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Published article:

Plug, L (2010) *Pragmatic constraints in Usage-based Phonology, with reference to some Dutch phrases*. *Journal of Pragmatics*, 42 (7). 2014 - 2035. ISSN 0378-2166

<http://dx.doi.org/10.1159/000329393>

Pragmatic constraints in Usage-based Phonology, with reference to some Dutch phrases*

Leendert Plug

1 Introduction

Recent years have seen an increasing number of ‘usage-based’ linguistic studies (e.g. Scheibman 2000, Nessel 2005, Bybee and Eddington 2006, as well as contributions to Kemmer and Barlow 2000). The term ‘usage-based’ was first used by Langacker (1987), in the research paradigm of Cognitive Linguistics, to describe his model of the interface between conceptual cognitive representations and empirically observable language use. Subsequent usage-based work has had at least three defining characteristics (see Tummers, Heylen and Geeraerts 2005). First, it is grounded in the analysis of a corpus of language use, rather than the analyst’s intuitions. Second, it generates hypotheses about speakers’ cognitive processes on the basis of observed patterns, rather than aiming for descriptive adequacy only. Third, like most work in the Cognitive Linguistics paradigm, it rejects the Chomskyan dichotomy between competence and performance — or at least, it maintains that competence is shaped by performance, and should therefore not be studied in isolation from it (see Croft and Cruse 2004).

This paper is particularly concerned with Usage-based Phonology (Bybee 1994, 1999, 2001, Silverman 2006). So far, work explicitly couched in this framework has considered the nature of phonological categories and status of the phoneme as a mental construct (Mompéan 2004, Kristiansen 2006, Nathan 2006), the phonology and grammar of common phrases (Bybee and Scheibman 1999, Scheibman 2000) and the role of frequency in shaping sound systems and speech production (Bybee and Hopper 2001, Bybee 2006).¹ With reference to the latter, a fundamental insight of the usage-based approach is that the frequency with which a given linguistic item is used has a predictable effect on its form: more frequent items are more likely to undergo phonetic reduction than less frequent items. An implication regarding cognition is that speakers draw on knowledge of statistical patterns of usage in speech processing. For this reason, among

*I would like to thank Richard Ogden, John Local and Gerry Docherty for discussing the main ideas put forward in this paper with me. I am also grateful to Daniel Silverman and two anonymous reviewers for valuable comments on a draft of the paper.

¹See Silverman (to appear) for a wider survey of usage-based work in phonology.

others, most usage-based work adopts an exemplar-based model of the mental lexicon (Johnson 1997, 2007, Pierrehumbert 2001, Lachs, McMichael and Pisoni 2002), in which categories are composed of large numbers of detailed memories of individual instances of that category.

Of course frequency is not the only aspect of usage that is worth investigating: Bybee herself states that ‘language use includes not just the processing of language, but all the social and interactional uses to which language is put’ (Bybee 2001: 2). Speech is a medium for communicating not just basic propositional meaning, but meaning at a range of levels. For example, a fundamental hypothesis of Lindblom’s ‘H&H’ theory of speech production (Lindblom 1986, 1990, 2000) is that patterns of phonetic variation arise from a tension between speakers’ tendency to minimise articulatory effort on the one hand, and a range of ‘communicative’, ‘social-situational’, ‘sociostylistic’, and/or ‘pragmatic’ constraints on the other. However, while several researchers have begun to explore the implications of adopting an exemplar-based model of the lexicon for the representation of ‘sociophonetic’ detail (Docherty and Foulkes 2000, Foulkes and Docherty 2006, Pierrehumbert 2003, 2006, Johnson 2006), pragmatic constraints on speech production have so far received little attention in the usage-based literature.²

Pragmatic constraints are imposed by the communicative actions that speakers implement with their speech. A growing body of research suggests that important insights are to be gained into the nature of these constraints by combining phonetic analysis with the empirical methodology of Conversation Analysis: see, for example, Local and Walker (2005) and contributions to Couper-Kuhlen and Selting (1996) and Couper-Kuhlen and Ford (2004). Conversation Analysis is an approach to the study of conversation — or, more generally, talk-in-interaction — which originated in the field of sociology in the late 1960s (Jefferson 1973, Sacks 1992, Schegloff 1968). A main objective of conversation-analytic research is to analyse the ways in which participants in an interaction make sense of each other’s actions through the use of language. As Drew (1994: 749) points out, ‘Conversation Analysis is thereby a bridge between linguistic analysis (especially pragmatics) and the sociological investigation of sociality, conversation being a primary medium of interaction in the social world, and the medium through which children are socialized into the linguistic and social conventions of a society’. The phonetic studies mentioned above follow Local, Kelly, and Wells (1986) in applying the analysis tools offered by Conversation Analysis to discover the phonetic resources that participants draw on in managing an interaction: ‘our general approach is one where we seek to locate and identify specific interactional tasks and to state in detail their phonetic exponents’ (Local et al. 1986: 413).

The aims of this paper are twofold: first, to strengthen the case for considering pragmatic constraints on speech production, as identified in work on the phonetics of conversation, from the viewpoint of Usage-based Phonology; and second, to explore how such constraints might be accommodated in its representational framework. Rather than drawing only on established

²This paper follows Lindblom (1990) in using the term ‘constraint’ in the general sense of limiting factor. The usage should not be taken to suggest a preference for formal constraint-based models of phonology or interaction. From an interactional point of view, ‘normative constraint’ (Schegloff 2007: 203) is arguably more appropriate.

empirical findings, it presents results of an original case study of the interaction between pragmatic and other usage-based constraints. These are then used, alongside findings from previous studies, to inform a discussion of how pragmatic constraints might be conceptualised in Usage-based Phonology.

The case study focuses on the phonetics of certain Dutch phrases. One recurrent claim in the usage-based literature is that frequent phrases may have the status of single items in the phonological lexicon (Bybee and Scheibman 1999, Bybee 2001, 2002, 2006, Scheibman 2000, Vogel Sosa and MacFarlane 2002). In Usage-based Phonology, a ‘word’ is defined as ‘a unit of usage that is both phonologically and pragmatically appropriate in isolation’ (Bybee 2001: 30). Consistent with this definition, it has been proposed that *I don’t know* and *I think* are entrenched in memory as single processing units in their frequent usage as discourse markers. In a constructionist approach (e.g. Croft 2001) this amounts to saying that the representation of *I think* is atomic in this usage, as in (1a), rather than — or in addition to — an instantiation of a more complex construction, as in (1b).

- (1) a. [*I think*]
b. [[SUBJECT *I*] [VERB *think*]]

If there is a relationship between the frequency with which a phrase is used and the probability of it being entrenched in memory as a single unit, and there is a relationship between frequency of usage and phonetic reduction, there should be a predictable relationship between the level of complexity of the representation of a phrase and its phonetic form — specifically to what extent it undergoes phonetic reduction. Going back to *I don’t know* and *I think*, it has indeed been observed that these phrases tend to undergo considerable phonetic reduction when they are used as discourse markers: we find forms like [airə̃o] for *I don’t know* and [ɛ̃hĩŋ] for *I think* in this context (Scheibman 2000, Local 2003; see Hawkins and Smith 2001 and Shockey 2002 for additional English examples). Bybee (2001: 161) explicitly refers to this relationship when she suggests that ‘phonological reduction is an excellent indicator of memory storage of a phrase’. That is, if a phrase is recurrently produced with a high degree of reduction, it is likely to be entrenched as a single specific item in memory. This paper will show that this predictable relationship between the frequency of a phrase, the level of complexity of its grammatical representation and its phonetic form is subject to interference by pragmatic factors — factors to do with the pragmatic context in which the phrase is used — before considering the status of these factors in a usage-based representational framework.

The paper is organised as follows. Section 2 describes the data investigated in the case study, and sets out its empirical methods. Section 3 presents the analysis and results. Section 4 and 5 explore the representation of pragmatic constraints in the framework of Usage-based Phonology: Section 4 introduces the notion of pragmatic contexts as categories of lexical representation in an exemplar-based lexicon, and Section 5 considers parallels between the conversation-analytic concept of ‘positionally sensitive grammar’ and usage-based construction

schemas. Section 6 concludes.

2 Data and method

2.1 Corpus

The observations presented below are based on a corpus of ‘casual’ Dutch designed and recorded by Mirjam Ernestus between 1995 and 1996 (Ernestus 2000). Ernestus’ corpus contains speech by ten pairs of male speakers of Standard Dutch, mostly pairs of friends or colleagues, involved in several tasks, recorded in a professional recording studio. Most of the material comprises informal interviews which Ernestus undertook with each of the pairs, and one-to-one conversations between the two members of each pair on a range of topics — some suggested by Ernestus, others offered spontaneously.³ In total, the material amounts to approximately 13 hours of talk-in-interaction.

2.2 Data selection

The case study presented below is concerned with two pragmatic contexts. The first is that of ‘prepositioned self-initiated self-repair’ (henceforth ‘prepositioned repair’). In this context, a speaker disrupts his turn in progress and marks some aspect of the projected remainder of the turn as problematic (Schegloff, Jefferson, and Sacks 1977, Schegloff 1979). Perhaps the most obvious exemplar of this practice is the ‘word search’, in which the problem appears to lie in retrieving information needed for the formulation of the remainder of the turn. An English example, from Schegloff et al. (1977: 363), is given in (2).⁴

(2) O: Mary er:::: (0.3) oh:: **what was it** er:: Tho:mpson
Repair initiation *Repair*

In this example O disrupts the progress of her turn after *Mary*. While it is not immediately clear whether the problem lies in the talk so far or in the talk yet to come, it turns out that it is the latter: the eventual repair *Thompson* is a fitted continuation to *Mary*, rather than a reformulation of it. It appears, then, that O was temporarily unable to recall the surname of the person she was describing.

In addition to a range of ‘disjunct markers’ such as silent and filled pauses, the repair initiation component in prepositioned repair regularly contains verbal phrases: *what was it* in (2) is a typical example. It is phrases of this type that we focus on here. The observations presented

³While the two subtypes of material involve some distinct discourse practices, for the purpose of the case study reported below, no systematic differences were observed between fragments selected from the informal interviews and fragments selected from the one-to-one conversation.

⁴The fragment in (2) is given in simple orthography; Schegloff et al. apply more elaborate transcription conventions. The colons indicate unusually elongated sounds.

below are based on a collection of 61 instances of prepositioned repair with a verbal phrase in the repair initiation taken from the material described above. The phrases include *eens even kijken* ‘let’s just see’, *hoe heet het* ‘what’s it called’, *laten we zeggen* ‘let’s say’, and *ik weet niet* ‘I don’t know’.

The second pragmatic context is that of ‘dispreferred’ response turns. The notion of preference relates primarily to the design of second pair parts in adjacency pairs: pairs of turns in which the first selects a particular action in response, such as offer–acceptance, request–granting, or greeting–greeting pairs (Pomerantz 1984, Schegloff 1988, Schegloff and Sacks 1973). When the first pair part occasions a choice of responses that can function as a relevant second pair part (acceptance or declination, granting or denial, ‘yes’ or ‘no’), the options are typically associated with different turn designs: one short and done without delay, the other accompanied by delays, apparent hesitations, repetitions and restarts, and lexical items such as a prefatory *well*. The difference is illustrated in (3) and (4), taken from Levinson (1983: 333–334).

(3) *Preferred response*

- 1 A: why don't you come up and see me some[times]
2 B: [I would like to

(4) *Dispreferred response*

- 1 A: uh if you'd care to come and visit a little while this morning
2 I'll give you a cup of coffee
3 B: hehh well that's awfully sweet of you, I don't think I can make
4 it this morning. .hh uhm I'm running an ad in the paper and- and
5 uh I have to stay near the phone.

By constructing a turn as a dispreferred one, a speaker can display a recognition that the action which the turn implements — for example, declining an invitation — is problematic and may need working through in subsequent talk (Sacks 1987).

The observations presented below are based on a collection of 76 dispreferred turns of the type illustrated in (4). This collection is discussed in more detail in Plug (to appear). The focus here will be on a subset of 21 instances which contain a claim of insufficient knowledge — that is, a variant of *I don't know*.⁵ These claims of insufficient knowledge will be compared with those functioning as phrasal initiators of prepositioned repair, as described above.

2.3 Phonetic analysis

All selected phrases — that is, phrasal initiators of prepositioned repair and claims of insufficient knowledge in dispreferred turns — were transcribed phonetically on the basis of auditory

⁵‘Claim of insufficient knowledge’ is used as a semantic rather than pragmatic label in this paper. That is, instances of *I don't know* whose primary pragmatic function is, for example, to mitigate disagreement, rather than to claim a lack of knowledge *per se*, are still labelled ‘claims of insufficient knowledge’ in the analysis presented below.

analysis and concurrent inspection of spectrograms and waveforms. Particular attention was paid to the absence of segments or syllables relative to a canonical realisation, vowel quality (peripheral vs centralised) and degree of consonantal stricture (close vs open), based on previous work on phonetic reduction in Dutch (Van Bergem 1993, Van Son and Pols 1999, Ernestus 2000).

In addition, the phrases were subjected to temporal measurement. For each phrase the duration was divided by the number of syllables that a canonical realisation of the phrase would contain. This method has been used widely in previous research on tempo variation in Dutch: see for example Blauw (1995), Van Donzel (1999), Verhoeven, De Pauw and Kloots (2004) and Quené (2008). For each of the 20 speakers in the corpus a mean articulation rate was calculated on the basis of random samples making up about two minutes of speech for that speaker. The figures derived through this method range between 5.7 and 7.8 sylls/sec, with an overall mean — that is, the mean articulation rate across the 20 speakers — of 6.7 sylls/sec.

3 Case study: Some Dutch phrases in two pragmatic contexts

This section presents results of a case study of pragmatic constraints on speech production, concerning Dutch phrases used recurrently in specific pragmatic contexts. The data below are particularly interesting since they suggest a refinement of previous accounts of phrases in Usage-based Phonology and demonstrate the need to take pragmatics seriously as a dimension of ‘usage’. This section will show that when we encounter a common multi-word phrase that functions as a pragmatic unit, and it is phonetically reduced, proposing that the phrase is a single processing unit does not constitute a complete account of the observed phonetic reduction. In fact, it may even be an inaccurate account. We first consider several Dutch phrases which serve a similar pragmatic function in conversation, and are recurrently highly reduced (Section 3.1). While strengthening the case for treating these phrases as units in view of their function in actual usage, such a treatment does not offer a complete account of why these phrases are phonetically highly reduced. Crucial in this argument are, first, a more detailed consideration of the phonetic characteristics of the pragmatic context under scrutiny (Section 3.2); and, second, a consideration of some of the phrases used in a different pragmatic context (Section 3.3).

3.1 ‘Formula-like’ phrases in prepositioned repair

We start with verbal phrases that can be classified as collocations — in other words, phrases for which a single-unit analysis seems appropriate. Mazeland (2003: 153) observes that in prepositioned repair in Dutch, speakers regularly use ‘almost formula-like lexicalisations of anticipating self-initiations’⁶. The examples he gives are *eens even kijken* ‘let’s just see’ and

⁶My translation of ‘bijna formuleachtige lexicalisering van anticiperende zelfinitiaties’ (Mazeland 2003: 153).

hoe heet het ‘what’s it called’. To these we may add at least *wat is/was het* ‘what is/was it’, *laten we zeggen* ‘let’s say’, and *ik weet niet/weet ik niet* ‘I don’t know’. All of these phrases are used to display that the construction of the remainder of the turn is in some way problematic.

3.1.1 Pragmatic characteristics

Examples from my collection are given in (5) to (10); in each fragment, the phrase of interest is underlined.

(5) I–Q/One-to-one/46

- 1 Q: hoe lang is dat geleden?
how long ago is that?
2 (0.3)
3 I: .hnhlh eh::: dat is eh::: eens even kijken (0.4)
er that is er let's just see
4 drieëntachtig was dat
it was eighty-three

(6) F–G/One-to-one/28

- 1 F: die doet dat met ((naam)) en dan eh .h[h
he does that with ((name)) and also er
2 G: [huh
right
3 F: hoe heet het [eh:
what's it er
4 G: [maar zit die niet aan de uva?
but isn't he at the University of Amsterdam?

(7) O–P/Interview/11

- 1 P: en dan heb je in eh (0.4) wat is het in
and then you have in er, what is it in
2 het voorjaar (1.0) een zaterdag (.) over het algemeen
spring a Saturday usually
3 dat je iets gaat bezoeken
that you go and visit something

(8) F–G/One-to-one/22

- 1 F: had 'ie een mooie foto van (0.7) eh:: .hhh
he had a nice photograph of, er,
2 even kijken wat was het van zijn studeerkamer
let's see what was it of his study
3 of iets dergelijks
or something like that

In (5) speaker I has trouble providing an answer to Q’s inquiry. His response turn is delayed, contains long variants of *eh*, and *eens even kijken* ‘let’s just see’, which makes I’s search for the ‘right’ answer overt. In (6) F appears to start a list of names, but has trouble formulating the

second list item; again, the collocation *hoe heet het* ‘what’s it called’ makes his search overt. In both (7) and (8) the use of a preposition — *in* ‘in’ and *van* ‘of’ respectively — projects a noun or noun phrase, and the delay in providing such a unit is marked by *wat is het* or *wat was het* ‘what was it’, in (8) together with *even kijken* ‘let’s see’.

Notice that in (8) *of iets dergelijks* ‘or something like that’ suggests that the repair term *studeerkamer* ‘study’ may not be the most appropriate term to use. That is, not only does there seem to be a delay in the formulation of the remainder of the turn, but the eventual formulation is itself marked as potentially problematic. The phrases *laten we zeggen* ‘let’s say’ and *ik weet niet* ‘I don’t know’ do similar work in the repair initiation: while the phrases discussed so far mark a following item as not immediately forthcoming, but at least potentially ‘right’, *laten we zeggen* and *ik weet niet* mark a following item as potentially not the best candidate continuation. For example, in (9) and (10) *openbare* ‘public’ and *biografie* ‘biography’ are offered for want of a better term.

(9) O–P/Interview/36

- 1 O: maar niet opeens onze: eigen (0.5) laten we zeggen
but not suddenly burden our own, let’s say
- 2 openbare parkeerplaatsen gaan belasten
public parking spaces

(10) J–R/One-to-one/13

- 1 J: maar goed het is eh:: (0.8) het i- het i- (0.5)
anyway it’s er, it i- it i-,
- 2 het is: de- ik weet niet het is denk ik een eh:: (2.0)
it is the- I don’t know it’s I think an er,
- 3 is een biografie over haar dus (.) verschenen
so a biography about her has, appeared

3.1.2 Phonetic characteristics

Turning now to the phonetics of these phrases, the transcriptions and rate measurements in Table 1 illustrate that we find highly contracted and articulatorily reduced forms in this context.⁷ In the case of (5), *eens* /ens/ is not associated with a vowel portion, *even* /evə/ is associated with one rather than two and a noticeably central vowel quality, and the two dorsal ‘plosives’ in *kijken* /kɛikə/ are in fact fricatives: see the segments labelled [k̠] in Figure 1. *Even kijken* in (8) is rather similar, again with a monosyllabic form for *even* and open dorsal stricture. In the case of (6), *hoe* /hu/ is associated with brief labial open approximation only, resulting in a two-syllable rather than three-syllable shape of the phrase as a whole. Notice also that the final alveolar stricture in *heet* /het/ is one of close approximation, rather than complete closure. In (7), *wat* /wat/ is associated with alveolar plosion only, and the juncture of *is* /ɪs/ and *het* /ət/ is

⁷The citation form transcriptions in Table 1 are derived from a recent pronunciation dictionary of Dutch (Heemskerk and Zonneveld 2000).

	Phrase	Citation form	Attested form	Rate
(5)	<i>eens even kijken</i> 'let's just see'	/ens evə kɛikə/	[səfkɛɛkə]	8.5
(6)	<i>hoe heet het</i> 'what's it called'	/hu het ət/	[wɛtət]	7.7
(7)	<i>wat is het</i> 'what is it'	/wat ɪs ət/	[tɪzət]	10.7
(8)	<i>even kijken</i> 'let's see'	/evə kɛikə/	[ɛfkɛɛk]	9.2
	<i>wat was het</i> 'what was it'	/wat wəs ət/	[ətɥəsət]	9.6
(9)	<i>laten we zeggen</i> 'let's say'	/latə wə zɛɣə/	[ləvzɛ]	12.8
(10)	<i>ik weet niet</i> 'I don't know'	/ɪk vɛt nit/	[ɪkvɛnɪt]	7.2

Table 1: Transcriptions and articulation rate figures (in syllables per second) for the phrases discussed in Section 3.1

fully voiced. In (8), *wat* is associated with liprounding and alveolar plosion, but not with an open back vowel quality, and notice also the central vowel quality for *was* /was/. In (9), *laten* /latə/ is associated with a single syllable with a central vowel quality and *we* /wə/ only with labiodental approximation, and no dorsal approximation or second vowel portion is observed for *zeggen* /zɛɣə/. Finally, in (10), *weet* /vɛt/ is not associated with final alveolar plosion, and both the alveolar gestures for *niet* /nit/ are relatively open: see the segments labelled [vɛ] and [nɪt] in Figure 2.

The articulation rate figures in Table 1 illustrate that the phrases under consideration are typically produced at considerably higher rates than the mean of 6.7 sylls/sec across the corpus reported in Section 2. The high articulation rate associated with these phrases is particularly notable since in many cases they are preceded and followed by pauses and/or elongated variants of *eh* 'er'. In other words, the high rate and overall reduction cannot be attributed to a high local articulation rate: rather, these features are directly associated with these particular phrases.

In sum, these phrases can be said to function as units — namely, as repair initiators in prepositioned repair. In the words of Local (2003: 328), 'What we have here look like gestalts determined by their functional role in the sequential structure of interaction'. The observed phonetic reduction in these phrases is consistent with this analysis. We might conclude, then, that these phrases are all single processing units, and consider the observed reduction accounted for. However, it pays to investigate the context in which they occur in more detail before leaving it at this. This is done in the next subsection.

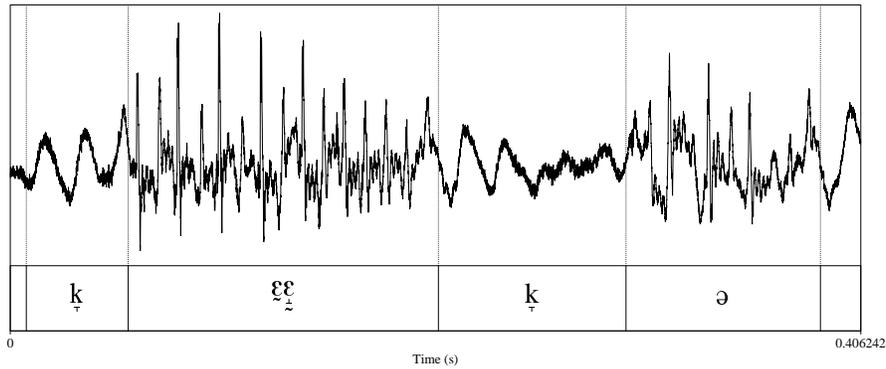


Figure 1: Segmented waveform for *kijken* /kɛikə/ in (5)

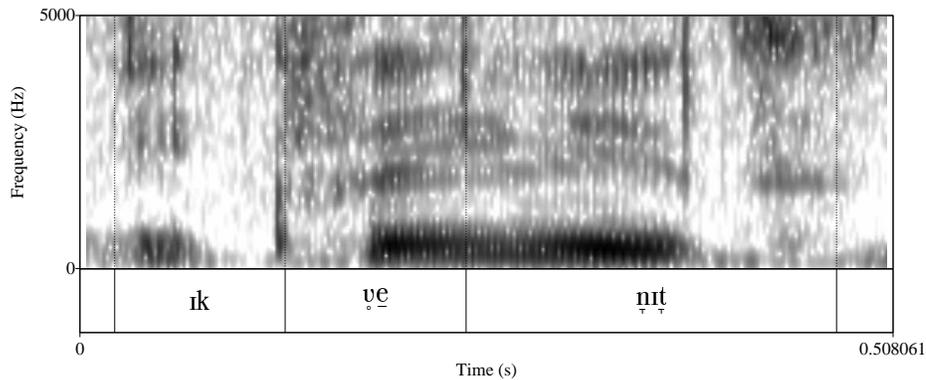


Figure 2: Segmented spectrogram for *ik weet niet* /ik vet nit/ in (10)

3.2 Complex verbal phrases in prepositioned repair

The phrasal repair initiators considered so far are straightforwardly analysable as single processing units: they are short multi-word phrases with the single pragmatic function of making the search for a following item, or the possible problematic nature of the item, overt. But when we investigate the context of prepositioned repair further, we find that this function may also be fulfilled by rather longer phrases and phrases whose construction is constrained by prior or following talk.

3.2.1 Pragmatic and structural characteristics

First consider the fragments in (11) to (13).

(11) O–P/One-to-one/01

- 1 O: tot en met mijn eh:: (1.2)
until my er,
- 2 moet ik even heel diep nadenken tot mijn studie
I have to think hard about this until my studies

(12) S–T/Interview/07

- 1 S: toen ik (0.7) nou (1.1) .mmmh nee eh ik zou het
when I was, well, no er I wouldn't know
- 2 niet precies weten maar een jaar of twintig was ofzo
exactly but about twenty or something

(13) J-R/Interview/09

- 1 J: tijd voor eh:: ja:: hoe zal ik het zeggen (0.4)
time for eh well how shall I put it
- 2 een beetje: (0.6) meer uitbreiding van: taken
a bit, more expansion of tasks
- 3 binnen de huidige functie
within the current function

In (11) O's *moet ik even heel diep nadenken* 'I have to think hard about this' makes his 'deep thinking' overt. In (12), *ik zou het niet precies weten* 'I wouldn't know exactly' has a similar function to *ik weet niet* 'I don't know' in (10) above: as a claim of insufficient knowledge it marks the following talk as potentially repairable. Similarly, *hoe zal ik het zeggen* 'how shall I put it' in (13) can be seen as a more elaborate version of *laten we zeggen* 'let's say' in (9) above: again, it suggests that the formulation of the talk may be lacking in some way. The phrases in (11) to (13), then, are similar in function to those in (5) to (10), but their structure is more complex, and as a result their frequency of occurrence will be lower than that of the 'formula-like' phrases discussed above.

Now consider the fragments in (14) to (19).

(14) K-L/Interview/02

- 1 L: toen ik een jaar of eh (0.5) nou (0.5)
when I was about er, well,
- 2 wat was ik vijfentwintig
what was I twenty-five years old

(15) F-G/One-to-one/26

- 1 G: eh hoe heet ze ((naam)) doet dat
er what's she called ((name)) does that

(16) D-H/Interview/31

- 1 H: die eh: (1.7) hoe heet die gozer (.)
that er, what's that guy called,
- 2 die de: (0.4) de baringsbank heeft opgeblazen
the one who, blew up the Barings Bank

(17) I-Q/One-to-one/50

- 1 Q: hij zat bij eh (0.7) hoe heette die groep eh (1.0)
he was with er, what was that group called er,
- 2 .mt eh:: (0.7) het werktheater
er, ((name))

(18) F–G/One-to-one/62

- 1 F: en dat: ging dan ook iets: eh: ja:
and that was also about something er well
- 2 waar ging het over (0.4) toch dan toepassing
what was it about, probably the application
- 3 op taalbeheersing natuurlijk
to language competence of course

(19) F–G/One-to-one/25

- 1 G: maar ik moet dus eigenlijk even wachten
but so I should wait a bit
- 2 op wat ((naam)) en zijn mede:gastredacteuren (.)
for what ((name)) and his fellow guest editors,
- 3 ((naam)) en: eh wie is de derde .hhhh
((name)) and er who's the third
- 4 die ben ik even kwijt eh vinden
I can't think of him at the moment er think

In all of these fragments the phrasal repair initiator is constructed with particular reference to the prior or projected talk. In each, a WH-interrogative construction is used: *wat* ‘what’ in (14), *hoe* ‘how’ in (15) to (17), *waar* ‘where’ in (18) and *wie* ‘who’ in (19). We have seen WH-interrogative constructions before, in *hoe heet het* ‘what’s it called’ in (6), *wat is het* ‘what is it’ in (7) and *wat was het* ‘what was it’ in (8). But notice that in the latter cases, the use of the third-person neuter determiner *het* is not in an anaphoric relationship with a nominal expression in the prior or projected talk: rather, its reference is to an abstract search item. As a result, the WH-interrogative constructions in (6) to (8) are generic repair initiators: they can be used in any grammatical context. Those in (14) to (19), on the other hand, all involve overt reference to prior or projected talk. In (14), *ik* ‘I’ in line 2 is co-referential with *ik* in line 1. In (15) *ze* ‘she’ indicates that the projected name is a female one: unlike *hoe heet het* ‘what’s it called’ in (6), *hoe heet ze* ‘what’s she called’ in (15) does not only initiate repair, but already delimits a set of possible repair terms. Similarly, in (16) and (17) *die gozer* ‘that guy’ and *die groep* ‘that group’ provide partial information about the term that is being searched for: the name of a male and the name of a group. In (18), the repair initiation ‘recycles’ *ging* in line 1, and in (19) G’s use of *de derde* ‘the third’ is occasioned by his prior mention of two of the guest editors of the journal he has submitted a paper to.

Given the grammatical and semantic dependence of these phrases on the local context, a single-unit analysis does not seem appropriate: the phrases have a low frequency of occurrence due to those constituents whose occurrence is occasioned by the grammar and semantics of the local context. In other words, while the phrases discussed in this subsection have the same general function as the phrases described earlier — that of initiating prepositioned repair — their structure is more complex: they are locally built constructions with some degree of grammatical complexity, rather than formula-like lexicalisations.

	Phrase	Citation form	Attested form	Rate
(11)	<i>moet ik even heel</i> <i>diep nadenken</i> 'I have to think hard about this'	/mut ik evə hel dip nadɛŋkə/	[kəfhɛ̃lɔ̃dɪb̃nɑd̃ɛ̃k̃]	10.7
(12)	<i>ik zou het niet</i> <i>precies weten</i> 'I wouldn't know exactly'	/ik zau ət nit prəsis wɛtə/	[ɪsɑnɪ̃psɪvɛd̃]	10.5
(13)	<i>hoe zal ik het zeggen</i> 'how shall I put it'	/hu zal ik ət zɛɣə/	[už̃ɑkt̃sɛɣ̃ə:]	7.1
(14)	<i>wat was ik</i> 'what was I'	/wat was ik/	[tʌz̃ək̃]	8.8
(15)	<i>hoe heet ze</i> 'what's she called'	/hu het zə/	[uɛtsə]	10.0
(16)	<i>hoe heet die gozer</i> 'what's that guy called'	/hu het di ɣozər/	[wɛsɪɣosə]	7.4
(17)	<i>hoe heette die groep</i> 'what was that group called'	/hu hetə di ɣrup/	[w̃ɛtsɪɣrup̃]	10.0
(18)	<i>waar ging het over</i> 'what was it about'	/war ɣɪŋ ət ovər/	[vɛɣ̃ɪə̃tɔ̃f̃r̃]	7.1
(19)	<i>wie is de derde</i> 'who's the third'	/wi is də dɛrdə/	[vɪɪsdɛ̃r̃ɛ̃]	8.8

Table 2: Transcriptions and articulation rate figures (in syllables per second) for the phrases discussed in Section 3.2

3.2.2 Phonetic characteristics

Still, when we consider the phonetics of these longer and more complex phrasal repair initiators, we find that they are very similar to the phrases described earlier: again, we find highly contracted and articulatorily reduced forms produced at high articulation rates, as shown in Table 2.

For example, both in (11) and (19) *even* /evə/ is associated with only one syllable, as in (5) and (8); in addition, in (11) *moet ik* /mut ik/ is associated with velar plosion only, while in *nadenken* no dorsal gesture is observed: see the segments labelled [kəf] and [nɑd̃ɛ̃k̃] in Figure 3. In (12) no final alveolar stricture is observed for *niet* /nit/; moreover, *weten* /wɛtə/ is associated with a monosyllabic form rather than a disyllabic one, like *zeggen* in (9), and *precies* /prəsis/ lacks both rhoticity and a second period of alveolar frication: see the segments labelled [nɪ̃], [psɪ] and [uɛd̃] in Figure 4. In (13), (15), (16) and (17), *hoe* /hu/ is associated with only a brief vocalic portion with liprounding, as in (6) above, and in (14) *wat* /wat/ is associated with alveolar near-closure only, similar to (7). In (17), *hoe heette* /hu hetə/ is associated with a monosyllabic form and *die* /di/ starts with alveolar frication rather than complete closure: see the segments labelled [w̃ɛt̃] and [sɪ] in Figure 5. Finally, notice the form for *ging* /ɣɪŋ/ in (18), which lacks final dorsal occlusion, and that for *de derde* /də dɛrdə/ in (19) which has two rather

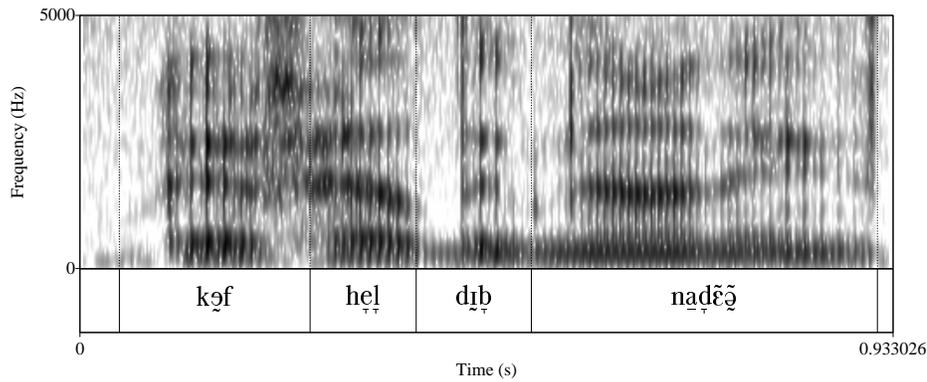


Figure 3: Segmented spectrogram for *moet ik even heel diep nadenken* /mut ik evə hel dip naðɛ̃ŋkə/ in (11)

than three alveolar closure gestures. The rate measurements for these phrases are very similar to those in Table 1: measurements close to the overall average of 6.7 sylls/sec are the exception rather than the norm, and rates of 10 sylls/sec or above are common.

As suggested above, following previous literature, such as Bybee (2001) and Local (2003), we might attribute the high degree of phonetic reduction characteristic of the formula-like phrases discussed in the previous subsection to their status of single processing units. The observations presented in this section, however, suggest that such an analysis would at best be incomplete: similar pragmatic units which at the grammatical level are best analysed as constructions, rather than single units stored in the lexicon, have the same phonetic characteristics.⁸ The high degree of phonetic reduction characteristic of all of these phrases is best accounted for with reference to their shared pragmatic function. That is, the data presented so far suggest that a high degree of phonetic reduction is among the recurrent characteristics of verbal phrases that initiate prepositioned repair — whatever their lexical or grammatical status.

This begs the following question: are there contexts in which phrases such those seen so far are not phonetically reduced, despite being analysable as single units? The next subsection suggests that this is indeed the case.

3.3 Claims of insufficient knowledge in dispreferred responses

As seen in (10) and (12) above, one way of initiating prepositioned repair is with a claim of insufficient knowledge, which marks the subsequent talk — the repair — as itself potentially problematic: it displays the speaker’s understanding of the activity of doing a word search as

⁸An anonymous reviewer suggests that within these constructions, more formulaic constituents are more reduced than more locally bound constituents: for example, *hoe heette* is more reduced than *die gozer* in (16). If this is the case across the board, the strong version of the argument put forward here — namely, that the degree of reduction observed in the constructions should be attributed to pragmatic constraints only — cannot be maintained. It may be noted, however, that locally bound constituents can undergo considerable reduction: see for example *ik* in (14) and *de derde* in (19).

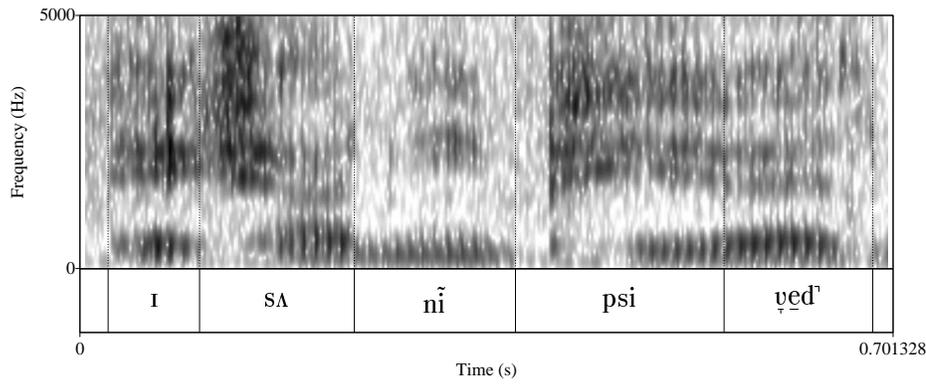


Figure 4: Segmented spectrogram for *ik zou het niet precies weten* /ik zau ət nit prəsis wətə/ in (12)

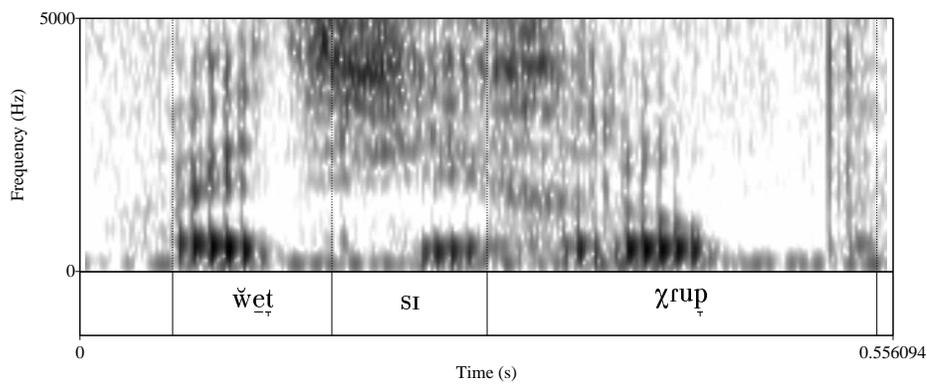


Figure 5: Segmented spectrogram for *hoe heette die groep* /hu hetə di χrup̥/ in (17)

not fully completed, or at least open to further uptake. In this context, a claim of insufficient knowledge expresses speaker uncertainty, rather than a lack of knowledge *per se*; therefore, an analysis of the claim of insufficient knowledge as a discourse marker is uncontroversial (see Scheibman 2000: 116 for comparable English examples).

Claims of insufficient knowledge do not exclusively occur in the context of prepositioned repair, of course. Another context in which they routinely occur is that of dispreferred response turns, such as expressions of disagreement or problematic responses to inquiries. Examples of the first type are given in (20) and (21).

(20) K–L/One-to-one/02

- 1 K: .h en ik neem aan dat we verder een beetje in een
and I assume that for the rest we'll sort of
- 2 clustertje komen met ((naam)) en en en ((naam))
come as a little group with ((name)) and and ((name))
- 3 (1.4)
- 4 L: nou dat weet ik niet dat zou ik denk ik
well I don't know I think I would

5 eigenlijk een beetje willen vermijden
 actually want to avoid that a bit

(21) S–T/One-to-one/13

1 S: dat wordt echt eh de het wordt oorlog in
 that's really er the it will be war in
2 de stad en er wordt ge::: met kussentjes
 the city and er people are
3 gegoooid en eh::
 throwing cushions
4 (0.2)
5 T: ja of dat nou altijd zo is ik weet het niet
 well whether that's always the case I don't know,

In (20) we see a claim of insufficient knowledge, *dat weet ik niet* ‘I don’t know’ (lit. ‘I don’t know that’), which immediately precedes a clause that expresses disagreement with the coparticipant’s prior turn — in this case a proposed course of action regarding a social event that K and L will attend. In (21) we see a claim of insufficient knowledge, *ik weet het niet* ‘I don’t know’ (lit. ‘I don’t know it’), which follows a clause that questions the generality of the coparticipant’s prior assessment, in this case of the reaction of Dutch football supporters to a defeat of their club. In both fragments the claim of insufficient knowledge is accompanied by one or more features of dispreferred turn design: in (20), it is prefaced by a long pause, and is followed by a phrase containing the dispreference marker *eigenlijk* ‘actually’ (Mazeland 2004, Plug 2005); and in (21) it is prefaced by *ja* ‘well’ (Pomerantz 1984, Mazeland 2004).

Examples of the second type — claims of insufficient knowledge in problematic responses to inquiries — are given in (22) and (23).

(22) O–P/One-to-one/20

1 O: en daar zit nu ook de hele familie weer bij?
 and again the whole family is with him
2 of niet
 or not
3 (0.5)
4 P: weet ik niet eigenlijk
 I don't know actually

(23) K–L/Interview/21

1 K: wordt een dergelijk onderzoek nog steeds uitgevoerd
 is that kind of research still carried out
2 want (0.2) je krijgt regelmatig te horen dat .hh
 because, you hear regularly that,
3 het nou op dit moment wel (0.6) meevalt met
 at the moment the language lag of immigrants is
4 die taalachterstand van eh (1.1) allochtonen
 not so bad
5 (2.5)
6 L: ja dat weet ik eigenlijk niet
 well I don't know actually

	Phrase	Citation form	Attested form	Rate
(20)	<i>dat weet ik niet</i> 'I don't know (that)'	/dat wet ik nit/	[d̥ətvetɪgnit]	6.4
(21)	<i>ik weet het niet</i> 'I don't know (it)'	/ik wet ət nit/	[ɪkvedənɪt]	6.2
(22)	<i>weet ik niet eigenlijk</i> 'I don't know actually'	/wet ik nit ɛiɣələk/	[vɛɛtɪkˈnɪtɛɛɣlək]	6.8
(23)	<i>dat weet ik eigenlijk niet</i> 'I don't know (that) actually'	/dat wet ik ɛiɣələk nit/	[rət̚vɛtɪkɛɛɣləgˈnɪt]	6.7

Table 3: Transcriptions and articulation rate figures (in syllables per second) for the collocations discussed in Section 3.3

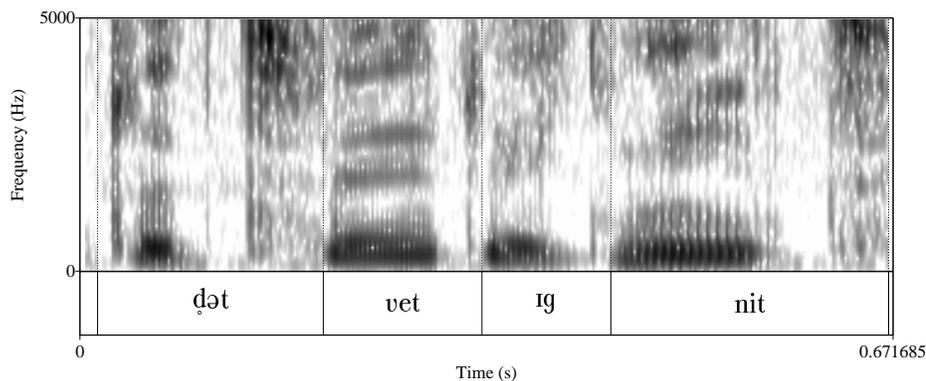


Figure 6: Segmented spectrogram for *dat weet ik niet* /dat wet ik nit/ in (20)

In both cases, the inquiry is designed to elicit a ‘yes’ or ‘no’ answer — in other words, it is based on the assumption that the recipient has sufficient knowledge to provide a ‘yes’ or a ‘no’. The response turn marks this assumption as inaccurate. Again, features of dispreferred turn design are observable: the response turns in (22) and (23) follow considerable silent pauses, and the dispreference marker *eigenlijk* ‘actually’ (Mazeland 2004, Plug 2005) occurs in both.

It has been observed before that dispreferred turns in Dutch recurrently contain components that are produced with a relatively low degree of phonetic reduction: dispreferred turns are a prime site for observing slow speech with phonetic forms that are close to citation forms (Plug 2005; see also Plug to appear). With reference to claims of insufficient knowledge, this means that contracted forms such as those in (10) and (12) are rare in this context. As seen in Table 3, the claims of insufficient knowledge under consideration in this section all have the same number of syllables as the corresponding citation form: this is illustrated for *dat weet ik niet* /dat wet ik nit/ in (20) in Figure 6. Figure 7 illustrates the tight consonantal strictures observed in this context for *weet ik* /wet ik/ in (22): see the segments labelled [v̥], [t] and [kˀ]. Table 3 also shows that articulation rates are all below 7 sylls/sec.

These observations are particularly interesting because claims of insufficient knowledge in

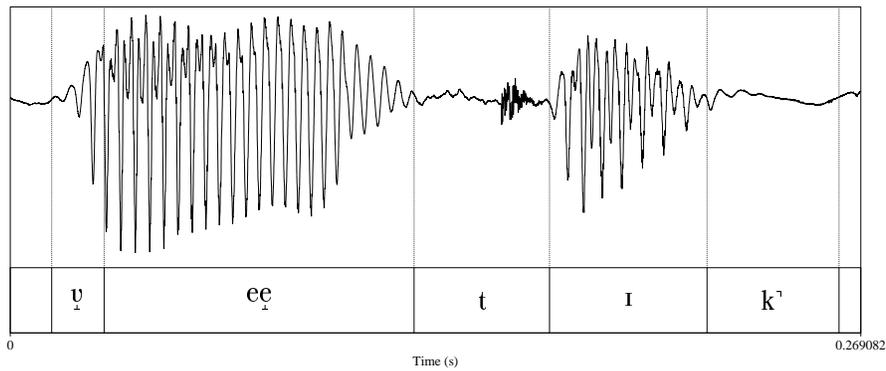


Figure 7: Segmented waveform for *weet ik* /wet ik/ in (22)

fragments such as (20) and (21) — that is, in the specific context of responses marking disagreement — are readily analysable as discourse markers following Scheibman (2000). For example, the function of *dat weet ik niet* ‘I don’t know that’ in (20) is not to express a lack of knowledge *per se*, but to hedge or mitigate the following expression of disagreement. This is rather different from the function of the claims of insufficient knowledge in (22) and (23): in these fragments the claim of insufficient knowledge constitutes a complete, albeit dispreferred, answer to the prior inquiry. Scheibman (2000: 116) suggests that in the latter context, ‘*I don’t know* expresses a compositionally-achieved meaning’, rather than having the function of discourse marker. Despite this difference, the claims of insufficient knowledge are similar phonetically — and importantly, those that are analysable as discourse markers are *not* associated with phonetic reduction.

Notice also that as above, the verbal phrases considered here show different degrees of complexity: *dat weet ik niet* in (20) and *dat weet ik eigenlijk niet* in (23) are different from the claims of insufficient knowledge in (21) and (22) in containing pronominal reference to the prior talk with *dat*. Again, however, the phonetic similarity across these phrases suggests that whether we have to do with single lexical items or grammatical constructions, it is the pragmatic context in which they are used — in this case that of a dispreferred response turn — that accounts for their shared phonetic characteristics. Furthermore, reference to the pragmatic context is crucial in accounting for the difference in phonetic design between claims of insufficient knowledge like those discussed above and those discussed in this subsection: in the former, the phrases are employed in the lexical initiation of prepositioned repair, which is typically done fast and with a high degree of articulatory reduction; in the latter they are employed as components in dispreferred response turns, which are recurrently associated with a lower speech rate and considerably less articulatory reduction.

3.4 Summary: Pragmatic constraints on speech production

To sum up, this section has shown that a high degree of phonetic reduction in multi-word phrases that function as pragmatic units is not necessarily attributable to their status as single processing units. We have seen that in the case of ‘formula-like’ phrases used in the initiation of prepositioned repair, such an account is incomplete, since more complex repair initiations for which a single-unit analysis is not appropriate have the same phonetic characteristic. The case of claims of insufficient knowledge shows that it is the differential use across pragmatic contexts which accounts for their phonetic design, irrespective of whether individual phrases are best analysed as single processing units or more complex grammatical constructions. Therefore, the fact that a phrase is stored in memory as a unit does not mean it is or will be phonetically reduced in an actual communicative context — since in an actual communicative context, its phonetic form is constrained by its particular pragmatic function.

The observation of constraints on phonetic form imposed by the pragmatic context is not original, of course: various studies in the tradition of Local et al. (1986) have documented associations between particular communicative actions and sets of recurrent phonetic characteristics. Several studies have shown that single words, such as *so*, *well*, *but* or *er*, are associated with different ranges of realisations when serving different pragmatic purposes (Local and Kelly 1986, Local and Walker 2005). Others have focused on phonetic characteristics associated with longer stretches of talk in particular communicative contexts. Importantly, these associations appear to be independent of lexical choice, so that the phonetic characteristics cannot be accounted for in terms of lexical frequency. For example, Curl (2004, 2005) shows that in ‘other-initiated repair’ sequences such as *A: Are you in the bathroom? — B: Huh? — A: Are you in the bathroom?*, in which B initiates repair on A’s first utterance, and A repeats the utterance in response, repeats fall into two phonetic groups. Some repeats are ‘upgraded’ relative to the initial utterance: they are louder and longer, have an expanded pitch range, and have a different articulatory setting resulting in an overall more canonical realisation of the utterance. Other repeats do not have these features relative to the first mention; Curl calls these ‘non-upgraded’. Curl further observes that this grouping corresponds closely to a grouping on independent, sequential grounds: that is, the upgraded and non-upgraded repeats occur in distinct pragmatic contexts. In brief, repeats with features of upgrading occur in contexts in which the initial utterance is ‘fitted’ to the prior talk, while those without features of upgrading occur when the initial utterance is in some way ‘disjunct’ from the prior talk. As Curl points out, the patterns she observes call for a considerable refinement of the notion that repetition is associated with phonetic reduction across the board: more context-sensitive, pragmatically-motivated constraints are in evidence.

Similarly, in a study of pairs of assessments such as *A: it’s supposed to be really really pretty — B: oh it’s supposed to be gorgeous*, Ogden (2006) observes two distinct phonetic designs of the second assessment. In one, the second assessment has a lower tempo and closer articulations than the first assessment; in the other, it has a higher tempo and more open stricture. Again,

Ogden finds that the two designs are associated with different pragmatics: strongly agreeing and disagreeing second assessments are of the first type, while weakly agreeing assessments which preface more talk on the subject are of the second. Repetition of material from the first assessment in the second is done differently in these different contexts, and lexical choice does not appear to play a role in the pattern: in particular, strongly and weakly agreeing second assessments draw on a shared set of positive assessment terms.

Together, these findings strongly confirm that there is more to usage than frequency, and contribute to a growing inventory of constraints on speech production motivated by the pragmatic organisation of ordinary, spontaneous speech.⁹ The remainder of the paper considers how these might be accommodated in the representational framework of Usage-based Phonology.

4 Pragmatic contexts as categories of lexical organisation

Given the findings presented above, and similar findings reported throughout the Conversation Analysis literature, it would be difficult to defend the position that language users proceed without internalised knowledge about the relationship between actions and the linguistic resources that instantiate them (see Fox 2007 for recent discussion of this point). Examples of demonstrable ‘participant orientation’ provide particularly strong evidence. For example, it has been observed that when an elicitation to which *yes* is a strongly preferred response is followed by a silence rather than an immediate response, the participant who offered the elicitation recurrently expands or reformulates it to the effect of changing the preference for *yes* to one for *no*; the coparticipant can then offer a ‘preferred’ negative response. One way of doing this is by adding *or not?* (Pomerantz 1984, Davidson 1984).¹⁰ This can be taken as evidence that the participant understands that following an elicitation, the absence of a quick response means that a preferred response is unlikely to be forthcoming. As Button (1990: 83) suggests, we are dealing here with ‘rules to which people display an orientation in their actions or, in other words, ... rules of which, by their actions, they display their knowledge’.

Whether this knowledge is considered phonological — or, more generally, linguistic — knowledge depends on one’s theoretical framework. While pragmatic organisation certainly does not feature in the generative conception of ‘competence’, in Usage-based Phonology there

⁹An anonymous reviewer suggests that frequency effects may themselves emerge for pragmatic reasons. This suggestion is not further taken up here. The main point is that in particular pragmatic contexts, phonetic patterns may run counter to predictions based on a consideration of the frequency and predictability of the lexical items involved — irrespective of the ultimate basis of the frequency patterns. The same reviewer suggests that a consideration of the frequency of prepositioned repair, dispreferred responses and so on might help explain their associated phonetic characteristics. While some influence of frequency in shaping the phonetic design of utterance *types* cannot be ruled out, it is unclear how this hypothesis might be tested thoroughly. Certainly, there is at present no evidence to suggest that relatively uncommon communicative actions are necessarily associated with the phonetic characteristics of low-frequency lexical items.

¹⁰In fact, we can see this in (21) above, where O adds *of niet* to his turn when P does not respond immediately.

is no a priori reason why pragmatic organisation should not have an impact on phonological representations. To see how this impact might be conceptualised, we need to consider in more detail the nature of the exemplar-based lexical representations which Usage-based Phonology adopts. As Pierrehumbert (2003) points out, a useful way of looking at an exemplar model of representation is in terms of a multi-dimensional perceptual map with an associated system, or network, of category labels. A category is defined as ‘a mental construct which relates two levels of representation, a discrete level and a parametric level’ (Pierrehumbert 2003: 119). Bivariate scattergrams such as the F1–F2 vowel plot in Figure 8 are simple, two-dimensional examples of such a map. In Figure 8, individual vowels are represented as data points plotted in two dimensions, with data points associated with the same vowel phoneme circled and labelled.

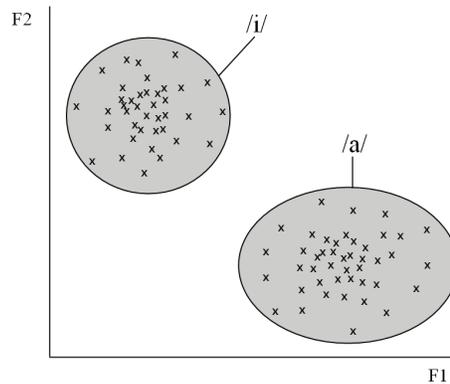


Figure 8: Stylised F1–F2 vowel plot with individual data points and two labelled exemplar sets

Figure 9 illustrates how phonemes and allophones can be represented in an exemplar-based approach.¹¹ In Usage-based Phonology, ‘the phenomena that phonemes are intended to describe are relations of similarity among parts of the phonetic string’ (Bybee 1999: 82). For example, on hearing multiple words and phrases containing laterals, a language user can abstract a segmental category /l/. On hearing words like *leap*, *love*, *ball* and *feel* in a Southern British English accent, he can further establish that exemplars of /l/ cluster in two subsets: ‘clear’ laterals and ‘dark’ laterals.¹² These phonetically distinct subsets are distributed differently: clear laterals occur in syllable onsets, while dark laterals occur in codas. This difference is reflected in the additional labelling of the subsets of exemplars of the category /l/. Thus, ‘phonemes are sets of phonetically similar variants, and . . . these variants are clustered in groups, such that what we analyse as allophones constitute salient contextually determined prototypes’ (Bybee 2001: 53). In an exemplar representation, subsets of exemplars of a particular category can be associated directly with descriptors of the contexts that govern the variation: here ONSET and CODA.

¹¹The status of traditional phonological concepts such as phoneme, allophone, onset and coda in exemplar-based phonology is debatable (see Nathan 2006 and Silverman 2006, among others). The concepts are used here for the purpose of illustration only.

¹²The two subsets are here presented as non-overlapping for expository purposes. In reality, there may be a third subset of ambiguous tokens, as well as individual outliers. The same is the case for Figures 10 and 12 below. See

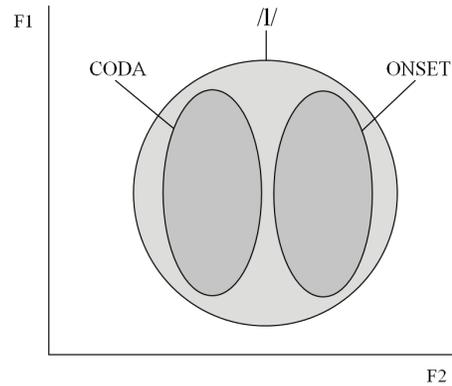


Figure 9: Allophony in an exemplar representation with labelled exemplar sets

Now consider Foulkes and Docherty’s example of plain and laryngealised variants of /t/ in Newcastle English. Foulkes and Docherty (2006) show that the former are recurrently used by female speakers, while the latter are a characteristic of male speech, and suggest that ‘in exemplar representation an individual speaker from Newcastle has developed an association between plain and laryngealized variants of /t/ and female/male speakers, respectively’ (Foulkes and Docherty 2006: 430). Notice that this situation is very close to that of the allophony of /l/, except that the conditioning environments are not structural categories like CODA and ONSET, but social — gender — categories, which we can label MALE and FEMALE for convenience. This similarity suggests a representation along the lines of that in Figure 10, with plain voiceless alveolar plosives towards the left of the set of exemplars associated with /t/, and laryngealised exemplars towards the right. This is consistent with Pierrehumbert’s suggestion that ‘a recollection of the phrase *Supper’s ready!* could be labelled “Mom” and “female speech”, in addition to exemplifying the words and phonemes in the phrase’ (Pierrehumbert 2001: 140), as well as with Johnson’s (2006) exemplar-based model of gender differentiation.

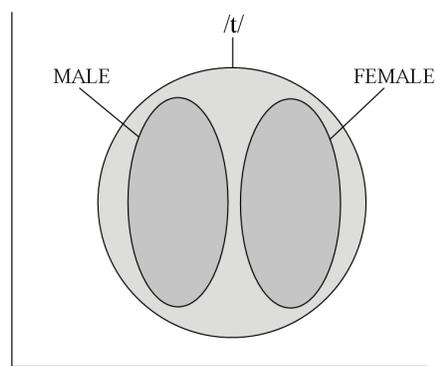


Figure 10: Exemplar representation of sociophonetic variation as described by Foulkes and Docherty (2006)

This analysis, in which the social constraints on variation are represented as category labels

Silverman (2006) for similar representations which incorporate overlap.

associated with particular ranges of phonetic forms stored in the lexicon, suggests that pragmatic constraints on speech production can be analysed in terms of lexical categorisation, too. To see this, we need to move away from segmental representations. In fact, according to Bybee (2001) the basic units of long-term lexical storage are not phonemes, but words and phrases. Other units, such as phonemes and syllables, emerge and can be accessed through connections between phonetically similar portions of accumulated representations of words, as described above for *leap*, *love*, *ball* and *feel*. Thus, if we follow the usage-based literature, phrases such as *I think* and *I don't know* are associated in at least some of their uses with lexical representations along the lines of those in Figures 9 and 10, with individual exemplars organised along multiple phonetic parameters.

With reference to the empirical findings presented above, we saw that pragmatically, phrases such as *eens even kijken* 'let's just see', *hoe heet het* 'what's it called' and *ik weet niet* 'I don't know' function as 'formula-like' markers in at least one context: in prepositioned self-initiated self-repair, these phrases function as repair initiators. Let us assume, then, that they are entrenched in memory as single lexical units. If so, *eens even kijken* would have a representation along the lines of that in Figure 11, with individual exemplars of the phrase grouped together under the morphosyntactic label *eens even kijken*. The recurrent association of the phrase with the action of doing prepositioned self-initiated self-repair would motivate an additional label which refers to this action, or pragmatic context of use. In Figure 11, SELF serves this purpose. A similar account could be developed for assessment terms used recurrently in second assessments (Ogden 2006), or indeed any other lexical unit associated with particular pragmatic contexts of use.

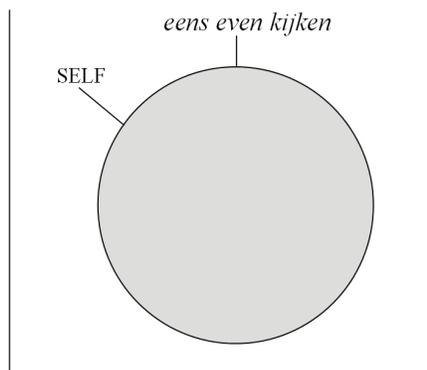


Figure 11: Exemplar representation of *eens even kijken*

Now consider *ik weet niet*. We saw that in addition to the context of prepositioned self-initiated self-repair, the phrase is recurrently used in that of dispreferred response turns. In addition, it has a rather different phonetic form in these two contexts: in self-repair, it is typically produced at a high articulation rate with much phonetic reduction, while in dispreferred response turns, it is typically slow and much closer to a citation-form pronunciation. This means that in an exemplar-based representation of the phrase, the two pragmatically-motivated labels

are not associated with all exemplars of the category *ik weet niet*, but with different subsets, each representing a range of forms typically observed in the context in question. This is shown in Figure 12, which uses DISP to refer to the context of dispreferred response turns. Again, a similar account could be developed for assessment terms used in different types of second assessments (Ogden 2006), or for the different pragmatic functions of items such as *so*, *well*, *but* or *er* (Local and Kelly 1986, Local and Walker 2005). Figure 12 is, of course, very similar to Figures 9 and 10: in all three cases, we are dealing with contextually constrained variation. Whether the constraint is defined in terms of syllable structure or in terms of social or pragmatic categories, the basic representation is the same in a usage-based framework.

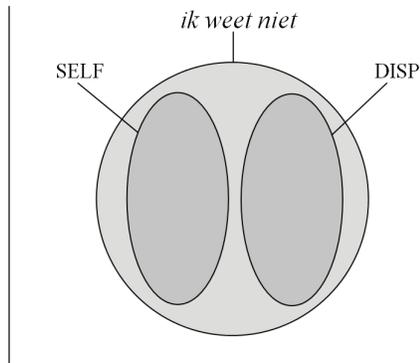


Figure 12: Exemplar representation of *ik weet niet*

5 Positionally sensitive grammars and construction schemas

Given the account outlined so far, at least two questions arise. First, how does a usage-based account deal with the more complex phrases that function as repair initiators in the context of prepositioned self-initiated self-repair? An important finding of the empirical analysis was that these are similar to *eens even kijken*, *hoe heet het*, *ik weet niet* and so on in terms of degree of phonetic reduction. How is this similarity represented?

Second, what exactly do labels such as SELF and DISP represent? In an exemplar-based model, labels are ‘functional links to other levels of representation’ (Pierrehumbert 2001: 140). As such, their names are inconsequential. The choice of SELF and DISP in Figure 12 does not amount to a claim that language users recognise the conversation-analytical terms ‘self-repair’ and ‘dispreferred response’ — rather, it presupposes that the categories associated with these terms are part of language users’ knowledge at some level of representation.¹³ But what might this level — presumably, a level of pragmatic representation — look like?

These two questions are closely related, and in addressing them it is useful to consider what has been said about the organisation of linguistic knowledge in the Conversation Analysis

¹³Of course the same goes for /l/, ONSET, MALE, *it weet niet* and so on.

literature. A central concern of conversation-analytic research is to analyse the resources on which participants in an interaction draw in carrying out interactional tasks — that is, how they implement actions through their use of language. As Drew (2004: 74) points out, ‘In our interactions with others, we don’t just talk’; rather, ‘We are doing things, such as inviting someone over, asking them to do a favor or a service, blaming or criticizing them, greeting them or trying to get on first-name terms with them, disagreeing or arguing with them, advising or warning them, apologizing for something one did or said, complaining about one’s treatment, sympathizing, offering to help, and the like’. The findings of Conversation Analysis contribute to an empirically grounded ‘inventory of sorts, a catalog of recognizable social actions . . . which language is used to accomplish in interaction’ (Schegloff 1996a: 167).

In constructing a turn to implement a certain action, interactants face a range of linguistic choices: choices between lexical items and syntactic constructions, and choices of the phonetic characteristics of the resulting turn, in terms of pitch, loudness, voice quality, articulatory settings and so on. These choices may be consequential for the unfolding of the interaction. Discovering what choices interactants face in constructing their turns to implement certain actions, and explicating — on the basis of thorough empirical analysis — what the precise interactional import of these choices is, is a major analytic challenge. As Schegloff (1996a: 167) suggests, the aim is to formulate an inventory of actions and what he calls the ‘design features’ of the turns or turn components that interactants construct to implement them. Such an inventory is schematised in Figure 13.

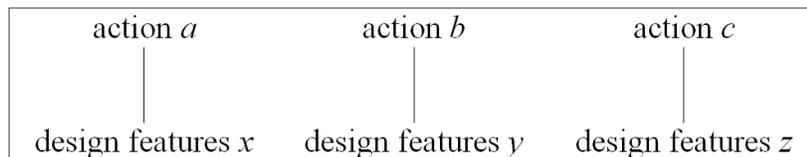


Figure 13: Associations between actions and the design features of turns or turn components that implement them

With regard to linguistic knowledge, Schegloff (1979, 1996b) and Fox and Jasperson (1995), among others, put forward a view in which pragmatic function plays a crucial organisational role. Schegloff suggests that linguists should ‘make room, in principle, for the possibility of multiple, positionally sensitive grammars, with the related search for the sorts of positions they are sensitive to’ (Schegloff 1996b: 111). Fox and Jasperson (1995) apply this idea by proposing a ‘micro-syntax’ for self-repair: that is, a set of syntactic generalisations according to which language users construct turn components for self-repair, but which do not necessarily have an impact on the construction of other turn components in other pragmatic contexts. This is reminiscent of the ‘polysystemic’ approach to linguistics originating in the work of Firth, Halliday and others (Firth 1948, Halliday 1961, Palmer 1970) and more recently developed in the area of speech perception by Hawkins and Smith (2001) and Hawkins (2003). In terms of the discussion above, a positionally sensitive grammar can be seen as a full statement of one association

of the type shown in Figure 13: that is, a full statement of an action type and its associated turn design features.

The empirical observations presented in this paper can be straightforwardly understood in this framework. Simplifying somewhat, we have seen two actions: doing prepositioned repair and providing a dispreferred response to an elicitation. We have also seen a number of recurrent design features of turns that implement these actions. A ‘micro-grammar’ for prepositioned repair, for example, would state that the initiation of repair can be done using a small number of formula-like phrases or more complex variants thereof, with the phonetic characteristics of an above-average articulation rate and a high degree of phonetic reduction. In terms of the two questions posed at the start of this section, it is such a positionally sensitive grammar that can ensure that all phrases that constitute a lexical repair initiation are produced with similar phonetic characteristics, whatever their grammatical complexity. And it is such a grammar that a label like SELF provides a link to.

The notion of ‘positionally sensitive grammar’ is not current in Usage-based Phonology. However, it is not incompatible with it either. In Usage-based Phonology, and Cognitive Linguistics more generally, generalisations over multiple experiences that go beyond basic categorisation are expressed in abstract ‘schemas’ (Bybee and Slobin 1982, Barlow and Kemmer 1994, Bybee 2001). These schemas express relationships between lexical categories without necessarily referring to individual exemplars. Apart from being convenient representational devices, schemas are assumed to correspond closely to mental constructs, and have a similar function to generative rules: when a schema is established, ‘the commonality inherent in multiple experiences is reinforced and attains some cognitive status, so that it has the potential to influence further processing’ (Langacker 2000: 7). Schemas encode structural abstractions, thanks to the general human cognitive capacity ‘to operate at varying levels of “granularity”’ (Langacker 2000: 4).

Representations such as [*I think*] and [[SUBJECT *I*] [VERB *think*]] in (1) above are examples of schemas. They do not refer to individual exemplars or exemplar sets, but refer instead to lexical categories — *I think*, *I*, VERB and so on — specifying their constituency in larger structures. As suggested above, in schema-based approaches to grammar (e.g. Kay and Fill-

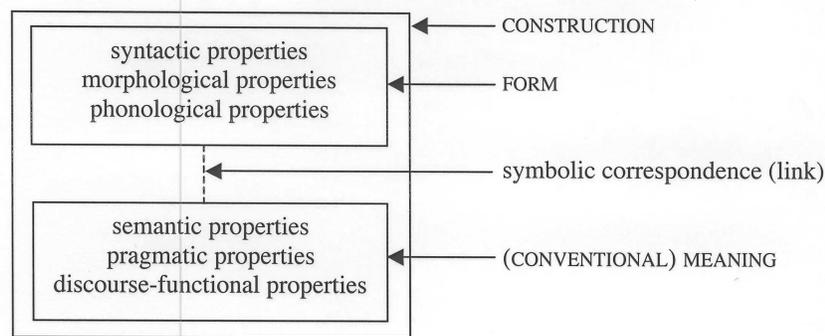


Figure 14: Generalised construction schema (from Croft 2001: 18)

more 1999, Croft 2001, Goldberg 2006) such schemas are called ‘constructions’. According to Croft (2001), conventional linguistic units such as ‘morphemes’, ‘words’ and ‘syntactic constructions’ all correspond to constructions at various levels of complexity and abstraction. All of these constructions are ‘conventionalized pairings of form and function’ (Goldberg 2006: 3) that conform to the general schema in Figure 14: they encode abstractions regarding the association between formal — syntactic, morphological, phonological — and functional — semantic, pragmatic, discourse-functional — categories.

We can now see how the positionally sensitive ‘micro-grammars’ referred to in the conversation-analytic literature can be accommodated in a usage-based linguistic framework. We said earlier that a positionally sensitive grammar corresponds to an association between an action type and a set of recurrent design features of the turns or turn components that are used to implement it (see Figure 13). In other words, it corresponds to an association between pragmatic function, or meaning, and a set of formal linguistic properties. Of course, this is exactly what a construction schema represents. In essence, construction schemas *are* micro-grammars: they specify the recurrent building blocks of linguistic structures with a common function. Returning to the context of prepositioned repair, a corresponding construction would encode the knowledge that the initiation of repair can be done using a small number of formula-like phrases or more complex variants thereof, with the phonetic characteristics of an above-average articulation rate and a high degree of phonetic reduction. This is illustrated in Figure 15. Similar schemas can be developed for the various types of second assessment identified by Ogden (2006), or the ‘upgraded’ versus ‘non-upgraded’ repeats described by Curl (2004, 2005).

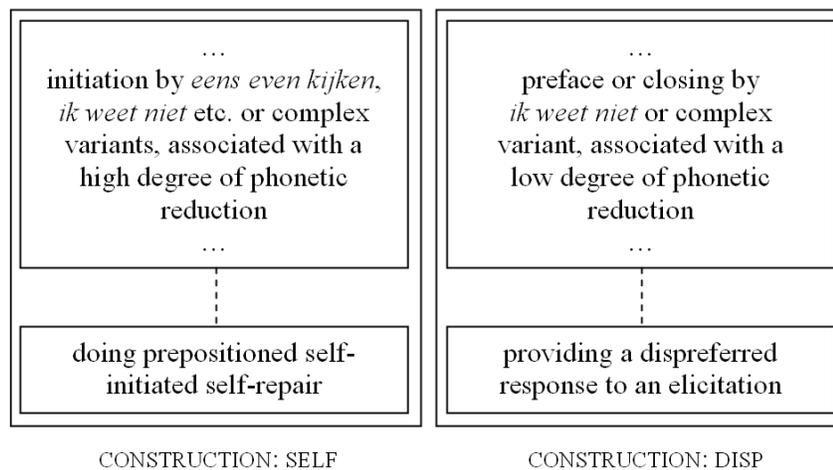


Figure 15: Partial construction schemas for prepositioned repair and dispreferred response

Of course, the representations in Figure 15 are partial, and a full account of the two pragmatic contexts discussed above is beyond the scope of this paper. Still, the representations illustrate that the empirical findings reported in this paper *can* be accommodated in a usage-based linguistic framework, and therefore in Usage-based Phonology. Clearly, the notion of ‘schema’ is crucial. Returning again to the questions posed at the start of this section, the

schemas in Figure 15 account for the similarity in phonetic design between formula-like and more complex phrases we have seen in the two pragmatic contexts, by specifying a certain degree of phonetic reduction as a feature of any phrase that serves the relevant function. As for the labels SELF and DISP, these provide a link between the exemplar representations discussed in the previous section and the schemas introduced in this section. In a usage-based framework, these two types of representation are closely related: the generalisations encoded in the schemas correspond to recurrent patterns in the categorisation of individual exemplars. Figure 16 illustrates this relationship. The figure shows an association between the action type of doing prepositioned repair and multiple sets of exemplars — that is, phonetic forms — stored in memory. It is through the additional categorisation of these exemplars that the action type is associated with morphosyntactic categories such as *eens even kijken* and *ik weet niet*, and it is through the phonetic substance of the exemplars that the action type is associated with general phonetic characteristics.

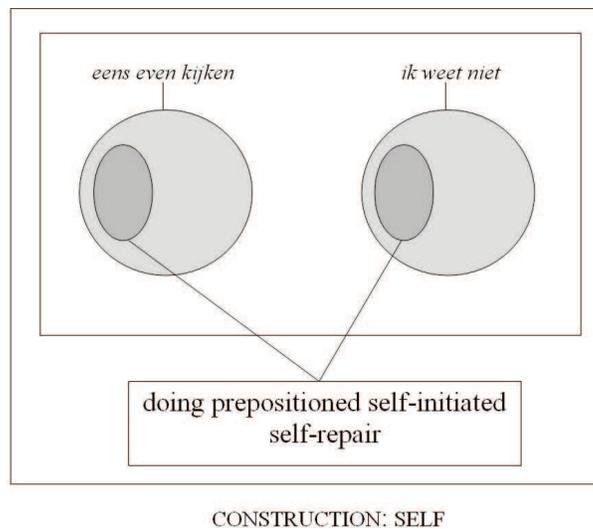


Figure 16: Relationship between construction schema and exemplar representations for prepositioned repair

6 Discussion and conclusion

This paper set out to do two things. First, it set out to show that the predictable relationship between the frequency of a phrase, the level of complexity of its grammatical representation and its phonetic form is subject to interference by pragmatic factors. The study of a set of Dutch phrases reported in this paper confirms that the pragmatic function of a word or phrase may constrain its phonetic implementation: for example, we have seen that claims of insufficient knowledge are associated with rather different ranges of phonetic forms in the two contexts of prepositioned self-repair and dispreferred response turns. Moreover, the observation that certain degrees of phonetic reduction are general across various phrase types in these two contexts

clearly suggests that frequency of usage and level of grammatical complexity cannot provide a full account of the phonetic form of the phrases: pragmatic function must be taken into account. This paper, then, has provided an illustration of what Lindblom (1986, 1990, 2000) has referred to as ‘communicative’ or ‘pragmatic’ constraints on speech production.¹⁴ Second, this paper set out to consider the status of these pragmatic factors — or constraints — in the framework of Usage-based Phonology. The outlined account relied on two crucial features of Usage-based Phonology as developed by Bybee (1994, 1999, 2001): namely, its adoption of an exemplar-based approach to the organisation of the mental lexicon, and its compatibility with schema-based, or constructionist, approaches to grammatical statement. In the account outlined in this paper, recurrent associations between communicative actions and sets of linguistic features are formalised in terms of construction schemas. The generalisations encoded in these schemas are generalisations over multiple lexical items, each of which is stored in memory as a set of exemplars with category labels that associate subsets with structural units at various levels of organisation — including the pragmatic level.

With regard to exemplar representation, various questions remain to be addressed, as highlighted by Coleman (2002), Foulkes and Docherty (2006), Johnson (2007), Pierrehumbert (2006) and Scobbie (2007), among others. A major issue concerns the nature of the perceptual map that forms the foundation of the exemplar-based lexicon. While it is clear that such a map must be multi-dimensional, there is as yet no broad agreement as to what particular dimensions are involved (see Coleman 2003 for discussion). It may be noted that this issue is not unique to exemplar-based approaches: while it is clear that human speech perception involves complex temporal and spectral analysis of an incoming signal, the precise nature of the parameters is not beyond dispute (see Goldinger and Azuma 2003 for discussion). It is these parameters that constitute the ‘dimensions’ of the multi-dimensional perceptual map in an exemplar-based lexicon.

Another issue concerns the relationship between exemplar representations and speech production (Pierrehumbert 2003, Foulkes and Docherty 2006). If we accept that long-term memories of speech are encoded in terms of auditory rather than articulatory parameters (see Coleman 1998 for a review of the evidence), there must be a process by which auditory representations are translated into sets of commands that can be executed by the articulators. With specific reference to the account outlined in this paper, it remains to be established how generalisations regarding varying degrees of phonetic reduction can be encoded in terms of auditory or articulatory parameters, or both, in an exemplar-based framework.

¹⁴An anonymous reviewer suggests that the phonetic features of self-repair initiations and dispreferred responses reported here are consistent with their relative degrees of informational redundancy (Lindblom 1990): self-repair initiations convey less new information to the listener than dispreferred responses, and informationally redundant words and phrases undergo phonetic reduction (e.g. Pluymaekers et al. 2005). However, there is no evidence to suggest that pragmatic constraints can be reduced to effects of informational redundancy across the board. For example, the phonetic patterns described by Curl (2004, 2005) and Ogden (2006), discussed above, are not straightforwardly accounted for along the same lines.

Finally, the discussion above has taken for granted that language users — in this case speakers of Dutch — will unproblematically establish categories such as SELF and DISP and encode generalisations across instances of these categories in abstract schemas. Given that language users observe far fewer instances of, for example, dispreferred response turns than, for example, variants of any given phoneme in the language, it remains to be established to what extent representations along the lines of those in this paper are entrenched in long-term memory. Findings of conversation-analytic research are generally based on the recurrent observation of interactional practices to which participants themselves show a demonstrable orientation: therefore, as suggested above, it is reasonable to hypothesise that knowledge of the practices in question is part of the interactants' competence. Still, as it stands it is not clear *how* recurrent or salient a linguistic pattern needs to be to warrant a long-term exemplar-based representation.

Notwithstanding these uncertainties, it is worthwhile exploring the implications of exemplar-based approaches to the lexicon for theoretical issues in linguistics and phonetics, and developing conceptual frameworks which accommodate the approach. An important suggestion of this paper has been that usage-based approaches to linguistics can accommodate the view of linguistic knowledge put forward in the Conversation Analysis literature: a view in which pragmatic factors have a direct impact on linguistic representations, to reflect the recurrent observation in empirical studies that the actions which a stretch of speech implements, constrains various aspects of its linguistic and phonetic design.

So far the use of construction schemas — and more generally the place of Usage-based Phonology within a wider 'schema-based' linguistic framework — has received relatively little attention in the literature. This paper has suggested that construction schemas are a suitable host for generalisations over sets of linguistic structures with a shared pragmatic function. Further work is necessary to assess how, given this approach, grammatical and pragmatic constructions would interact in the constructionist frameworks of, for example, Croft (2001) and Goldberg (2006). It is worth emphasising at this point that the constructionist approach envisaged here does not amount to a 'mechanistic psychology of dialogue' (Pickering and Garrod 2004), in the sense that construction schemas encode usage-based generalisations which can inform further usage, but do not necessarily *determine* it. The constructions do not constitute a set of rules which language users must follow, but rather a set of recurrent patterns which are likely to be part of the users' shared knowledge (Button 1990). As indicated above, construction schemas are based on commonalities between multiple exemplar-based representations. Since these representations are continually updated with language use, the construction schemas are also subject to change once established. The approach envisaged here, then, is non-deterministic and dynamic, in line with work in both Conversation Analysis (Button 1990, Schegloff 1996, Fox 2007) and Cognitive Linguistics (Langacker 2000, Tummers et al. 2005).

In conclusion, this paper has been motivated by the idea that if it is a goal of conversation-analytic research to elaborate a system of associations between communicative actions and the linguistic design features that are used to implement them, it must be one of the aims of

a usage-based linguistic framework to accommodate such associations in a representational framework. The paper has taken some steps in this direction, focussing on the relationship between phonetics and pragmatics in Usage-based Phonology.

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