The "Indian English" of Tibeto-Burman language speakers*

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English as spoken as a second language in India (IE) has developed different sound patterns from other varieties of English. While most descriptions of IE have focused on the English of speakers whose first languages belong to the Indo-Aryan or Dravidian families, in this study I examine the phonetic and phonological characteristics of the English produced by speakers of three Indian L1s from the Tibeto-Burman language family (Angami, Ao, and Mizo). In addition to describing aspects of Tibeto-Burman Indian English, a previously unreported Indian English variety, I also examine how and why this variety of English differs from General Indian English. The English of Tibeto-Burman L1 speakers seems to form a variety distinct from Indian English, most noticeably in terms of the lack of retroflexion of coronal consonants, the devoicing of word-final obstruents, the simplification of consonant clusters, the presence of post-vocalic [ɹ], and the reduced set of vowel contrasts. Most of these can be traced to transfer from the L1 phonology, with the coda devoicing and cluster reductions reflecting simplification in terms of markedness, following developmental sequences found in second language acquisition.

Keywords: Indian English, Tibeto-Burman, phonetics, phonology, transfer, Second Language Acquisition, devoicing, vowel systems, retroflex

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1.   Introduction

English as spoken as a second language in India has developed different sound patterns from other varieties of English, and most descriptions of Indian English focus on the English of speakers whose first languages belong to the Indo-Aryan or Dravidian families (e.g. Das 2001; Jose 1992; Pandey 1980, among many others). In this study, I examine some of the phonetic and phonological characteristics of the English produced by speakers of three Indian first languages (L1s) from the Tibeto-Burman (TB) language family; to my knowledge, there have been no previous studies of this variety of English, so this work provides at least a descriptive contribution.[1] I also examine how and why their variety of English differs from General Indian English (GIE; CIEFL 1972), to evaluate the role of transfer from L1s, the model of English being taught, and developmental sequences in second language (L2) acquisition.

The three TB L1s examined here are Angami and Ao, both spoken in Nagaland, and Mizo, spoken in Mizoram; Nagaland and Mizoram are both states in north-east India. I compare descriptions of these L1s to the English of five speakers from each group, and find that vowel and consonant systems both show transfer from the L1s. In the realization of consonants and clusters word-finally, we see evidence of developmental/markedness influences as well, while the stress system resembles that of GIE. I begin with some discussion of the language situation in India and the factors that influence Indian Englishes, before discussing the data in more detail.

1.1   The language situation in India

India is home to a large number of languages; the 1991 census listed 114 languages that had at least 10 000 native speakers (Government of India 1991). Furthermore, the languages fall into four distinct language families: Indo-Aryan (from the West), Dravidian (always in India), TB (from the East), and Munda (Austronesian, from the East). Although these languages are historically unrelated to each other, speakers have been in contact for so long that many of the languages have come to share linguistic features, so that India has been described as a Linguistic Area (Masica 1976); however, the TB language family has been resistant to these shared features, probably due to geographic

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1. For example, Agnihotri's review of previous work on Indian English mentions TB families once, in the context of Pandit's (1964) overgeneralization about the inventories of Indian Englishes from TB, Indo-Aryan, and Dravidian families (1999: 187).

and/or cultural distance from the remainder of India. The result is that TB languages are typologically rather different from Indo-Aryan and Dravidian language families, including in their phonological and phonetic systems.

English came to India with the British, and when India became independent in 1947, English stayed on as an Associate Official National Language of the country, as a second *lingua franca* in addition to the other Official National Language, Hindi. Generally states or regions have been designed along linguistic lines, with a regional language having official status, but some states, such as Nagaland, the home of Angami and Ao among others, have so much internal linguistic diversity that English is also used as an official state language and regional *lingua franca*. English is also an official language of Mizoram, along with Mizo and Hindi.

1.2 Factors influencing the development of Indian Englishes

Factors affecting the development of Indian Englishes include the target English being taught, and two considerations from second language acquisition: transfer from L1s and universal developmental sequences in second language acquisition.

Until relatively recently, the prestige variety of English in India seems to have been British English (RP); however, with the departure of most native British speakers from the country, there has been a movement to replace that model with a native variety of Indian English as the standard (Bansal 1976). Pandey (1981) argued that RP has been slowly declining in prestige and is in any case too ideal a model for Indian learners to acquire, and argues for a "viable model of English in India that would be acceptable from both the pedagogic and the communicative points of view" (1981: 11). Faculty and students at India's Central Institute of English and Foreign Languages (CIEFL) have been describing the phonology of Indian English based on proficient speakers from different parts of the country, to describe the form that serves as "a socially acceptable pronunciation devoid of regional peculiarities that may impair communication with speakers from within and from outside the country" (Pandey 1981: 11). CIEFL, calling this form General(ized) Indian English, notes that it "appears to be the *de facto* norm" (1972: 22), while Pandey reports that it "is being used for pedagogic purposes in our universities" (1981: 11). Kachru (1990) supports the growth of this endo-normative approach to English in India, citing surveys of attitudes towards different varieties of English that indicate a growing preference for the Indian variety as the model. Agnihotri writes:

> In India, there is no pressure on the learners of English to speak RP; nor do they have any access to RP speakers; nor is their motivation strong enough to impel them to change their behavior in the direction of RP. One wonders why most of the studies [on Indian English-CRW] have evaluated their behavior in terms of RP (1999: 189).

General Indian English is the product of a complex contact situation. IE has been called a "transplanted variety" because it is taught as a second (rather than foreign) language and used in daily life in India with other Indians, particularly those with other L1s. A transplanted system differs from an interlanguage system, which is a stage in learning a second language in which the native system of that language has not been fully acquired. A transplanted system, by contrast, is stable and self-replicating (Kachru 1983); the learners are exposed to the nativized variety of the second language system, which they master, rather than incompletely acquiring a foreign target language system. The GIE model has been accepted to the extent that English teachers in India now are usually IE speakers, not speakers from a country with English as a native language, and a range of varieties, including Indian English varieties, are common in films and on television.

While the GIE model is perhaps the ideal target, local variants of Indian Englishes still abound (Kachru 1990: 110ff.). These local variants may result from second language acquisition factors, which break into two types: transfer and markedness. Transfer means that patterns from one's first language are carried over into a language acquired later. Transfer can be positive, when the first language resembles the new language, or negative, when the second language target is different from the first language. To try to evaluate the role of transfer in IE, I use data from speakers of three L1s that are quite distinct from the target GIE: Mizo, Ao, and Angami.[2]

Although the development of phonetic and phonological differences among varieties of English have usually been attributed to transfer from the first languages, there is another possibility. SLA research on interlanguage in other L1-L2 pairs has also revealed cases in which learners use unmarked forms, when neither L1 nor L2 provide any reason for doing so; these are explained as developmental effects, reflecting the universal preference for unmarked forms. For example, in the English of Mandarin speakers, word final stops tend to be devoiced; as Mandarin does not allow final stops, the phenomenon is not a

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2. This is part of a larger study for which I have gathered comparable data from Indo-Aryan and Dravidian L1 speakers.

direct transfer from L1 phonology (Broselow, Chen and Wang 1998). In addition to transfer from the L1, we therefore might also expect to find that Indian Englishes share characteristics with other second language Englishes, where the new varieties simplify or regularize English in the same ways as each other, as e.g. Peng and Ann (2001) suggested for stress systems in new Englishes.

A description of TB-IE thus allows us to address questions about contact-induced languages as well as second language acquisition. Do the phonologies of TB-IE varieties reflect the patterns of the various L1s? Do they share structural properties with other contact languages? With various L1s as the substrates to the TB-IE varieties, we expect, following research on SLA and contact languages, that the model being taught, the substrata (L1s), and linguistic universals will all have an effect on the resulting English varieties.

1.3 Tibeto-Burman languages and speakers

The L1 languages of the speakers in this study are Ao and Angami, spoken in Nagaland, and Mizo,[3] spoken primarily in Mizoram; in both states, English is also one of the official languages.
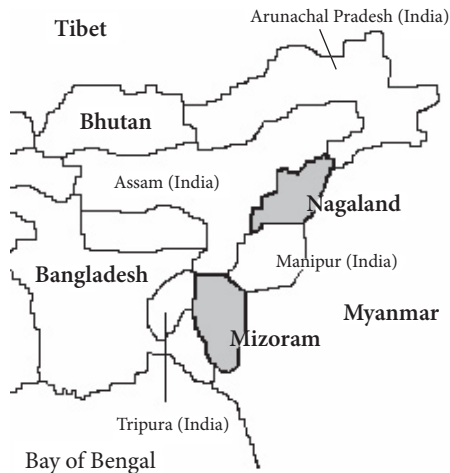
Map 1.   Nagaland, Mizoram, and surrounding states and countries

These states are located in the north-east part of India, and are separated from each other by the Indian state Manipur (see map 1). Both border on Myanmar

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3. Angami is also called Tenyidie by its speakers; Mizo has also been called Lushai (e.g. Weidert 1975).

to the East; Nagaland's other neighbors to the North and West are Arunachal Pradesh and Assam of India, while Mizoram borders Bangladesh to the West and the state Tripura to the North-West. The 1991 census reports approximately 172 000 Ao speakers, 98 000 Angami speakers, and 539 000 Mizo speakers. Although all three L1s belong to the TB family, historical linguists agree that Ao and Angami are more closely related, and Mizo is more distant (Miller 1969; Hale 1982). Both Nagaland and Mizoram became states after the independence of India, Nagaland in 1963, and Mizoram in 1987. In both, English is now normally the medium of instruction as well as an official state language. The current policy of Indian education, called the "three language policy", is for each child to learn the regional language, plus Hindi and English. Most of the informants recorded in this study attended English medium schools from the beginning, so that they began to use English at age three or four. Furthermore, in Nagaland and Mizoram, there is strong feeling against Hindi, so that it is studied for only a few years in school and then forgotten, according to my informants. They reported that their teachers in school were Indian speakers of English, both local and from other parts of India.[4]

2.   Methodology

The data was gathered in Hyderabad, India, in January 2003; all the speakers discussed here were recorded at Hyderabad Central University, where they were graduate students and where the primary language of instruction is English. The interviewees currently use English on a regular basis with other IE speakers, especially their professors and fellow students from around the country. Five proficient English speakers from each L1 were recorded reading a list of words containing potential vowel contrasts, sentences containing consonant clusters for determining allophonics and phonotactics and words of more than one syllable for stress patterns. There was also a short passage[5] for a different style of more connected speech and a series of short dialogues for intonation. After the reading part of the session, we conducted a language background interview. Subjects were asked questions about their first language

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4. In follow-up e-mails, many reported that their teachers came from Kerala, where Malayalam (Dravidian) is the regional language.

5. The passage, included in appendix B, is used with permission from the George Mason University Speech Accent Archive.

background and use, their education in English and their current use of it, and other languages that they had studied or used. These interviews are used for both the information revealed, and also for the phonetics and phonology of the more impromptu speech generated. The interviewer was a native speaker of Assamese, a Masters student in linguistics from nearby CIEFL who speaks fluent Indian English.[6]

To summarize the background of the subjects: They were all between ages 21–28, and there were at least two of each sex in each group of 5 speakers. Speakers of this age were chosen because 1) they began learning English no earlier than the late 70s, so that the GIE norm was beginning to be established; 2) they had not had much, if any, interaction with native speakers of English, and had not left India; and 3) they had reached a level of proficiency in English that allowed them to fluently interact with other English speakers in India and to enrol in post-graduate programs. With the exception of one Mizo L1 speaker, they began studying English by way of English medium schools from kindergarten; most reported some study of Hindi but asserted that they did not use it regularly and were not fluent. The Ao and Angami speakers from Nagaland are also users of Nagamese, a creole used in Nagaland and Assam. Further details are provided in Appendix A.

Recording was done onto a Sony TCD-D8 DAT player using a head-mounted Shure SM10A microphone, then digitized into a CSL MODEL 4400. The data was transcribed, with reference to Praat 4.0.28 to verify transcriptions and to measure the formants frequencies for the vowels.

3.   Results

Differences in segments are the most frequently discussed differences between GIE and other Englishes, and I begin by examining the differences between TB-IE and GIE consonants and vowels. These are often described (based on Wells 1982) as systematic (different number or set of oppositions in phonemic inventory), realizational (the way phonemes are realized as allophones), and distributional (the phonological restrictions on the distribution of phonemes, or phonotactics). I will compare what I have found for the TB-IEs to previous descriptions of GIE (CIEFL 1972) and to the L1 systems, described

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6. The American accented researcher was present at the interviews but participated as little as possible, so that the subjects would not accomodate their accents to hers.

in the following sections. The segmental systems show transfer from the L1s. From the phonotactics, we also see some evidence of markedness influences, while the stress reflects tendencies found in GIE. Intonation, while noticeably distinct in TB-IEs, is not fully analyzed; I can offer only tentative suggestions about its origin.

3.1   Consonants

3.1.1   *The target and the L1s*
As described in CIEFL (1972), the consonant inventory of GIE is shown in Table 1. Frequent phonetic variants ("personal or regional") are shown in parentheses; the slash between [ʋ] and [w] means that they are in allophonic variation. CIEFL (1972) states that subvarieties of /r/ are not distinguished, although it lists /r/ with the approximants; Bansal (1976) describes it as an approximant or flap, and Singh (2004) as a tap or trill. As for phonotactics, CIEFL (1972) notes that consonant clusters in GIE are generally the same as in RP English, except due to the absence of certain sounds not in the GIE inventory, such as [v] or [ʒ] (1972: 4).

Table 1. Consonant inventory of General Indian English (CIEFL 1972)

	labial	labio-dent.	dental	alv.	post alv.	retro-flex	pal.	velar	glot.
Stop	p (pʰ)b		(t̪) t̪ʰd̪			ʈ (ʈʰ)ɖ		k (kʰ) g	
Affricate					ʧ (ʧʰ) ʤ				
Nasal	m			n				ŋ	
Fricative		f		s z	ʃ				h
Approx.	ʋ/w			r			j		
Lat. Approx.				l		(ɭ)			

For the TB languages, descriptions of the L1 phonologies range from the Phonetic Reader series of CIIL for Angami and Ao (Ravindran 1974; Gurubasave-Gowda 1972), to M. Litt. and Ph.D. theses written by native speakers for Mizo (Chhangte 1986; Lalrindiki 1989, 1992), to a recent acoustic phonetic description of aspects of Ao (Coupe 2003). Thus, there is enough descriptive work to begin to evaluate the role of transfer. A consonant inventory for each is given below (tab. 2–4); note that they share certain properties, such as lacking retroflexes and contrasting voiceless aspirated and voiceless unaspirated stops.

Table 2. Consonant inventory of Angami (Ravindran 1974)[7]

Angami L1	labial	labio-dental	dental	alveo-lar	post alveolar	retro-flex	palatal	velar	glot-tal
Stop	pʰ p b		t̪ʰ t̪ d̪					kʰ k g	
Affricate	pf bv			ts dz			cʰ c ɟ		
Nasal	m mʰ	ɱ	n nʰ				ɲ ɲʰ	ŋ	
Trill			r rʰ						
Fricative		f v		s z			ç ʝ		
Approx.	w w̰						j j̰		
Lat. Approx.				l lʰ					

Table 3. Consonant inventory of Ao (Coupe 2003)[8]

Ao L1	labial	labio-dental	dental	alveo-lar	post alveolar	retro-flex	palatal	velar	glot-tal
Stop	pʰ p		t̪ʰ t̪					kh k	ʔ
Affricate			t̪sʰ t̪s		tʃʰ tʃ				
Nasal	m			n				ŋ	
Fricative		(f)	s̪ z̪						h
Approx.	w					ɹ	j		
Lat. Approx.			l̪						

Table 4. Consonant inventory of Mizo (Chhangte 1986)

Mizo	labial	labio-dental	dental	alveo-lar	post alveolar	retro-flex	palatal	velar	glot-tal
Stop	pʰ p b		t̪ʰ t̪ d̪	tʰ t				kʰ k g	ʔ
Affricate			t̪sʰ t̪s						
Nasal	m̥ m		n̪̊ n̪					ŋ̊ ŋ	
Tap / flap				rʰ ɾ					
Fricative		f v	s̪ z̪						h
Lat. Approx.			l̥ l			ɭ			
Lat. Affr.				tɭ̥ tl					

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7. From his description, [h] is perhaps [χ], and [w̰] and [j̰] are described as fricativized labial and palatal approximants. The stops and nasals are described as dental but with a pronunciation that often moves towards alveolar.

8. Coupe (2003) reports that some dialects of Ao have [f] and others do not; hence I record it in parentheses.

In contrast to the target GIE, these languages also share having restricted consonant phonotactics. All three allow only a single consonant in onset position. Angami does not allow any consonants in syllable-final (coda) position. Mizo and Ao both allow a single consonant in the coda, but obstruent codas are limited to the voiceless unaspirated version (or, to be perhaps more exact, there is no contrast in voicing or aspiration in the coda stops). For Mizo, permissible codas are limited to {p, t̪, k, ʔ, m, n, l, ɾ} while for Ao, they can be only {p, t, k, ɹ, m, n, ŋ}.

3.1.2   *The TB-IE inventory and allophonics*

The TB-IE inventory of contrasts differs in two very noticeable ways. First, unlike GIE, most TB-IE speakers seem to maintain a contrast between /v/ and /w/. CIEFL (1972) states that GIE lacks a distinction between /v/ and /w/ and uses [ʋ] and [w] in complementary distribution for both. TB-IE speakers seem to keep a distinction, using [w] for most words spelled with a <w>, and [v]/[ʋ] for words spelled with a <v>. Table 5 below illustrates the difference between TB-IE speakers and native speakers of Gujarati, an Indo-Aryan language, included here to show how a non-TB variety of Indian English produces these same sounds. This is both a systemic, inventory difference, where TB-IE has a contrast that other IEs may lack, and a realizational difference, in that most

Table 5. The use of [w], [v] and [ʋ] in TB-IEs vs. Gujarati English

| Word | Tibeto-Burman L1 speakers | | | Indo-Aryan |
	Angami	Ao	Mizo	Gujarati
with	[w]- 5	[w]- 5	[w]- 5	[w]- 1 [ʋ]- 4
we	[w]- 5	[w]- 4 [ʋ]- 1	[w]- 5	[w]- 1 [ʋ]- 4
Wednesday	[w]- 5	[w]- 5	[w]- 5	[w]- 3 [ʋ]- 2
weather	[w]- 5	[w]- 4 [ʋ]- 1	[w]- 5	[ʋ]- 5
wise	[w]- 5	[w]- 5	[w]- 4 [ʋ]- 1	[w]- 1 [ʋ]- 4
was	[w]- 5	[w]- 5	[w]- 5	[w]- 1 [ʋ]- 4
veal	[v]- 3 [ʋ]- 2	[v]- 1 [ʋ]- 4	[v]- 2 [ʋ]- 3	[ʋ]- 5
valentine	[v]- 5	[v]- 2 [ʋ]- 1 [f]- 2	[v]- 4 [ʋ]- 1	[v]- 3 [ʋ]- 2
volunteer	[v]- 4 [ʋ]- 1	[v]- 4 [ʋ]- 1	[v]- 5	[v]- 1 [ʋ]- 4
interview	[v]- 4 [ʋ]- 1	[v]- 2 [ʋ]- 3	[v]- 4 [ʋ]- 1	[ʋ]- 5
television	[v]- 5	[v]- 5	[v]- 3 [ʋ]- 2	[v]- 2 [ʋ]- 3
supervisor	[v]- 5	[v]- 2 [ʋ]- 3	[v]- 3 [ʋ]- 1 (1 reading error)	[ʋ]- 5
<w> spelling	[w]= 30/30	[w]= 28 [ʋ]= 2	[w]= 29 [ʋ]= 1	[w]= 7 [ʋ]= 23
<v> spelling	[v]= 26 [ʋ]= 4	[v]= 18 [ʋ]= 12	[v]= 21 [ʋ]= 8	[v]= 6 [ʋ]= 24

speakers of TB-IE can and often do produce [v] and [w], both relatively less common sounds in the Gujarati speakers' allophonics.

Looking at the L1 inventories, we see that Angami has both /w/ and /v/, Ao has /w/ but no /v/, and Mizo has /v/ but no /w/. Chhangte (1986) does, however, mention that Mizo speakers produce [w] as an offglide in diphthongs, where it is considered the realization of /u/. Thus, the Angami speakers may be transferring their distinctions, but the Ao and Mizo speakers have had to learn either a new sound or a new contrast to maintain this distinction. Possibly an areal norm for TB-IE is asserting some influence on Ao and Mizo learners of English.

A second difference that is both systematic and realizational is equally striking: The English of TB speakers lacks retroflex stops. In their place, TB English speakers generally use dental and alveolar stops. Looking at the consonant inventories for Mizo, Ao, and Angami, we find that they do not have retroflexes in their L1s, so that this results from transfer. Whether it is positive or negative transfer is complicated; the first generation of TB-English learners were taught by native speakers of British or American varieties, so that their model lacked retroflexes. If these TB-English speakers are the model for later generations, this is positive transfer. Given that many of my subjects reported that their teachers were IE speakers from other parts of India, and given that all have been exposed to Indian media using GIE, they are also at least resisting the GIE model by continuing to use alveolars and dentals.

In common with GIE, TB-English uses dental stops where some varieties of English have interdental fricatives; however, in GIE these dental stops contrast with retroflex stops. The effect of using alveolars and dentals, where GIE has retroflexes, is often neutralization, a loss of contrast. Having neither retroflexes or interdental fricatives, TB-IE speakers often neutralize the contrasts by using dental and alveolar stops for both:[9]

(1)		Angami	Ao	Mizo
	taught	[t̪ʰɔt̪]	[t̪⁽ʰ⁾ɔt̪]	[tɔt̪]
	thought	[t̪ʰɔt̪]	[t̪ʰɔt̪]	[t̪ʰɔt̪]

A third observation affects the realization of the consonants; the TB-IE speakers generally use an approximant [ɹ] and rarely a flap [ɾ]. GIE has been described as having a range of variants for this sound, from trills, through flaps, fricatives, approximants, and post-vocalically, nothing but a centralizing or

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9. It is possible that there is some distinction for some speakers based on aspiration, but measurements of VOT have not yet produced any consistent results.

retroflexing effect on the preceding vowel, for many speakers (CIEFL 1972; Bansal 1969). TB-IE speakers do tend to have a post-vocalic [ɹ], rather than following a British RP model in having a more complex vowel system without [ɹ]s post-vocalically. Gujarati is again provided in the following table for comparison, from Wiltshire and Harnsberger (2004), as a representative of an Indo-Aryan IE. The table shows first that the modal rhotic in both pre- and post-vocalic positions is [ɹ] for the TB language speakers, while it is [ɾ] for the Gujaratis. The second major difference is the presence of the post-vocalic [ɹ] in the TB-IEs data, where it occurred some 83–91% of the time, contrasting with the Gujarati's 17%.

Table 6. Realizations of the rhotic in TB-IEs and Gujarati English

	Tibeto-Burman L1 speakers			Indo-Aryan
	Angami	**Ao**	**Mizo**	**Gujarati**
Prevocalic	98.8% (n = 168)	98.9% (n = 170)	100% (n = 165)	96% (n = 161)
Modal rhotic	ɹ (82%)	ɹ (81%)	ɹ (78%)	ɾ (67%)
Other rhotics	ɻ̊ (14%)	ɻ̊ (17%)	ɻ̊ (18%)	ɹ (26%)
	ɾ (3%)	ɾ (2%)	ɾ(4%)	r (7%)
		ɾ̥ (1%)		
Post-vocalic	86% (n = 209)	91% (n = 210)	83% (n = 207)	17% (n = 214)
Modal rhotic	ɹ (100%)	ɹ (98%)	ɹ (95%)	ɾ (39%)
Other rhotics		ɻ̊ (2%)	ɾ (3%)	ɹ (14%)
			ɾ̥ (1%)	r (8%)
			ɻ̊ (1%)	ɾ̥ (33%)
			r (1%)	r̥ (6%)

Only one of the TB L1s has the same phone [ɹ] as is found so prominently in TB-English, and that is Ao. Coupe (2003) describes this as a voiced apical post-alveolar central approximant, with a more retroflexed allophone [ɻ] and a slightly fricativized version [ɹ̝] in free variation. As with the /v/ vs. /w/ contrast, this distinct characteristic of TB-IE can be called transfer only for the Ao speakers; the Mizo and Angami do not have an approximant rhotic in their inventories, yet they use it consistently in their English.

3.1.3   *The TB-IE phonotactics and clusters*
General Indian English is described as having all the same phonotactics and consonant clusters as other Englishes, except where certain individual consonants in the inventory are replaced by their IE counterparts. The first languages of the subjects here have simpler syllable structure than the English model. Mizo and Ao each allow at most one consonant in onset and one in coda, with

further restriction on what that consonant may be; both require that coda obstruents be voiceless. Angami is even more restricted, not allowing coda consonants at all.

We find that a phonotactic requiring coda obstruents to be voiceless is largely followed in TB-IE; thus, while GIE makes a contrast between voiced and voiceless stops, fricatives, and affricates word-finally, TB-IE usually has only the voiceless (see tab. 7). For Mizo, this appears to be transfer, because Mizo allows voicing of obstruents to contrast in onsets but not in coda. However, for Ao it is unclear whether this is transfer from their L1, because Ao does not have voiced stops or affricates in their inventory. Despite this lack of voiced obstruents, Ao speakers almost always make a contrast in the voicing of obstruents word-initially in English, so their acquired voicing contrast is position-dependent. As for Angami speakers, their L1 does not allow codas at all, hence they are not transferring a phonotactic allowing only voiceless obstruents in this position.

Table 7. Word final devoicing in TB-IE varieties

Final C	Word	Angami	Ao	Mizo	Devoiced
b	*Bob*, *verb*	[p] 10/10	[p] 8/10	[p] 8/10	26/30
bz	*slabs*	[ps] 5/5	[ps] 5/5	[ps] 4/5	14/15
v	*five*, *leave*	[f][10] 9/10	[f] 9/10	[f] 10/10	28/30
d	*had*, *bud*, *hard*	[t] 15/15	[t] 12/15	[t] 14/15	41/45
z	*please*, *raise*, *wise*	[t] 15/15	[s] 15/15	[s] 15/15	45/45
dz	*kids*	[ts] 5/5	[ts] 5/5	[ts] 4/5	14/15
dʒ	*badge*	[tʃ] 5/5	[tʃ] 4/5	[tʃ] 5/5	14/15
g	*frog*, *bag*, *big*	[k] 13/15	[k] 15/15	[k] 14/15	40/45
gz	*bags*	[ks] 5/5	[ks] 5/5	[ks] 4/5	14/15
	Devoiced	82/85	76/85	78/85	236/255 (92%)

Thus for the Mizo speakers, this may be transfer, but for Ao and Angami speakers, they seem to be following the cross-linguistically attested tendency to prefer voiceless obstruents in syllable and word-final positions. This may be seen as an effect of the developmental tendency to produce the unmarked before the marked (Broselow, Chen and Wang 1998; Hancin-Bhatt and Bhatt 1997; cf. Peng and Ann 2002).

The consonant clusters in TB-IE also show signs of developmental factors

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10. In the tenth example, the final consonant was omitted rather than devoiced. In all other cases, consonants that were not devoiced were produced with voicing.

on acquisition. While the first languages allow at most one consonant in onset and one in coda, GIE provides onsets of up to three consonants, and word-final clusters of up to four. In their English, speakers from all three TB groups had no systematic problems producing onset clusters of consonants. The data included examples of stop + glide (*twice*, *quota*), stop + liquid (*please*, *bring*, *blue*, *grip*, *glimpse*, *clothing*), fricative + liquid (*fresh*, *three*, *slab*), /s/ + stop (*Stella*, *spoons*, *snow*), and /s/ + CC (*spring*). TB-IE speakers also produced some coda clusters generally as in GIE, such as nasal + stop (*stamp*), stop + /s/ or /z/ (*slabs*, *kids*, *bags*, *maths*, *things*), and liquid + stop (*held*). However, other clusters caused more frequent cluster reductions; Table 8 provides examples of where the TB-IE speakers diverged from GIE. The more problematic clusters included /s/ + stop (*ask*), stop + stop (*project*), liquid + nasal (*film*), and some three consonant clusters (*texts*, *lifts*, *asks*, *sculpt*).

Table 8. Coda cluster production in TB-IE varieties

Type	cluster	Word	Angami	Ao	Mizo	Same as GIE
Os]	gz]$_{coda}$	*bags*				15/15
NO]	nt]$_{coda}$	*important*				15/15
	mp]$_{coda}$	*stamp*		[m] 1		14/15
LO]	ld]$_{coda}$	*held*	[l] 1		[l] 1	13/15
	ɹd]$_{coda}$	*cord*	[t] 1	[ɹ] 1	[t] 1 [ɹ] 1	11/15
LOO]	lpt]$_{coda}$	*sculpt*	[lt] 1	[lp] 1 [lt] 1	[lp] 3 [lt] 1	8/15
LN]	lm]$_{coda}$	*film*[11]	[m] 1	[m] 2	[m] 4	8/15
OO]	pt]$_{coda}$	*stopped*	[p] 2	[p] 1	[p] 4	8/15
	kt]$_{coda}$	*project*	[k] 1	[k] 4	[k] 3	7/15
OsO]	kst]$_{coda}$	*texts*	[ks] 1	[ks] 3	[ks] 4	7/15
sO]	ks]$_{coda}$	*ask*	[s] 3	[s] 2 [ks] 1	[s] 4	5/15
sOs]	sks]$_{coda}$	*asks*	[ks] 2 [sk]1	[sː]1 [səs] 1	[sː]1, [sk] 1 [sts]1 [ks] 2	5/15
OOs]	fts]$_{coda}$	*lifts*	[fst] 2 [ft] 1 [fs] 1	[fs] 3	[f] 1 [fs] 3 [ft] 1	3/15

The clusters that are more frequently produced in the coda tend to be less marked; they follow the sonority sequencing generalization (Selkirk 1984),

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11. Speakers who produced the coda as [m] usually produced the word as [flim] (except two of the Mizo speakers, who had [fim]). This word appeared in the same sentence twice, one as singular *film* and once as plural *films*. For the Ao speakers, all three who produced [film] in the singular had [filəms] for plural, so that the three consonant cluster was broken by a vowel.

which requires consonant clusters in the coda to fall in sonority towards the end of the syllable. A simplified sonority scale is shown in (2):

(2) (least   Stops < Fricatives < Nasals < Liquids < Glides   (most
       sonorous)   sonourous)

Some languages also require a minimal distance in sonority between consonants in the coda (Steriade 1982), so that even if clusters fall in sonority, they may not be well formed. The problematic clusters violate sonority distance by having two consonants that are too close in sonority (liquid plus nasal [lm]), or violate sequencing by having equal sonority (two stops [kt]) or even a sonority reversal in three consonant sequences ([sks], [fts], [kst]). These generalizations about coda clusters in TB-IE arise from speakers of L1s that allow no coda clusters (Mizo, Ao) or no coda consonants at all (Angami), and therefore cannot be the result of transfer from the L1. As with devoicing, the consonant clusters show evidence of the universal orders of acquisition also found in SLA research; clusters that are unmarked are produced in English, but marked clusters are reduced, epenthesized into, or metathesized. Similarly, Hancin-Bhatt and Bhatt (1997) note a greater rate of errors in coda versus onset, and different error rates based on the markedness of codas, for learners of English, with L2 learners having increased difficulty producing coda consonant clusters when the difference in sonority between the consonants in the coda decreases.

3.2 Vowels

3.2.1 *Target and L1 vowels*

I am limiting discussion to the monophthongs of both varieties for the purposes of this study. The description of the contrasting monophthongs of General Indian English from CIEFL (1972) includes the following vowels: [iː, ɪ, eː (ɛː), ɛ, æ, ə, ər (ɜːr), aː (ɑː), ɒ(ː) (ɔ,ɔː), oː, ʊ, uː]. Again the symbols in parentheses are meant as alternative pronunciations that are frequently heard. Like some native varieties of English, some pairs of vowels contrast in both length and quality; such as [iː] vs. [ɪ], and [uː] vs. [ʊ]. The description of the GIE model allows for both post-vocalic rhotic and non-rhotic varieties. Based on the symbols provided, the system looks as follows:

	Front	Central	Back
Close	iː		uː
	ɪ		ʊ
Close-mid	eː	ər (ɜːr)	oː
	(ɛː)	ə	
Open-mid	ɛ		(ɔ,ɔː)
			ʋ(ː)
Open	æ	aː (ɑː)	

Figure 1. General Indian English vowels (CIEFL 1972): Contrasts of monophthongs

Compared to the target GIE system, the basic L1 vowel systems are simpler. The vowel system of Mizo is the only one of the three that has a length contrast. It has been described as including five simple vowels with long and short versions of each, with the symbols given as: [iː, i, uː, u, ɛː, ɛ, ɔː, ɔ, aː, a] according to Chhangte (1986), while Lalrindiki (1989) describes the low vowel as central.[12] The Angami and Ao systems are equally simple in quality contrasts, and, in addition, lack the length contrast found in Mizo. For Ao, Gurubasave-Gowda (1972) describes the Chungli dialect as including the vowels [i, ɯ, u, e, o, a], with the low vowel listed as back, while Coupe (2003) describes the Mongsen dialect as including [i, ʉ, u, ə, a], with the low vowel as central. The two describe [ɯ] and [ʉ] in the same way, as high, central, and unrounded. In Coupe's (2003) description, /u/ has the allophones [u, o], while /i/ has the allophones [i, e], so that the dialects do not greatly differ phonetically. Ravindran (1974) describes the Kohima dialect of Angami in a way that resembles Ao; that is, his Angami inventory contains [i, e, u, o, ə, a], with the low vowel between central and back. Again, there is no length contrast. However, all three languages are described as permitting many vowel sequences and diphthongs.

3.2.2   *The TB-IE vowel inventory*
As in GIE, long vowels such as [iː, eː (ɛː), oː, uː] are monophthongs in TB-IE, so they are included here. I have measured the formant values for the female speakers of each group, for the vowel contrasts in GIE; I did not hear any further vowel distinctions made in TB-IE that were not present in GIE. The table below provides both the formants and the durations for vowels averaged for the female speakers of each language. While this is only a few speakers for each group, the results are suggestive of a smaller set of contrasts.

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12. Details are not provided beyond the use of terms like high/mid/low plus the IPA symbols.

Table 9. Vowel formants F1 and F2 of some representative words for female TB-IE speakers

Item and GIE vowel	Angami L1 females (3)			Ao L1 females (2)			Mizo L1 females (3)		
	F1	F2	Dur	F1	F2	Dur	F1	F2	Dur
heat – [iː]	321	2738	123	363	2884	140	319	2907	177
hit – [ɪ]	297	2786	131	379	2880	110	394	2600	67
hate – [eː (ɛː)]	384	2783	167	549	2551	208	426	2734	206
head – [ɛ]	839	2053	163	724	2305	166	745	2309	160
had – [æ]	846	2132	174	840	2209	188	897	2092	179
hut – [ə]	873	1419	144	746	1454	126	874	1652	103
father – [aː (ɑː)]	832	1351	124	756	1375	116	769	1325	158
hurt – [ər (ɜːr)]	571	1624	180	570	1482	211	666	1622	182
caught – [ʋ(ː)(ɔ,ɔː)]	613	955	162	627	1026	174	673	1102	188
cot – [ʋ(ː)(ɔ,ɔː)]	606	957	181	576	984	191	639	1062	141
coat – [oː]	484	852	190	588	1064	207	501	1003	188
hoot – [uː]	366	996	110	412	939	190	411	956	160
hook – [ʊ]	374	886	112	414	886	152	441	964	122

Although the data is too limited to allow tests of statistical significance, some tendencies seem worthy of further investigation. The vowel inventories for all groups of speakers are likely to be smaller than those of other Indian Englishes, as several vowels listed above do not appear to be distinct. Charts of the formant values, using F1 plotted against F2-F1 to give an indication of height and backness for each L1 group, reveal potential overlaps in vowel qualities for the target words. These are shown above the L1 vowel sets for comparison.

For example, for the Angami speakers, the vowels of *head* and *had*, [ɛ] and [æ] in GIE, appear to be nearly identical and have the quality of [æ]. Their L1 vowel inventory has no equivalent for either vowel. For both the Angami and Ao groups, the vowels of *heat* and *hit*, [iː] and [ɪ] in GIE, have the same quality, and they do not have a large difference in length, so both are roughly [i]. In both L1s, there is also only a single high front vowel. For Angami and Mizo, the vowel of *hate*, [eː] in GIE, is similar to both [iː] and [ɪ] in quality, although Angami at least is said to have a vowel [e] in its inventory.

The Angami, Ao and Mizo speakers also seem to have the same vowel for *hoot* and *hook*, [uː] and [ʊ] in GIE; none of them has a comparable distinction in the L1 vowel systems, either. Note that the vowels in *caught* and *cot* are said to be the same for IE, and this appears to be true for the TB-IE speakers. The Ao speakers may be using the same vowel as in *coat* for all three.
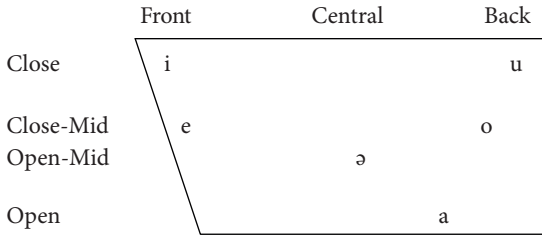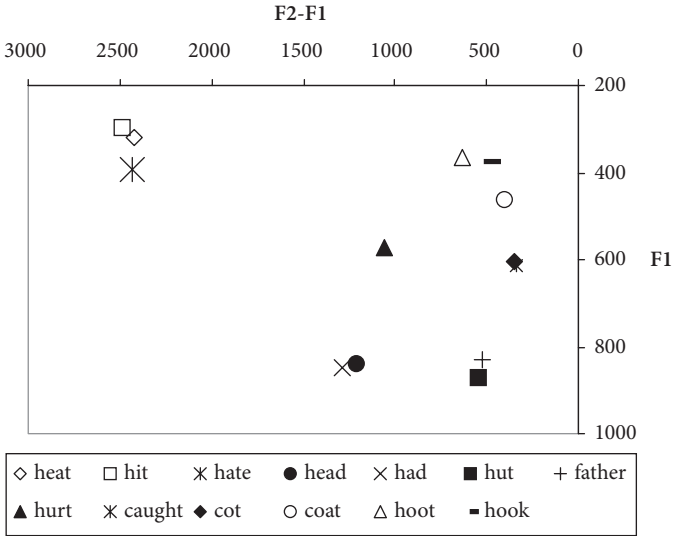
F2-F1

Figure 2. Formant values of Angami L1 females' vowels in English, and the L1 vowel system (Ravindran 1974, for Kohima dialect)

As for duration, the data was not gathered with any control for the rate of reading; subjects read at whatever pace they chose, and that pace may have varied over the course of the reading. Even so, one duration result seems fairly clear; the Mizo speakers are distinguishing the long vowels of *heat* and *hate* from a short vowel in *hit* [iː]/[ɪ], using quantity as in their L1.

The vowel systems resemble reductions found in other new Englishes, for example Hong Kong English (Hung 2000). However, transfer also provides a likely explanation, as discussed above; all three L1s have fewer vowel contrasts than GIE, and so do their Englishes.
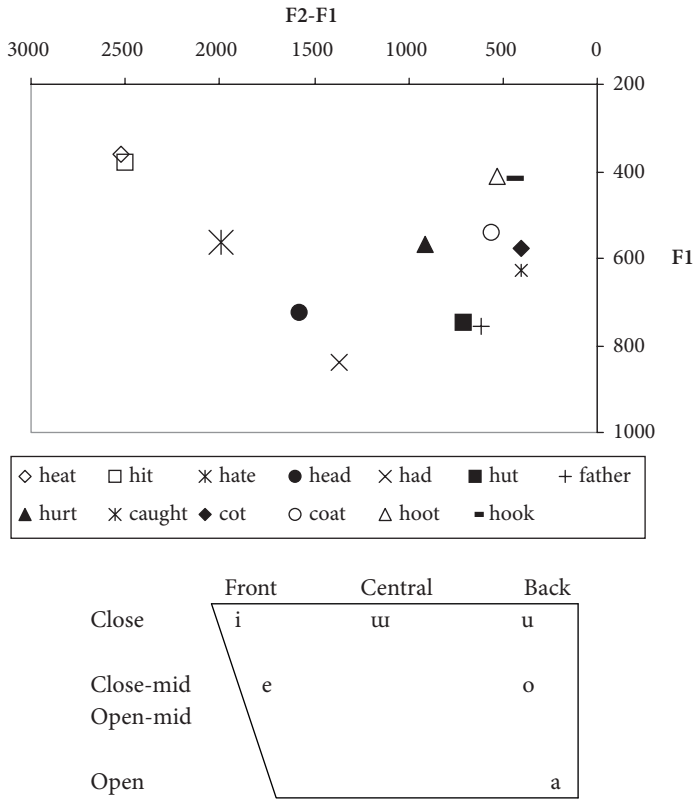
Figure 3. Formant values of Ao L1 females' vowels in English, and the L1 vowel system (Gurubasave-Gowda 1972, for Chungli dialect)

(3)   Vowels in TB-IEs

	Angami	Ao	Mizo	vs.	GIE
heat	[i]	[i]	[iː]		[iː]
hit	[i]	[i]	[ɪ]		[ɪ]
hate	[ɪ]	[e]	[ɪː]		[eː (ɛː)]
head	[æ]	[ɛ]	[ɛ]		[ɛ]
had	[æ]	[æ]	[æ]		[æ]
hut	[ʌ]	[ʌ]	[ʌ]		[ə]
hurt	[ə]	[ə]	[ə]		[ər (ɜːr)]
caught / cot	[ɔ]	[o]	[ɔ]		[ɒ(ː) (ɔ,ɔː)]
coat	[o]	[o]	[o]		[oː]
hook	[u]	[u]	[u]		[ʊ]
hoot	[u]	[u]	[u]		[uː]

F2-F1
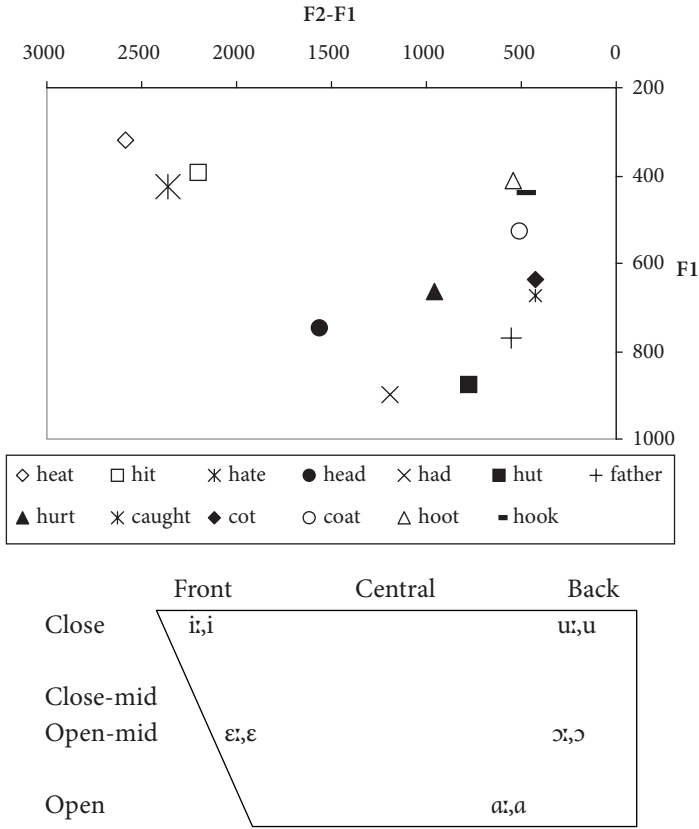
Figure 4. Formant values of Mizo L1 females' vowels in English, and the L1 vowel system (Chhangte 1986)

3.3 Suprasegmentals

All three of the TB L1s described here are tone languages; that is, they use pitch for contrast. In previous work on these languages, the focus of interest in suprasegmental properties has been on tone alone, so that there is little, if any, information available on stress or intonation in these L1s. I will give only a brief summary of the observations I have made on stress and intonation in the English of these speakers, and will not be able to say with any certainty what factors are behind them.

3.3.1   *Stress*

There has been work on stress in Indian varieties of English, particularly in noting that some words are stressed on a different syllable in Indian Englishes

than in other varieties of English (e.g. Chaudhary 1993; Nair 1996). Furthermore, there have been attempts to formulate the rules for stress in varieties of IE (Vijayakrishnan 1978 on Tamil English; Pandey 1980 on Hindustani English; Nair 1996 on Malayalee English; Das 2001 on Tripura Bangla English). In all of these descriptions, IE is claimed to position prominence based primarily on segmental and syllable structure and less on grammatical distinctions; that is, words with the same syllable structure are stressed in the same place, regardless of their grammatical category or their morphological structure. Vijayakrishnan (1978), for example, describes Tamil English as having a rule stressing a final syllable with a tense vowel or a lax vowel followed by a cluster of consonants; this rule, and the others he formulates, ignore factors other than syllable weight. A second tendency found in IE varieties has been the tendency to stress related words on the same syllable, so that a paradigm of words with different suffixes keeps stress in the same place; CIEFL mentions this "analogical regularizing" as responsible for stresses in related words like ˈ*photograph* — ˈ*photographer* (1972: 7).

We have no descriptions of stress in any of the three L1s here, but the English of TB speakers tends to follow the same stress patterns as other Indian Englishes. That is, they tend to be quantity sensitive and stress the final syllable only when it is superheavy (VVCC, as in *irritates*); stress the penult when closed or long (*December*, *detainee*, *appointed*); and otherwise stress the antepenult (*organize*, *economic*, *America*). Furthermore, words with suffixes are often stressed the same as the base word:

(4) *economic*   [i ˈk⁽ʰ⁾ɔː nɔ mik]   *economical* [i ˈk⁽ʰ⁾ɔː nɔ mi kəl]
    *per*son   [ˈpəː sən]   *personify*   [ˈpəː səniˌfɛj]

Vowels in stressed syllables tend to be longer than vowels in unstressed syllables; however, unstressed vowels often do maintain their quality. This quality maintenance has been observed of GIE as well: "vowels other than /ɪ/ and /ə/ are common in unstressed syllables" (CIEFL 1972: 7); this contrasts with British and American varieties which reduce the quality as well as the duration of unstressed vowels.

The tendencies found in TB-IEs may be related to the tendencies found in GIE. It is also possible that the TB learners of English are following the same path that other learners of English follow, simplifying and regularizing the stress system by leaving out morpho-phonological conditioning factors and exceptions and creating a less-marked system of their own (Pandey 1981). The stresses found here are generally compatible with those discussed in Peng and

Ann (2001), who point to a tendency in the Englishes of Singapore and Nigeria to place stress on longer vowels and diphthongs ([eː], [aj]) and a tendency to maintain stress in the same position in related words. They argue that such stress systems are not the result of transfer, but rather of tendencies to correlate stress and duration, found cross-linguistically as well as in new Englishes.

3.3.2 *Intonation*

There has not been extensive work on the intonation of General Indian English, nor much on individual Indian L1 languages either. Descriptions of IE intonation mention "faulty" divisions into tone groups, and "faulty" placements of the tones, with prescriptive suggestions for improvement. A few works address the intonation of specific varieties of Indian English in a systematic way, such as Latha's (1978) study of Malayalam English and find some evidence of transfer. In preliminary work (Wiltshire and Harnsberger 2004), we have found that the English of Tamil and Gujarati speakers seems to use more pitch accents than American or British varieties of English, and that there is some correlation between the L1 group and the kinds of pitch accents most often used. However, the use of pitch variation by the speakers of the TB L1s, which are all tone languages, seems rather restrained. Lalrindiki (1989: 29) observes:

> … to a lay person, a Mizo speaker speaking English sounds rather 'flat' or 'toneless'. This seems to suggest that Mizo speakers consider the pitch system of Mizo and English to be so different that the former should not be allowed to influence the latter at all and hence the tonelessness of the latter.

From the recordings of both the readings and the interviews, this observation seems to be true of all TB-IE speakers; while GIE uses more pitch accents than American or British English, the TB variety of English uses fewer. I leave this and other suprasegmental properties of TB-IE for future research.

4. Conclusions

The English of TB L1 speakers seems to form a variety distinct from Indian English, most noticeably in terms of the presence of a [v]/[w] distinction, the lack of retroflexed consonants, final obstruent devoicing, simplification of consonant clusters, the presence of post-vocalic [ɹ], and the reduction of vowel contrasts, in both quality and quantity. Most of these reflect the L1 phonologies, with the coda devoicing, cluster reduction, and possibly the stress system reflecting simplification in terms of markedness as well.

The resulting variety is easily distinguished from other "Indian" Englishes and from General Indian English. As there are over 100 distinct languages with significant numbers of speakers in India, the question arises whether there are an equal number of distinct varieties of Indian English, or whether the English of speakers whose L1s come from the same genetic family (Indo-Aryan, Dravidian, TB) might share enough similarities to be considered the same variety. The phonological and phonetic characteristics of the three groups considered here tend to support this possibility, for TB L1s at least. Further descriptive work is necessary to determine how many varieties there are, what their characteristics are, and to what extent they are based on L1 phonologies, the L2 model, or other factors.

Speakers of English from India report that they can often tell where other speakers are from or what their first language is, based on their accent in English. While it is natural that there would be multiple varieties of English in India, given the number of distinct L1s, there may also be social motivations for speakers to keep a distinct accent. As the states of Nagaland and Mizoram have had a troubled relationship with India in the past, perhaps the distinctiveness of their English will remain as a mark of identity and as another sign of their distance from the rest of the country.

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Appendix A. Details on Subjects

Angami:
2M/3F, ages: 21, 21, 24, 25, 26; all from Kohima district in Nagaland and all parents from Kohima district. Their parents' mother tongue was also Angami (or Tenyidie), and all speak Angami at home; with siblings, some English too for most; one also mixed Hindi and another also mixed Nagamese. Parents and subjects generally speak Nagamese and Hindi, as well as Angami and English. School was English-medium from nursery or LKG; the local languages were never used in school. Most did a Hindi subject, but all said their Hindi was not fluent. With friends, they reported speaking English (in Hyderabad) and Nagamese (at home in Nagaland), with occasional Hindi too, in Hyderabad.

Ao:
3M/2F, ages: 23, 23, 21, 21, 25; from different areas in Nagaland, one Dimapur, one Tuensang, three Mokokchung. Their parents' mother tongue was also Ao, though they reported different varieties (Changki, Chungli, Mongsen), and all speak Ao at home; one also used Nagamese with siblings, but others said it was never used at home. Three parents also had some English, and one knew some Hindi; the subjects knew English, Ao and Nagamese, and reported that if they had studied Hindi at all, they had forgotten it. School was English medium throughout (though teachers sometimes spoke Ao, and students did too). With friends they used Ao or Nagamese in Nagaland, and English in Hyderabad.

Mizo:
2M/3F, ages: 22, 22, 23, 28, 26; all from Mizoram, three born and raised in Aizawl, one from Lunglei, one from Chhimluang and traveled around, boarded in Ooty. Their parents' mother tongue was Mizo, and most were from Aizawl (three parents from Lunglei). Most parents speak some English, three parents speak Hindi as well, but Mizo was the language of the home, with siblings too. With friends, at home, they used Mizo; with teachers, mostly

English, although some Mizo used in class. School was English-medium throughout for four subjects; one didn't start until class 8; most had Hindi 2–4 years at school, and only one said she could speak it.

Appendix B

Stella reading Passage (from the George Mason University Speech Accent Archive)
Please call Stella. Ask her to bring these things with her from the store: Six spoons of fresh snow peas, five thick slabs of blue cheese, and maybe a snack for her brother Bob. We also need a small plastic snake and a big toy frog for the kids. She can scoop these things into three red bags, and we will go meet her Wednesday at the train station.