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Coordination and interpretation of vocal and visible resources: 'Trail-off' conjunctions

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'Trail-off' conjunctions

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Abstract

The empirical focus of this paper is a conversational turn-taking phenomenon in which conjunctions produced immediately after a point of possible syntactic and pragmatic completion are treated by co-participants as points of possible completion and transition relevance. The data for this study are audio-video recordings of 5 unscripted face-to-face interactions involving native speakers of US English, yielding 28 'trail-off' conjunctions. Detailed sequential analysis of talk is combined with analysis of visible features (including gaze, posture, gesture and involvement with material objects) and technical phonetic analysis. A range of phonetic and visible features are shown to regularly co-occur in the production of 'trail-off' conjunctions. These features distinguish them from other conjunctions followed by the cessation of talk.

Keywords

Phonetics, gaze, gesture, conversation, turn-taking

INTRODUCTION

A substantial body of work demonstrates how visible aspects of communication including gaze, posture and gesture, figure in participants' construction and interpretation of utterances. It has been shown that visible features provide semiotic fields for the co-construction of meaning in interaction (e.g., Goodwin, 1981, 2000; Hayashi, 2005). This paper combines detailed sequential analysis of talk with analysis of visible elements (including participants' gaze, posture, gesture and involvement with material objects in the environment) and technical phonetic analysis. The empirical focus of this paper is a conversational turn-taking phenomenon.

It is well documented that in everyday conversation transition relevance – the interactional relevance of a change in speakership from one participant to another – is associated with points of possible syntactic and pragmatic (action) completion (e.g., Sacks, Schegloff, & Jefferson, 1974) and certain features of phonetic design (e.g., Ford & Thompson, 1996; Local, Kelly, & Wells, 1986). It has also been shown that a range of visible features accompany transition relevance places (TRPs; e.g., Duncan, 1972; Kendon, 1967; Stivers & Rossano, 2010).

There are certain kinds of syntactically incomplete utterances which interactants can treat as transition relevant. One kind is where a syntactically possibly complete utterance is produced and then a conjunction appended to it, for example ''On Her Majesty's Service *or*'' (Jefferson, 1983, p. 4), ''so I guess he can play with him *so*'' (Local & Kelly, 1986, p. 194) and ''my name is Norwegian *but*'' (Mulder & Thompson, 2008, p. 186). This is remarkable given the more familiar continuation-projecting character of conjunctions in English. The main question asked here is: what is it about the design of certain conjunctions, produced immediately after a point of possible syntactic and pragmatic completion (= a SYNCOMP), that provides for treatment by co-participants as points of possible completion and transition relevance? Answering this question involves an examination of sequential organisation, phonetic design and visible performance. The data and methods for the study are presented, phonetic details are described, evidence that participants treat 'trail-off' conjunctions as transition relevant is summarised, and an account of visible features presented. Some comparisons are made with the phonetic design and visible performance of other conjunctions after which talk by the current speaker ceases. Some concluding remarks are given. It should be noted that the focus in this paper is on the vocal and visible design of 'trail-off' conjunctions. This requires attention to aspects of sequential (turn-taking) organisation; in a number of places the pragmatic, instance-specific intricacies of individual cases is set to one side.

DATA AND METHODS

The data for this study are audio-video recordings of 5 unscripted face-to-face interactions involving 2-4 native speakers of US English, lasting a total of just over 2 h. In each case participants (housemates, friends, student peers or family members) are sitting around a table. No particular task was set for the participants. The transcriptions reflect aspects of the sequential organization of the talk and balance

readability and detail (see Local & Walker, 2005, p. 123 for conventions).[1] Simple line tracings of video frames are given; some tracings include letter-labels to identify participants and arrows to draw attention to identify features discussed in the text.

A data-set of candidate 'trail-off' conjunctions immediately following a SYNCOMP was assembled during repeated viewings of the video recordings; 28 such conjunctions were identified. This data-set is small in comparison with some other studies of conversation, and its contents are not subjected to statistical analysis. A number of points can be made in support of the robustness of the claims made here. First, regularities in the phonetic design and visible performance of 'trail-off' conjunctions are evident across participants, and interactions. Second, the inductive analytic approach requires the examination of participants' own conduct to provide evidence of their (and not the analyst's) orientation to the features described. Third, the findings reported here are compatible with findings arising from larger-scale studies of phonetic design (of both 'trail-off' conjunctions, and other turn endings) and visible performance (in particular the role of visible features in signalling that an utterance is transition relevant, or not). Setting the basis for statistical analysis of interactional phenomena (including 'trail-off' conjunctions) in a way which is informed and informative is highly problematic: see Schegloff (1993) for an account of some of the problems facing those attempting such analysis. Nothing, including quantitative measures of frequency, alters the fact that an episode of conversation ran off in that way on that occasion for those speakers (Schegloff 1987, 1993; Wootton 1989). Furthermore, that singular occurrence is the result of a set of resources and practices available to those participants for so conducting interaction, and these resources and practices therefore require an analytic account (Wootton 1989).

Candidate instances were first identified on the basis of their auditory resemblance to other 'trail-offs' described in the literature (e.g., Local & Kelly, 1986; Local & Walker, 2005). To be considered a transition relevant, 'trail-off' conjunction in this study, the conjunction had to be produced (a) of a piece with the immediately preceding talk (with the additional specification that the prior talk was possibly complete) and (b) without any phonetic or visible features which project talk from the current speaker beyond the conjunction. As well as specifying in more detail what fulfilling these criteria involves, later sections will show that not all conjunctions followed by a cessation of talk from that speaker exhibit these phonetic or visible characteristics. The subsequent analysis of the initial collection was agnostic with regard to the potential interactional relevance of sequential, audible and visible features noted (Heritage, 1989). Sequential analysis followed the principles of conversation analysis (Drew, 2004); phonetic analysis was detailed and parametric with auditory analysis supplemented by inspection of acoustic records (Local & Walker, 2005; Walker, to appear); analysis of visible features was qualitative and attentive to as wide a range of visible features as possible (Goodwin, 2000). In what follows the discussion of phonetic design features before visible features is a stylistic choice rather than a reflection of how the analysis was conducted. Furthermore, this order of presentation should not be taken as a claim concerning the relative

[1] Fragments have been re-transcribed where necessary. I am extremely grateful to the originators of these recordings and transcriptions.

importance of the two types of detail (vocal and visible) in the organisation of the phenomenon, or interaction more generally (for a review and discussion of relevant issues see Jones & LeBaron, 2002).

PHONETIC DESIGN

This section presents relevant phonetic characteristics of a selection of 'trail-off' conjunctions following SYNCOMPs in various sequential contexts; an overview of the set and some quantified measures are given.

SYNCOMP + Conjunction + Smooth Speaker Transition

The cases which provide the most compelling evidence that a conjunction following a SYNCOMP is transition relevant is where the conjunction is followed by a change in speakership with minimal gap (silence) or overlap (simultaneous talk). This organisation is evident in 7/28 cases. (1) provides an example; 'trail-off' conjunctions are shown in bold throughout.

(1) A.8, Farmhouse, 3:17

```
1 Donna: that's what my [   husband  will  do    ]
2 Laura:                [well you can help make l]unches
3        [  'n : :  ]
4 Donna: [you c'd go] and buy one cheaper but
5 Mom:   right
6 Laura: [you can help]
7 Mom:   [ but  I  pro]bably will do it now
```

In the talk preceding (1) the participants (principally Mom and Donna) have been talking about participating in a race. Mom has reported that previously she had begun training for the race, but changed her plans on finding out the cost of entering. As a sort of riposte, Donna has responded that fee-paying entrants receive a race tee shirt (data not shown). Donna's next turn (l. 1) is overlapped by talk from Laura (ll. 2-3) in which she makes an attempt to explain that volunteer helpers at the race gain free entry and a tee shirt (see also Laura's successive and aborted attempt at this turn in l. 6). In overlap with Laura's turn Donna produces more talk directed to Mom (l. 4). As Donna begins her turn, she looks up from her plate to Mom. Immediately on completion of her ''but'' (l. 4) there is a transfer of speakership and Mom responds to Donna's talk with ''right'' (l. 5). The smooth transfer of speakership just after the conjunction provides strong evidence that participants are treating Donna's talk as transition relevant. This transfer of speakership can legitimately occur following Donna's ''but'' because, it is argued, it is a 'trail-off' conjunction. Its phonetic design and its visible performance are both compatible with its treatment as transition relevant.

Fig.1 shows acoustic records for part of (1). Time runs from left to right in the figure and is indicated on the *x*-axis. Simplified orthographic transcriptions are given along the top of the figure; the labels are centred above the relevant portions of the figure with marks to indicate boundaries between portions. F0 ('pitch') traces (dotted line,

upper part) are presented on a logarithmic scale to take into account the non-linear perception of pitch whereby changes at lower frequencies are perceived as greater than the same change in frequency higher up the spectrum (Nolan, 2003); they are presented so that the bottom of the *y*-axis for the F0 trace indicates the bottom of the speaker's normal speaking range (= *baseline* pitch) and the top of the *y*-axis the speaker's *topline*.[2] The F0 traces convey information about the intensity of the speech signal at that point: the darker the dot, the higher the overall intensity of that part of the signal.[3] This is intended to give a visual indication of the perceptual salience of parts of the F0 trace. Dots are presented on a continuous greyscale; an F0 estimation taken where the signal measures 90 dB = black, 50 dB = white.

[Figure 1 about here.]

Donna's turn in l. 3 has a major prominence on ''buy'' with a 6.3 semitone (ST) rise in pitch and a peak intensity of 81.1 dB. To put these measures in context, an increase of 12 ST (1 octave) represents a doubling in frequency. The notes produced by adjacent keys on a piano differ by 1 ST, so by extension it will be possible to readily perceive such a difference (and less) in normal communicative contexts. A drop in sound-level of 10 dB would be roughly equivalent to a halving of loudness (Laver, 1994, p. 502). This is the sort of prominence (variously referred to as a nuclear tone/accent, pitch peak or transition relevance place [TRP]-projecting accent) which it has been argued is required for subsequent points of possible syntactic completion in the utterance to be treated as a point of legitimate turn transfer (Wells & Corrin, 2004; Wells & Macfarlane, 1998). Since it adumbrates the interactive function of the prominence, the term TRP-projecting accent will be used here. Donna reaches a SYNCOMP after ''cheaper'' and produces a 'trail-off' conjunction without a break (l. 3). As is the case for all 'trail-off' conjunctions, Donna's conjunction is a good deal less prominent than the TRP-projecting accent preceding it: ''but'' has a peak intensity of 70.3 dB and has low, falling pitch (a fall measurable at 2.5 ST), ending 1 ST from the bottom of the pitch span for the utterance and within the first quartile of her normal speaking pitch range. The pitch characteristics of Donna's conjunction are those of a turn-final fall-to-low in pitch (see e.g., Ford & Thompson, 1996; Szczepek Reed, 2004; Walker, 2004). There are no disjunctive changes in pitch or loudness on the conjunction; in terms of duration it is neither unduly stretched (prolonged) or curtailed ('cut-off').

Other Sequential Formats

Other conjunctions can be identified which bear a strong phonetic 'family resemblance' to the conjunctions in (1) (cf., Lindau, 1985 on family resemblances

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[2] Baseline and topline were established by inspecting corrected F0 traces of 1 min of representative speech by that speaker.

[3] Intensity across the spectrum is represented, rather than the intensity of the signal at the estimated F0.

among the class of rhotics). Some of these are not followed by smooth transfer of speakership. One sequential possibility following a 'trail-off' conjunction is that the transfer of speakership may be delayed (8/28 cases), occurring after a silence. In the talk preceding (2) all three participants (Betty, Teresa and Jennifer) have been involved in a discussion begun by Jennifer's complaint that Teresa and Betty do not give sufficient attention to her contributions to the conversation. This discussion has gone on for some time (approximately 3 min) by the beginning of (2). At this point the conversation might be glossed as 'awkward'. Shortly before (2), Teresa has defended herself (''Well I was: (.) completely listening to you'') to which Jennifer has responded ''I guess sometimes like (0.6) .hhhhhh (0.4) .hh our actions: (.) say: (0.2) otherwise''. Jennifer is pursuing this line from the start of (2).

(2) A.31, Housemates, 45:41

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1 Jennifer: or like (0.4) eye contact and stuff like that
2                (1.6)
3 Jennifer: I know part of it is me being sensitive but
4                (2.8)
5 Betty:    I mean that's why I asked you about it (.) cos I was
6           totally interested
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The 'trail-off' conjunction at the end of Jennifer's turn in l. 3 is in the high, rising pitch trajectory of the previous word (''sensitive''). The first syllable of ''sensitive'' carries a TRP-projecting accent. The conjunction is of lesser prominence, with a narrower pitch range than the TRP-projecting accent (1.1 ST vs 2.1 ST) and with a lower peak intensity (71.6 dB vs 72.9 dB): see Fig.2.

[Figure 2 about here.]

The conjunction is produced at the top of the pitch span for the turn (cf., Ford & Thompson, 1996; Szczepek Reed, 2004, on high final pitch and transition relevance). Following a 2.8 s silence (l. 4), a change in speakership occurs and Betty begins to talk.

A further sequential possibility is where the speaker who produced the conjunction continues after the silence and no change in speakership occurs (10/28 cases). (3) occurs shortly after (1); talk is still about entry to the race.

(3) B.3, Farmhouse, 3:29

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1  Donna:    the kids helped
2                 (1.5)
3  Donna:    for um (.) to go to that (.) young life camp
4                 (0.5)
5  Donna:    they helped and got twenty bucks each but they also
6            got a shirt
7                 (0.2)
8  Mom:      mm hm
9                 (0.2)
10 Donna:    they picked up garbage and
11                (2.0)
12 Donna:    so
13                (2.8)
14 (?)       (°not a lot°)
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15                (2.0)
16 Michelle: it's so nice and peaceful now
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Although Donna speaks next after the silence in l. 11 (but note its sequence-terminal character), her conjunction at the end of l. 10 is delivered in just the same way as other 'trail-off' conjunctions. Her conjunction is produced with low, level pitch in the pitch trajectory of the preceding talk. It is produced at the bottom of the pitch span for the utterance and within 6 ST of the speaker's baseline pitch. The conjunction is produced within the overall pattern of loudness declination for the turn, and is quieter than the TRP-projecting accent on the first syllable of ''garbage'' (peak intensity of 72.2 dB vs. 82.4 dB). The conjunction is relatively long (255 ms), with no evidence of premature curtailment (e.g., oral or glottal cut-off).

The conjunctions in (2) and (3) are phonetically similar to 'trail-off' conjunctions followed by smooth speaker transition. The cause of the delay in or absence of speaker transition therefore cannot be explained by the phonetic design of the conjunctions. Conjunctions bearing the phonetic characteristics exemplified by (1) will therefore be considered 'trail-off' conjunctions irrespective of whether speaker transition occurs immediately on their production. Relevant phonetic characteristics of the data-set are summarised in the next section.

Summary of Phonetic Design

The following phonetic characteristics hold across the set of 'trail-off' conjunctions (n = 28) and are compatible with observations about other 'trail-offs' stated in the literature (Local & Kelly, 1986; Local & Walker, 2005):[4]

1. they have variable duration but don't come off as especially long or short/curtailed (mean for 27 measurable cases = 232 ms, σ = 81 ms; mean for 246 measurable turn-final monosyllables followed by a change in speakership without overlap in the same data = 344 ms, σ = 129 ms)[5]

2. absence of audible or acoustico-graphically visible final glottal closure

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[4] There is some variability in the phonetic design of 'trail-off' conjunctions. For instance, while the pitch span of the 'trail-off' conjunctions is typically narrow (mean = 2.44 ST, σ = 1.81 ST), they are variable in terms of the their pitch contour (fall = 18, fall-rise = 6, level = 4); Local and Kelly (1986) and Mulder and Thompson (2008) also report variability of pitch contour in their data, though without quantification.

[5] While these measures allow for some comparison of 'trail-off' conjunctions and other turn-final monosyllables, there are several confounding factors which hamper direct comparison. These factors include likely effects of differences in accentual patterning (some of the turn final monosyllables carry a TRP-projecting accent, for instance) and syllable make-up.

3. absence of audible or acoustico-graphically visible final assimilation

4. their pitch features are consistent with those found at the end of other designed-to-be and treated-as complete utterances (e.g., Ford & Thompson, 1996; Szczepek Reed, 2004; Wennerstrom & Siegel, 2003).

5. they always follow a TRP-projecting accent in the same utterance

6. the conjunction is always less prominent than the most recent TRP-projecting accent

7. there are no disjunctive changes in pitch or loudness between the talk leading up to the conjunction and the conjunction itself

Intensity, frequency and duration are measured to give a quantified sense of the prominence of the conjunction relative to the TRP-projecting accent. Measures were taken for the syllable bearing the final TRP-projecting accent before the 'trail-off' conjunction and the conjunction itself. The measures taken were peak intensity (as an indicator of loudness; PI), F0 at the peak intensity (an indicator of pitch; F0PI)[6] and raw duration. Results are presented in Table 1, expressed as a change from the TRP-projecting accent to the 'trail-off' conjunction: a negative number represents a decrease from the TRP-projecting accent to the conjunction.

[Table 1 about here.]

In 25/27 measurable cases the 'trail-off' conjunction has a lower PI than the TRP-projecting accent which preceded it; the mean difference in PI from the TRP-projecting accent to the conjunction is -4.9 dB. This supports the auditory percept of the 'trail-off' conjunction being less loud than the TRP-projecting accent. In 21/26 measurable cases the F0PI is lower for 'trail-off' conjunction than the TRP-projecting accent, with a mean difference of -2.5 ST. This supports the auditory percept of lesser pitch prominence for the 'trail-off' conjunction than for the TRP-projecting accent. There is a decrease in both PI and F0PI in 19/26 measurable cases; of those cases where there is an increase in one parameter there is *always* a decrease in the other. 'Trail-off' conjunctions are usually shorter in duration than the TRP-projecting accent: they are shorter in 17/27 measurable cases, with a mean change of -10%. However, the pattern for duration is less straightforward than for PI and F0PI, most likely due to other factors affecting the duration of the syllables such as syllable make-up, accentual patterning and turn-final lengthening (Crystal & House, 1988; Turk & Shattuck-Hufnagel, 2007).

Measures of frequency and intensity also provide quantifiable acoustic evidence of an absence of disjunctive changes in pitch and loudness between the talk leading up to the SYNCOMP preceding the 'trail-off' conjunction and the conjunction. Comparing the 'trail-off' conjunction with the last accented syllable in the preceding talk (which

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[6] F0 is measured at the peak intensity to ensure that the F0 measures recorded are perceptually salient and not where talk is very quiet, for example.

in 21/28 cases is also the TRP-projecting accent) shows that the mean PI difference is -3 dB (σ = 3.3 dB) and the mean F0PI difference is -2.4 ST (σ = 3.2 dB). These are the sorts of decreases which can be anticipated given that the conjunctions are unaccented, and are produced at the end of utterances and therefore where pitch and loudness declination is likely (Laver, 1994).

Discussion

'Trail-off' conjunctions are produced of a piece with the ongoing turn (cf., the phonetically marked same-turn departures described by Local & Walker, 2004). They have just those phonetic characteristics of other designed-to-be- and treated-as-complete utterances: they follow TRP-projecting accents which mark the start of the transition space (Wells & Corrin, 2004; Wells & Local, 2009; Wells & Macfarlane, 1998); they are less prominent than those accented syllables which marks them out as fitted to the preceding talk rather than a start on a next unit (Local & Walker, 2005); they have pitch characteristics which are comparable to those which signal transition relevance in American English (Ford & Thompson, 1996; Szczepek Reed, 2004; Wennerstrom & Siegel, 2003); there is nothing about the phonetic design of the conjunction which projects the imminent production of more talk by that speaker , for example final assimilation or glottal stop (Local & Kelly, 1986; Local & Walker, 2005); there is no sign of premature curtailment in terms of duration or articulation (they are not 'cut off', cf., Jasperson, 2002). The phonetic design of the conjunction and its syntagmatic relationship with the preceding talk indicates nothing other than that the speaker's current turn has run its course and that a co-participant may legitimately begin to speak at that point.

'TRAIL-OFFS' AND TURN COMPLETION

'Trail-off' conjunctions end with the same sort of phonetic characteristics of other turn endings. One important source of evidence that participants (both speakers and hearers) orient to 'trail-off' conjunctions as representing points of possible turn completion was presented above: smooth turn transition occurs after some (but not all) 'trail-off' conjunctions. Some further sources of sequential evidence that participants orient to 'trail-off' conjunctions as possibly complete are set out briefly here:

1. in all cases (n = 28) talk by current speaker ceases after the 'trail-off' conjunction; there are 2 cases where a 'trail-off' conjunction is followed by an inbreath: in all other cases, vocal behaviour ceases entirely

2. co-participant vocal responses often come after the 'trail-off' conjunction (n = 14)

3. where speaker transition occurs the incoming talk is not hostile: it does not exhibit the high pitch and increased loudness typical of turn-competitive incursions (French & Local, 1983; Schegloff, 2000); this includes cases where the producer of the 'trail-off' conjunction produces talk in overlap with a co-participant following the 'trail-off' conjunction

4. participants do not systematically attempt to produce the talk which might otherwise be projected by the conjunction (cf., anticipatory completions, Lerner, 1996): rather, the talk ending with the 'trail-off' conjunction is treated by participants as informationally complete

There is considerable evidence from the talk that talk preceding SYNCOMP+'trail-off' conjunction is designed-to-be and treated-as possibly complete and transition relevant. These findings are comparable with those reported by Lindström (1997) on a study of Swedish 'yes'/'no' interrogatives ending with *eller* (= English ''or''). In those cases, *eller* is produced as part of its host TCU, and is shown to be treated as complete by speakers and recipients. Up to this point, evidence has only been presented from two domains: the sequential organisation of the talk, and its phonetic design. Given that these data are taken from audio-video recordings of face-to-face interactions, the possible role of visible information in the construction and interpretation of talk must also be considered.

VISIBLE FEATURES

There is a large body of work showing how visible features of interaction – gaze, posture, gesture and facial expression – are implicated in the organisation of interaction. Visible features have been shown to play an important role in such basic operations as the management of turn-taking in interaction (see e.g., Bavelas, Coates, & Johnson, 2002; Guaïtella, Santi, Lagrue, & Cavé, 2009; Kendon, 1967; Lerner, 2003; Mondada, 2006, 2007). It is perhaps not surprising, then, that visible features are relevant to the practice under examination here. It seems unlikely that there would be some single visible feature which would routinely accompany a 'trail-off' conjunction (e.g., a gaze direction, a particular head or body position or a certain gesture). However, given that their phonetic design and subsequent treatment by co-participants is consistent with other complete utterances, certain visible features might be anticipated. It is shown that there are visible signs from the speaker and/or co-participants that talk is transition relevant around the end of the 'trail-off' conjunction; it is also shown that there is an absence of any visible features which project the imminent production of more talk from the participant who produced the 'trail-off' conjunction (cf., other conjunctions discussed later). The visible behaviour of the 'trail-off' conjunction producer and of co-participants will be discussed.

Speaker Visible Behaviour

This section describes some features of the speaker's visible behaviour around and during the production of a 'trail-off' conjunction. The main concern is with the describing those visible features which have particular relevance to the status of the talk as possibly complete after the 'trail-off' conjunction.

In 9/28 cases speakers visibly search among the co-participants for a next speaker during or soon after the 'trail-off' conjunction. Such a search is evident in (2): see Fig.3. Beginning at the end of ''me'' (l. 3) Jennifer is looking to her left at Teresa, which is how things are after Jennifer's 'trail-off' conjunction (Fig.3a).

[Figure 3 about here.]

Teresa looks down at the cigarette she is holding in front of her throughout this fragment. As a silence following the 'trail-off' conjunction opens up (l. 4) it becomes increasingly unlikely that Teresa will start speaking. After 0.5 s of silence Jennifer turns her eyes to her right until they reach Betty (Fig.3b). With no response immediately forthcoming from Betty, Jennifer turns her head towards Betty (Fig.3c). Jennifer is evidently in search of a next speaker, her turn at l. 3 having been designed-to-be complete and transition relevant (see Goodwin, 1995, pp. 207-10, on visible searches for response). Indeed, this is how Betty treats Jennifer's visible behaviour: shortly after Jennifer's head is oriented to her, Betty leans forward as a visible display of preparation to enter speakership and 0.7 s later begins to talk (Fig.3d). Jennifer's visible search for a next speaker (and the subsequent treatment of her behaviour as a search) provides strong evidence that her talk in l. 3, ending with a 'trail-off' conjunction, is transition relevant. In 8/9 cases where 'trail-off' conjunction producers visibly search for a next speaker, turn transition follows. This provides good evidence that these shifts in gaze direction are indeed searches for a next speaker, and therefore visible signs that the 'trail-off' conjunction is transition relevant.

The converse of those cases where speakers search for a recipient are cases where speakers withdraw their gaze from a recipient during or around the 'trail-off' conjunction. There are 6/28 cases of such gaze withdrawal in the data-set; (3)/Fig.4 is one instance.

[Figure 4 about here.]

Donna and Laura are in a state of mutual gaze as Donna starts to produce ''garbage'' (l. 10): see Fig.4c. By the end of ''garbage'' Donna and Laura are both looking down (Fig.4d), Laura having begun to look down just before Donna. Both Donna and Laura are looking down as Donna produces her 'trail-off' ''and'' (l. 10). Donna removing her gaze from her co-participants is part of a visible display of her *disengagement* from the ongoing sequence (Goodwin, 1979, 1980, 1981, 1986a, 1986b), and a visible display that she is not selecting herself as next speaker.[7]

There are other visible signs of Donna's disengagement from this sequence around the 'trail-off' conjunction, and which are similar to visible features of other 'trail-off' conjunctions in the data-set. At the end of her production of ''shirt'' (l. 6) Donna's right elbow and forearm is on the table, while her right hand is off the table and directed towards her lap (Fig.4a). Donna starts to raise her right hand in the silence which follows (l. 7), moving it in an arc over the cup in front of her. The movement reaches its apex at the end of 'picked' (l. 10): see Fig.4b. Her hand comes to rest clasped around her cup (see Fig.4d) during the second syllable of 'garbage' (l. 10),

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[7] Although Donna does end up self-selecting and speaking next after the conjunction (l. 12), note that its timing (after 2.0 s of silence) and nature (a successive 'trail-off' conjunction, this time a standalone one: see Local & Walker, 2005) confirm that Donna will offer no further talk on this topic. Michelle's subsequent attempt to launch a new topic (l. 16) shows her orientation to this.

which is also when her gaze reaches her cup. It is very likely that all participants will have seen Donna's hand movement towards her cup and subsequent clasping of it: note the gaze directions of co-participants. When Donna produces the 'trail-off' conjunction (l. 10), she is in a state of readiness to pick up her cup and take a drink (which she does soon after). Combining withdrawal of gaze with a particular hand and arm movement, Donna provides for her co-participants a visible display of disengagement from the ongoing sequence, and readiness to engage in another task (drinking) which prohibits the proximal production of further talk.

A further visible characteristic of 'trail-off' conjunctions concerns the timing of gestures: any ongoing gestures are completed at or around the 'trail-off' conjunction. Prior to (4) Donna has mentioned liking cold coffee-based drinks; Michelle's turn at l. 1 is part of a joint attempt to identify the particular kind of drink Donna is referring to.

(4) A.29, Farmhouse, 32:38

```
1  Michelle: umm the Frozen Bears
2                 (.)
3  Donna:    myeah
4                 (0.6)
5  Michelle: my sister loves [those
6  Donna:                    [and Coffee Country too and the
7            whipped crea:m and
8                 (0.4)
9  Donna:    [they're just beautiful
10 Michelle: [mm hm
```

[Figure 5 about here.]

Donna starts to raise her right hand during ''and'' after ''and Coffee Country too'' (l. 6). By the start of the vowel in ''cream'' (l. 7) she has her right arm parallel with the table, bent at the elbow so that her right forearm is in front of her chest (Fig.5a). Donna rotates her right hand anticlockwise in an iconic gesture (McNeill, 1985, 1986) which references the preparation of the drink her talk refers to. At the end of ''cream'' Donna's arm is still raised and not showing any obvious sign of lowering (Fig.5b). Donna starts to lower her right hand during the 'trail-off' ''and'' which follows, and it is clearly on the way back to a recognisable rest position by the end of that word (Fig.5c), coming to rest with Donna's right elbow on the table shortly afterwards (Fig.5d). The completion of hand gestures at or around the conjunction supports the claim being made about the status of the 'trail-off' conjunction as transition relevant. Since gestures overwhelmingly only occur while speaking (McNeill, 1985; Schegloff, 1984), a cessation of speaking usually entails a cessation of gesture; the two cessations together reinforce the end of the utterance and transition relevance. Furthermore, it has been documented that the termination of hand gestures is an important turn-yielding cue (Duncan, 1972, 1973).

The timing of Donna's hand gesture in (4) underscores a further point concerning 'trail-off' conjunctions. 'Trail-off' conjunctions are an integral part of the ongoing turn, rather than an addition or an 'afterthought'. Donna's iconic hand gesture in ll. 6-7 spans the juncture between the talk ending at a SYNCOMP and the 'trail-off'. Since gestures tend to respect syntactic boundaries in speech (Lindenfeld, 1971; McNeill,

1985), Donna's hand gesture provides visible evidence that the 'trail-off' conjunction is being produced, and is to be interpreted as, of a piece with the preceding talk rather than as an addition or a new departure. This is a visible echo of the phonetic integration of the 'trail-off' conjunction with the preceding talk described above. The visible behaviour of speakers (their gaze, posture and gesture) around the end of 'trail-off' conjunctions is just what would be expected at the end of other transition relevant utterances. 'Trail-off' conjunctions' visible performance by speakers, just like their phonetic design, marks them out as transition relevant.

Co-participants' Visible Behaviour as Evidence of Treatment as Complete

Co-participants may provide visible evidence of their treatment of the conjunction as possibly complete and therefore transition relevant. They do this principally by performing the sorts of visible actions associated with the end of other possibly complete turns.

For instance, in (4), Laura begins to smile just after Donna's 'trail-off' ''and'' (l. 7), and Michelle begins a successive round of nodding. These responses – smiling and nodding – are just the sort of visible responses found after other possibly complete, transition relevant utterances (see Goodwin, 1984, pp. 232-3 on nodding; on smiling as a response see Haakana, 2010). Another characteristically 'turn-final' visible action from co-participants is to make themselves visibly unavailable as next speaker: something which only needs to be done in the midst of a TRP and where no next speaker has emerged. For instance, in (3) Laura begins to eat 0.6 s after the 'trail-off' conjunction (see her visible preparation to eat in Fig.4d). Visible avoidance of a move into speakership is also evident in (5). Donna has been telling the others about her encounter with a snake by the side of the road on her walk to the recording session; a sequence in which the participants are trying to identify the type and size of the snake is underway.

(5) A.19, Farmhouse, 11:57

```
1  Mom:    like a [big on:e] a bull snake you think o[r
2  Donna:         [.m h h h]                          [!t
3  Donna:  (n:o/w:ell)
4               (0.4)
5  Donna:  about that long
6               (0.4)
7  Donna:  it was k[inda curled u:p but
8  Mom:            [mm
9               (0.4)
10 Mom:    mm[mm
11 Laura:    [mmm
```

[Figure 6 about here.]

At the end of the 'trail-off' conjunction ''but'' in l. 7 Donna's right hand and arm is lowering, having been employed in an iconic gesture accompanying the preceding talk. All co-participants are looking at Donna at this point: see Fig.6a. Following the conjunction, and with no further talk being offered Mom starts to turn her head left and directs her gaze to Laura (Fig.6b). Meanwhile, Laura has started to move her head

to the right, away from Donna, which is how she delivers her ‘‘mmm’’ in l. 11 (Fig.6c). It was argued above that there are instances where speakers disengage from the ongoing sequence and offer no further talk. In (5) it is recipients (Mom and Laura) who are disengaging by observably shifting their gaze from the most recent speaker. Note also that this *disengagement* is evident in Mom and Laura’s vocal conduct, both of them producing minimal responses. Mom and Luara are proposing, both visibly and audibly, that they not be the ones to offer substantive talk on the current topic.

A third example of ‘turn-final’ visible behaviour by co-participants around a conjunction is provided by (6). Mom and Donna have evidently lived in states in the far north of the US; talk has been about weather conditions there.

(6) B.6, Farmhouse, 24:08

```
1  Mom:   you don’t see the sun=
2  Donna: =ihih heh heh
3  Mom:   you have to leave your house
4  Donna: [ (probably) some ] parts that really get (0.8) a lot
5  Mom:   [it’s not the (  )]
6  Donna: of snow but
7              (0.2)
8  Laura: °mh mh mh°
9  Donna: I ne[ver lived in] th[ose parts
10 Laura:     [ °huh  huh°  ]   [like Lisa’s °nteh heh heh° .hh
11        up by Lisa
```

[Figure 7 about here.]

Donna’s talk at ll. 4-6 has been engendered by Laura enquiring about winter weather in a northern US state in which Donna has lived. Donna, at whom all participants are gazing, delivers her turn while looking at Laura (Fig.7a). Immediately on Donna finishing her turn, Michelle shifts her head and her gaze left to look at Laura (Fig.7b). This shows an orientation by Michelle that Laura will be the next speaker (Sacks & Schegloff, 2002, p. 136). More importantly, it reveals Michelle’s expectation that Laura will produce her response just after the ‘trail-off’ conjunction. In addition, there is evidence from Laura that she is also treating this as a point where a response from her is interactionally relevant: she has started to smile and begins to laugh soon after (l. 9).[8]

Finally, co-participants may show their orientation to the transition relevance of the ‘trail-off’ conjunction by visibly gearing up to speak when the conjunction is over. For instance, in (2) immediately after the ‘trail-off’ conjunction Betty leans head her forward (evident by the time of Fig.3b), licks her lips and then while audibly breathing in leans further forward as a visible indicator of preparing to speak (Fig.3d).

There are, then, various kinds of visible evidence that participants (both speakers and other interactants) design and treat ‘trail-off’ conjunctions as transition relevant. In the

[8] Michelle starts to turn her head to Laura before Laura laughs, so Michelle’s head-turn cannot be responsive to the laughter.

next section some ways in which these 'trail-off' conjunctions are different from other conjunctions after which talk from current speaker ceases are set out.

DISCRIMINABILITY OF THE DEVICE

The preceding sections have provided an account of a particular kind of conjunction: one which immediately follows a SYNCOMP in the same speaker's talk, has a consistent phonetic shape and is regularly accompanied by certain visible features. Interactionally, these 'trail-off' conjunctions are treated by their producers and other co-participants as possibly complete and transition relevant. Nothing has been done up to this point to show that these 'trail-off' conjunctions are distinct from other interactional objects (Wootton, 1989). It seems especially relevant to show some of the ways in which 'trail-off' conjunctions are different from other conjunctions in a {SYNCOMP+conjunction+cessation of talk} structure. Two examples of such a structure where the conjunction is not a 'trail-off' are presented in (7) and (8); the conjunctions of interest are in italics.

(7) Virginia, 07:32 (original transcription)

```
1  Mom:   .hh Well at- that is somethin' else that you are
2         constantly comin' an' askin' me fuh two dollars. .hh
3         Every time I turn around fuh ga:s.An' you don't even
4         have a CA::r!
5              (.)
6  Vir:   I ↑know but- (2.8) Beth always makes me pay her for
7         gas all the time an'every time she drives me a-round
8         the (blind) she makes me give 'er a do:llar¿
```

The fragment begins with Mom making a complaint to her teenage daughter, Virginia, concerning her repeated requests for money for gas (petrol; ll. 1-4). In terms of its lexical and surface syntactic make-up, the first part of Virginia's response (''I ↑know but-'', followed by silence, l. 6) has the same structure as the conjunctions examined up to this point: {SYNCOMP+conjunction+cessation of talk}. In this context, ''I know'' could have figured as a complete conversational move: something like reluctant acceptance of Mom's complaint especially if delivered as, for instance, ''I: ↓know::.''. In terms of the participants' visible behaviour, this part of the sequence is the same as the 'trail-off' conjunction sequences described above. Towards the end of Virginia's ''↑know'', Mom starts to look down (Fig.8a).

[Figure 8 about here.]

Mom's head is fully down towards her plate, when Virginia is midway into her conjunction ''but-'' (Fig.8b). In addition, Mom has leaned forward slightly and angled her fork so that it points down towards the plate. All of this (the head movement, fork movement and leaning forward) are done in preparation to eat another forkful of food, which she does soon after. Virginia's visible behaviour is also relevant here. Virginia uses her fork, held in her right hand, to put food in her mouth when Mom produces ''around'' (l. 3). As Virginia begins her response in l. 6, she moves her right hand and fork away from her mouth and her left hand up to wipe her mouth reaching her mouth at the end of the end of her conjunction. Mom and

Virginia's visible behaviour around this point seem to be just like the sorts of disengagement observed in other, 'trail-off' conjunctions. For instance, Mom's visible actions are equivalent to what was described for (3) where Laura starts to look down during the word preceding Donna's conjunction, is looking fully down by the end of the trail-off conjunction, and has hold of a piece of food which she puts in her mouth in the silence following. It was argued above that by doing this Laura was making herself unavailable as next speaker: in (7) Mom could be doing that too. Virginia's wiping of her mouth as her conjunction ends could be seen as part of a move to do something other than offer more talk, and which might prohibit it. Compare this Donna reaching for her cup around the production of her conjunction, and drinking soon afterwards, in (3).

In terms of its turn structure and visible performance, the early part of Virginia's response in l. 6 seems just like the 'trail-off' conjunctions described above. The moments which follow the conjunction in which the conjunction-producer continues talk resemble those where the same speaker continues following a 'trail-off' conjunction (see e.g., (3) and (4)). However, the basis for the continuation in (7) is different from in the 'trail-off' cases. The difference arises from distinct phonetic designs, phonetic design being a criterial feature of the 'trail-off' conjunction. Unlike 'trail-off' conjunctions, the phonetic design of Virginia's conjunction (3) projects her imminent production of more talk. Some relevant acoustic records are presented in Fig.9.

[Figure 9 about here.]

A number of phonetic features mark out Virginia's ''I ↑know *but*-'' as non-transition relevant; moreover, the phonetic features described for the target conjunction in (7) do not coincide on any conjunction described as a 'trail-off' in this study. First, the whole of this part of the turn including the conjunction is quick. The overall rate of production is measurable as 7 syllables per second (syll/s), with a rate of 7.9 syll/s for the conjunction; the mean rate for other measurable conjunctions is 5.2 syll/s (σ = 2.87 syll/s, n = 27). Second, Virginia's ''but'' is approximately equal to the prior syllables in terms of loudness (PI on ''I'' = 83.5 dB, ''know'' = 85.4 dB, ''but'' = 85.3 dB), whereas it was shown above (Table 1) that 'trail-off' conjunctions are, on average, 4.9 dB lower than a preceding TRP-projecting accent. Third, while there is falling pitch on ''but'', this fall ends at around 300 Hz – 11.5 ST above the speaker's baseline pitch – rather than low in her range. A partial fall of this type is not usually considered a 'turn final' pitch configuration (Wennerstrom & Siegel, 2003). There are several ways in which individual phonetic parameters here contribute to the status of talk as non-transition relevant.

The case for the phonetic design of Virginia's talk projecting more talk from her becomes all the more compelling when considering what she is doing with her talk at this point. Fast pace, high pitch and wide pitch span mark out Virginia's talk as 'emphatic' (Selting, 1994), and as standing in opposition to Mom's complaint rather than accepting it (cf., the hypothetical alternate delivery ''I: ↓know:: (but).''). Goodwin, Goodwin, and Yaeger-Dror (2002) showed that children playing games use increased pitch at turn beginnings to highlight oppositional turns; Ogden (2006) shows a connection between strong disagreement and wide pitch span in assessment sequences. Produced in this way, Virginia's ''I ↑know *but*-'' figures as a preface to

the vigorous self defence which comes just after the silence following the conjunction. The phonetic design of Virginia's talk marks out that she is halting talk after a conjunction and that her turn will be resumed with the expected self defence; the phonetic design makes it clear that this is not a 'trail-off', but rather that Virginia will produce more talk soon after. While the continuation of talk by the same speaker has also been seen after 'trail-off' conjunctions, the range of possibilities in the two sorts of cases (i.e., following 'trail-off' conjunctions vs. the non-'trail-off' type in (3), is quite different. The phonetic design of the conjunction in (3) makes it non-transition relevant: if she is to follow normative turn-taking rules, Mom cannot start her talk at this point (Sacks et al., 1974). Having projected more talk in the first part of her response, Virginia is not self-selecting at a TRP in the absence of a co-participant starting up talk (cf., Donna in (3) and (4)), but continuing her turn following a pause in an ongoing turn-constructional unit (Sacks et al., 1974).

(8) provides an example where visible performance, in combination with sequential organisation, makes it clear than the conjunction in a {SYNCOMP+conjunction+cessation of talk} structure is not a 'trail-off' conjunction: the speaker is halting at a conjunction in response to what is going on simultaneously in the interaction. Michelle has made the arrangements for the recording; talk is about the suggestion she has just made that the participants use pseudonyms for the purposes of the recording. The talk with the {SYNCOMP+conjunction+cessation of talk} structure is in l. 4.

(8) D.3, Farmhouse, 1:16

```
1  Laura:    what if we just don't call each other names
2                 (1.0)
3  Laura:    (>it's easy to<) [   l o o k    a t   ] who you want
4  Michelle:                  [well that's fine but]
5  Laura:    to talk to
6  Laura:    I have [one
7  Michelle:        [okay
8  Laura:    she['s mom
9  Mom:          [I'll-
10                (0.2)
11 Mom:      I'll slip up
```

Starting at the end of her production of ''fine'' (l. 4), Michelle raises her right hand from the top of her left arm where it has been resting: see Fig.10a.

[Figure 10 about here.]

Michelle extends the index finger of her right hand to point either to Donna or the recording equipment behind Donna. Michelle is clearly beginning to point at the end of her conjunction. Michelle reaches the apex of her point shortly after the termination of her conjunction, and as Laura is producing ''want'' (l. 3): see Fig.10b. As soon as Michelle reaches the apex of her point, she retracts her index finger, curls up her fingers and with palm upwards places it beneath her chin, her right elbow still on the table. Soon afterwards, she lowers her head onto her right hand, this phase completed by the end of Laura's ''talk'' (l. 5): see Fig.10c. The crucial observation here is that the speaker is clearly mid-gesture (in this case mid-point) at the time she produces her conjunction. This makes this conjunction rather different from 'trail-off' conjunctions

and other designed-to-be and treated-as-complete utterances where gestures are brought to complete around their ends.[9] Michelle's visible behaviour – the timing of her point relative to the conjunction, and it subsequent retraction – are clear indications Michelle is aborting a turn-in-progress, rather than 'trailing off'. This is presumably as a result of having found herself talking in prolonged overlap with Laura. The conjunction in Michelle's {SYNCOMP+conjunction+cessation of talk} is therefore visibly and sequentially distinct from the 'trail-off' conjunctions described above.

DISCUSSION

A 'trail-off' conjunction involves more than the cessation of talk following a conjunction; it involves more than the production of talk with a {SYNCOMP+conjunction+cessation of talk} structure. In terms of phonetic design, 'trail-off' conjunctions exhibit the sorts of pitch, loudness and duration features found at the ends of other designed-to-be and treated-as complete utterances; follow a TRP-projecting accent earlier in the same turn, and have lesser prominence than that accent; are fitted to the preceding talk in terms of their pitch and loudness characteristics; and do not project the imminent production of more talk by that speakers through their articulatory features. 'Trail-off' conjunctions are sequentially distinct from other conjunctions after which speakers halt, typically being produced 'in the clear' (i.e., out of overlap) and where no further action from that speaker is projected. They are accompanied by just the sorts of visible behaviour as other possibly complete, transition relevant utterances, and are visibly oriented to as transition relevant.

There are a number of directions in which future research could head, two of which are sketched briefly here. First, on this occasion the focus has been on a technical account of the form of 'trail-off' conjunctions and certain aspects of their sequential organisation and treatment. Nothing in detail has been said here about the interactional work done by the 'trail-off' conjunctions (cf., Lindström, 1997; Mulder & Thompson, 2008), though there is certainly progress to be made. For instance, in the current data-set the 'trail-off' conjunction ''but'' seems to typically occur immediately after talk which runs counter to a line or stance taken earlier in the interaction; 'trail-off' ''and'' often occurs where a spelling out of particulars is interactionally relevant and ongoing. Second, other sorts of 'unfinished' turns in interaction have been analysed for some of their interactional properties and usages (e.g., Chevalier, 2007), but nothing reported in detail about their phonetic design or their visible performance in face-to-face interaction.

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[9] Although this is an aborted turn, there is still combined cessation of talk and gesture at the end of the utterance. This provides further support for the point made in the course of discussing (4) that a cessation of speaking usually entails a cessation of gesture.

To date, there have been very few attempts to combine serious phonetic analysis with the investigation of sequential organisation and visible performance to better understand how interaction is organised and how social actions are performed. Phoneticians typically focus on spoken language, while those working on gesture (and in particular, the role of gesture in the management of interaction) are yet to bring technical phonetic analysis to bear on their materials. An important consequence of this neglect is that virtually nothing is known in detail about how phonetic design and non-verbal (visible) information work together in the organisation of interaction. Taking the "wider semiotic perspective" for phonetics urged by Laver (1994, p.23), this article is offered as a first instalment in an attempt to fill this gap. The findings reported here have only been revealed by taking seriously events and details in both the vocal and visible domains, and by considering the relationships which exist between them. It is only by doing this will we be able to understand such fundamental aspects of interaction as the nature of the units out of which talk-in-interaction is structured, and how participants jointly accomplish social action which is, after all, the primary interactive function of language and speech.

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	PI (dB) $n = 27$	F0PI (ST) $n = 26$	Duration (%) $n = 27$
Mean difference	-4.9	-2.5	-10
Max. decrease	-11.8	-12.4	-70
Max. increase	+1.9	+3.4	+92
Stand. dev.	4.0	3.7	40

Table 1: Measure of the difference in peak intensity, F0 at peak intensity and duration for the 'trail-off' conjunction expressed relative to the TRP-projecting accent

List of Figures and Captions

Figure 1

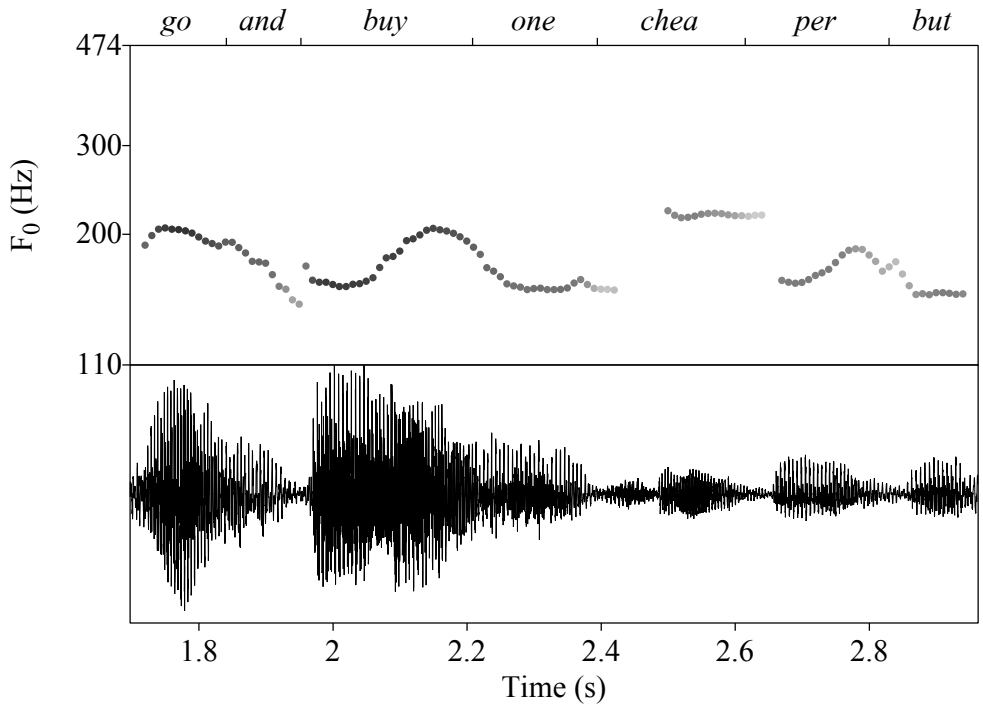

go
and
buy
one
chea
per
but
474
300
200
110
F0 (Hz)
1.8
2
2.2
2.4
2.6
2.8
Time (s)

Figure 2

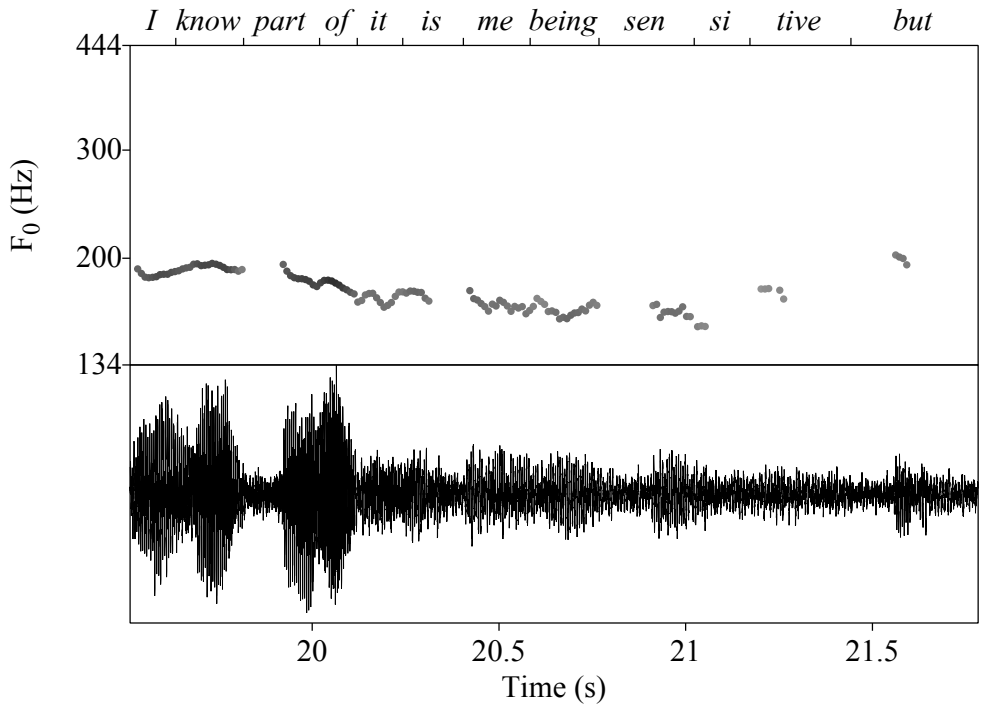
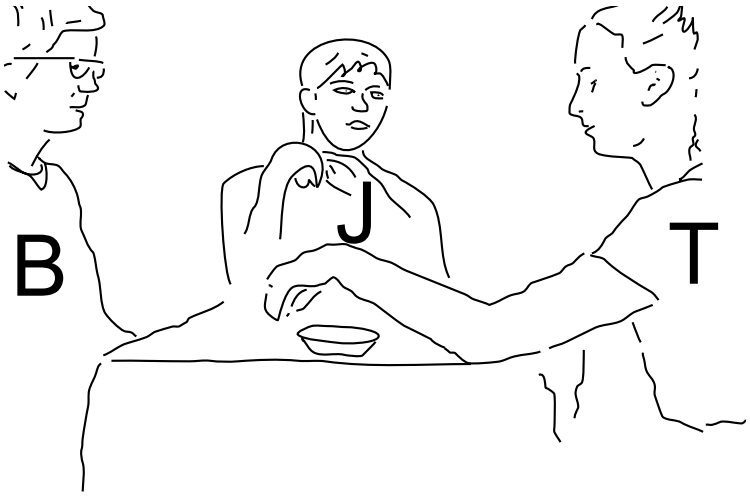
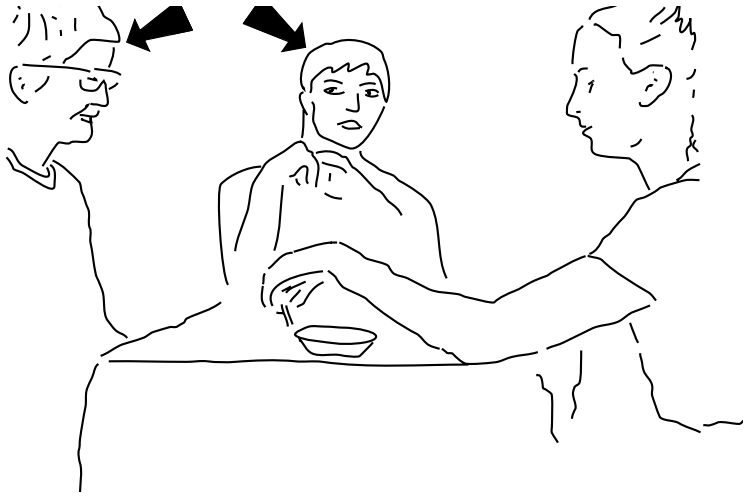

I know part of it is me being sen si tive but
444
300
200
134
F0 (Hz)
20
20.5
21
21.5
Time (s)

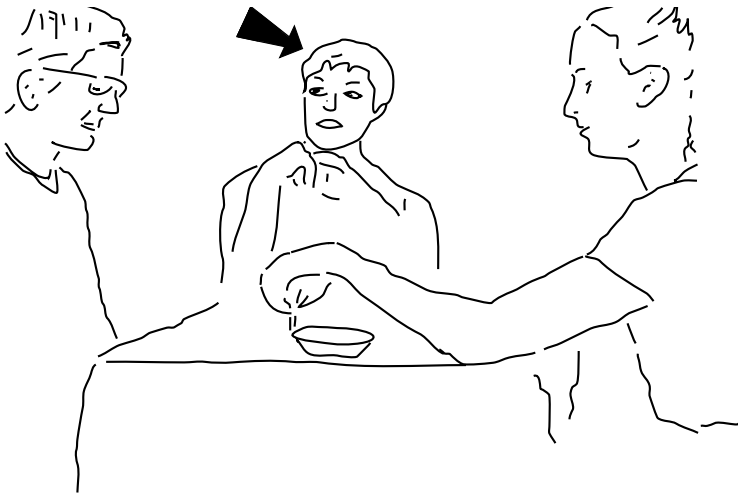
Figure 3



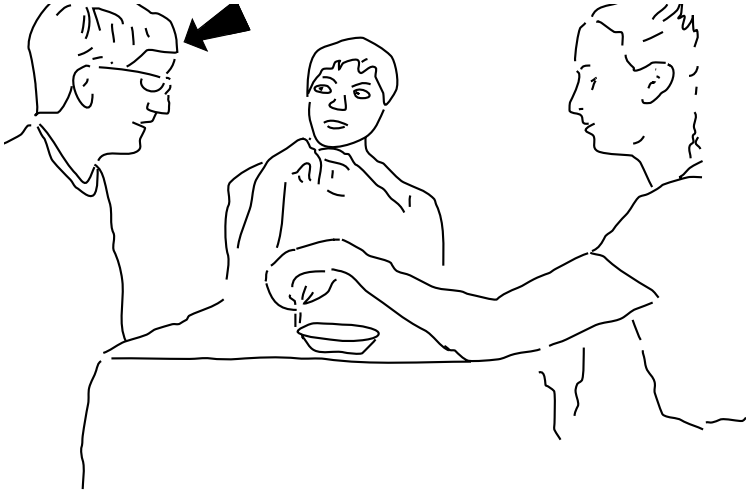
(a) end of l. 3



(b) 0.9 s into silence in l. 4

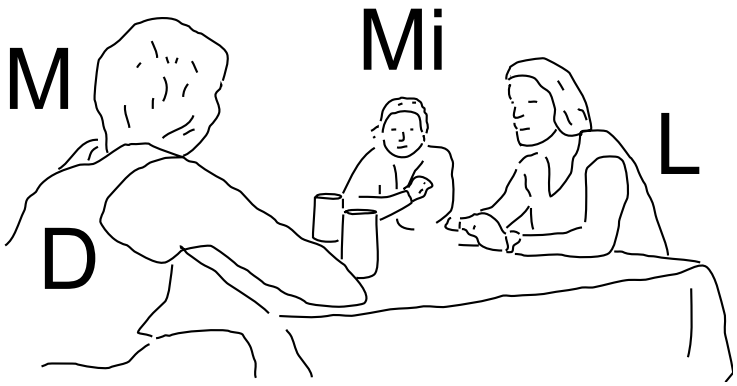


(c) 1.6 s into silence in l. 4

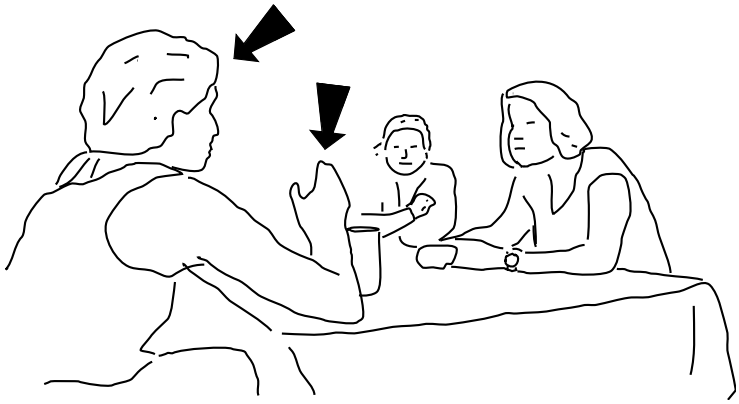


(d) start of l. 4

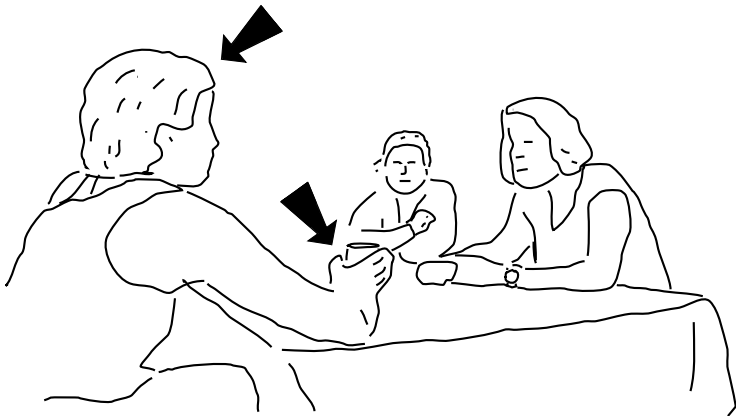
Figure 4



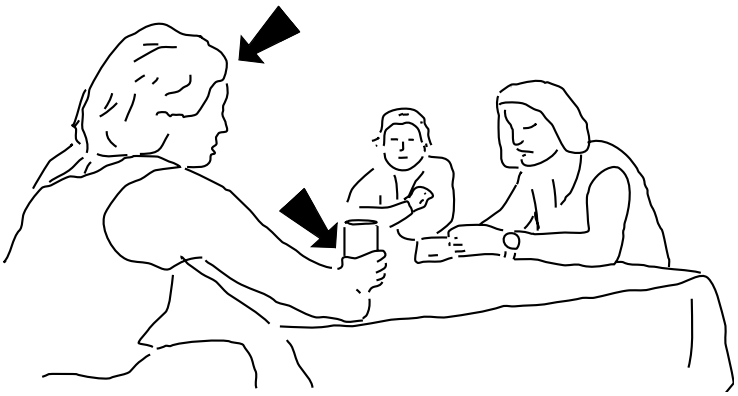
(a) end of “shirt”, l. 6



(b) end of “picked”, l. 10

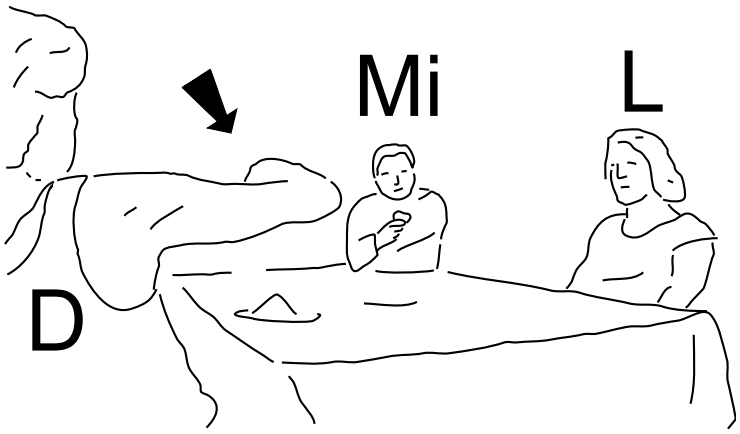


(c) start of “garbage”, l. 10

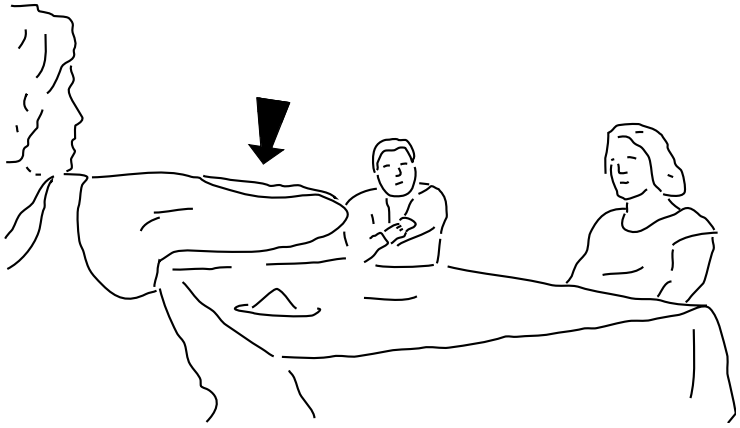


(d) end of “garbage”, l. 10

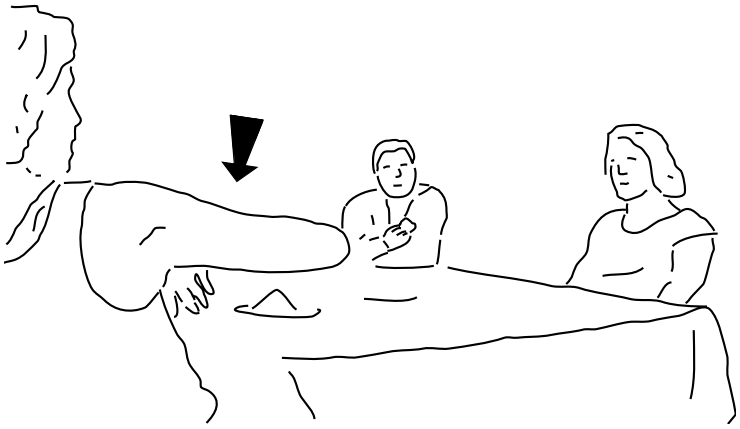
Figure 5



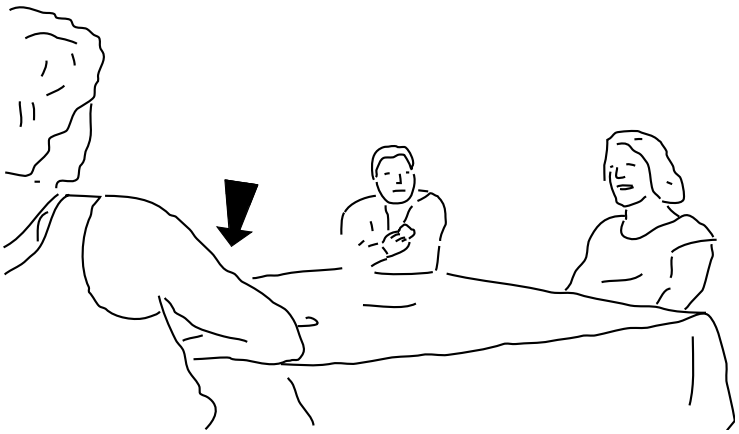
(a) start of vowel in “cream”, l. 7



(b) end of “cream”, l. 7

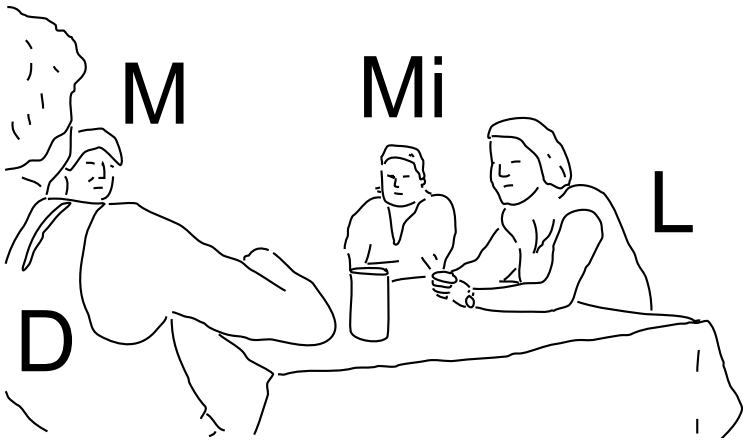


(c) end of “and”, l. 7

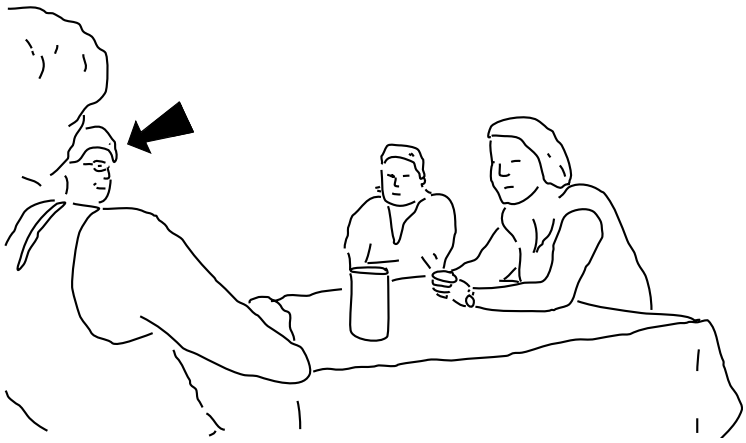


(d) l. 8

Figure 6



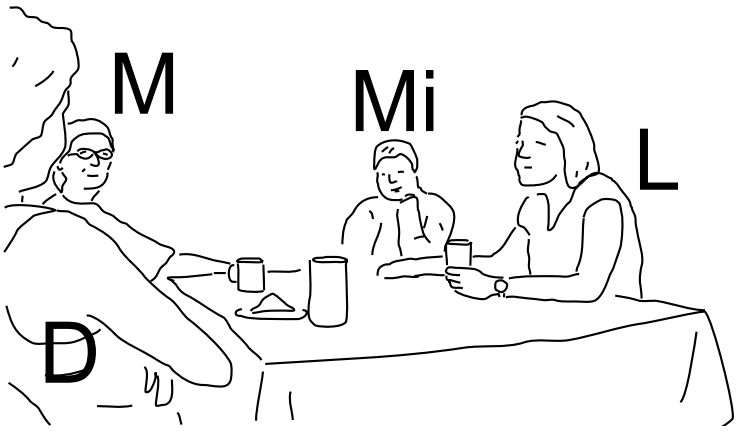
(a) end of “but”, l. 7



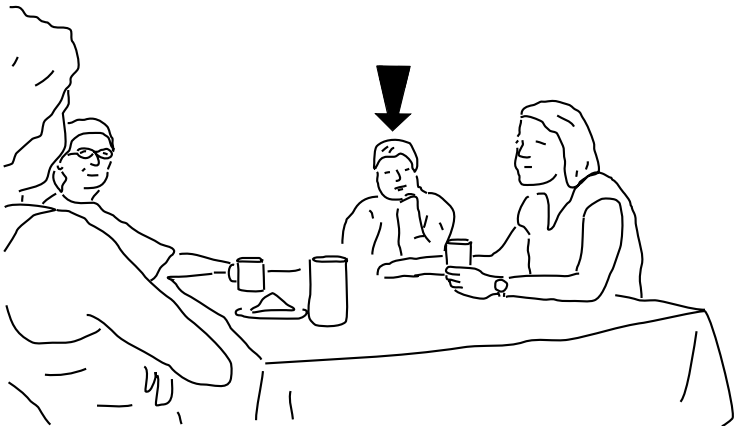
(b) l. 9

(c) l. 11

Figure 7

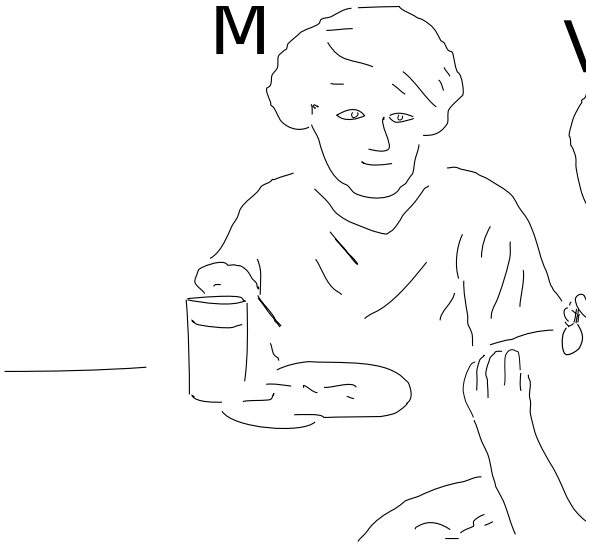


(a) end of “but”, l. 6

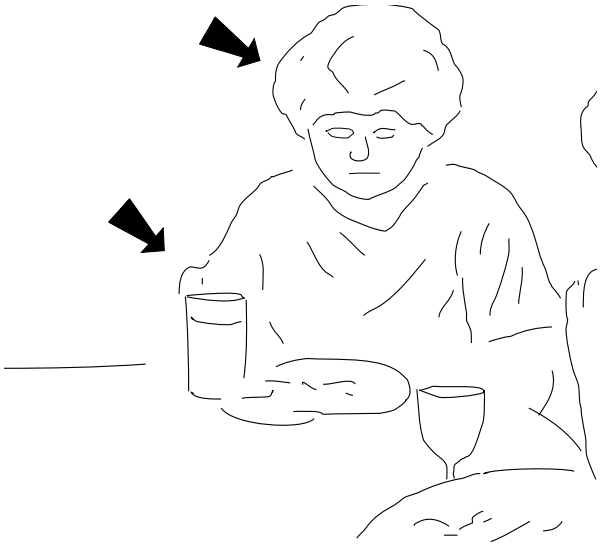


(b) l. 7

Figure 8



(a) end of “know”, l. 6



(b) midway through “but”, l. 6

Figure 9

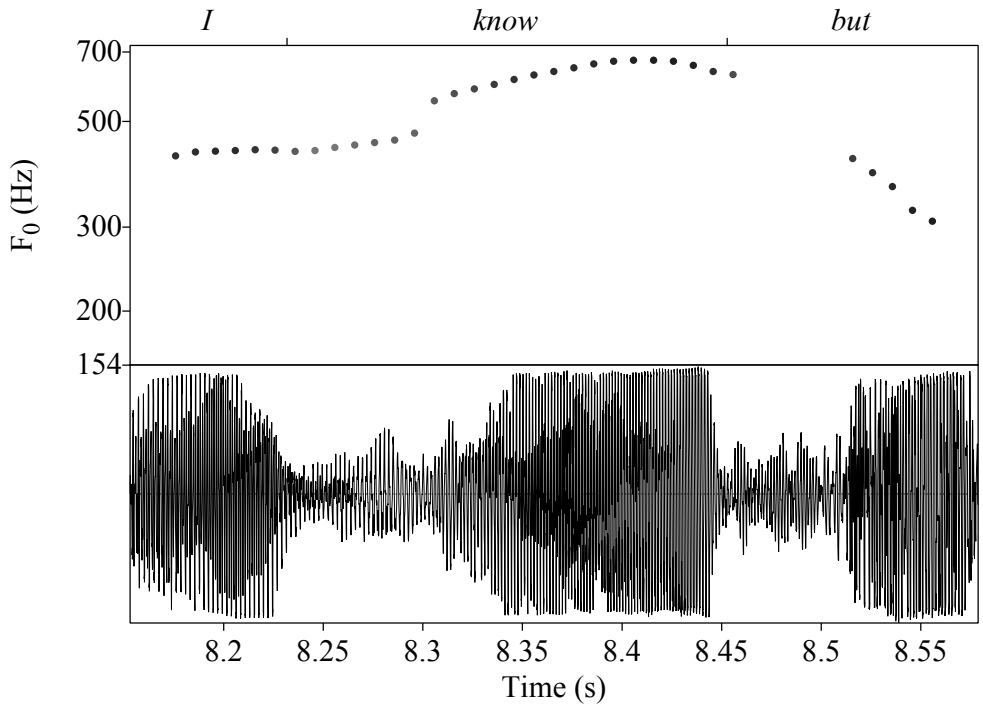
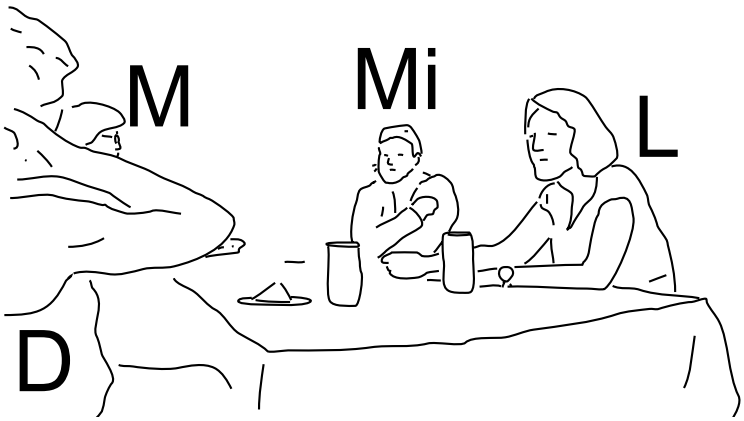
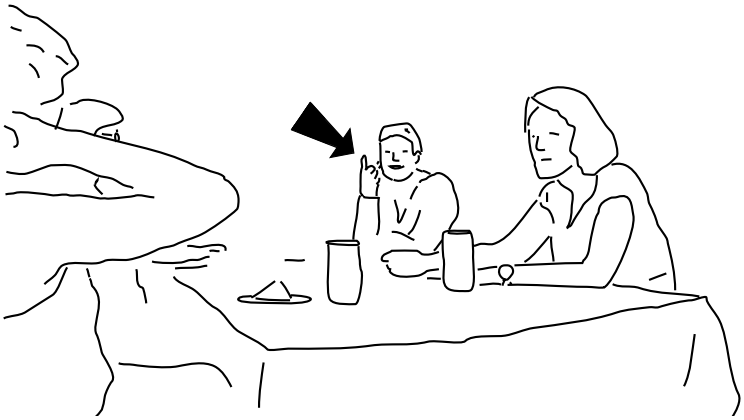

I
know
but
700
500
300
200
154
F0 (Hz)
8.2
8.25
8.3
8.35
8.4
8.45
8.5
8.55
Time (s)

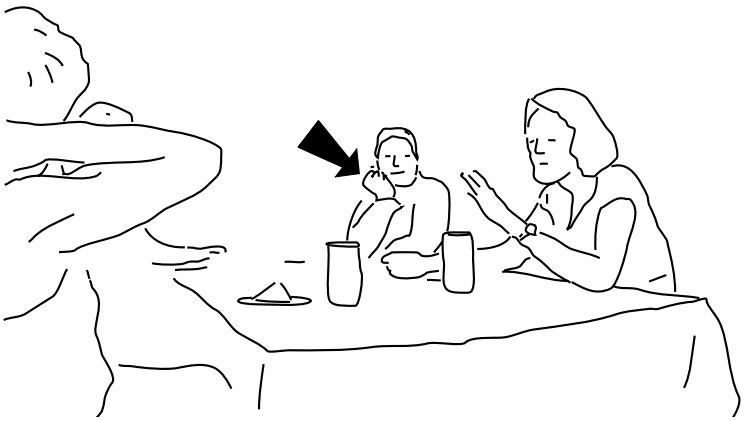
Figure 10



(a) end of “fine”, l. 4



(b) end of “want”, l. 3



(c) end of “talk”, l. 5