

‘Doing a rushthrough’ – A phonetic resource for holding the turn in everyday conversation

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ABSTRACT

Cross-parametric impressionistic and acoustic phonetic analysis is brought to bear on one resource for continuing past a point of projectable turn completion at which co-participants could legitimately begin their talk. *Rushthroughs* involve the co-occurrence of a cluster of phonetic parameters around the join between two units of talk, namely (i) temporal compression of the final syllable of the pre-rushthrough talk (ii) pitch and loudness discontinuities marking the boundary between the pre- and post-rushthrough talk (iii) particular ‘segmental’ features which highlight continuity between the pre- and post-rushthrough talk. Sequential interactional analysis shows that rushthroughs are used to build turns which control the trajectory of the talk. This research contributes to our understanding of the phonetic features of unit endings and how those features are manipulated in interactional settings, and to an ongoing movement towards the building of a ‘phonology for conversation’.

1 INTRODUCTION

One task for participants in a conversation is to manage entry to and exit from talk – when speaking, they are required to provide recognizable points at which others can come in; when listening they are required to monitor for such points in order to begin their talk.

One element of this ‘projection of completion’ is the deployment of particular phonetic features around unit endings, including slowing down or ‘lengthening’ and particular pitch movements. Relevant work includes, in the ‘experimental’ domain, [1, 2] and in the ‘interactional’ domain [3, 4, 5, 6]. The empirical, interactionally grounded work shows that the presence of these phonetic features around syntactic boundaries where some action is complete creates a legitimate point for a co-participant to begin their talk.

However, there are instances where speakers manipulate phonetic features around the ends of units of talk in order to continue talking past a point of projectable completion (for instance, rather than slowing down towards the unit’s end, they may effect a highly localised speed-up).

The findings reported here arise out of a larger study of speakers’ manipulation of phonetic features around possible ends of units of talk in conversation, in order to keep talking past a projectable ending. One such resource is a *rushthrough*, and is one of a palette of phonetic resources speakers seem to have at their disposal to deploy very late in a unit to ‘hold the turn’ and keep talking.

2 DATA AND METHODOLOGY

The data reported on here has been systematically collected from over 10 hours of telephone calls made between family and friends in both Britain and North America, and supplemented by instances drawn from many more hours of talk-in-interaction. The data set reported on here consists of 46 rushthroughs.

A range of speakers is represented, in terms of age, sex, and accent-type (covering a variety of British and North American accents). Neither the phonetic nor the interactional details of the practice seem to be affected by the ethnography of the speakers.

The phonetic analysis combines cross-parametric impressionistic listening with inspection of appropriate acoustic records. In addition, the instrumental techniques detailed below were employed to measure particular durational and pitch characteristics.

2.1 DURATION

The duration of the final vowel of the pre-rushthrough talk was measured, and compared with the duration of the immediately preceding vowel which matches it for stress. This non-final vowel is labelled the ‘reference’ vowel (see [1] for a similar technique in exploring ‘lengthening’ at prosodic boundaries).

This technique of comparison with a reference vowel cannot be applied where the pre-rushthrough talk is very short (i.e. one or two syllables). To offer some quantification of the durational characteristics of these instances, the duration of the final ‘rushed’ vowel was compared to other turn-final tokens of the same vowel by that speaker.

2.2 PITCH

To quantify pitch differences between the end of the pre-rushthrough talk and the start of the post-rushthrough talk, the highest F_0 measure of the last pre-rushthrough stressed syllable was recorded, as was the highest F_0 measure for the first post-rushthrough stressed syllable. F_0 peaks for any intervening unstressed syllables were also recorded. These measures were then expressed in semitones relative to the last stressed syllable of the pre-rushthrough talk. Scaling the results in this way shows how big the upstep is relative to the pre-rushthrough talk, and helps to factor out cross-speaker differences in pitch range.

3 RESULTS

3.1 DURATION

In English, unit endings are typically associated with ‘lengthening’ or slowing down. However, units ending with a rushthrough show a noticeable ‘speeding up’ at their end; impressionistically the domain of this speeding up is the last syllable in the unit.

Figure 1 shows a log-scaled plot of the results of the durational measurements made according to the methodology set out in section 2.1 above. Results are presented for 21 instances where comparative measures could be made. Points plotted below the diagonal line represent ‘rushed’ vowels with lesser duration than the non-final reference vowel; points plotted above the diagonal line represent ‘rushed’ vowels with greater duration than the non-final reference vowels.

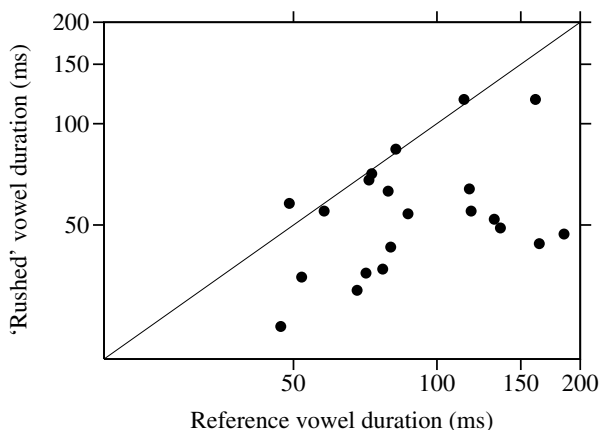


Figure 1: Final ‘rushed’ vowel duration plotted against preceding medial ‘reference’ vowel durations

The figure shows that 18 of the 21 tokens are shorter than the corresponding (medial) reference vowels, with a number considerably shorter (mean = 34.5% shorter than reference vowel, st.dev. = 26.6). Of the 3 that are longer than the reference vowel, the lengthening in percentage terms (relative to the reference vowel) ranges from 2.4% to 18.4%, with an average lengthening of 8.1%. So, while some ‘rushed’ vowels are longer than the reference vowels, the

‘lengthening’ is still of a lesser degree than that reported in the literature for intonation phrase boundaries (see e.g. [1]). That the ‘rushed’ vowels should be regularly considerably shorter than the reference vowels, which are the most recent vowels with matching stress, suggests that the speed-up is highly localised i.e. at most the speed-up affects syllables after the reference vowel, up to and including the final syllable. Where final ‘rushed’ vowels were compared with other final tokens from that speaker, the ‘rushed’ vowel was consistently of a shorter duration than the mean of other turn-final occurrences of the same vowel by the same speaker. The ‘rushed’ vowels were between 37% and 66% shorter than the mean of other turn-final tokens (mean = 49%, st.dev. = 13.2).

3.2 PITCH

Pre-rushthrough units of talk show the types of pitch characteristics typical of other designed-to-be-complete units of talk by that speaker. In addition, there is a large upstep in pitch from the last stressed syllable in the pre-rushthrough talk, to the first stressed syllable of the post-rushthrough talk.

Measuring this upstep in pitch shows that the mean upstep in pitch from the last pre-rushthrough stressed syllable to the first post-rushthrough stressed syllable is 7.0 semitones (min = 1.8 semitones, max = 13.9 semitones, st.dev. = 3.7). In addition, the pitch of any final pre-rushthrough unstressed material is routinely in the close to the pitch of the last post-rushthrough stressed syllable; any initial post-rushthrough unstressed material is routinely higher than the last pre-rushthrough stressed syllable, and always lower than the first post-rushthrough stressed syllable. A representative pitch trace is shown in Figure 2. The trace shows a typical unit-final fall in pitch over *finger out* from 220Hz to 171Hz (a fall of 4.4 semitones). There is then a large upstep in pitch to the first syllable following the join, *what*, which has a peak F_0 of 446Hz. The upstep from the end of the unit ending with a rushthrough is therefore 16.6 semitones; the upstep from the highest F_0 of the last pre-rushthrough stressed syllable to the first post-rushthrough stressed syllable is 11.8 semitones.

3.3 ARTICULATORY CHARACTERISTICS

Phonetic analysis of rushthroughs also yields a number of observations on the ‘segmental’ details of the join between the pre- and post-rushthrough talk, which are not characteristic of joins between other units of talk by the same speaker.

1. Temporal proximity. Where the pre-rushthrough talk ends with a sonorant and the post-rushthrough talk begins with a sonorant, voicing is maintained across the join. There is no ‘pause’ between the units in cases involving obstruents.
2. Assimilation. Final articulations (both vocalic and consonantal) of the unit ending with the rushthrough may assimilate with the initial articulation of the

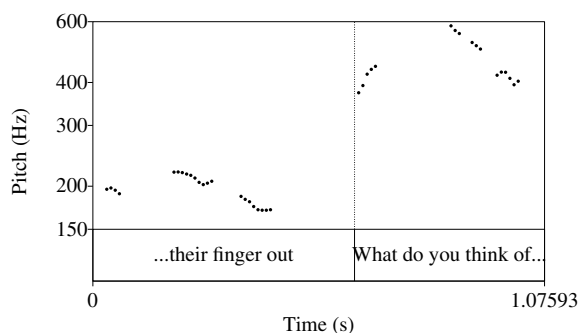


Figure 2: Pitch trace showing a pitch upstep across the juncture between two units of talk joined by a rushthrough (English female speaker)

post-rushthrough talk. Assimilation is, typically, an intra- rather than inter-unit phenomenon.

3. Absence of ‘cut-off’. Shortened syllables may occur in conversation where a speaker cuts off (with oral occlusion) a syllable-in-progress to repair (‘correct’) their talk (see e.g. [7]). However, there is no evidence of such cut-offs in rushed-syllables.

A number of these features are exemplified by the spectrogram and waveform shown in Figure 3, namely (i) continuation of voicing across the join (ii) assimilation of the expected front, relatively open final vowel in *meter* to a back rounded vowel in anticipation of the post-rushthrough *what* and (iii) absence of cut-off between *meter* and *what*.

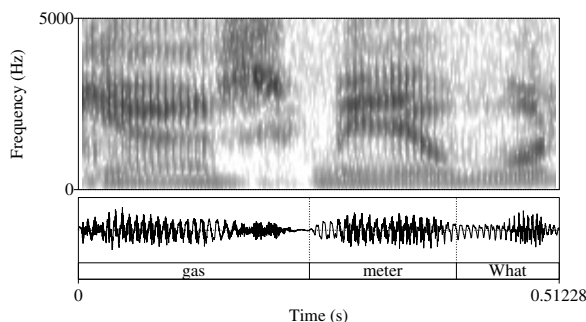


Figure 3: Spectrogram and waveform showing continued voicing across the juncture between two units of talk joined by a rushthrough (English male speaker)

3.4 FURTHER OBSERVATIONS

There are two further phonetic observations which can be made, the first concerning the intensity characteristics of the join between the pre- and post-rushthrough talk, and the second concerning the presence of an inbreath between the pre- and post-rushthrough talk.

Due to the diversity of conditions under which this data was recorded, and the ‘uncontrolled’ nature of the data, intensity characteristics have not been quantified. However, auditory

analysis along with inspection of intensity traces, yields two observations: (i) the final ‘rushed’ syllable is typically quiet and (ii) there is an upstep in loudness on the initial syllable(s) of the post-rushthrough talk.

There are cases in the current collection of rushthroughs involving inbreaths intervening between the two units. The phonetic characteristics outlined above are common to non-inbreath and inbreath cases. In addition, the cases involving inbreaths have the following characteristics, which make them distinct from other inbreaths:

1. ‘Quality’. The inbreaths are typically what might be described impressionistically as ‘emphatic’, with relatively high intensity.
2. Duration. The inbreaths are generally rather short, with an average duration of 215ms (min. = 91ms, max. = 430ms, st.dev. = 75.4)
3. Temporal proximity. There is a very short ‘lag’ between the offset of egressive airflow for the talk ending with the rushthrough and the onset of audible ingressive airflow (mean = 27ms); there is a longer, but still short, lag between the offset of the audible inbreath and the onset of egressive airflow for the following unit (mean = 54ms)
4. Absence of initial and final glottal closure.

These features are exemplified by the waveform shown in Figure 4.

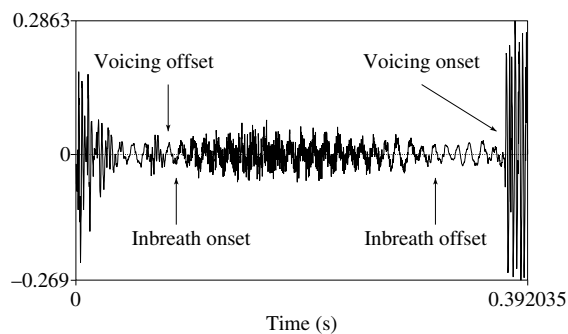


Figure 4: Waveform showing inbreath from a rushthrough (English male speaker)

4 SEQUENTIAL INTERACTIONAL ANALYSIS

Qualitative interactional analysis based on the principles of Conversation Analysis (CA) (see [8] for an overview) reveals a particular interactional exigency with which rushthroughs deal, and a particular kind of turn at talk which they build (see [9] for a more complete interactional account). The unit of talk ending with a rushthrough is ‘fitted’ to the talk which came before it (i.e. it fits the preceding

talk with regard to ‘topic’ and sequential development up to that point). The talk following the rushthrough then works to change the line of sequential development projectable from the talk leading up to the site of the rushthrough; that is, it changes the ‘trajectory’ of the talk. The following fragment of data, taken from a telephone conversation between a young American woman and her mother, provides an exemplar; “►” denotes the join marked with the rushthrough; for other transcription conventions, see [10].

Callhome.5242.really

A: um:: the t[wins are getting] big?

B: [oh I had this]

(0.7)

B: what?

(.)

A: the twins are getting bi:g

B: [really?►I had this little bo:y

in- um (0.5) to draw his blood today?

There is a topic proffer from Speaker A with *um:: the twins are getting big?*, with what looks to be developing into a topic proffer from B in overlap: *oh I had this*. ‘Repair’ (i.e. a request for a repeat) is then initiated by Speaker B with *what?*. A duly reissues her topic proffer. Speaker B then issues ‘really’ which makes relevant more talk on the new topic by Speaker A. However, before Speaker A ‘has a chance’ to offer further on-topic, or indeed any, talk Speaker B does a rushthrough into the topic proffer which it might be presumed that her earlier (aborted) turn was heading towards: *I had this little bo:y in- um (0.5) to draw his blood today?*. In doing this, Speaker B has worked at changing the trajectory of the talk: rather than talking to Speaker A’s topic, there is a constraint on Speaker A to talk to Speaker B’s.

5 CONCLUSIONS

One finding of the work reported on here is that speakers have at their disposal a resource which can be deployed very late in a unit of talk which is heading towards projectable completion, and which allows them to continue talking. The resource is found to involve a cross-parametric bundle of phonetic features drawn from ‘segmental’ and ‘non-segmental’ domains. This itself suggests that speakers’ use of phonetic features, at least in this particular phenomenon, does not respect the partitioning applied by conventional linguistics into ‘segmental’ and ‘non-segmental’ features.

In addition, this report has touched upon the interactional uses of this cluster of phonetic features, and as such forms part of a move towards establishing a ‘phonology of conversation’, and understanding how phonetics is used in the home of spoken language: everyday conversation.

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