Turn transition, creak and glottal stop in Finnish talk-in-interaction

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Finnish talk-in-interaction is shown to use creak and glottal stops distinctively. Creak has turn-yielding functions, and glottal stops have turn-holding functions. Rather than either intuition or the use of large corpora with no attention to the interactional function in which the talk is embedded, the methodology used is that of interactional linguistics (e.g. Couper-Kuhlen & Selting 1996 for a prosodic approach), which places emphasis on demonstrating participants' local orientation to linguistic categories within interactional sequences.

1   Introduction

Phonetics and phonology have traditionally concentrated on lexical meaning and 'spoken prose' (Abercrombie 1965: 4) at the expense of other kinds of meaning. As Rischel (1992) has pointed out, phonology has been based on 'exaggerated idealisations of speech', and exaggerated expectations of the mechanisms of phonology for handling real talk. This has the unfortunate consequence that even the most ordinary talk-in-interaction is generally treated as a special case whose phonology is parasitic on 'citation forms' (cf. Lass 1984).

Another approach, that of interactional linguistics, is to treat talk-in-interaction on its own terms. Interactional linguistics situates talk in a meaningful context, and so is able to relate sound to meaning (cf. Firth 1957). Couper-Kuhlen & Selting (1996), along with other papers in the same volume, argue that by showing participants' orientation to prosodic features it is possible to provide phonology with an empirical methodology for uncovering the orderliness in natural talk without relying on the practitioner's intuitions.

Analysis of a corpus of Finnish talk-in-interaction reveals that places where it is relevant for turn transition to occur are signalled using a range of phonetic resources, including intonation, tempo, duration and voice quality. This paper concentrates on one such parameter, voice quality; and compares the function of creak with that of glottal stops. Overwhelmingly, creak is used turn-finally, although other non-modal forms of phonation are used as well (such as breathiness, voicelessness and whisper); and in certain interactional circumstances, other phonetic resources can be used too, such as stylised pitch contours. The 'default' case though is creak (cf. Iivonen 1998).

Since creak commonly alternates with glottal stops in the world's languages (Ladefoged & Maddieson 1996; Kohler 1996, Rodgers 1999 for German; Dilley et al. 1996 for English), it is relevant to contrast the function of creak with that of glottal stops. This paper will show that in Finnish, creak is one resource used for turn-yielding activities, and glottal stops are one resource for turn-holding activities. Similar findings have been reported for English (Local & Kelly 1986, Shriberg 1999, Jasperson to appear). The phonetic detail, contrastive paradigms and interactional function all suggest that glottal stop and creak form separate linguistic categories with different distributions and different interactional functions.

2 Data

The data in this paper are taken from a radio phone-in programme broadcast on Finnish national radio and recorded in May 2000. Listeners call in and ask for a piece of folk music to be played. There are two presenters, who encourage the callers to talk about why they have chosen that piece, and they usually develop the conversation so as to inform the listeners about the musicians or the music. Each presenter (one male, one female) takes it in turns to take a call. Although each call has a similar overall structure, the content varies widely.

There are eleven calls in the corpus, and nine of them have been transcribed. Some calls were eliminated, because the caller's speech was not clear enough. The duration of the material analysed is approximately 23 minutes in total.

The data are transcribed according to standard conventions set out at the end of the paper. It is essentially a form of modified orthography which captures some prosodic features of spontaneous talk. In the transcriptions, P stands for the main presenter for the call, P2 for the other presenter, C for the caller.

3 Methodology

The methodology used in this paper is that of conversation analysis (CA). A more detailed description of CA can be found in Wootton (1989), Couper-Kuhlen & Selting (1996) and Hutchby & Woffitt (1998); here I present a brief summary of the main aspects.

Over the space of thirty years or so, CA has developed a good understanding of the organisation of talk. CA gives priority to the analysis of naturally-occurring data. It treats the context of the data as embedded within the data, a position very close to that of Firth (1957). CA treats the data as emergent in real time. Analysts have the ability to consider data *post hoc*; but for participants in talk-in-interaction, the talk and the actions it achieves emerge in real time. This means, for example, that a turn that might have been designed as 'completed' can later be recast as 'incomplete'.

Wootton (1989) lists five kinds of evidence used in interactional studies, all of which look to the data itself and the demonstrated – and demonstrable – behaviour of the participants in the talk. Of these five kinds of evidence (discussed at some length in Couper-Kuhlen & Selting 1996), the most significant one for the current paper is the 'subsequent treatment of the device': that is, how the participants in the talk-in-interaction can themselves be shown to orient to the phenomenon. In this way, it is possible to motivate categories of the analysis from the data itself, rather than from the analyst's intuition. CA thus takes a robust empirical line on the interpretation of spontaneous data.

Many phenomena of unscripted speech may not be frequent enough within even a large corpus for a meaningful quantitative analysis to be viable. As Schegloff (1993: 101) points out, the greatest hindrance to a meaningful quantitative analysis is the problem of working out what the denominator is. Once this is known, it is possible (but not trivial) to quantify how 'common' or 'rare' any phenomenon is. While quantification is one kind of significance, 'subsequent treatment of the device' is another, and an important one, for it makes it possible to show how something was significant ON THAT OCCASION, FOR THOSE SPEAKERS, IN THAT CONTEXT. This is not a stance against quantification, but an appeal to the need to understand the context (and how it is embedded in the sequential organisation of the talk) so that quantification may make sense.

For example, one of the calls in the corpus, nicknamed *Kaksi kitaraa* (Two guitars), contains only ten instances of turn-final non-modal voicing. Other calls, of about the same length, contain approximately twice that number. Unusually for the calls in the corpus, in *Kaksi kitaraa* C is telling a story which lasts for most of the call. The telling is organised so that turn transition is not a relevant action till the end of the story. So the comparative rarity of creak in this particular call is best explained by the sequential organisation of its main interactional activity, rather than, e.g. random speaker variability. Quantifying the frequency of creak in this call makes sense only if it is possible to say how often creak was of potential relevance. And it is for this reason that a sound interactional analysis of the data is needed to complement the phonetic one.

In CA, generalisations are made on the basis of an analytically coherent set of cases of some recurrent phenomenon (Couper-Kuhlen & Selting 1996: 37, Hutchby & Woffitt 1998: 115–119). In the phonetic/phonological domain, there is a growing body of work predominantly concentrating on intonation and rhythm, but also for some 'segmental' properties, such as assimilation (Local & Kelly 1986). Analysis starts from individual cases, proceeds to the more general case, and finally provides 'renewal of connection with experience' (Firth 1957: 29): the expectation that the phenomenon is recurrent and will be observable elsewhere under comparable conditions. The extracts in this paper form part of such an analytically coherent set. They are presented to illustrate more general patterns, without losing some of the subtle interplay observable between interactional and syntagmatic phonetic details.

CA uses two notions which are important to the understanding of turn-taking. The first is the Turn Construction Unit (TCU) (Sacks et al. 1974: 702–703, 720–723). A TCU can be lexical, phrasal or sentential (e.g. Schegloff 1996). TCUs are typically delimited pragmatically, syntactically and prosodically (Ford & Thompson 1996): completion on one level is commonly accompanied by completion at other levels. A turn-at-talk consists minimally of one TCU, but may consist of more. A transition relevance place (TRP) is a place near the end of a turn where speaker transition is made relevant but is not necessarily accomplished. 'Coming in early' and 'coming in late' with respect to a TRP can be used by speakers to achieve particular interactional tasks, such as affiliating or disaffiliating.

4 Creak and glottal stop in the data

As I will show, one function of creak in Finnish is turn-yielding; one function of glottal stops is turn-holding. Both kinds of interactional activity can be achieved with other phonetic resources than creak and glottal stop respectively in Finnish. Creak utterance-finally is in system with voicelessness, whispery voice and breathy voice. Glottal stops are in system with a variety of other held articulations which are described in more detail in section 6.
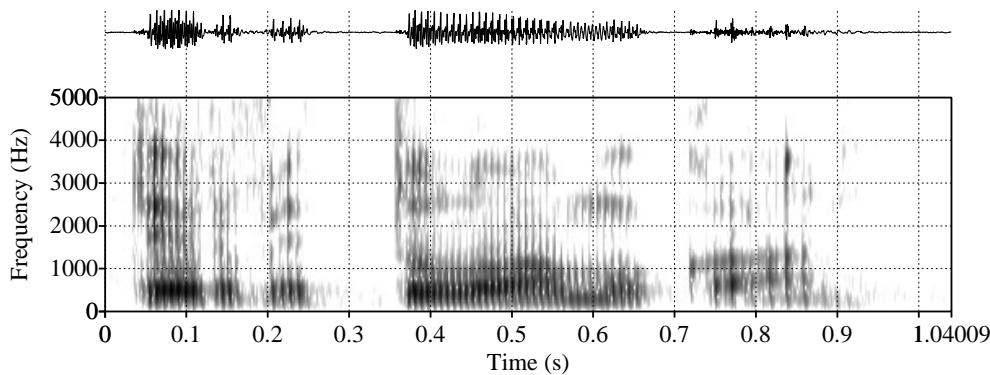
Figure 1 Spectrogram of [tervetuloɑ mukɑːŋ]. Extract 2, lines 4–5. Creak at 0.7–0.9s.

Creak
Creak is frequently used over stretches of talk that occur at the end of a complete TCU. It can also mark out parenthetical utterances; it occurs word-medially and over short stretches of speech perhaps as a deictic marker of speaker attitude; it alternates with glottal stop in V-initial words in accented positions within a turn; and it marks out TRPs. Material is labelled as creaky where the extent of irregular vocal fold vibration is over a syllable or more (figure 1). Creak in Finnish normally has an abrupt onset, and not the relatively slow and irregular build-up that is commonly found e.g. for English laryngealised plosives.

The placement of creak turn-finally
The onset of turn-final creak in spontaneous talk correlates closely with phonological structure (table 1). Its placement is not apparently deterministic, though within the data there are very strong trends which relate to phonological structure. In 68% of all cases, creak begins after a voiceless obstruent; if there is another voiceless obstruent during the creaky stretch, whispery or voiceless phonation may be initiated after it. In 69% of all cases, creak starts in a syllable other than the first one within a word. (Finnish words always bear main stress on the first syllable.) In total, 86% of final creaky stretches start after a voiceless obstruent and/or outside the first syllable of the word.

Glottal stops
Material labelled with glottal stops exhibits irregular glottal vibration ranging from one to several glottal pulses, but over part of a syllable rather than a whole syllable. Glottal stops are common in repair sequences, and at the onset of V-initial words in accented positions within a turn. Figure 2 shows an example of a glottal stop, taken from Extract 4.

5 Creak as turn-yielding

Extract 1
Extract 1 below provides two examples of creaky stretches leading to turn transition. It is taken from the point in the call where C explains what her request is: a piece entitled 'The farm machines' day off'. The turn at l. 21 ends creaky. The creak is initiated

Table 1 Placement of creak turn-finally followed by change of speaker.

Turns marked with final creak. n=82	*Not in first syllable of word*	*In first syllable of word*
After voiceless obstruent	42 (51%)	14 (17%)
Not after voiceless obstruent	15 (18%)	11 (13%)
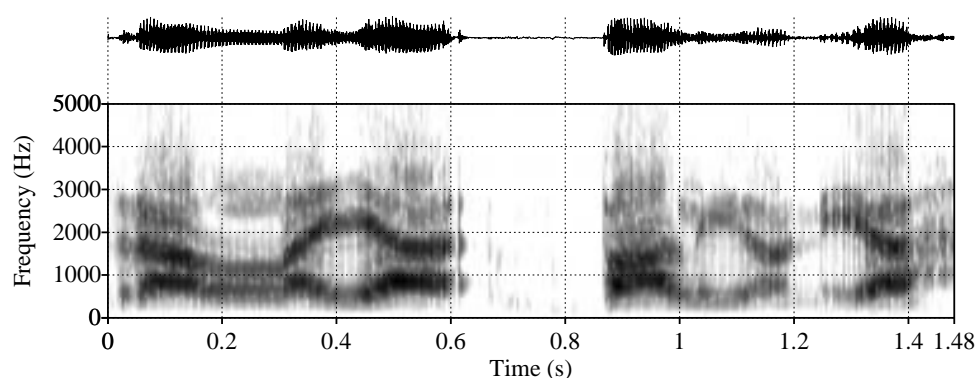
Figure 2 [(Madei)rɑːlɑ jɑʔˋ pɑljon jɑ̪], Extract 4, lines 29–30. Glottal stop at 0.6.

outside the first syllable and after a voiceless obstruent. Note that although the turn ends with 'and' (and thus might naïvely be understood as necessarily projecting more talk to come), it is treated as complete by P, who comes in at l. 22. The turn at l. 23 achieves two things. It moves the conversation to dealing with C's request, and the word *sitte* makes it clear, by connecting to the content of the prior turn at l. 20–21, why that material is relevant to her choice of record. So l. 23 shows orientation to prosodic detail and is pragmatically well placed. The turn at lines 23–24 is syntactically, pragmatically and prosodically complete. In this line, creak is followed by whisper. This turn also leads to turn transition, with C's turn at l. 26.

```
Maajussin tytär 2/20-26
20 C    ʔoonːə ʔoon    kyllä hh 'maajussin   'tytːärenä
         be-1SG be-1SG certainly peasant-GEN daughter-ESS
        I was I was of course

            {C}                    {C-----------------}{f}
21   →  'kirj{a}mmellises(*) 'synt{yny   ja  kasvanu ˆj}{a}=
         literal-ADV             be born-PPC and grow-PPC and
        literally born and brought up as a peasant's daughter and

22 P    =.hhh

23      no 'kerrotko     sitte 'kaikile   'kuulijoille    että
        PRT tell-2SG-QCLI then  all-PL-ALL listener-PL-ALL COMP
        well why don't you tell all the listeners then what

24                          {C}  {C-}{W-}
     →  mikä 'tää   sun     't{o}iv{eː}{on}
        what this 2SG-GEN wish       is
        your request is
```

```
25 ??    .hh
```

```
26 C                                                    {C-}
         nii se on'semmone kun maatalous'koneet 'muist{aa}kseni
         PRT it is such    as  farm-machine-PL  remember-INF1-TRA-
         1SGPOS
         yeah, it's something with farm machines as far as I remember
```

Thus, turn transition is managed at a number of levels, one of these being phonetic and relating to voice quality. Creak is one of the recurrent properties of turn-finality. Participants in interaction can be shown to orient to creak in this way, as this and other examples in this paper show.

Extract 2

Extract 2 is taken from the start of a call. Relevant actions at this stage of the call include (i) checking the caller's name (l. 1), (ii) checking that they are indeed connected (l. 3), (iii) exchanging greetings (l. 4–5).

```
Äijö 1/1–5
1  P                                         {C-}
        onkos       meillä  nyt  Liisa Johanss{on}
        is=QCLI=CLI 1PL-ADE now  name  name
        do we now have Liisa Johansson
```

```
2  C    kyllä     on [h
        certainly is
        you certainly do
```

```
3  P                      {C------}
                          [k{uulolla}
                           hearing-ADE
                           on the line
```

```
4                         {C--}
        'tervet:uloa 'muk{aan}.
        welcome-PART with
        welcome to the programme
```

```
5  C            {H-}
        kiitoks{ia}h.
        thanks-PL-PAR
        thank you
```

In l. 1, P initiates a creaky stretch at a place which completes one of the actions of the opening sequence, checking the caller's name. The creak occurs after a voiceless obstruent, and outside the first syllable. C orients to this creaky stretch, and treats it as marking relevant turn transition. At l. 2, she offers a reply to the question begun but not syntactically completed at l. 1. P comes back at l. 3, with a creaky stretch. Here the creak continues that initiated in l. 1, and completes the sentence started at l. 1. Creak also marks the pragmatic completion of the sentence; this would be a relevant place for C to come in, but she has already done this. P's talk proceeds immediately with a new TCU in l. 4. This TCU initiates the next action in the opening sequence of the call, exchanging greetings and welcoming the caller. The completion of this turn is marked again with creak at a prime site, outside the first syllable, and after a voiceless obstruent. In l. 5, it can be seen that C orients to this completion (which is syntactic, pragmatic and prosodic), and comes in with her response to the greeting. Her turn is

marked with final voicelessness, and the next speaker is P; so the voicelessness and outbreath at l. 5 can be interpreted as turn-yielding.

Turn-final creak without a change of speaker

Creak does not always lead to a change of speaker. In all such cases, there are other properties of the talk after the creaky stretch which demonstrate orientation to a TRP which has been 'retracted'. For example, the voice quality may change to modal, accompanied by a rising pitch; or there may be an abrupt change in tempo, as in Extract 3.

Extract 3

```
Pelimanni poika 1/14–16.
14 P                      {C-}
       mikäs  siihen  liitt{yy}.
       what   it-ILL  connect-3SG
       what is connected to that ((choice))

15    →  {all-----       ------{C,p-----------}
         {mitä:[pˀ]  (.)  mitä t{u[lee  mieleen]}].
         what            what come-3SG mind-ILL
         what            what comes to mind

16 C                          [no        sii]hen- siihen liittyy
                               PRT        it-ILL it-ILL connect-3SG
                               well       it's- it's connected with . . .
```

This extract comes from the point where C is invited to explain her request. In l. 14, there is creak placed outside the first syllable and after a voiceless obstruent, the prime site for turn-final creak to be initiated. The turn is syntactically, pragmatically and prosodically complete, and turn transition could be expected to occur. However, this turn is immediately followed by another turn in l. 15 in which the talk is faster. (3.94 feet/second as compared to 3.58 feet/second in the previous turn; Finnish is said to be stress-timed, Iivonen 1998; cf. Wiik 1991.) This is an example of 'rush-through' (Schegloff 1982, 1998: 241). Line 15 therefore shows P orienting to the possible turn transition in his own talk, and back-tracking on it. P does a self-repair in the middle of this continuation, which is not a relevant place for turn transition, despite the micropause. The speed of this material is consistent with P attempting to retain his turn having reached a possible TRP marked by creak. The reformulation is itself performed with creak, which prosodically marks l. 15 as being a TRP. C responds in overlap with the creaky stretch of P's talk. It is at this point, where creak has started, that turn transition becomes relevant. Schegloff (1996: 85) and Wells & MacFarlane (1998) show that incoming talk in overlap in English is treated as non-competitive when placed after the phonetic markers of the ending of the turn have begun.

6 Glottal stop as turn-holding

Glottal stop is used in Finnish, in system with a variety of other phonetic resources, to do turn-holding activities. These include word-search, self-repair and syntactically complete utterances which are not designed as completed TCUs. Glottal stops are used in such places as one of a set of paradigmatic choices. Places where there is some interruption to the talk, but where the current talker retains the turn, are typically accompanied by one of the following:

1. A stop that is not audibly released. This may be voiced or voiceless; glottal or labial; it can project to the place of articulation for the consonant on the other side of the pause.
2. A lengthened articulation where the articulation can be held (e.g. vowels, laterals, nasals and fricatives).

Both types of gesture could be classed as 'held' articulations. These are not easily united in most traditional phonetic frameworks, which leave out more dynamic, time-bound features. What looks like it should form a united phonetic class on functional grounds turns out to be rather problematic.

In none of the cases in the data where there is a held articulation does the other speaker come in, or try to come in. This absence of turn transition in such locations shows speakers' orientation to held articulations as functioning to hold a turn.

Extract 4
Extract 4 contains an inaudibly released glottal stop in the course of repair. In l. 29, the unreleased glottal stop is followed in l. 30 by 'a lot and'; the repaired sentence could be read as 'we have been to Madeira a lot and'. In other words, the glottal stop in l. 29 signals trouble ahead and the holding of the glottal stop arguably holds C's turn at least until the talk is repaired.

```
Fado 2/26–31
29 C    {C--} {f--}                                  jɑʔ˺
     → {ööö} {tai} m:e on oltu    M:adeiralla ja(0.25)
                  or   we  is be-PPPC Madeira-ADE  and
                  or we've been to Madeira and

30              {C}
        paljon {j}ah
        a lot     and
        a lot and
```

Extract 5
This extract comes after a part of the conversation where P has been revealing quite a lot of insider knowledge into the track that C has requested.

```
Maajussin tytär 3/62–67
62 P2                    {all-------------------------------}
        mitenkäs     Pia {sinä tiedät   noin hyvin ja  paljon}
        how-CLI-CLI name 2SG   know-2SG so   well  and so much
        Pia how come you know so well and so much

63          {C------}
        Tal{larista}
        name-ELA
        about Tallari ((a folk group))

64 P    .hh [   noʔ      ]
                well
                well

65 P2       [{C, p----------------- }
            [{(ja) Valon]    Timosta}
                and  name-GEN  name-ELA
                and about Timo Valo
```

```
66 P                             {all---------------------------}
        no   Valon    Timosta {sen    takia   et  Timo oli mun}
        well name-GEN name-ELA 3SG-GEN sake-of COMP name was 1SG-GEN
        well about Timo Valo because Timo was my

67      kollega   kaks vuottapꜝ(.)
        colleague two  year-PAR
        colleague for two years
```

Lines 62–63 are an interrogative and potentially constitute a syntactically, pragmatically and prosodically complete turn. Creak is initiated outside the first syllable of the item *Tallari*, which has the main accent in the utterance. P can be seen to orient to this completeness in l. 64, with her incoming *no*. However, it is produced in overlap with P2, who continues his turn in l. 65 with an elaboration of the prior question. The whole of this elaboration is done quietly and with creak.

The turn at l. 64 is closed with a glottal stop. In l. 66, P takes up her turn again. This can be analysed as a re-try of the turn at l. 64, because it recycles (Schegloff 1987) the *no* from l. 64, thus providing an explicit link between her talk in lines 64 and 66. Notice however that the turn at l. 66 picks up the content as well as the form of the elaboration at l. 65. Thus it can be seen that here glottal stop is used to retain speakership, i.e. to do a turn-holding activity; and creak is used (l. 63, 65) and oriented to by the participants as a turn-yielding device.

Extract 6

Extract 6 contains a labial articulation held across a pause in l. 51. At this point the sentence is syntactically incomplete. In l. 53 there is an unreleased glottal stop. Here, the sentence is syntactically complete, but it is not prosodically complete, since it has neither the voice quality nor the intonation which would mark it as such. It is followed by a pause and then released into a continuer, followed by a phrase which is syntactically dependent on the prior talk. This syntactic structure (adjectival infinitive in the essive case) is 'literary' in style, and highly marked in speech. This, along with the continuer [ʔəɦə], suggests that the glottal stop signals trouble ahead.

```
Fado 4/51–53
50 P    ja  mä  ꞌsain        sillo ꞌl:ahjaks semmosen    ꞌlevyn
        and  1SG get-PST-1SG then  gift-TRA kind-of-GEN record-GEN
        and then as a gift they gave me a record

51   → {C----------}                      {l----{C----}
        {joss    oli}pꜝ (0.4) ꞌportugalilaisen {runoi{lijan}.
        REL-INE be-PST          portuguese-GEN   poet-GEN
        with poems by a Portuguese poet

52      (..).hhh

53                                          {C----}
     → runojaʔꜝ; (..) ʔəɦə ꞌʔAmalian    ꞌyhtyeen (.) ꞌsävelt{äminä}.
       poem-PL-PAR         Amalia-GEN group-GEN    play-INF3--PL-ESS
       poet on            played by Amalia's group
```

Other held articulations

Other articulations than glottal stops can be used to hold a turn. It is also possible for there to be a closure which projects across a pause, so that the place of articulation on both sides of the pause is the same, as in extracts 7–11 below. As Local & Kelly (1986) argue for English, assimilation projects more talk to come; so one interactional function of assimilation is to hold a turn at talk. The same observation seems to hold

for this Finnish data too. These data show that this holding function can work across quite long pauses, and suggests that the material beyond the pause has already been planned before the pause was produced.

Extract 7
```
Leikkarit 3/60
60 C    {p---    ----{C}{H---}
   →  nokˀ
        {no (.) ˋkiit{o}{ksia}
         PRT      thank-PL-PAR
        oh (.) thank you.
```

Extract 8
```
Voix bulgares 3/45
45 P  →            ŋ              {C-}ksʲ    {C------}
        ˋhämmäs ˋtyttävän (0.3) ˋvoimakk{aa}ksi ˋmus{iikiksi};
         astonish-PC-GEN         powerful-TRA    music-TRA
        (turned out to be) astonishingly powerful music
```

Labials as a turn-holding device
Labials can also be used to project more talk to come. There are two ways in which labial articulations arise in the data. One is that an oral labial stop is used at the end of a vocalic portion, as in Extract 9. In this case, the labial can be voiced or voiceless. Note that this is not creaky, and C does not come in at line 12, despite the long pause.

Extract 9
```
Äijö 1/11–13
11 P  →  joo. sehän    sattuu[bˀ] (.) mukavasti[pˀ];
         PRT  that-CLI happen-3SG      nice-ADV
         right. that does fit in nicely

12       (0.9)

13       tänään oli tosiaan iso juttu Värttinästä ja;
         today  was really  big story Värttinä-ELA and
         there was a really big story about Värttinä today and
```

The second way in which labials arise involves nasals. In some instances, V-final words are produced with non-lexical labial nasals (Extract 10); or an apical nasal is replaced with a labial one (Extract 11). This seems less common, though it is important to remember the caveats set out in section 3 about the problems of quantification.

Extract 10
```
Broca 4 (data from Marja-Liisa Helasvuo)
11 t   joo niin [mä tiedän   mäkin luulen    että]
       PRT PRT   I   know-1SG I-CLI think-1SG COMP
       yeah I know I also think that

12 P  →                    totam
               [se on mut tota,            ]
                it is but  PRT
                it is but erm

13 t   =se on saksalainen mä mietin   et   voisko        [se]
        it is German      I  think-1SG COMP can-COND-QCLI it
        it is German I think it could be
```

Extract 11
```
Kaksi kitaraa 1/21–22
21 P                {all------------------}
    →                              m
       ˆv:oitteko  {kertoa   mikä teidän:} (0.5)
        can-2PL-CLI tell-INF what 2PL-GEN
       can you tell us what your
22                 {C,p-------}
        toivek:app{aleenne on}=
        wish-piece-2PLPOS  is
        request is
```

7 Conclusion

Creak in Finnish is long-domain and has turn-yielding as one of its functions in spoken Finnish interaction. Glottal stop is a short-domain phenomenon associated with turn-holding as one of its functions. Creak is associated with syntactic, pragmatic and prosodic completion; glottal stop with incomplete syntax and prosody. Creak is in system with other non-modal voice qualities, while glottal stop is in system with a variety of held articulations.

Shriberg (1999) and Jasperson (to appear) observe that in English very similar phonetic resources are used in certain kinds of disfluent stretches of talk and repair sequences to those observed here for glottal stop in Finnish. Local & Kelly (1986) suggest that one of the functions of assimilation in English is to project more talk to come. The similarity between the findings for English and for Finnish is striking, and strongly suggests that some phonetic properties of talk-in-interaction are cross-linguistic.

I have also argued that some phonetic resources, while not LEXICALLY contrastive, do have an interactional function. Their appropriate placement in talk forms an important part of a speaker's competence. While creak and glottal stop may alternate in some languages, this Finnish data provides evidence that they may be functionally different. Importantly, it has been possible to show that these different functions are oriented to by the interactants in the conversation. This demonstrates that it is possible to provide phonology with an empirical methodology for uncovering the orderliness in natural talk without resorting to the practitioner's intuitions. Phonetic details at the local level – which are easily lost or discounted as 'random' in large-scale studies – can be made accountable to linguistic theory, and situated within a broader linguistic context.

Transcription conventions

Transcriptions are given on several lines. The basic transcription is a modified orthography, with occasional phonetic details included. More detailed phonetic information is provided above the line. A gloss is provided below the line in `courier italics` (derivational morphemes not included), and a free translation in Times font below that. Underlining is used on the orthographic line to mark accented syllables.

ˆ	unexpectedly high pitch	]	end of talk in overlap
`	stressed syllable	=	immediate start/end of turn
.	low final pitch	→	relevant line in the extract
?	high final pitch	{	start of extent
;	non-low final pitch	}	end of extent
-	word cut off abruptly	C	creak
:	lengthening	W	whispery

(.)	pause (<.> c. 0.2s)	H	voiceless
(0.5)	measured pause of 0.5s	all	faster than surrounding talk
h	exhalation	l	slower than surrounding talk
.h	inhalation	f	louder than surrounding talk
( )	transcriber uncertainty	p	quieter than surrounding talk
(( ))	transcriber's comment		
[	start of talk in overlap		

Principles of glossing

(Conventions adapted from Marja-Leena Sorjonen's work, e.g. Sorjonen 1996.) The following forms are treated as unmarked and not indicated in the glossing: (i) nominative, (ii) singular, (iii) active voice, (iv) present tense, and (v) 2SG imperative.

CASE	ABBREVIATION	APPROXIMATE MEANING
Ablative	ABL	off, from
Accusative	ACC	object
Adessive	ADE	at, on
Allative	ALL	on to, to, for
Essive	ESS	as
Genitive	GEN	possession, object, subject
Elative	ELA	out of, about
Illative	ILL	into, for
Inessive	INE	in
Instructive	INS	with, by
Nominative	NOM	subject, object
Partitive	PAR	'some', subject, object
Translative	TRA	new state

1	first person		NEG	negation (= auxiliary verb)
2	second person		PAS	passive
3	third person		PC	participle
4	impersonal		PL	plural
			POS	possessive suffix
ADJ	adjective		PPC	past participle
ADV	adverb		PPPC	passive past participle
CLI	clitic		PRT	particle
COM	comparative		PST	past tense
CON	conditional		Q	interrogative
IMP	imperative		SG	singular
INF(1–4)	infinitive (one of four forms)		SUP	superlative

Acknowledgements

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