Affective demonstratives and the division of pragmatic labor[*]

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1   Introduction

Building on [1] and [2], [3] argues for a 'division of pragmatic labor': as a result of general pragmatic interactions, unmarked expressions are generally used to convey unmarked messages and marked expressions are generally used to convey marked messages (see also [4, 5]). [6] explicitly splits this into two separate pressures ("What is expressed simply is stereotypically identified" and "What's said in an abnormal way isn't normal"), and [7], [8], [9], and [10] seek to characterize the opposition in terms how form–meaning pairs are optimally chosen.

In [3], Horn argues that the division of pragmatic labor is at work in a wide range of places: pronoun choice, lexicalization, indirect speech acts, and clause-mate negations, as well as issues in language change. Since then, the field has largely stayed within these empirical confines, exploring in more detail the specific pragmatic interactions Horn identified. With the present paper, we seek to branch out, by finding an important role for Horn's division of pragmatic labor in *affective* (uses of) demonstratives [11–18]. We focus on proximal demonstratives in Japanese, German and English, and begin to make the case that our generalizations are cross-linguistically robust.

Our evidence comes largely from a newly expanded version of the UMass Amherst Sentiment Corpora [19]. These are collections of informal online product reviews, in Chinese, English, German, and Japanese. The English and Japanese portions contain a total of 643,603 reviews and 72,861,543 words. We use these corpora to sharpen our empirical understanding of affective demonstratives and to substantiate the claims about markedness, for forms and meanings, that underlie our treatment in terms of the division of pragmatic labor.

Section 2 introduces Lakoff's [11] notion of affective demonstratives, arguing that the basic claims are true for English and Japanese. Section 3 presents our corpora and experiments, which address not only demonstratives but also a wide range of exclamatives and related items, as a way of building a general picture of the kinds of pragmatic generalizations that the data support. Finally, in section 4, we reconnect with pragmatic theory, arguing that the division of pragmatic labor is responsible for the patterns we see in our large corpora.

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2   Affective demonstratives cross-linguistically

Lakoff [11] identifies a range of uses of English demonstratives that involve 'emotional deixis', as in (1).

(1)   a.   This Henry Kissinger is really something!
    b.   How's that toe?
    c.   There was this travelling salesman, and he …

Lakoff's central generalization is that affective demonstratives are markers of solidarity, indicating the speaker's desire to involve the listener emotionally and foster a sense of shared sentiment. She also ventures a direct connection with exclamativity. [13] argue that similar effects arise for generic demonstratives, which "mark the kind being referred to as a relatively subordinate or homogeneous kind located among the speaker's and hearer's private shared knowledge". [17] (and commentators) apply some of these findings to then-U. S. Vice-Presidential candidate Sarah Palin's noteworthy demonstrative use.

Lakoff does not really take a stand on whether affective uses represent an ambiguity in demonstrative phrases or some kind of pragmatic extension of the basic meanings, and her own characterization suggests that the issue could be decided either way. Cross-linguistic investigation could provide important evidence in deciding the matter. If it is an ambiguity, then we have no expectation for it to arise consistently out of the more basic demonstrative meanings. Conversely, if it is a natural extension of deixis into the emotive realm, then it should turn up again and again in language. [18] address precisely this question, arguing, on the basis of parallels between English and German, that this is not an accidental lexical ambiguity, but rather an emergent property of deixis.

Correspondences between German and English are perhaps unsurprising. Even stronger evidence comes from work on Japanese demonstratives. [12, 14, 15] argue that demonstratives in Japanese can contribute an affective or expressive meaning component by indexing a kind of emotional deixis, echoing the Lakoff's suggestions for affective uses of the English demonstrative.

These characterizations of affective demonstratives are intriguing, but we have so far seen limited evidence in favor of them. So, the first task before us is to see if we can find more robust and extensive empirical evidence for affectivity in the demonstrative realm across languages. The next section seeks to provide such evidence, building on the methods of [18]. Following that, we address the question of where these effects come from, arguing that they follow from Horn's division of pragmatic labor.

3   Corpus experiments

3.1   Data

Our data for this paper come from an expanded (and soon to be released) version of the UMass Amherst Sentiment Corpora [19]. The English texts are online

reviews at Amazon.com (reviews of a wide range of products), Tripadvisor.com (hotel reviews), and GoodReads.com (book reviews). The Japanese collection comes from Amazon.co.jp (reviews of a wide range of products). Every review included in this collection has some text and an associated star rating, which the author of the text has assigned to the product in question. Table 1 breaks down the corpora into categories based on these star-ratings, a perspective that we rely on heavily throughout this paper. (The substantial five star bias is a common feature of informal, user-supplied product reviews; see section 3.2 for our way to manage it.)

English

	1 star	2 star	3 star	4 star	5 star	total
Reviews	39,383	48,455	90,528	148,260	237,839	564,465
Words	3,419,923	3,912,625	6,011,388	10,187,257	16,202,230	39,733,423

Japanese

	1 star	2 star	3 star	4 star	5 star	total
Reviews	3,973	4,166	8,708	18,960	43,331	79,138
Words	1,612,942	1,744,004	3,908,200	8,477,758	17,385,216	33,128,120

Table 1. Summary of the data sets used in this paper.

In contrast to professional reviews, these texts are informal and heavily emotive. Authors writing 1-star or 5-star reviews either loved or loathed the product they are reviewing, and this shines forth from their language, which tends to emphasize subjective experience. This makes the texts ideal for studying perspectival and emotional information of the sort that is at issue for affective demonstratives. Reviews in the middle of the scale (2-4 stars) tend to be more balanced and objective, which further helps to bring out the linguistic contrasts we are after. For more on the nature of corpora like this, as well as examples, we refer to [20–23].

3.2   Methods

Our statistical method is simple: we track the frequency of words, phrases, and constructions across the five star-rating categories and study the resulting distributions. Because the rating categories are so imbalanced, with the bulk of the reviews assigning 5-stars, we always consider relative frequencies: let $\mathrm{count}(w_n, R)$ be the number of tokens of n-gram w in reviews in rating category $R \in \{1, 2, 3, 4, 5\}$, and let $\mathrm{count}_n(R)$ be the total count for all n-grams in rating category R. Then the frequency of w_n in rating category R is $\mathrm{count}(w_n, R)/\mathrm{count}_n(R)$. We center the rating values, so that a rating of 3 corresponds to a value on the x axis of 0, and other rating values are shifted appropriately, so that a rating of 1 maps to -2 and a rating of 5 maps to 2. Centering the data in this way allows us to test positive and negative biases in words and constructions, as explained just below.

We also fit logistic regression models to the log-odds versions of these distributions, in order to gain further insight into their structure. There is not space

here to review the technical details of these statistical models (we refer to [24, 25] for gentle introductions and [26, 27] for motivation and extension to mixed-effects models). However, we think it is worth giving the basic mathematical form for the model we use, (2), and we offer many graphical depictions in later sections to try to bring out the intuitions behind them.

(2) $$P(y) = \text{logit}^{-1}(\alpha + \beta_1 x + \beta_2 x^2)$$

These profiles are curved. Where β_2 is large and positive, we have U-shaped profiles, i.e., profiles in which the bulk of the usage is at the extreme ends of the rating scale. Where β_2 is large and negative, we have Turned-U profiles, i.e., profiles in which the bulk of the usage is in the middle of the scale. Figure 1 illustrates each of these basic cases. The coefficient β_1 tells us the slope of the curve when $x = 0$; since we have centered our rating values so that a middle value of 3 is mapped to 0, we can use the value of β_1 to test the size and significance of any positive or negative bias in an item's distribution. A significant positive value of β_1 indicates a positive rating bias, while a significant positive value of β_1 indicates a negative rating bias, as discussed in [22].
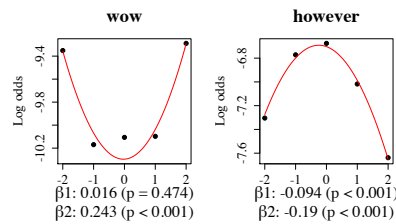

Fig. 1. Example of (2) with the rating scale centered around 0. The fitted models are $P(wow) = \text{logit}^{-1}(-10.30 - .016 + .24x^2)$, and $P(however) = \text{logit}^{-1}(-6.70 - .094x - .19x^2)$. The sign of the quadratic coefficients ($.24$ and $-.19$) determine the direction of the turn (U or Turned U) as well as its depth.

In figure 1 and throughout, we have included p values for the coefficients. However, given the large amount of data we have and the small number of empirical points involved, p values are not all that informative about the quality of the models. For present purposes, it is often more useful to compare the empirical points (black) against the models' predictions.

3.3   Exclamatives and anti-exclamatives

By way of building towards our results for demonstratives, we now present, in figure 2, the statistical profiles for a series of markers of exclamativity, as well as some of their 'anti-exclamative' counterparts. Exclamatives are much more frequent at the extreme ends of the rating scale than in the middle. This is consistent with the notion that they are generalized markers of unusualness or surprise [28–30]. Whatever lexical polarity they have comes from the predicates

around them (*What a pleasure/disappointment!*). With the intensives (e.g., *absolutely*, *total*; [31]), we seem also to be seeing a connection between the rating scale's endpoints and endpoint modification, as well as a potential argument for the degree-based approach to exclamativity that underlies most treatments of exclamative constructions.

3.4 Affective demonstratives

The above picture of exclamatives in our corpora strongly suggests that our statistical approach can detect affectivity. The rating scale brings out their generalized heightened emotion, placing them in opposition to more balanced expressions like *somewhat* and *but*. The approach can also detect rich modifier scales [32] and a wide range of expressive meanings [23]. Thus, if [11–17] are correct in claiming that demonstratives have (at least in English and Japanese) affective uses, then we should see this in our corpora. And this is in fact what we find for proximate demonstrative markers; figure 3 again gives results for English, German, and Japanese. The English data are for a 18,659,017 word, 118,395 review, subset of our data that we have part-of-speech tagged using [33] and NP chunked using [34] in order to get at the distinction between determiner *this* (*I'll have this cake*) and pronominal *this* (*I'll have this.*) For Japanese, we have the three morphologically complex proximal demonstratives, formed from the proximal demonstrative morpheme *ko-* combining with *-re* to form a pronominal demonstrative, *-no* to form an adnominal demonstrative determiner, and *-nna* to form an adnominal demonstrative determiner meaning "this kind of". The proximal demonstratives form part of the paradigm summarized in Table 2.

	pronominal *-re*	determiner *-no*	kind determiner *-nna*
proximal *ko-*	kore	kono	konna
distant from speaker *so-*	sore	sono	sonna
distant from both *a-*	are	ano	anna
indefinite ('which') *do-*	dore	dono	donna

Table 2. The Japanese demonstrative paradigm.

We should emphasize that the U shapes for these demonstratives are not nearly as deep as those for prototypical exclamatives; the quadratic coefficient for *what a*, for example, is 0.27 (figure 2), which is more than three times bigger than the coefficient for the English determiner *this* (0.078). Thus, it is not as though the model is (wrongly) predicting that proximal demonstratives typically pack as much of an emotive punch as exclamatives. We believe that they can do that, but the majority of uses do not, so the overall effect is relatively mild.

4 (Un)Marked forms and meanings

Now that we have some quantitative evidence for the reality of affective demonstratives (for proximates) we can move to asking why such meanings arise. The consistency of the effects across languages seems to rule out a treatment in terms
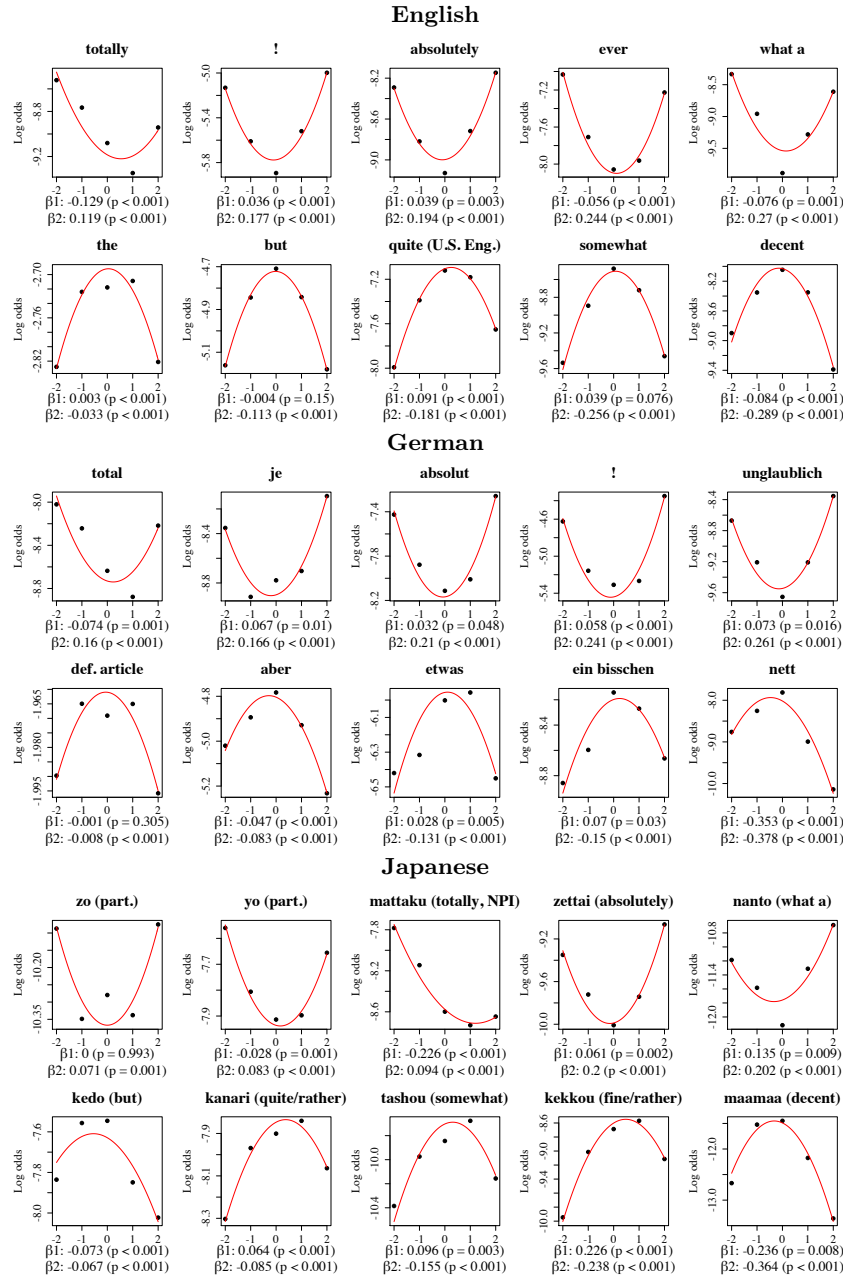
Fig. 2. Exclamatives and anti-exclamatives. Exclamatives are given in the top row of each language's panel, anti-exclamatives in the bottom row. As we move from left to right, the exclamativity (anti-exclamativity) grows more pronounced as measured by the absolute size of the quadratic coefficient (β_2).
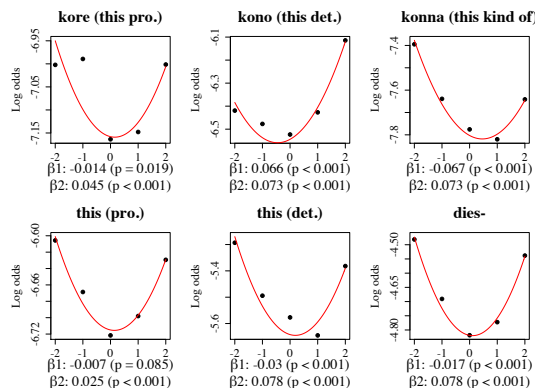
Fig. 3. Proximal demonstratives in Japanese, English, and German.

of lexical ambiguity. As Lakoff observes, the affectivity has a metaphoric connection with the more basic meaning; it is perhaps no surprise that a marker of physical closeness would be extended into the emotive realm where it would foster, or gesture at, shared sentiment. However, while this makes intuitive sense, it is hard to make the argument rigorously. It has the feel of a 'just-so' story.

Horn's division of pragmatic labor gives us a richer perspective on the problem. It is fairly easy to argue that this is a case in which marked forms associate with marked meanings. [35] argues that English demonstratives are, at the meaning level, strictly more complex morphosemantically than *the*. They are also significantly less frequent than definite articles. In our data, there are 977,637 tokens of *the*, but only 171,432 of *this* and another 13,026 of *these*.[3] This is no quirk of our corpora, either. In the Google *n*-gram corpus, *the* is 8.5 times more frequent than *this*.

When we look at the profiles for the English and German definite determiners in our corpora (in the leftmost column of figure 2), we find that they are the mirror images of the profiles of the proximal demonstratives, exhibiting a significant inverse-U shape. We explain this finding as the result of competition between marked and unmarked meanings. The more marked proximal demonstratives generate an exclamative profile, with uses concentrated in the extreme regions of the scale. Since demonstratives compete for the same syntactic slot as the definite determiner, we get an inverse implicature arising from the use of the definite. This is a species of upper-bounding implicature; the speaker used a form (definite) whose meaning contribution is strictly weaker than a competing form (demonstrative) [6]. This gives rise, in certain contexts, to a kind of implicature whereby the proximal emotional deixis we saw to be generated by the proximal demonstratives is negated, so that use of the definite determiner can implicate a negation of strong emotional commitment. The strength of the effect is weak, as

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[3] In fact, *the* is about 4.5 more frequent than all of the demonstratives combined (216,407 tokens).

seen in the small size of the quadratic term in our models. We are not predicting that use of the definite determiner is inconsistent with exclamativity; instead, we argue that competition with demonstratives generates a small but significant tendency for anti-exclamativity in the use of the definite determiner.

Japanese does not have a definite determiner to play the role of the unmarked-to-unmarked counterpart. Its demonstrative system, however, is more articulated than that of English and thus allows us to see the expressive effects of relative semantic markedness within the demonstrative paradigm itself. It is reasonable to hypothesize that the proximal demonstrative ending in *-nna* is more semantically marked than the one ending in *-no*, since the proximal demonstrative ending in *-no* refers only to the entity ultimately picked out by the construction *kono NP*, while the one ending in *-nna* makes reference not only to the entity directly indexed by the demonstrative, but also to a set of 'similar' entities. There is thus an intuitive sense in which a sentence including the *-nna* series proximal demonstrative *konna* is stronger, and hence more marked, than the same sentence in which *-nna* is replaced with *-no*.

[14] argues that the *-nna* series can be used to contribute both a note of "surprise" and "negative emotion". In a discussion of the *-nna* demonstratives, she says that most researchers concentrate on the physical deictic uses, but she continues:

> Conversational data, however, indicates that the usage described above is scarcely seen in informal conversation. Rather than solely referring to the characteristics of an object, most of the usage overtly expresses the following speaker's modality: 1) negative emotion or rejection, and 2) surprise. These emotions and attitudes are toward the object, the interlocutor, or the whole utterance or action that includes the object.

We can relate the note of "surprise" that [14] identifies to the U-shaped distributions we identified earlier. In the case of proximal demonstratives, we saw that this U-shape characterized both the *-no* series proximal demonstrative *kono* and the *-nna* series proximal demonstrative *konna*. We conclude, on the basis of collaborating evidence from English and German, that this exclamative or "surprisal" value is derived by metaphorical extension of the proximity encoded by *ko-*. This leaves negativity. In our corpus, expressive negativity is reflected in a bias toward the negative end of the review scale. When we look at the distribution of *konna*, we see not only a U-shape, but also a negative bias, reflected in the significantly negative value of the linear coefficient ($\beta_1 = -0.081$, $p < 0.001$). This contrasts with the significant *positive* bias for *sono*, reflected in the significantly positive value of its linear coefficient ($\beta_1 = 0.071$, $p < 0.001$). Graphically, the profiles of these two items appear to be mirror images of each other, in the horizontal dimension.

In line with our previous discussion of the complementary use of proximal demonstratives and the definite determiner, we posit a competition-based explanation of the contrast between *kono* and *konna*. Using *konna* tends, through the influence of *-nna*, to contribute a hint of negativity, as argued by [14]. The less marked *kono* has a complementary positive shift in its profile, as a result

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of competition between forms. The presence of a significant U-shape in both proximal demonstratives is due to the proximal morpheme *ko-*. This suggests an additive model of pragmatic enrichment, in which the *ko-* morpheme contributes a tendency for extremity, and the competition between unmarked *-no* and marked *-nna* is reflected in a distinct positive and negative bias.

5 Conclusion

Using large-scale corpus evidence, we began to make a case for the idea that affective uses of demonstratives are a robust, cross-linguistically stable phenomenon. We also addressed the question of where affective readings come from, arguing that they trace to Horn's division of pragmatic labor: the morphosyntactically complex, relatively infrequent (marked) demonstratives associate with the emotionally deictic (marked) messages. In English, we argued that the definite article plays the unmarked role for form and meaning, and the Japanese data support nuanced oppositions within the demonstrative system.

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