Interaction of verb accentuation and utterance finality in Bangla

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Abstract

In this study we present data from three experiments that present robust, unambiguous evidence that Bangla conforms to the cross-linguistic avoidance of prominence on utterance-final verbs in SOV languages[1].

1. Introduction

In a study of Bangla focus accent [6]; Hayes & Lahiri claim that in Bangla sentences like *ram shaemoli-ke dék^{h}lo* 'Ram saw Shyamoli' "stress goes on the rightmost *P*-phrase *dek^{h}lo*". This claim is widely interpreted to show that Bangla places major utterance prominence on final verbs, even in transitive constructions. If this finding is correct, Bangla would constitute a major exception to cross-linguistic tendencies in SOV languages for final verbs to avoid prominence, at least in transitive constructions. In fact, this interpretation has been accepted in several studies: [6], [3], [4], [5], [11], [12], [17].

We show that, contrary to the claims in [6], Bangla does adhere to the SOV-language tendency to avoid prominence on utterance-final verbs. Moreover, we show that prominence reduction on final verbs is in many cases accompanied by creaky voice, a feature compatible with finality-induced declination. Our conclusion is based on three experiments, with seven different speakers, mostly from Kolkata, and one from Dhaka. All the subjects are speakers of Standard Bangla. We do not claim that the observation in [6] is factually incorrect. This issue is further discussed in §5.

One experiment, reported in [2] but updated, involved list reading of Out-of-the-Blue (OOTB) sentences (for details see §3 and §4 below). As is well known, experiments of this type may suffer from the effect of Labov's "observer's paradox" [10]. In 2003-2004, we therefore conducted a second experiment in which target utterances were embedded in a dialogue which subjects were asked to perform. From our experience with the project [9] we expected that this approach would help overcome the observer's paradox. To ensure comparability of results, we then asked the same subjects to participate in another experiment with OOTB sentences.

The paper is organized as follows. In §2 we discuss findings from [6] and their interpretation in later publications. §3 describes our research methodology. §4 presents our results. Finally, §5 presents a summary and conclusions.

2. Bangla accentuation and finality

According to [6], contrary to the cross-linguistic tendency in SOV languages toward pitch and prominence lowering on utterance-final verbs, Bangla places the highest prominence on the verb, in utterances labeled "neutral focus". (See example below, reproduced from [12]:122.)

HEAD	HEAD	NEUTRAL DEC	DEC
$L* H_P$	$L* (H_P)$	$H*$	L_I
| |	|	|	|
$((omor))_P$	$(shaemoli-ke)_P$	$(dek^h-l-o)_P$	$)_I$
Amar	Shyamoli-OBJ	see-PAST-3p	

'Amar saw Shyamoli'

The label "neutral focus" may suggest that these utterances are unmarked. However, in utterances cited in [6], every phrase[2] is under focus, the choice of such utterances being motivated by a desire to compensate for the relative weakness of Bangla stress accent ([6]:56-57). Even a priori, then, it can be expected that such utterances display highly marked intonational behavior, and that prominence on the final verb may be an artifact of the experiment[3]. We should note that we accept the observations of [6] on focus accent, which was the major target of their study.

Prominence on utterance-final verbs can also be expected under OOTB conditions, as a list-reading effect[4], and under other pragmatically marked conditions, such as newscasts. This, in fact, happened with one of our subjects who was exposed to a list of sentences that was intermixed with newscast utterances. This issue is discussed in §4.

In this paper we present robust, unambiguous evidence confirming that Bangla conforms to the cross-linguistic avoidance of prominence on utterance-final verbs in SOV languages.

3. Experimental Method

3.1. Experiment 1

3.1.1. Materials and Method

In this experiment scripted OOTB utterances where recorded for three native speakers of Bangla. Transitive, ditransitive, and intransitive utterances were presented on index cards in randomized order. All recordings were made in the soundproof booth of the Phonetics Laboratory, Department of Linguistics, University of Illinois at Urbana-Champaign. One of the subjects was asked to read the same OOTB sentences, but interspersed with newspaper reports. The purpose was to prime the subject to produce OOTB utterances in newscast style, which we observed to favor utterance-final high pitch.

3.1.2. Subjects

Subjects included one male and two female speakers. Two of the speakers spoke the standard dialect of Kolkata; one speaker spoke the standard Dhaka dialect.

3.1.3. Analysis

The data were segmented with phonological phrases serving as landmarks. L and H tones were identified and recorded on separate tiers for each phonological phrase. Acoustic analysis

was conducted on PRAAT. The same analysis and segmentation routines were employed for Experiment 2 and Experiment 3.

3.2. Experiment 2

3.2.1. Materials and Method

In this experiment, subjects were asked to perform a dialogue, involving two characters, Mala (female) and Mihir (male). The dialogue consisted of 14 utterances. Subjects read the dialogue twice producing 28 utterances.

3.2.2. Subjects

Subjects included two pairs of female and male native speakers of Kolkata Bangla.

3.3. Experiment 3

3.3.1. Materials and Method

Subjects read randomly presented OOTB utterances in normal intonation, with a pause of 3 to 4 seconds between utterances.

3.3.2. Subjects

To ensure comparability, the same subjects who performed experiment 2 were asked to read the OOTB utterances.

4. Results

4.1. Experiment 1

Bangla declarative utterances with transitive, intransitive, and ditransitive verbs show avoidance of prominence on the final verb, except for highly marked conditions. One exceptional case occurred with Speaker C, the subject asked to read OOTB sentences interspersed with newscast utterances. The top of Fig. 1 shows the first rendition of the utterance *raam o-ke maarbe* 'Ram will beat him/her', with some degree of high pitch on the final verb. The utterance was played back to the speaker with the request to indicate whether it sounded natural. When the speaker responded that it did not, she was asked to read the sentence in a more natural manner. The result can be seen on the bottom of Fig. 1. Here the pitch clearly falls rapidly from the high pitch on the *ke* of *o-ke* `him/her' to the verb *maarbe*.

We consider this self-correction to be significant and robust evidence that native Bangla speakers consider utterance-final prominence on the verb to be marked. Note that the other speakers produced no utterances with prominence on the final verb.
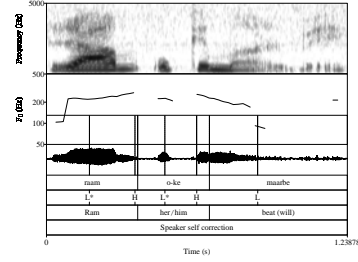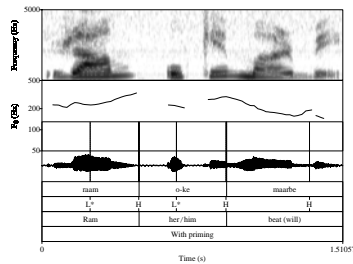

Figure1*: Speaker C, Experiment 1. Top: Speaker C produced H tone on final verb; Bottom: Speaker self correction, utterance produced with L tone on verb.*

4.1.1. Transitive OOTB utterances

With the exception of the first take of Speaker C, the participants in Experiment 1 avoided prominence on the utterance-final verb, no matter whether the objects were nominal or pronominal. Fig. 2, Speaker B's rendition of *raam shaem-ke maarbe* 'Ram will beat Shyam', shows that the pitch falls from the H of the final *ke* of the object phrase *shaem-ke* to the verb *maarbe*. The bottom panel of Fig. 1 shows that the same pattern occurs even with pronominal objects (in this case *o-ke* 'him/her'). This finding is of considerable interest, given that verbs crosslinguistically tend to have higher prominence than pronouns[5].
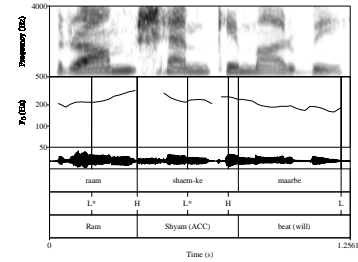

Figure 2: *Speaker B, Experiment 1: Transitive OOTB utterance with nominal object*

4.1.2. Intransitive OOTB utterances

Significantly, even intransitive utterances show a fall from the phrase-final H of the preverbal nominal subject to the verb, as in Speaker C's rendition of *bipul g^{h}umobe* 'Bipul will sleep'; see Fig. 3. Combined with the evidence of transitive utterances with pronominal objects, this finding suggests that the avoidance of prominence on utterance-final verbs in Bangla holds across the board and is not sensitive to the grammatical function of preverbal constituents.
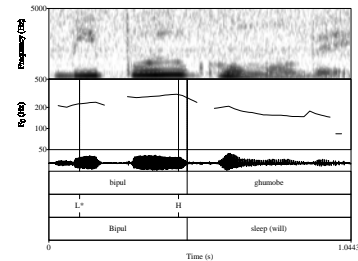

Figure 3: *Speaker C, Experiment 1: Utterance with an intransitive verb*

4.2. Experiment 2

The experiment involved the performance of a scripted dialogue, containing target utterances. The method was adopted from [9] so as to correct for the possibility that our first OOTB experiment might have been negatively affected by the observer's paradox, specifically by list-reading effects.

The findings from this experiment clearly confirm our findings in [2], by showing that utterances have falling pitch from preceding constituents to the utterance final verbs. See Fig. 4, Speaker M1's rendition of *mona-ke ektu dek^ho* 'Take care of Mona for a while', which again exhibits pitch declination from the final H of preverbal *ektu* to the verb *dek^ho*.
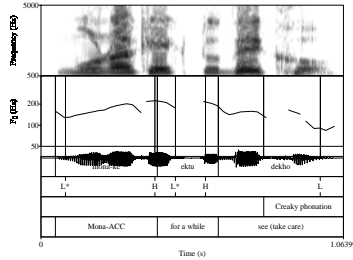

Figure 4: *Speaker M1 , Experiment 2*

In addition we made the unexpected observation that in addition to pitch declination, final verbs exhibit creaky phonation. While in Fig. 4, creaky phonation is limited to the final syllable of the verb, Fig. 5 - Speaker F1's [SP] rendition of *dije dijo* 'give (it to her/him)' **-** shows that in some cases the entire verb, even a complex verb such as *dije dijo*, is produced with creaky phonation. The extent of this creakiness was found to be maximally the entire domain of the final P-phrase and minimally a single syllable.

Final creaky phonation has been variously reported to be due to finality or turn-taking ([14]). To determine whether the creakiness in this experiment was a result of turn-taking (a definite possibility in a dialogue situation) or of finality in general, a second OOTB experiment (Experiment 3) was conducted.
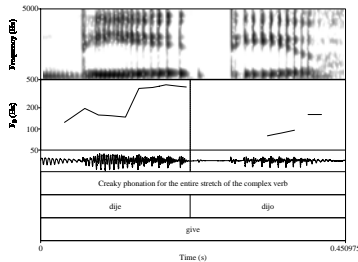

Figure 5: *F1, Creaky phonation on the entire stretch of a final complex verb*

4.3. Experiment 3

Results from this experiment, apart from confirming pitch lowering in final verbs, show that creaky phonation on final verbs occurs even in OOTB contexts. We can therefore safely exclude turn taking as motivating the creaky voice; rather, creaky voice appears to be another effect of utterance-finality, parallel to pitch declination.
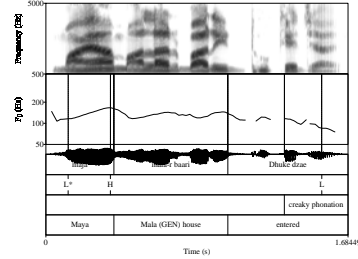

Figure 6: *M2, Creaky phonation on final verb in OOTB context*

5. Summary, interpretation, conclusion and implications

Our experiments confirm that in unmarked utterances Bangla adheres to the crosslinguistic tendency of SOV languages to avoid prominence on utterance-final verbs. This is true both for the OOTB and dialogue experiments. The tendency is not limited to transitive utterances, or utterances with nominal complements, but holds across the board. Further, the effect of utterance finality is not limited to pitch declination on utterance-final verbs, but also manifests itself in creaky voice.

In [2] we showed that the observations of [6] only hold under pragmatically highly marked circumstances, and that the unmarked situation in Bangla conforms to the cross-linguistic tendency for utterance-final verbs in SOV languages to avoid prominence. We speculated that this avoidance is based on two well-established cross-linguistic tendencies - an avoidance of utterance-final prominence and an accentability hierarchy. For the former tendency, the "Finality Effect" (FE), see [7] with references, as well as the shorter version in [8]. For the Accentability Hierarchy (AH), according to which verbs tend to be less prominent than nouns and adjectives within the same prosodic domain, see [13] for German, and [1], [11], [13], [16] for English (see also [15]).

Our findings suggest that Bangla goes beyond the predictions made by the interplay of FE and AH, by avoiding prominence on final verbs even after pronominals. Moreover, the avoidance of stress on final intransitive verbs after nominal subjects is unexpected, since the subject and the verb are not expected to be in the same prosodic domain (the IP).

In this regard, then, our conclusions in [2] need to be modified. Evidently, either FE is strong enough by itself to lead to prominence avoidance on final verbs, or the effects of FE combined with AH were extended from transitive constructions with nominal complements to all utterances.

An unexpected additional insight of our new experiments has been that non-prominence of utterance-final verbs tends to be accompanied by creaky voice, a feature that, just like pitch declination, can be attributed to the prosodic effect of FE.

In all fairness it should be noted that even Hayes & Lahiri's paper contains one item that might be interpreted as supporting our findings, namely the utterance *toma-ke ami fón korbo* 'I will call you; lit. To you I will make phone' (see example below). Here prosodic prominence is on *fón* 'telephone', which looks like the complement of *korbo* 'will do', rather than on the verb *korbo*. However, the combination *fón korbo* could be a complex verb, with incorporation of *fón*. It is still an open question whether complex verbs, consisting of auxiliary ('to do/make or 'to be') plus incorporated noun,

behave the same way as verb + complement structures or differently. Further research in this direction would certainly be desirable.

$$[[\ \text{tomake} \quad \text{ami}\ ]_P\ [\ \text{fón korbo}\ ]_P\ ]_I$$

$$\qquad\qquad\qquad\quad | \qquad\quad\ |$$

$$\qquad\qquad\qquad H^* \qquad L_I$$

$$\textit{You-obj.} \quad \textit{I} \quad \textit{will-call}$$

I will call you

Before concluding, let us briefly address the question of how the conflict between our findings and those of [6] might be explained or reconciled. Unfortunately, the study in [6] does not provide information about the experimental design on which it was based. We are therefore limited to speculation. Nevertheless, several possibilities suggest themselves.

One of these is the earlier suggestion that high pitch on final verbs in [6] may be an artifact of the experiment, specifically of the fact that all P-phrases were given contrastive focus. As we have seen earlier, prominence on utterance-final verbs can be observed in other contexts as well, most obviously in certain types of newscast delivery. (Hock has observed parallels in some Hindi newscasts, i.e., in a language not normally considered to go against the crosslinguistic tendency to avoid prominence on utterance-final verbs.) In February 2005, Tista Bagchi (Delhi University) suggested that patterns as found in [6] are common in a special mode of Bangla woman-to-woman talk. Finally, Dutta has observed that certain northern Bangla dialects, especially around Murshidabad, seem to have high-tone stress accent on final verbs in unmarked declaratives.

All of these alternatives call for further, detailed empirical study. Since the data in [6] are apparently based on standard Bangla, the northern dialects can at this point be set aside. Preliminary examination of public-domain newscast data does indeed suggest a common pattern of high pitch on utterance-final verbs, and we are beginning to subject the data to phonetic analysis. Bagchi's woman-to-woman talk suggestion is more difficult to follow up on.[6] At this point we are looking at various types of dialogue in the Bangla movie "Utsab", which contains a fair amount of woman-to-woman talk. We are beginning to see patterns superficially similar to those in [6]; but detailed examination is needed before we can confirm that impression.

While our findings thus suggest that Bangla is not an exception to the crosslinguistic tendency of SOV languages to avoid prominence on final verbs, there clearly is room for a significant amount of additional empirical research.

6. References

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[2] The term "phrase" here refers to phonological phrases or P-phrases, which in SOV contexts include the final verb, except in cases of incorporation.

[3] As it turns out, data from [6] include one utterance that could be interpreted as exemplifying non-prominence on the final verb. However, the preverbal nominal element could be interpreted as part of a complex verb, rather than as a complement of the verb. This issue is discussed in §5.

[4] This has been informally observed by Hock in German, especially with children in the early stages of learning to read.

[5] Unfortunately, Bangla unlike Hindi does not permit bare pronominal complements, i.e. complements without definiteness-marking postpositions or without classifier.

[6] Unfortunately, difficulties in getting timely IRB approval prevented Hock from following up on Bagchi's suggestion with an experiment while he was still at Delhi University.