Table 15: The nouns framed by *how's your (little) __?* that change the most depending upon whether *little* is present or not.

As you can see, the strong trend is that *little* makes much more of a difference when the noun is not a collocate with *little*. But could this just be an effect of the frequency of the noun?

To determine that, each bare/*little* pair was modeled using linear regression. In this first model, we restrict ourselves to the absolute value of the difference between bare/*little*—that allows us to focus on whether *little* is making a difference or not, without worrying whether it is positive or negative. Variables in question are centered to make comparisons of effect sizes possible. This model has an adjusted R-squared of 0.291 and all of the terms of interest are significant.[130]

Words that are more frequent in the COCA get more intense reactions. Words that commonly collocate with a plain 2nd person possessive pronoun also get a boost. But the higher the PMI is for a word and *little*, the <u>less</u> intense the stimulus is rated. This is also the result if we bin nouns into "strong collocates, weak collocates, and non-collocates". *Little* has its greatest effect on non-collocates, as predicted.

Call: lm(formula = abs(RealDiff) ~ cLnCocaFreq + cLittleMI + cYourMI, data = diff)

Residuals:

Min	1Q	Median	3Q	Max
-0.80465	-0.27725	-0.02498	0.26848	0.88952

Coefficients:

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[130] There is a negative correlation between frequency and LittleMI: -0.37 (r; rs=-0.26); none for the others.

	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	0.64938	0.03228	20.115	< 2e-16 ***
cLnCocaFreq	0.20580	0.06979	2.949	0.003747 **
cLittlePMI	-0.25456	0.06982	-3.646	0.000377 ***
cYourPMI	0.31685	0.06485	4.886	2.81e-06 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.3847 on 138 degrees of freedom

Multiple R-squared: 0.3062,   Adjusted R-squared: 0.2911

F-statistic: 20.3 on 3 and 138 DF, p-value: 5.881e-11

This confirms the hypothesis under investigation: that *little* is making a difference based on the collocational strength of the noun that it's paired with and we've seen that frequency has a role to play but mutual information is at work above and beyond that.

At this point, we may want to further understand the data by modeling ratings at a more granular level. That is, we want to predict each rating, given the noun, the characteristics of the noun, the presence/absence of *little*, the particular rater, and the characteristics of the rater. To do this, we create linear mixed-effects models with raters and anouns as random effects. As before, I report the results of 10,000 Markov-chain Monte Carlo simulations.

In addition to pointwise mutual information, I also add in semantic information—19 of the 142 nouns can be understood to refer to children when they occur with *little* (e.g., *how's your little baby/man/niece?*).

$fixed						
	Estimate	**MCMC avg**	**HPD 95lower**	**HPD 95upper**	**pMCMC**	**Pr(>|t|)**
(Intercept)	-0.352	-0.352	-0.436	-0.271	**0.000**	**0.000**
Little w/ a noun referring to a child	**0.911**	0.911	0.667	1.153	**0.000**	**0.000**
No *little*	**0.658**	0.658	0.591	0.723	**0.000**	**0.000**
Little x PMI for *my little {noun}*	**0.417**	0.418	0.248	0.586	**0.000**	**0.000**
No *little* w/ a noun referring to a child	**-0.412**	-0.413	-0.616	-0.218	**0.000**	**0.000**
Frequency of the noun in COCA	**0.393**	0.392	0.262	0.528	**0.000**	**0.000**
Little : PMI for *your big {noun}*	**-0.336**	-0.336	-0.487	-0.182	**0.000**	**0.000**
No *little* x PMI for *my little {noun}*	**-0.172**	-0.173	-0.304	-0.035	**0.012**	**0.011**
No *little* x PMI for *your big {noun}*	**0.153**	0.153	0.035	0.276	**0.015**	**0.014**
$random						
Groups	**Name**	**Std.Dev.**	**MCMC median**	**MCMC mean**	**HPD 95lower**	**HPD 95upper**
Noun	(Intercept)	0.407	0.342	0.343	0.300	0.385
WorkerId	(Intercept)	0.000	0.007	0.013	0.000	0.043
Residual		0.707	0.716	0.716	0.694	0.736

Table 16: Predicting ratings of pleasantness/positivity given characteristics of the noun being modified and the presence/absence of *little*.

The largest effect occurs when the *hows your __* inquiry is about a child and uses *little* (the effect size is 0.911). Inquiring about a *little* {child} is very positive. But in general, the trend is for frequent items to get a pleasantness bonus and for the presence of *little* to lower the positivity—that's what we see in the "No *little*" term with the 0.658 effect estimate (the absence of a *little* goes with a higher rating for pleasantness). As predicted, however, when *little* is present, its effect is negative for non-collocates. In fact, people seem to like having *little* appear alongside common collocates: when a collocate noun appears <u>without</u> *little* it gets a more negative rating—more negative the greater the collocation strength is.

We have a range of collocation strength with *little*—but it turns out to also be useful to characterize collocation strength with a set of adjectives that we can treat as pseudo-antonyms. That is, I add a post-hoc measure to see how strongly collocated the nouns are with (*your|my|Ø) {big|large|important|significant|huge|tall|considerable|enormous}*. A word that commonly

occurs with one of these augmentative-type adjectives should change considerably based on whether they occur as bare nouns or modified by *little*.[131] And this is indeed what happens.

When a noun that commonly goes with *your big/important/etc*, is put in a *how's your* context without any such adjective, the question is still interpreted positively. In this experiment, Speaker A is asking about something that's likely to be important and that's friendly. However, if Speaker A uses a *your little* for something commonly spoken about as *your big/etc*, then the effect is negative. For example, consider *How's your little dream|fear|choice|paper|idea|cock|ass?* Those are not friendly inquiries.

Discussion

The basic hypothesis was confirmed: collocation strength matters and putting *little* with non-collocates—words that aren't normally expected to occur with *little*—gets negative ratings. This fits with the general theme that changes and the unexpected are signs of affectivity.

However, the original predictions were actually more modest than the results. I specifically hypothesized that there wasn't going to be much of a difference between *little boy* and *boy*. And that's not right. In fact, *How's your little boy?* gets a higher score than *how's your boy?* Collocates of *little* are seen as more positive when they appear with *little*—such collocates include *piggy, baby, treasure, bungalow, princess*. That is, the presence of the modifier undoubtedly calls out some different properties of the noun, but the properties that are called out seem to differ systematically based on whether the noun is commonly collocated with *little* or not. Inquiring about *little* {children} is especially positive but even nouns that aren't related to children and that have a high PMI score are more positive when they occur with *little* than without.

In information-theoretic approaches to language, the story of reduction is the story of minimizing processing power when something is predictable. In that paradigm we often default to thinking of language as an efficient system where we're trying to minimize the cost to ourselves and others. Consider the telegraph metaphor: common letters should have fewer taps. And if something is very predictable, just drop it and save some time/effort/ money. Thinking along these lines it is a mystery why anyone would include *little* in a telegram about a boy—it's superfluous from the standpoint of conciseness and efficiency.

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[131] 24 items had strong collocation scores (≥ 3.0), 11 had weak (≥ 2.0), though the majority had zero or tiny (104 items).

What we see in these experiments is that there is a benefit to offset the cost. Its inclusion is a specific signal and it may even be that there is something comforting about including elements that are predictable. That is, when we see that *little* has an affectionate meaning with its common collocates, we can stretch beyond the first level of analysis—that it's about things that are small that we love and aesthetically please us in their smallness—and see how fulfilling fulfilled expectations are. Psycholinguists have been showing results having to do with cognitive efficiency for a long time. The results here suggest a bridge between these aspects and those of emotional processing, production, and meaning-making.

Experiment #3: Effects of *little* in CALLHOME

Experiments 1 and 2 showed how *little* worked in terms of positioning and predictability, but we would still like to understand how *little* functions in the wild. The section on diminutives provided one window in that, as do upcoming sections on corpus distributions. This section offers an intermediate approach by testing 258 utterances from phone calls between friends and family in which *little* was actually used. All sentences that maintained their truth conditions when *little* was removed were tested, giving us a sense of actual distributions of *little* when it comes to inspiring, diminishing, and doing nothing to confidence, likeability, and emotional intensity.

Materials and participants

The CALLHOME corpus (Canavan et al., 1997) contains 120 telephone conversations between friends and family, each about 30 minutes. For each conversation, 10 contiguous minutes are transcribed (usually from the middle or the end). 107 of these transcriptions use the word *little*. Of these conversations, there are a total of 258 utterances that maintain the same truth conditions with and without the *little*. For example, it would be illegitimate to chop *little* out of *Little League* and taking *very little* out of (19) would reverse its meaning.

(19)   It matters #(very **little**) whether or not you're financially well off.

Since stimuli were presented in text form, the transcripts did have to be modified somewhat. Repetitions, false starts, filled pauses, and other disfluencies were removed, so while the transcript has (20), it was (21) that was tested.

(20)   He cleaned the ki- he actually cleaned up the kitchen a little bit.

(21)   He actually cleaned up the kitchen a little bit.

Participants answered the same questions as in Experiment #1 about speaker confidence, speaker likeability, and the emotional intensity of the utterance.

As with the other experiments, subjects were recruited from and completed the experiment on Amazon's Mechanical Turk service. All non-monolingual native American English speakers were removed post-hoc, leaving 735 subjects. Subjects rated a median of 24 sentences (average of 31.786), and of these 6 were target stimuli (average of 8.416). Each item therefore had about 24 ratings associated with it (half in the with-*little* condition, half in the without condition).

In the table below, I summarize the significant factors—I built linear regression models for all the data and then subsets of the data by POS. The adverbial *little* has the smallest amount of data (51% of the stimuli involve modifying nouns, 21% involve modifying adjectives).

Results

If we take each item tested and compare the with-*little* and without-*little* conditions, we can see that as we might expect, there are examples in which *little* isn't really doing much. For example, the differences in ratings for confidence, likeability, and emotional intensity for (22), (23), and (24) are pretty small.

> (22) I always thought it was **(a little) mild** on the rain, you know. [Presence/absence of *a little* makes no real difference in ratings]

> (23) But Beth might stay **a (little) while** longer and then she's not sure where she's going. [Presence/absence of *little* makes no real difference in ratings]

> (24) So I started doing it in New Orleans as a private tutor and then got picked up by **a (little) private school** down there to teach for a couple of months.
> [Presence/absence of *little* makes no real difference in ratings]

Defining a "big difference" as plus or minus 0.20 in the z-score averages of the two conditions, we find that there are actually only 20 items where *little* makes no difference on any of the three measures. There are 163 in which it makes a difference in only one of the three measures, 33 in which it makes a difference in two measures, and 42 in which it makes a difference in all three measures. So while it is correct to say that *little* doesn't always make much of a difference, it actually usually does.

(25)   She'd take **a (little) bite** out of it and make a funny face and then go, "Mmm, melon." [Increase in confidence, likeability, and emotional intensity with the presence of *little*]

(26)   It feels **(a little) tough** asking Brian to split during this time. [Decrease in confidence, likeability, and emotional intensity with the presence of *a little*]

(27)   Wait, let me check **my (little) book** here. [Increase in confidence, decrease in likeability and emotional intensity with the presence of *little*]

(28)   You put it in **your (little) pocket calculator**. [Decrease in confidence and likeability with the presence of *little*]

In Table 17, we can see that *little* more often makes a difference than just sitting there inert. We can also see that when it does have an effect, it pulls in two different directions, depending upon the instantiation. For this reason, building mixed-effects models as we did in Experiment 1 will not lead us to conclude that *little* is making a difference.

	Confidence	Likeability	Emotional intensity
Little increases	78	90	60
Little doesn't do anything	109	113	120
Little decreases	71	55	78

Table 17: Of the 258 CALLHOME utterances, what difference does the presence of *little* make?

For that reason, I create three different mixed-effects models for each measurement. Each independent variable has one model that uses all of the data, one model that restricts itself to instances where *little* is increasing the measure, and one model that is restricted to instances where *little* is decreasing the measure. I report all of the significant measures in Table 18 so that it's possible to compare how factors perform across the variety of conditions.

In general, when a predictor is significant for multiple different independent variables/data subsets, it has the same direction in each. For example, likeability increases confidence ratings whether we look at all utterances or just the utterances where there was a significant increase or decrease in confidence ratings based on the presence/absence of *little*. The highlighting in Table 18 indicates the exceptions: predictors that change direction depending upon the independent variable in question. For example, the higher percentage of words a stimulus has that are first

person singular (*I/me/my/mine*), the <u>less</u> confident the stimulus is rated, yet this predictor <u>increases</u> likeability and emotional intensity ratings.

But let's go through these a little more carefully.

- **Pronouns**: I have argued that positioning is crucial for understanding how *little* has the effect that it does. Up to now, we have mostly looked at *my* and *your*. Here we expand beyond those. 3rd person plural words seems to raise confidence, as do *he/him/she/her/his/hers*—though the singular forms seem to lower likeability. By contrast, *us/we/our/ours* raise likeability. The percentage of the 2nd person in an utterance raises confidence, but it lowers emotionality among those items where the presence of *little* causes an increase in emotionality ratings. That is, the stimuli that *little* intensifies are not about *you*. Instead, as mentioned above, the more words in the 1st person singular there are, the more emotionally intense the stimuli are rated—this also makes the stimuli more likeable but less confident-sounding.

- **Collocations**: The more a word collocates with *your little*, the more confident it sounds among confidence-inducing *little* utterances. It also increases emotional intensity among stimuli where the presence of *little* increases the intensity. Examples include *little boy/girl/aches/nest/cousin/piece/shit*. Only two of these actually occur with *your*:

  (29) I'm not going to straighten up so this can be **your (little) nest**. I'm sorry. [Confidence and emotional intensity increased by presence of *little*]

  (30) What's the age difference between Audrey and **your (little) boy**? [Confidence, likeability, and emotional intensity all increased by presence of *little*]

  Head words that are strongly collocated with plain old *little* have lower confidence, but raised likeability and emotionality, though each of these is driven by the instances where *little*'s presence is decreasing the measure in question (examples include *gal/worried/girl/scared/weird/stinker/nervous*).

  (31)   I'm **(a little) worried**. [Less confident with *little*]

  (32) She was really screaming and I was **(a little) scared**. I thought, "Oh my god, what have we wrought?" You could hear her out through the doors of the hall, you know. [Less emotional with *little*]

(33)   She's **(a little) weird**. [Less confident, less emotional with *little*]

In these examples, it does seem like there is a connection between reduction in illocutionary force and collocation strength. The models suggest that these utterances have lower confidence and higher likeability in part because of the strength of the relationship between *little* and the head word it modifies. Recall that in fixed-effects linear model shown in Experiment 2, collocates of *little* had less of an overall change in the absolute direction, which is also consistent with this result.

Collocates of (*your) big/important/etc* lower emotional intensity ratings among Increased Emotional Intensity group (EmoInc), which seems curious at first. The results seem driven by stimuli where the head word is not really that inherently *big/important/etc* and where the *little* is, in general, increasing the emotional intensity—just not as strongly as it does for non-collocates.

(34)   And then we'll take **a (little) trip** for maybe a week before we come back. [Decreased likeability, increased emotionality with *little*]

(35)   That's too bad, isn't it? That was **a nice (little) piece**, actually. [Increased confidence and emotional intensity, decreased likeability with *little*]

(36)   The little sisters have **a beautiful (little) statue** they bring in.[Increased emotional intensity, decreased likeability with *little*]

This result is consistent with what we found in Experiment 1, where *your big* collocates also lowered emotional intensity ratings. There does seem to be a contrast with what we saw in Experiment 2. In that experiment, including *little* alongside a collocate for *your big/etc* made it sound less pleasant/more hostile. Participants didn't give judgments about intensity, however, so these aren't directly comparable.

Collocates of *my little* lower emotional intensity among Decreased Emotional Intensity group (EmoDec). These include head words like *dogs, gal, girl, self,* and *seminar*. The only stimulus that actually had *my* in it was (37), none of the others have any possessive pronouns. In Experiment 1, where *my* and *your* were part of the conditions, *my little* collocation increased likeability, though it doesn't seem to do that here. In Experiment 2, where mutual information was controlled for, we saw that *my little* collocates were more

pleasant when they appeared with *little* than when they appeared bare (in Experiment 2 this was always in a *How's your (little) __? frame*).

(37) I did it all by **my (little) self**. [Less confident, less emotional with *little*]

Finally, collocates of *my* get higher confidence levels in the Decreased Confidence group (ConfDec), although this result is driven by words that do not have a really high PMI score (the highest is 3.44 and most are in the 2.0-3.0 range): *house, dogs, lady, raincoat, self, calculator, gal, visit.*[132] While I think it is reasonable to be suspicious of this particular result, it does present a certain symmetry with the finding in Experiment 1 that collocates of *your* moved confidence in the opposite direction: lowering confidence for *your* collocates, rather than increasing it as here with *my* collocates).

- **Other factors about the stimuli**:

  o Questions lower confidence and emotional intensity. (They lowered confidence in Experiment 1, as well.)

  o The discourse marker, *you know* seems to be a signal for increased emotionality, while the discourse marker *I mean* is interpreted in a way that makes the speaker sound less confident.

  o Frequency, as judged by contextual diversity, decreases confidence ratings but increases likeability ratings (which it did in Experiment 1, too; in Experiment 2, frequency increased pleasantness.). A measurement of "speeded naming tasks" (Balota et al., 2007) is also a type of frequency measure, in which higher scores indicate a less frequent/more difficult word to name. As this measure increases, emotional intensity ratings go down (in other words, more frequent/easier to process words are more emotionally intense).

  o The longer the head phrase that *little* does/would modify, the more emotionally intense the utterance is.

  o Overall word count increases likeability and emotional intensity.

  o If we count how many words occur until the head word appears and then divide that by the total number of words, we can get a sense of whether *little* is

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[132] Of these, only (37) actually includes *my* in the stimuli.

appearing particularly early or late. The earlier *little* does/would appear, the more emotionally intense the stimulus is rated (in the EmoDec group).

o The part of speech matters. When the target stimulus is a noun (152 instances), it is more confident but less emotionally intense than the reference term that aggregates verbs and adverbs (38 instances, mostly verbs). Meanwhile, adjectives (68 instances) have a small change from this reference term, but that means that they are fairly distinct from nouns. It's with adjectives, as we saw in (31), (32), (33) that we get greater emotional intensity and lower confidence. This is because the adjectives that *little* modifies (also shown in the Diminutives section above) tend to be emotional and self-referential. The presence of *little* is interpreted as an intention to lower illocutionary force of face-threatening emotional assessments of self and others.

- **Factors about the participants**:

  o More educated participants give higher likeability scores, but lower emotionality scores.

  o Older raters give higher likeability scores.

  o As raters go on, they give higher confidence scores but lower likeability and emotional intensity scores (cQuesNumOverall and cpQuesInTask).

	ConfAll	ConfInc	ConfDec	LikeAll	LikeInc	LikeDec	EmoAll	EmoInc	EmoDec	Max Effect Size
czLike	0.5298	0.5917	0.4641	NA	NA	NA	0.177		0.1572	0.5917
czConf	NA	NA	NA	0.5594	0.548	0.5156	0.2012	0.2396	0.2029	0.5594
cPerc "they/them/their/theirs"		0.4519								0.4519
Question	-0.2771						-0.3113		-0.4481	0.4481
NO *little*		-0.3413	0.4075		-0.3315	0.3819		-0.4459	0.3497	0.4459
cYourLilPMI		0.1654						0.4293		0.4293
Has "you know"							0.1614		0.4113	0.4113
cPerc "I/me/my/mine" (wo "I mean")	-0.0856		-0.1592	0.1254	0.2281		0.1477		0.3602	0.3602
cLittlePMI	-0.0868		-0.2208			0.2473	0.162		0.3157	0.3157
cYourBigPMI								-0.2949		0.2949
ContextualDiversity	-0.1318	-0.1747	-0.2332	0.0815		0.2855				0.2855
cMyLilPMI									-0.2839	0.2839
Where *little* does/would appear (% thru the sentence)									-0.274	0.274
cHeadLength								0.2678		0.2678
Has "I mean"	-0.2524									0.2524
SpeededNaming									-0.2495	0.2495
Head word is a noun	0.2171	0.2442				-0.1959				0.2442
cBigPMI									-0.2433	0.2433
cWordCt				0.1317	0.1462	0.2233	0.1076			0.2233
cMyPMI			0.2195							0.2195
cPerc "he/she/her/him/his/hers"	0.0986	0.2111		-0.0746						0.2111
cPerc "you/your/yours" (wo "you know")	0.092							-0.2067		0.2067
czEmo	0.1878	0.1361	0.1978	0.1626	0.1866	0.1072	NA	NA	NA	0.1978
Month: Jan (not Apr)	-0.1215	-0.1391	-0.0895	-0.0922	-0.1107		-0.0191		0.0286	0.1391
cPerc "us/we/our/ours"				0.1367						0.1367
cQuesNumOverall	0.1019	0.1351	0.1217	-0.0493	-0.1096					0.1351
Rater is male				-0.0698		-0.1066	0.0439			0.1066

	ConfAll	ConfInc	ConfDec	LikeAll	LikeInc	LikeDec	EmoAll	EmoInc	EmoDec	Max Effect Size
cAge of rater				0.0473	0.0981				-0.077	0.0981
Month: Mar (not Apr)	-0.051	-0.0896	-0.0757	-0.0012	-0.0532		0.0518		0.0938	0.0938
Has at least a B.A.				0.0361	0.0676		-0.059		-0.0687	0.0687
cpQuesInTask							-0.0556		-0.0673	0.0673
Head is an adj	-0.0107	0.0203					0.0403			0.0403

Table 18: Non-empty cells are significant. The numbers themselves are effect sizes, estimated from simulations. Highlighting/shading indicates effects that change direction.

Discussion

Earlier, I set up the distinction between affectionate, pejorative, and hedging types of *little*. I believe the most important take-away from Experiment 3 is that *little*—in the real world—really does have an ability to change affect-related measures like confidence, likeability, and emotional intensity, and that it can change these in opposite directions (increasing and decreasing). Of course *little* is doing more than just altering confidence, likeability, and emotional intensity—these are imperfect and incomplete proxy measures for the idea that *little* is making an affective difference. But as ways of operationalizing what we're after, they do allow us to track down the mechanisms by which *little* is capable of having the range of consequences that it does. What we see is that positioning and predictability have significant roles to play even in stimuli plucked from naturalistic conversations between friends and family members.

In Rachel and Ariel's conversation, we observed two affective uses of little. Since these came from the CALLHOME corpus, they were actually tested. The results are shown in Table 19.

(38)   He's such **a (little) complainer**. He's like, "I'm tired of sleeping alone", he's like, "I just want a family" and da da da da da da da dum.

(39)   Just please be careful of **your (little) heart**. Because it's so cute and I don't want anything bad to happen to it.

In terms of positioning, (38) is primarily Rachel positioning Eric and by extension, herself. Adding *little* seems to augment her confidence a great deal. Rather than coming across as a reduction of illocutionary force (≈'Well, he doesn't complain that much'), it comes across as a stronger evaluation.[133] Rachel has staked a claim in positioning Eric as she does and it is interpreted as her being in a place of power. (39)'s positioning is much more immediate—it is Ariel talking to Rachel about Rachel's own heart. The form is a request, so it is a confident utterance (0.234 marks the start of the highest quartile of zConf judgments[134]), but *little* doesn't seem to do all that much even though Ariel is talking about an important part of Rachel and using *your*.

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[133] This is one of the first utterances where Rachel introduces the topic of an unsatisfying relationship with a guy she's interested in. But her actual intonation here is performative and playful more than deeply irritated. If we recruit the links between children and *little*, we may find that part of what makes this evaluation stronger is that an adult male is being described in child-like terms. But the child-like term also carries the potential of affection—in a way that, say, *you didn't tell me about your little baseball game* doesn't.

[134] The top quartile of likeability is at 0.174; the top quartile of emotional intensity is at 0.240.

Heart is a common collocate of *my little* (PMI = 3.15), *your big/etc* (PMI = 3.73), *your* (PMI = 4.01) and *my* (PMI = 4.5) and a weak collocate of *your little* (PMI = 2.73). In Experiment 1, *your* collocations lowered confidence when they appeared with *little* and that fits the example here, although it is a fairly tiny change.[135] In both Experiments 1 and 3, *your big/etc* collocates had lower emotional intensity, which is what we see here. When *little* appeared beside *your big/etc* collocates in Experiment 2, it had the effect of sounding unpleasant. The clearest connection here is in the likeability score, which is much lower once you insert the *little*—the speaker is still judged as likeable, but not nearly as much. Here are the results for these utterances from Experiment 3.

	zConf	zLike	zEmo
He's such a complainer…	-0.6438	-1.0098	0.1102
He's such a **little** complainer…	0.3864	-1.1981	0.2725
Difference	**1.0302**	-0.1883	0.1622
Just please be careful of your heart…	0.3803	1.0617	0.8046
Just please be careful of your **little** heart…	0.3557	0.4767	0.7259
Difference	-0.0246	**-0.5850**	-0.0787

Table 19: Averaged z-scores for the three measures, comparing Rachel and Ariel's utterances with and without *little*.

By contrast, *complainer* is not a common collocate with *little, big/etc, my, your*, or any combination of these. In Experiment 1, non-collocates of *my little* were less likeable, non-collocates of *your* were more confident, and non-collocates of *your big/etc* were more emotional. All of these fit what we see here. What doesn't fit is the finding from Experiment 3, that non-collocates of *little* were less emotionally intense. But that finding was driven by stimuli where the presence of *little* was already decreasing emotional intensity and this utterance is among the most intense—both among people who listen to Rachel and Ariel in context and for participants in Experiment 3, who rank it among the most intense utterances in any of the CALLHOME stimuli tested. The example is in keeping with the general theoretical framework and empirical results, which suggests that non-predictability pumps up effects. When something non-predictable comes as part of the signal, it exaggerates affective interpretations.

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[135] In Experiment 3, we've seen that collocates of my get lower emotional intensity levels reliably only among stimuli where the presence of little generally decreases emotional intensity. This stimulus is not part of that group, although certainly the effect is in the same direction.

Power and the use of *little*: two corpus investigations

In the previous sections, I investigated what kinds of affective information *little* conveys and how it does so. Inherent in the idea of positioning and in the way in which I have used collocations is the idea that meaning is the navigation of a cluster of co-occurring elements. In positioning, it is the co-occurrence of speaker, listener, and topic. In collocations, it is the way that part of how *little* is defined is what it appears with most often. And part of what defines other elements is how often they appear with *little*.

Positioning involves affirming or challenging existing roles and identities. Power is inherently bound up in this. In this section, I demonstrate the relationship between power and *little* with two corpora that have relatively clear hierarchies: (1) the ICSI meeting corpus (Janin et al., 2003) involves a collaborative effort, but is stratified by education; (2) the CHILDES database provides rich data on interactions between parents and young children, which are inherently relationships between more and less powerful individuals. We will see how positions vis-à-vis power relationships affect the distribution of *little* and the ways in which individuals in different social categories make use of it.

Education and age

The data for the ICSI meeting corpus (Janin et al., 2003) come from 75 meetings collected at the International Computer Science Institute at the University of California, Berkeley between 2000 and 2002. These meetings were mostly the regular weekly meetings of various teams. Each meeting had 3 to 10 participants (average of 6). The meetings ranged from 17 to 103 minutes, but were usually just shy of an hour each, for a total of 72 hours of data.

In the next chapter, I will trace how *little* is distributed across men and women. Gender is one of the most salient social categories we have, but it is not the only one and it isn't always particularly relevant. For example, in the ICSI meeting corpus there's nothing special to report for gender: the men and women in the group do not differ significantly in their use of *little*.[136]

There is a great difference in another coarse category: education. This makes sense—ICSI is an academic environment and people are afforded different roles and responsibilities based on their educational history. To demonstrate this, we can compare the observed uses of *little* to those that we would expect were all the *little* tokens assigned to the various education categories based on

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[136] Restricting ourselves to just American-born members, we see that women actually use fewer tokens than we'd expect (173 instead of 184 if we limit ourselves to just the Americans), though the difference between the men and women's actual uses and expected uses isn't significant (p=0.3464 by chi-squared test).

the total number of words spoken by people in that category. We don't distribute the 774 tokens of *little* evenly across the five education levels since the speakers talk different amounts (the Ph.D.'s have about 6.7 times as many words as the people with an undergraduate education). Below, you can see the break-down of *little* by education—these results hold whether we use all 60 speakers or limit ourselves to the 36 American-born monolingual English speakers, as reported here. When an "OE" value is greater than 1.0, then there is a positive relationship (people with an undergraduate education are far more likely to use *little* than they would be expected to at chance). By contrast, a value less than 1.0 indicates a kind of constraint against the use of *little*.

	Speakers	**Observed *little***	**Expected *little***	**OE**
Undergrad	6 (30 yo)	59	34	1.734
Grad	14 (29 yo)	234	223	1.049
Postdoc	1 (not given)	51	75	0.676
Ph.D.	11 (37 yo)	152	228	0.667
Professor	4 (52 yo)	278	213	1.302

Table 20: Natively-born American speakers in the ICSI corpus.[137] The differences are significant by chi-squared test (p=9.580E -15).

There is an age-confound, of course. But subdividing the various education groups into age groups shows that only one age group fails to follow the education group pattern: while the majority of people in the "Grad" category use more *little* than expected, the youngest use less than half what they are expected to. Speakers that we don't have information for are removed.

Category	Speakers	Observed tokens	Expected tokens	OE
Undergrad	**6**	**59**	**36**	**1.655**
38-62	1	11	4	2.614
20-25	5	48	31	1.527
Grad	**13**	**230**	**219**	**1.048**
38-62	1	25	19	1.299
33-37	2	123	91	1.348
26-32	4	52	38	1.382
20-25	6	30	71	0.421
PhD	**10**	**149**	**237**	**0.628**
38-62	2	1	6	0.179
33-37	6	115	166	0.694

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[137] And these patterns hold whether we look put men and women together as in the table above, or if we separate them. The only education category where gender may make a difference is among "Grads." In that case, women with a graduate education do seem more likely to use *little*. There are three such women, their OE is 1.28, whereas the 11 men with graduate educations have an OE of 1.007.

26-32	2	33	66	0.500
Professor	**3**	**278**	**224**	**1.243**
38-62	3	278	224	1.243

Even though both professors and people with an undergraduate education are using *little* more than we'd expect by chance, the positioning framework I've laid out suggests that they will be using *little* in rather different ways. As elaborated in the "Some definitions" section, to occupy a position of power is going to lead you to use *little* differently and be heard to use it differently. And this is indeed what we see.

Examples from the undergraduate group:

> (40)   Sometimes the German accents can get a **little** bit daunting.

> (41)   I was getting a **little** frustrated.

> (42)   So I've like learned a **little** bit.

> (43)   I was just gonna say maybe fifteen minutes later would help me a **little** bit.

And from the professors:

> (44)   So one thing you could do is build a **little** system that, said,
>   whenever you got a question like that I've got…

> (45)   A lot of discriminatory power and then just have a **little** section in
>   your belief-net that said, "pppt!"

> (46)   Add an- **a little** thi- eh a thing for them to initial.

> (47)   Actually it's a **little** tricky.

> (48)   The **little** note I sent said that.

There is a fairly clear pattern in the data. As you can see in these examples, a lot of the professorial uses of *little* are part of an implicit or explicit request (as in (44), (45), and (46)). I have included the emphasis marking that the transcripts use because there actually is a lot of emphasis in the professors' utterances—two professors like to emphasize *little*, in particular, as in (47) and there are numerous other examples in this group where there's at least one emphasized even if it isn't *little*—there is very little of this in the undergraduate speech.

The people with the undergraduate degrees have much more self-referential *little*'s. That is, the targets of *little* are usually the speakers themselves—they find German daunting, they're frustrated, they've learned some, they need more time. I've included (48) because it is, on the surface, about the professor's note, but it actually exists in a fairly face-threatening declaration: "Let it be known that I've already said this to you before."

And what are the Ph.D.'s doing? Why are they so constrained in their use of little? The most obvious explanation to me is that they do not want to—or are not ratified—to use it in the style of the others. If there is any kind of insecurity in their position of "highly educated non-professors", then you could imagine them not wanting to be heard as hedging. But they may not be able to use *little* as the professors do in enacting power.

Another form of evidence for the claim that the PhDs are stuck between an "I don't want to hedge" rock and an "I can't tell other people what to do" hard place, is to return to the predominant measure of positioning—the occurrence of first and second-person terms. If my hypothesis about what it means to have a PhD but not be a professor holds, then PhDs shouldn't be using *little* alongside a lot of references to themselves or their interlocutors. And that's what we find. PhDs seem tightly constrained against using *little* and first or second-person terms (*I/me/my/you/your*) in the same utterance.

	Observed I/me/my	Expected I/me/my	OE—I/me/my	Observed you/your	Expected you/your	OE—you/your
Undergrad	29	14	2.0801	21	10	2.1060
Grad	98	78	1.2501	54	56	0.9631
Postdoc	22	31	0.2515	20	22	0.9040
PhD	51	91	0.5589	35	65	0.5362
Professor	102	87	1.1660	86	63	1.3745

Table 22: Utterances with *little* and first/second-person words. Differences are significant by chi-squared tests (p=6.4738E-09 and p=5.6225E-07, respectively).

Let's go ahead and dive into some examples when PhDs are doing exactly what they statistically tend not to do.

One of the ways to position oneself and others is to create oppositions. When the PhD's do use *I* or *you*, it often seems to be doing some sort of "off-setting" work.

> (49)   No, I think that's a great idea, actually. But we might need **a little more** to
> incentivize them, <laughing> that's all.

(50)   So, yeah, I - I like the idea of having this in there, I just - I was **a little bit worried** that, um, the tag for removing the read speech – [utterance continues but this clause doesn't]

These examples come from the same PhD, a 35-year-old woman. They are from two different conversations, but in both cases she is primarily addressing the same 51-year old male professor (in the second case she also is addressing another male PhD who is 37). In (49), the professor has been talking about getting groups interested in having their meetings recorded by giving them a CD of the recording as a way to make it worth their while. He recognizes that it may just be a trinket, though he tends to think that people may find some use for it. He uses words like *useful* and *useless*.

What our speaker does is begin by saying it's *a great idea* before basically saying it's insufficient. But she doesn't come out and say that—she uses *might, little*, and laughter. Her final *that's all* is conclusive but it is also simultaneously a minimizer, "your idea is great it just needs a small addition". She is staking a claim to a certain authority, but she is doing so in a rather gentle manner.

In (50), the conversation is about automated scripts going through meeting transcripts. Here the *little* is sandwiched between two different uses of emphasis, the first of which is involved in stressing that she *likes* the idea. The *little* modifies *worried*, which is the affective state she claims. What she seems to be saying is that there is cause for concern. The littleness of worry here may or may not reflect an internal state (≈"of the various things I worry about this is fairly small"), but it certainly seems to act as a softener for what the conversational gambit is: to get people to recognize and improve upon the current idea being discussed. This idea, of course, has a source/proponent—and he's actually right in front of her.

In other words, in these examples, the speaker is doing something face-threatening, although she seems to be trying to minimize it with a number of linguistic resources, one of which is *little*. *Little* is particularly useful because it allows not just the minimization of a face-threatening act, but it can work to set up a contrast with something considered big or important.

Parents and children

There is no discussion of *little* or diminutives in Robin Lakoff's agenda-setting *Language and a Woman's Place*.[138] But the closest match is pretty interesting:

> As children, women are encouraged to be "little ladies." Little ladies don't scream as vociferously as little boys, and they are chastised more severely for throwing tantrums or showing temper: "high spirits" are expected and therefore tolerated in little boys. (1975/2004: 44)

Implicit in these lines is the idea that gender, propriety, and littleness are all wrapped up. And in our discussion of diminutives and throughout our discussion of collocates, we've seen that children really do seem to be relevant to our inquiry and childhood is certainly where we get our first taste of how *little* is used (and we'll see in more in the next chapter about gender, too). In this section, I'll examine the use of *little* by parents and children.

Earlier I noted the link that Jurafsky had found between morphological diminutives and children. How does *little* actually get used by kids? The best data source for this is CHILDES (MacWhinney, 2000), which contains a variety of interactions between children and their parents. In the subset of American English that I investigate, we can see that children use far fewer tokens of *little* than we would've expected at chance. What we're going to see is that little is actually doing a tremendous amount of positioning for both parents and kids.

	Observed	Expected	OE
Children	2,217	3,327	0.666
Parents	12,371	11,261	1.099

Table 23: Uses of *little* among American English speakers in the CHILDES corpus are significantly different by age/social role (2.0154E-106 by chi-squared test).

Looking at this data one might just ask whether kids avoid *little* because it's hard for them to say. In Figure 15, a simpler word like *big* does seem to be acquired and used earlier than *little*, but *little* clearly is used by most age groups except for some of the youngest.[139]

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[138] Nor in fact, in the commentaries in the 2004 volume that Mary Bucholtz put together. The closest is Sally McConnell-Ginet's (2004: 137) listing of vocabulary associated with feminine speech, including elaborate color terms and diminutives (her example is *panties)*.

[139] Bird, Franklin, & Howard (2001) get age of acquisition estimates for 2,694 words by asking 45 British speakers (mean age of 65) when they thought they learned them. The scale was 1-7, with "1" meaning 0-2 years old and "7" meaning "age 13 and over". The average for *little* was 2.20, which makes it among the first 125 words these subjects felt like they learned. A word like *big* is indeed seen as easier—*big*'s mean score was 1.55.
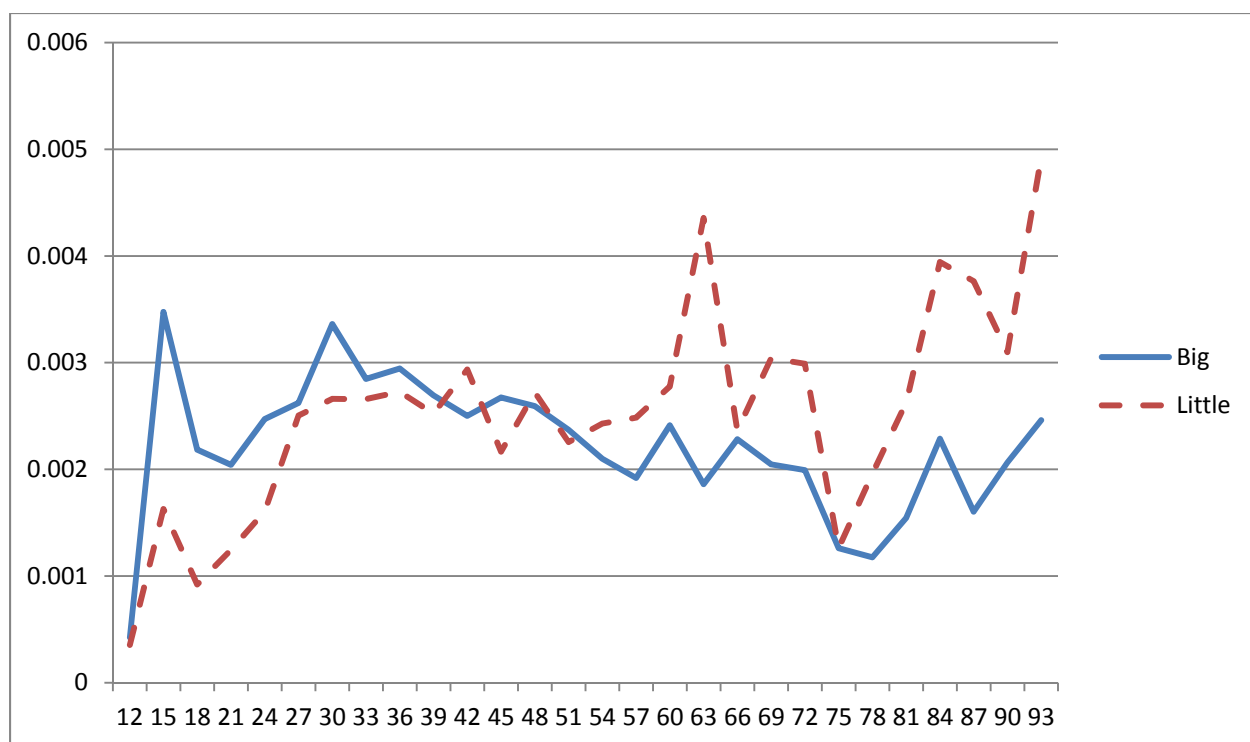
Figure 15: Kids' percentage of big/little (by dividing by total tokens) per 3-month age group.[140]

Let's look at parents and children in terms of gender since gender is so prominent in parent-child interactions.

	Observed	Expected	OE
Mothers	13,781	12,307	1.120
Fathers	2,319	2,241	1.035
Boys	2,267	3,352	0.676
Girls	1,789	2,256	0.793

Table 24: Gender and age in CHILDES, significantly different (1.46E-135 by chi-squared test)

It appears that the extreme cells are mothers using *little* and boys avoiding it. But once we restrict ourselves to one-on-one interactions, we can see that this effect is actually probably dominated by mothers using *little* especially when talking to their daughters and that boys' avoidance of *little* is even greater with their fathers than with their mothers.[141]

	Observed	Expected	OE

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[140] The numbers in this chapter come from CLAN searches across 4,676 American English transcripts, but the data for this particular graph comes from the very handy online search tool provided by Baath (2010).
[141] Also interesting is the fact that girls are using *little* so much with their fathers, not their mothers—despite the fact that the fathers are most constrained in using *little* when talking to their daughters.

Mothers-to-boys	4,313	4,158	1.037
Fathers-to-boys	1,516	1,381	1.098
Mothers-to-girls	6,312	5,441	1.160
Fathers-to-girls	230	281	0.819
Girls-to-mothers	1,221	1,533	0.796
Girls-to-fathers	4	3	1.482
Boys-to-mothers	875	1,526	0.573
Boys-to-fathers	117	265	0.441

Table 25: Differences in *little* use in CHILDES by parent/child gender.

Let's take a look at some of the mothers talking to their daughters. When Lily is pretty young—a year and a few months, her mother is using *little* a lot in naming items. It's also an easy go-to word:

138   *MOT: is that **a little bag** for mommy ?

139   *MOT: that's **a little bag** for mommy !

140   *MOT: mommy's **little bag** .

141   *MOT: wee !

By the time Lily is over 2 and a half, she's talking herself. Her mother is still talking about *the little Buddha, your little guy, your little cell phone, the little house, your little picture, that little lizard, that little bug*, she talks about it being *a little hard* to get down and while Lily is drawing, she asks her to add *a little more orange* and *a little bit more red* (twice)*.* In this one conversation her mother uses *little* 46 times. Lily only uses it twice. Once to talk about it being *a little bit sunny*. Lily's second use is more affective in nature and in fact it's prompted by her mother recalling an incident and offering an emotional interpretation—one that Lily rejects and replaces. (Her mother then reframes it again to reiterate the minimization of the emotion.)

1621   *MOT: ow did you hurt yourself?

1622   *MOT: aw we forgot to tell Daddy that you slipped and fell on a wet floor

1623   today.

1624   *CHI: yeah.

1626   *MOT: yeah that was **a little sad** huh ?

1627   *CHI: that was **a little scary**.

1629   *MOT: that was just **a little bit scary** but you're okay right?

Little is not a common way for Lily and her mom to talk about sadness, but from this age on, *little* and *scary* are often linked—in particular, they are linked to minimize fear (up to this point, Lily's mother has been talking about scary things without calling them *little*):

1288   *MOT: that's the ghost of his father, of king Mufasa.

1289   *CHI: (be)cause he's scary.

1291   *MOT: yeah, well, scary, but he's still nice.

1292   *MOT: he looks **a little scary** but he's still very nice.

This kind of emotional understanding is also happening in book reading—here, line 306 is part of a story read when Lily is close to turning three. Lily's mother is asking for comprehension and attention, but she's also adding in *little* to minimize even a fictional character's fear.

306   *MOT: I think it's scary said Franklin .

307   *MOT: is Franklin **a lil [: little] scared**?

308   *CHI: yeah.

Later in that same conversation, it functions in a more direct reframing of Lily's feelings:[142]

1692   *CHI: what is that?

1694   *MOT: um that's a big snake.

1695   *CHI: he's scary.

1697   *MOT: he's **a lil [: little] bit scary**.

But parents are not always doing reframing of feelings. Ross's dad is one of the bigger users of *little* and while he does talk to Ross about *scary* and *sad* things, he never uses these terms with *little* or anything similar. He uses *little* in quite a different way. Let's take a look at an example

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[142] Notice in these last examples how the informal *lil* can serve to further emphasize a kind of casualness to the object-of-fear.

between Ross and his father, keeping in mind the broader generalization that boys avoid *little* in interactions with their dads.

      1401   *FAT: is Daddy **a little tiger**?

      1404   *CHI: **a little tiger**.

When you read through the CHILDES transcripts, you get a sense of how much prompting the parents do, as in this example. What I haven't shown you is that this discussion of little tigers begins several turns earlier—Ross's father is asking him the question in 1401 because Ross has already made some other claims. The notion of size is still introduced by Ross's father, but Ross subverts his father's plan. Ross is <u>not</u> a little tiger:

      1386   *FAT: are you **a little tiger**?

      1389   *FAT: what are you?

      1392   *CHI: li [//] a big tiger.

      1395   *FAT: you a big tiger?

      1398   *CHI: yeah.

Part of what makes this delightful, of course, is the unpredictability of the positioning in that moment. Tigers are kind of big relative to anyone, especially a young boy. There's no reason to treat Ross's father's speech in 1386 as anything other than affectionate, but Ross rejects the position because it entails a size that he won't sign on for. The surprise of Ross standing up and insisting on being a big tiger gets his father asking for a repetition and playing with Ross about his own size.

Here's Ross and his father two months later, talking about what Ross's mom will get at the store. Ross wants a Spiderman shirt and says he'll buy it himself. His father talks about what Ross's little brother might get.

      174   *FAT: Marky would like **a little one** too.

      178   *FAT: could Marky get **a little one**.

      181   *CHI: **little one**.

      184   *FAT: mommy's gonna buy **a little one** for Marky.

	189	*CHI:	and a big one.
	192	*CHI:	Spiderman is big yeah (.) yeah.
	195	*FAT:	yeah a big one for you.
	198	*CHI:	and **a little one**.
	201	*FAT:	**a little one** for who?
	204	*CHI:	**little one** for Mark.
	207	*FAT:	and +...
	210	*CHI:	big one for me.

Parents seem to really like these interactions that have to do with claims of being big, certainly the parents prompt the size conversations and repetitions of replies that the children give.

Part of what leads the kids to avoid *little* is the imperative to mature. This is felt by boys and girls, although it seems to come across more clearly in the boys' speech. Let's look at *big* for a comparison. It becomes clear that the strongest effects are among the males—the fathers are the most constrained from using *big* while the boys are disproportionately likely to use it.

	Observed	Expected	OE
Mothers	7,099	7,828	0.907
Fathers	1,229	1,425	0.862
Boys	1,660	2,132	1.328
Girls	2,832	1,435	1.157

Figure 16: The use of *big* in CHILDES.

We know that children acquire the word *little* from their parents. But we also see that they are quite sensitive to how it's used. It's used in part to show the tiny-ness of the world, but it's also used to help reframe children's inner life and it's part of how the children are themselves understood by the parents. So much so that it is delightful to watch them grow. In fact, asking children to *be a big boy/girl* is probably part of the understanding children have about who they are, who they aren't, and who they could become. *Little* is used on children to shape their worlds, their feelings, and them. But we see children resist this. We also see how gender plays a role in discussions of size—and metaphorical extensions, as well. Here the people with the power—the

adults—use *little* a lot, but that doesn't always mean they win out. Children have their own alternate discourse of size, which they make known to us through their use and disuse.

Concluding remarks

In this chapter, I have talked about the importance of interlocutor-positioning as well as the heretofore unacknowledged role of predictability in affective matters. I have suggested that the reason *little* can take on the diverse range of meanings it has (e.g., insult, hedge, gesture of affection) is that any denotational evaluative like *little* does more than modify some object. The overall utterance is already positioning the interlocutors and if the object of *little* is connected to one or both of them, then *little* carries over into the social domain. In other words, interlocutors are positioned relative to each other through the object of *little*. These objects come predisposed to co-occur or not with *little* and this matters a great deal. As measured by pointwise mutual information, it's exactly the words that have the strongest relationship to *little* that get the most friendly interpretations.

In the section, "Diminutives", I examined the collocates of *little* in order to compare them to the finding that morphological diminutives (e.g., *-ito, -ino*) skew positive. We saw that there are two major uses for *little*: when it is modifying a noun, it is generally used positively—in fact, even when it's used with words like *bugger* it seems to have a positive interpretation ("positive through negative"). In terms of adjectives, however, *little* tends to modify negative attributes. The most reasonable explanation for this is that *little* serves as a hedge to reduce illocutionary force of a negative attribute—the speaker diminishes the degree to which they are making a claim. I noted that hedges may let someone talk about someone else's inner states/feelings, where an unhedged version would be presumptuous. The same applies to non-inner states—the speaker may not want or feel entitled to an unadorned expression about the state of things in the world. But what about all of the hedges involving the speaker's own feelings? The inclusion of a *little* may sound like the inclusion of uncertainty (and it often is—we don't always know our own feelings or how to express them). But it's also a way to play by social rules about how much you can express emotion. The same is true about any claims speakers make about themselves. The reason that speakers who use a high percentage of *I/me/my* are seen as less confident has to do with the fact that they are usually diminishing illocutionary force about themselves. To reduce illocutionary force is to accept that you are not in a position to make stronger claims, relative to your interlocutor and this is particularly obvious when the claims you diminish are about yourself.

This chapter involved four main corpora: COCA (unscripted radio and television conversations), CALLHOME (friends and family over the phone), the ICSI meeting corpus (academics in meetings), and CHILDES (parents and children). While the ways in which speakers positioned themselves, their audiences, and topics of conversation showed a variety of positions—e.g., solidarity moves, self-deprecation, distancing—there aren't a lot of examples of really insulting *little*'s available, even in corpora where there are clear power hierarchies in play (I and CHILDES).[143]

Experimental evidence suggests that people are, nonetheless, quite attuned to these types of meanings. In "Experiment #1: My/your little/Ø", we saw participants were sensitive to who was being targeted by *little* in terms of confidence, likeability, and overall emotional intensity. In "Experiment #2: The tense friends howdy-do test", we saw how collocates and non-collocates behave (as mentioned above, non-collocates with *little* are interpreted as hostile, collocates are interpreted as friendly). In "Experiment #3: Effects of *little* in CALLHOME", we saw what role *little* played in real-life stimuli by testing utterances with and without it. There are some utterances where the presence/absence of *little* doesn't make much difference, but for the majority, there are changes in confidence/likeability/emotional intensity. But as we've been discussing, based on who the *little* targets, its presence can raise or lower scores for these variables.

The cognitive sciences show how important attention is to cognitive processes, and psycholinguistic results are consistently related to the predictability of individual utterances calculated over much bigger time frames. Across this work, in particular Experiment 2, but also Experiments 1 and 3, I have shown that such notions about predictability have important roles to play in structuring affective signals and responses. This is a step, perhaps, towards getting psycholinguistics away from dead sentences and into the study of discourse as it unfolds.

Positioning is constant, but it happens to greater and lesser degrees and is more and less relevant. A surprising positioning is going to capture attention. For example, when a noun modified by *little* is also possessed by a *your*—situations when the interlocutors are definitely targets of the *little*— the speaker will be seen to have greater control and confidence. And their likeability and friendliness will be, in part, determined by how surprising the noun is given *little*. Positioning makes a claim about what actions the interlocutors can perform to meet which ends. Sometimes

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[143] The next chapter pursues the question of positioning and *little* in a number of other corpora where power dynamics are less obvious. Demonstrating the opportunities and limitations of extrapolating findings from a single corpus.

this is harmonious and expansive, as in affectionate uses. Sometimes it curtails and constrains. This may afflict the target-listener or it may be a type of speaker-self-constraint, hence insults and hedges. We can look at these interactions as coming from social structures as well as forming those social structures. This is the duality of structures: it is never just agency vs. structure, interaction vs. institution, micro vs. macro.[144] Each side of these equations determines the other. This is explains the need to approach phenomena from multiple directions—who, what, how, why, when are all intertwined. To make sense of a broad pattern, we must look at the specifics and to make claims about particular little moments, we must understand how they stand in relation to the bigger picture.

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[144] For more about duality, see Giddens (1984). For a sense of how duality is defined in social network theory, see Breiger (1974) and for a more recent approach, Bearman (1991).

Chapter 5: Gender, corpora, and the use of *little*

Introduction

In the early 1600s, the following words would've been given voice by male speakers:

> By my troth, Nerissa, my little body is aweary of this great world. (Act I, scene II, *Merchant of Venice*)

Of course not just any male speakers—boy actors. Throughout the line there is a construction of a particular type of female (and a playing with the actor's particular kind of maleness).[145] It points us to a topic we can't avoid when discussing *little*: gender.

The quote is from the bright and beautiful Portia, who will find the rhetoric and the technicality that turn the tables on Shylock and s/he'll accomplish this by donning male-lawyer drag, and putting the maligned Jew in his place while taking a break from her own. *Little* appears in all but one of Shakespeare's plays. It is used 515 times—375 of these are spoken by male characters, while 113 are spoken by female characters.[146] Male characters speak more words overall, so we look at conditional probabilities to see if there's anything interesting happening. After taking overall verbosity into account, we end up expecting male characters to use about 400 tokens and females to use only 90. The reality and the "if everything were random" expectations are significantly different by chi-square test (p=0.007531) and we'll see such a difference in a number of the corpora we look at. Yet it would be wrong to stop at the stage of analysis and simply say *little* is part of women's language.

This chapter begins with a rather simple question, typical of most approaches to gender: do men and women use *little* differently? But in trying to answer this question, I demonstrate the opportunities and challenges of extracting gender generalizations from corpora. My hope is to outstrip the temptation to simply report percentages ("category X uses more *little*") and show how differences in the use of *little* show how gender dynamics vary from corpus to corpus.

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[145] More specifically, *by my troth* is used disproportionately by female characters, as is *(a)weary*. And of course the opposition between *my little body* and *this great world*, is part of a particularly performative and extravagant self-diminuation.

[146] 6 tokens by roles with more complicated gender, as labeled in WordHoard (Mueller et al., 2011).

Many of the most popular theories of gender involve an aspect of power—but to proceed from a blanket generalization like "women don't have power" ignores the great amount of heterogeneity in a group like "women". In the previous chapter, I dealt with power in terms of actual hierarchies (an academic institution and the parent/child dynamics of families). I believe I am on firm ground for claiming that those are hierarchies with power differentials. In this chapter, I do not make the same assumptions. Rather than presuming that I know how power works in terms of gender, I will trace it through the various ways different men and women—in very different situations/corpora—use *little*. As we've already seen in the previous chapter, people make different uses of *little*, differently exploiting its potential for positioning themselves and others. The research here sheds light on how gender is performed with regards to *little*, but perhaps more importantly it demonstrates how focusing on a single corpus or a single characteristic (like gender) is inadequate.

Who's talking to whom?

The Buckeye corpus (Pitt et al., 2007) represents casual speech of 40 long-time residents of the Columbus area of central Ohio (20 old, 20 young, 20 male, 20 female, all Caucasian). *Little* is used at least twice by all but one male speaker (the average number of *little* tokens is 10.2 per speaker). Women use *little* more (220 times versus 188) and they use it significantly more than expected (p=0.0276 by chi-squared test). But a more interesting effect occurs when we look at the interaction of speaker and interviewer gender. The creators of the Buckeye corpus sought to balance everything they could, so they had a male and a female interviewer and balanced the gender/age of the people they interviewed.[147] Here we see that *little* is especially used by women speaking to the male interviewer and especially avoided by men talking to him.

	Observed	Expected	Observed/Expected
Female-to-female	93	99	0.936
Female-to-male	127	98	1.290
Male-to-male	89	101	0.879
Male-to-female	99	109	0.908

Table 26: Token counts from the Buckeye corpus (the difference between observed and expected is significant: p=0.0112 by chi-squared test).

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[147] The transcripts only include a hint of the interviewers' language. Since that's incomplete, only the interviewer gender—not their own language choices—are included here.

Speaker 39 is one of the biggest users of *little* in the Buckeye corpus and happens to be a woman talking to the male interviewer. She has 20 tokens of *little* total (based on her word count, we would've expected her to have 10). Gender stereotypes might cause you to imagine that this woman is using *little* to minimize herself and things associated with her. There are a few such examples:

(51)   yeah we have a **little kitchen**

(52)   it depends on what area you live in too the area where I live in you get **little house** because you're close to everything whereas you get kind of farther away from the center of the area you can get a bigger house and there's some really really pretty ones

(53)   my decoder card was a **little more difficult**, I had somebody else do it for me

A more interesting example comes in a discussion of how the place is arranged:

(54)   a place for computer to sit and my plants sit in the corner and then I have **my little paper stack**…you should be organized I'm not <laugh> I have this stack of like groceries maybe about a foot high next to my bed

The additional description of a high-stacked pile next to her bed suggests that she probably doesn't really consider her little paper stack to be so little. In general, this *my little X* formation tends to be a kind of self-teasing—the acknowledgment of an issue and the acknowledgment that it isn't likely to be addressed.

But going over Buckeye Speaker 39's *little* uses, the overwhelming sense is against the stereotype—this is not a woman who is all that given to minimizing herself.

(55)   yknow they're just trying to **spread out a little bit** and eventually it'll be something a little more nationwide

(56)   yknow it's **little more problem solving** less running around and shooting things

(57)   and they have honors classes which are separate and they're supposed to be with like better faculty and um smaller class size and a **little more challenging**

(58)   oxleys is probably the closest place and **those little hot dog stands**, those really don't count

(59)   they had **this little apartment**

In these examples, Speaker 39 is talking about third-parties. What we saw in Experiment 3 was that the more third person (plural or singular) there was in an utterance, the more confident the speaker sounded. That seems to fit nicely here.

How does gender work in a much larger corpus? The Fisher corpus is a bit like Switchboard on steroids.[148] Whereas Switchboard has 2,400 conversations, with Fisher we're considering 11,699 conversations. Like Switchboard, these are telephone conversations between strangers who are asked to talk about a randomly chosen topic (one of 40). Finally, while Switchboard selected and paired American English speakers by region, Fisher also allowed in non-native English speakers and those with accented speech.[149] Most conversations last for ten minutes.

Like the Buckeye corpus, in the Fisher corpus, women use *little* more often in absolute terms and also more than would be expected based on the total number of turns they have—unlike Buckeye, the difference in token counts between men and women is not significant (p=0.1803 by chi-squared test).

	Observed	**Expected**	**OE**
Female	8,076	7,998	1.010
Male	5,843	5,921	0.987

Table 27: Counts for *little* by gender show no real difference (p=0.1803 by chi-squared test). These counts come from all speakers in the Fisher corpus, though the results are the same even if we restrict ourselves to monolingual English speakers talking to other monolingual English speakers.

But things change rather dramatically when we look at who is talking to whom:

	Observed	**Expected**	**OE**
Female-to-female	6,047	5,844	1.035
Female-to-male	2,012	2,139	0.941
Male-to-male	4,003	3,782	1.058

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[148] The proper citations for the two parts of the Fisher corpus are Cieri, Graff, Kimball, Miller, & Walker (2004, 2005), but Cieri, Miller, & Walker (2004) offers a more helpful description. The standard reference to Switchboard is Godfrey, Holliman, & McDaniel (1992).
[149] That said, the great bulk of speakers come from the North, Midland, South, and West dialect regions, in roughly equally proportions.
It may be worth saying that in general, there seems to be a constraint against using *little* when you are either a non-native, non-monolingual English speaker yourself or when you are talking to someone in that category. This is true when we aggregate native languages as well as when we separate them out. After English, the most common native languages are Spanish, Chinese, Russian, and Hindi and all of these speakers use fewer tokens of *little* and have fewer tokens of *little* used by their interlocutors than we would expect at chance.

Male-to-female	1,820	2,117	0.860

Table 28: Mixed-gender conversations in the Fisher corpus use less *little* (p=6.566 x e-15 by chi-squared test)— all speakers.

Here we see that the strongest constraint against the use of *little* is for men speaking with women: much stronger than men speaking to other men. And the direction becomes even stronger when we restrict ourselves to just monolingual English speakers speaking to other monolingual English speakers:

	Observed	Expected	OE
Female-to-female	5,355	5,094	1.051
Female-to-male	1,526	1,720	0.887
Male-to-male	3,065	2,863	1.071
Male-to-female	1,432	1,701	0.842

Table 29: Counts for *little* in Fisher conversations between monolingual American English speakers only (p=7.96 x e-20 by chi-squared test).

This is not the same pattern as the Buckeye corpus. In that corpus, women speaking to the male interviewer were more likely to use *little*—not less. And the strongest constraint against *little* was men speaking to the male interviewer. In Fisher, men talking with men use more *little* than we would've expected at chance.

For a rough comparison to the Buckeye corpus, we might look at the 406 tokens of *little* used by native Ohioans in the Fisher corpus (observed and expected are significantly different, p=0.006792 by chi-squared test). These appear to be midway between the Fisher results and the Buckeye results. Like Buckeye and unlike the Fisher aggregate, the use of *little* is constrained for all men. The results for women are more like the Fisher aggregate than the Buckeye findings— particularly the fact that Ohioan women talking to men in the Fisher corpus use less *little* while women speaking to the male interviewer in the Buckeye corpus use more *little*.

	Observed	Expected	OE
Female-to-female	253	218	1.160
Female-to-male	42	54	0.771
Male-to-male	67	81	0.830
Male-to-female	44	53	0.836

Table 30: Counts for Ohioans in the Fisher corpus.

We will return to Fisher in a moment, but let's take one more corpus into consideration: the CALLHOME corpus.

In keeping with the general trend, women do seem to use *little* more than men.

	Observed	Expected	OE
Females	312	291	1.073
Males	56	77	0.725

Table 31: Differences in *little* in CALLHOME (p=0.00664 in chi-squared test).

Focusing on conversations that only have two participants (i.e., excluding the multiparty calls), we can see that the strongest constraints seem to be happening among men.

	Observed	Expected	OE
Female to female	234	215	1.088
Female to male	40	38	1.064
Male to male	25	36	0.685
Male to female	26	36	0.727

Table 32: Gender interaction differences in *little* in CALLHOME (p=0.0441 by chi-squared test).

The next section will attempt to puzzle out how the differences in the corpora lead to these different patterns. But you'll recall that CALLHOME involves speakers who know each other very well, while Fisher involves speakers who don't know each other at all. The Buckeye speakers don't know their interviewers but they have face-to-face interactions and even though the focus of the conversations is the speaker (not the interviewer), the "familiarity" between speaker/interviewer can fairly safely be assumed to be less than CALLHOME but greater than Fisher. It is worth reiterating that if we hadn't gone to multiple corpora, we would've missed how context-dependent our results seem to be.

Differences in corpora

Let's start off with a side-by-side comparison of our results. If we limit our purview to just "speaker gender", then it looks like women are using more *little* than men—a finding that is supported by most (but not all) of the corpora.

	ICSI OE	CHILDES Parents OE	CHILDES Children OE	Buckeye OE	Fisher Am. Eng. OE	Fisher Ohioans OE	CALLHOME OE
Female	0.939 (n.s.)	1.012	1.096	1.170	1.010 (n.s.)	1.085	1.073
Male	1.019	0.935	0.935	0.855	0.987	0.828	0.725

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(n.s.)				(n.s.)		

Table 33: Comparing usage patterns of little across corpora.

If speaker gender were all that conditioned the use of *little*, then we would expect the differences between men and women to be much sharper and they shouldn't really alter based on the speaking situation. Obviously, no one believes that only-women-use-*little*-and-they-use-it-no-matter-what. The rest of this chapter grapples with how to adequately consider "context"— namely, the roles of speaker, audience, and topic.

Table 34 collects the findings that come when we examine the gender of the speaker and the gender of the person they are speaking to. Notice that there is by-corpus variation here. How people talk to men is especially vexing given the inclination to make grand generalizations. The differences can be attributed to a number of things—for example, local conventions and/or different interpretations of the speaking situation. The crucial lesson is that phenomena must be examined across a range of corpora, but let's see if we can reconstruct what's behind these different rates of use.[150]

	CHILDES Parent-Child OE	CHILDES Child-Parent OE	Buckeye OE	Fisher Am. Eng. OE	Fisher Ohioans OE	CALLHOME OE
Female to female	1.160	0.796	0.936	1.051	1.160	1.088
Female to male	1.037	1.482	1.290	0.887	0.771	1.064
Male to male	1.098	0.441	0.879	1.071	0.830	0.685
Male to female	0.819	0.573	0.908	0.842	0.836	0.727

Table 34: Comparison of the different groups' use of *little* by corpus and interlocutor gender. ICSI results are not shown because of the multi-person nature of communication in that corpus.

People participating in the Buckeye corpus were told in both advertisements and going into the interviews that the project was interested in how people express opinions.

> Each interview began with a few questions about the talker concerning his/her age, place of birth, family make-up, etc. This information was found by the interviewers to lead to questions that easily elicited opinions, such as how Columbus has changed over the

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[150] Please see the previous chapter for the description of the CHILDES corpus.

years, how families get along, how children should be raised, etc. These topics in turn offered opportunities for talkers to express other opinions. In order to elicit more conversation, the interviewer often challenged the talker with other points of view, or asked for illustrations of alternative opinions. (Kiesling, Dilley, & Raymond, 2006, p. 3)

By contrast, neither interlocutor in the Fisher corpus played the role of "interviewer". It is likely this plays a role in the frequency and manner of questions and "challenges". CALLHOME represents the speech of people who know each other very well, so it is the most intimate and what qualifies as face-threatening for friends and family is a bit different, and it's likely the rate and distribution of face-threatening acts is also different.

The CALLHOME telephone conversations last for about half an hour. The Buckeye conversations lasted 30 minutes on the short side—the target was 60 minutes. At the opposite end, Fisher conversations were usually just ten minutes long. In each case, speakers knew roughly how long the conversation was intended to last. This puts a pressure on the CALLHOME people to take advantage of the free long distance and "really connect", whereas it's difficult to understand either of the other groups—especially the Buckeye group—as trying to get "the most bang for their buck". In other words, the stance to the conversation and the pressures around it are quite different from corpus-to-corpus, as well.[151]

At this point, we need to know more how *little* is being used. In Experiment 3, I tested 258 sentences from CALLHOME that had *little*. All tokens that had the same truth conditions with and without *little* were tested, meaning that the stimuli were not selected based on the gender of the speaker. Nor was the gender of the speaker ever specifically revealed to the raters.

Recall that we found *little* worked in a number of directions:

	Confidence	Likeability	Emotional intensity
Little increases	78	90	60
Little doesn't do anything	109	113	120
Little decreases	71	55	78

Table 35: The distribution of *little* from Experiment 3.

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[151] Power is quite complex in friendships and families—it is a little simpler in Buckeye, though it is possible to understand either the interviewer (the educated person with the questions and the microphone) or the speaker (the person with all the answers, doing most of the real talking) as having that. Power is not really as salient in Fisher, though this may strangely mean that we should trust the Fisher results for demonstrating how power and *little* operate across a category as coarse as "gender".

Let's see what happens when we divide this up by gender. To build Table 36, I took the 258 sentences from the CALLHOME corpus that were tested in Experiment 3 and distinguished them by the gender of the original speaker. Again, the Mechanical Turk participants who rated the utterances did not have vocal cues to the gender of the speaker since the participants were reading the stimuli, not listening to them.[152]

	Women	Men
Increases confidence	1.071	0.733
Does nothing to confidence	1.103	0.612
Decreases confidence	0.945	1.208
Increases likeability	1.019	0.928
Does nothing to likeability	1.111	0.583
Decreases likeability	1.012	0.953
Increases emotional intensity	1.012	0.953
Does nothing to emotional intensity	1.044	0.834
Decreases emotional intensity	1.087	0.672

Table 36: The distribution of *little* by speaker gender (categories from Experiment 3).

These results suggest that men in CALLHOME use *little* in situations where the presence of that *little* makes them sound <u>less</u> confident, whereas women use *little* in utterances that are rated as more confident when the *little* is present. Women also use *little* in sentences where the *little* decreases emotional intensity. Men seem to avoid this sort of emotion-lessening use of *little*.

But again, we can break this down into what's happening for different gender combinations. In Table 37, the women who use confidence-building *little* are most often talking to other women—not to men. Men seem to use confidence-busting *little* regardless of the gender of their interlocutor. Women specifically avoid this confidence-busting form when talking to men—with other women, they use neither more nor less than what would've happened by chance. In terms of likeability, it looks like women speaking to other women are a disproportionate source of both likeability-boosting and likeability-busting utterances. All other gendered interactions are constrained against these except for men talking to other men, who use *little* in ways that decreases likeability. In terms of emotional intensity, again women speaking to other women use the greatest amount of both boosting and busting kinds. Men speaking to women are particularly

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[152] But of course gender is indexed in subtle and not-so-subtle ways, meaning that the participants may well have been using gender cues as part of their assessments of confidence/likeability/emotional intensity.

constrained from these types of uses, although the pattern is the same (just less intense) for men speaking to men and women speaking to men.

	Female-to-female	Female-to-male	Male-to-male	Male-to-female
Increases confidence	1.2001	0.8738	0.3861	1.0495
Does nothing to confidence	1.1086	0.8933	0.7368	0.2816
Decreases confidence	1.0068	0.5485	1.2725	1.2971
Increases likeability	1.1914	0.8655	0.4462	0.4548
Does nothing to likeability	1.0543	0.7755	0.8884	0.9961
Decreases likeability	1.0831	0.7081	1.0951	0.9302
Increases emotional intensity	1.0779	0.8114	0.8365	0.6822
Does nothing to emotional intensity	1.1347	0.7302	0.7529	0.9380
Decreases emotional intensity	1.0910	0.8738	0.7722	0.6559

Table 37: Distribution of *little* based on gender interactions (categories from Experiment 3).

Gender and age/education

In the previous chapter, I showed how *little* varied in two corpora with clear power hierarchies. In the ICSI meeting corpus, there was really no effect for gender. And what we're seeing in this chapter is that positioning is fairly particular to local circumstances. Just as gender doesn't always matter, age and education don't always matter. It is reasonable to predict that education/age/power would matter for the ICSI corpus given the shared academic structure and goals instantiated in the corpus. But you probably wouldn't predict much happening in the Fisher corpus since the people are strangers talking about random topics for ten minutes. Few Fisher conversations involve the explicit topic of age or education. But we know from the metadata in the corpus that most people speaking to each other are within three years of education and we know from decades of sociolinguistic work that education differences are discernible in speech.

Let's look at what happens when people are talking to people whose education level is more distant. The first answer is: not much.[153]

	Observed	Expected	OE
More educated to less	1,978	1,995	0.992
Same education (within 3 yrs)	7,510	7,527	0.998
Less educated to more	1,923	1,889	1.018

Table 38: Fisher token counts for conversations between native American English speakers; the minor differences aren't significant (p=0.679 by chi-square test).

And we see something similar with age—there's not really much of a difference for monolingual American English speakers:[154]

	Observed	Expected	OE
Older to younger	241	2,473	0.979
Within 15 years	6,708	6,608	1.015
Younger to older	2,282	2,330	0.979

Table 39: Fisher token counts for conversations between native American English speakers (p=0.163 by chi-square test).

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[153] Interestingly, education does seem to be having some effect among the non-native speakers, with more educated speakers being less likely to use *little*.

	Observed	Expected	OE
More educated to less	467	577	0.809
Same education (within 3 yrs)	1648	1509	1.092
Less educated to more	447	476	0.940

Fisher token counts for non-native American English speakers talking to each other (p=2.00E-08 by chi-square test).

[154] But among the bilingual and non-native speakers of English, there do seem to be age-related effects. In this case, an older person in a conversation is more likely to use little.

	Observed	Expected	OE
Older to younger	700	605	1.157
Within 15 years	1386	1457	0.951
Younger to older	476	500	0.952

Fisher token counts for conversations between non-native English speakers (p=5.527E-05 by chi-squared test).

Nor is there an age difference in the Buckeye corpus of sociolinguistic interviews. In that corpus, "older" speakers are 40+ years old and "younger" speakers are under 30. Since the interviewers for Buckeye were a postdoc (male) and a graduate assistant (female), we can treat the "younger" group as closer in age.

Row Labels	Observed	Expected	OE
Older	212	226	0.937
Younger	196	182	1.078

Table 40:Not a significant difference in age for Buckeye speakers (p=0.156 by chi-squared test).

If we put gender and age together, we see again that women are using *little* more than men, though while both older and younger women use *little* with the male interviewer, the women differ by age on what they do with the female interviewer, older women avoid *little* but younger women use it more. Among men, we see that the lowest usage is among older men speaking to the male interviewer and younger men speaking to the female interviewer. But in absolute token counts, the numbers are fairly close and we probably don't want to make a mountain out of this particular molehill.

Row Labels	Observed	Expected	OE
Older female to female interviewer	41	53	0.770
Older female to male interviewer	67	57	1.180
Older male to female interviewer	56	62	0.902
Older male to male interviewer	48	54	0.888
Younger female to female interviewer	52	46	1.129
Younger female to male interviewer	60	42	1.441
Younger male to female interviewer	33	39	0.844
Younger male to male interviewer	51	55	0.928

Table 41: Differences by gender and age in the Buckeye corpus (p=0.025 by chi-squared test).

In Fisher, the age and gender effects are not the same. In Buckeye, older people talking to younger people of the same gender avoided *little* but that doesn't happen in Fisher. The greatest use in Buckeye is from younger women talking to the male interviewer. The male interviewer was around the same age—and there's no real compulsion in the "Within15yrs-F2M" group (perhaps a slight constraint, actually). The strongest differences in Fisher are from men talking to other people the same age—they are constrained in use with women and facilitated in use with men.

	Observed	Expected	OE
Older-to-younger-F2F	1,200	1,165	1.030
Older-to-younger-F2M	616	600	1.027
Older-to-younger-M2F	389	395	0.984
Older-to-younger-M2M	851	816	1.043
Within15yrs-F2F	3,704	3,543	1.045
Within15yrs-F2M	1,086	1,174	0.925
Within15yrs-M2F	925	1,169	0.791
Within15yrs-M2M	2,361	2,190	1.078
Younger-to-older-F2F	1,143	1,136	1.006
Younger-to-older-F2M	310	365	0.850
Younger-to-older-M2F	506	553	0.915
Younger-to-older-M2M	791	777	1.019

Table 42: Differences in the Fisher corpus by age and gender of the interlocutors are significant (p=3.0464E-15 by chi-squared test).

Gender is an important and structuring force, but we are constantly tempted to reiterate "Men are from Mars, women are from Venus" narratives and to jump to giant generalizations. If we had only had the Buckeye corpus, we would probably have focused on what the women were doing— why were the older women avoiding *little* with the female interviewer? Why were the younger women using it so much with the male interviewer? One narrative we might have latched on to might be about *little* being a way for women to reiterate feminine (and less powerful) positions, particularly when speaking to men. And we may have recruited flirting to distinguish the extremes of this group. But this misses how a woman like Buckeye Speaker 39 (talking to the male interviewer) uses *little*. What we saw above was that she used *little* mostly to position others—not herself. Applying our experimental evidence to this set of data, we would predict that these third-person targets would probably get Buckeye Speaker 39 judged as confident.

If we had just looked at Fisher corpus, our focus would have been on the men. We might have told a story about the construction of masculinity—such a story would say something about how

men talking to women their same age avoid hedging and discussing small things and yet it would have to explain why the men were willing to hedge and/or discuss the size of things with other men. It would beg more questions: how does the construction of masculinity differ depending upon the gender of the person you're talking to?

Although all of these lines of inquiry are interesting, putting the corpora side-by-side show us the limits of large-scale generalizations and the need for digging. In the next sections, I'll look more deeply into how men and women are varying their language use based on what they're talking about. Rather than simply describe a variable like *little* use/non-use in terms of gender and stop there, I have already added in "who is the audience?" and "how does it shift confidence/likeability/emotional intensity?" Now it's time to add in, "What are they talking about?" and "How are they talking about it?"

Topic modeling, hedging, and emotional management

Topic modeling is a way to summarize large amounts of text data. The name of the technique is a little bit of an overstatement, though—it may be better to think of it as finding keywords. In this case, I used it to identify words that are used disproportionately in utterances that also have *little* in them. In terms of tools, I used the Labeled Latent Dirichlet Allocation (LDA) model from the Stanford Topic Modeling Toolbox (Ramage & Rosen, n.d.) and programmed it to identify which words went with which gender interactions most often.[155]

The input to the model was all Fisher utterances with *little*, each tagged for who said it to whom (female-to-female, etc). The output is a list of words that summarize each tag. 1,000 iterations (the default) were used to train the models. In topic modeling, it is common to cut off the top x most frequent words since they aren't likely to reveal anything truly interesting. I experimented with removing 0, 30, 45, and 60 of the most frequent words. The results reported below come after removing a customized set list of stopwords developed out of these trials (*things, would, cause, some, right, them, something, i've, going, than, lot, stuff, here, from, you're, see, their*). These items were removed from consideration because in each trial model (whether removing the top 60 or none at all), they occurred as keywords for all or all-but-one of the gender interaction patterns—meaning they added no information at all.[156]

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[155] See also "Topic modeling" below for more information.
[156] For more information on topic modeling, see Ramage, Dumais, & Liebling (2010); Ramage, Hall, Nallapati, & Manning (2009); Ramage, Manning, & Dumais (2011).

What I found among *little* utterances was that men use a disproportionate amount of *actually, different, over, say, very*; men speaking to men also use *back, getting, kinda,* and *while*; men speaking to women also use *other* and *we're*. Women, speaking to either men or women use a disproportionate amount of *even, her, kids, those*; women speaking to women also use *she's, two,* and *where* a lot more; women speaking to men use *take* and *these*. Finally, men and women speaking to women use a lot more *good*.

Well. The idea was nice, but does this assortment of words really tell us anything? Not much if we just look at them as a collection of words. However, they are fairly useful in helping us find phenomena to hone in on. Two phenomena stand out. One is *these*—work in affective demonstratives is based on the idea that *this/these* draws the listener closer and *littleness* may be able to also convey some of that intimacy (Acton & Potts, 2011; Davis & Potts, 2010; Lakoff, 1974b; Liberman, 2008; Potts & Schwarz, 2010b). However, I'd like to turn to another set of words.

One of the uses of *little* is to act like a hedge. Among these words, *kinda* is very hedge-like. Meanwhile, *even, actually* and *very* are in some ways opposite, stressing or clarifying the state of affairs. How are these functioning ?

	kinda OE	even OE	actually OE	very OE
Female-to-female	0.9378	1.2043	0.8341	0.9983
Female-to-male	0.6384	1.0657	0.7598	1.0860
Male-to-male	1.3187	0.6677	1.3773	0.9538
Male-to-female	0.9310	0.8820	1.0628	1.0145

Figure 17: Words that co-occur with *little* in the Fisher corpus.

These results largely back-up the topic model results, although *very* doesn't seem to be especially male in its usage (the highest proportion of use is for women speaking to men). The other findings are upheld and refined. Here it looks like women use a lot more *even* all around, but especially when they're talking to other women. Similarly, men use a lot of *actually*, especially with other men.

The utterances that have both *kinda* and *little* are very hedgey. There are 295 total. Here's a sampling of men talking to men (105 total utterances meet this criteria):

(60) yeah 'cause some of it just **kinda** seems like a **little** ridiculous like you know like [sigh] um [lipsmack] what was that one called that came out it was **kinda** like the same premise as that show joe millionaire except it was like they didn't

(61) maybe now you could **kinda** be a **little** bit cautious of what actually goes on there 'cause there's **kinda** a lotta stuff that you know promotes alcoholism and that ah says you know enjoy this one's on me and all this and it's s- like ah a- the greatest but man

(62) and it just **kinda** made me a **little** bitter

(63) it **kinda** it **kinda** gets a **little** bit uh [laughter] you know when's the subject change?

Notice here the objects of *kinda* and *little* for the first three—they are *ridiculous, cautious, bitter*. All affectively-laden evaluations. In fact, in the fourth example, we get something so affectively laden that the object isn't even named. Instead there's repetition, filled pauses, laughter, discourse *you know* and a meta-question about the subject changing: all hallmarks of discomfort.

Part of the construction of gender is emotional expression and regulation. Let's look across all Fisher utterances with *little* for affectively-laden words. We'll count as "affective" any word that appears on at least two of the twelve emotion term lists described in the experiments sections (leaving out Wilson et al., 2005 for the moment).[157] Once we do this, we see that the strongest tendency is for men to use these words when speaking with women—but recall that we have limited ourselves to utterances that have *little* in them.

	Observed	Expected	OE
Female-to-female	5,760	6,032	0.955
Female-to-male	1,730	1,702	1.017
Male-to-male	3,457	3,371	1.026

[157] You can find these affective lexicons using the following citations:
Altarriba, Bauer, & Benvenuto (1999); Bednarek (2008); Dahl & Stengel (1978); DeRose (2005); Heise, (2001); Kamvar & Harris (2011); Morgan & Heise (1988); Ortony, Clore, & Foss (1987); Scherer, Wallbott, & Summerfield (1986); Shaver, Schwartz, Kirson, & O'Connor (1987); Storm & Storm (1987); the 12th wordlist was created using COCA (M. Davies, 2008) to identify the top collocates within a three-word window of *emotion*, *express*, *sound, feel*, and *feeling*.

Male-to-female	1,773	1,615	1.098

Table 43: Words that are on at least two of the 12 emotion term lists and appear in the same utterance as *little* in the Fisher corpus (significant by chi-squared test, p=1.149e-06).

Note that if we drop the *little* requirement and simply look at how emotion terms are distributed, we see that men-talking-to-men use a slightly disproportionate number of emotion terms. The differences overall are small but statistically significant. So what we're seeing with *little* is a stronger shift towards using emotion terms in utterances that also have *little* in them. By and large, this is part of an emotional regulation scheme.

	Observed	Expected	OE
Female-to-female	325,721	329,271	0.989
Female-to-male	97,876	98,167	0.997
Male-to-male	172,308	168,071	1.025
Male-to-female	103,807	104,203	0.996

Table 44: Words that are on at least two of the 12 emotion term lists in the Fisher corpus (significant by chi-squared test, p=9.40e-32).

We may want to limit ourselves to utterances with emotion terms, *little*, and *kinda*. This lets us combine (i) the quantitative finding about men using *kinda* and *little* most with other men, and (ii) the qualitative observation that this seems to be mostly about affect regulation.

	Observed	Expected	OE
Female-to-female	13	34	0.3828
Female-to-male	5	7	0.7343
Male-to-male	35	27	1.2997
Male-to-female	13	10	1.2621

Table 45: Distributions for emotion terms (in at least 2 of the 12 lists) in Fisher utterances with both *little* and *kinda*. Examples of emotion words include *nice, pretty, good, want, sure, weird, enjoy, funny* (significant by chi-squared test, p=0.000772).

To summarize, the finding is that men use a disproportionate number of emotion terms alongside *little*. We do see an effect of interlocutor gender: men are using *little* and emotion terms more when they're talking to women. There is further evidence that *little* is being used as part of an affect regulation scheme. While men use *kinda* and *little* together most with other men, when we look at how these two terms are used alongside emotion terms, the effect looks similar for both men-to-men and men-to-women. At this point of filtering, however, the counts are rather small. Thus the finding that is most supported by the numbers is that women talking to other women in the Fisher corpus do not combine *little*, *kinda*, and emotion terms. While this configuration of

linguistic resources may (or may not) be used by men, it seems clear that it is not a prominent way that women style themselves when speaking to other women—at least ones that they don't know.

Topics and gender

In the previous section, I demonstrated a technique for finding keywords and pursued affect-regulation phenomena that emerged. In this section, I ask how people vary in their use of *little* based on the overall topic of the conversation. I take advantage of the fact that each Fisher conversations is relatively focused on one of 40 topics.

Observe the differences between the ten topics with the greatest over-abundance of *little* and the ten topics with the least:

Topic	Actual	Expected	OE
Hobbies	543	264	2.059
Computer games	263	143	1.834
Outdoor activities	446	246	1.813
Health and fitness	522	289	1.809
Current events	362	231	1.565
Food	442	297	1.486
Airport security	292	203	1.439
Friends	326	229	1.424
Family values	168	119	1.416
Pets	745	528	1.412
…			
Arms inspections in Iraq	159	260	0.611
Affirmative action	104	172	0.604
Personal habits	139	237	0.586
Life partners	227	437	0.520
Comedy	214	414	0.517
Issues in the Middle East	92	191	0.481
Hypothetical situation: Perjury	51	113	0.450
Minimum wage	204	476	0.428
Hypothetical situation: Time travel	125	315	0.397
Hypothetical situation: Opening your own business	88	242	0.364

The biggest difference between these two sets seems to be how face-threatening they are. The group of topics that involve a lot of *little* are about personal matters that can be asked about and discussed fairly straight-forwardly. They are perfect for small talk. The topics at the bottom of the list, however, are much more face-threatening. The innocuous-sounding "comedy" topic actually involved the following prompt: "How do you each draw the line between acceptable humor and humor that is in bad taste?" You don't often have to be cagey about food discussions but the items where *little* is avoided end up being ones where you have to put yourself on the line and/or where you may be wading into territory where you and your interlocutor are going to disagree.

Many of the patterns in Table 46 hold even when we look inside each topic for how the gender interactions behave. In particular, discussions about computer games, outdoor activities, food, friends (lots of *little*), affirmative action, personal habits, life partners, issues in the Middle East, hypothetical perjury, minimum wage, hypothetical time travel, and hypothetical opening your own business (very little *little*) were treated the same by men and women regardless of who they were talking to—i.e., everyone uses a lot of *little* in talking about computer games and avoids it in conversations about the Middle East.[158]

Let's look at where the exceptions are. That is, the cases where behavior goes in the opposite direction depending upon the gender of the interactants. For example, it turns out that it isn't just that "talking about hobbies encourages *little*", the effect is really driven by women talking to other women. The same is also true for "Current events"—it's the women talking to women who are driving the overall pattern. By contrast, while all the other categories use a lot of *little* in talking about "Pets", women talking to women actually use much less. In discussions of terrorism, women speaking to other women use *little* a lot more than everyone else—especially women talking to men.

	Topic	Actual	Expected	OE
F2F	**Hobbies**	**450**	**142**	**3.178**
M2F	Hobbies	27	31	0.880
M2M	Hobbies	46	60	0.764
F2M	Hobbies	20	31	0.640

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[158] That said, there is still a fair amount of variation—for example, while there was an overarching constraint on using *little* with the time travel discussion, women speaking to other women were especially constrained—instead of an expected 112 tokens, there were only five (OE of 0.045). Women talking to men didn't have such a strong reaction—they used 23 tokens when 57 would've been expected (OE of 0.402).

F2F	**CurrentEvents**	**275**	**128**	**2.148**
M2M	CurrentEvents	45	50	0.897
M2F	CurrentEvents	22	27	0.829
F2M	CurrentEvents	20	27	0.753
F2M	Pets	138	76	1.813
M2F	Pets	139	77	1.798
M2M	Pets	287	165	1.743
F2F	**Pets**	**181**	**205**	**0.884**
F2F	**Terrorism**	**125**	**67**	**1.858**
M2M	Terrorism	26	36	0.722
M2F	Terrorism	13	24	0.537
F2M	**Terrorism**	**7**	**24**	**0.297**

Table 47: Counts of *little* across topics where women talking to women are doing something different than everyone else.

Let's take a closer look at the terrorism topic. This is a topic of great prominence in American political discourse—the Fisher conversations mostly took place over 2003. The prompt for the participants was, "Do you think most people would remain calm, or panic during a terrorist attack? How do you think each of you would react?"

SECTION	SPOKEN	FICTION	MAGAZINE	NEWSPAPER	ACADEMIC	1990-1994	1995-1999	2000-2004	2005-2009	2010-2011
FREQ	6281	192	1867	3188	3283	1369	1661	7138	3960	683
PER MIL	69.74	2.26	20.68	36.78	38.27	13.16	16.06	69.34	38.81	26.92

2000	2001	2002	2003	2004
216	1450	2395	1490	1587
10.39	72.10	117.08	71.55	76.42

2005	2006	2007	2008	2009
1046	1097	760	585	472
50.34	52.79	37.37	29.19	23.50
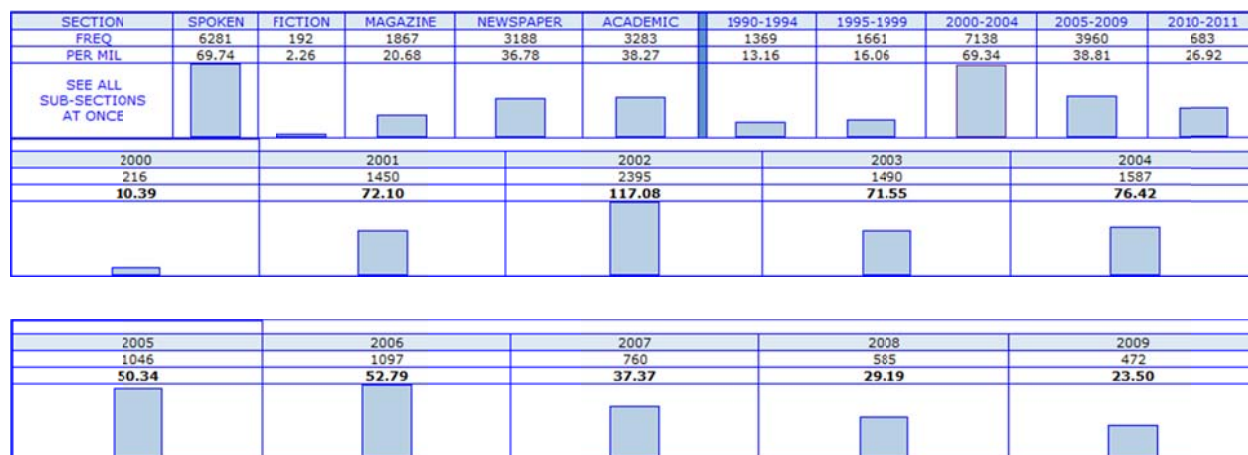
Figure 18: Use of "terrorism" in the Corpus of Contemporary American English from 1990-2011, with a focus on 2000-2009. The peak is in 2002, but usage was still high in 2003 when the Fisher corpus was being collected.

Many of the women speaking to women are using *little* as part of emotional regulation:

(64) no i think i'd be i'd i'd have to probably tell myself to be **a little bit calm** because we do have a two year old

(65) yeah i mean before a- you know all this happened i was **a little bit scared**

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(66) um i know that i would be probably **a little terrified** [laughter]

(67) and i i think i would just like to be **a little more aware**

(68) [laughter] but i i would probably be **a little bit more philosophical** about it the same i would with a tornado warning or anything else i would think well is this it is my time up

(69) it just makes you **a little more secure**

The women speaking to men talk about being *a little more prepared*, *more frightened*, *more cautious*, *more progressive*, and *half-asleep*. In other words, they are also using *little* to express affective states, but they are doing it much less often overall.

In four of our top/bottom 20, it's the men talking to other men who are doing something unusual. In "health and fitness", "airport security", and "family values", they are much more constrained in using *little* than anyone else. In discussions of arms inspections, they actually use it more than we'd expect. And while everyone else avoids *little* in talking about comedy, they use it at a "normal" rate—which in relative terms makes it a lot. They also use it a lot more than anyone else in discussions of reality TV and the holidays.

	Topic	Observed	Expected	OE
F2F	HealthandFitness	385	146	2.642
F2M	HealthandFitness	51	35	1.465
M2F	HealthandFitness	62	36	1.723
M2M	**HealthandFitness**	**24**	**72**	**0.333**
F2F	AirportSecurity	177	83	2.143
F2M	AirportSecurity	35	25	1.412
M2F	AirportSecurity	29	25	1.143
M2M	**AirportSecurity**	**51**	**70**	**0.726**
F2F	FamilyValues	111	61	1.826
F2M	FamilyValues	24	17	1.453
M2F	FamilyValues	17	16	1.067
M2M	**FamilyValues**	**16**	**25**	**0.631**
F2F	ArmsInspectionsinIraq	16	100	0.160
F2M	ArmsInspectionsinIraq	23	38	0.609
M2F	ArmsInspectionsinIraq	18	38	0.477
M2M	**ArmsInspectionsinIraq**	**102**	**81**	**1.253**

	Topic	Observed	Expected	OE
F2F	Comedy	61	218	0.280
F2M	Comedy	21	45	0.468
M2F	Comedy	17	46	0.369
M2M	**Comedy**	**109**	**103**	**1.062**
M2M	**RealityTV**	**312**	**158**	**1.973**
F2M	RealityTV	61	63	0.966
M2F	RealityTV	44	61	0.717
F2F	RealityTV	67	154	0.435
M2M	**Holidays**	**104**	**49**	**2.124**
F2F	Holidays	66	116	0.568
F2M	Holidays	18	34	0.535
M2F	Holidays	18	34	0.535

Table 48: Counts of *little* across topics where men talking to men are doing something different than everyone else.

The prompt for the health and fitness topic was, "Do each of you exercise regularly to maintain your health or fitness level? If so, what do you do? If not, would you like to start?" Most people use a lot of *little* in this topic, including men talking to women. In these conversations, men often use *little* in describing their bodies, in particular their weight:

(70) yeah so I'm about two hundred and ten pounds **a little bit over** I'm six foot four

(71) well like I said I'm **a little bit medium build** so I got a bit of a belly there

(72) so I've been I know I'm really really fortunate although coming home to visit my family and my mom and stuff has been feeding me a lot so I think that now I've got **a little tummy** so I've got to start doing something about it

(73) I had **a little bit of a pudge** when I was like nine ten years old too then puberty kicked in and I was like rail thin after that [laughter]

(74) I get **a little bit lazy** and start to get **a little bit flabby** around the middle then I start doing pushups

That's just a sample of the men-talking-to-women about health and fitness. Among conversations between men, only two uses have anything to do with the speaker's body at all, but you'll notice a very different flavor. While the examples above facilitate and soften self-disclosure about a non-ideal body, neither (75) nor (76) do the same thing. (75) conveys information about an exercise

regimen and perhaps indirectly indicates weight concern, but the *little* itself is about exercising harder—the *little* phrase fits the storyline of wanting to stop, pedal-after-pedal, but getting a temporary boost from the shouting—it also serves to draw out the description of the event for a few more syllables. (76) involves not flab or pudge, but the opposite. It reports an ability to bulk up relatively easily, though it serves a politeness function in minimizing the claim. Of course by adding a modifier at all—and one that is not a typical collocate—there is a certain extra emphasis given to the noun phrase. In other words, *little* can work in a strategy to call attention to something that enhances the speaker while doing so in a polite manner.

(75) so every time she would yell fat then I would s- stay on the bike for **a little bit longer**

(76) like if I work at it I can put on **a little bit of muscle mass**

While men may not be using *little* much in talking to men about fitness, they do use it a lot when talking about the holidays.[159] These men are especially likely to use *I guess*, *kind of/kinda*, *because/'cause,* and *different* compared to everyone else in the Holidays topic. Let's take a closer look at *I guess*, which is a discourse marker that allows a speaker some wiggle room by reducing the illocutionary force of the utterance. Of the 14 instances of *I guess* and *little* occurring in the same turn, 11 are from men talking to men (there's one each for the other three categories). The occurrences can be in face-threatening contexts, as we'll see with (77) and (78) or in agreement contexts like (79) and (80). In a moment, I will trace the use of *little* and *I guess* through just a small portion of the data, but before we turn to the close analysis, let's zoom out to see what the larger patterns are.

Among Fisher's monolingual American English speakers, *I guess* is used 29,335 times. In absolute terms, the biggest users of *I guess* are women talking to other women, but of course, we need to consider that we have more overall words spoken by pairs of women than any of the other categories. For that reason, we return to observed/expected values.

	Observed	Expected	OE
Female-to-female	11,792	13,133	0.898
Female-to-male	3,905	4,435	0.881
Male-to-male	8,753	7,381	1.186

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[159] "Do either of you have a favorite holiday? Why? If either of you could create a holiday, what would it be and how would you have people celebrate it?"

Male-to-female	4,885	4,386	1.114

This makes it look like men are using *I guess* more and especially when talking to other men. One of the questions to ask is where this holds and where it falls apart.

There are 704 uses of *I guess* within the Holidays topic. Overall, there is a disproportionate number of men using it with women, which is a different split than the one we saw globally.

	Observed	Expected	OE
Female-to-female	347	315	1.101
Female-to-male	75	106	0.705
Male-to-male	107	177	0.604
Male-to-female	175	105	1.663

Table 50: The distribution of *I guess* across the Holidays topics (monolingual American English speakers in the Fisher corpus).

Across all topics, there are 869 uses of *little* and *I guess* in the same turn. When we restrict ourselves to these "super-hedge" turns, we see that men split as they did in Table 51. The men speaking to women use more *I guess+little* than would be expected, and the men speaking to men avoid the pairing.

	Observed	Expected	OE
Female-to-female	340	389	0.874
Female-to-male	101	131	0.769
Male-to-male	278	219	0.686
Male-to-female	150	130	2.140

Table 51: The distribution of turns that have both *I guess* and *little* across all topics in conversations between monolingual American English speakers in the Fisher corpus.

If we take each of these pieces of information and assemble them together, we would predict that men using *little* and *I guess* in the same turn while discussing the holidays would mostly be doing that when speaking with women. But that's not the effect. Instead, it is men who are talking to men that use the pair together. Again, there are fourteen uses under these conditions and 11 of them are for men talking to men (one occurrence for each of the other three categories).

At the beginning of the conversation where we find (77), the speaker has identified that his favorite holiday is Thanksgiving (after his interlocutor has identified that his favorite is Christmas). The turn below comes after the speaker has talked about his problems with Christmas

(e.g., stores jack up prices, it's a tough time for struggling families). The other speaker offers a conciliatory, *I agree with you and I tell you [sigh] I have a definite appreciation for Thanksgiving because I do like to eat* and then inquires about food at our speaker's Thanksgivings. In the turn right before (77), the speaker has said that they do have turkey but because they're Italian they also have lasagna.

> (77)   so you know it's it's a little little bit heartier i guess as you can imagine
>   [laughter] than that

In other words, at the moment when (77) happens, the pair have started to come back from disagreement. This probably accounts for how the *little* and *I guess* are used to reduce claims. Consider the unadorned utterance: *so it's heartier than that*. There's nothing particularly disagreeable about this, but the *you know*, the *I guess*, the *as you can imagine*, and the laughter all serve to position the speaker and his interlocutor closer together. The *little bit* works in a similar way because it softens a claim that is being made in the aftermath of some strong and somewhat divisive claims. It acknowledges the receipt of the interlocutor's *I agree with you* and his attempt to shift away from Christmas-bashing and towards coordinate Thanksgiving-appreciation.

In (78), the speakers have also disagreed about favorite holidays. The disagreement this time is between Christmas and Halloween (which our speaker below favors). After the turn in (78), the speaker will describe Christmas as too commercialized and really hold forth for the next three minutes.

> (78)   ah i i like christmas but it gets **a little [depressing]** at times **i guess** [noise] i like
>   halloween and mm

If we measure the amount of time each of the men contribute in those three minutes in seconds, then we see that the anti-Christmas speaker has over four times as much talk time as his conversation partner, who mostly contributes very short backchannels. Over the course of the three minutes, he uses *I guess* six more times (there are no other occurrences in the conversation). It is (78) that launches him into his mostly-monologue but throughout it, he is using hedges—he dominates without being entirely dominating. Once again we have a *little* with an emotional object (depression) and it is given in a construction that doesn't require the speaker to explicitly state that he himself is the target (the sufferer of depression), it is left generic, although the *I guess* attaches the first person pronoun and perspective to the observation.

The speaker in (79) uses *I guess* a lot (9 times in the course of just under 10 minutes; the other man he's paired with uses it once).

> (79)   [noise] [noise] [noise] that's right and the powers that be are [noise] it would be **a little** 'cause people are would be nervous **i guess** in in er positions of power and authority that everybody wouldn't be able to like restrain themselves after seventy two hours of course there'd be like you know like massive injuries and prow- and you know

In (79), the two men have been talking about wishing that the Millennial New Year's Eve had been planned differently. The interlocutor has offered that it would be a time to *just you know let go and just get crazy but you know…that's not normal so we can't*. So the speaker's reply in (79) begins as an agreement and develops the idea, although he is not particularly smooth in his formulation. The thing I'd like to draw your attention to is the hedging and false starts seem to surround the emotional term *nervous*. This gets us back to an earlier point: hedges are often used as part of emotional management and regulation.

In (80), we have two speakers that are also talking about Italian food and Thanksgiving, but they haven't really disagreed about anything, unlike what's happening in (77). The exact topic they are considering is what foods they'd have on Thanksgiving if they could eat anything and they spend a number of turns going various pastas before our speaker brings it back to turkey:

> (80)   it's just **a little bland** like they could spice it up i mean **i guess** they have gravy and like other stuff but

The speakers are in accord about pasta being a great idea for Thanksgiving. In (80), the object of *little* is blandness and the target seems to be someone else who cooks it since it is *they* who could *spice it up*, not the speaker himself. Notice that having insulted the people who provide him turkey (although having appended a *little* to mitigate the insult), he continues the turn by offering a counter-perspective—why his initial evaluation may not be fair. It takes both an *I mean* and an *I guess* to acknowledge the qualification, although the conclusion is not particularly strong in favor of the turkey-makers, they do have gravy to counteract blandness but whatever else they have is left underspecified (*and like other stuff*). The whole turn ends with a *but* to nowhere indicating a final stance that turkey really is bland. In fact, after this, the interlocutor offers *yeah, turkey is getting a little played out* (which they then laugh about). Notice, then, that the speaker is positioning himself with *little* and *I guess* against some sort of turkey establishment. He is

constructing an oppositional stance, albeit one that is reluctant and measured. This kind of measured reluctance comes across in most uses of *I guess*.

Throughout this chapter (and the others), it's been my goal to present analyses that consider speaker, audience, and topic. In this section, I focused on gendered interactions across topics. While I spent the most time on where gender interactions differed, it is worth repeating that for 12 of the top/bottom 20 topics, there was no real difference between men and women in their use of *little* (nor based on the gender of their interlocutor). For the others, I looked at the role *little* was playing in emotional regulation and politeness/impoliteness strategies—in particular topic areas these stances are very much gendered. For example, men were self-effacing about their bodies to women but not to other men and women talking to other women about terrorism were more likely to offer and diminuate emotional reactions. I also demonstrated that patterns we might want to cite at coarse levels need to be examined more closely, as with the case of *little* and *I guess*, where the gender story would change depending upon whether topics were or weren't considered alongside the gender of the speaker and their interlocutor.

Concluding remarks

One prominent benefit of corpora is that they allow us to access large amounts of data so that we can develop and test hypotheses beyond our own intuitions. The point behind this is not that each of us have lousy intuitions, but that we are subject to particular kinds of confirmation biases and biases in experience that render our intuitions suspect and ungeneralizable. But just as you and I are idiosyncratic sources of data, so are corpora. If we don't take into consideration what sort of speech situations various corpora place speakers in, then we are liable to make claims that hold only in a narrow area.

Gender was the case study here because many researchers treat it as a static speaker characteristic—despite the fact that there are so many different ways to be "male" or "female" (see also Bamman et al., 2012). If we see gender as a performance rather than as a fact (Butler, 1999), then we open ourselves up to the role of context. In developing the idea of positioning, I have claimed that at a minimum context must include the speaker, the audience, and their topic. Linguistic resources are used to shift or reiterate the positions of these entities.

Social categories are built out of individual interactions—they are not given from on high. But our predisposition as individuals is to reiterate what has come before, which imposes a structure. Since other people are making choices that expand and contract ours, we find ourselves in

territories not entirely of our choosing. We get to choose how to move through a territory, but we'll tend to what we've done before. This is why it's possible to have any statistical results at all. But it's why it's also important to look at what's really happening in the data. Numbers and categories give us generalizations but are devoid of subtlety. We can't peer into people's heads to see what they intend, but we can see what parts go together and what effects they seem to have. This is what we're doing in interpreting the data: working out the meaning of the co-occurrence of a speaker, an audience, a situation, an utterance and that utterance's various linguistic features. Any claims about how to interpret a particular instantiation of a linguistic resource will always be partial and provisional.

In exploring the affective origins and consequences of *little*, I showed how it was distributed across a number of social categories and I showed that depending upon the speech situation, it had an important role to play in describing interactions between people of different genders, education levels, and ages. These broad patterns were made intelligible by looking at specific examples as well as using "experimental pragmatics" results from Experiments 1, 2, and 3. Taken all together, I have tried to paint a provisional, partial, but extremely thorough presentation of who uses *little*, in which circumstances, talking to whom, about which topics, modifying which words.

The clearest findings would be for me to say that "women do x with *little*, while men do y." But that just reinforces the myth that women and men are fundamentally different. And it doesn't really instantiate the interactionist perspective that I'm working from here that treats gender as a process not an essence. Our models of language need to handle more than individual characteristics, they need to handle social relations that come out of interactions in very particular contexts. It is the nature of models to simplify but if we do not consider the speaker, the audience, and the topic our model is far too simple.

The largest take-away is that a multi-corpus study of gender and *little* does not result in the kinds of narratives that are most familiar. For example, those of deficit, dominance, and difference. In these models, women are seen (respectively) as disadvantaged due to early socialization, as powerless in the face of male social privilege, or as speaking a dialect distinct from that of the tribe of men.[160]

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[160] For summaries and critical discussions of deficit, dominance, and difference, see Cameron (1996, pp. 39–42; 1998, pp. 14–15); Coates (1993, pp. 12–13); Henley & Kramarae (2001); Uchida (1992).

There is no question that there are gender effects for *little* but these narratives do not offer us much in the way of descriptive adequacy, focusing as they do on static social positions for men and women. Let's review the major findings. The first is that women do seem to use *little* more than men—this is not true of all corpora, but it seems to be attested in most. See Table 33 (repeated as Table 52 here).

	ICSI OE	CHILDES Parents OE	CHILDES Children OE	Buckeye OE	Fisher Am. Eng. OE	Fisher Ohioans OE	CALLHOME OE
Female	0.939 (n.s.)	1.012	1.096	1.170	1.010 (n.s.)	1.085	1.073
Male	1.019 (n.s.)	0.935	0.935	0.855	0.987 (n.s.)	0.828	0.725

Table 52: Comparing usage patterns of *little* across corpora.

Once we consider the gender of the audience, however, we see how much of a difference the corpus makes, as Table 34 illustrates (repeated as Table 53). In Table 37, we also saw that gender interacted differently with age/education depending upon the corpus.

	CHILDES Parent-Child OE	CHILDES Child-Parent OE	Buckeye OE	Fisher Am. Eng. OE	Fisher Ohioans OE	CALLHOME OE
Female to female	1.160	0.796	0.936	1.051	1.160	1.088
Female to male	1.037	1.482	1.290	0.887	0.771	1.064
Male to male	1.098	0.441	0.879	1.071	0.830	0.685
Male to female	0.819	0.573	0.908	0.842	0.836	0.727

Table 53: Comparison of the different groups' use of *little* by corpus and interlocutor gender. ICSI results are not shown because of the multi-person nature of communication in that corpus.

In the section, "Topics and gender" we saw that for over half of the topics with the most/least *little*, the patterns of gender interactions (male to male, female to male, etc.) were the same. For the others, it was usually one single category of gender interaction that was doing something different than the others. For example, women talking to women using a lot more *little* when

discussing hobbies or men talking to men about reality TV and using a lot more *little*. What are we to make of these patterns?

I have proposed that *little* is used for a variety of effects and that gender is not associated directly with these effects but rather indirectly. That is to say, I am reiterating how Ochs and others have conceived of language as being used to "index social meanings (e.g. stances, social acts, social activities), which in turn help to constitute gender meanings" (Ochs, 1992, p. 340). So what kinds of meaning does *little* tend to have across these corpora? What meanings do speakers exploit?

In the Fisher corpus, we found that men were disproportionately using *little* alongside resources like *kinda*, *actually*, and *I guess*. These uses helped shift illocutionary force in order to make claims that were face-threatening to the speaker, the listener, or someone else. We saw that *little* is prominently used as part of emotional management by both men and women, although the co-occurring hedges and topics varied by gender (for example, the use of *kinda* as discussed in "Topic modeling, hedging, and emotional management"). In looking at a matter like health and fitness, we see that what constitutes a face-threatening topic is itself differently gendered. Men will talk about being a little flabby with unknown women in Fisher but not with unknown men.

We also saw clear examples that the use of *little* was not inherently a self-belittling device for women. Take the case of Buckeye Subject 39, who mostly applied *little* to other targets, not herself. Also interesting along these lines is the pairing of experimental data with social categories. Recall the results from Table 37 (repeated below as Table 54), which came from testing utterances from CALLHOME interactions.

	Female-to-female	Female-to-male	Male-to-male	Male-to-female
Increases confidence	1.2001	0.8738	0.3861	1.0495
Does nothing to confidence	1.1086	0.8933	0.7368	0.2816
Decreases confidence	1.0068	0.5485	1.2725	1.2971
Increases likeability	1.1914	0.8655	0.4462	0.4548
Does nothing to likeability	1.0543	0.7755	0.8884	0.9961
Decreases likeability	1.0831	0.7081	1.0951	0.9302
Increases emotional intensity	1.0779	0.8114	0.8365	0.6822
Does nothing to emotional intensity	1.1347	0.7302	0.7529	0.9380
Decreases emotional intensity	1.0910	0.8738	0.7722	0.6559

Table 54: Distribution of *little* based on gender interactions (categories from Experiment 3).

The CALLHOME speakers knew each other quite well but utterances with *little* that the women used seemed to increase confidence and likeability, while men used it in utterances that decreased confidence and likeability ratings. The point is not to walk away with the understanding that women know how to use *little* to their advantage, but that interpretations of *little* are themselves structured by gender ideologies that must take into consideration how people position themselves and others differently in different contexts.

Chapter 6: Emoticons and emotions

Introduction

The human skull has 14 facial bones—a mandible, a vomer, and two each of nasals, maxillae, lacrimals, zygomatics, palatines, and inferior nasal conchae. The muscles wrapping around them move us from grimaces to grins to mouths agape. In Ekman, Friesen, & Hager (1978/2002) 's facial coding system, these various expressions are made up of 46 "action units" involving contraction and relaxation of brows, lips and so on—there are 35 facial muscles involved in these action units, 1-3 at a time.[161]

You would think that the job of the emoticon analyst was easier. But in the InfoChimps dataset of worldwide emoticon uses (described more below), there are actually 1,479 different emoticons—282 of which have more than 100 tokens. The median number of "bones" they employ is just three (an average of 3.2847), but they make up these different expressions using combinations of 34 different characters. In order to have something tractable, I reduce my scope to the top 28 emoticons used in English tweets by people located in America.[162] The data consist of 3,775,174 tweets from 102,304 different authors.[163]

Not everyone agrees with Ekman's claims about basic emotions and universal recognition of facial expressions, but it is clear that people read faces and imbue them with significance. Emoticons build off (and partly, create) conventional interpretations of various facial configurations and few words bring you face-to-face with their affectivity so clearly. In this chapter, my two chief interests are (i) characterizing the meaning of emoticons, and (ii) using emoticons to discern dimensions of affect that have been missed or neglected. We will again find that the study of affect in language requires us to consider not just the subject, but the positioning of the subject and their audience through the language that is used.

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[161] For Ekman, the universality of seven emotions (anger, fear, surprise, sadness, disgust, contempt, happiness) is based in large part upon shared attributes and shared recognition across a variety of cultural contexts (for a recent summary of Ekman's theoretic viewpoint and evidence, see Ekman & Cordaro, 2011).

[162] Described below, these 28 emoticons use 13 different characters, with a median length of 2 characters (average length of 2.3214).

[163] These authors use emoticons between 1 and 3,204 times (median of 7, average of 20.7529).

Overview of findings

Over the course of giving the first clean linguistic analysis of emoticons, this chapter offers the following findings:

- "Positive" and "negative" are crucial and basic dimensions of affective meaning—but they are also insufficient. Teasing and flirting each emerge as important, separate dimensions of affective meaning.

- It's insufficient to think of expressions of emotion as expressions of inner states—they are relational/social. For example, one of the major factors involved in emoticon use can be characterized by @ing—the method by which Twitter users address tweets to the attention of specific other users.

- I also show that another factor in affective meaning is "immediacy"—that is, whether the authors communicate their emotion with short, basic emotion terms (*sad, hate*) or using distancing devices (e.g., longer/morphologically complex words, the use of # hashtags).

- Each individual user has a set of emoticons that they most commonly draw on—these are not randomly distributed. For example, users of :) regularly use frowny :('s but not noseful :-). There is no such constraint between tongues :P and winks ;), although tongues are avoided by a large group of people due to the complicated nature of teasing, which offers intimacy by threatening the interlocutor's face ("positive through negative").

- In tracing "emoticon dialects", I show that frequent emoticon users are less likely to use noses. People who use noses send longer tweets—which means that they preserve the nose even when they have stronger reduction pressures (tweets are only allowed to be 140 character max). People who use noses do avoid what I call affective lengthening (*sooo*, *hahahaaa*) and they use more standard/complete spellings. The non-nose users use taboo words and follow young celebrities like Justin Bieber (and they are positively inclined towards these celebrities).

- If we restrict ourselves to co-occurrences of emoticons and emotion terms (*happy, love, scared*), we do see that nose and non-nose variants pattern together—in other words, :) and :-) are used by different groups of people for different ends, but when we narrow our focus to affective meaning, they are largely similar.

- Most sentiment analysis techniques treat utterances as a bag of words, meaning that they lose information about the structure that the words have to one another in the utterances. I also largely treat utterances as bags of words, but I introduce and develop a notion of "affective scope" to describe what gets missed by not considering constituent structure and word order.

- I describe both "straight-forward" emoticons like :) and :(, and more ambivalent emoticons like :O and XD, which have both positive and negative uses (pleasant/unpleasant surprise in the first case, super grinning vs. embarrassment in the second).

- In addition to describing emoticons and other relatively new affective linguistic resources like *lmao* ('laugh my ass off') and *<3* (a heart on its side), I also show interesting patterns for more common English words. For example, *feel* is actually most commonly used for expressing negative emotions and negation (e.g., *can't*) is also markedly negative. I demonstrate the affective uses of *would* and the affective differences of various intensifiers like *really, so*, and *very*.

This chapter is also meant to introduce a variety of quantitative methods for studying affect including hierarchical clustering, factor analysis, and topic modeling. I provide overviews of these methods and detailed best practices for factor analysis, in particular, since it is often misapplied.

"Meaning" is a contested and contestable word, but I will treat it as I did with *little*—the meaning of an emoticon is discerned by its usage patterns—the words it co-occurs with, the people who use it, the stances it's connected to, and the types of audiences that it's most and least consistent with. None of these relationships are unidirectional, of course. Each element interpenetrates every other. You can tell a lot about an emoticon's meaning from the words it co-occurs with, but those words are also describable by the emoticons they occur with. This fact will allow us to show affect in words that we expect to have affect and it will also highlight some surprises—words we may not have expected to carry affective baggage with them. In other words, the null hypothesis is that a word should occur with each emoticon (and vice versa) at the level of chance. Although looked at another way, this is a very strange default. Affect permeates every part of our lives—

even reasoning seems to require it.[164] My hope is to not only demonstrate the crucial importance of affect in language but to show the ways we might go about studying it.

Why should you care?

Emoticons were first proposed in order to guide affective interpretations (in particular jokes).[165] From their modest beginnings in Carnegie Mellon, they have achieved broad penetration in computer mediated communicate. For example, I find that 9.70% of American English tweets include at least one emoticon.[166]

Beyond understanding widespread linguistic resources, I advance the claim that emoticons are preserving part of what happens in actual speech. So they are not idiosyncratic, unusual devices—looking at their usage is instructive for how other affective linguistic resources are used. By encoding meanings that are usually part of the speech signal, we can see what sorts of meanings are indispensable. Intonation is a rich source of affective meaning (Bolinger, 1989; Chang, 1958; Fonagy & Magdics, 1963; Frick, 1985; Lieberman & Michaels, 1962; Uldall, 1964). To some degree it's possible to communicate prosody with punctuation (*?!?!, ...*) and what I call affective lengthening *(soooo)*. And of course the contours of pitch are not the only thing one has access to in face-to-face conversations—we also have the dynamic contours of face and body movements. Emoticons also offer stylized representations of what gets lost when you switch to a text-only medium—like intonation and facial expressions. But as I'll show, emoticons are not simply representations of internal emotional states. They are more interactive in nature, positioning authors and audiences around propositions. The meaning of a given emoticon goes beyond its affective stance. For example, emoticons have variants that have greater or lesser affinities to

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[164] For example, before cognition can start, attention must be directed and affect points the way, e.g., Wells & Matthews (1994). For more about rationality and emotion, see also De Sousa (1987), Evans (2004), Frank (1988), Greenspan (2000), and Haidt (2001) and especially Damasio (2006).

[165] Emoticons—the inventor prefers "smileys"—were apparently first proposed in order to mark jokes in bulletin board discussions:

> 19-Sep-82 11:44   Scott E Fahlman   :-)
> From: Scott E Fahlman <Fahlman at Cmu-20c>
> I propose that the following character sequence for joke markers:
> :-)
> Read it sideways. Actually, it is probably more economical to mark
> things that are NOT jokes, given current trends. For this, use
> :-(

See also http://www.cs.cmu.edu/~sef/Orig-Smiley.htm and http://www.cs.cmu.edu/~sef/sefSmiley.htm.

[166] See "Basic emoticon dialectology and the data" below for details about the corpus.

standard language. Researchers who are interested in style, stance, affect, computer mediated communication, variation, context, and sentiment analysis will find ample grist for their mills.

I suspect the farthest reaching proposal here is my grappling with how to model speaker, audience, and topic/proposition. I pursue the idea that each linguistic resource in an utterance carries with it a range of meanings. Thus my work here takes indexical fields (Eckert, 2008) beyond modeling a single variant and into proposals for combining these ranges to arrive at narrowed-down interpretive ranges.

Why Twitter?

Twitter attracts a lot of research attention because it offers relatively easy access to vast amounts of data.[167] Other forms of computer-mediated communication like email, text messages, and IMs would be undeniably interesting sources for the study of affect, but they are much harder to come by given their private nature. So while studies using tweets are using convenient data, the real question is whether the data are appropriate for the research questions. Is there any problem with using Twitter to study affect?

Studies about vocal correlates of emotion were, for quite some time, limited to only acted speech (in particular, "read these numbers angrily/happily/etc.")—this may sound less than ideal but the goal was to sidestep the difficulty of getting actually emotional speech and to control for factors beyond immediate vocal cues. Juslin & Laukka (2003) reviewed 104 studies of vocal expression and found that only 12% used natural speech samples (mainly fear expressions in aviation accidents). Work on naturalistic corpora has increased through the efforts of the HUMAINE project, which serves as a repository of emotion corpora (Douglas-Cowie et al., 2007). However, in putting together a special issue on real-world affect in speech, Devillers & Campbell (2011) found that even today most materials are constructed and very few research groups try to deal with data collected in the wild. The corpus in this research is made up of language that people knew they had an audience for, but there is no reason to believe it was crafted for an academic observer.

If you regard Twitter as a medium where people simply send notes into the space or just a domain of electronic hobnobbing and marketing, then you aren't going to be all that excited to see it used as a source for affective meaning. Perhaps you would grant that it offers stylized affect but you'd

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[167] Munro & Manning (2012) suggest that there may be 464 times as many articles and presentations on Twitter in computational linguistics than would be warranted by the actual use of the medium compared to email and text messages.

be inclined to eye findings very skeptically. If you defined Twitter this way, however, you'd be wrong. Consider the collaboration and discourse coherence demonstrated in Honey & Herring (2009). Zhao & Rosson (2009)'s qualitative interviews with Twitter users reveal how Twitter is seen as a way to establish connection and common ground. The social dimensions of Twitter use also emerge in Ramage, Dumais, & Liebling (2010)'s characterization of content on Twitter; they find it necessary to posit four types of content: substance topics (about events and ideas), social topics (recognizing language used toward a social end), status topics (denoting personal updates), and style topics (embodying broader trends in language usage). Danescu-Niculescu-Mizil, Gamon, & Dumais (2011) even report that there is accommodation across users' communication.[168]

Perhaps you still have doubts. In that case, I'd ask you to examine the way this particular corpus was defined. In it, we focus on authors who are using Twitter to send @-directed messages and receive @-directed messages. It is further reduced to people who have at least 10 but no more than 100 such people in their social network. This eliminates people who are just trying Twitter out once as well as celebrities and marketers. In other words, whatever else can be said about Twitter users, the tweets used in this research are sent by users who really are using Twitter for communication and interaction. The caricature of tweets being about what people are eating— sent out to everyone and no one—is not accurate in general and it is certainly not accurate here.

The communicative, interactive nature of the Twitter corpus I'm using means that users really are taking affective stances. Over the rest of the chapter, I describe what sort of affective meanings make up the emotional universe of Twitter: how emoticons are similar and different from one another, how other linguistic resources pattern with regards to them, and what sort of dimensions of affective meaning are most crucial for characterizing what's going on. It is possible that these findings are restricted to the corpus I'm looking at—however, the research offers one of the largest studies of affective lexical resources and so it is reasonable to test the dimensions of meaning here against other kinds of interactions.

There are limits in describing the emotional universe of Twitter and in doing so by focusing on emoticons. Display rules for affect vary by cultures and particular conditions, so not all emotions are expressed on Twitter to the same degree as they may be in other situations and not all emotions are compatible alongside emoticons. Consider anger. There seems to be a restriction against *fuck you* appearing with emoticons. Since about 10% of tweets have emoticons, we

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[168] For a more historical orientation to the different uses and claimed uses for Twitter, see Dijck (2011).

would've expected *fuck you* to appear with emoticons about 10% of the time if everything were just random. But of course things aren't random. There are 7,550 instances of *fuck you* in the full Twitter corpus I'm using but instead of 755 tweets with *fuck you* and an emoticon, we only get 311.[169]

Anger is certainly an important emotion but it is highly regulated, which means that while I'll be able to describe a wide-range of affective stances, unalloyed anger is not among them. Such a blank spot does provide an insight. We can take emotional stances to be basic to human beings, so the absence of angry tweets marked with emoticons suggests that there is something in the nature of emoticon use that is incompatible with anger. If emoticons are meant to winnow down the range of affective interpretations, then it may be that angry tweeters don't care about narrowing the range and/or they don't need to. The affective signal may already be strong enough and for that matter any kind of clarification may be seen as a mitigation. And mitigated anger is rather different than the kind of anger that we think of when someone is really at a boiling point (whether seething or exploding).

In what follows, there will be many examples of what kinds of affective stances people take with emoticons—looking both at how emoticons pattern with other lexical items to learn about emoticons and how lexical items pattern with emoticons to learn about those words and phrases. But let me close this section with two quick contrasts to *fuck you*. There are 28,361 tweets with *love you* and an emoticon—that's over 2.19 times as many as we would've expected (133,592 total tweets with *love you* * 10% of all tweets have emoticons).[170] There are also 11,593 occurrences of *miss you* occurring with emoticons—that's 2.26 times as many as we'd expect. This chapter does not characterize all types of emotional displays but it does cover a very broad range.

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[169] These numbers have already pulled out references to CeeLo Green's popular song called "Fuck you". Tweets were filtered for *ceelo, green, song,* and *sing*. This removed 196 tweets.

[170] One of the fundamental claims in this chapter revolves around the interpersonal nature of emoticons, so it's probably worth stating that *you* itself is used 1.28 times more often with emoticons than we would've expected (659,029 tweets with *you* as opposed to the 516,410 that would've been expected were things distributed at random). If we remove *fuck you, love you,* and *miss you* from the mix, there are still 1.24 times as many *you*'s appearing with emoticons than we'd expect by chance.

Basic emoticon dialectology and the data

The moment you start talking about emoticons, you do need to specify which ones you are talking about. As an English speaker, you are likely familiar with turning your head to the side to read :), but you may be less familiar with the "East Asian style" where the face meets you straight-on:

(^_^)   (^_~)   (>_<)   (-_-)   d-_-b

Those are smiling, winking, angry, not amused, and listening to music, respectively.[171] There are interesting things to say about these emoticons—including contact-like issues of how they came to be picked up by native American English speakers and how they are deployed in terms of style, identity, and affinity marking (consider their broad usage by fans of Japanese *anime*, for example). But in both America and worldwide, it's faces-on-their-sides that are the most frequent emoticons and I will be restricting my investigation to them.

Selecting emoticons

From March 2006 to November 2009, InfoChimps recorded emoticons used in 1.6 billion tweets by 40 million users (Kromer, 2010). Their results include 39,405,473 emoticon tokens across 1,479 different emoticons. Here are their top ten:

1. :)   6.   =)

2. :D   7.   :P

3. :(8.   ;-)

4. ;)   9.   (:

5. :-)   10. XD

As you can see, even among the sideways faces there are variants—with or without a nose, different kinds of eyes (colons versus equal signs, for example), and mouth-first or mouth-second.

InfoChimps just gives raw emoticon token counts and they don't distinguish by language or region. The corpus at the heart of this chapter was collected by David Bamman for six months between January and June, 2011. These tweets were collected to be representative of American

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[171] InfoChimps provides data on 39 million emoticons worldwide over several years. The most popular is ^_^ with 179,184 uses (25th most popular), followed by (^_^) with 12,375 tokens (68th most popular), (^_~) gets only 357 uses (#198, no examples of the other eye winking). (-_-) has 6,054 tokens (#87). The others aren't matched in their corpus.

English speech so only tweets whose authors were geolocated in America were used. While code-switching was allowed, full-time non-English tweeters were filtered out.[172]

There is an important convention in Twitter, which is to direct another user's attention to a tweet you append "@" to their account name. Since we were interested in real Twitter users, not single tweeters or corporations, we restricted the corpus to accounts that had sent messages @ someone and had been @'ed back by that person (this is a better measure than following/followers of a social network since it requires actual interaction). We restricted ourselves to people who had at least four but no more than 100 of these "mutual @ing" friends. Taken together, these measures protected us from spammers as well as mega- and non-users. The result was 38,927,633 tweets. The data was tagged with the CMU Twitter POS tagger (Gimpel et al., 2010).

Shorthand	Emo	Ct	Perc	Shorthand	Emo	Ct	Perc
smile	:)	1,496,585	39.64%	frownnose	:-(	27,561	0.73%
wink	;)	397,745	10.54%	smileapos	:')	23,994	0.64%
frown	:(	312,769	8.28%	dworry	D:	23,901	0.63%
bigsmile	:D	281,907	7.47%	smilebrac	:]	21,030	0.56%
smilenose	:-)	183,131	4.85%	eqeyesbigsmile	=D	20,785	0.55%
tongue	:P	169,417	4.49%	slantnose	:-/	19,176	0.51%
rsmile	(:	155,571	4.12%	eqeyesbrac	=]	17,504	0.46%
slant	:/	126,640	3.35%	winktongue	;P	17,460	0.46%
xeyesbigsmile	XD	114,862	3.04%	tonguenose	:-P	16,263	0.43%
eqeyessmile	=)	79,054	2.09%	frownapos	:'(	15,964	0.42%
winknose	;-)	70,618	1.87%	bigsmilenose	:-D	15,679	0.42%
omouth	:O	60,822	1.61%	eqeyesslant	=/	15,241	0.40%
winkbigsmile	;D	34,907	0.92%	eqeyestongue	=P	14,055	0.37%

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[172] All authors had to use at least 50 of the 1,000 most common words in the US sample overall (predominately English terms).

Shorthand	Emo	Ct	Perc	Shorthand	Emo	Ct	Perc
		28,614	0.76%			13,919	0.37%
doublesmile	:))			eqeyesfrown	=(		

Table 55: From the American English Twitter corpus being studied in this chapter: counts/percentages of tweets with the top 28 emoticons.

Everything that received the emoticon tag was considered and the top 28 were taken. The corpus was then filtered to the 3,775,174 tweets that included at least one of the 28 emoticons. These tweets are made up of 18,559 word_pos pairs (13,411 unique words; 21,891,914 total tokens).

Another way to organize the data is by "family":

- Smiles

    :D   :-D   :))   =D   =]   =)   (:   :)   :')   :]   :-)
          XD

- Winks

    ;)   ;D   ;-)   ;P

- Tongue-sticking-out faces

    =P   :P   :-P   (and ;P see above)

- Frowns

    D: =(:(:'(:-(

- Slants

    :/   :-/   =/

- Open-mouths

    :O

Even though these 28 emoticons were chosen to represent American English usage, they still give very good worldwide coverage. In all, they account for over 90% of the emoticon tokens reported by InfoChimps.[173] All of the top ten worldwide emoticons are part of the 28.

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[173] InfoChimps does not report :)) or :'), which are sizeable in Bamman's corpus.
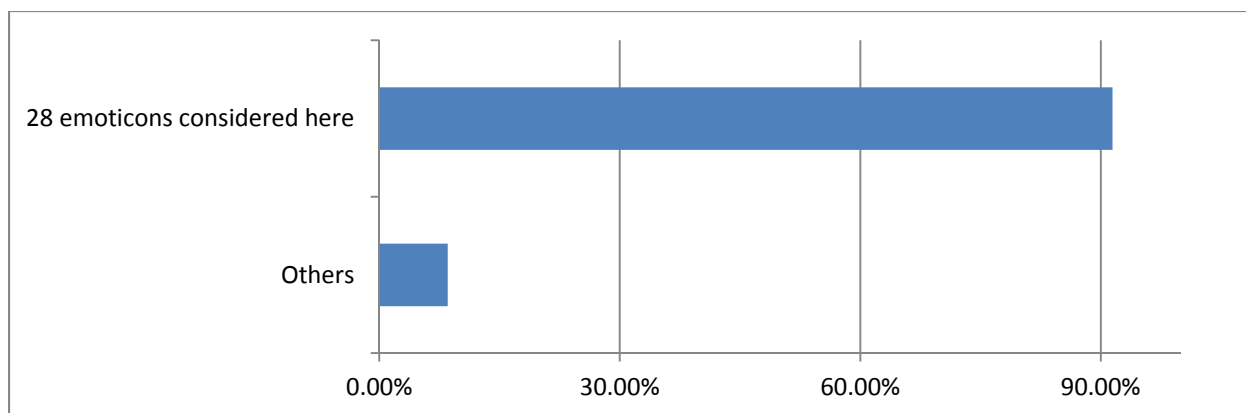
Figure 19: The emoticons I'm focused on cover the vast majority of all worldwide emoticon tokens. (The percentage is even higher in America.)

Variation by authors

I noted that there are variations between noses/noselessness, the type of mouth, the type of eyes, and the direction of the face. There are a total of 102,304 authors in our American English data. Let's consider people who have used at least 10 emoticons. There are 43,962 such users. The most widely used emoticon is :). There are 21,124 people who have 10 or more uses of it and of these there are actually 17,073 who use :) only and no other emoticons at all.

One way of understanding emoticon variation is to look at what happens to people who are doing something other than the mainstream. There are 4,539 users who have no :)'s at all, but 10 or more other emoticons. In the four cases I show below, there are actually over 2.5 times as many users as we would've guessed just using raw probabilities from counts-per-user.[174]

- :-)   983 users with 10+ uses

- (:   606 users with 10+ uses

- =)   371 users with 10+uses

- ;-)   357 users with 10+uses

These are the leading alternatives to the standard smile—adding a nose, putting the mouth first, changing the eyes to equal signs, or simply abandoning smiling for noseful winking. In later sections, we'll look at word patterns and also find more evidence that noses are different, so let's

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[174] Here's an example of the math: of our 43,962 users with more than 10 emoticons, there are 816 who use ten or more ;-). There are 4,539 users with more than 10 emoticons but no :) tokens. So if there was nothing conditioning emoticon patterns, we would expect (816/43.962)*4,539=84 people who never used :) but did use more than 10 ;-). Instead we get 4.2 times that—357 users.

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take a little more time with the per-user behavior. There are 23,773 tweeters who use at least 10 of :) and/or :-). Of these:

- As mentioned above, there are 21,124 users that have 10 or more :)'s.

    o 17,731 of these have zero :-)'s

    o Only 804 use :-)'s 20% of the time or more

- There are 2,388 users that have 10 or more ;)'s

    o 983 have 0 :)'s

    o 696 use :)'s 20% of the time or more

- Another way of figuring it—we would've expected only 1,147 people to have both 10+ :)'s and 10+ :-)'s, and instead we get just 513.

Such constraints do not hold for all emoticons. When we look at people who have at least 10 tokens of :) and 10 tokens of other emoticons, we see that users of :) are also quite happy to be using a number of other emoticons, presumably to express different kinds of affective stances. Each of the following had at least twice as many actual users as we would've expected.

- ;)   3,739 users with 10+ uses (we would've guessed there were only 1,505 such users)

- :(2,929 users with 10+ uses (we would've guessed 1,033)

- :D   2,785 users with 10+ uses (we would've guessed 1,167)

- :P   1,628 users with 10+ uses (we would've guessed 655)

- :/   1,135 users with 10+ uses (we would've guessed 411)

In a moment, I will shift to word patterns, but for the moment what I'd like to impress upon you is that there is variation in emoticon use but there seem to be two types. One seems to be a kind of stylistic, almost aesthetic issue of what kinds of eyes and mouths you want to use, which way the emoticon should face, and whether or not it should have a nose. I will return to noses, in particular since the tendency for noses vs. no-noses holds not just for smiles, but for frowns, slants, winks, and tongues, too. The second issue is more about the affective stance. This will be

most clearly illustrated by turning to word patterns, however, it might be useful to show how "affective stance variation" works at a per-author level.

Consider tongues and winks. There are 6,326 tweeters who use at least 10 of ;) and/or :P. Of these:

- There are 2,159 users that have 10 or more :P's.

    o There are 323 who have 0 ;)'s

    o But 1,117 use ;)'s 20% of the time or more

- There are 4,960 users that have 10 or more ;)'s

    o 2,293 have 0 :P's

    o But 1,271 use :P's 20% of the time or more

- Another way of figuring it—we would've expected only 244 people to have both 10+ :P's and 10+ ;)'s, and instead we get 793.

Two things are worth observing here. The first is that there is no constraint on the pair of ;) and :P as there is on :) and :-). The second is that winks are more popular than tongues, so that there are more people who use winks-without-tongues than the reverse. Recall that tongues are the seventh most popular emoticon worldwide and the sixth-most popular in our American English sample, meaning that it is unlikely that the people who fail to use tongues have just never seen them. Rather, people who avoid tongues are presumably avoiding the meaning associated with it. And it's to figuring out how to assess affective meaning that I now turn.

Discerning cues

Let's begin with an example from our dataset, keeping the emoticon that's actually used a secret.

(81)   @KevinHarvick Aww, leave the cute little ground hogs alone. That is so sad…
         {emoticon}

If I asked you to guess which emoticon goes in that space, you're probably going to guess something in the "unhappy" family and odds are you'll guess the noseless, eyes-first :(because it's the most popular of those. You understood the second part of that by frequency and familiarity. But what linguistic resources gave you the idea that you needed to select from the

unhappy emoticons in the first place?[175] I'll start with intuitions before making things more quantitative.

The strongest cue may be what is occurring closest to the emoticon, in this case *so sad…*, which is comprised of an actual emotion term, an intensifier, and a trailing-off ellipsis.[176] The initial *awww* is as much an affect sign post as *sad*, though it carries a few different meanings beyond "that's sad/too bad". It is particularly performative distress.

We also get the *leave X alone* construction, which indicates a positive stance towards the X. In this case, that X is modified by *cute little* confirming the positive stance and the preciousness/smallness/helplessness of the ground hogs. This makes sense—what are the things we order people to leave alone? Those things that we think need protection—describing something in diminutive terms goes along with this.[177]

We'd like to make use of intuitions and nuanced judgments, but how can we connect situated uses to broader patterns? Do these qualitative observations actually hold in any kind of quantifiable, generalizable way?

There are 8,409 tokens of *sad_a* appearing with our 28 emoticons. :) occurs with 8,559,251 words. Again there are 21,891,914 words that appear with any emoticon at all. So if :) were just a random tag with no meaning, then we'd expect there to be:

- $(8{,}409 / 21{,}891{,}914) * (8{,}559{,}251 / 21{,}891{,}914) * (21{,}891{,}914) = 3{,}287.7318$ tokens of *sad* alongside :)

But there are actually only 1,072 cases of :) and *sad_a* appearing together. That's 33% of what we'd expect and that's highly significant by Fisher's exact test (p=4.9752e-321).

In Table 56, I take the words in (81) and show which emoticons they co-occur with across the whole corpus at an unusual (and statistically significant) level. The general framing of the tweet is

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[175] And ultimately, how similar are the unhappy emoticons with each other?
[176] We might also look at *that*, which may carry with it shades of affective meaning (Acton & Potts, 2011; Davis & Potts, 2010; Lakoff, 1974; Liberman, 2008a, 2008b, 2010; Potts, 2008; Potts & Schwarz, 2010). *That* is particularly associated with =P, ;P, :P, :-P, ;), and ;-). In other words, kind of complicated, teasing emoticons. It is least associated with happy :)), (:, :], negative D:, :'(.
[177] Finally, we can also note that the tweet is directed towards Kevin Harvick. Demographic information about the speaker and the listener are certainly part of our information. Here we just know that the main target is probably a guy and he has probably said something negative about ground hogs (since the injunction is for him to leave [them] alone, which contrasts with 'doing something to them'). Part of the information we are recruiting in understanding affectivity is gender-related—how men and women speak to men differently, for example.

done by the words *awww*, *leave*, *alone*, *so*, and *sad*. So we expect emoticons that are attracted to those words. Because *cute little* occurs inside the *leave alone* framing, we actually expect emoticons that are constrained <u>against</u> occurring with these words. That is, they will be licensed by positive emoticons in positive sentences and licensed with negative emoticons when in negative sentences. So we would expect :) with a tweet like *I love cute little ground hogs* or *it's a cute little ground hog*, but not for *I hate cute little ground hogs* or *it's not a cute little ground hog*. We expect the restriction of *cute* and *little* appearing with :(loosens when *cute* and *little* are embedded in an affectively negative clause. In other words, we expect to see *awww, leave, alone, so, sad* in the left column and *cute* and *little* in the right column.

Emoticon	Attracted to	Repelled by
:D	so (1.19)	sad (0.31), alone (0.56), leave (0.65), little (0.80)
:-D		sad (0.23), leave (0.40)
:))	awww (1.95), cute (1.49)	sad (0.32)
D:	alone (2.34), sad (1.59), leave (1.58), so (1.29)	cute (0.42)
=D	awww_!	sad (0.25), leave (0.35)
=]	cute (1.42)	sad (0.31)
=(	sad (6.03), alone (2.82), awww (2.53), leave (2.11)	cute (0.30)
=/	alone (2.18), sad (1.91), leave (1.64)	cute (0.32)
=)	awww (1.39), cute (1.21)	sad (0.25)
=P		sad (0.40), cute (0.45), so (0.58)
:(	sad (5.78), alone (2.41), leave (2.02), awww (1.66), so (1.34)	cute (0.33)
:'(	sad (8.05), alone (2.98), leave (2.19), so (1.79)	cute (0.23)
:-(	sad (6.08), awww (2.16), leave (2.12), alone (1.71)	cute (0.23)
:O	… (4.60)	awww (0.52), cute (0.62), sad (0.71), so (0.87)
(:	cute (1.85)	sad (0.37), so (0.93)

Emoticon	Attracted to	Repelled by
:/	alone (2.52), sad (2.03), leave (1.71)	cute (0.40), little (0.79)
:-/	alone (1.79), sad (1.66)	cute (0.30), awww (0.62), so (0.82)
:)	cute (1.20), little (1.09), so (1.04)	sad (0.33), alone (0.69), leave (0.81)
:')	awww (2.68), cute (2.35), so (2.31), little (1.79)	sad (0.49)
:]	cute (1.80)	sad (0.34), leave (0.49)
:-)		sad (0.24), alone (0.62), so (0.93)
:P		sad (0.43), awww (0.54), so (0.69), cute (0.78)
:-P		sad (0.39), awww (0.41), so (0.54)
;)		sad (0.30), awww (0.59), so (0.69), alone (0.84)
;D		sad (0.23), leave (0.57), little (0.66), awww (0.72), so (0.74)
;-)		sad (0.25), awww (0.57), so (0.58), cute (0.65)
;P		awww (0.38), sad (0.59), so (0.60)
XD		sad (0.39), awww (0.58), alone (0.67), leave (0.73), little (0.80), so (0.85), cute (0.85)

Table 56: Which words go with which emoticons? The numbers in parentheses indicate the percentage of observed tokens relative to the expected tokens (if we just use the marginals for the words and emoticons). All reported OE values are statistically significant by Fisher's exact test.

Notice that none of the "happy" emoticons are compatible with the text of the tweet, as we'd expect. Many of the negative emoticons are, but not all. For example, :-/ doesn't occur with *awww* or *so*, and :O doesn't like those two or *sad*. It is beyond the scope of this work to demonstrate how best to combine compatibilities and incompatibilities since that would involve assessing things like distance-from-emoticon and other weights. That said, a fairly straight-

forward, unweighted approach to combining OEs scores results in these top and bottom scoring emoticons for this sentence:[178]

- Most compatible: :(:'(=(

- Least compatible: :]   :)   :-)

And indeed, this user did actually put a :(in the tweet itself.

Looking at this one tweet so closely allows us to connect broader patterns and situated uses together, as in the chapter on *little*. And what we find is that a number of elements display a range of meanings. *Awww* is particularly flexible, matching up well with frowns like :(,:-(, and =(, but also with smiles like :'), :)).[179] In fact, each of these words can be treated as having a range of meanings—an indexical field of its own. And our task is to see how co-occurring indexical fields narrow the field of possible interpretations. *Awww* in a different context would cue a double-smile, but here each linguistic resource works to narrow down the interpretive space of the others.

Clusters of emoticons, dimensions of affective meaning

In the previous section, I gave examples of the relationship between words and emoticons, but only examined a handful. In this section, I demonstrate that expanding to over 13,000 words, we can uncover the relationship between emoticons and the key axes along which they vary from one another.

Human beings are good at picking out 2 or 3 dimensions from a pile of data, but here we have 28 emoticon dimensions, so we have to find a different way to find the ways the data cluster. I will consider three different ways to find out which relationships and words are worth paying the most attention to. Each method has its strengths and its blind spots, but the story that emerges is coherent. The three techniques I'll employ are:

- Hierarchical clustering

- Factor analysis

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[178] Here I treated insignificant OE's as "0". An OE greater than 1 was left as-is, an OE less than 1 was turned negative (OE-1). The exceptions were for *cute* and *little* which were in a negative scope, for emoticons with OE scores greater than one, they were transformed to –OE, for OE's less than 1 they were transformed to (OE+1). I did no weighting, so whether you simply add scores together or average them, you end up with the results reported above.

[179] It is least compatible with :P, ;-), :O, :-P, and ;P.

- Topic modeling

What unites all of these is an attempt to take multivariate data as an input and to output the crucial patterns—the one that are in some sense "really there". The first section, on hierarchical clustering, offers the most general clustering of emoticons, allowing me to show which groups of emoticons are more and less like one another. I also look for such patterns in factor analysis and topic modeling, although my focus is on two particular strengths of these latter two methods: uncovering latent dimensions and calling attention to keywords that are worthy of special attention.

Data transformations for cluster analysis and factor analysis

I begin with the data described in "Selecting emoticons"— 3,775,174 American English tweets with one of the 28 emoticons (18,559 word_pos pairs made up of 13,411 unique words; 21,891,914 total tokens). We'd like to know which words go with which emoticons—but restrict ourselves to those that have a statistically significant relationship. To calculate significance, I begin with Fisher's exact test, which is not susceptible to the same problems as chi-squared tests when it comes to small cell counts.

I treat each word_pos-per-emoticon as a 2x2 contingency table, using a tool provided by Carlson, Heckerman, & Shani (2009). This tool reports both p-values and q-values, the latter of which has to do with false discovery rates.[180] In our data, q-values are always more conservative. That is, the word_pos x emoticons that fail to reach < 0.05 significance using p-values are a perfect subset of those that fail to reach < 0.05 significance using q-values. For that reason, all word_pos x emoticons that have a q-value > 0.05 are said to have no special relationship between the word and the emoticon. They are coded as "1", while all significant values are coded as their "observed/expected" ratio. Since our clustering techniques will be sensitive to spread, all word_pos x emoticons that have an OE > 3.0 were reduced to 3.0.[181]

Since we are interested in clustering, we only consider word_pos's that have over- or under-representation with at least two emoticons. That is, word_pos's that have 27 or 28 1's don't tell us

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[180] See Benjamini & Hochberg (1995) for more about False Discovery Rates—the expected proportion of false positives among all significant hypotheses. See Storey (2002, 2003) for further development and the notion of a q-value, which gives a Bayesian measure of significance in terms of (positive) False Discovery Rates.

[181] This may be redundant, but I think it is helpful to picture the data matrix: imagine the rows are word_pos and the columns are emoticons. Each cell describes the relationship from 0.0 to 3.0: under 1.0 indicates that the word_pos and the emoticon are constrained from appearing together; a value over 1.0 indicates that the word_pos and the emoticon occur together significantly more than we'd expect. A value of 1.0 indicates there is nothing special going on—it failed the test of significance.

about how the words and emoticons cluster, so they are left to the side. All told, the hierarchical cluster analysis and the factor analysis make use of 8,913 word_pos pairs (6,909 unique words) combining with one of 22 part-of-speech tags. The cluster analyses and factor analyses shown below are done on significant OE values, but the underlying data is comprised of 20,434,406 total tokens.[182]

Tag	Description	Examples	Percentage
N	common noun (NN, NNS)	books someone	15.22%
O	pronoun (personal/WH; not possessive; PRP, WP)	it you u meeee	0.75%
S	nominal+possessive	books' someone's	0.02%
^	proper noun (NNP, NNPS)	lebron usa iPad	29.42%
Z	proper noun + possessive	America's	0.22%
L	nominal + verbal	he's book'll iono (= *I don't know*)	0.99%
M	proper noun + verbal	Mark'll	None
V	verb incl. copula, auxiliaries (V*, MD)	might gonna ought couldn't is eats	12.43%
A	adjective (J*)	good fav lil	4.98%
R	adverb (R*, WRB)	2 (i.e., too)	2.14%
!	interjection (UH)	lol haha FTW yea right	6.71%
D	determiner (WDT, DT, WP$, PRP$)	the the its it's	0.45%
P	pre- or postposition, or subordinating conjunction (IN, TO)	while to for 2 (i.e., *to*) 4 (i.e., *for*)	0.82%
&	coordinating conjunction (CC)	and n & + BUT	0.06%
T	verb particle (RP)	out off Up UP	0.04%
X	existential *there*, predeterminers (EX, PDT)	both	None

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[182] Topic modeling is done directly on the tweets themselves and do not make any reference to OE values or q-values or the like. They will consider every word_pos in every tweet that has any one of our 28 emoticons.

Tag	Description	Examples	Percentage
Y	X + verbal	there's all's	None
#	hashtag (indicates topic/category for tweet)	#acl	2.23%
@	at-mention (indicates another user as a recipient of a tweet)	@BarackObama	12.26%
~	discourse marker, indications of continuation of a message across multiple tweets	RT and : in retweet constructions RT @user : hello	0.17%
U	URL or email address	http://bit.ly/xyz	0.12%
E	emoticon	:-) :b (: <3 o_O	8.01%
$	numeral (CD)	2010 four 9:30	0.84%
,	punctuation (#, $, ' ', (,), ,, ., :. ``)	!!! …. ?!?	0.12%
G	other abbreviations, foreign words, possessive endings, symbols, garbage (FW, POS, SYM, LS)	ily (*I love you*) wby (*what about you*) 's → awesome…I'm	1.97%

Table 57: Tags, definitions, and examples from (Gimpel et al., 2010, p. 2). The percentages refer to the data under discussion—of the 8.913 word_pos pairs considered for hierarchical clustering and factor analysis, what percent are assigned to each tag?

Hierarchical clustering

There are a number of hierarchical clustering techniques—here I use agglomerative hierarchical clustering. This starts with each point as an individual and then fuses like points together one-by-one. Once a fusion is made, it's done and the new fused point is available for further fusing if there's another point nearby. By joining "like points" one-by-one, the algorithm ultimately ends up with one big point, which can show the hierarchy that went in to building it.[183]

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[183] Note that the technique of fusing means that a point can only be in one group. This is a simplifying assumption that forces strong claims. But it may not really be the best representation of words or emoticons, which like *awww* or :O can belong to several groups. This assumption is less of a problem in factor analysis and not a problem at all in topic modeling.

In order to fuse points that are alike, we have to have some notion of "alike", which is done partly by talking about distance and partly by choosing which things to fuse first.

Imagine we have two words and two emoticons, then we have points (w_1e_1, w_1e_2) and (w_2e_1, w_2e_2). How close are they? If these were locations in Manhattan, then the distance between them would require us to follow the streets—if they were (1,1) and (0,0), then we'd first have to go to (1,0) or (0,1) before getting to (0,0). So the distance between (1,1) and (0,0) is 2 by Manhattan/cityblock distance calculations. Alternatively, if we make a bee-line through the space, then we would say that the distance is the length of the diagonal: $\sqrt{2}$. This is Euclidean distance and that's what I use here.

In deciding which items to fuse at each step, we are trying to optimize some function. In this case, I use Ward's method, which is to minimize variance. At each step, the points that are merged are the ones that "do the least damage" to existing clusters. Each fusing will add some variance, so the preferred fusing is the one that adds the least.

The results of this clustering are shown in Figure 20.
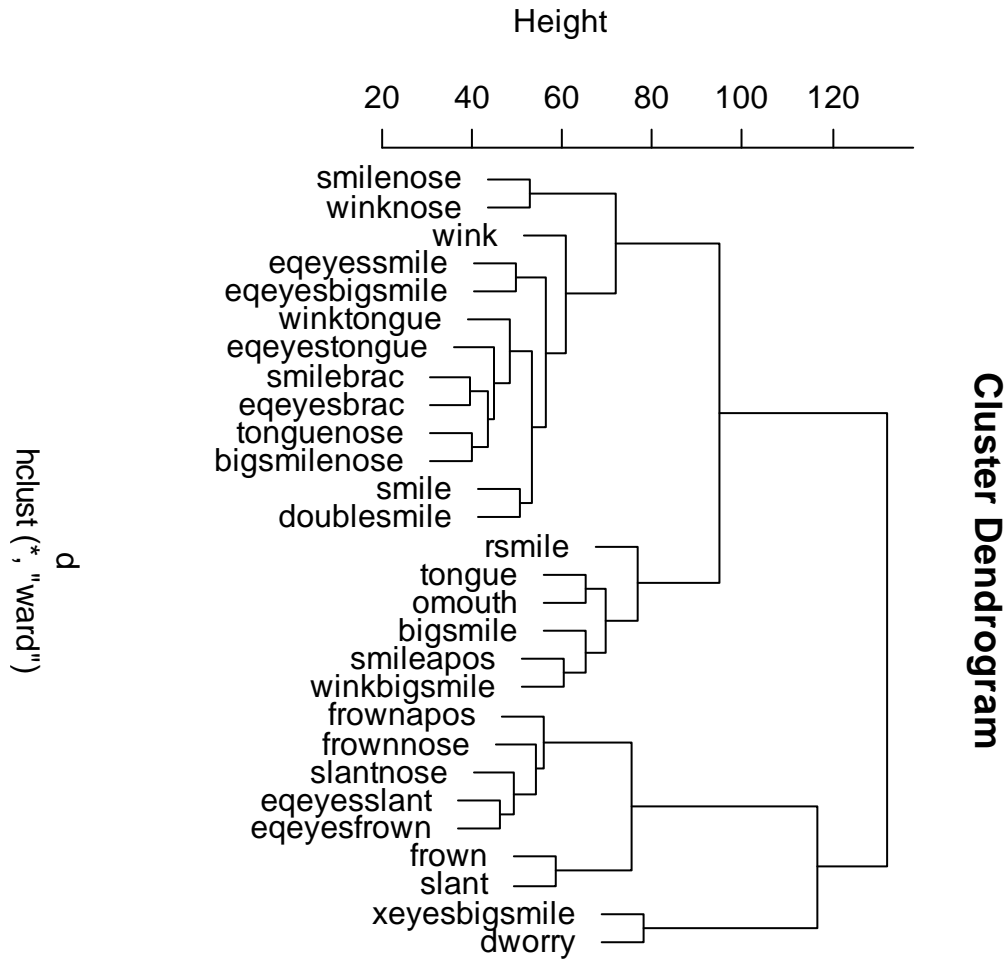
Figure 20: Agglomerative hierarchical clustering results for all words (Euclidean distance, method=ward).

There are several things to observe about this clustering, the first and perhaps greatest is that the basic division is between pleasant and unpleasant emotions, like:

:-)   ;D   vs.   :'(D:

The division between positive and negative affect really is basic enough to the enterprise that if our methods didn't recover this distinction, we would be skeptical that they had any worth at all.

Agglomerative hierarchical clustering shows a structure, but that doesn't mean we can trust every division equally. One way to see which groups come out most strongly is to calculate p-values for each cluster using multiscale bootstrap resampling. This tests the hypothesis "this cluster doesn't exist" to see whether it is accepted or rejected. Clusters that don't achieve significance with

bootstrapping may just be caused by sampling error. Here I use 6,000 bootstraps (all standard errors are below 0.010).

The clusters supported by bootstrapping are:

- Happy noses   :-)   ;-)

- Happy2   =)   =D   ;)   =P   :]   =]   :-P   :-D   :)
  :))

  - Within this cluster, we can distinguish =) and =D as a reliable subcluster and =P, :], =], :-P, :-D as a separate subcluster, too.

- Happy3   :P   :O   :D   :')   ;D

  - Within this cluster, :P and :O go together as do :D, :') and ;D, with the latter two also forming a separate subcluster.

- Noseless unhappy   :(:/

- Unhappy2   :'(:-(:-/   =/   =(

  - Within this cluster, we can see that =/ and =(form a subcluster that can be reliably distinguished

Figure 21:Cluster dendrograph with approximately unbiased and bootstrap probability p-values. Red boxes and scores above 0.95 indicate clusters that are significant even using resampling methods. Distance is Euclidean, the method is "ward".

At the beginning of the chapter, I examined emoticon variation at the author-level, restricting myself to people who had lots of emoticon uses. The present analysis uses a different lens—words, not authors. The words have authors, of course, but this is a rather distinct method, with different assumptions, considering a different part of the data. Despite these differences, we still get similar findings. For example, noses really don't go with non-noses and eyes, mouths, and face-direction seem to matter, too.

- Noses consistently pattern separately from non-nose variants—not just for smiles but for frowns, slants, winks, and tongues, too.[184]

- Equal eyes pattern with noses and not with the more prevalent non-nose versions, with the exception of =] and :] which pattern together.

- Simple ;) and :P pattern separately, but the other wink/tongue variants behave in patterns that are not entirely clear.

We may also notice the following:

- XD represents scrunched eyes with a mouth that is spread open. It's compatible with both joy (a big grin and so much enthusiasm your eyes are closed) and embarrassment (where the mouth is more horrified that broadly smiling). It is, therefore, an ambiguous emoticon. Its placement with the distressed, open-mouthed D: cannot be confirmed by bootstrapping, but these do clearly pattern with the negative emoticons.

- :O is an open mouth that indicates surprise—surprise itself is ambiguous, of course—you can be happily surprised or mortified. In this analysis, it looks like it is positive, or since it's occurring next to :P, the clustering may be picking up on its use in teasing.

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[184] Note that some mobile phones require users to include a nose if they want the emoticon to be rendered graphically (as a straight-facing yellow/green smiling face, for example, rather than as punctuation on its side). This is not controlled for in this study, but should pose no problem. If you make the (odd) assumption that mobile phone use and/or desire for yellow faces instead of punctuation are randomly distributed across social categories, then there is decidedly no effect. If you make the (more reasonable) assumption that such things are not randomly distributed, then it is simply part and parcel of what I am talking about: the meaning of an emoticon is partly who uses it. Part of "who" includes traditional categories like gender, age, and race, but also things like personality and purchasing decisions—all of which are wrapped up in each other.

Do only noseful smiles smell sweet?

We have found that noses and non-noses cluster separately whether we analyze them from the author-perspective or the co-occuring-word perspective. But surely :) and :-) mean the same thing, don't they?

It's hard to get a handle on "meaning" because it is an emergent property of social relations, not something that an object or a symbol has in and of itself. A sonogram or a bouquet of roses are meaningful because there are patients, doctors, lovers, and florists to give them meaning. What we usually mean by "meaning" is an interpretation that is shared by people we're familiar with using familiar interpretive schemes. Our inquiry is a lot more tractable if we shift from a concern about "meaning" to asking what ranges of interpretations are conventionally hooked to particular linguistic resources and how the different interpretations are distributed across people and contexts. To look at use (and non-use) will always involve looking at both who and when. In the immediate case, people are distinguishable by their use or non-use of noses. And this carries over to how they use their emoticon of choice—they use them with different words.

There are words that are used a lot more than expected alongside both :) and :-). These include *thx_!, congrats_!, thanks_!, pleasure_n, enjoyed_v, blessings_n, grateful_a,* and *safely_r*. And we believe from our own experience and from talking or reading about emoticons, that at the very least there is an ideology that they are expressive of affect. Thinking along these lines, we could imagine that noseful and noseless users differ by stylistic expressions and types of topics they talk about, but that when it comes to actual affect, the noses make no real difference.

To test this, we can stop looking at co-occurrence of emoticons with all words and start looking at co-occurrences with words we know to be emotional (*angry, happy, sadness, frighten*). Earlier I described 13 emotion lists and I'll restrict myself to words that are on 2 or more of these 13 lists (10,592 unique words).[185] There are 873 word_POS pairs that meet this criteria among words that aren't just all 1's for every emoticon. I remove items that are mistagged (e.g., "e" is the emoticon tag, but there are 78 tokens of *clever* that are tagged with "e") or have tags that aren't of interest (proper nouns). I also remove word_pos items that are not affective, such as the nominal forms of *content* and *well*. Some words are, of course, affective in several parts of speech—*hurt* and

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[185] You can find these affective lexicons using the following citations:
Altarriba, Bauer, & Benvenuto (1999); Bednarek (2008); Dahl & Stengel (1978); DeRose (2005); Heise, (2001); Kamvar & Harris (2011); Morgan & Heise (1988); Ortony, Clore, & Foss (1987); Scherer, Wallbott, & Summerfield (1986); Shaver, Schwartz, Kirson, & O'Connor (1987); Storm & Storm (1987); the 13th wordlist was created using COCA (M. Davies, 2008) to identify the top collocates within a three-word window of *emotion*, *express*, *sound, feel*, and *feeling*.

offended, for example—I leave these in so the 536 word_pos pairs are made up of 451 unique words.
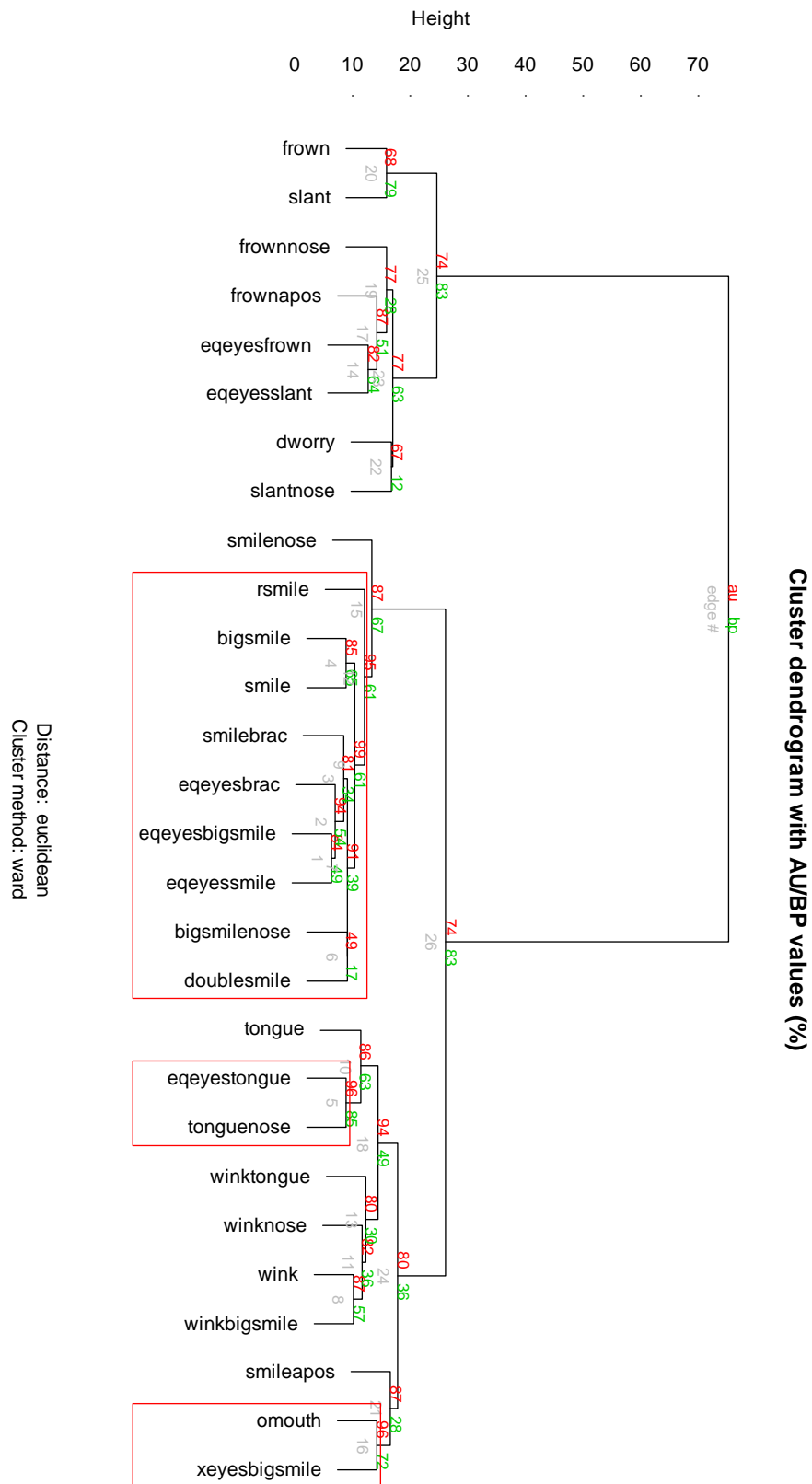
Figure 22: Just affective words. Cluster dendrograph with approximately unbiased and bootstrap probability p-values. Red boxes and scores above 0.95 indicate clusters that are significant even using resampling methods. Distance is Euclidean, the method is "ward".

Once we restrict the data to emotion terms, the following findings emerge:

- We cannot say anything reliable about the negative emoticons, other than that they are separate from the positive emoticons. In one way, this is saying that there is no significant difference between :-(and :(or between :-/ and :/, but it's also saying that there's no reliable difference in affect between frowns, slants, frowns-with-equal eyes, D:, or :'(, either.

- We can say that once we restrict ourselves to affective words, then XD clearly moves out of the negative emoticon cluster. In fact, we can reliably say that it patterns most closely with :O. This is interesting since both express ambivalent emotions (embarrassment/joy and happy surprise/horrified surprise).

  - But notice the words that they appear with a disproportionally large number of times: *gay_a, awkward_a, bitch_n, holy_!, stupid_a, weird_a, fake_a, kill_v, sister_n, crazy_a, creepy_a, dare_v, ghetto_a, insane_a, scare_v, scared_a, slap_v*. These are not straight-forwardly "positive" affective terms.

- While we can reliably distinguish winks from tongues in the full data set, when we restrict ourselves to affective terms, we can only reliably say that =P and :-P are set apart. The noseless :P is placed near them, but whether we place it inside or outside of the =P/:-P cluster we cannot be sure it isn't just a sampling error guiding our choice.

- The "smile" cluster has two subgroups. The first, shown as the red box in Figure 22, sets smiles apart from all other emoticons.

  - Although :-) is a bit outside, this may be due to sampling error. It could belong inside the red box or outside.

  - (: is reliably separate from the majority of smiles.

  - And:], =], =D, =), :-D, and :)) also form a distinctive subgroup.

- While :D and :) use words like *sweet_!, amazing_!, holy_!,* and *super_r,* the equal eye family steers clear of those words (using them at chance levels). The equal eyes family is particularly defined by very straight-forward emotion and politeness terms: a propensity towards *thank_v, welcome_v,* and *happy_v* and away from things like *sad_a* and *hate_v.*

If we change our definition of "affective terms" to be "on at least 3/13 lists" instead of 2 of 13, then we do actually see :/ and :(as one reliable cluster and :-(, =(, :'(, :-/, D:, =/ as a separate reliable cluster. That is noses make a difference and :(and :/ are affectively different than :-(and :-/.[186] What we gain in structure of the negative emoticons, we lose in structure of the positive emoticons. Under the 3/13 definition, the only clusters that are backed up by bootstrapping are (i) smiles (as a class including all the variations except with the apostrophe) versus (ii) winks/tongues/:O/XD/:').

Our results for affectivity are useful because they confirm and refine clusters we saw in the full data set. Let's start with clusters that both agree on. We can reliably divide emoticons into not just positive and negative groups, but into two different negative groups (at least). And among positive emoticons, we can be sure of a "smile" cluster and a "tongue" cluster. Given the full data set, we also have reason to believe that "winks" form an important group, though emotion terms are not as closely linked to them. We also have interesting differences in :O and XD. Factor analysis and topic modeling will also confirm the importance of these groups and allow me the chance to describe them more fully. For the moment, however, I would like to pursue the issue of noses since nose-variants and non-nose variants clearly use different vocabularies. The affective stance of :) and :-) may indeed be the same—the clustering of emotion terms will neither confirm nor deny it. But the people using these are using them differently. Who are they and what are they doing?

Reduction due to frequency

We might suspect that people who use emoticons a lot don't use noses as much. This is true. People who use emoticons in 250 or more tweets, use noseless variants of smiles/winks/tongues/frowns/slants more than those who don't use emoticons very often. This is also true if we restrict ourselves to users who have some variation—that is, people who <u>do</u> use nose-variants between 10-90% of the time. Of these people, the ones who use emoticons a lot— 250+ times—use noses 33.41% of the time, but the 10-15 emoticon use them 41.19% of the time (p=0.00352 by t-test).

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[186] In fact, we also see that this larger group is divisible into two distinct clusters: frowns :-(, =(, :'(on the one side and the slants, on the other: :-/, D:, =/.
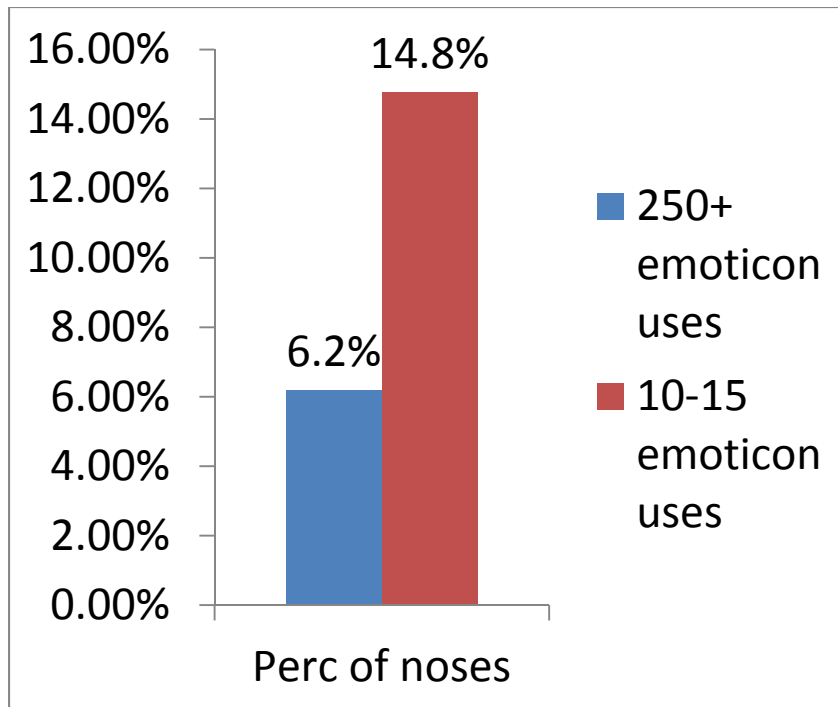
Functional reduction

Twitter imposes a 140-character limit per tweet. So perhaps noses are really just thrown out to make room. If this is so, then we'd expect that tweets with :) should be longer than tweets with :-) because more people were feeling the pressure to save a character.

But this isn't what happens. If we take 30,000 random :) tweets and 30,000 random :-) and asses the number of characters, we find that people who use noses are writing _more_, not less. Another way to say this is that people who leave off the noses are shortening a lot of other things, too.
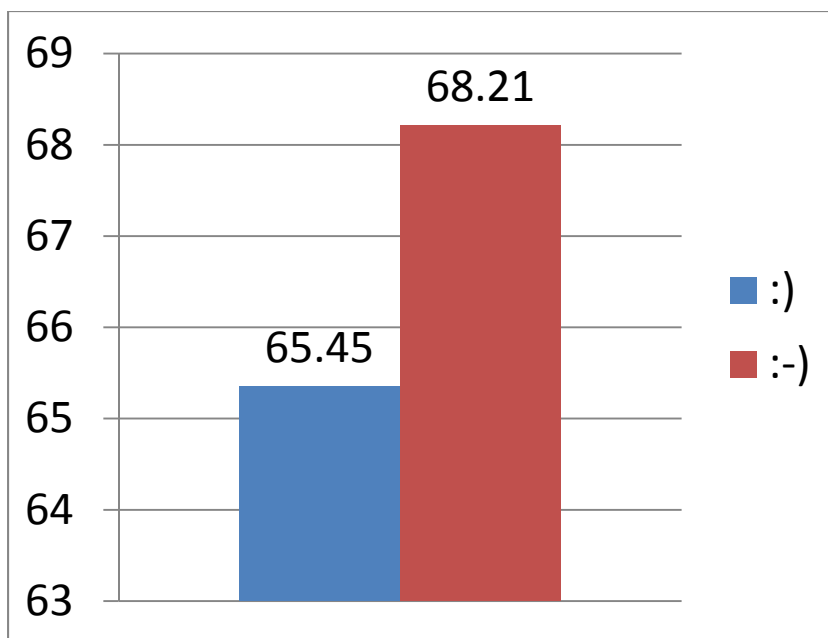
Stylistic differences

One of the most interesting length phenomena on Twitter is what I'd call "expressive lengthening":

- *sooo, hahahaaa, heeeey, yayyyy, lollll, yummm*

There are 467 words like this in our data set. If our finding that noseless users are shortening other things holds, then they really shouldn't be lengthening these. But they are. The average OE value for no-noses is 1.06—that is, non-noses like to go with expressive lengthening. The average OE for noses is 0.90—that is, noseless emoticons don't go with expressive lengthening.[187]

Wikipedia offers a set of 4,424 misspellings, including a shortlist of the most common and a longer list of the most difficult.[188] 49 of the "common" words are attested in our corpus (*tommorow, and, no one, thru*). Across smiles, frowns, winks, tongues, slants, and big smiles, the average OE for no-noses is 1.15 (that is, no-nosers are unusually attracted to these), while the average OE for noses is 0.968 (that is, nosers are slightly constrained against these (mis)spellings.[189] Of the 1,016 "tough" words (*acquired, atheist, Connecticut, definitely*), the average OE for no-noses is 1.00 ("as expected"), but the average OE for noses is 1.12 (more than

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[187] The difference is significant by a two-tailed t-test (p=8.859e-32).
[188] http://en.wikipedia.org/wiki/Wikipedia:Lists_of_common_misspellings/For_machines
[189] A difference that is significant by t-test (p=1.46e-07).

expected). That is, no-nosers like these harder-to-spell words (and spell them correctly).[190] Finally, there are 26 contractions that we can test—words like *wasn't/wasnt*.[191] People who use noses avoid dropping the apostrophe (average OE of 0.709) while noseless people drop the apostrophe (average OE of 1.170).[192]

In fact, people who use noses don't seem to abbreviate, misspell, or type as often. So the noseless people have longer messages despite the fact that the non-nose users are spelling things out and avoiding expressive lengthening.

There is another dimension of "standard" language we can try out: taboo words. I assemble 155 taboo words and curse words from a variety of sources—words like *f*ck, shit, jizz, damn, hell, skank, fricken*. The average OE of both groups suggests they like these words, but the rate is much higher for non-nose users: 1.14 for them compared to 1.026 for nose users.[193]

Twitter celebrities

One way that people use Twitter is to mention and message celebrities using the same @username behavior they do for friends and acquaintances. That gives us the opportunity to distinguish nose-users from non-users by which public figures they are talking to/about. In order to limit our scope to major public figures, we can turn to Twitaholic, which lists the 1,000 most-followed Twitter accounts overall.[194] 96 of these people have interesting emoticon patterns in our data.[195]

The first distinction to make is that non-nose users are more positively inclined towards celebrities. The average OE for celebrities in terms of :), :D, ;), and :P is 1.0711, while the comparable OE for :-), :-D, ;-), and :-P is 0.9324. That is, non-nose use of positive emoticons goes with celebrities while nose use is constrained against occurring with celebrities.[196] When we take a look at negative emoticons, we find that :(and :/ are constrained with celebrities—the

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[190] The difference is significant by t-test (p=2.142e-93).
[191] We have to leave out *I'm*, *I'll*, and *we'll* because dropping the apostrophe results in them just being different words. By contrast, there is no word *werent*.
[192] Significant by t-test (p=3.199e-12).
[193] Significant by t-test (p=1.48e-05).
[194] http://twitaholic.com/
[195] In our entire dataset, there are 1,671 different people who are @-mentioned. 381 of them have more than 100 @-mentions.
[196] The difference is significant by t-test (p=9.45e-05).

average OE is 0.8892. The average OE for :-(and :-/ is 1.0120, a slight bump in favor of @'ing celebrities with negative noseful emoticons.[197]

It may be useful to distinction which celebrities are treated the most differently between nose and non-nose groups. Looking at the differences between nose and non-nose variants of the positive emoticons, the following celebrities are especially associated with non-nose use:

- @jennettemccurdy—an actress/singer best known for her Nickelodeon sitcom, *iCarly* (19 y/o)

- @justinbieber—singer originally discovered on YouTube (17 y/o)

- @arianagrande—actress/singer/dancer best known for a role in the Nickolodeon sitcom *Victorious* (18 y/o)

- @jonasbrothers—musical band of brothers made famous on the Disney Channel (ages 19, 22, 24)

- @msrebeccablack—singer made famous by her (dreadful but slickly produced) YouTube hit, "Friday" (14 y/o)

- @officialjaden—son of Will Smith and Jada Pinkett Smith, raps and acts (the recent remake of *The Karate Kid*, for example; age 13)

- @selenagomez—actress/singer made famous for the Disney Channel's *Wizards of Waverly Place* (age 19)

- @mileycyrus—singer/actress who gained fame in Disney's *Hannah Montana* show (19 y/o)

- @jasminevillegas—singer, part of Justin Bieber's world tour (18 y/o)

- @chrisbrown—singer famous for hit single "Run It!" (22 y/o)

The chief celebrity for noses-not-non-noses is @pepeaguilar, a Texan singer (age 43) but there are fewer other ones we can make a distinction for. Among the celebrities that are at-chance for non-noses but over-represented for noses are @mashable (a technology news site),

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[197] The difference is significant by t-test (p=1.66e-03).

@jessemccartney (singer and soap actor, age 24), @craigyferg (comedian and late-night talkshow host, age 49), @aplusk (actor Ashton Kutcher, age 34), and @jlo (actress/singer, age 42).[198]

By now it's probably clear what's going on: non-nose users are younger than nose users. They keep up with a younger set of celebrities (sending them positive, not negative vibes); they use more taboo words, more expressive lengthening, more non-standard spellings, and they use emoticons a lot more, too. In fact, this is in keeping with a historical trend—when emoticons were first proposed and used (or so the story goes), they all had noses.

Measurement	Corresponding emoticon
More frequent use of emoticons	No nose
Expressive lengthening	No nose
Common misspellings	No nose
Contractions without apostrophes	No nose
Taboo words	No nose
Young celebrities	No nose
Longer tweets	Nose
Correctly spelled "difficult words"	Nose

Table 58: Summary of characteristics distinguishing noses from non-noses.

Another way of putting this is that non-noses orient to the less standard and noses to the more standard. If this is part of what's happening then there is an oppositional aspect. Historically, emoticons with noses came first—that means that they themselves were "standard" for a while. Given an orientation to non-standard, it is inevitable for them to be changed—for example, the elimination of the nose (or the replacement of colons/parentheses). Had the first emoticons <u>not</u> had noses, we would expect people interested in non-standardness to add them, instead.

I have pursued nose-variation out of a commitment to defining the meaning of emoticons not only in terms of affect but also in terms of who and when and how. A thick description of affective linguistic resources must orient itself to affect, but it cannot ignore these attending aspects. In the sections to come, you will continue to see noses and non-noses behave differently and my hope is that I have offered the background necessary for understanding what's going on. It's time now to

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[198] If you take off the @, you often get a proper name like "Oprah" or "ABC". If we look at words that are tagged as proper nouns—not @'s—but which are in the top 1,000 most followed tweets, there is more evidence to distinguish the nose users from the non-nose users. The nose users mention *google, lakers, cnn*, and *disney* a lot more, while the non-nose users mention *twitcam, ustream, youtube, facebook, etsy*, and *mtv* more.

turn back to affect—with a focus on how to characterize dimensions of affective meaning beyond positive and negative.

Factor Analysis

The point of factor analysis is to uncover latent variables. The standard examples are IQ and social class. You can't measure these things directly, but you can measure a bunch of other things that are related and then see the groups that emerge from, say, a variety of math and reading test scores or measures of wealth, lifestyle, and family background.

In the case of emoticons, the underlying assumption is that emoticons are related to each other, even though they don't often co-occur in the same tweets. We're looking for which emoticons are correlated with each other so they can be combined into factors—then each emoticon and each word is more-or-less associated with each factor. Emoticons that consistently behave alike get grouped together. It's no coincidence that *sad_a* occurs a lot more with :(and :/ than would happen at chance and that it rarely occurs with :) and :D. The intent in using factor analysis—and any of these other techniques—is to reduce complexity. Each emoticon is different than each other emoticon, but we want to capture the major axes by which they are alike and different.

One of the questions that will dog our heels throughout all of this work is how much reduction is enough without being too much—how many factors/clusters should we really be talking about. The overwhelming consensus from methodologists is that if you're going to err, you want to err on the side of over-specifying factor rather than underspecifying them (Cattell, 1978; Rummel, 1970; Thurstone, 1947; Velicer et al., 1995; Velicer, Eaton, & Fava, 2000; Wood, Tataryn, & Gorsuch, 1996; Zwick & Velicer, 1986).[199] To determine the best number of factors, I consider parallel analysis, the minimum average partial (MAP) criterion, very simple structure, and non-graphical scree techniques.[200]

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[199] The basic problem is this: if you really have four factors but you specify a model with only three, then whichever measured variables should've been part of your missing factor will be loaded onto the factors you *do* have. The loadings for the other variables will also be distorted. By contrast, if you have too many factors then you end up focusing on minor factors instead of big ones and make factors with only one high loading. Having too many factors is bad, but it probably won't mess you up the way having too few factors will (Fava & Velicer, 1992; Wood, Tataryn, & Gorsuch, 1996).

[200] Before proceeding, we need to know if our variables have normal distributions. It's language data, so the odds are against this, but if they were normally distributed, we could maximum likelihood approaches to factor analysis that give us more measures of goodness-of-fit and significance. However, by Kolmogorov-Smirnov tests, the variables in our data (the emoticons) are not normally distributed and some of them have quite strong skewness (>2) and kurtosis (>7), which serve as measures of "severe non-normality". For discussion, see Curran, West, & Finch (1996) and West, Finch, & Curran (1995).

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Surveys of the literature suggest that most researchers using factor analysis select factors by following the rule of thumb "only include factors with eigenvalues of greater than 1.0". Methodologists have clearly shown that this is a terrible rule-of-thumb (Cattell & Jaspers, 1967; Cattell & Vogelmann, 1977; Glorfeld, 1995; Hakstian, Rogers, & Cattell, 1982; Linn, 1968; Tucker, Koopman, & Linn, 1969; Velicer & Jackson, 1990; Zwick & Velicer, 1982).

People also like to use scree plots. Basically, you identify a break point when a "scree" begins and only keep the factors before that flatter area (Cattell & Jaspers, 1967).[201] If this sounds like eyeballing, it is but a very standard and trusted form of eyeballing. Raiche & Magis (2012) propose ways of capturing the basic intuitions mathematically using several techniques. In Figure 25, the traditional eigenvalue technique and the more recent parallel analysis technique are given as references, but Raiche and Magis propose that it's the optimal coordinates and the acceleration factor methods that capture what humans do when looking at scree plots. Here the results suggest the retention of four factors.

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[201] Definite breaks are less likely when you have smaller sample sizes and when the ratio of variables to factors is low (Cliff & Hamburger, 1967; Linn, 1968).
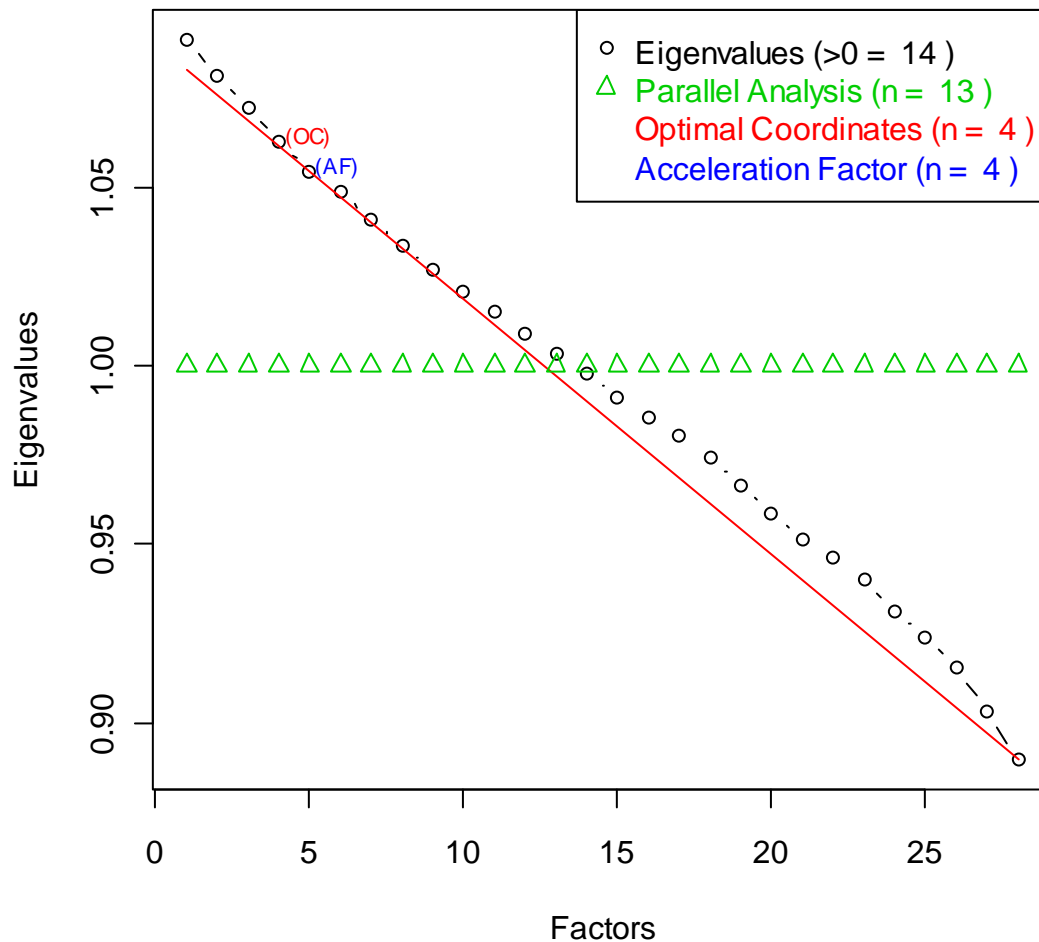
Figure 25: Non-graphical solutions to the scree test (Raiche & Magis, 2012) (focus on the last two).

Beginning with Zwick & Velicer (1986), most researchers on factor analysis have found that parallel analysis comes out as the most reliable way of determining the number of factors, with MAP in second place, and the scree test being more variable (but traditionally much more convenient to calculate). One often finds the recommendation of using all three. As Hayton, Allen, & Scarpello (2004, p. 202) reiterate, MAP plays a particularly useful role since it is the only method that in tests with data that have a known structure, it is the only one that tends to recommend too few factors rather than too many. But again, parallel analysis seems to come out on top.[202]

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[202] One caveat worth making here, assessments of parallel analysis were done with orthogonal factors, so it may not do as well with correlated factors and oblique rotations as we have here (Bandalos & Boehm-Kaufman, 2009, p. 82).

While Raiche & Magis (2012)'s nFactors package does report results from parallel analysis, a better estimate can be given by the psych package of R (Revelle, 2012), which gives more control over iterations and other options. To conduct parallel analysis, I use fa.parallel(), with 100 iterations (most researchers use 50 iterations, but more is better—see also Hayton et al., 2004, p. 199). Whether it is calculated using ordinary least squares to find the minimum residual solution or whether it uses the more conventional principal axes technique, the result is the same: 8 factors are suggested.

Revelle & Rocklin (1979)'s "very simple structure" retention criterion has had less comparative work done on it, so it is hard to tell how reliable it is. That said, using the vss() command in the psych() package also confirms that an 8 factor solution is best by VSS (calculated using minimum residuals and a promax rotation). The vss() command also reports Velicer's MAP criterion—its results are dramatically different since it suggests retaining only 2 factors. But recall that MAP is the one method that tends to recommend too few factors—and the fact that we would rather have too many factors than too few.

I propose a final model with eight factors, chosen by minimum residuals and using the oblimin rotation.[203] Following general recommendations, I only report those that account for 0.05 or more of the variance.[204] The top three factors have a minimum multiple R-square of 0.70 with factors (for Factor 3, Factors 1 and 2 have R-square values of 0.75 and 0.84, respectively).

	Factor 1	Factor 2	Factor 3
xeyesbigsmile	0.75	-0.1	-0.05
dworry	0.52	-0.06	0.29
omouth	0.3	-0.03	0.08
bigsmile	0.21	-0.07	-0.17

[203] At this point it is worth saying a word about rotations. Factor analyses create a factor loading matrix, but there is no unique solution for it. Different rotations do not alter the overall structure of the best solution, but they do offer different ways to characterize it. Solutions are preferred if they are interpretable, and solutions are interpretable if they involve factors with more variables-per-factor each with higher loadings (and with very few "middling" loadings between 0.1 and 0.2). But—at least for oblique rotations—all rotations are equally good.

You use orthogonal when factors aren't correlated. But you almost certainly have no reason in linguistics to believe this is the case. Orthogonal rotations like "varimax" are still the most common since people think that orthogonal rotations will get cleaner answers but it's not true. Oblique rotations allow factors to be correlated (and tell you how much). If the factors are uncorrelated you'll get the same result as if you had used an orthogonal method (Harman, 1976), but if they aren't, then you're also in good shape (Floyd & Widaman, 1995). Among oblique rotations are oblimin, promax, quartimin, and Harris-Kaiser orthoblique—there's no widely preferred rotation and they all seem similar to Fabrigar, Wegener, MacCallum, & Strahan (1999). I ultimately settle upon oblimin, having looked at a range of different rotations (though with focus on oblimin and promax).

[204] Together, they account for 16% of all the variance (the 8-factors altogether account for 29%).

tongue	0.18	-0.01	-0.06
frownapos	0.11	0.18	0.36
eqeyesbigsmile	0.09	0.04	0.07
smileapos	0.09	0	0.01
slant	0.06	0.36	0.27
winkbigsmile	0.05	-0.07	-0.01
bigsmilenose	0.04	0.01	0.01
eqeyestongue	0.04	-0.03	0.17
eqeyesslant	0.03	-0.06	0.62
winknose	0.01	-0.05	0
winktongue	0.01	-0.06	0.05
frown	-0.01	0.88	0
eqeyesfrown	-0.02	0.12	0.56
eqeyesbrac	-0.02	0.02	0.03
eqeyessmile	-0.02	0	0.05
smilenose	-0.02	-0.04	-0.04
smilebrac	-0.04	0	0.01
frownnose	-0.05	0.4	0.27
tonguenose	-0.05	-0.02	0.09
rsmile	-0.05	-0.08	0
slantnose	-0.06	0.12	0.33
doublesmile	-0.08	0	-0.06
wink	-0.13	-0.15	-0.02
smile	-0.57	-0.32	0.01

Figure 26: Factor loadings (all word_pos).

The highest loadings (>0.3) are:

- Factor 1:   XD   D: :O

- Factor 2:   :(:-(:/

- Factor 3:   =/   =(:'(:-/

Just as we can see how the different emoticons are related to the different factors, we can also see how the different word_pos pairs are related to the factors. Here are items with the highest factor loading for each factor:

- Factor 1: @cheeto_buffet_@, @theonerachel_@, @minxymarielle_@, @freddyferocious_@, @judasvonschafer, @jesusmz_@, @highlyanimated_@, @monstabonnieex3_@, @40854lambs_@, @jetdwolf_@

- Factor 2: #sadface_#, infection_n, #sad_#, sadness_n, #ouch_#, failure_n, @peyta_@, disappointed_v, leavin_v, yucky_a

- Factor 3: worst_a, hurt_v, ugh_!, stomach_n, anymore_n, fml_!, hurts_v, sick_a, ouch_!, dnt_v

The most immediately striking thing about these lists is the swirling vortices of @'s in Factor 1, even though there are only 1,093 @ words in our whole corpus. @ is a part-of-speech tag in our corpus, so one way to show how important @'ing is to Factor 1 is to compare the average loading across all @'s with the average loading of word_pos pairs in just the @ category. Since I'm interested in extreme reactions—attraction and repulsion—I will take the absolute value of the various factor loadings. The overall average for all word_pos is 0.6765, but the average loading for @'s is much higher: 0.8390.[205]

The other important "part of speech" having to do with Factor 1 is the "g" tag. This is a bit of a dustbin category—it includes foreign words as well as abbreviations like *ily* ('I love you'). Here it is mainly about foreign words, particularly Spanish.[206] Jumping out of the factor analysis for a moment, we can see that across all of our data, foreign words are most often associated with XD, D: and to a lesser extent :'(, =D, and :').[207] Recall that Factor 1 is most strongly associated with two of these (the XD and D:). This is a nice illustration of my author-oriented analyses at the beginning of the chapter and it's something you already know from watching your own emoticon use and those of others—there are different "subcultures" or "dialects" of emoticon use. But of course these groups vary also in the vocabulary they use.

Part of what Factor 1 shows us is the importance of audience/subculture in affective displays. I've been tracing the notion of positioning throughout this dissertation and @'ing is a particular obvious method by which people show that their interlocutor matters. Factor 1 is telling us that if we want to understand emoticons, one of the most important latent variables has to do with the relationship between interlocutors.

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[205] By this technique, nothing special is going on for @'s in Factor 2. In Factor 3, there is perhaps an avoidance of @'s.

[206] If we restrict ourselves to adjectives, adverbs, verbs, and common nouns, the following words have the highest loadings for Factor 1 (note that Spanish words like *comer, vas, medio, meses, sabes* have even higher loadings): *shitting_v, rape_n, raped_v, creepy_a, nipple_n, awkward_a, noises_n, yelled_v, holy_a*.

[207] I go through "g" tags by hand and select just the foreign words to determine this.

Factors 2 and 3 seem to be about unhappy words.[208] But Factor 2 is dominated by unhappy words that are marked by a pound symbol—a device for tagging keywords in tweets. Beyond marking a topic, hashtags perform Twitterness. And as Table 59, shows hashtags really are much more associated with Factor 2 than either of the other factors. Using the same method described above for @, compare the most important parts-of-speech for each factor across the others:

	Factor 1	Factor 2	Factor 3
g (foreign words and abbrevations like ily=I love you)	**0.9560**	0.5634	**0.7693**
@ (directed to another user's attention)	**0.8390**	0.5625	0.4598
# (hashtags for keywords)	0.6733	**1.0280**	0.4847
a (adjectives)	0.5114	**0.8302**	**0.7203**
Overall average loading (absolute value)	**0.6765**	**0.6568**	**0.5401**

Table 59: Factor loadings by part-of-speech tags.

As I mentioned earlier, Factor 3 isn't particularly associated with @'s—nor with #'s, these are in fact some of the most salient indices of Twitter use and identification. Factor 3 seems to involve some non-Twitterness. This isn't the same as "traditional", however, since abbrevations like *fml* and *dnt* ('fuck my life', 'didn't') still receive high factor loadings. Another way of viewing hashtags is to see them as lessening the immediacy of the affective stance—creating more of an evaluative distance, like nominalizations. We'll see this emerge more clearly in the next section.

Factor analysis for just emotion terms

Limiting the data to the 536 word_pos pairs that are on at least two of the 13 lists of emotion terms, we find that the non-graphical scree test recommends 6 (optimal coordinates) or 3 (acceleration) factors.

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[208] Factor 2 and Factor 3 seem related and they are—by choosing an oblique rotation, we allow correlations and while the factor correlations between Factors 1 and 2 and between 1 and 3 are small (0.14 and 0.18), the correlation between 2 and 3 is larger (0.48).

Non Graphical Solutions to Scree Test
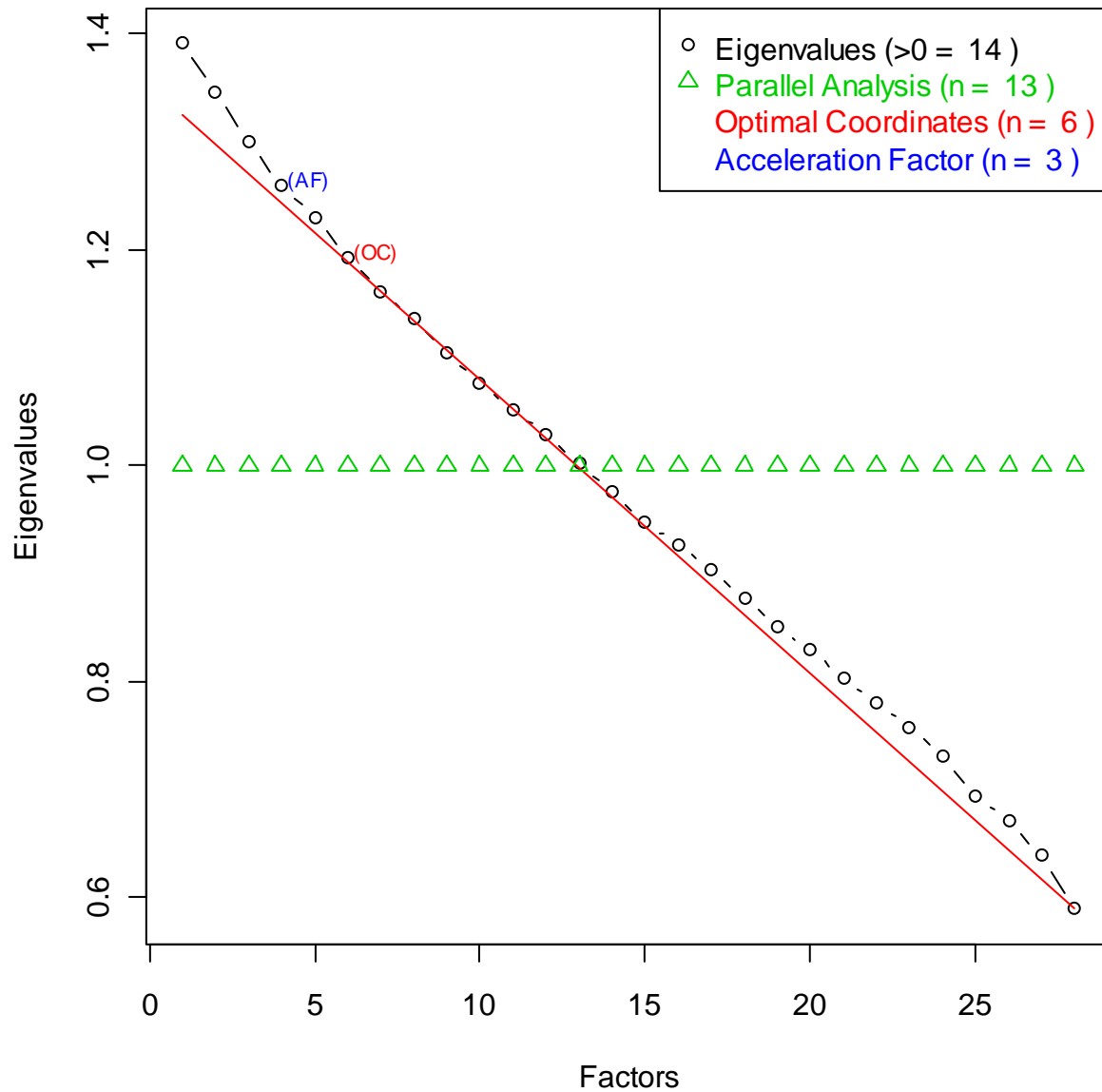
Figure 27: Data restricted to just affective word_pos pairs.

Using the same criteria as above, I select a 6 factor solution (minimum residuals, oblimin rotation).[209] The first four components each account for more than 5% of the variance and

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[209] Parallel analysis with 100 iterations (using minimum residuals) recommends six factors. VSS recommends three factors (with a promax rotation and also using minimum residuals). The MAP criterion achieves its best result at three factors.

together they count for 0.34 of the total variance. All factors have multiple R-square scores of at least 0.74 (factor 3; factor 1=0.87, factor 2=0.95, factor 4=0.80).

	Factor 1emo	Factor 2emo	Factor 3emo	Factor 4emo
eqeyesfrown	0.72	0.07	-0.05	-0.02
eqeyesslant	0.69	-0.02	0.05	-0.08
frownapos	0.59	0.14	-0.06	-0.03
dworry	0.58	0.03	0	-0.07
frownnose	0.39	0.44	-0.04	-0.04
slantnose	0.39	0.19	0.09	-0.11
slant	0.24	0.54	0.08	-0.18
omouth	0.17	0.02	0.04	-0.02
winktongue	0.04	0.01	0.3	0.3
tonguenose	0.04	-0.04	0.61	0.1
winkbigsmile	0.02	0.03	0	0.34
xeyesbigsmile	0.02	0.08	0.12	0.03
eqeyestongue	0.02	-0.08	0.68	-0.06
frown	0.02	0.92	-0.03	-0.13
smile	0	-0.87	-0.05	-0.16
wink	-0.01	-0.02	0.01	0.85
smileapos	-0.01	-0.08	-0.08	-0.02
smilebrac	-0.07	-0.09	-0.05	-0.05
tongue	-0.08	0.13	0.61	0.01
winknose	-0.11	-0.03	0.06	0.34
bigsmile	-0.16	-0.29	-0.16	0.07
rsmile	-0.23	-0.03	0.04	-0.1
eqeyesbrac	-0.23	-0.02	-0.01	-0.11
bigsmilenose	-0.25	-0.07	-0.05	-0.06
eqeyesbigsmile	-0.32	0.02	-0.08	-0.01
smilenose	-0.41	-0.2	-0.1	-0.09
doublesmile	-0.46	-0.01	-0.15	-0.15
eqeyessmile	-0.58	0.04	-0.07	-0.05

Figure 28: Factors derived from 536 affective word_pos pairs.

Perhaps an easier-to-read summary is:[210]

- Factor 1emo: =(=/   :'(D: :-(:-/

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[210] As you may guess from looking at the emoticons in the different factor analyses, Factor 3full goes with Factor 1emo and Factor 2full goes with Factor 2emo. This works not just in terms of emoticons, but words themselves. That is, if we compare how emotion terms score in our full list, we see that the words with the highest loading for Factor 3full go best with EmoFactor1, while Factor 2full go best with Factor 2emo. You'll recall that Factor 3full was the "least twittery".

- Factor 2emo: :(:/   :-(

- Factor 3emo: =P   :-P   :P   ;P

- Factor 4emo: ;)   ;-)   ;D   ;P

Now that we have restricted ourselves to affective words, we can see factors emerge that have something to do with the positive emoticons. Here are the words that are most highly loaded with each factor:

- Factor 1emo: sick_a, worst_a, hate_v, broke_a, hurt_a, sorry_a, sad_a, scared_a, hurt_v, dead_n (it does NOT go with welcome_v, wonderful_a, blessed_a, confusion_n, lame_!)

- Factor 2emo: upsetting_v, depressing_v, unfortunate_a, poor_a, disappointing_v, ache_n, bruised_a, screwed_a, darn_!, sadness_n (it does NOT go with beautiful_!, inspiring_a, thankful_a, accomplishment_n, relaxed_a)

- Factor 3emo: loser_n, whatever_!, punk_n, silly_a, lame_a, blame_v, lazy_a, picky_a, gay_!, confusing_a (but NOT with smile_v, sad_a, excited_a, beautiful_a, miss_v)

- Factor 4emo: naughty_a, sexy_a, hot_!, dirty_a, weakness_n, flirt_v, attracted_v, horny_a, flirt_n, tease_v (but NOT with pleasant_a, irritated_a, lazy_a, accomplished_a, lame_a).

In Table 60, we can see how all five of the parts-of-speech represented in our restricted data set are loaded.

	Factor 1	Factor 2	Factor 3	Factor 4
!	**1.0486**	**1.0273**	**0.8524**	0.6439
a	**0.9111**	0.8671	0.5351	0.6204
v	0.8044	0.9310	0.4746	0.5484
n	0.7320	0.8970	0.5078	0.6413
r	0.5929	**1.1063**	0.2420	0.3583
Overall averages	0.8445	0.9056	0.5250	0.6015

Table 60: Average loadings for different part of speech tags (for affective word_pos).

As you might guess from looking at the words and emoticons associated with them, Factor 1emo and 2emo are the factors that are most correlated (0.65; all other correlations are below 0.23). However, it is a lot easier to distinguish Factor 1emo and Factor 2emo than to show how they are alike. There are no emotion terms where they share high positive loadings or even ones where they share large negative loadings. So while we can look at the emoticons and the words and know intuitively that these are both factors showing negative affective valence, they are picking out different parts of negativity.

If we can't compare similarities easily, let's switch to look at differences. There's a rather weaker relationship between words with high loadings for Factor 1emo but negative loadings for Factor 2emo—that is, the list of items with Factor 1emo loadings > 1.25 but Factor 2emo loadings < -1.25 has only three items: *beautiful_!, obsessed_a, inspiring_a.*

By contrast, there are 43 words that have high Factor 2emo loadings and low Factor 1emo loadings. Since there are more of them, I'll just show the items that have Factor 2emo loadings > 2.0 and Factor 1emo loadings < -2.0: *upsetting_v, depressing_v, unfortunate_a, poor_a, bruised_a, screwed_a, dizzy_a, trapped_v, poorly_r, lame_!.*

The top verbs for Factor 1emo are mostly in their base form and all are monosyllabic: *hate, hurt, lost, wish, cry, miss.* There are a lot more verbs with high Factor 2emo loadings, but only two of them occur in their base form, all the others are in the progressive or past tense (and of course the *–ing* and *–ed* endings could just indicate that these are really mistagged adjectives). Even if we strip off the endings, these Factor 2emo verbs are mostly multisyllabic: *upsetting, depressing, disappointing, trapped, neglected, screwed, disappointed, rejected, crashing, ignored, scratch, cheated, dislike, crushed.* Part of what may be going on is something like "immediacy", in which Factor 1emo involves assessments that are closer to author. It is the first-person present tense that the Factor 1emo verbs go with so these are predicates with an argument who is "me". By contrast, the Factor 2emo predicates take arguments that are situations. The difference is between saying *This is upsetting* and *I am upset* and it is a difference of positioning.

The notion of "verbal immediacy" is developed in Wiener & Mehrabian (1968) and runs through Pennebaker's work as well, though it is usually focused on the role of the past tense and doesn't distinguish present tense referents about the speaker vs. the situation (except as measures of articles and pronouns). Findings about the past tense are intriguing—for example, in Pennebaker, Mayne, & Francis (1997), bereaved people who are in the greatest distress use the most past tense, although people who use exceptionally little past tense several weeks after a loss are in the

greatest distress a year later (this is taken to indicate someone pushing loss away in the near-term and paying the cost later).[211] In Brown & Levinson (1987), the past tense is understood as a politeness strategy to create distance and this is found to matter in Morand (2000)'s experiments manipulating speaker-audience power differentials.[212] The data we're looking at suggests not just thinking in terms of past-tense marking, but also in terms of what different present tenses are able to target and position self, other, or situation.[213]

It may also be useful to take a look at the adjectives. Imagine the sentence frame, "I am __". All but one of the Factor 1emo adjectives are very personal (the exception being *worst*). In Factor 2emo, we do see very personal words like *miserable*, but notice how Factor 1emo adjectives include shorter, more typical emotion terms.

- Factor 1emo adjectives: sick, worst, broke, hurt, sorry, sad, scared, horrible, wrong, hungry

- Factor 2emo adjectives: unfortunate, poor, bruised, screwed, dizzy, unfair, nauseous, upset, numb, miserable

Let's look at word length as a proxy for formality and complexity, following the cognitive science literature (Flesch, 1948; Kincaid, Fishburne, Rogers,, & Chissom, 1975) Another way is to consider how many of the 13 emotion term lists the highly loaded words appear on—the more lists something appears on, the more we probably want to call it a truly basic term.

The average length of words with high loadings for Factor 1emo (>1.5) is 5.2895, while the average for Factor 2emo words is 7.2540—and this is significant by a two-tailed t-test for unequal variance ($\approx$3.9149e-05). Of our 13 lists of emotion terms, highly loaded words in Factor 1emo appear, on average, in 6.2368 lists, while Factor 2emo words only appear on an average of 4.2540 lists, also significant by a two-tailed t-test for unequal variance ($\approx$0.006613).

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[211] Pennebaker & Stone (2003) offer a longitudinal analysis of word use and find that as people age they begin using more future tense and less past tense.

[212] Morand coded for a variety of politeness strategies and had a separate set of judge-participants rate the speaking-subjects' language for politeness. The explicit use of honorifics had the strongest effect size in predicting politeness ratings for a speech sample. The use of the past tense (*I was thinking* rather than *I think*) was significant, though about half of the effect size. It was comparable in effect size to strategies of "minimizing impositions".

[213] The idea of immediacy also fits nicely with the fact that no adverbs have high factor loadings for Factor 1emo, but two do with Factor 2emo: *poorly, sadly*. In offering this, I suggest that adverbs typically work their evaluative magic in such a way as to distance oneself from things.

I have been calling winks and tongues "positive" because they pattern more like smiles than frowns. However, notice how many of the highly loaded words for Factor 3emo (and to a much lesser extent, Factor 4emo) are probably what we'd call "negative". But what's happening is that they are picking out a different dimension. Factor 3emo is showing the importance of "teasing" for characterizing the data and Factor 4emo is showing the importance of "flirting". These are affective dimensions that do not usually get discussed by computer scientists or psychologists and yet they add important information: words may carry negative or positive baggage with them, but some of these words are capable of being used in creating connections between people, not just to express inner states or negative emotions like rage and sadness.

Recall that in our author-based analysis, large numbers of people used both winks and tongues. But winks were more common overall, so there were more people using winks-without-tongues than the reverse. We can describe flirting in terms of face-threatening behavior, but it is a more natural fit to say that of all the stances we're talking about, teasing is the most face-threatening. We don't really find a lot of rage examples attested here, which probably speaks to the not-just-face-but-real threatening nature of directly expressed anger and the concomitant constraint on it. But teasing is an interesting phenomenon because it is a claim—sometimes disingenuous, sometimes mistaken—that a speaker can put their interlocutor in a negative position while strengthening/demonstrating the strength of the relationship they have.

In terms of "standard language", we see that :P's are more attracted to dropping the apostrophe from contractions than keeping them—while ;)'s show the opposite propensity.

	;)	:P
No apostrophe	1.008	1.2035
Apostrophe	1.100	1.1471

Table 61: Average OEs for contractions.

Similarly, tongues show a stronger attraction to non-standard spellings:

	;)	:P
Common misspellings		
Standard	1.0401	1.0502
Non-standard	0.9790	1.0907
More difficult words		
Standard	1.0586	1.0295

Non-standard	0.9769	1.0967

Table 62: A comparison of average OE values.

In terms of expressive lengthening (*yayyyy, sooo, loll*), the differences point to :P uses being more compatible—average OEs of 1.1675 for :P and 1.0044 for ;).[214] We can also look at words that are among the most popular in Urban Dictionary—both winks and tongues like these words, but tongues like them even more: 1.1281 is the average OE for :P's, while ;)'s have an average OE value of 1.0925.[215] Similarly, both winks and tongues go with swear words, but the OE values are larger for tongues: 1.2841 vs. 1.1266 for ;)'s.[216]

The shorthand I'm using for tongues is "teasing". There's nothing blocking teasing from being used as a way to thinly veil hostility, but this seems to be an extension rather than a core use. If teasing is really part of affectionate negativity (or negative affection), then it always carries the risk of making a person sound like a jerk. The risk of this is highest when you don't know someone. For this reason, we would expect that :P's will be little-used with acquaintances and strangers. We can test this by looking at the behavior of :P's and ;)'s with regard to celebrities. The average OE for ;)'s occurring with @celebrity is 1.0178, a slight preference. But :P uses, as we'd expect, are constrained—an average OE of 0.8413.[217] Note that there are no celebrities who get :P's at higher than chance levels. The maximum OE value for :P's and celebrities is "1.0".[218]

To summarize, when we consider all words, the affective dimensions that emerge have to do with (i) importance of audience direction, (ii) displaying negative affect, and perhaps (iii) orientation to Twitter/Twitter conventions. When we restrict ourselves to just emotion terms, we see that a deeper distinction between displays of negative affect that are more or less immediate. In fact, looking back at the results from the full data set, we can even interpret the hashtags as a form—in the manner of nominalizations—of non-immediacy. In the emotion-term only analysis, we further see one factor each for tongues and winks. The winks are distinguishable by more overt sexuality (e.g., *horny*), but also comparatively more standard language than tongues. The tongues are more taunting and teasing, so it is no wonder that they are more constrained in their use overall.

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[214] Significant by t-test (p=1.17e-05).
[215] Significant by t-test (p=0.04194).
[216] Significant by t-test (p=0.001366).
[217] Significant by t-test (p=0.001825).
[218] The most winked at celebrities are: @xstrology, @garyvee, @harry_styles, @charliesheen, @nathanfillion, @ollyofficial, @ochocinco, @djpaulyd, @jennettemccurdy, and @treysongz (all have OE values above 1.5).

In other words, the dimensions by which we differentiate affective stances match the considerations discussed elsewhere as "positioning":

- The interlocutor is part of the positioning (Factor 1's XD D: :O)

- People frame their affective stance—at least their negative affective stances—in terms of immediacy (Factor 1emo/Factor 3full's =(=/ :'(D: :-(:-/ are more immediate than Factor 2emo/Factor 2full's :(:/ :-(emoticons).

- The teasing tongues of Factor 3emo show that negative and positive valence isn't really adequate since negatively-charged words can actually be deployed in attempts to demonstrate and create a particular kind of closeness.

- Flirting and other displays of sexuality—as described in Factor 4emo's winks—are crucial parts of the deployment of affective stance in the emotional universe of Twitter.

What we see in the negative emoticons are various ways of positioning the self relative to the world and experiences in it. You can find this sort of positioning in the language of bereavement and rage. But we do not solely position ourselves. We also position other things and people.

If words were simply labels for people and objects, then we'd predict that a word that seemed negative in isolation would be interpreted negatively by participants in an interaction where it is deployed. Instead, we see that words are used to create, change, evoke, and claim particular types of relationships. And that means negative-looking words may, in fact, be used more significantly as demonstrations of closeness and affection than as punches. Their felicity depends upon the way the interlocutors are positioned relative to each other at the time of the utterance. Sexuality is at least covered in some corners of sociolinguistics and social psychology, though this analysis suggests that desire offers the basis for affective stances that we shouldn't exile as we grapple with affect. But based on biological and cultural imperatives, we aren't really going to forget about sexuality, even if we make the mistake of ignoring it. Teasing can, of course, be part of a courtship ritual, but it stands out in our data as a major dimension and one that has received very little attention. Ultimately, the utility of clustering is whether it leads to insights and opens new avenues. Both hierarchical clustering and factor analysis have told us that tongues stand out and they offer a rich site for research.

Topic modeling

Imagine that you had a collection of essays vying for "best undergraduate research paper" and you wanted to understand the different way the undergrads were written and which topics they were most interested in. The intuition behind topic modeling is that you can discover how themes (well, words) are related to each other by looking at their distribution across documents. A topic is formally defined as a distribution across all the words in the set of documents. You'd expect a word like *aesthetics* to go more with humanities-type topics than science-type topics, but you might expect a word like *the* would be fairly evenly distributed. And you'd clearly care to know if *ecology* were a theme in both biology and literature. In topic modeling, every word is actually part of every topic—but not to the same degree. We care about finding the words that are most associated with each topic—in the example, we would take these groupings as insights into undergraduate research.

Topic models make the assumption that every document in a collection of documents has some mixture of topics and that we can detect these topics because each topic is itself a probability distribution of words (Blei, Ng, & Jordan, 2003). If x really is a topic in the documents, then we should be able to discriminate between documents based on how much they are "about" x, that is, how many of the x-words they use and at what rate. The importance of a word, w, is weighted differently for each topic, though related topics will share top words in common. Like factor analysis, then, topic modeling is conceptualized as finding underlying, hidden structure.

We could deploy an unsupervised topic model on our collection of tweets-with-emoticons and discover what topics were under discussion. But this would leave out an important piece of information—I selected each tweet in the corpus to match at least one of 28 emoticons. In that way, we can think of the corpus as having been "labeled". Moreover, the project here is not really to describe the topics of tweets as much as it is to describe the emoticons and how they are used. For that reason, rather than using a purely unsupervised topic model, I switch to "Labeled Latent Dirichlet Allocation", which associates each emoticon label with one topic (Ramage, Hall, Nallapati, & Manning, 2009).[219] Again, because of the way that emoticons are related and the

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[219] Labeled LDA was intended especially for multi-tagged data. That is not the case here, which means that the probability of a tweet in this data set is the same as the probability of the tweet under the Multinomial Naïve Bayes event model trained on the same tweets. Imagine that each emoticon tag gets its own "classifier". That emoticon tag classifier is obviously going to be trained on all the tweets with the tag. So each word can contribute a count of 1 each time it occurs in a tweet with that tag. Only when you get multiple tags does Labeled LDA start to differ. Think of that count of 1 as a "mass"—if there are multiple tags, Labeled LDA will spread that count mass across the tags. "Multinomial Naïve Bayes" is very fast for computing but it does make an assumption we don't prefer: that the words in our bag of tweets are

way topic models work, emoticons that are used in more similar ways, will share more similar keywords.

While the hierarchical clusters and factor analyses were built upon a data matrix made up of statistically significant OE values, the topic modeling results come directly from the tweet texts—although how they pick out keywords is similar since they are also looking for words that are happening with a particular emoticon tag more often than would be expected.

One useful aspect of topic modeling is that it allows words to occur in more than one place, unlike most clustering techniques. In practice, if "stopwords" are not removed, then factors end up having many common, frequent words describing them. The typical method in topic modeling, as in much of computational linguistics, is to remove the top *n* most frequent words. Rather than doing that and possibly losing some of the signal, I chose stop terms iteratively over the course of five rounds. For the first round, no words were removed. For the second round, I removed words that had been assigned to 25 or more of the 28 emoticon categories since it is only by difference that we can understand the data. I followed the same process for until the fifth round, when there were no more words describing more than 25 of the 28 emoticons.[220] Results are presented in Table 63. It shows 100 unique words for describing the 28 emoticons.[221]

bigsmile	:D	:)_e, :d_e, <3_e, can_v, day_n, go_v, good_a, got_v,

independent of each other (at its worse, this would be like imagining *salt* and *pepper* are unrelated). Naïve Bayes classification tends to work not because it gets good probability estimates, but because the "winning" classifications are better than all the other possible classifications. In other words, if you estimated probability correctly (you used syntax and semantics), you'd get great prediction—but it doesn't follow that accurate prediction requires correct estimation (nor that accurate predictions mean you should put faith in the estimates). See also Manning, Raghavan, & Schutze (2008, pp. 265–270) and Ramage et al. (2009, p. 251).

[220] In the end, the final "stopword" list of words not modeled was: to_v, and_v, for_v, is_v, in_v, of_v, on_v, have_v, just_v, be_v, was_v, to_p, for_p, of_p, with_p, at_p, on_p, so_p, if_p, my_d, a_d, that_d, your_d, the_d, this_d, all_d, some_d, is_d, at_d, the_^, a_^, i_^, my_^, and_^, of_^, on_^, this_^, that_^, there_^, it_^, her_^, to_^, you_^, me_^, for_^, is_^, in_^, i_o, you_o, me_o, it_o, u_o, we_o, when_o, them_o, they_o, he_o, who_o, him_o, she_o, the_o, my_o, that_o, of_o, but_o, what_o, how_o, im_l, its_l, will_l, your_l, still_l, and_l, is_l, like_l, no_l, all_l, some_l, there_l, nd_&, n_&, or_&, but_&, and_&, i'm_l, it's_l, that's_l, i'll_l, you're_l, i've_l, he's_l, know_v, do_v, get_v, are_v, just_r, rt_~, not_r, like_v, lol_!, it_t, now_r.

As stop words are removed, other words that were previously distributed among fewer emoticons end up describing more emoticons. For example, in the first round before any stop words were removed, lol_! and not_r only described 20 and 8 emoticons, respectively. However once words that were common to all emoticons were removed, lol_! and not_r jumped up to start describing far more. By the fourth round instead of describing 20 and 8 emoticons, they were describing all 28 emoticons. At that point, they no longer told us anything of use and were removed.

[221] 13 of the words are repeated for more than 15 emoticons: go_v (appears with 25), one_n (25), good_a (25), oh_! (24), so_r (23), don't_v (21), can_v (21), love_v (21), got_v (20), time_n (19), haha_! (19), see_v (16).

		haha_!, happy_a, i_e, love_v, oh_!, one_n, see_v, so_r, thanks_!, well_!, yeah_!, yes_!
bigsmilenose	:-D	:-d_e, -_g, about_p, all_r, can_v, day_n, don't_v, from_p, good_a, got_v, happy_a, love_v, oh_!, one_n, see_v, so_r, thanks_!, time_n, today_n, well_!
doublesmile	:))	(_e, :))_e, :)_e, <3_e, can_v, day_n, go_v, good_a, got_v, haha_!, happy_a, hope_v, love_v, one_n, see_v, so_r, thank_!, thanks_!, time_n, today_n
dworry	D:	can't_v, d:_e, de_^, don't_v, go_v, haha_!, how_r, need_v, no_!, no_^, oh_!, omg_!, one_n, que_g, really_r, so_r, think_v, want_v, why_r, xd_e
eqeyesbigsmile	=D	<3_e, ==d_e, =d_e, can_v, day_n, from_p, go_v, good_a, got_v, haha_!, happy_a, love_v, oh_!, one_n, see_v, so_r, time_n, well_!, yeah_!, yes_!
eqeyesbrac	=]	<3_e, =]_e, can_v, check_v, could_v, day_n, first_a, go_v, good_a, got_v, haha_!, love_v, oh_!, out_n, see_v, so_r, take_v, time_n, video_n, well_!
eqeyesfrown	=(	=(_e, >_e, can't_v, don't_v, go_v, going_v, good_a, got_v, had_v, love_v, miss_v, need_v, no_^, oh_!, one_n, really_r, sad_a, so_r, time_n, want_v
eqeyesslant	=/	=/_e, about_p, all_r, can_v, don't_v, feel_v, go_v, going_v, good_a, got_v, had_v, need_v, no_^, one_n, really_r, so_r, think_v, time_n, want_v, work_n
eqeyessmile	=)	=)_e, all_r, can_v, day_n, from_p, go_v, good_a, got_v, haha_!, happy_a, hope_v, love_v, oh_!, one_n, see_v, so_r, thanks_!, time_n, today_n, well_!
eqeyestongue	=P	(_e,)_e, =p_e, about_p, all_r, can_v, don't_v, go_v, good_a, got_v, haha_!, how_r, love_v, no_^, oh_!, one_n, time_n, well_!, would_v, yeah_!
frown	:(	:(_e, :)_e, can't_v, don't_v, feel_v, go_v, going_v, good_a, got_v, i_e, miss_v, no_^, oh_!, one_n, really_r, sad_a, see_v, so_r, today_n, want_v
frownapos	:'(	:(_e, :'(_e, can't_v, cry_v, don't_v, feel_v, go_v, going_v, got_v, hate_v, love_v, no_!, no_^, oh_!, one_n, really_r, sad_a, so_r, want_v, why_r
frownnose	:-(	:-(_e, can't_v, day_n, don't_v, feel_v, go_v, going_v, good_a, got_v, had_v, miss_v, no_!, no_^, oh_!, one_n, sad_a, so_r, time_n, today_n, work_n
omouth	:O	(_e,)_e, :)_e, :d_e, :o_e, >_e, can_v, don't_v, go_v, good_a, haha_!, how_r, love_v, oh_!, omg_!, one_n, really_r, so_r, think_v, why_r
rsmile	(:	(:_e, <3_e, can_v, day_n, follow_v, go_v, going_v, good_a, got_v, haha_!, happy_a, how_r, love_v, oh_!, one_n, see_v, so_r, time_n, today_n, yeah_!
slant	:/	:/_e, about_p, can't_v, don't_v, feel_v, go_v, going_v, good_a, got_v, haha_!, need_v, oh_!, one_n, really_r, so_r, think_v, today_n, want_v, well_!, yeah_!
slantnose	:-/	:-/_e, about_p, been_v, can't_v, don't_v, feel_v, go_v, going_v, good_a, got_v, had_v, need_v, oh_!, one_n, really_r, think_v, time_n, today_n, up_t, work_n

smile	:)	:)_e, about_p, can_v, day_n, don't_v, from_p, go_v, good_a, got_v, haha_!, happy_a, hope_v, love_v, one_n, see_v, so_r, thanks_!, time_n, today_n, well_!
smileapos	:')	:)_e, :')_e, <3_e, about_p, aww_!, can_v, don't_v, good_a, haha_!, love_v, much_a, oh_!, omg_!, one_n, really_r, so_r, think_v, x_e, xx_e, yeah_!
smilebrac	:]	:]_e, <3_e, >_e, can_v, day_n, follow_v, go_v, going_v, good_a, haha_!, how_r, love_v, more_a, oh_!, one_n, see_v, so_r, time_n, today_n, well_!
smilenose	:-)	:-)_e, about_p, all_r, can_v, day_n, don't_v, go_v, good_a, happy_a, hope_v, love_v, morning_n, one_n, see_v, so_r, thank_!, thanks_!, time_n, today_n, well_!
tongue	:P	:)_e, :p_e, about_p, can_v, don't_v, go_v, good_a, haha_!, hahaha_!, how_r, love_v, oh_!, one_n, see_v, so_r, think_v, time_n, well_!, would_v, yeah_!
tonguenose	:-P	)_e, :-p_e, about_p, all_r, can_v, don't_v, from_p, go_v, good_a, got_v, haha_!, how_r, oh_!, one_n, see_v, think_v, time_n, well_!, would_v, yeah_!
wink	;)	:)_e, ;)_e, about_p, all_r, can_v, don't_v, go_v, good_a, got_v, haha_!, how_r, love_v, oh_!, one_n, see_v, so_r, think_v, time_n, well_!, would_v
winkbigsmile	;D	:)_e, :d_e, ;)_e, ;d_e, <3_e, >_e, can_v, don't_v, go_v, good_a, got_v, haha_!, hahaha_!, love_v, oh_!, so_r, well_!, x_e, xx_e, yeah_!
winknose	;-)	)_e, ;-)_e, about_p, all_r, can_v, day_n, don't_v, from_p, go_v, good_a, got_v, how_r, love_v, oh_!, one_n, see_v, think_v, time_n, well_!, would_v
winktongue	;P	(_e,)_e, ;p_e, <3_e, about_p, all_r, can_v, don't_v, go_v, good_a, haha_!, hahaha_!, lmao_!, love_v, oh_!, one_n, see_v, think_v, time_n, yeah_!
xeyesbigsmile	XD	(_e,)_e, :d_e, can_v, de_^, don't_v, el_^, haha_!, hahaha_!, la_^, lmao_!, love_v, no_^, oh_!, que_g, so_r, think_v, xd_e, y_r, yeah_!

Table 63: Topic modeling keywords for each emoticon.[222]

We can take the words that appear in two or more of the emoticon-topics above and pick out the top correlations (greater than 0.50) between them. Table 64 shows the results, which are consistent with the groupings that we saw in the cluster analyses and the factor analyses: (i) the negative/positive division is maintained (i.e., smiles don't go with frowns), (ii) noses are distinct from non-noses for smiles, winks, and frowns (but not slants or tongues), (iii) tongues and winks cluster separately, (iv) "marked" emoticons respect the positive/negative division, but otherwise cluster together (consider =(and :], for example).

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[222] As we saw earlier, certain emoticons are more often used by people who are also using Spanish. Topic modeling shows this, too, with *de* and *que* going with D: and XD and XD matches *la_^* and *el_^*, too. XD also has *y_r* as a keyword, which may be an abbreviation for 'why' but could be a mistagging of the Spanish conjunction.

eqeyesfrown	=(	=/	:'(	:-(	:/								
eqeyesslant	=/	=(	:/	:-/									
frown	:(												
frownapos	:'(	=(	:-(	D:									
frownnose	:-(	=(	:'(	:-(									
slant	:/	=(	=/	:-/									
slantnose	:-/	=/	:-(	:/									
bigsmile	:D												
bigsmilenose	:-D	:))	=D	=]	=)	:')	:]	:-)	;-)				
doublesmile	:))	:-D	=D	=]	=)	(:	:')	:]	:-)	;D	(:		
eqeyesbigsmile	=D	:-D	:))	=]	=)	(:	:')	:]	:-)	=P	:P	;P	;D
eqeyesbrac	=]	:-D	:))	=D	=)	(:	:]	:-)	=P	;D	;-)		
eqeyessmile	=)	:-D	:))	=D	=]	(:	:]	:-)	;-)				
rsmile	(:	:))	=D	=]	=)	:')	:]	;P	;D				
smile	:)												
smileapos	:')	:))	=D	(:	:]	;D							
smilebrac	:]	:-D	:))	=D	=]	=)	:')	:-)	=P	:P	;P	;D	
smilenose	:-)	:-D	:))	=D	=]	=)	:]	;-)					
eqeyestongue	=P	=D	=]	:]	:P	:-P	;P	;D	:-)				
tongue	:P	=D	=]	:]	=P	:-P	;P	;D					
tonguenose	:-P	=P	:P	;P	;-)								
dworry	D:	:'(											
omouth	:O												
winktongue	;P	=D	(:	:]	=P	:P	:-P	;D					
xeyesbigsmile	XD												
wink	;)												
winkbigsmile	;D	:))	=D	=]	(:	:')	=P	:P	;P				
winknose	;-)	:-D	=]	=)	:-)	=P	:-P						

Table 64: Correlations above 0.50 between emoticons using the 58 keywords that our topic model picked out for two or more of the emoticons.

Topic modeling was created in order to help understand vast amounts of data, with an eye for classification, novelty detection, summarization, and similarity/relevance judgments, in particular. To that extent, it is often the topics that are discussed more than the words that make them up. For our purposes, I think that a more useful approach is to understand part of what a topic model is really doing is picking out "keywords" and showing how they are related. So while the stated purpose of topic models is data summarization, we can interpret the actual results as saying: these are the words worth paying special attention to. I will not attempt to talk about all of the words in Table 63—I will pull out particular classes—and particular words within those

classes—to see what they can tell us about emoticons and what the emoticons can tell us about them.

Display rules for feeling and thinking

Since we're attentive to affective sign posts, let's start with *feel_v*, which is a keyword for most of the negative emoticons and none of the positive ones.

feel_v	=/	:(	:'(	:-(	:/	:-/

What this means is that when people use *feel* they are also using negative emoticons. Because we are modeling words against emoticons, we are not able to say whether *feel* goes with *sad* more than *happy*, but we are able to say that when people tweet that they *feel…happy* they are either including sad emoticons or (more likely) not including any happy emoticons. Part of expressing negative feelings pushes people towards using (negative) emoticons. Positive emoticons do not accompany expressions of positive feelings. In this we can see an example of the cultural display rules that exist in the American English Twittosphere.

We can check this by going back to the data. There are 8,409 uses of *sad_a* in our data and 35,383 uses of *happy*, but of course you get these in things like *happy birthday* that really aren't relevant. The question I'm pursuing is whether people really do associate *feel* with negative affective stances since *feel* is not going to be particularly compatible with *happy birthday* examples, we want to restrict our counts of *happy* and *sad* to "occurring in the same tweet with *I_o*".

There are 13,141 tweets that have both *I_o* and *happy_a*. There are 5,506 that have *I_o* and *sad_a*. Meanwhile, there are 364 tweets with *I_o, happy_a,* and *feel_v* and 274 with *I_o, sad_a,* and *feel_v*. In other words, there are almost 1.5 times as many *I+feel+sad*'s as we'd expect and only 80% of the *I+feel+happy*'s that we'd expect.

Against *feel*, let's consider *think*, which goes with what we might call the "reflective" emoticons—the slants, not the frowns; the tongues and winks, not the smiles.

think_v	=/	:/	:-/	D:	:O	XD	:')	:P	:-P
;P				;)	;-)				

As we might guess, *miss_v* and *sad_a* are also negative, though what we see is that they are frowny emotions much more than they are slant-y emotions, which fits the intuition that slants are used to communicate more reflective and/or ambiguous states than frowns. The :'(is uniquely

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described by both *cry* and *hate,* the former of which especially makes sense given the apostrophe in the emoticon, which is meant to represent a teardrop.

sad_a	=(	:(	:'(	:-(
miss_v	=(	:(	:-(	
cry_v	:'(			
hate_v	:'(			

Happy_a meanwhile is quite happy, but significantly, it is not used with winks or tongues. It doesn't match flirting or teasing.

happy_a	:D	:-D	:))	=D	=)	(: | :)	:-)

Love_v itself is used by happy stuff—in fact, it's used by so many emoticons that it's easier to show which emoticons it <u>doesn't</u> go with. It only fails to go with one positive emoticon—the teasing :-P—otherwise it goes with all of the rest of the positive ones.

love_v (goes with everything except)	=/	:(	:-(	:/	:-/	D:
:-P						

<3 is meant to be a heart on its side. Notice that it doesn't go with our "plain" and basic happy emoticons like :), :-), :P, :-P, ;), and ;-). Instead it goes with the rarer, more "elaborate" happy emoticons. Part of what is going on here is the positiveness of <3 and the emoticons it is the keyword for, and part of it is the markedness—only particular subcultures use this symbol.[223]

<3_e	:D	:))	=D	=]	(: | :')	:]	;P	;D

Here is a sampling from regular users of *<3*.[224]

(82) @iLoveeBri lol kay <3 ill text you first ;p

(83) @BadBetchBarbie Aww Thaaanks <3 :D

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[223] In our data, there are 70,185 tweets (14,224 unique authors) that have <3_e appearing alongside one of our 28 emoticons. 50 of these people use <3 and emoticons more than 100 times, of these many have public profiles so it's possible to say find out more about how they style themselves. Of the 34 with public profiles, 25 are female, 9 are male. They are a particularly young group of people, many in high school. They come from all over the US, although California and Arizona seem to be especially well represented. Personal profiles provide very short snippets of interests and these are fairly diverse—the only interest that is repeated is "Disney" by three of the young women.

[224] They're harder to read with the tagging, so I have left that out.

(84) xD Can't Stop Replaying This Song! Wish You were Here Darling (x Hah <3

(85) @DennytheBVB @enaj001 She's my SISTER!! =D <3 I Luv her!! ^_^

Right off the bat, we notice how directed the tweets are. This makes sense, given that a heart symbolizes not just the person with the heart but the person who makes it beat. But here's the thing—these *<3* users are <u>not </u>using @'s more than everyone else. Over three-quarters of all of the tweets in our data involve @'ing and the rate for *<3* is just about identical. This may help clear up the idea that tweets are just messages sent off to a void—in fact, tweets with emoticons are most often directed to others' attention.

But notice how affectively rich and elaborate these tweets are—by definition they will include *<3* and an emoticon, but many include several emoticons, they use capitalization, expressive lengthening, and exclamation points for emphasis and include words like *wish, darling, luv, hah, lol*, and *aww*. We've stumbled into an area where affective stances are not subtly conveyed at all and this is probably part of what's inhibiting uses of *<3* with more standard emoticons of joy like simple smiles, winks, and tongues (with or without noses).

Among the more standard set of emoticons, one of the things that sets smiles apart from winks and tongues is something like "friendliness" or "conventional politeness". Consider, expressions of gratitude, which occur only with variations of smiles:

thank_!   :))   :-)

thanks_!   :D   :-D   :))   =)   :)   :-)

We can also see this among time words that are used in greetings. For example, *today* is a word that has both negative and positive uses, but among positive emotions, it is a keyword for smiles, not tongues or winks.

morning_n   :-)

day_n   :-(:D   :-D   :))   =D   =]   =)   (:   :)
:-)   ;-)

today_n   :(:-(:/   :-/   :-D   :))   =)   (:   :)
:]   :-)

Thinking along these lines might make us think that *how* (as in *how are you/how's it going*) would pattern similarly, but it has a rather more complex pattern that actually skews towards tongues and winks. Here's how it's used with them:

(86)   How about have more sex, get a good workout and get skinny ;)

(87)   @Marie_Daisy19 how my bitch doing today!? ;)

(88)   @thegirlinawe12 @ahcatan_natacha @Ashleyrp94 @JaNeIsLAme
          @rockstar_mahi but how can you add to perfection? :P

(89)   @morganna94 haha then how does lees dog have a twitter? Haha :p

There is also a negative side to *how*, which is actually fairly similar to what we see for *why*, which is a question word not used in greetings.

how_r	D:	:O	(:	:]	=P	:P	:-P	;)	;-)
why_r	D:	:O	:'(						

In affectively negative uses of *how*, there is a much stronger tendency to rhetorical questions or questions the authors are asking themselves (there is also a lot more embedding). Notice that, as we saw in the hierarchical clustering, :O varies between disturbed surprise and playful surprise.

(90)   This vertigo just won't go away, and I have no idea how to get rid of it. The
          world just keeps spinning. D:

(91)   Trying to figure out how to get a ringtone on this stupid phone D:

(92)   @andysamuels31 :o How could she be rude to you boys!! ring her back?

(93)   @CoolestZetaAce :O :O what???????????? oh i see how it is!!!!!! LMAO

Hopes, wants, needs, and nots

Both *want_v* and *need_v* are negatively valenced, though *need_v* is more compatible with slants than frowns.

want_v	=(	=/	:(	:'(	:/	D:
need_v	=(	=/	:/	:-/	D:	

Meanwhile, *hope_v* is quite friendly and positive in a very straight-forward way (no winks or tongues). The modal *would_v* is also positive, though it does pattern with teasing tongues and flirting winks not smiles, which matches its use as a subjunctive modal.

hope_v   :))   =)   :)   :-)

would_v   =P   :P   :-P   ;)   ;-)

Would marks discrepancy from reality and what we're seeing is that *would be*'s are positive in a way that *could have been*'s are not.

(94) @ZachtheFag I miss you too! We would probably talk more if you would txt me back more often =p

(95) @CrissAngel I bet you 100 dollars you will not tweet me.. wait I do not have 100 dollars never mind lol! But still a tweet would be nice :p

(96) The outing was cool. Would ofof enjoyed it more if my baby was here with me. Lol! The things that woulda happened on the dance floor. ;)

The teasing in (94) is a bit more straight-forward than the teasing in (95). In (94) it acknowledges the mixed message of (i) responding to an "I miss you" with another "I miss you", while also (ii) describing the possible world in which there would be less mutual-missing as being because Zach doesn't return texts enough. That is, the tongue acknowledges that there is blaming going on, simultaneously calling attention to it but also softening it by gussying it up with a jocular emoticon.[225]

There are 29,539 instances of *would_v* being proceeded by a pronoun (*I, we, you, he, she, it, they*). In this corner of the data, we see that the most frequent pronoun subject is *I*.[226] *I would*'s are disproportionately represented by negative emoticons: =/, =(, D:, :(, :/, in particular. Meanwhile, tongues and winks disproportionately favor *you would* constructions, which is part of the fact that *you* targets an audience more directly than other pronouns and winks and tongues target the audience more clearly than other emoticons.

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[225] Or perhaps "softening" is the wrong way to think about this. It may be that tongues give users some sort of "cover", blocking someone from taking the barb too seriously because the tongue announces "I was only kidding". Meaning that any objection that the target has could be met with "Why are you taking it so seriously?"

[226] As you can see in (96), there are plenty of instances where this pronoun is dropped, these aren't counted and <u>still</u> *I* comes out on top). *It* is the second-runner up in terms of percentages and it is also the only other pronoun that is "droppable", e.g., *would've been nice if…*

You would is naturally face-threatening because it doesn't just target *you*, it also tells someone how things could/could have been different. Many of these tweets use just *you would*, full-stop as a response to something like *A: I like Bea Arthur. B: You would!*. This use essentially throws something that the other person has said back in their face, casting it in a different light— something along the lines of "that isn't necessarily a good thing". This construction can be used in a snarky, hostile way, but most of the occurrences seem to be with tongues and are accompanied by other markers of jocularity like *lol*. Teasing is an important affective stance in Twitters. Tongues are one of the main ways to mark it, doing something like "you know I'm only kidding". Tongues are partly interpretable as excuses, which makes their use something like a politeness strategy, though that doesn't adequately describe what they do. Tongues do not just excuse teasing, they actually enable teasing in the first place and can also serve to draw attention to the teasing. In the case of (94), the author is simultaneously positioning themselves closer to the audience (reciprocated missing and references to regular texting) and giving them a kick in the pants ("you don't write back").

Notice that there is an implicit request in (95), too. But what exactly is the tongue doing? Is it teasing the audience? How? In this case we run up against the limits of our knowledge of the context and the undeveloped parts of the methodology I've been describing. The primary problem is that we cannot say whether the tongue applies to all propositions equally. It may be just about the implicit request at the beginning and end of the tweet or it may also have to do with the middle acknowledgement that the author can't afford the bet (a kind of self-tease).

A good default is to imagine that emoticons target the proposition they are closest to, but in messages that convey several propositions, we may be able to do more. For example, we could use significant OE values to guide us. OE values are built out of patterns of emoticons and words, so just as some tweets are more compatible with some emoticons, so it is that parts of tweets are more and less compatible. By looking at "parts" of tweets, we may find that an author is calling attention to (shoring up or elaborating upon) some particular part(s) of the message—possibly in order to shift attention away from some other portion of the message.

In this particular case, pretty much all of the tweet is compatible with the tongue: *bet_v*, *would_v*, *you_o*, *lol_!*, *do_v*, *tweet_n*, *be_v*, *not_r*, *a_d* all have OE values over 1, only *but_&* and *I_o* have slight constraints (the other words are at OE=1). As algorithms for weighting relationships based on distance or more complex syntactic relationships get established, we may be able to elucidate things further from a quantitative approach. But at the moment I can only offer the qualitative

suggestion that the primary targets of the tongue are the request and the implicit prediction that CrissAngel will not fulfill their friendship duties of sending a message. The *would* imagines a future where CrissAngel does send a message, bringing them together. But again, it is a weird kind of togetherness since it is predicated upon the author's social pressure being successful. This is the kind of complicated relationship that the clustering, the factor analysis, and the topic models urge us to consider beyond simple categories like *joy, sadness*, and *anger*, which exist in pure states only rarely. Mixed emotions are much more common to human experience and our linguistic resources give us tools for creating and coping with these complications.

The sexuality in (96) (the oblique reference to dance floor grinding) is a natural fit for the flirting wink. Notice how *would* repositions the speaker and their *baby*. The *would* in the first two examples is about the past only inasmuch as they are trying to propose new possibilities for the future. (96) is rooted in a present speech of drawing speaker and interlocutor together by wishing for and imagining them in the past.

Using movie reviews and personal stories posted on the Internet, Potts (2010) finds that negation is not a pure logical operator that merely reverses truth conditions. Rather, it is consistently affectively valenced. Negation is negative. We see that in our Twitter data, too. Right off the bat, let's start with *yes* and *no*. These skew as we'd expect (although perhaps not as much as we'd expect):

     no_!   :'(:-(D:

     yes_!   :D   XD

Don't_v is also especially used by negatives—so much so that it's easier to show what it <u>doesn't</u> go with than what it does:

     don't_v (goes with everything <u>except</u>)   :D   :))   =D   =]   =)   (:
     :]

Both *can_v* and *can't_v* occur among the topic modeling keywords and they, too, show an affective skew. That is, when you are talking about ability in the affirmative, you use smiles, winks, and tongues, but when you talk about not being able to, you use frowns and slants.

     can't_v   =(:(:'(:-(:/   :-/   D:

can_v (goes with everything except)   =(:(:'(:-(:/   :-/
D:

Intensifiers, interjections, discourse marking

One of the interesting surprises in these results is how negatively *really_r* skews. That is, it is overwhelming the keyword of frowns and slants. *So_r* on the other hand, goes with the vast majority of emoticons—just not the teasing ones with tongues. *All_r* seems to run the gambit of positive emoticons. In other words, ways of intensifying are themselves marked—we knew that they were used by different groups of people, but they also carry different affective baggage.

really_r   =(=/   :(:'(:/   :-/   D: :O   :')

so_r (occurs with everything <u>except</u>)   :-/   =P   :-P   ;P   ;-)

all_r   =/   :-D   =)   :-)   =P   :-P   ;P   ;)   ;-)

One of the things that differentiates these intensifiers is the parts of speech they typically go with. For example, while all of them can occur before adjectives, *all* is blocked from modifying verbs and *so* doesn't modify verbs very often. *Really* is a verbal modifier and one of the main reasons it skews negative is because there is so much *really_r want_v*'ing and things that people talk about *really want*'ing end up having negative affect assigned to them more often than other emoticons.[227]

> (97)   I really want to know if i have won Big Weekend tickets :(

> (98)   I really want some sleep :(

> (99)   dudes at @lightbulbcowork are going go cart racing tonight, really want to go, but too much to do :(

In these sentences, the root of the dissatisfaction is that there is a lack—of knowledge, of sleep, of the ability to go go-cart racing. It is, of course, the job of *want* to call attention to lack and a desire for fulfillment. It's the job of *really* to emphasize that, strengthening the force of the claim. You'll notice that the subject—whether stated or not—is almost always *I*. It is typical for frowns and other negative emoticons to particularly target the author in the positioning that they do. It is of course possible to *really want* something and display positive affect, as in (100), but what we

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[227] There are 66,806 tweets with *really_r* and 2,195 have *really_r want_v*. We would've expected about 507 tokens with the negative emoticons that the topic model links to *really_r*, but we actually get 781.

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find is that statistically, this is not what people do. Affective reasoning always involves defeasibility. In this case, the generalization is that when authors talk about themselves *really want'*ing something, they are most likely to display negative affect.

> (100) Now I really want to fly… Gorgeous views of Las Vegas from the plane :) #SFO #MCO http://t.co/gUhlBiv

Intense situations can also be expressed by "surprise" words, among which we have both *oh_!* and *omg_!.* The topic model says that plain smiles are not particularly compatible with the kind of exclamative realizations characterized by *oh/omg*. Note that *omg* is a keyword for only a small set of emoticons, though these run the affective gambit from happy :') to distressed D: as well as often-playful open-mouthed :O.

oh_!   (goes with everything except)   =/   :))   :)   :-)

omg_!   :')   D: :O

Among discourse marking words that convey less shock are *well* and *yeah*. These are both fairly positive words, though some quality of *yeah*'s affirmation and/or informality shows that it skews towards tongues much more. Tongues are a particularly strong marker of audience-positioning because teasing so clearly picks out the audience as part of the stance.

well_!	:/	:D	:-D	=D	=]	=)	:)	:]	:-)
=P			:P	:-P	;)	;D	;-)		

yeah_!	:/	:D	=D	(:	:')	=P	:P	:-P	;P
XD			;D						

Laughter

We might also look at the sound of laughter. *Ha*'s go with tongues and big smiles, especially. Though the shorter *haha* seems not to occur with happy noses. *LMAO* ('laugh my ass off') is much more restricted in its distribution and is selected as a keyword to describe only ;P and XD.

hahaha_!   :P   ;P   XD   ;D

haha_! (occurs with everything except)				=(	=/	:(	:'(	:-(
:-/			:-D	:-)	;-)			

lmao_!   ;P   XD

Laughter does not have a single meaning. As Bachorowski & Owren (2001) point out, laughter seems to be used to create cooperative, positive relationships with specific other individuals—but of course laughter can also be at the audience's expense. It is a resource that has all the signs of an indexical field—it can signal anger , anxiety, hostility (Darwin, 1872), the release of tension (Black, 1984; Keltner & Bonanno, 1997, 1997; Srofe & Waters, 1976), self-deprecation (Chafe, 2007; Glenn, 2003; Long & Graesser, 1988), being the object of attention (Reddy, 2003), appeasement/submission (Grammer & Eibl-Eibesfeldt, 1990; van Hooff, 1967, 1972), and sexual interest (Grammer, 1990; Grammer & Eibl-Eibesfeldt, 1990).[228]

There are 33,784 tweets in our data set with *lmao_!*, written by 10,592 different authors. Given overall uses of *lmao_!* and ;P, there is a significant relationship between them, but on the author-level, the relationship does seem stronger with XD. Let's restrict ourselves temporarily to people who have amazingly regenerative asses—people who have used *lmao_!* in at least 25 tweets with emoticons. There are 122 such people. Of these 122 people, 118 use :) somewhere in the corpus. For each user, we calculate what percent of total tweets have smiles and multiply this time the total number of tweets they have with *lmao_!*. If everything is random, we should get an average of 1.0, if smiles and LMAO are especially linked, we'll get a value greater than 1.0 and if there is a constraint, then we'll get a value less than 1.0. In fact only 15 users have a score greater than 1.0 (and just barely), the overall average OE across the 118 users is 0.5287. Emoticon users who also use *lmao* do not link it to :).

There are far fewer XD's in the corpus than smiles. There are 70 people who use *lmao_!* and some emoticon and also use at least one XD in some tweet somewhere in our corpus. The average OE for these users is 2.6919 (58 of them have OE values > 1.0). The topic modeling method used no specific information about "who" wrote the different tweets to propose a relationship between *lmao_!* and XD, but by focusing on connoisseurs/overusers of *lmao_!* we see the connection between XD and *lmao_!* repeated. These resources decidedly "go together".

Here are a few examples. The first two are directed tweets. (101) actually proposes marriage, though the "joke" is underlined by *{laughs}, ;D, lmao, jk* ('just kidding'), and *xD*. I am tempted, as you may be, to regard this as anxiety about the underlying "I really like you" message getting rejected, though in reading through this user's other tweets, I do not get the sense that she is generally anxious.

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[228] See also Russell, Bachorowski, & Fernández-Dols (2003) who introduced me to a version of this taxonomy of meanings and many of the sources.

(101) {laughs} We should just run away to Las Vegas and have an Elvis marry us ;D
lmao jk xD @SkittleDamon

(102) @Selky @mindshift lmao I don't doubt it!!! xD

(103) Lmao! "Arty is really UGLY.. but still a beast." xD

(104) I can't help but laugh when I see someone following hundreds of people and only
have like 5 followers Lmao XD

(102) is a different kind of direction, that is, it is a more direct response as evidenced by the leading @'s and the fact that *lmao* occurs at the beginning rather than the end—it is an *lmao* that is responsive to the previous messages. The whole tweet is supportive of the ongoing conversation and positions its author as an active participant with a positive affective stance to speech acts and participants. In (103), the *lmao* is also turn-initial, though it seems to be a reaction to something funny someone has said in the real world or if it isn't, the author is not taking any steps to direct the tweet to anyone particular person's attention. The author is expressing a positive affective stance and aligning themselves with the quote, but beyond that we would require more contextualization.

There is a lot more intervening material between *lmao* and the emoticon in (102) and (103) than for (101) and (104). The utterance in (104) is belittling. Our ideology about laughter is that it is involuntary. Here the author pulls out that aspect, drawing attention to it: *I can't help but laugh*. This is not the same kind of use of *laugh* as in (101). It is a claim to involuntary laughter but the claim is itself highly reflective, using 14 words to describe the laugh-trigger. The description of the trigger again puts the author in a first-person subject position (*I see*), observing Twitter users who do not have what it takes to get a lot of followers—they don't have enough friends, they don't write enough fun stuff—the particulars are not specified, but the number of followers (and the ratio of followers to following) are measures of popularity that are common in the Twittosphere. The author of (104)—and I offer the following designation as a researcher and a human—is being an asshole. It's unlikely that he thinks he's being an asshole but what he's clearly doing is asserting the value of a measure of popularity and looking down on people who do not meet it. Presumably, the author doesn't fall into the same camp. So by positioning himself as laughing at others, he's asserting his own success by the popularity criterion. Having framed the situation in terms of laughter, the tweet ends with representations of more laughter, the *lmao* and the XD.

Recall what our analyses have told us about XD. It is a fairly marked emoticon, in terms of full word lists it patterns with negative words, though it patterns with positive words when our cluster analysis is limited to emotion terms. The factor analysis showed that it was part of a dimension focused on interlocutors (Factor 1). And here in the topic modeling, we see that it generally goes with laughter, above and beyond *lmao*—*haha* and *hahaha*, as well. In each of these example sentences, we've seen that resources like XD and *lmao* have a kind of flexibility in how they are used in positioning authors, audiences, and others.

Among emoticons that have significant constraints (OE < 1.0) against appearing alongside *lmao_!*, we have :-), ;-), :-(, :(, :), :/, :-/, :'(, =(. We've looked at smiles and XD, let's look at something at the other end like a frown, which occurs with great infrequency. Of our mega-*lmao* users, there are 62 who use it with :(at least once. The average OE is less than 1.0, indicating that these people don't really consider :(to go with LMAO, but the value is actually a bit higher than we might have expected: 0.8687. 10 of these people are using :(and LMAO at a rate of more than OE > 1.50. What are they doing?

(105) Just left @Melissuuhx3's house, i miss her already :(lmao

(106) Wait omg I miss doing my front flips lmao :(

(107) Lmao its mandatory :(@StarFleet_Jones : @iHateH00DRATS OMG im tired of rice to .. my brothers girlfriend is Colombian n she cook rice everyday

These examples seem to combine two different affective stances. Consider (105), in which the ordering of frown-before-*lmao* fits with our natural interpretation: the main proposition is that the author has left someone's house and misses her. The combination of *just left* and *already* let us know that very little time has passed. Like most affective states, missing someone has norms associated with it and one of those norms is "you can't miss someone right after you've seen them" (though of course you can). So missing someone gets a :(, but the mismatch between expressed feelings and norms gets a *lmao*. The scope of the :(is Melissa-missing, but the scope of the *lmao* is the speech act that includes the :(.

(106) involves a frowny face and the idea of missing (*miss_v* is most associated with negative emoticons; the *I_O* is associated with negative emoticons, too). But there's also positiveness in *lmao* and more subtly, *wait_v*, which has an overall OE pattern of going with various smiling emoticons. *Omg* is itself ambivalent. It gets OE > 1.50 values for smiling XD, :D, :'), and =D but also for surprised :O and negative D:, :'(, and =(. The ordering here is a bit stranger—should we

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imagine a laugh that has shriveled up? That is, the kind of laughter that is—or comes to be—
imbued with a sad realization?

There are 5,634 tweets that end with either {emoticon *lmao*} or {*lmao* emoticon}. Items that are
most compatible with *lmao* are equally likely to precede or follow. For example, there are 230
":D *lmao*" and 293 "*lmao* :D"—there's an overall skew towards putting the emoticon last
(56.73% for this subset), so there is nothing special in this difference. But we can make this a bit
more rigorous. By Fisher's exact test, we can calculate which emoticons are appearing
disportionately in penultimate versus ultimate position.[229] Among those that occur
disproportionately at the end of the sentence are:

- :-P   :))   =]   :-)   XD   (:   :P   :)

Among those that occur disproportionately before *lmao* are:

- =(:-/   :O   D: :/   :(;D   ;)

Part of what we see is that position is as much a resource available for affective meaning-making
as word/emoticon. In other words, we can treat tweets as "bags of words" as is common in
computational linguistics, but ordering—syntax—does matter.

There is no absolute ordering whereby emoticons have to occur at the very end. More
interestingly, emoticons differ in their positional compatibility based on affective dimensions.
(106) is, in fact, unusual. The most typical "mixed" message is to have the laughter of *lmao* take
scope over the distress (or pseudo-distress) of a frown or a slant, not the reverse. When you do get
an emoticon at the end, it is a smile or a tongue, which we have seen tend to indicate friendliness,
teasing, or a continuation of laughter. Notice that flirting emoticons pattern with the frowns and
slants. Tweets that have wink-*lmao* ordering are still flirting and I get the general sense that the
lmao may be intended to soften and distract from the flirt or otherwise reflect upon the affective
stance of the winked-proposition. The data is clearer for frowns and slants, where we definitely
do want to invest in the notion of "affective scope".

> (108) @TrAcKsTaR1323 so my little head and yur head have suttin in common too ;)
> lmao

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[229] The marginals are calculated from counting tweets with the various emoticons appearing with *lmao* at
the ends of tweets in either lmao-emoticon or emoticon-lmao order, with nothing intervening or coming
afterwards.

(109) @MattisBoobtilda matt! i will make a hate video with my amazing editing skills you know! ;) LMAO

(110) #ifitwasuptome Me and @BieberSway would be married on fb and in real life <33 ;) lmao

Affective scope is not always easy to apply and this is part of the ambiguity. If I sent you a text that simply said:

(111) I love Davenport. :(

You could imagine a variety of readings—(a) I love Davenport and I'm sad about leaving it/not being there, (b) I love Davenport but you said something about it that I want to express displeasure about, (c) I don't love Davenport, I'm being ironic, (d) I do love Davenport but I'm feeling weird about admitting to it. There may be no such thing as decontextualized language and even if there is, we are great, as humans at finding a way to contextualize it. In explanations (a), (c), and (d), what we mean by affective scope is that the emoticon applies to the proposition/speech act before it. The case of (b) isn't quite so clear, but notice that (b) is only licensed if (111) is in response to some prior speech act or other event.

Concluding remarks

Most work in computational linguistics has focused on only the dimensions of positive/negative affect.[230] The findings through this chapter have shown that positive and negative really do emerge as powerful was of carving up the space of affect. In psychology, there are additional pieces, whether they are conceptualized as basic emotions like "happiness" and "fear" or as dimensions like "power" and "arousal". Computational linguists haven't tended to work on these other dimensions, in part because some of the key inquiries have dealt with data that isn't particularly interactional. Product and movie reviews are written with some sort of audience in

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[230] Exceptions include Wiebe and colleague's work on subjectivity/objectivity distinctions as well as intensity (Bruce & Wiebe, 1999; Riloff & Wiebe, 2003; J. Wiebe, Wilson, & Cardie, 2005; Wilson et al., 2005). Intensity is probably the most frequent addition and it can also be found in the use of star-ratings for sentiment analysis involving product and movie reviews (Constant, Davis, Potts, & Schwarz, 2009; Goldberg & Zhu, 2006; Pang & Lee, 2005; Schnoebelen, 2010c). A few have tried to use emotion categories like *sad*, *positive-surprised*, etc. (Alm, Roth, & Sproat, 2005; Neviarouskaya, Prendinger, & Ishizuka, 2010). Potts has developed a corpus from "The Experience Project" which uses metadata that readers tag posts with, including tags like *teehee* and *you rock* and this, too, has been mined for affective meaning (Maas, Ng, & Potts, n.d.; Potts, 2011; Schnoebelen, 2010c).

mind, but they tend to follow genre conventions that make "positioning" add only a small amount of value.

Twitter data is much more interactional and the stance work people do gets more complicated the more that the subject and audience are in play. Analytic progress on this kind of data requires us to pay attention to how authors are doing more than saying "X is good/bad" and/or "I am pleased/displeased". Positive and negative valence can act as building blocks for our analyses, but they have to be paired with an understanding of how author, audience, and topic are being positioned relative to each other. It is probably not a tractable mission to predict interior affective states, but it is tractable to predict and describe affective stances.

Affective linguistic resources, like all linguistic resources, have a wide range of uses. These uses are not randomly distributed—neither at the group level nor the individual level. Affective stances themselves are conditioned by social norms, so which affective linguistic resources are used by which group and in which ways requires putting together multiple pieces of a puzzle.

To adequately understand the positions being claimed in an utterance, we need to understand something about prior positions—is the utterance a push or a pull? Who/what are the targets? In this chapter I've described characteristics of people who use the different emoticons and I've also spent time showing the relationships between various words and emoticons. Ultimately all of these aspects define each other and it is my hope that taken together, this chapter demonstrates what a holistic analysis of affective linguistic resources looks like.

This chapter reports a lot of findings (please refer to "Overview of findings" on page 191 for a summary). But the main message I would leave you with is comprised of five parts: (i) positive and negative are important descriptions worth keeping but they don't tell the whole story, (ii) we also need a dimension of "immediacy", (iii) the relationship to an audience must be modeled; it is part of affect because in taking an affective stance, an author makes a claim about their relationship to their audience and their world, (iv) in addition to distributions across different types of speakers and audiences, we want to model how an affective linguistic resource relates to other linguistic resources, (v) teasing and flirting emerge as related but distinct affective stances that are important in understanding what people are doing in Twitter; they are likely to be important outside of Twitter, too, and offer a rich, complicated, and understudied area that is worth pursuing.

Chapter 7: Summary

To understand human beings is to understand the variety and complexity of emotional experiences they have. And I take it as a core part of linguistics to understand how language is both shaped and used in creating and coping with these experiences. Over the course of these pages, I have offered three case studies about affective linguistic resources in order to advance a theoretical framework (positioning) and a series of quantitative methodologies that grow out of information-theoretic approaches to language.

The first case study (Chapter 3) was partly about showing how many different linguistic resources have prominent affective aspects. Instead of touring the world for phenomena,[231] I examined a single emotional relationship conversation between two friends, having first shown how we might confidently make claims that one section of conversation is more emotionally intense than another and how we might get experimental data about connected discourse as it proceeds rather than being trapped in prisons of evaluations of disconnected, individual sentences.

Taking the conversation turn-by-turn, I demonstrated not just the range of linguistic phenomena worth considering in terms of affect, but how they could be approached quantitatively. Among the major methodological points:

- Look for affective guideposts like emotion terms and pay attention to the linguistic and extra-linguistic relationships that relate them to speakers, audiences, and objects

- Watch for linguistic resources that are occurring at unusual rates relative to earlier/later speech between the interlocutors (or compared to the broader speech community)

- Evaluate how felicity conditions change were individual linguistic elements to be removed from an utterance.

More broadly, Chapter 3 told us to keep track of agency (e.g., in the use of pronouns) and immediacy (e.g., elaborate utterances versus simple ones). Immediacy, in particular, recurs as a theme throughout the dissertation as a major dimension of affective meaning.

One of the most useful metaphors for understanding what is happening in the conversation is that of "positioning"—that is, the way speakers position themselves and their interlocutors through

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[231] The typological approach is a worthy endeavor and I refer you to example-filled overviews of emotion-related linguistic phenomena found in Besnier (1990); Ochs & Schieffelin (1989); Stankiewicz (1964).

the way they talk about topics and each other. The second and third case studies developed this further by studying two particular phenomena in much greater depth. The word *little* allows speakers to position themselves closer to their audiences and others through affectionate uses, it allows them to hedge positions they aren't prepared to give full illocutionary force to, and it can also be used to demean and be-*little*. I show the factors important to determining *little*'s meaning through three experiments and analysis of seven conversational corpora.

- The affective uses of *little* always build upon its core meaning of "small" (this makes it different from morphological diminutives, which have something like "child" at their core). The use of *little* indicates a speaker is staking a claim that size/degree is relevant and that the thing being modified is on the "lesser" end of the spectrum. I show how the network of concepts and uses of *little* are different than those of morphological diminutives in other languages. Nouns that co-occur with *little* skew positively while adjectives skew negatively, building expressivity out of the core meaning of "small".

- The basic analytical question posed throughout this dissertation is "What are the consequences of having an optional linguistic resource in a given context?" And this is answered by comparing an utterance to its contrast set. The presence/absence of a linguistic resource doesn't always make much of an affective difference but when it does, it has to do with the degree of markedness between the two versions of the utterances. As I show with experimental data, stronger a noun collocates with *little*, the friendlier it is to include the *little*. For a non-collocate to appear with *little* is surprising, face-threatening, and interpreted negatively.

- Experiments from corpus data round out the story in terms of speaker confidence, speaker likeability, and in terms of the perceived emotional intensity of the utterances. Factors from the controlled experiments matter in evaluations of naturalistic data, too—how is the utterance related to the speaker, the audience, and what is the collocational strength between *little* and the word it's modifying.

- Power is an inherent part of positioning, and in two corpora I show that people at different ends of a power spectrum use affective linguistic resources quite differently (the case studies come from academic meetings and parent-child interactions where there are clear power differentials). This more sociolinguistic approach helps situate the findings from the "experimental pragmatics" results. Large social categories are constructed from and reflected in micro-moments of interpersonal interactions.

- In Chapter 5, I turn to one of the most prominent sets of social categories: gender. I begin with the question of whether men and women use *little* differently, reporting results from five different conversational corpora (Canavan et al., 1997; Cieri, Graff, Kimball, Miller, & Walker, 2004; Janin et al., 2003; MacWhinney, 2000; Pitt et al., 2007). Instead of merely reporting percentages and significance, I show how differences in the use of *little* demonstrate how gender dynamics change from corpus to corpus. In most—but not all—corpora, women use *little* more than men, but we can enrich these analyses by considering when the interlocutor's gender matters (it often does) and how different topics inspire different rates of use (though for most topics, men and women in the Fisher corpus use *little* at the same rate). *Little* is associated with gender only indirectly—individuals have different things they are interested in "making small" and this is importantly determined by their position relative to the topic and the audience.

In Chapter 6, I show that emoticons occur in about 10% of posts on Twitter that are sent by people that are actually involved in real interactions (that is, they are sending messages and receiving messages back from at least four but no more than 100 other users). In addition to describing who uses which emoticons and how, I use the emoticons to describe the major dimensions of affective meaning in Twitter using hierarchical cluster analysis, factor analysis, and topic modeling. These dimensions—positivity/negativity, immediacy, teasing, and flirting—are all positional in nature.

- Positive/negative is a basic and fundamental dimension but it doesn't quite capture how various subsets of terms are conventionally used to do more complicated interactional acrobatics, for example when people use negative terms as a way of building solidarity and/or criticism without being able to be easily called out on it (e.g., teasing).

- One of the major factors involved in emoticon uses is the use of @ing, which is used to direct tweets to the attention of specific other users. A fundamental dimension that expressions of emotion are not merely expressions of inner states—they are relational. Notice that sexuality is an important form of interaction and flirting is a major and meaningful part of what is happening in Twitter.

- Users and tweets differ in terms of "immediacy"—are statements made with short, basic terms or longer words and more circuitous syntax?

- Families of emoticons (e.g., the smile family, the frown family, the wink family) are made up of variants that cut across families—for example, do you symbolize a nose, are mouths built from parentheses or brackets, are eyes made up of colons or equal signs? I describe the differences of the nose/non-nose dialects most specifically, showing how if we look only at emotion terms, the emoticon variants generally cluster together, but if we take the full set of co-occurrence patterns, then the dialects represent people with very different vocabularies (i.e., styles and concerns).

- In addition to describing emoticons, I also offer findings on other relatively new affective linguistic resources like *lmao* ('laugh my ass off') and *<3* (a heart on its side). I also show interesting patterns for more common English words like *feel, would,* and intensifiers like *really, so,* and *very*.

This dissertation is meant to give its readers new questions to pursue and the conceptual and methodological tools to do so. I believe that this will take us to aspects of affective meaning that are more complicated and more descriptively accurate than "positive/negative" and these can be usefully thought of in terms of the positioning framework, which I have linked to ideas from the literature on style (e.g., indexical fields) and information theory (e.g., observed vs. expected).

Positioning also gives us a way to examine the role of micro-interactions in creating and changing larger social structures. When we talk about the brief moments or the large ideologies that matter the most, we are talking about things that are affectively, emotionally potent. Whether we have zoomed in or zoomed out, affect is playing a role, not just in a psychological, anthropological, or sociological way—in a linguistic way, as well. Whether we care about a particular conversation, a particular type of conversational move, or a particular linguistic resource; whether we care about the way languages are acquired or the way they change, it is necessary to get a handle on affect. People use language to position themselves, their audiences, and their topics relative to one another. Expressions of emotions are more than internal states made visible, they are actions that have particular interpersonal causes and consequences, which are understood linguistically ("I'm mad/happy/scared") and which collective add up. This has important ramifications for any given interaction and at a more general level, these linguistic actions reveal and perturb the affective aspects of the cultural and cognitive systems they are part of.

Works cited

Acton, E., & Potts, C. (2011). "That straight talk": demonstratives, solidarity, and Sarah Palin. Presented at the NWAV 40, Georgetown University.

Adelman, J. S., Brown, G. D. A., & Quesada, J. F. (2006). Contextual diversity, not word frequency, determines word-naming and lexical decision times. *Psychological Science*, *17*(9), 814.

Agha, A. (2003). The social life of cultural value. *Language & Communication*, *23*(3-4), 231–273.

Agha, A. (2005). Voice, footing, enregisterment. *Journal of Linguistic Anthropology*, *15*(1), 38–59.

Aijmer, K. (2002). *English discourse particles: Evidence from a corpus* (Vol. 10). John Benjamins Publishing Co.

Aikhenvald, A. (2008). Versatile cases. *Journal of Linguistics*, *44*(03), 565–603.

Alm, C. O., Roth, D., & Sproat, R. (2005). Emotions from text: machine learning for text-based emotion prediction. *Proceedings of the conference on Human Language Technology and Empirical Methods in Natural Language Processing* (pp. 579–586).

Altarriba, J., Bauer, L. M., & Benvenuto, C. (1999). Concreteness, context availability, and imageability ratings and word associations for abstract, concrete, and emotion words. *Behavior Research Methods*, *31*(4), 578–602.

Amir, N., & Cohen, R. (2007). Characterizing Emotion in the Soundtrack of an Animated Film: Credible or Incredible? *Affective Computing and Intelligent Interaction*, 148–158.

Ang, J., Dhillon, R., Krupski, A., Shriberg, E., & Stolcke, A. (2002). Prosody-based automatic
detection of annoyance and frustration in human-computer dialog. *Proceedings Eighth
International Conference Spoken Language Processing*. Denver, Colorado.

Arnold, M. (1974). Historical Development of the Concept of Emotion. *Philosophical Studies
(Ireland)*, *22*, 147–157.

Baath, R. (2010). ChildFreq: An Online Tool to Explore Word Frequencies in Child Language.
LUCS Minor, *16*. Retrieved from http://childfreq.sumsar.net/

Baayen, R. H. (2004). Statistics in psycholinguistics: A critique of some current gold standards.
Mental lexicon working papers, *1*(1), 1–47.

Baayen, R. H. (2010). *languageR: Data sets and functions with "Analyzing Linguistic Data: A
practical introduction to statistics."* Retrieved from http://CRAN.R-
project.org/package=languageR

Baayen, R. H., Davidson, D. J., & Bates, D. M. (2008). Mixed-effects modeling with crossed
random effects for subjects and items. *Journal of memory and language*, *59*(4), 390–412.

Baccianella, S., Esuli, A., & Sebastiani, F. (2010). SENTIWORDNET 3.0: An Enhanced Lexical
Resource for Sentiment Analysis and Opinion Mining (pp. 2200–2204).

Bachorowski, J. A., & Owren, M. J. (2001). Not all laughs are alike: Voiced but not unvoiced
laughter readily elicits positive affect. *Psychological Science*, *12*(3), 252.

Baker, M. C. (2011). Degrees of nominalization: Clause-like constituents in Sakha. *Lingua*,
(121), 1164–1193.

Bakhtin, M. (1981). *The dialogic imagination: Four essays*. (M. Holquist, Ed.) (Vol. 1).
University of Texas Press.

Balota, D. A., Cortese, M. J., Sergent-Marshall, S. D., Spieler, D. H., & Yap, M. J. (2004). Visual word recognition of single-syllable words. *Journal of Experimental Psychology: General*, *133*(2), 283.

Balota, D. A., Yap, M. J., Hutchison, K. A., Cortese, M. J., Kessler, B., Loftis, B., Neely, J. H., et al. (2007). The English lexicon project. *Behavior Research Methods*, *39*(3), 445–459.

Bamman, D., Eisenstein, J., & Schnoebelen, T. (2012). *Gender in Twitter: Styles, stances, and social networks*.

Bandalos, D. L., & Boehm-Kaufman, M. R. (2009). Four common misconceptions in exploratory factor analysis. *Statistical and methodological myths and urban legends: Doctrine, verity and fable in the organizational and social sciences*, 61–87.

Banse, R., & Scherer, K. (1996). Acoustic profiles in vocal emotion expression. *Journal of personality and social psychology*, *70*(3), 614–636.

Barðdal, J. (2011). The rise of Dative Substitution in the history of Icelandic: A diachronic construction grammar account. *Lingua*, *121*(1), 60–79.

Bauman, R. (1999). Genre. *Journal of Linguistic Anthropology*, *9*(1-2), 84–87.

Bauman, R., & Briggs, C. (1990). Poetics and performances as critical perspectives on language and social life. *Annual review of Anthropology*, *19*(1), 59–88.

Bearman, P. S. (1991). The social structure of suicide. *Sociological Forum* (Vol. 6, pp. 501–524).

Beaver, D., & Velleman, D. (2011). The communicative significance of primary and secondary accents. *Lingua*, (121), 1671–1692.

Becker, M. (2006). There began to be a learnability puzzle. *Linguistic Inquiry*, *37*(3), 441–456.

Bednarek, M. (2008). *Emotion talk across corpora*. Palgrave Macmillan.

Bell, A. (1984). Language style as audience design. *Language in Society*, *13*, 145–204.

Benus, S., Gravano, A., & Hirschberg, J. (2007). Prosody, emotions, and…"whatever."
*Proceedings of the International Conference on Speech Communication and Technology
(ICSCT)* (pp. 2629–2632).

Besnier, N. (1990). Language and affect. *Annual Review of Anthropology*, *19*(1), 419–451.

Bird, H., Franklin, S., & Howard, D. (2001). Age of acquisition and imageability ratings for a
large set of words, including verbs and function words. *Behavior Research Methods*,
33(1), 73–79.

Black, D. W. (1984). Laughter. *JAMA: the journal of the American Medical Association*, *252*(21),
2995.

Blair-Goldensohn, S., Hannan, K., McDonald, R., Neylon, T., Reis, G. A., & Reynar, J. (2008).
Building a sentiment summarizer for local service reviews. Presented at the WWW
Workshop on NLP in the Information Explosion Era.

Blakemore, D. (2009). Communication and the representation of thought: The use of audience-
directed expressions in free indirect thought representations. *Journal of Linguistics*, 1–25.

Blei, D. M., Ng, A. Y., & Jordan, M. I. (2003). Latent dirichlet allocation. *The Journal of
Machine Learning Research*, *3*, 993–1022.

Bolinger, D. (1977). *Meaning and form*. London: Longman Publishing Group.

Bolinger, D. (1989). *Intonation and its uses: Melody in grammar and discourse*. Stanford
University Press.

Bourdieu, P. (1977). *Outline of a Theory of Practice*. Cambridge, England: Cambridge University Press.

Breiger, R. L. (1974). The duality of persons and groups. *Social forces*, 181–190.

Briggs, C., & Bauman, R. (1992). Genre, intertextuality, and social power. *Journal of linguistic anthropology*, *2*(2), 131–172.

Briggs, J. L. (1970). *Never in anger: Portrait of an Eskimo family* (Vol. 12). Harvard University Press.

Brown, P., & Levinson, S. (1978). Universals in language usage: Politeness phenomena. In E. Goody (Ed.), *Questions and politeness: Strategies in social interaction* (pp. 56–289). Cambridge: Cambridge University Press.

Brown, P., & Levinson, S. (1987). *Politeness: Some universals in language usage*. Cambridge: Cambridge University Press.

Bruce, R. F., & Wiebe, J. M. (1999). Recognizing subjectivity: a case study in manual tagging. *Natural Language Engineering*, *5*(2), 187–205.

Brysbaert, M., & New, B. (2009). Moving beyond Kučera and Francis: A critical evaluation of current word frequency norms and the introduction of a new and improved word frequency measure for American English. *Behavior Research Methods*, *41*(4), 977–990.

Bühler, K. (1939). *Theory of language: The representational function of language*. (D. Goodwin, Trans.) (1990th ed.). Amsterdam: John Benjamins Pub Co.

Burke, K. (1969). *A grammar of motives*. University of California Press.

Butler, J. (1999). *Gender Trouble*. New York: Routledge.

Caffi, C., & Janney, R. W. (1994). Toward a pragmatics of emotive communication. *Journal of Pragmatics*, *22*(3-4), 325–373.

Cameron, D. (1996). The language-gender interface: challenging co-optation. In V. L. Bergvall, J. M. Bing, & A. F. Freed (Eds.), *Rethinking language and gender research: Theory and practice*. London: Longman.

Cameron, D. (1998). *The feminist critique of language: A reader*. Psychology Press.

Canavan, A., Graff, D., & Zipperlen, G. (1997). *CALLHOME American English Speech*. Linguistic Data Consortium, Philadelphia. Retrieved from http://www.ldc.upenn.edu/Catalog/CatalogEntry.jsp?catalogId=LDC97S42

Carlson, J. M., Heckerman, D., & Shani, G. (2009). Estimating false discovery rates for contingency tables. *Microsoft Corporation TechReport*.

Carston, R. (1993). Conjunction, explanation and relevance. *Lingua*, *90*(1), 2.

Carston, R. (1998). Informativeness, relevance and scalar implicature. *PRAGMATICS AND BEYOND NEW SERIES*, 179–238.

Cattell, R. B. (1978). *The scientific use of factor analysis in behavioral and life sciences*. Plenum Press New York.

Cattell, R. B., & Jaspers, J. (1967). A general plasmode (No. 30-10-5-2) for factor analytic exercises and research. *Multivariate Behavioral Research Monographs*.

Cattell, R. B., & Vogelmann, S. (1977). A comprehensive trial of the scree and KG criteria for determining the number of factors. *Multivariate Behavioral Research*, *12*(3), 289–325.

Cecchetto, C., Geraci, C., Zucchi, S., Cecchetto, C., Geraci, C., & Zucchi, S. (2009). Another Way to Mark Syntactic Dependencies: The Case for Right-Peripheral Specifiers in Sign Languages. *Language*, 278-320, *85*(2).

Cegala, D. (1989). A study of selected linguistic components of involvement in interaction. *Western Journal of Communication*, *53*(3), 311–326.

Cetin, O., & Shriberg, E. (2006). Analysis of overlaps in meetings by dialog factors, hot spots, speakers, and collection site: insights for automatic speech recognition (pp. 2281–2284). Pittsburgh.

Chafe, W. L. (2007). *The importance of not being earnest: The feeling behind laughter and humor* (Vol. 3). John Benjamins Publishing Co.

Chang, N. C. (1958). Tones and intonation in the Chengtu dialect (Szechuan, China). *Phonetica*, *2*(1-2), 59–85.

Chappell, H. (1991). Strategies for the assertion of obviousness and disagreement in Mandarin: a semantic study of the modal particle me. *Australian Journal of Linguistics*, *11*(1), 39–65.

Chierchia, G. (2006). Broaden Your Views: Implicatures of Domain Widening and the "Logicality" of Language. *Linguistic Inquiry*, *37*(4), 535–590.

Chu, C. C. H. (1998). *A discourse grammar of Mandarin Chinese*. P. Lang. Retrieved from http://www.peterlang.com/download/datasheet/44463/datasheet_63890.pdf

Chung, C. K., & Pennebaker, J. W. (2007). The psychological functions of function words. *Social communication*, 343–359.

Chung, K. S. (2010). Korean evidentials and assertion. *Lingua*, *120*(4), 932–952.

Cieri, C., Graff, D., Kimball, O., Miller, D., & Walker, K. (2004). Fisher English Training Speech Part 1 Transcripts. Philadelphia: Linguistic Data Consortium.

Cieri, C., Graff, D., Kimball, O., Miller, D., & Walker, K. (2005). Fisher English Training Part 2, Transcripts. Philadelphia: Linguistic Data Consortium.

Cieri, C., Miller, D., & Walker, K. (2004). The Fisher corpus: A resource for the next generations of speech-to-text. *Fourth International Conference on Language Resources and Evaluation*.

Clark, H. (1996). *Using language.* Cambridge: Cambridge University Press.

Clark, H. H., & Brennan, S. E. (1991). Grounding in communication. *Perspectives on socially shared cognition*, *13*(1991), 127–149.

Clark, H. H., & Carlson, T. B. (1982). Hearers and speech acts. *Language*, *58*(2), 332–373.

Clark, H. H., & Krych, M. A. (2004). Speaking while monitoring addressees for understanding. *Journal of Memory and Language*, *50*(1), 62–81.

Clark, H. H., & Wilkes-Gibbs, D. (1986). Referring as a collaborative process* 1. *Cognition*, *22*(1), 1–39.

Clavel, C., Vasilescu, I., Devillers, L., Richard, G., & Ehrette, T. (2008). Fear-type emotion recognition for future audio-based surveillance systems. *Speech Communication*, *50*(6), 487–503.

Cliff, N., & Hamburger, C. D. (1967). The study of sampling errors in factor analysis by means of artificial experiments. *Psychological Bulletin*, *68*(6), 430.

Coates, J. (1993). *Women, men, and language: A sociolinguistic account of gender differences in language*. Longman (London and New York).

Compton, R., & Pittman, C. (2010). Word-formation by phase in Inuit. *Lingua*, *120*(9), 2167–2192.

Constant, N., Davis, C., Potts, C., & Schwarz, F. (2009). The Pragmatics of Expressive Content: Evidence from Large Corpora. *Sprache und Datenverarbeitung*, *33*(1-2), 5–21.

Cooke, J. R. (1968). *Pronominal Reference in Thai, Burmese, and Vietnamese* (Vol. 52). University of California Press.

Councill, I. G., McDonald, R., & Velikovich, L. (2010). What's Great and What's Not: Learning to Classify the Scope of Negation for Improved Sentiment Analysis. *Negation and Speculation in Natural Language Processing (NeSp-NLP 2010)*, 51.

Cowie, R., & Cornelius, R. R. (2003). Describing the emotional states that are expressed in speech. *Speech Communication*, *40*(1-2), 5–32.

Cowie, R., Douglas-Cowie, E., Savvidou, S., McMahon, E., Sawey, M., & Schröder, M. (2000). "FEELTRACE": An instrument for recording perceived emotion in real time.

Cowie, R., & McKeown, G. (2010). Statistical analysis of data from initial labelled database and recommendations for an economical coding scheme. *SEMAINE Report D6b*.

Craenenbroeck, J., & Haegeman, L. (2007). The derivation of subject-initial V2. *Linguistic Inquiry*, *38*(1), 167–178.

Curran, P. J., West, S. G., & Finch, J. F. (1996). The robustness of test statistics to nonnormality and specification error in confirmatory factor analysis. *Psychological Methods*, *1*(1), 16.

Dahl, H., & Stengel, B. (1978). A classification of emotion words: A modification and partial test of de Rivera's decision theory of emotions. *Psychoanalysis and Contemporary Thought*, *1*(2), 269–312.

Damasio, A. (2006). *Descartes' error: emotion, reason and the human brain*. London: Vintage.

Damasio, A. R. (1994). *Descartes' error: Emotion, reason, and the human brain*. London: Putnam.

Danescu-Niculescu-Mizil, C., Gamon, M., & Dumais, S. (2011). Mark my words!: linguistic style accommodation in social media. *Proceedings of the 20th international conference on World wide web* (pp. 745–754).

Darwin, C. (1872). *The expression of the emotions in man and animals*. (P. Ekman & P. Prodger, Eds.). Oxford: Oxford University Press.

Davies, B., & Harré, R. (1990). Positioning: The discursive production of selves. *Journal for the theory of social behaviour*, *20*(1), 43–63.

Davies, M. (2008). *The Corpus of Contemporary American English (COCA): 410+ million words, 1990-present*. Retrieved from http://www.americancorpus.org

Davis, C., & Potts, C. (2010). Affective demonstratives and the division of pragmatic labor. *Logic, Language and Meaning*, 42–52.

De Sousa, R. (1987). *The rationality of emotion*. Cambridge, MA: The MIT Press.

Demey, E., & van der Kooij, E. (2008). Phonological patterns in a dependency model: Allophonic relations grounded in phonetic and iconic motivation. *Lingua*, *118*(8), 1109–1138.

DeRose, S. (2005, 06). The Compass DeRose Guide to Emotion Words. *DeRose.net*. Retrieved from http://www.derose.net/steve/resources/emotionwords/ewords.html

Devillers, L., & Vidrascu, L. (2006). Real-life emotions detection with lexical and paralinguistic cues on Human-Human call center dialogs (pp. 801–804). Presented at the Interspeech 2006 - ICSLP, Pittsburgh, PA.

Devillers, Laurence, & Campbell, N. (2011). Special issue of computer speech and language on. *Computer Speech & Language*, *25*(1), 1 – 3. doi:DOI: 10.1016/j.csl.2010.07.002

Dijck, J. (2011). Tracing Twitter: The rise of a microblogging platform. *International Journal of Media & Cultural Politics*, *7*(3), 333–348.

Dolan, R. J. (2002). Emotion, cognition, and behavior. *Science*, *298*(5596), 1191.

Douglas-Cowie, E., Cowie, R., Sneddon, I., Cox, C., Lowry, O., McRorie, M., Martin, J. C., et al. (2007). The HUMAINE database: Addressing the collection and annotation of naturalistic and induced emotional data. *Affective computing and intelligent interaction*, 488–500.

Dressler, W. U., & Merlini Barbaresi, L. (1994). *Morphopragmatics: diminutives and intensifiers in Italian, German, and other languages*. Mouton de Gruyter.

Du Bois, J. W. (2007). The stance triangle. *Stancetaking in discourse: Subjectivity, evaluation, interaction* (pp. 139–182). Amsterdam: John Benjamins.

Eckert, P. (2008). Variation and the indexical field. *Journal of Sociolinguistics*, *12*(4), 453–476.

Eckert, P. (2010). Affect, Sound Symbolism, and Variation. *University of Pennsylvania Working Papers in Linguistics*, *15*(2), 9.

Ekman, P. (1972). Universals and cultural differences in facial expressions of emotion. In J. Cole (Ed.), (Vol. 19, pp. 207–283). Presented at the Nebraska Symposium on Motivation, Lincoln: University of Nebraska Press.

Ekman, P., & Cordaro, D. (2011). What is meant by calling emotions basic. *Emotion Review*, *3*(4), 364–370.

Ekman, P., & Friesen, W. (1975). *Unmasking the face: A guide to recognizing emotions from facial clues*. Los Altos, CA: Malor Books/ISHK.

Ekman, P., Friesen, W., & Hager, J. (1978). *Facial Action Coding System Investigator's Guide*. Palo Alto, CA: Consulting Psychologist Press.

Ekman, P., & Friesen, W. V. (1969a). The repertoire of nonverbal behavior: Categories, origins, usage, and coding. *Semiotica*, *1*(1), 49–98.

Ekman, P., & Friesen, W. V. (1969b). Nonverbal Leakage and Clues to Deception t.

Ekman, P., & Friesen, W. V. (1971). Constants across cultures in the face and emotion. *Journal of Personality and Social Psychology*, *17*, 124–129.

Ekman, P., Sorenson, E. R., & Friesen, W. V. (1969). Pan-cultural elements in facial displays of emotion. *Science*, *164*(3875), 86.

Ellsworth, P., & Scherer, K. (2003). Appraisal processes in emotion. *Handbook of affective sciences*, 572–595.

Ellsworth, P., & Smith, C. (1988). From appraisal to emotion: Differences among unpleasant feelings. *Motivation and Emotion*, *12*(3), 271–302.

Enos, F., Shriberg, E., Graciarena, M., Hirschberg, J., & Stolcke, A. (2007). Detecting deception using critical segments. *Proceedings of Interspeech 2007* (pp. 1621–1624). Antwerp.

Ernst, T. (2007). On the role of semantics in a theory of adverb syntax. *Lingua*, *117*(6), 1008–1033.

Escobar, A. M. (2012). Revisiting the "present perfect": Semantic analysis of Andean colonial documents. *Lingua*, (122), 470–480.

Evans, D. (2004). The search hypothesis of emotions. In D. Evans & P. Cruse (Eds.), *Emotion, evolution, and rationality* (pp. 179–191). Oxford: Oxford University Press.

Fabrigar, L. R., Wegener, D. T., MacCallum, R. C., & Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological methods*, *4*(3), 272.

Fast, L., & Funder, D. (2008). Reputational and behavioral correlates of swear word usage. Presented at the Annual Meeting of the Society for Personality and Social Psychology, Alburquerque, New Mexico.

Fava, J. L., & Velicer, W. F. (1992). The effects of overextraction on factor and component analysis. *Multivariate Behavioral Research*, *27*(3), 387–415.

Firth, J. R. (1957). *Papers in linguistics, 1934-1951*. Oxford University Press.

Fishman, J. A. (1968). *Readings in the Sociology of Language*. The Hague: Mouton.

Fleisher, N. (2011). Attributive adjectives, infinitival relatives, and the semantics of inappropriateness. *Journal of Linguistics*, *47*(02), 341–380.

Flesch, R. (1948). A new readability yardstick. *Journal of applied psychology*, *32*(3), 221.

Flores-Bayer, I. (2012, January 5). *Clicks in Chicano English*. Presented at the Linguistics Society of America Annual Meeting, Portland.

Floyd, F. J., & Widaman, K. F. (1995). Factor analysis in the development and refinement of clinical assessment instruments. *Psychological assessment*, *7*(3), 286.

Fonagy, I., & Magdics, K. (1963). Emotional patterns in intonation and music. *Zeitschrift für Phonetik*, *16*(1-3), 293–326.

Ford, C., & Fox, B. (2010). Multiple practices for constructing laughables. (D. Barth-Weingarten, E. Reber, & M. Selting, Eds.)*Prosody in interaction*, *23*, 339.

Fortescue, M. (2011). The relationship of Nivkh to Chukotko-Kamchatkan revisited. *Lingua*.

Frank, R. H. (1988). *Passions within reason: The strategic role of the emotions.* WW Norton & Co.

Fraser, B. (1999). What are discourse markers? *Journal of pragmatics*, *31*(7), 931–952.

Fraser, B., & Nolen, W. (1981). The association of deference with linguistic form. *International Journal of the Sociology of Language*, *1981*(27), 93–110. doi:10.1515/ijsl.1981.27.93

Frey, W. (2010). A-Movement and conventional implicatures: About the grammatical encoding of emphasis in German. *Lingua*, *120*(6), 1416–1435.

Frick, R. W. (1985). Communicating emotion: The role of prosodic features. *Psychological Bulletin*, *97*(3), 412.

Frijda, N. H. (2007). *The laws of emotion*. Mahwah, NJ: Lawrence Erlbaum Associates.

Frijda, N. H., Kuipers, P., & Ter Schure, E. (1989). Relations among emotion, appraisal, and emotional action readiness. *Journal of Personality and Social Psychology*, *57*(2), 212–228.

Gelman, A., & Hill, J. (2007). *Data analysis using regression and multilevel/hierarchical models*. New York: Cambridge University Press.

Gerner, M. (2005). The zoom-on-possessee construction in Kam (Dong): the anatomy of a new construction type. *Journal of Linguistics*, *41*(02), 307–352.

Giddens, A. (1984). *The Constitution of Society: Outline of the Theory of Structuration*. Berkeley, CA: University of California Press.

Giles, H., & Coupland, N. (1991). *Language: Contexts and consequences*. Pacific Grove, CA: Brooks/Cole.

Gimpel, K., Schneider, N., O'Connor, B., Das, D., Mills, D., Eisenstein, J., Heilman, M., et al. (2010). *Part-of-speech tagging for twitter: Annotation, features, and experiments*. DTIC Document.

Giorgi, A. (2009). Toward a syntax of the subjunctive mood. *Lingua*, *119*(12), 1837–1858.

Glenn, P. J. (2003). *Laughter in interaction* (Vol. 18). Cambridge University Press.

Glorfeld, L. W. (1995). An improvement on Horn's parallel analysis methodology for selecting the correct number of factors to retain. *Educational and Psychological Measurement*, *55*(3), 377–393.

Godfrey, J. J., Holliman, E. C., & McDaniel, J. (1992). SWITCHBOARD: Telephone speech corpus for research and development. *Acoustics, Speech, and Signal Processing, 1992. ICASSP-92., 1992 IEEE International Conference on* (Vol. 1, pp. 517–520).

Goffman, E. (1981). *Forms of talk*. Philadelphia: University of Pennsylvania Press.

Goffman, Erving. (1959). *The Presentation of Self in Everyday Life*. New York: Anchor Books.

Goffman, Erving. (1967). *Interaction rituals*. Chicago: Aldine.

Goffman, Erving. (1978). Response Cries. *Language*, *54*(4), 787–815.

Goldberg, A. B., & Zhu, X. (2006). Seeing stars when there aren't many stars: graph-based semi-supervised learning for sentiment categorization. *Proceedings of the First Workshop on Graph Based Methods for Natural Language Processing* (pp. 45–52).

Grammer, K. (1990). Strangers meet: Laughter and nonverbal signs of interest in opposite-sex encounters. *Journal of Nonverbal Behavior*, *14*(4), 209–236.

Grammer, K., & Eibl-Eibesfeldt, I. (1990). The ritualisation of laughter. *Natürlichkeit der Sprache und der Kultur*, 192–214.

Greenspan, P. (2000). Emotional strategies and rationality. *Ethics*, *110*(3), 469–487.

Grice, H. (1975). Logic and conversation. In P. Cole, & J. Morgan (Eds.), *Syntax and Semantics* (Vol. 3, pp. 41–58). New York: Academic Press.

Grice, M., Baumann, S., & Jagdfeld, N. (2009). Tonal association and derived nuclear accents–The case of downstepping contours in German. *Lingua*, *119*(6), 881–905.

Grimm, M., Kroschel, K., Mower, E., & Narayanan, S. (2007). Primitives-based evaluation and estimation of emotions in speech. *Speech Communication*, *49*(10-11), 787–800.

Gumperz, J. (1982). *Discourse Strategies*. Cambridge University Press.

Günthner, S. (1999). Polyphony and the layering of voices in reported dialogues: An analysis of the use of prosodic devices in everyday reported speech. *Journal of Pragmatics*, *31*(5), 685–708.

Haddad, Y. A. (2009). Copy control in Telugu. *Journal of Linguistics*, *45*(01), 69–109.

Haegeman, L. (2006). Conditionals, factives and the left periphery. *Lingua*, *116*(10), 1651–1669.

Hagège, C. (1993). *The language builder: An essay on the human signature in linguistic morphogenesis* (Vol. 94). John Benjamins Publishing Company.

Haidt, J. (2001). The emotional dog and its rational tail: A social intuitionist approach to moral judgment. *Psychological review*, *108*(4), 814.

Hakstian, A. R., Rogers, W. T., & Cattell, R. B. (1982). The behavior of number-of-factors rules with simulated data. *Multivariate Behavioral Research*, *17*(2), 193–219.

Harman, H. H. (1976). *Modern factor analysis*. University of Chicago Press.

Harré, R. (1983). *Personal being: A theory for individual psychology*. Oxford: Basil Blackwell.

Harré, R. (1986). Social sources of mental content and order. In R. Harré & P. Secord (Eds.), *Psychology: Designing the discipline* (pp. 91–127). Oxford: Basil Blackwell.

Harré, R., & Van Lagenhove, L. (1999). *Positioning theory: Moral contexts of intentional action*. Wiley-Blackwell.

Haspelmath, M. (2006). Against markedness (and what to replace it with). *Journal of Linguistics*, *42*(01), 25–70.

Hayton, J. C., Allen, D. G., & Scarpello, V. (2004). Factor retention decisions in exploratory factor analysis: A tutorial on parallel analysis. *Organizational Research Methods*, *7*(2), 191.

Heine, B., & Song, K. A. (2011). On the grammaticalization of personal pronouns. *Journal of Linguistics*, *47*, 587–630.

Heise, D. (2001). Project Magellan: Collecting cross-cultural affective meanings via the internet. *Electronic Journal of Sociology*, *5*(3). Retrieved from www.sociology.org/content/vol005.003/mag.html

Hendrick, R. (2005). Tongan determiners and semantic composition. *Language*, *81*(4), 907–926.

Henley, N. M., & Kramarae, C. (2001). Gender, power, and miscommunication. *Feminism in the study of religion: a reader*, 34–60.

Hill, V. (2007). Vocatives and the pragmatics-syntax interface. *Lingua*, *117*(12), 2077–2105.

Hintikka, J. (1969). *Models for modalities*. Dordrecht: Reidel.

Hirschberg, J. (1985). *A theory of scalar implicature*. University of Pennsylvania.

Hobbs, J. R. (1985). *On the coherence and structure of discourse*. CSLI.

Hochschild, A. R. (1979). Emotion work, feeling rules, and social structure. *The American Journal of Sociology*, *85*(3), 551–575.

Hoeksema, J., & Napoli, D. (2008). Just for the hell of it: A comparison of two taboo-term constructions. *Journal of Linguistics*, *44*(02), 347–378.

Honeycutt, C., & Herring, S. C. (2009). Beyond microblogging: Conversation and collaboration via Twitter. *System Sciences, 2009. HICSS'09. 42nd Hawaii International Conference on* (pp. 1–10).

Horn, L. (1984). Toward a new taxonomy for pragmatic inference: Q-based and R-based implicature. *1984*, 11–42.

Horn, L., & Ward, G. (2006). *The handbook of pragmatics*. Wiley-Blackwell. Retrieved from http://books.google.com/books?hl=en&lr=&id=6JdPZ-LIeeoC&oi=fnd&pg=PR5&dq=horn+domain+of+pragmatics&ots=O4zGrS_Ee6&sig=ZAXoTVqOluoHJ6Fz-AouOid7aSg

Hu, M., & Liu, B. (2004). Mining and summarizing customer reviews (pp. 168–177).

Hymes, D. (1972). On communicative competence. In A. Duranti (Ed.), *1972* (pp. 269–293). Malden, MA: Blackwell.

Izard, C. E. (2009). Emotion Theory and Research: Highlights, Unanswered Questions, and Emerging Issues. *Annual Review of Psychology*, *60*(1), 1–25. doi:10.1146/annurev.psych.60.110707.163539

Jaeger, T. (2009). *Redundancy and Reduction: Speakers Manage Syntactic Information Density*.

Jakobson, R. (1960). Linguistics and poetics. *Style in language*, 350–377.

Janin, A., Baron, D., Edwards, J., Ellis, D., Gelbart, D., Morgan, N., Peskin, B., et al. (2003). The ICSI meeting corpus. *Acoustics, Speech, and Signal Processing, 2003. Proceedings.(ICASSP'03)*. (Vol. 1, pp. 364–367).

Jay, T. (1992). *Cursing in America*. Philadelphia: John Benjamins.

Jay, T. (2000). *Why we curse: A neuropsychological theory of speech*. Philadelphia: John Benjamins.

Jay, T. (2009). The utility and ubiquity of taboo words. *Perspectives on Psychological Science*, *4*(2), 153–161.

Jay, T., Caldwell-Harris, C., & King, K. (2008). Recalling taboo and nontaboo words. *American Journal of Psychology*, *121*(1), 83–103.

Jesperson, O. (1923). *Language: Its Nature, Development and Origin*. New York: Henry Holt.

Johns-Lewis, C. (1986). Prosodic differentiation of discourse modes. *Intonation in discourse*, 199–220.

Johnstone, B., Andrus, J., & Danielson, A. (2006). Mobility, indexicality, and the enregisterment of "Pittsburghese." *Journal of English Linguistics*, *34*(2), 77–104.

Jurafsky, D. (1996). Universal tendencies in the semantics of the diminutive. *Language*, *72*(3), 533–578.

Juslin, P., & Laukka, P. (2003). Communication of emotions in vocal expression and music performance: Different channels, same code?. *Psychological Bulletin*, *129*(5), 770–814.

Kahneman, D. (2003). Maps of bounded rationality: Psychology for behavioral economics. *The American economic review*, *93*(5), 1449–1475.

Kamvar, S. D., & Harris, J. (2011). We feel fine and searching the emotional web. *Proceedings of the fourth ACM international conference on Web search and data mining* (pp. 117–126). Hong Kong, China. Retrieved from http://wefeelfine.org

Kaplan, D. (1999). What is meaning? Explorations in the Theory of Meaning as Use.

Katzir, R. (2011). Morphosemantic mismatches, structural economy, and licensing. *Linguistic Inquiry*, *42*(1), 45–82.

Kaufmann, I. (2007). Middle voice. *Lingua*, *117*(10), 1677–1714.

Keltner, D., & Bonanno, G. A. (1997). A study of laughter and dissociation: Distinct correlates of laughter and smiling during bereavement. *Journal of Personality and Social Psychology*, *73*(4), 687.

Kensinger, E. A., & Corkin, S. (2004). Two routes to emotional memory: Distinct neural processes for valence and arousal. *Proceedings of the National Academy of Sciences of the United States of America*, *101*(9), 3310–3315.

Kiesling, S. (2009). Style as Stance: Stance as the Explanation for Patterns of Sociolinguistic Variation. In A. Jaffe (Ed.), *Stance: Sociolinguistic Perspectives* (pp. 171–194). Oxford: Oxford University Press.

Kiesling, S., Dilley, L., & Raymond, W. D. (2006). The variation in conversation (ViC) project: Creation of the Buckeye Corpus of Conversational Speech. *Dept. of Psychology, Ohio State University, available at www. buckeyecorpus. osu. edu.*

Kim, S. M., & Hovy, E. (2004). Determining the sentiment of opinions. *Proceedings of the 20th international conference on Computational Linguistics*. Presented at the COLING '04, Geneva, Switzerland.

Kincaid, J. P., Fishburne, R., Rogers,, R., & Chissom, B. (1975). Derivation of New Readability Formulas (Automated Readability Index, Fog Count and Flesch Reading Ease Formula) for Navy Enlisted Personnel.

Kiparsky, P., & Kiparsky, C. (1970). Fact. In M. Bierwisch & K. Heidolph (Eds.), *Progress in linguistics* (pp. 143–173). The Hague: Mouton.

Kishimoto, H. (2008). On the variability of negative scope in Japanese. *Journal of Linguistics*, *44*(02), 379–435.

Kishner, J. M., & Gibbs, R. W. (1996). How "Just" Gets Its Meanings: Polysemy and Context in Psychological Semantics. *Language and Speech*, *39*(1), 19.

Klewitz, G., & Couper-Kuhlen, E. (1999). *Quote-unquote? The role of prosody in the contextualization of reported speech sequences*. Universität Konstanz, Philosophische Fakultät, Fachgruppe Sprachwissenschaft.

Klima, E. (1964). Negation in English. *The structure of language*, *3*, 246–323.

Ko, E. (2012). Nonlinear development of speaking rate in child-directed speech. *Lingua*, *To appear*.

Kromer, P. (2010, 2011). Twitter Census: Smileys. Retrieved from http://www.infochimps.com/datasets/twitter-census-smileys

Labov, W., & Waletzky, J. (1967). Narrative analysis: Oral versions of personal experience. In J. Helm (Ed.), *Essays on the Verbal and Visual Arts* (pp. 12–44). Seattle: University of Washington Press.

Laca, B. (1990). Generic objects: some more pieces of the puzzle. *Lingua*, *81*(1), 25–46.

Lakoff, R. (1974a). Remarks on this and that. *Chicago Linguistic Society* (Vol. 10, pp. 345–356).

Lakoff, R. (1974b). Remarks on this and that. *Chicago Linguistic Society* (Vol. 10, pp. 345–356).

Laukka, P., Neiberg, D., Forsell, M., Karlsson, I., & Elenius, K. (2011). Expression of affect in spontaneous speech: Acoustic correlates and automatic detection of irritation and resignation. *Computer Speech & Language*, *25*(1), 84 – 104. doi:DOI: 10.1016/j.csl.2010.03.004

LeDoux, J. E. (1998). *The emotional brain: The mysterious underpinnings of emotional life*. Simon and Schuster.

Lee, D. (1987). The semantics of just. *Journal of Pragmatics*, *11*(3), 377–398.

Levinson, S. (1983). Pragmatics.

Levinson, S. (2000). *Presumptive meanings: The theory of generalized conversational implicature*. The MIT Press. Retrieved from http://books.google.com/books?hl=en&lr=&id=wmVDkTTi620C&oi=fnd&pg=PA1&dq

=levinson+presumptive+meanings&ots=sFqVQoP_ic&sig=FYP1vSsXA70eUb-

ezg1sEF3QvUY

Levy, R. I. (1973). *Tahitians: Mind and experience in the Society Islands*. University of Chicago

Press.

Levy, R. I. (1984). Emotion, knowing, and culture. *Culture theory: Essays on mind, self, and

emotion*, 217–234.

Lewis, D. (1979). Scorekeeping in a language game. *Journal of philosophical logic*, *8*(1), 339–

359.

Lewis, D. (2002). *Convention: A philosophical study*. Wiley-Blackwell.

Lewis, S. (2009). Making meaning through mocking: a case of the FAKE people. *Gender and

Language Association Conference IGALA 5* (p. 477).

Liberman, M. (2008). Affective demonstratives. *Language Log*. Retrieved from

http://languagelog.ldc.upenn.edu/nll/?p=674

Lieberman, P., & Michaels, S. B. (1962). Some aspects of fundamental frequency and envelope

amplitude as related to the emotional content of speech. *The Journal of the Acoustical

Society of America*, *34*, 922.

Linn, R. L. (1968). A Monte Carlo approach to the number of factors problem. *Psychometrika*,

33(1), 37–71.

Loewer, B. (1976). Counterfactuals with disjunctive antecedents. *The Journal of Philosophy*,

531–537.

Long, D. L., & Graesser, A. C. (1988). Wit and humor in discourse processing. *Discourse

processes*, *11*(1), 35–60.

Luke, K. K. (1990). *Utterance particles in Cantonese conversation* (Vol. 9). J. Benjamins Pub.

 Co. Retrieved from

 http://books.google.com/books?hl=en&lr=&id=hs34Cgmf99gC&oi=fnd&pg=PP2&dq=l

 uke+cantonese+lo&ots=dQ8pxHNHm0&sig=vlbH-6KuDTKDcEZmQWlEQxATv60

Maas, A. L., Ng, A. Y., & Potts, C. (n.d.). Multi-Dimensional Sentiment Analysis with Learned

 Representations.

MacWhinney, B. (2000). *The CHILDES project: Tools for analyzing talk* (Vol. 2). Psychology

 Press.

Malinowski, B. (1923). The Problem of Meaning in Primitive Languages. In C. Ogden & I.

 Richards (Eds.), *The Meaning of Meaning* (pp. 296–336). London: Routledge & Kegan

 Paul.

Manning, C. D., Raghavan, P., & Schutze, H. (2008). *Introduction to information retrieval* (Vol.

 1). Cambridge University Press Cambridge.

Mastropavlou, M., & Tsimpli, I. M. (2011). Complementizers and subordination in typical

 language acquisition and SLI. *Lingua*, *121*(3), 442–462.

Matthews, S., & Yip, V. (1994). *Cantonese: A comprehensive grammar*. Psychology Press.

 Retrieved from

 http://books.google.com/books?hl=en&lr=&id=czbGJLu59S0C&oi=fnd&pg=PR13&dq=

 matthews+yip+cantonese+1994&ots=Cdm2xifLAf&sig=5qD452kBnTg8ZFutKxq48wm

 URNM

Mauro, R., Sato, K., & Tucker, J. (1992). The role of appraisal in human emotions: A cross-

 cultural study. *Journal of Personality and Social Psychology*, *62*(2), 301–317.

McConnell-Ginet, S. (2008). Words in the World: How and Why Meanings Can Matter. *Language*, *84*(3), 497–527.

McEnery, T. (2006). *Swearing in English*. New York: Routledge.

McKeown, G., Valstar, M., Cowie, R., Pantic, M., & Schroder, M. (2011). The SEMAINE database: Annotated multimodal records of emotionally coloured conversations between a person and a limited agent. *Affective Computing, IEEE Transactions on*, (99), 1–1.

Mehl, M., Gosling, S., & Pennebaker, J. (2003). Personality in its natural habitat: Manifestations and implicit folk theories of personality in daily life. *Journal of Personality and Social Psychology*, *84*, 857–870.

Meir, I. (2010). Iconicity and metaphor: Constraints on metaphorical extension of iconic forms. *Language*, *86*(4), 865–896.

Meir, I., Padden, C. A., Aronoff, M., & Sandler, W. (2007). Body as subject. *Journal of Linguistics*, *43*(03), 531–563.

Meltzer-Asscher, A. (2010). Present participles: Categorial classification and derivation. *Lingua*, *120*(9), 2211–2239.

Mendoza-Denton, N. (2002). Language and identity. *The handbook of language variation and change*, 475–499.

Meyerhoff, M. (2005). Biographies, agency and power. *Journal of Sociolinguistics*, *9*(4), 595–601.

Michel, J. B., Shen, Y. K., Aiden, A. P., Veres, A., Gray, M. K., Pickett, J. P., Hoiberg, D., et al. (2011). Quantitative analysis of culture using millions of digitized books. *Science*, *331*(6014), 176.

Migge, B., & Winford, D. (2012). Fact-type complements in Gbe and the Surinamese Creoles. *Lingua*, (To appear).

Mirus, G., Fisher, J., & Napoli, D. J. (2012). Taboo expressions in American Sign Language. *Lingua*, *To appear*.

Mithun, M. (2008). The extension of dependency beyond the sentence. *Language*, *84*(1), 69.

Morand, D. A. (2000). Language and power: An empirical analysis of linguistic strategies used in superior–subordinate communication. *Journal of Organizational Behavior*, *21*(3), 235–248.

Morgan, R. L., & Heise, D. (1988). Structure of emotions. *Social Psychology Quarterly*, 19–31.

Mueller, M., Parod, W., Cousens, J., Burns, P., Norstad, J., & Berry, C. (2011). *WordHoard*. Northwestern University. Retrieved from http://wordhoard.northwestern.edu/

Munro, R., & Manning, C. D. (2012). Short message communications: users, topics, and in-language processing. *Proceedings of the 2nd ACM Symposium on Computing for Development* (p. 4).

Muysken, P. (2011). Spanish affixes in the Quechua languages: A multidimensional perspective. *Lingua*, (122), 481–493.

Myers Scotton, C. (1983). The negotiation of identities in conversation: A theory of markedness and code choice. *International journal of the sociology of language*, *44*, 115–136.

Neviarouskaya, A., Prendinger, H., & Ishizuka, M. (2010). Recognition of affect, judgment, and appreciation in text. *Proceedings of the 23rd International Conference on Computational Linguistics* (pp. 806–814).

Niederhoffer, K., & Pennebaker, J. (2002). Linguistic Style Matching in Social Interaction. *Journal of Language and Social Psychology*, *21*(4), 337–360.

Ochs, E. (1992). Indexing gender. In A. Duranti & C. Goodwin (Eds.), *Rethinking context: language as an interactive phenomenon* (pp. 335–359). Cambridge: Cambridge University Press.

Ochs, E. (1996). Linguistic resources for socializing humanity. In J. Gumperz & S. Levinson (Eds.), *Rethinking linguistic relativity* (pp. 407–437). Cambridge: Cambridge University Press.

Ochs, E., & Schieffelin, B. (1989). Language has a heart. *Text-Interdisciplinary Journal for the Study of Discourse*, *9*(1), 7–26.

Ochs Keenan, E. (1975). Making it last: Repetition in children's discourse. *Proceedings of the Annual Meeting of the Berkeley Linguistics Society* (Vol. 1, pp. 279–294).

Olmos, S., & Ahern, A. (2009). Contrast and propositional attitude: A relevance theoretic analysis of contrast connectives in Spanish and English. *Lingua*, *119*(1), 51–66.

Oltra-Massuet, I., & Arregi, K. (2005). Stress-by-structure in Spanish. *Linguistic Inquiry*, *36*(1), 43–84.

Ortony, A., Clore, G. L., & Foss, M. A. (1987). The referential structure of the affective lexicon. *Cognitive science*, *11*(3), 341–364.

Oxford University Computing Services. (n.d.). The British National Corpus, version 3. Retrieved March 5, 2011, from http://corpus.byu.edu/bnc/

Pang, B., & Lee, L. (2005). Seeing stars: Exploiting class relationships for sentiment categorization with respect to rating scales. *ANNUAL MEETING-ASSOCIATION FOR COMPUTATIONAL LINGUISTICS* (Vol. 43, p. 115).

Pang, B., Lee, L., & Vaithyanathan, S. (2002). Thumbs up?: sentiment classification using machine learning techniques. *Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP)* (pp. 79–86). Philadelphia: Association for Computational Linguistics.

Papafragou, A., & Musolino, J. (2003). Scalar implicatures: Experiments at the semantics-pragmatics interface. *Cognition*, *86*(3), 253–282.

Parkinson, B. (2001). Putting appraisal in context. In K. Scherer, A. Schorr, & T. Johnstone (Eds.), *Appraisal processes in emotion: Theory, methods, research* (pp. 173–186).

Partee, B. H. (2009). Formal semantics, lexical semantics and compositionality: The puzzle of privative adjectives. *Philologia*, (7), 11–24.

Pellegrino, F., Coupé, C., & Marsico, E. (2011). A cross-language perspective on speech information rate. *Language*, *87*(3).

Pennebaker, J., Mehl, M., & Niederhoffer, K. (2003). Psychological aspects of natural language use: Our words, our selves. *Annual review of psychology*, *54*(1), 547–577.

Pennebaker, J. W., Mayne, T. J., & Francis, M. E. (1997). Linguistic predictors of adaptive bereavement. *Journal of Personality and Social Psychology*, *72*(4), 863.

Pennebaker, J. W., & Stone, L. D. (2003). Words of wisdom: Language use over the life span. *Journal of personality and social psychology*, *85*(2), 291.

Pessoa, L. (2008). On the relationship between emotion and cognition. *Nature Reviews Neuroscience*, *9*(2), 148–158.

Phelps, E. A. (2004). Human emotion and memory: interactions of the amygdala and hippocampal complex. *Current Opinion in Neurobiology*, *14*(2), 198–202.

Phelps, E. A. (2006). Emotion and cognition: insights from studies of the human amygdala. *Annual Review of Psychology*, (57), 27–53.

Pickering, M. J., & Garrod, S. (2004). Toward a mechanistic psychology of dialogue. *Behavioral and Brain Sciences*, *27*(02), 169–190.

Pilkington, A. (2000). *Poetic effects: A relevance theory perspective*. Amsterdam: John Benjamins Publishing Company.

Pitt, M., Dilley, L., Johnson, K., Kiesling, S., Raymond, W., Hume, E., & Fosler-Lussier, E. (2007). Buckeye Corpus of Conversational Speech. *Columbus, OH: Department of Psychology*, *(2nd release)*. Retrieved from [www. buckeyecorpus. osu. edu]

Platt, J. T., & Ho, M. L. (1989). Discourse particles in Singaporean English: Substratum influences and universals. *World Englishes*, *8*(2), 215–221.

Pope, J., Meyerhoff, M., & Ladd, D. R. (2007). Forty years of language change on Martha's Vineyard. *Language*, *83*(3), 615–627.

Potts, C. (2007a). The expressive dimension. *Theoretical Linguistics*, *33*(2), 165–198. doi:10.1515/TL.2007.011

Potts, C. (2007b). The centrality of expressive indices. *Theoretical Linguistics*, *33*(2), 255–268. doi:10.1515/TL.2007.019

Potts, C. (2011). On the negativity of negation. In D. Lutz & Li (Eds.), *Proceedings of Semantics and Linguistic Theory 20* (pp. 236–659).

Potts, C., Asudeh, A., Cable, S., Hara, Y., McCready, E., Alonso-Ovalle, L., Bhatt, R., et al. (2009). Expressives and identity conditions. *Linguistic Inquiry*, *40*(2), 356–366.

Potts, C., & Schwarz, F. (2010a). Affective "This." *Linguistic Inquiry*, *3*(5), 1–30.

Potts, C., & Schwarz, F. (2010b). Affective'this'. *Linguistic Issues in Language Technology*, *3*(1).

Quinto-Pozos, D. (2007). Can constructed action be considered obligatory? *Lingua*, *117*(7), 1285–1314.

Raiche, G., & Magis, D. (2012). *Package "nFactors": Parallel Analysis and Non Graphical Solutions to the Cattell Scree Test*. Retrieved from http://cran.r-project.org/web/packages/nFactors/nFactors.pdf

Ramage, D., Dumais, S., & Liebling, D. (2010). Characterizing microblogs with topic models. *International AAAI Conference on Weblogs and Social Media*.

Ramage, D., Hall, D., Nallapati, R., & Manning, C. D. (2009). Labeled LDA: A supervised topic model for credit attribution in multi-labeled corpora. *Proceedings of the 2009 Conference on Empirical Methods in Natural Language Processing: Volume 1-Volume 1* (pp. 248–256).

Ramage, D., Manning, C. D., & Dumais, S. (2011). Partially labeled topic models for interpretable text mining. *Proceedings of the 17th ACM SIGKDD international conference on Knowledge discovery and data mining* (pp. 457–465).

Ramage, D., & Rosen, E. (n.d.). *Stanford Topic Modeling Toolbox*. Stanford NLP Group. Retrieved from http://nlp.stanford.edu/software/tmt/tmt-0.4/

Reddy, V. (2003). On being the object of attention: Implications for self-other consciousness. *Trends in Cognitive Sciences*, *7*(9), 397–402.

Reisenzein, R. (2006). Arnold's theory of emotion in historical perspective. *Cognition & Emotion*, *20*(7), 920–951.

Revelle, W. (2012). *Package "psych": Procedures for Psychological, Psychometric, and Personality Research*. Retrieved from http://cran.r-project.org/web/packages/psych/psych.pdf

Revelle, W., & Rocklin, T. (1979). Very simple structure: An alternative procedure for estimating the optimal number of interpretable factors. *Multivariate Behavioral Research*, *14*(4), 403–414.

Rickford, J. R., & Rickford, A. E. (1976). Cut-eye and suck-teeth: African words and gestures in New World guise. *The Journal of American Folklore*, *89*(353), 294–309.

Riloff, E., & Wiebe, J. (2003). Learning extraction patterns for subjective expressions. *Proceedings of the 2003 Conference on Empirical Methods in Natural Language Processing* (pp. 105–112).

Ritz, M. E. ., & Engel, D. M. (2008). "Vivid narrative use" and the meaning of the present perfect in spoken Australian English. *Linguistics*, *46*, 131–160.

Rong, J., Li, G., & Chen, Y. P. . (2009). Acoustic feature selection for automatic emotion recognition from speech. *Information Processing & Management*, *45*(3), 315–328.

Roseman, I. J., Spindel, M. S., & Jose, P. E. (1990). Appraisals of emotion-eliciting events: Testing a theory of discrete emotions. *Journal of Personality and Social Psychology*, *59*(5), 899–915.

Rummel, R. J. (1970). *Applied factor analysis*. Northwestern University Press.

Russell, J. A., Bachorowski, J.-A., & Fernández-Dols, J.-M. (2003). Facial and Vocal Expressions of Emotion. *Annual Review of Psychology*, *54*(1), 329–349. doi:10.1146/annurev.psych.54.101601.145102

Sabini, J., Silver, M., & others. (1982). *Moralities of everyday life*. Oxford: Oxford University Press. Retrieved from http://webserver.lemoyne.edu/courseinformation/Ridzi/Archive/Fall%202007/Soc%2010 1%20Introduction%20to%20Sociology/Backup%20of%20library%20Reserve%20Readin gs/11%20Sabini%20and%20Silver%20Chapter%204.pdf

Salem, M. (2010). Bare nominals, information structure and word order. *Lingua*, *120*(6), 1476–1501.

Sandler, W., Meir, I., Dachkovsky, S., Padden, C., & Aronoff, M. (2011). The emergence of complexity in prosody and syntax. *Lingua*, (121), 2014–2033.

Sapir, E. (1927). Speech as a personality trait. *American Journal of Sociology*, 892–905.

Schapansky, N. (2002). The syntax of negation in French: contrariety versus contradiction. *Lingua*, *112*(10), 793–826.

Schapansky, N. (2010). Further aspects of negation in French. *Lingua*, *120*(1), 103–131.

Scherer, K. (1979). Nonlinguistic vocal indicators of emotion and psychopathology. *Emotions in personality and psychopathology*, 493–529.

Scherer, K. (1986). Vocal affect expression: A review and a model for future research. *Psychological bulletin*, *99*(2), 143–165.

Scherer, K. (1994). Affect bursts. *Emotions: Essays on emotion theory*, 161–196.

Scherer, K. (1999). Appraisal theory. In T. Dalgleish & M. Power (Eds.), *Handbook of cognition and emotion* (pp. 637–663). John Wiley and Sons Ltd.

Scherer, K. (2003). Vocal communication of emotion: a review of research paradigms. *Speech Communication*, *40*, 227–256.

Scherer, K. (2005). What are emotions? And how can they be measured? *Social Science Information*, *44*(4), 695.

Scherer, K., Wallbott, H., & Summerfield, A. (1986). *Experiencing emotion: A cross-cultural study*. Cambridge University Press. Retrieved from http://www.affective-sciences.org/system/files/page/2636/FiveLangAffectTerms.pdf

Schiffrin, D. (1987). *Discourse markers* (Vol. 5). Cambridge University Press.

Schiffrin, D. (1988). *Discourse markers*. Cambridge University Press.

Schlosberg, H. (1954). Three dimensions of emotion. *Psychological review*, *61*(2), 81–88.

Schnoebelen, T. (2010a). *Variation in speech tempo: Capt. Kirk, Mr. Spock, and all of us in between*. Presented at the New Ways of Analyzing Variation (NWAV) 39, San Antonio.

Schnoebelen, T. (2010b). *Shabo is an isolate*. Presented at the Language Isolates in Africa Workshop, Dynamique du Langage, Lyon, France.

Schnoebelen, T. (2010c). *The emotional profile of words*. Presented at the La Journée Scientifique du LLACAN (Langues et Cultures d'Afrique Noire), Villejuif, France.

Schnoebelen, T. (2011). *Affective patterns using words and emoticons in Twitter*. Presented at the NWAV 40, Georgetown University.

Schnoebelen, T., & Kuperman, V. (2010). Using Amazon Mechanical Turk for linguistic research. *Psihologija*, *43*(4), 441–464. doi:10.2298/PSI1004441S

Schnoebelen, T., Munro, R., Bethard, S., Clausen, D., Kuperman, V., Lai, V. T., Melnick, R., et al. (2011). *A new generation of data: Crowdsourcing and language studies*. Presented at the Linguistics Society of America Annual Meeting, Pittsburgh, PA.

Schroder, M. (2004). Speech and emotion research: an overview of research frameworks and a dimensional approach to emotional speech synthesis (Ph. D thesis). *Saarland University*.

Schröder, M. (2003). Experimental study of affect bursts. *Speech Communication*, *40*(1-2), 99–116.

Schröder, M., Cowie, R., Douglas-Cowie, E., Westerdijk, M., & Gielen, S. (2001). Acoustic correlates of emotion dimensions in view of speech synthesis. *Proceedings of Eurospeech 2001* (pp. 87–90). Aalborg, Denmark.

Selting, M. (1994). Emphatic speech style--with special focus on the prosodic signalling of heightened emotive involvement in conversation. *Journal of pragmatics*, *22*(3-4), 375–408.

Shaver, P., Schwartz, J., Kirson, D., & O'Connor, C. (1987). Emotion knowledge: Further exploration of a prototype approach. *Journal of personality and social psychology*, *52*(6), 1061–1086.

Shintel, H., & Nusbaum, H. C. (2004). Dialogue Processing: Automatic Alignment or Controlled Understanding? *Behavioral and Brain Sciences*, *27*(02), 210–211. doi:10.1017/S0140525X04430052

Shotter, J. (1990). Rom Harré: Realism and the turn to social constructionism. In R. Bhaskar (Ed.), *Harré and his Critics: Essays in Honour of Rom Harré, with his Commentary on them* (pp. 206–223). Oxford: Basi.

Siegel, L. (2009). Mood selection in Romance and Balkan. *Lingua*, *119*(12), 1859–1882.

Silverstein, M. (2003). Indexical order and the dialectics of sociolinguistic life. *Language & Communication*, *23*(3-4), 193–229.

Singhapreecha, P. (2010). Modals and control infinitives: A view of Thîi. *Lingua*, *120*, 1288–1312.

Smith, C. A., & Ellsworth, P. C. (1985). Patterns of cognitive appraisal in emotion. *Journal of personality and social psychology*, *48*(4), 813–838.

Sobol-Shikler, T. (2011). Automatic inference of complex affective states. *Computer Speech & Language*, *25*(1), 45 – 62. doi:DOI: 10.1016/j.csl.2009.12.005

Solomon, R. C. (1984). Getting angry: The Jamesian theory of emotion in anthropology. *Culture theory: Essays on mind, self, and emotion*, 238–254.

Sperber, D., & Wilson, D. (1995). *Relevance: Communication and cognition*. Wiley-Blackwell.

Spitulnik, D. (1996). The social circulation of media discourse and the mediation of communities. *Journal of Linguistic Anthropology*, *6*(2), 161–187.

Srofe, L. A., & Waters, E. (1976). The ontogenesis of smiling and laughter: A perspective on the organization of development in infancy. *Psychological Review*, *83*(3), 173.

Stalnaker, R. (1974). Pragmatic presuppositions. In M. Munitz & P. Unger (Eds.), *Semantics and philosophy* (pp. 197–213). New York: New York University Press.

Stankiewicz, E. (1964). Problems of emotive language. In T. Sebeok, A. Hayes, & M. Bateson (Eds.), *Approaches to Semiotics* (pp. 239–264). The Hague: Mouton.

Storm, C., & Storm, T. (1987). A taxonomic study of the vocabulary of emotions. *Journal of Personality and Social Psychology*, *53*(4), 805.

Sybesma, R., & Li, B. (2007). The dissection and structural mapping of Cantonese sentence final particles. *Lingua*, *117*(10), 1739–1783.

Tannen, D. (1989). *Talking voices*. Cambridge: Cambridge University Press.

Thomason, R. (1990). Accommodation, meaning, and implicature: Interdisciplinary foundations for pragmatics. *Intentions in communication*, 325–363.

Thurstone, L. L. (1947). Multiple factor analysis.

Tomkins, S. (1995). *Exploring affect: the selected writings of Silvan S. Tomkins*. (S. Tomkins & E. V. Demos, Eds.). Cambridge, England: Cambridge University Press.

Trester, A. M. (2009). Discourse marker "oh" as a means for realizing the identity potential of constructed dialogue in interaction. *Journal of Sociolinguistics*, *13*(2), 147–168.

Trubetzkoy, N. S. (1939). *Principles of Phonology*. (C. Baltaxe, Trans.). University of California Press.

Tucker, L., Koopman, R., & Linn, R. (1969). Evaluation of factor analytic research procedures by means of simulated correlation matrices. *Psychometrika*, *34*(4), 421–459.

Turney, P. D. (2002). Thumbs up or thumbs down?: semantic orientation applied to unsupervised classification of reviews. *Proceedings of the 40th Annual Meeting on Association for Computional Linguistics* (pp. 417–424). Philadelphia: Association for Computational Linguistics.

Uchida, A. (1992). When" difference" is" dominance": A critique of the" antipower-based" cultural approach to sex differences. *Language in Society, 21*, 547–547.

Uldall, E. (1964). Dimensions of meaning in intonation. In D. Abercrombie, D. Fry, P. MacCarthy, N. Scott, & J. Trim (Eds.), *In Honour of Daniel Jones: Papers Contributed on the Occasion of his Eightieth Birthday* (pp. 271–279). London: Longman.

Urban, G. (1991). *A discourse-centered approach to culture*. University of Texas Press.

Van den Berg, H. (2005). The East Caucasian language family. *Lingua, 115*(1), 147–190.

van Hooff, J. (1967). The facial displays of the catarrhine monkeys and apes. In D. Morris (Ed.), *Primate ethology* (pp. 7–68). London: Weidenfield & Nicholson.

van Hooff, J. (1972). A comparative approach to the phylogeny of laughter and smiling. In R. Hinde (Ed.), *Non-verbal communication* (pp. 207–241). Cambridge: Cambridge University Press.

Velicer, W. F., Eaton, C. A., & Fava, J. L. (2000). Construct explication through factor or component analysis: A review and evaluation of alternative procedures for determining the number of factors or components. In R. Goffin & E. Helmes (Eds.), *Problems and Solutions in Human Assessment: Honoring Douglas Jackson at Seventy* (pp. 41–71). Boston: Kluwer Academic Press.

Velicer, W. F., Fava, J. L., Prochaska, J. O., Abrams, D. B., Emmons, K. M., & Pierce, J. P. (1995). Distribution of smokers by stage in three representative samples. *Preventive medicine*, *24*(4), 401–411.

Velicer, W. F., & Jackson, D. N. (1990). Component analysis versus common factor analysis: Some issues in selecting an appropriate procedure. *Multivariate behavioral research*, *25*(1), 1–28.

Velikovich, L., Blair-Goldensohn, S., Hannan, K., & McDonald, R. (2010). The viability of web-derived polarity lexicons (pp. 777–785).

Ververidis, D., & Kotropoulos, C. (2006). Emotional speech recognition: Resources, features, and methods. *Speech Communication*, *48*(9), 1162–1181.

Ververidis, D., Kotropoulos, C., & Pitas, I. (2004). Automatic emotional speech classification. *Proceedings of ICASSP* (pp. 593–596). Montreal.

Vidrascu, L., & Devillers, L. (2008). Anger detection performances based on prosodic and acoustic cues in several corpora. In L. Devillers, J.-C. Martin, R. Cowie, E. Douglas-Cowie, & A. Batliner (Eds.), *Proceedings of the Workshop on Corpora for Research on Emotion and Affect at LREC 2008* (pp. 23–27). Marrakech.

Vogt, T., & André, E. (2005). Comparing feature sets for acted and spontaneous speech in view of automatic emotion recognition. *IEEE International Conference on Multimedia and Expo* (pp. 474–477). IEEE Computer Society.

Von Fintel, K., & Iatridou, S. (2007). Anatomy of a modal construction. *Linguistic Inquiry*, *38*(3), 445.

Vuilleumier, P. (2005). How brains beware: neural mechanisms of emotional attention. *Trends in Cognitive Sciences*, *9*(12), 585–594.

Vygotsky, L. (1962). *Thought and language*. (E. Hanfmann & G. Vakar, Eds.). Cambridge, MA: MIT Press.

Wasow, T., & Arnold, J. (2003). Post-verbal constituent ordering in English. (G. Rohdenburg & B. Mondorf, Eds.)*Determinants of grammatical variation in English*, 119–154.

Wechsler, S. (2010). What "you" and "I" mean to each other: Person indexicals, self-ascription, and theory of mind. *Language*, *86*(2), 332–365.

Wee, L. (2002). Lor in colloquial Singapore English. *Journal of pragmatics*, *34*(6), 711–725.

Wells, A., & Matthews, G. (1994). *Attention and emotion: A clinical perspective*. Hillsdale, NJ: Erlbaum Associates.

Wenger, E. (1998). Communities of practice: Learning as a social system. *Systems Thinker*, *9*(5), 1–5.

West, S. G., Finch, J. F., & Curran, P. J. (1995). Structural equation models with nonnormal variables: Problems and remedies. In R. Hoyle (Ed.), *Structural Equation Modeling: Concepts, Issues and Applications* (pp. 56–75). Newbury Park, CA: Sage.

Wiebe, J. M. (2000). Learning subjective adjectives from corpora. *Proceedings of the National Conference on Artificial Intelligence* (pp. 735–741).

Wiebe, J., Wilson, T., & Cardie, C. (2005). Annotating expressions of opinions and emotions in language. *Language Resources and Evaluation*, *39*(2), 165–210.

Wiener, M., & Mehrabian, A. (1968). *Language within language: Immediacy, a channel in verbal communication*. Ardent Media.

Wiklund, A. L., Bentzen, K., Hrafnbjargarson, G. H., & Hróarsdóttir, Þ. (2009). On the distribution and illocution of V2 in Scandinavian that-clauses. *Lingua*, *119*(12), 1914–1938.

Wilkinson, S., & Kitzinger, C. (2006). Surprise as an interactional achievement: Reaction tokens in conversation. *Social psychology quarterly*, *69*(2), 150.

Wilson, T., Wiebe, J., & Hoffmann, P. (2005). Recognizing contextual polarity in phrase-level sentiment analysis. *Proceedings of the conference on Human Language Technology and Empirical Methods in Natural Language Processing* (pp. 347–354). Presented at the HLT '05, Vancouver, British Columbia, Canada.

Wittgenstein, L. (1953). *Philosophical Investigations*. (P. M. S. Hacker & J. Schulte, Trans.). John Wiley & Sons.

Wolf, F., & Gibson, E. (2005). Representing discourse coherence: A corpus-based study. *Computational Linguistics*, *31*(2), 249–288.

Wood, J. M., Tataryn, D. J., & Gorsuch, R. L. (1996). Effects of under-and overextraction on principal axis factor analysis with varimax rotation. *Psychological Methods*, *1*(4), 354.

Woolard, K. A. (1985). Language variation and cultural hegemony: Toward an integration of sociolinguistic and social theory. *American Ethnologist*, *12*(4), 738–748.

Wrede, B., & Shriberg, E. (2003a). The relationship between dialogue acts and hot spots in meetings. *Proceedings of IEEE Speech Recognition and Understanding Workshop* (pp. 180–185). St. Thomas, U.S. Virgin Islands.

Wrede, B., & Shriberg, E. (2003b). Spotting" hot spots" in meetings: Human judgments and prosodic cues. *Proceedings of Eurospeech* (pp. 2805–2808). Geneva, Switzerland.

Xiang, X. (2011). Constraint reality: Linguistic expressions of restrictivity and emotive stances. A discourse-pragmatic study of utterance-final lah in Shishan (Hainan Island, China). *Lingua*, (121), 1377–1400.

Yu, H., & Hatzivassiloglou, V. (2003). Towards answering opinion questions: Separating facts from opinions and identifying the polarity of opinion sentences. *Proceedings of the 2003 conference on Empirical methods in natural language processing* (pp. 129–136). Association for Computational Linguistics.

Zajonc, R. B. (1980). Feeling and thinking: preferences need no inferences. *American Psychologist*, *35*(2), 151–175.

Zevin, J. D., & Seidenberg, M. S. (2002). Age of acquisition effects in word reading and other tasks. *Journal of Memory and language*, *47*(1), 1–29.

Zhao, D., & Rosson, M. B. (2009). How and why people Twitter: the role that micro-blogging plays in informal communication at work. *Proceedings of the ACM 2009 international conference on Supporting group work* (pp. 243–252).

Ziff, P. (1960). *Semantic analysis*. Ithaca, NY: Cornell University Press.

Zwaan, R., & Radvansky, G. (1998). Situation models in language comprehension and memory. *Psychological Bulletin*, *123*, 162–185.

Zwaan, R., Radvansky, G., & Whitten, S. (2002). Situation models and themes. In M. Louwerse & W. Van Peer (Eds.), *Thematics: interdisciplinary studies* (pp. 35–53).

Zwick, W. R., & Velicer, W. F. (1982). Factors influencing four rules for determining the number of components to retain. *Multivariate Behavioral Research*, *17*(2), 253–269.

Zwick, W. R., & Velicer, W. F. (1986). Comparison of five rules for determining the number of

    components to retain. *Psychological bulletin*, *99*(3), 432.

Appendix A: Telephone transcript

You can find the complete transcript here:

- Complete transcript: http://www.stanford.edu/~tylers/notes/emotion/files/en_6067.txt
    - Matching audio (19M):
      http://www.stanford.edu/~tylers/notes/emotion/files/Transcribed_part.wav
- Recording of relationship section (3.9M):
  http://www.stanford.edu/~tylers/notes/emotion/files/Relationship_section.wav
    - Awesome utterance: http://www.stanford.edu/~tylers/misc/turk/96_A_a.wav
    - Other small clips from the relationship section (24-249K each):
      http://www.stanford.edu/~tylers/misc/turk/

Bold indicates one of the top five most emotionally intense utterances (according to Turkers, see description in body of paper). I have divided the transcript by "topic area". If I go by breath groups or pauses, the results is still the same: the relationship section of the conversation is the most emotionally intense.

{Topic 3}

266   RACHEL   yeah. And ach Eric, {breath} ooh.

267   RACHEL   {breath}

268   ARIEL: What?

269   RACHEL   {breath} He's just so annoying. I can't

270   ARIEL: Why, what you p- what was his comments on that?

271   RACHEL   No, like he he's like oh it's very nice. But like every night on the phone like {breath}

{Topic 4}

272   RACHEL   he's such a little complainer. {laugh} Like he's like {breath} he's like I'm tired of sleeping alone, he's like I just want a family and ((da da da da da da da da dum)). you know I'm like

273   ARIEL: And why is he telling this to you if

274   RACHEL   I don't

275   RACHEL   know. {laugh}

276	RACHEL	{breath} He's just
277	ARIEL:	oh
278	ARIEL:	God.
279	RACHEL	He makes me crazy.

{Topic5}

280	ARIEL:	Rachel just
281	ARIEL:	propose already.
282	RACHEL	Propose?
283	ARIEL:	Yes.
284	**RACHEL**	**He knows I want to**
285	**RACHEL**	**be with him.**

{Topic6}

286	ARIEL:	He does?
287	**RACHEL**	**yeah.**
288	ARIEL:	Does he know
289	RACHEL	((Like with the whole))
290	RACHEL	Like the first time when like he turned --
291	ARIEL:	mm.
292	RACHEL	-- he turned it down. Like he knows. He totally knows.

{Topic7}

293   RACHEL   {breath} But like I have totally have legitimate reasons to think that he wants to be with me too. Like

294	ARIEL:	Well you should. Rachel I think this has to stop unless he makes a (( )) decision.
295	RACHEL	You're right it does. But like I I mean
296	ARIEL:	It's not healthy --

{Topic8}

297	**RACHEL**	**I know, but I love being with him so much. It's so much fun.**
298	ARIEL:	-- for you.
299	ARIEL:	((I know. So you can))
300	ARIEL:	You can still be with him.
301	ARIEL:	Just in a different way. {laugh}
302	RACHEL	But he holds me very tight.
303	ARIEL:	{lipsmack} {breath}

{Topic9}

304	ARIEL:	{moan} Why does he do that?
305	RACHEL	{laugh}
306	ARIEL:	Why does he do it if he doesn't -- it's not fair to you.
307	RACHEL	I know, it's not fair to me at all.
308	ARIEL:	So why are you let- [distortion]
309	RACHEL	It's very unlike him, you know.
310	RACHEL	But

{Topic10}

311	ARIEL:	((What)) is he scared? Is like is is it like this whole law school thing?
312	RACHEL	{lipsmack} I don't know. There's only so far he can take this whole law school thing. {breath}
313	RACHEL	You know what I'm saying?
314	ARIEL:	yeah.
315	ARIEL:	That's true.
316	RACHEL	Like when you're a good friend of his like you know like {laugh} there's a point where
317	RACHEL	{breath} you know it's like enough already with the law school.
318	RACHEL	{laugh} He

{Topic11}

319   RACHEL   I'm totally getting like his wit and giving it back

320   RACHEL   to him. It's awesome. Like it has taken a really long time, {breath} but like I finally get him like as good as he gets me.

319   RACHEL   It's great.

322   ARIEL: Really?

323   RACHEL   yeah. It's awesome. Like it's so much fun.

324   ARIEL: yay, go Rach

325   RACHEL   It's so much fun.

326   ARIEL: It's your party, have a good time. {laugh}

327   RACHEL   {laugh} {breath}

328   ARIEL: That must be so much fun {inhale}

329   RACHEL   Like

330   RACHEL   If nothing like we're just amazing amazingly close friends. And s- just

{Topic12}

331   ARIEL: Is he dating at all?

332   RACHEL   What?

333   ARIEL: Is he dating at all?

334   RACHEL   I don't think so.

335   RACHEL   Like it would be one thing like if he was dating other people, then like th- th- i- then there's no way I'd like ever do this. But like he's not.

336   RACHEL   At least as far as I know, but like, I could be wrong.

337   ARIEL: Right.

{Topic13}

338   ARIEL: {breath} I know, just please be careful of your little heart. Because it's so cute and I don't want anything bad

339   RACHEL   {laugh} You're so cute.