

Boundary tones and the semantics of the Dutch final particles *hè, hoor, zeg* and *joh*

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0. Introduction

When meanings are combined in an utterance, they may work either synergistically, to communicate a coherent message, or antagonistically.¹ In the sentence *Waar ben je verder nog geweest?* 'Where else were you?' the combination of *verder nog* 'else' with *zijn* 'to be' is synergistic; since it is possible for people to go to many places, it makes sense to ask what additional places (other than those already mentioned) the hearer has visited. In *²Waar ben je verder nog geboren?* 'Where else were you born?', on the other hand, *verder nog* clashes with *geboren worden* 'be born', an event normally held to happen only once, hence in a unique spatio-temporal location.

Because intonation communicates meanings analogous to (if not strictly comparable to) those signaled by grammar and lexicon, one expects to find here, too, examples of synergy and antagonism. One illustration might be the contrast between the utterance *Zuster!* 'Nurse!' (when spoken – or screamed – with so-called 'street call' intonation (configuration 1E in 't Hart, Collier & Cohen 1990) in order to summon a nurse to a ward where a patient is undergoing a medical emergency) and the utterance *God!* 'id.', produced with the same intonation. Since the Almighty is conventionally conceived of as omniscient, omnipotent, and omnipresent, it is relatively incoherent for a Dutch speaker to address Him in a way which suggests that He is somehow absent from where the speaker is and/or otherwise answerable to the speaker, the way a nurse would be to those standing at a patient's bedside. Native speakers accordingly judge *God!*, with 'street-call' intonation, to be strange. If a foreign linguist did not know the meaning of the lexeme *God*, its observed incoherence with 'street call' intonation would at least suggest that the referent(s) of *God* could not be summoned in the same way that people can be.

Our paper describes the use of a particular intonational contrast as a tool in analyzing the semantics of the Dutch utterance-final particles *hè, hoor, zeg*, and

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joh.² We will show that the relative (in)coherence of these particles in utterances with different boundary tones reflects crucial differences in their underlying semantics.

1. *The high boundary tone H% and the low boundary tone L*

As discussed in 't Hart et al. (1990), Dutch intonation domains (roughly equivalent to short sentences or clauses) typically end on either the low declination line or the high declination line. The domain-final syllables are labelled, in auto-segmental terminology, as the low tone L and the high boundary tone H%, respectively (Van den Berg, Gussenhoven & Rietveld 1992). The semantic contrast between them has traditionally been described as 'assertion' versus 'question', but Keijsper (1984) points out that the association of L and H% with these messages is far from ironclad. In the present study, we make use of our earlier proposal that H% indicates an APPEAL from the speaker to the hearer, while L indicates NO APPEAL (Kirsner, van Heuven & van Bezooijen 1994: 108-9, 117). Depending on the context, APPEAL can be interpreted as a request for the hearer's continued attention, for a verbal reply from the hearer, or for non-verbal compliance of some kind by the hearer.

2. *The particles*

2.1 *The hoor-hè system.* We assume as a working hypothesis our analysis of *hoor* and *hè* as sharing certain components of meaning but also forming a semantic opposition, much like the pairs of English discourse markers *now* and *then*, or *I mean* and *y'know*, discussed in Schifffrin 1987; cf. Kirsner & Deen (1990) and Kirsner et al. (1994: 108). Specifically, both *hoor* and *hè* claim that there is some personal relationship between speaker and hearer and both instruct the hearer to pay particular attention to the material immediately prior to the particle. But whereas *hè* asks the hearer for some sort of confirmation, or at least acknowledgment, *hoor* indicates that nothing of the kind is needed or wanted. Compare (1):

² Though Geerts et al. (1984: 676) classify these elements as interjections, we will retain the more general term 'particle' here. We limit ourselves to their use in utterance-final position. (Compare, for example, De Vriendt's distinction (1995: 156-7) between *zeg₁* and *zeg₂*.)

- (1) a Jij komt morgen ook, hoor.
 you come tomorrow too, hear
 ‘You be sure to come tomorrow!/You’re coming tomorrow, mind you’
 b Jij komt morgen ook, hè?
 you come tomorrow too, eh
 ‘You’re coming tomorrow too, aren’t you?’

Observe that the two particles, being mutually contradictory, cannot be combined; cf. **Jij komt morgen ook, hoor hè?* or **Jij komt morgen ook, hè hoor.*

That both *hoor* and *hè* indicate a relationship between speaker and hearer is shown by the fact that whereas the expression *dag* ‘day’ can be used with someone’s name or title, to say ‘hello’ as well as ‘goodbye’, neither *hoor* nor *hè* typically occur in initial greetings: One has *Dag Jan!* ‘Hello Jan’ but not **Dag hoor Jan!* or **Dag Jan hoor!* or **Dag hè Jan?* or **Dag Jan hè?* Since the speaker has to use the addressee’s name or title to attract his or her attention in the first place, there is, strictly speaking, no relationship between speaker and hearer yet for *hoor* or *hè* to refer to, whence the incoherence as initial greetings of sentences containing *hoor* and *hè*. In consequence, though *dag* DOES combine with both *hè* and *hoor*, it is interpreted in the collocations *Dag hoor* and *Dag hè* only as ‘goodbye’ and not as ‘hello.’

We note further that the interpretations which *Dag hoor* and *Dag hè* receive as farewells make exquisite sense in terms of the opposition we have postulated. If *Nou dag!* ‘Well goodbye’ is a normal end to a conversation, *Nou dag hoor* suggests that the speaker is having difficulty extricating himself from the conversation; he has to focus the hearer’s attention on the goodbye, suggesting that the hearer had not been paying attention before. *Nou dag hè* ‘Well goodbye, OK?’, in turn, requests the hearer’s acknowledgement that the speaker is leaving.

2.2 *Zeg*. For present purposes, we adopt De Vriendt’s analysis (1995: 158) that final *zeg* contrasts with *hoor* in expressing only the speaker’s own concern with, or own degree of involvement with, the linguistic material preceding the particle, without reference to a relationship with a hearer. It follows from this that *zeg* – but not *hoor* – can be used in utterances expressing the speaker’s own pure surprise at some novel state of affairs, without regard for the hearer. Compare (2):

- (2) a Wat een mooï strand, zeg!
 what a pretty beach, say
 ‘Wow, what a pretty beach!’
 c Wat een mooï strand, hè?
 what a pretty beach, eh
 ‘What a pretty beach, isn’t it?’
 b *Wat een mooï strand, hoor!
 what a pretty beach, hear
 ‘What a pretty beach, mind you.’

In contrast to *zeg*, use of *hoor*, explicitly profiling the speaker-hearer relationship (in the sense of Langacker 1991), suggests that the speaker is not only fully and spontaneously taken with the beauty of the beach but also – at the very same time – wants to interact with the hearer, to suggest that the hearer had not been paying enough attention to the state of affairs depicted by the *wat*-sentence, of which the speaker had just become aware. This undercuts the message of pure and total surprise, leading to incoherence (cf. *Mooï strand, hoor!*, without *wat*, which does not communicate such an overwhelming level of surprise and, hence, is more compatible with *hoor*). Conversely, *hè*, requesting confirmation or acknowledgement, contrasts with *zeg* in that it can be used to ‘share’ the surprise with the hearer, as in (2c).

A final observation on *zeg* and the differences between it and *hè* and *hoor* would be that its emotionality, the fact that it expresses only the speaker’s own involvement, renders it less useful in greetings, which necessarily involve a hearer: One has *Dag hoor* and *Dag hè* but not **Dag, zeg!*

2.3 *Joh*. Having evolved from *jongen* ‘boy, lad’, *joh* is perhaps best viewed as a generic form of address, an in-group identity marker in the sense of Brown & Levinson (1987: 107-110). Examples of its use to address a hearer are legion: cf. the warning *Hé joh, kijk een beetje uit* ‘Hey you, watch out’ and the call of encouragement *Kop op, joh* ‘Come on, old boy’. (Martin & Tops 1986: 605). The ‘emphasis’ *joh* communicates as a final particle derives from this direct address of the hearer, which lets the hearer know that the preceding utterance is relevant explicitly to him.

Because *joh* can be used to attract a hearer’s attention, it does not suggest the existence of an ongoing relationship between speaker and hearer the way that *hè* and *hoor* do. Accordingly, unlike *hè* and *hoor*, *joh* can be used together with *dag* to communicate a greeting, *Dag, joh!*, which is felt as familiar and ‘chummy.’

3. Predictions

We now consider how the particles *hè*, *hoor*, *zeg* and *joh*, and their absence, might interact with the boundary tones H% and L. First of all, we might expect that ‘plain’ or ‘bare’ utterances, lacking a final particle, would be more accept-

able, sound more normal with L than with H%, and that the reverse would hold true with utterances containing a final particle. That is, if a speaker has available optional particles which add something extra to the propositional content of a sentence (often something designed to impact upon the hearer), then it makes sense that, if he decides NOT to use them, he would also NOT be attempting to directly elicit a reaction or a behavior from the hearer. Hence, the preferred boundary tone for particle-less sentences should be L, signaling NO APPEAL and not H%, signaling APPEAL. The preferred boundary tone for sentences containing particles should, of course, be H% and not L.

Insofar as *hè* and *hoor* explicitly profile the relationship between speaker and hearer, we would expect both to be highly compatible with H%, signaling APPEAL, and relatively incompatible with L, signaling NO APPEAL. Furthermore, since *hè* contrasts with *hoor* in requesting either confirmation by (or at least acknowledgement from) the hearer, we would expect it to be even more compatible with H% than *hoor* and even less compatible with L than *hoor*.

Because *joh* (as a form of address) can be used to create a new relationship with a hearer, by attracting his attention, it should certainly be compatible with H%, though perhaps not as much as *hè* or *hoor*, which indicate that the speaker-hearer relationship is ongoing, more presupposed. Furthermore, since *joh* merely addresses the hearer and does not in itself signal any more explicit messages to him, the way that *hè* and *hoor* do³, it should be less incompatible with L than *hè* and *hoor*.

Zeg, expressing the speaker's own involvement with what s/he is saying, should be relatively compatible with L, signaling NO APPEAL TO THE HEARER, but less compatible than *hè* and *hoor* with H%, signaling APPEAL. Furthermore, because *zeg* makes no reference to the hearer while *joh* is a form of address, *zeg* should be less compatible with H% than *joh* is.

Table 1 summarizes the above discussion by listing for each particle the semantic components favoring co-occurrence with H% (and hence potential incompatibility with L). Assuming that all factors have equal weight, one predicts the order of increasing compatibility with H% to be: No particle < *zeg* < *joh* < *hoor* < *hè*.

³ In addition to attracting the hearer's attention (§3.1) and focussing it on the content of the immediately preceding utterance, *hè* explicitly signals CONFIRMATION/ACKNOWLEDGEMENT REQUESTED while *hoor* explicitly signals the directly opposing meaning CONFIRMATION/ACKNOWLEDGEMENT NOT REQUESTED.

Table 1. Factors favoring high boundary tone H%.

SEMANTIC COMPONENTS	PARTICLE				
	None	zeg	joh	hoor	hè
Focusses extra attention on utterance	-	+	+	+	+
Explicitly involves hearer	-	-	+	+	+
Profiles ongoing speaker-hearer relationship	-	-	-	+	+
Explicitly requests acknowledgement from hearer	-	-	-	-	+
NUMBER OF FACTORS FAVORING H%	0	1	2	3	4

4. Experiment

Two sentences were chosen as stimulus material: the relatively neutral factual sentence *Dertien is een priemgetal* 'Thirteen is a prime number', used previously in Kirsner et al. (1994), and the potentially more emotional and more context-dependent sentence *Zo is het niet gegaan* 'It did not work out that way.' Each sentence was combined with final *hè*, *hoor*, *zeg*, or *joh*, and also used 'bare', i.e. without particle. Eight spoken versions of each sentence were prepared: four ending on the boundary tone H% and four ending on L. The sentences were also prepared with different accentual patterns, in order to study the potential influence of accent-linking and accent de-linking. One version was recorded with accent-linking (the 'flat-hat pattern') and three with different kinds of accent de-linking: the 'pointed hats' intonation contour, the 'sawtooth' contour, and with 'inclination.' This yielded 2 sentences x 5 particles (including 'none') x 2 endings x 4 intonation contours, or 80 stimuli (for speech resynthesis procedures followed, see Kirsner et al. 1994: 110-1).

Two tapes were prepared, one with the test sentences recorded in one random order, the other in the reverse random order. Forty native speakers of Dutch (twenty for each tape) listened to the set of 80 stimuli five times and, in successive trials, rated each sentence on five different 9-point scales. In the present paper, we will be concerned almost exclusively with the ratings on just one of these: the *unusual-usual* scale, which we will call 'Usualness'. We will, however, marginally discuss results on the *distant-emotional* scale, which we will call 'Emotionality'⁴. The instructions to the experimental subjects in these two cases were as follows:

⁴ The remaining three scales were: *predictable-unexpected*, *reproachful-content*, *full-of-oneself-modest*.

How USUAL or UNUSUAL does the sentence sound? How easily can you think of situations in which the sentence would be said the way you heard it?

UNUSUAL, NO CONTEXT OR SITUATION POSSIBLE	< = 1 2 3 4 5 6 7 8 9 = >	USUAL, MANY CONTEXTS OR SITUATIONS POSSIBLE
DISTANT, UNMOVED, COOL	< = 1 2 3 4 5 6 7 8 9 = >	EMOTIONAL, INVOLVED, PASSIONATE

5. Results

5.1 Usualness scores. A repeated measures analysis of variance of the Usualness scale judgements showed that the following factors and interactions were significant at the .01 level (or better) and explained at least 1% of the variance⁵.

Table 2. Summary of analysis of variance on the Usualness scale.

Factor/Interaction	Significance	Omega squared
Sentence	F(1, 39) = 21.11, p < .001	3.78%
Particle	F(4,156) = 23.43, p < .001	3.86%
Boundary tone	F(1, 39) = 96.55, p < .001	12.57%
Particle*Boundary tone	F(4,156) = 61.45, p < .001	10.36%

Figure 1 plots the mean Usualness score for both sentences, combined, as a function of boundary and particle type, with the particles listed in the order given in Table 1.

⁵ As represented by omega squared (ω^2) ; cf. the discussion of estimating relative treatment magnitude in Keppel (1982: 89-96, 204). See also Rietveld & Van Hout (1993: 58-60). All repeated measures analyses of variance reported on here were performed with the SPSS MANOVA procedure, with Sentence, Particle, Boundary Tone, etc., specified as within-subjects factors (cf. Norušis 1990: Ch. 4).

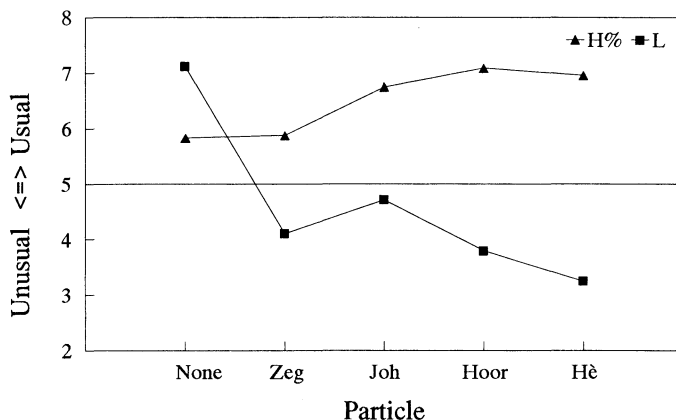


Figure 1. Mean Usualness scores for both sentences combined broken down by type of final particle and boundary tone.

It will be seen, first of all, that the main features of the prediction in §3 are confirmed. As one proceeds from 'plain' sentences with no particle to *zeg* to *joh* to *hoor* and then to *hè*, the Usualness scores for the H%-sentences move upwards (from less to more Usual) while those for the L-sentences move downwards. Sentences without a particle (labelled *None*) are indeed judged more normal with final L than with final H%, and the reverse holds for all the sentences with particles. Furthermore, that particle which sounds least normal with H% is *zeg*, as predicted, with a mean rating of 5.88 on the 9-point scale, while that particle which sounds least normal with L is *hè*, also as predicted, with a mean rating of 3.25.

What is apparent from Figure 1 is confirmed by analyses of variance (within subjects design). Planned comparisons show that, for sentences containing particles, the Usualness scores with H% are significantly lower for *zeg* ($p < .001$) than for *joh*, *hoor*, and *hè* and that the Usualness scores with L are likewise significantly lower for *hè* ($p < .001$) than for *hoor*, *joh*, and *zeg*. It makes eminent sense, of course, that the particle *zeg*, which according to De Vriendt does NOT involve the hearer, would be the least felicitous with H%, signaling APPEAL TO HEARER, and that *hè*, which the speaker uses to explicitly underscore relationship with the hearer and to explicitly ask the hearer's acknowledgement, would be the least felicitous with L, signaling NO APPEAL TO HEARER. The observed clashes between particle and boundary tone supports the semantic analysis of these particles offered in §2.

5.2 *The 'Difference in usualness' scores.* It is nevertheless clear that Figure 1 does not fully fit the predictions of §3: There are unexplained fluctuations in the values. Though the H%-line increases by and large, the data for the H%-sentences seem to level off at *joh*. And though the data for the L-sentences decreases by and large, *zeg* is unexpectedly worse than *joh*.

A more direct test of the ranking in Table 1 would be provided by calculating, for each of the 40 experimental subjects, the DIFFERENCE (Δ) between the Usualness ratings under H% and the Usualness rating under L for each combination of sentence, particle, and intonation contour. One could then control for unpredicted fluctuations in the absolute value of the H% and L lines. Certainly if the Usualness scores for the particles None, *zeg*, *joh*, *hoor* and *hè* increase (in this order) in the H% sentences (reflecting their increasing semantic compatibility with H%), then not only should the Usualness scores decrease in the same order in the L-sentences, but the difference between the two scores should also increase. In other words, the more compatible a particle is with the meaning APPEAL, the greater should be the relative 'advantage' of that particle with H% (signaling APPEAL) rather than L (signaling NO APPEAL). The relevant data are graphed in Figure 2.

Analysis of variance shows that the only significant factor accounting for more than 1% of the variance ($\omega^2 > 1$) is PARTICLE, with $F(4, 144) = 54.47$, $p < .001$ and $\omega^2 = 30\%$. A series of planned comparisons shows that the data exhibit significant linear, quadratic, and cubic trends. Clearly, the more semantic components a particle contains favoring H%, the greater Δ Usualness (H% - L): None (-1.22), *zeg* (+1.80), *joh* (+1.95), *hoor* (+3.25) and *hè* (+3.75). The difference between the means for the plain sentences and all sentences with particles (combined) was significant ($p < .001$), as was the difference between the sentences with *zeg* and *joh*, combined, and the sentences with *he* and *hoor*, combined. The difference between sentences with *hè* and with *hoor* was significant at $p = .03$; the sentences with *zeg* and with *joh* were not significantly different. Accordingly, there is empirical evidence for the progression None < *zeg*, *joh* < *hoor* < *hè*.

6. Interim discussion

In Figure 2, note first that there is a gap of more than 1.25 points on the Usualness scale between *hè*, *hoor* on the one hand and *zeg*, *joh* on the other. This suggests that the simplifying assumption in §3 is incorrect, i.e. that not all 'features' or semantic components count equally. Certainly the meaning EXPLICITLY PROFILES THE SPEAKER HEARER RELATIONSHIP hypothesized to be shared by only *hè* and *hoor* may be especially compatible with the meaning APPEAL TO HEARER signaled by H% and thereby serve to increase the gap between each of these particles, on the one hand, and *joh* and *zeg* on the other.

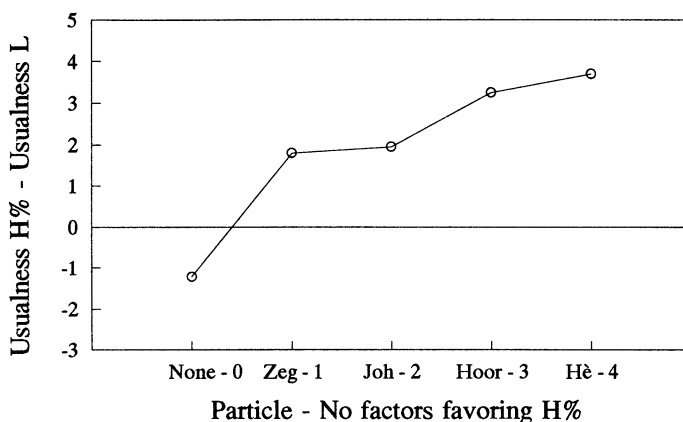


Figure 2. Difference between the Usualness score under H% and the Usualness score under L for both sentences, broken down by particle, with the particles ranked according to number of semantic components favoring co-occurrence with H%.

Note second the lack of a significant difference between *joh* and *zeg* in Figure 2, which might suggest an inadequacy in our semantic analysis. If we return to Figure 1, we note that though the H%-line and L-line diverge in general, they exhibit parallel trajectories between *zeg* and *joh*. On the H%-line, *zeg* is not appreciably more Usual than None but it is worse than *joh*. On the L-line, *zeg* is surprisingly worse than *joh*. Hence the distance between the two lines remains relatively constant. We suggest that the problem lies in the emotionality of *zeg*. While not aimed directly at a specific hearer in the manner of *joh*, *hoor*, or *hè*, *zeg* does communicate a non-matter-of-fact stance of the speaker towards what he is saying. This emotional intensity, in turn, is less compatible with the neutrality of a final low tone (which would suggest that the matter is closed) than the rise to a final high tone (which suggests that the matter is not taken entirely for granted). The connection between emotionality and usualness scores will become clearer once we turn to the remaining factor in the experiment.

7. Effect of sentence

Thus far, we have discussed two of the three factors listed in Table 2 which, alone or in interactions, significantly influence the Usualness scores: Particle and Boundary tone. Yet the particular sentence chosen also had a major impact on the scores, being nearly as important as the particle and almost one-third as

important as the boundary tone, as indicated by the ω^2 -statistic. The 'encyclopedia sentence' *Dertien is een priemgetal* was judged as less usual, less likely to be said, than *Zo is het niet gegaan*, with a mean of 5.02 on the 9-point scale versus 6.08 for the latter. For the sake of completeness, it will be useful to briefly consider this variable⁶.

Interestingly, the *Dertien*-sentence ranked lower not only in Usualness but also on the Emotionality scale shown in (4) above, with a mean score of 5.07 versus 5.90 for the *Zo*-sentence. Analysis of variance showed that the influence of sentence on judgements of Emotional - Distant was highly significant, $F(1,37) = 61.66$ ($p < .002$; $\omega^2 = 4\%$). Accordingly, one might want to seek a connection between the Emotionality judgements, on the one hand, and the Usualness judgements on the other.

Because particles and exclamations are normally said to be 'emphatic' (cf. Geerts et al. 1984: 676), we expect them to be more compatible in emotional sentences than non-emotional ones. We might therefore expect that the neutral *Dertien*-sentence would lag behind the *Zo*-sentence in Usualness even when both were used with particles. This predicted lag is shown in Figure 3, where we break down the data of Figure 1 by sentence.

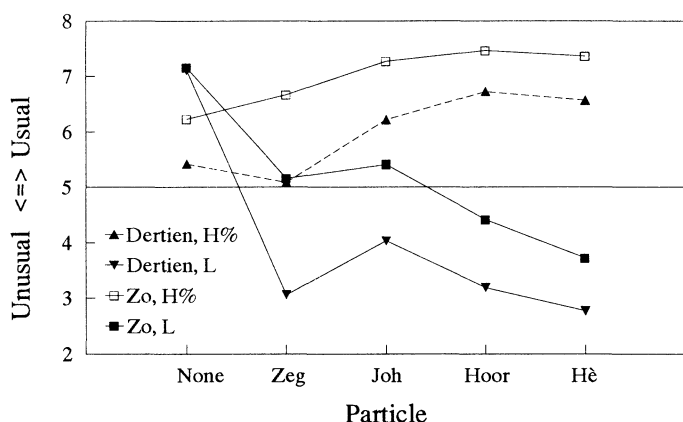


Figure 3. Usualness scores broken down by sentence, boundary tone, and particle.

⁶ The two sentences were chosen to maximize the distinction between a factual, context-free sentence and an (emotional) context-bound one.

We suggest that the reason the *Dertien*-sentences with L receive the lowest Usualness ratings is that (outside of a special context) they seem doubly strange: First, they consist of a neutral, encyclopedia sentence combined with a pragmatic particle (normally used in non-neutral sentences). Second, though the resulting combination could in principle be used emphatically or interactively, this option is entirely undercut through the use of the 'wrong' intonation, L. (Whereas the overall mean for the high tone H% was 6.38 on the Emotionality scale, the overall mean for L was 4.60.) The conflict between sentence, intonation, and particle seems most pronounced with *zeg*, where the difference between the means for the *Dertien*-sentence with H% and with L is 2.03 scale points versus only 1.51 for the *Zo*-sentence. The reason seems to be that, in contrast to the other particles (which either attract the hearer's attention or attempt to manipulate him/her), *zeg* signals strong unadulterated emotional involvement, without more elaborate interactional motives. Though one can use an interactional particle with an encyclopedia sentence to achieve interactional goals (as when one corrects the hearer with *Dertien is een priemgetal, hoor*, in a schoolroom), it is more difficult to conjure up a context where one would be excited or agitated or indignant, entirely by oneself, about a neutral mathematical fact, especially when prosodic clues do not support such a message.

8. Conclusions

In this paper, we have discussed results of an experimental study on the interaction of sentence type, intonation, and pragmatic particles in the interpretation of Dutch sentences. Specifically, native speaker judgements of how normal or usual sentences sound with final rise (H%), signaling APPEAL and its absence (L), signaling NO APPEAL, provide appreciable intersubjective evidence for the semantic analysis of the particles they contain.

1. That *hè* is judged least normal/usual in sentences with L supports the claim that (of the particles considered), it makes the MOST claim upon the hearer. This fits with the analysis of *hè* as forming a semantic opposition with *hoor* in which both final particles profile the speaker-hearer relationship and both draw attention to the immediately preceding utterance, but in which *hè* explicitly requests acknowledgement or confirmation from the speaker while *hoor* explicitly repudiates it.
2. That *zeg* (of the particles considered) is least usual with H% supports the view that it makes the LEAST claim upon the hearer (which is consonant with De Vriendt's 1992 analysis in which it does not involve the hearer at all).
3. The direction and magnitude of the DIFFERENCE in usualness scores between each sentence with H% (APPEAL TO HEARER) and with L (NO APPEAL TO HEARER) shows the relative compatability of each particle with H% to be

ordered as follows: No particle < *zèg*, *joh* < *hoor* < *hè*. This is consistent with the ranking predicted in §3 of No particle < *zeg* < *joh* < *hoor* < *hè* and, hence, with the semantic analysis underlying the prediction.

Where the experimental evidence presents an apparent mismatch between prediction and observation (as with the relative ranking of scores for *zeg* and *joh*) it provides the impetus for further research and refinement of the analysis.⁷

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⁷ Els Elffers inquired why imperatives (which ask for a response from the hearer) do not always occur with H%. The issue raised here is whether the speaker can demand a response as a right or must request it (or negotiate for it) as a favor (which is consistent with the original discussion of the meaning APPEAL in Kirsner et al. 1994). A possible analogy to the intonation of imperatives is the use with them of 'softening' particles. In some situations, softening is not possible. Note the contrast between *Geef acht!* 'Ten-HUT! = Attention!', spoken as a command in a military context, and the relatively absurd sentence **Geef eens acht!* 'Do pay Ten-HUT!' in the same context.

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