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LA THÈSE A ÉTÉ
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SOUND CHANGES IN MODERN BENGALI

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CHAPTER 1

1.1.1.

Bengali is the language of the people of Bangladesh (population about 90 million) and also of the people of West Bengal (population about 50 million); the former is an independent country and the latter is a province in India. West Bengal and Bangladesh having a long international boundary separating them are understood to have one speech community. This is an assumption that one feels underlies works like Chatterji (1926), Ferguson (1945) and Ferguson and Dil (1979). The Indian state of Bengal was divided into two unequal parts by the British rulers of India in 1903. The larger part where Muslims were in the majority became East Bengal, while the smaller part having the Hindu majority became West Bengal. Calcutta, the capital city of British India, however, fell in the Hindu dominated West Bengal. Since the partition of Bengal while on the one side of the border East Bengal became East Pakistan in 1947, when the British gave independence to India, only to emerge as a sovereign country in 1971, West Bengal has remained a province in India all along. While all these political changes have been going on, the people of Bangladesh and those of West Bengal have always called themselves Bengali

and have always spoken the same language, Bengali.

1.2.1.

The people of Bangladesh are mostly Muslims (about 85 percent of the population) and that of West Bengal are mostly Hindus (about 90 percent of the population). Ferguson and Dil (1979) have argued that there are differences between the Bengali as it is spoken by the Muslim speakers and the Bengali as it is spoken by the Hindu speakers, both being in the same speech community. The most important difference they claim to exist is in terms of vocabulary items. Thus, for example, while water is [jol] with Hindu speakers, the Muslims call it [pain]. In the same way a few kinship terms are different for Muslims and Hindus. Brother is [bhai] for Muslims and [dada] for Hindus. Such differences are true of Bangladesh only. It is, however, possible to show that in cases of differences of this sort, the Hindus use what could be called "real" or "indigenous" Bengali words and the Muslims use borrowed words. One could claim that the borrowing took place after Bengal was divided into Muslim majority East Bengal and Hindu majority West Bengal, when the Pakistan movement was gaining momentum and the Muslims of Bengal began to strengthen their identity as Muslims by aligning themselves to Muslim culture. In support of such a claim one could show that the items which the Muslim speakers use in distinction to what the Hindu speakers use have been borrowed mainly from

Arabic and Persian. However, whatever such analyses may mean, they do not constitute anything that could lead one to claim that the Muslim and the Hindu speakers of Bengali are two different speech communities and so Ferguson and Dil do not make any such claim.

1.3.1.

The standard Bengali of today is known as "čolito" (means "current"). "šadhu" was the earlier standard which has been replaced by "čolito". Although it is very difficult to determine when the change took place, because for one thing it took a considerable period of time and for another the process of change is not well documented, we believe that "čolito" was established as the spoken standard before World War II (cf. Ferguson [1945] calls 'čolito' 'standard colloquial Bengali' in 1945) and replaced "šadhu" in the written form by the early fifties. Today "šadhu" exists only in classical literature and traditional grammar books. The literature of the last thirty years or so is only in "čolito". The newspapers and magazines in Bengali use "čolito". People use it in letters in day-to-day discourse and in schools. This is the language used by the educated speakers of Bengali. Since "šadhu" was the earlier standard to be followed by "čolito", we are led to believe that there is some kind of relationship between the two which we will examine in Chapter 2.

1.4.1.

The most famous work on the Bengali language is that by Chatterji (1926). Voluminous though the work is, it is of little interest to us for our present purpose because it is largely a work in philology. Except for some scattered remarks suggesting a vague relationship between "śadhu" and "colito", which we will refer to in appropriate places of our work, it has nothing to say about standard Bengali.

1.4.2.

It is only in Chatterji (1929) that we find claims that "colito" is an independent dialect. Although Chatterji makes this claim about the independent grammar and sound system of "colito" he does not elaborate the claim to show what he means by that. He also does not make any specific claim about the relationship between "śadhu" and "colito". He only suggests that "śadhu" seemed to have been derived from the spoken language of West Bengal while "colito" seemed to have been derived from the spoken language of Calcutta. It should be noted here that Grierson (1946) made a similar assumption. However, there are several problems with such assumptions. Firstly, such assumptions ignore the majority speakers of Bengali who are and were at that time in East Bengal and also whatever contribution or influence they might have on standard Bengali. Secondly, Bengal was divided into East and West Bengal in 1903 and since Chatterji was referring to a time prior to that, his claim for West Bengal cannot be substantiated. Thirdly, such assumptions take

for granted that the speakers of West Bengal had one uniform dialect. The fact is, as claimed by Chatterji (1926; 1929) and also by Grierson (1946), that there were several regional dialects in the area. However Chatterji's claim about certain forms in Bengali (see Chapter 2, page 44) show that, although he was not naming names, he was making claims for "colito" forms to have been derived from "sadhu". These claims are evidently contradictory and that may be a reason why Ferguson (1945) accuses Chatterji of confusing synchronic and diachronic facts of Bengali that led him to make contradictory claims. Ferguson (1945), however, does not give details (see section 1.5.1.).

1.5.1.

The fact that Bengali phonology has remained a largely unexplored area has given the scope for making formulations that are based on inaccurate assumptions. Much of the confusion is due to the failure to appreciate the historical process of sound changes in Bengali. People have not understood, or so it seems, the relationship between "sadhu" and "colito", the two standard dialects of Bengali, of which the latter has replaced the former. A case in point is Ferguson (1945). Ferguson's Ph.D. dissertation at the University of Pennsylvania "The Phonology and Morphology of Standard Colloquial Bengali" (1945) is the first and, up until now, the most important work on "colito" Bengali. The expression "standard colloquial" contains a recognition of the fact that "colito" has become a standard

because colloquial stands for "kottho" which is another name for "colito". Calling his work "a grammar of colloquial Bengali" Ferguson seems to have worked on incomplete facts. This may be due to the fact that for the data he depended on the speech of a single person, a Dr. B. V. Mukherji of Calcutta, supposedly living in the U.S. Looking at mistakes like claiming [bā] means "right" while it means "left", I presume that knowingly or unknowingly Dr. Mukherji provided a misleading picture of "colito". Ferguson (1945) charged, rightly, that Chatterji (1926) had not provided a clear picture of the modern colloquial language. As it will be seen, the same charges can be levelled against Ferguson (1945).

Ferguson (1945) makes a number of claims, most of which are founded on unverified assumptions about the Bengali language. One kind of claim relates to assumptions about the aspiration of some Bengali phonemes. Faced with the problem of aspiration and the lack of it in certain cases, Ferguson suggested that the solution is to assume that a few of the consonants have an [h] after them. The fact is Bengali has a set of aspirated phonemes and the loss of aspiration is a phonological process. Ferguson seems to have missed this process of de-aspiration, which is an important fact of Bengali. As listed in Chatterji (1935), Pattanayak (1966) and Ray et al (1966), in Bengali there is an aspirated counterpart for every obstruent-- both voiced and unvoiced. So for every pair of voiceless

and voiced obstruents listed by Ferguson (1945), one should list four obstruents as given below:

		<u>Voiceless</u>	<u>Voiced</u>
Bilabial	unaspirated	p	b
	aspirated	ph	bh
Dental	unaspirated	t̪	d̪
	aspirated	t̪h	d̪h
Alveolar	unaspirated	t	d
	aspirated	th	dh
Alveo-palatal	unaspirated	ç	ç̪
	aspirated	çh	ç̪h
Velar	unaspirated	k	g
	aspirated	kh	gh

We give below some minimal pairs to show the phonemecity of aspiration in Bengali.

	<u>Bengali</u>	<u>English Gloss</u>
1.	p - pul ph- phul	bridge flower
2.	b - ban bh- bhan	flood pretention
3.	t̪ - t̪al t̪h- t̪hal	rhythm, a kind of fruit plate
4.	d̪ - d̪an d̪h- d̪han	charitable gift, charity paddy
5.	t - toka th- thoka	to copy to hit against

	<u>Bengali</u>	<u>English Gloss</u>
6.	d - dal dh- dhal	lentil shield
7.	č - čal čh- čhal	rice skin
8.	j - jal jh- jhal	net, snare chillies, hot
9.	k - kata kh- khata	to cut to work hard
10.	g - goṛa gh- ghōṛa	root horse

Ferguson (1945) also claims that certain verbs seem to have an [h] in the root. He does not explain why he thinks so, nor does he explain what happened to the [h] since nowhere in "čolito" do we find this [h]. Such a claim shows that Ferguson is not aware of the historical process that connects "čolito" to "šadhu". As we will see in Chapter 2, we also make an assumption like Ferguson for verbs like [čah] and that enables us to claim that "čolito" was derived from "šadhu". Because, only in certain "šadhu" forms do we notice the presence of this [h] and it is possible to claim that it was deleted in corresponding "čolito" forms.

Ferguson (1945) claims that [č] becomes [j] when the former is followed by [j] in cases like [pačjon] → [paɟjon] (five persons). Ferguson's treatment of this fact takes into account only a part of a whole lot of voicing assimilation happening in "čolito" of which he seems to be unaware.

Ferguson's treatment of the morphophonology of Bengali verbs ("čolito") is inadequate. He simply claims that morphemes are added to the roots of the verb for the derivation of different forms. He does not show how he would derive [čawa] from [ča] because the infinitive morpheme [a] added to the root (i.e., [ča]) would give us [čaa] and he does not have a rule like:

$$\phi \quad + \quad w/a - a$$

He claims that a personal pronoun morpheme like [ɔ] (second person) is simply added to the root of a verb. So from the root [gun] (root of verb 'to count') we will derive [gunɔ] and [gune] by adding the personal pronouns [ɔ] and [e] respectively for second and third persons when in fact we have [gono] and [gone] (see Data VII page 36).

In the same way Ferguson's reasoning that verb forms are derived simply by adding the appropriate morphemes will not be enough to account for forms like the following:

čona	=	to hear
čuni	=	I, hear
čono	=	you hear
čone	=	he hears
čune	=	on hearing

(see page 15) because Ferguson does not have anything to say about the phonological processes taking place here.

Thus we see that while Ferguson accused Chatterji(1926) of mixing up diachronic and synchronic facts of Bengali language, the same charges could be levelled against Ferguson himself.

1.6.1.

We may assume that "colito"(standard Bengali of today) has been derived from "sadhu"(earlier standard). Such an assumption will presume there to exist identifiable phonological processes that will establish the derivative relationship between the two dialects. The phonological processes may be a set of diachronic rules. If these diachronic rules are established it may be possible to examine them in relation to the synchronic rules of Bengali. If it is found that there is some kind of relationship between the two sets of rules we may be in a position to draw conclusions of a general nature from that. We may be able to make claims about the possibility of diachronic and synchronic rules being closely related. In other words, we may be able to make claims about the essential similarity between the two types of rules. In this way Bengali phonology will provide ample scope for assuming a relationship between the synchronic and the diachronic facts of a language. We will approach the whole problem with the following hypothesis.

Hypothesis: In Bengali the diachronic rules are closely related to the synchronic rules.

In order to be able to establish this hypothesis to be true we will have to establish first that "colito" has been derived from "sadhu". This we will deal with in Chapter 2. In Chapter 3 we will examine some synchronic facts of Bengali. In Chapter 4 we will bring together the two kinds of facts to examine the relationship between the two which will lead to our conclusion.

1.6.2.

We would like to point out here that we are aware of the risks of formulating in such a largely unexplored area as Bengali. One embarks on a task like this knowing full well that the proposed rules may be inadequate. But such work is not unprofitable; on the contrary, as Chomsky has suggested in /so many places (see for example Chomsky and Halle [1968]), it is worthwhile to formulate even inadequate theories precisely because that will lead to a better understanding of the inadequacies.

1.6.3.

The data has been supplied by the author, a native speaker of Bengali and well versed in both "šadhu" and "colito". Certain items were checked with native speakers of Bengali in Ottawa. In some cases the same item was checked with different speakers in cases where it was found that speakers differed in their use of Bengali. In cases where the difference was not minimal, majority evidence was accepted.

1.6.4.

For the descriptive part and rule writing, we have followed Chomsky and Halle (1968), Anderson (1974) and Sloat et al (1978). As in Chomsky and Halle (1968) we have shown morpheme boundary where we thought it has relevance to the rule.

CHAPTER 2

2.1.1. *

In this chapter we would like to see how the two dialects of Bengali--"šadhū" and "čoliṭo" are historically related. We believe that there is a relationship between the two and also that such a relationship, when established, will provide us with the most important clue to the nature of Bengali sound changes. Before we go into the act of examining data from the two dialects we would like to give some other reasons for assuming that there is a relationship between the two dialects of Bengali.

2.1.2.

We have three reasons for assuming that there is a relationship between "šadhū" and "čoliṭo" forms of Bengali. The first is native speaker intuition. As a native speaker of Bengali, the present researcher has always been vaguely aware of a relationship between "šadhū" and "čoliṭo". It was hard to get formal explanation of the relationship. The researcher talked to Bangladeshi speakers of Bengali in Ottawa (they are educated speakers of Bengali) who unanimously hold that there is some sort of relationship between "šadhū" and "čoliṭo". Being asked to explain the relationship

most of them said that they felt that there was a sort of "abbreviation" or "shortening" by which "śadhu" became "čoliṭo". Some Bengali speakers revealed that they used to speak regional dialects and knew "śadhu". They learned "čoliṭo" as adults when they moved into cities like the capital for attending universities. They remember the "technique" of shortening the "śadhu" forms in order to derive equivalent "čoliṭo" which they used in learning "čoliṭo".

Our second reason is Bengali linguists (of which there are not many like S. K. Chatterji [1926]) give the derivation of certain forms in Bengali. He suggests that forms like [rekhe] were derived from [rakhia]. But he does not describe the exact phonological processes involved. See Section 2.3.3. for more discussion of this point. In the examples used one could see that while the original form is "śadhu", the derived form is "čoliṭo". Chatterji does not make any claim of the sort that we do--that "čoliṭo" has been derived from "śadhu". But when one goes through his work one has the feeling that he (Chatterji) was fully aware of such a relationship although he did not formalize it. Looking back now one would say that one of the reasons for not doing so might have been the lack of the knowhow of formulating formal phonological rules of diachronic nature. One might say that Ferguson (1945) has some justification for accusing Chatterji (1926) of confusing synchronic and diachronic phenomena.

Our third reason is provided by the fact that traditional Bengali grammars describe only the "šadhu" forms and not the "čolito" forms. One could say that it is so because "čolito" is a recent development. We would counter by pointing out that it is not recent enough to be left out of Bengali grammars written thirty or forty years ago. We believe that since the "čolito" forms could be phonologically derived from "šadhu" forms and traditional Bengali grammars do not talk about phonology, the "čolito" forms were left out by the grammarians. They decided to write one grammar instead of two.

2.2.1.

The best way to test our assumption about the relationship between "šadhu" and "čolito" is to consider data from the two dialects. Our first set of data ("Data I" below) consists of different forms of a verb as it appears in the two dialects. It is not very difficult to see that some phonological rules will connect one dialect to the other.

"Data I"

Bengali	English Gloss	
1. kɔr		Root of the verb "do".
	<u>"ṣadhu"</u>	<u>"ṣoliṅo"</u>
2. kɔra	kɔra	to do
3. kɔri	kɔri	*First person simple pres. of "do".
4. kɔro	kɔro	Second person simple pres. of "do".
5. kɔre	kɔre	Third person simple pres. of "do".
6. kɔritečhi	korčhi	First person pres. prog. of "do".
7. kɔritečho	korčho	Second person pres. prog. of "do".
8. kɔriteče	korče	Third person pres. prog. of "do".
9. kɔriačhi	korečhi	First person perfect of "do".
10. kɔriačho	korečho	Second person perfect of "do".
11. kɔriače	koreče	Third person perfect of "do".
12. kɔriačhilam	korečhilam	First person simple past of "do".
13. kɔriačhile	korečhile	Second person simple past of "do".
14. kɔriačhilo	korečhilo	Third person simple past of "do".
15. kɔritečhilam	korčhilam	First person simple past of "do".
16. kɔritečhile	korčhile	Second person simple past of "do".
17. kɔritečhilo	korčhilo	Third person simple past of "do".
18. kɔribo	korbo	First person future of "do".
19. kɔribe	korbe	Second person future of "do".
20. kɔribe	korbe	Third person future of "do".
21. kɔro	kɔro	Imperative present of "do".
22. kɔrio	koro	Imperative future of "do".
23. kɔria	kore	After/on doing.

*The same verb form is used for both singular and plural in both dialects. The verb forms inflected for person can occur as full sentences.

We notice in the above set of data that the first four items (2-5) are almost identical* in both dialects. We also note that while forms 19 and 20 are identical in "šadhū" they are also identical in "čolito". As we go on examining data involving verb forms in Bengali we will notice that it is a fact of the two dialects that they have more or less identical forms in respect of the four items-- 2-5 and also that forms in items 19 and 20 will always be identical. Considering the differences in respect of the remaining items in the above data one could argue for a derivative relationship between the two dialects. In order to be able to argue for such a relationship one would postulate certain phonological rules. We could argue for a "čolito" derivation from "šadhū" if it was established that the following set of phonological rules had been operative in Bengali.

- i) a rule for [i] deletion.
- ii) a rule for [t] deletion.
- iii) a rule for [e] deletion.
- iv) a rule for changing [ia] to [e].

Before we go on to examine another set of data in the light of the rules we have proposed we would like to

* We are not taking up here the question of final vowel tensing as in item 4 of the "čolito". We will argue at a later stage that final vowel tensing is a synchronic rule in "čolito".

point out certain things in the above set of data. We notice that "colito" forms for item 5 and 23 are identical (except for a change in the root vowel in 23 which we will explain later on) with "sadhu" form in item 5 but not with "sadhu" form in 23. With regard to this phenomenon one could take one of the following two positions.

Position (a): the sound segment added to the root for the "colito" items 5 and 23 is identical--that is it is [e] in both cases.

Position (b): the "colito" forms are derived from equivalent "sadhu" forms and so for item 5 the "sadhu" and the "colito" forms are identical because no phonological rules have applied on the former for the derivation of the latter; the "colito" form is different from the corresponding "sadhu" in item 23 because the "sadhu" form had undergone phonological processes before it became "colito".

Thus for item 5 in "sadhu" root [kor] becomes [kore] by the addition of first person simple present morpheme [e] and "colito" takes kore from "sadhu". But for item 23

while in "šadhu" [ia] is added to the root [kɔr] to derive [kɔria] it becomes [Kore] by phonological processes.

As we will see in the subsequent data, the sound segments added to the root for items 5 and 23 in "colito" cannot be claimed to be the same (that is [e]), on the contrary they are different. Consider identical items with different verb roots.

<u>Root</u>	<u>Item 5</u>	<u>Item 23</u>	
gah	gay	gē	("Data II")
map	mapē	mepe	("Data VI")
gun	gone	gune	("Data VII")

So we think position (b) is more plausible than position (a).

Another thing to be noted here is the similarity between the "colito" forms in items 21 and 22. We also notice that there is a similarity between these on the one hand and their "šadhu" equivalents on the other. We could take the position (c) (somewhat similar to the position (a) above) in respect of the above circumstances.

Position (c): the added sound segment (added to the root) for "colito" forms in 21 and 22 is the same.

If we take such a position we will have difficulty in explaining how the first vowel is changed from [o] in the root to [o] in "čolito" form 22. That a vowel assimilation rule is not at work will be clear from forms 4 and 21 where the same vowel remains unchanged under similar environments. The way out of this problem is laid out in position (d) which is similar to position (b) above in respect of the basic claim.

Position (d): like all other forms in "čolito", the forms in items 21 and 22 are derived from equivalent "šadhū" forms. While the final vowel in 21 is tensed by the final vowel tensing rule (see footnote on page 16), the vowel sound in the root in 22 is raised because in "šadhū" it was followed by the high front vowel [i].

If position (d) is taken we will have to add another rule to our proposed set of rules which is given below.

v) a rule for vowel raising (root).

It should be noted here that the "šadhū" and "čolito" relationship as expounded in the above set of data can be shown to exist in respect of many verbs in Bengali. We give

below some verbs for which lists of the above pattern ("Data I") containing both "šadhu" and "čoliṭo" forms in exactly the same relationship can be drawn.

<u>Bengali</u>	<u>English Gloss</u>
ḷola	to burn
ḷola	to say
mora	to die
noṛa	to move
boṣa	to sit
čḷoṣa	to cultivate
čola	to walk
poṛa	to read
ḍhōra	to catch
ghoṣa	to rub
thōka	to be cheated
boka	to scold, call
mola	to twist
gola	to melt

2.2.2.

If our basic assumption in Section 2.2.1. that "čoliṭo" has been derived from "šadhu" is correct, it appears that we need rules i) to v) to account for such a derivation. Before we can write these rules formally we will have to examine more data. However, we can characterize in the following way the sound changes as diachronic phonological

processes of Bengali.

- a) Change of vowels (e.g., ia + e)
- b) Deletion (i) vowels (e.g., i deletion)
 - (ii) consonants (e.g., ṭ deletion)

In our examination of the subsequent sets of data our aim will be twofold--to verify the basic assumption and thence to examine the diachronic rules proposed in Section 2.2.1. It should be understood here that our proposals at this stage are very tentative in nature and so we have ample scope of modifying them by either adding new rules to our list or by broadening or narrowing down the scope of the proposed rules as the phenomena of the language presented in the data may warrant.

2.2.3.

In the following set of data we present some equivalent forms from "śaḍhu" and "colito" in respect of a verb form totally different from the verb form we had in the previous section. As will be evident we have kept the item numbers the same as in the last set of data and we plan to continue doing so in other sets of data of a similar type.

"Data II"

Bengali			English Gloss
1. gah			Root of the verb "sing".
	<u>"saghu"</u>	<u>"colito"</u>	
2. gawa (gaha)*	gawa		to sing
3. gai (gahi)*	gai		First person simple pres of "sing".
4. gaw (gah)*)	gaw		Second person simple pres. of "sing".
5. gay (gahe)*	gay		Third person simple pres. of "sing".
6. gahitechi	gacchi		First person present prog. of "sing".
7. gahitecho	gaccho		Second person present prog. of "sing".
8. gahiteche	gacche		Third person present prog. of "sing".
9. gahiachi	gechi		First person perfect of "sing".
10. gahiacho	gecho		Second person perfect of "sing".
11. gahiache	geche		Third person perfect of "sing".
12. gahiachilam	gechilam		First person simple past of "sing".
13. gahiachile	gechile		Second person simple past of "sing".
14. gahiachilo	gechilo		Third person simple past of "sing".
15. gahitechilam	gacchilam		First person past prog. of "sing".
16. gahitechile	gacchile		Second person past prog. of "sing".
17. gahitechilo	gacchilo		Third person past prog. of "sing".
18. gahibo	gabo		First person future of "sing".
19. gahibe	gabe		Second person future of "sing".
20. gahibe	gabe		Third person future of "sing".
21. gaw (gah)*)	gaw		Imperative present of "sing".
22. gahio	geo		Imperative future of "sing".
23. gahia	ge		After/on singing.

* Earlier "saghu" forms.

In the group of verbs that the above verb represents there are two peculiarities--one is that some verbs of this group have an [h] in "śadhu" forms which is totally absent in the corresponding "colito"; the other is the peculiar behavior of the verb [jawa] (to go). As we will see later on, the loss of [h] is almost universal in "colito". We note that some more recent forms of "śadhu" (e.g., 2-5 and 21) have lost this [h] and the forms having [h] could be claimed to be earlier forms. One could also argue that the loss of [h] in some "śadhu" forms was a "feedback" effect of "colito" on "śadhu". Some of the verbs of the above group are given below.

<u>Bengali</u> (Both dialects)	<u>English Gloss</u>
khawa	to eat
nawa	to take a bath
śawa	to want
dhawa	to run
pawa	to get
śhawa	to cover
śjawa	to go

It should be pointed out here that except for [śjawa] in this group the difference between the "h-less" and the "h-full" verbs will be the presence or absence of [h] in the "śadhu" forms while in "colito" all are "h-less".

Before we go into the questions of loss of [h] and the peculiarities of [ɣawa] we want to find out what adjustments in our list of rules are to be made in order to be able to maintain that "čolito" has been derived from "šadhu". We make a note of the fact that, as we have seen in Section 2.2.1., the "čolito" and "šadhu" forms are identical for items 2-5 and 21. As we indicated in that section, the above data confirm that we should take position (b) and not position (a) because it cannot be argued that the segment added to the root for "čolito" items 5 and 23 is identical. The above set of data also supports our rejection of position (c) in favour of position (d) because the sound segment added in the case of item 21 in "čolito" cannot be claimed to be the same as what is added in the case of item 22 in "čolito". It appears that in order to be able to account for the "čolito" derivation from the "šadhu" in the case of the above set of data, we will need a new set of rules in addition to what we have proposed thus far. We propose below informal rules vi) to x) which, if added to our already proposed set of rules, will enable us to maintain our claim that "čolito" forms have been derived from equivalent "šadhu" forms.

- vi) a rule for changing a → e.
- vii) a rule for changing t → č.
- viii) a rule for vowel lengthening.

- ix) a rule for identical vowel deletion.
- x) a rule for h-deletion.

It now appears that our characterization of diachronic processes in Bengali phonology as outlined in Section 2.2.2. has to be broadened in scope. We note that change is no longer limited within vowels only; it applies also to consonants. Change in vowel length also appears to have taken place. Considering all this, we propose that the diachronic processes in Bengali be characterized in the way given below.

- a) Change: (i) vowels
 1. nature (e.g., ia + e)
 2. length (e.g., e + ē)
 (ii) consonants (e.g., t̪ + č)
- b) Deletion: (i) vowels (e.g., i deletion)
 - (ii) consonants (e.g., h deletion)

We would like to discuss here the h-deletion phenomenon in "colito". It appears that in the process of the derivation of "colito" from "sadhu" [h] has been completely lost. In many cases the "colito" forms are distinguished from equivalent "sadhu" forms only by their h-lessness. Nowhere is it more evident than in the case of the pronominal forms. The pronouns in "colito" are the same as they are in "sadhu" except that "colito" does not have the [h] where

"šadhu" has one. In some cases, however, the identical vowel deletion rule seems to have applied after h-deletion. In "Data IIIa" below some pronouns from both dialects are given.

"Data IIIa"

<u>"sadhu"</u>	<u>"colito"</u>	English Gloss
ami	ami	I
amra	amra	we
se	se	he/she
tahara	tara	they
amar	amar	my
tahar	tar	his/her
tahader	tader	their(s)
amake	amake	me dat/acc.
amaderke	amaderke	us dat/acc.
tahake	take	him/her dat/acc.
tahaderke	taderke	them dat/acc.
taha	ta	that
jaha	ja	that which
jahara	jara	those who
jahar	jar	whose (sing.)
jahader	jader	whose (pl.)

The h-deletion rule seems to have affected some names in Bengali in which are included proper names. In "Data IIIb" below some instances are recorded.

"Data IIIb"

<u>"ṣaḡhu"</u>	<u>"ṣolito"</u>	English Gloss
ṣaha	ṣa	a Hindu name
ṣahader	ṣader	of the Saha's
brihoṣpotibar	broṣpotibar	Thursday
ṣah	ṣa	Shah (of Iran)
jinnah	jinna	name of the founder of Pakistan
ogrohayon	ograyon	name of a Bengali month
ṣahjahan	ṣajan	a Mogul emperor of India

We mentioned earlier in this section that different forms of "jawa" show some peculiarities. What interests us here is the fact that the peculiarities of this verb are equally present in the forms of the two dialects. We give below in "Data IV" some examples to illustrate our point. The item numbers refer to similar items in "Data I" and "Data II".

"Data IV"

	<u>"sadhū"</u>	<u>"colito"</u>	English Gloss
3.	ǰai	ǰai	I/we go
6.	ǰaitechi	ǰačchi	I/we am/are going
9.	ǰiačchi	gečchi	I/we have gone
12.	ǰiačhilam	gečhilam	I/we went
18.	ǰaibo	ǰabo	I/we will go
21.	ǰaw	ǰaw	Imperative present
22.	ǰaio	ǰeo	Imperative future
23.	ǰia	ge	After/on going

We notice that whenever the initial ǰ becomes g in "sadhū" the same change appears in corresponding "colito" forms. The difference between the length of the initial vowel of this verb and that of a verb like [gawa] in "colito" is due to the difference of vowels in corresponding "sadhū" forms. So, for example, from [ǰiačchi] in "sadhū" we derive [gechi] in "colito" and from [ǰahičchi] in "sadhū" we derive [gečchi] in colito (cf. "Data II"). However what we want to point out is that the presence of the same peculiarities in "sadhū" and "colito" forms supports our basic assumption that "colito" has been systematically derived from "sadhū".

2.2.4.

In this section we are going to examine equivalent forms of "sadhū" and "colito" of a verb form that represents

another group of verbs in Bengali.

"Data V"

Bengali		English Gloss
1. √sikh		Root of the verb "learn".
	<u>"sadhu"</u>	
	<u>"colito"</u>	
2. √sikha	√sekha	to learn
3. √sikhi	√sikhi	First person simple pres. of "learn".
4. √sikhᵛ	√sekho	Second person simple pres. of "learn".
5. √sikhe	√sekhe	Third person simple pres. of "learn".
6. √sikhiteḥchi	√sikḥchi	First person present prog. of "learn".
7. √sikhiteḥᵛ	√sikḥcho	Second person pres. prog. of "learn".
8. √sikhiteḥche	√sikḥche	Third person pres. prog. of "learn".
9. √sikhiachi	√sikheḥchi	First person perfect of "learn".
10. √sikhiachᵛ	√sikheḥcho	Second person perfect of "learn".
11. √sikhiache	√sikheḥche	Third person perfect of "learn".
12. √sikhiachilam	√sikheḥchilam	First person simple past of "learn".
13. √sikhiachile	√sikheḥchile	Second person simple past of "learn".
14. √sikhiachilo	√sikheḥchilo	Third person simple past of "learn".
15. √sikhiteḥchilam	√sikḥchilam	First person past prog. of "learn".
16. √sikhiteḥchile	√sikḥchile	Second person past prog. of "learn".
17. √sikhiteḥchilo	√sikḥchilo	Third person past prog. of "learn".
18. √sikhibo	√sigbo*	First person future of "learn".
19. √sikhibe	√sigbe	Second person future of "learn".
20. √sikhibe	√sigbe	Third person future of "learn".
21. √sikhᵛ	√sekho	Imperative present of "learn".
22. √sikhio	√sikho	Imperative future of "learn".
23. √sikhia	√sikhe	After/on learning.

* By the voicing assimilation rule SR. 14 page 73

The above verb form represents a group of verbs which can be said to be made of two subgroups--in one the initial vowel in the root is, [i] and in the other it is [e]. We have used in "Data V" above a verb with [i] as the initial vowel. The verb with initial vowel [e] will have exactly the same forms for "śadhu" and "colito" as above with one difference. The initial vowel will be lowered by one degree in those "colito" forms where the above data show a lowering of initial [i]. The following with root [dekh] "see" is given to illustrate our point. The item numbers, as usual, refer to similar items in all our sets of data.

"Data Va"

	<u>"śadhu"</u>	<u>"colito"</u>	English Gloss
2.	dekha	dækha	to see
3.	dekhi	dekhi	First person simple present of "see".
4.	dekho	dækho	Second person simple pres. of "see".
5.	dekhe	dækhe	Third person simple pres. of "see".
21.	dekho	dækho	Imperative present of "see".
22.	dekhio	dekho	Imperative future of "see".
23.	dekhia	dekhe	After/on seeing.

There are many verbs in Bengali that have "śadhu" and "colito" forms in exactly the same relationship as in "Data V and Va". We list below some of them.

	<u>Bengali</u>	<u>English Gloss</u>
i.		
	a) likha	to write
	b) kina	to buy
	c) mila	to come together
	d) gila	to swallow
	e) čina	to know (someone, something)
	f) ĵita	to win
	g) fika	to throw
	h) miša	to mix (with people)
	i) khiča	to tighten
	j) bhiĵa	to get wet
	k) čhila	to peel
ii.		
	l) beča	to sell
	m) dekha	to see
	n) mela	to open
	o) khela	to play
	p) gheša	to go near
	q) thela	to push
	r) četa	to be angry

Coming back to our "Data V" we find that forms 2-5 are identical in "šadhu" and "čolito" except for the initial vowel lowering in some cases (we have already talked

about the final vowel tensing rule in "čolito"). We also find, as in the case of previous data, that forms 19 and 20 are identical in "šadhu" as well as in "čolito". We also notice, as we did in the case of other sets of data, the sound segments added to the root for forms 5 and 23 are not identical. The existence of forms 21 and 22 in "čolito" are difficult to explain unless we assume that they have been derived from equivalent "šadhu" forms. If we make such an assumption we will be able to say that the initial vowel is lowered in "čolito" forms 5 and 21 because it was followed by a [-hi] vowel in "šadhu" and that in the case of forms 22 and 23 it was not lowered because it was followed by [+hi] vowel in the "šadhu".

It seems that we will need two more phonological rules to be able to maintain our basic claim that "čolito" has been derived from "šadhu". They are:

- xi) a rule for vowel lowering (e.g., i + e)
- xii) a dissimilation rule (e.g. kh + k)

It should be noted here that these rules will be easily accommodated in our framework of diachronic rules as proposed in Section 2.2.3.

2.2.5.

In this section we are going to examine equivalent forms from "šadhu" and "čolito" with a verb form that

represents another large group of Bengali verbs. We will note that we will not need any new rules to account for the derivation of "čolito" forms from "šadhu".

"Data VI"

Bengali		English Gloss
1. map		root of the verb "measure".
	<u>"šadhu"</u>	
	<u>"čolito"</u>	
2. mapa	mapa	to measure
3. mapi	mapi	First person simple pres. of "measure".
4. mapɔ	mapo	Second person simple pres. of "measure".
5. mape	mape	Third person simple pres. of "measure".
6. mapitečhi	mapčhi	First person pres. prog. of "measure".
7. mapitečɔ	mapčho	Second person pres. prog. of "measure".
8. mapiteče	mapče	Third person pres. prog. of "measure".
9. mapiachi	mepečhi	First person perfect of "measure".
10. mapiachɔ	mepečho	Second person perfect of "measure".
11. mapiache	mepeče	Third person perfect of "measure".
12. mapiachilam	mepečhilam	First person simple past of "measure".
13. mapiachile	mepečhile	Second person simple past of "measure".
14. mapiachilo	mepečhilo	Third person simple past of "measure".
15. mapitečhilam	mapčhilam	First person past prog. of "measure".
16. mapitečhile	mapčhile	Second person past prog. of "measure".
17. mapitechilo	mapchilo	Third person past prog. of "measure".
18. mapibo	mabbo	First person future of "measure".
19. mapibe	mabbe	Second person future of "measure".
20. mapibe	mabbe	Third person future of "measure".
21. mapɔ	mapo	Imperative present of "measure".
22. mapio	mepo	Imperative future of "measure".
23. mapia	mepe	After/on measuring.

As usual, we find forms 2-5 identical in "sadhu" and "colito" and forms 19 and 20 identical in both dialects. We note that forms 5 and 23 are different although they have the same final vowel. We believe that 5 is [mape] and 23 is [mepe] not because they have the same vowel added to the root but because they are derived from different "šadhu" forms. With forms 21 and 22 we have a similar problem and suggest a similar solution.

We realize that the above set of data supports our basic claim that "colito" has been derived from "sadhu". There are many verbs in Bengali for which lists similar to the one above could be drawn with equivalent "sadhu" and "colito" forms. We would face an exactly similar situation with each one of those verbs and our only way out would be to claim that "colito" has been derived from "sadhu". Some of those verbs are given below.

	<u>Bengali*</u>	<u>English Gloss</u>
i)	kač ^ǎ a	to wash
ii)	kata	to cut
iii)	kāč ^ǎ a	to weep
iv)	č ^ǎ apa	to press
v)	nač ^ǎ a	to dance
vi)	bāč ^ǎ a	to live

* Infinitive forms in both dialects.

	<u>Bengali*</u>	<u>English Gloss</u>
vii)	rakha	to keep
viii)	daka	to call
ix)	raga	to be angry
x)	čakha	to test
xi)	pata	to lay
xii)	thaka	to stay
xiii)	nama	to get down
xiv)	kapa	to shiver
xv)	čata	to lick
xvi)	jana	to know, to come to know
xvii)	šapa	to curse
xviii)	dhaka	to cover
xix)	tana	to draw
xx)	khata	to work hard
xxi)	čhaka	to strain
xxii)	čācha	to take the skin off
xxiii)	čhata	to trim
xxiv)	pāka	to ripen

2.2.6.

In this section we are going to take up equivalent forms of a verb in "šadhu" and "čolito". As has been the case thus far, the relationship between the two dialects is easily discernible.

* Infinitive forms in both dialects.

"Data VII"

Bengali			English Gloss
1. gun			root of the verb "count".
	<u>"^vsadhu"</u>	<u>"^vcolito"</u>	
2. guna	guna	gona	to count
3. guni	guni	guni	First person simple pres. of "count".
4. guno	guno	gono	Second person simple pres. of "count".
5. gune	gune	gone	Third person simple pres. of "count".
6. gunitechi	gunitechi	gunchi	First person pres. prog. of "count".
7. gunitecho	gunitecho	guncho	Second person pres. prog. of "count".
8. guniteche	guniteche	gunche	Third person pres. prog. of "count".
9. guniachi	guniachi	gunechi	First person perfect of "count".
10. guniacho	guniacho	gunecho	Second person perfect of "count".
11. guniache	guniache	guneche	Third person perfect of "count".
12. guniachilam	guniachilam	gunechilam	First person simple past of "count".
13. guniachile	guniachile	gunechile	Second person simple past of "count".
14. guniachilo	guniachilo	gunechilo	Third person simple past of "count".
15. gunitechilam	gunitechilam	gunchilam	First person past prog. of "count".
16. gunitechile	gunitechile	gunchile	Second person past prog. of "count".
17. gunitechilo	gunitechilo	gunchilo	Third person past prog. of "count".
18. gunibo	gunibo	gunbo	First person future of "count".
19. gunibe	gunibe	gunbe	Second person future of "count".
20. gunibe	gunibe	gunbe	Third person future of "count".
21. guno	guno	gono	Imperative present of "count".
22. gunio	gunio	guno	Imperative future of "count".
23. gunia	gunia	gune	After/on counting.

Once again we see that the clue to the relationship between "^vsadhu" and "^vcolito" is in the existence of forms like [gono] (items 4 and 21) and [guno] (item 22) and [gone] (item 5) and [gune] (item 23) in "^vcolito". Forms

4 and 21 have their root vowel lowered because it is followed by a [-hi] vowel in the "ṣadhu" but it does not happen so in the case of form 22 because there in the "ṣadhu" it is followed by a [+hi] vowel. Similar things happen in the case of forms 5 and 23. Everything points to one direction, that is, "ṣolito" has been derived from "ṣadhu". It should be mentioned here that for a large number of Bengali verbs data sets like the one above can be prepared for the "ṣadhu" and corresponding "ṣolito" forms where, except for the root consonants, they will be exactly the same as above. Some verbs from this group are given below.

	<u>Bengali</u>	<u>English Gloss</u>
i)	bona	to knit, to sow
ii)	kota	to shred
iii)	ṣona	to hear
iv)	moṣha	to wipe
v)	lota	to loot
vi)	boṣha	to understand
vii)	ṣōka	to smell
viii)	poṣa	to burn
ix)	toka	to copy
x)	dhoka	to enter
xi)	ṣota	to come by
xii)	ghora	to go round

	<u>Bengali</u>	<u>English Gloss</u>
xiii)	čhota	to run
xiv)	khota	to glean
xv)	jhoka	to lean
xvi)	počha	to wipe
xvii)	phota	to blossom
xviii)	čhoṛa	to throw
xix)	ṭola	to pick up
xx)	kopa	to put into the earth
xxi)	thoka	to hit against
xxii)	goṛja	to hide
xxiii)	ghoṛca	to come to an end
xxiv)	phoka	to puff

2.3.1.

In this section we would like to consider the diachronic phonological rules we have thus far proposed. But before we do that, we should say a word or two about some Bengali sounds. The [a] in Bengali is not as back a sound as is the North American [a]. In Bengali [a] appears to be slightly fronted. Since Bengali does not have a "shwa" (see Chatterji, 1923; Hai, 1964; Hai and Ball, 1961), we have used [ia] to indicate a diphthong somewhat similar to the North American [iə]. The Bengali [æ] seems to me to be in between the North American [e] and [æ]. To come to the question of diachronic rules of Bengali phonology,

we quote below the informal rules we have claimed to have been at work in the derivation of "čoliṭo" from "šadhū".

1. [h] deletion
2. vowel tensing
3. [i] deletion
4. [e] deletion
5. [t̥] deletion
6. changing [t̥] into [č]
7. changing [a] into [e]
8. changing [ia] into [e]
9. vowel lowering
10. identical vowel deletion
11. vowel lengthening
12. consonant dissimilation

We have already noted that the deletion of [h] (item 1. above) is almost universal in "čolito". We would write a rule that deletes [h] when it occurs between two vowels as warranted by our data (see for example "Data II"). But we saw that it is also deleted even though it is between a vowel and a consonant (see page 27). However, [h] is never deleted when it is immediately followed by a vowel in word initial position (e.g., haša = to laugh, hišab = account, etc.). We would write DR.1 for [h] deletion.

DR.1. Consonant Deletion [h]:

$$[h] \rightarrow \emptyset / V -$$

We noted (page 19) that the vowel tensing rule that raises [ɔ] to [o] (item 2. above) is a regressive rule that affects the vowel in the root. We would write that rule in the following way:

DR.2. Vowel Tensing:

$$\begin{bmatrix} + \text{ syl} \\ - \text{ hi} \\ - \text{ lo} \\ + \text{ bk} \end{bmatrix} + [+ \text{ tns}] \rightarrow \begin{bmatrix} + \text{ syl} \\ + \text{ hi} \\ - \text{ bk} \end{bmatrix}$$

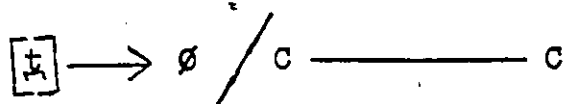
We would take the deletion of [i] and [e] (items 3. and 4. above) and put them together in one rule as in DR.3. below:

DR.3. Vowel Deletion ([i], [e]):

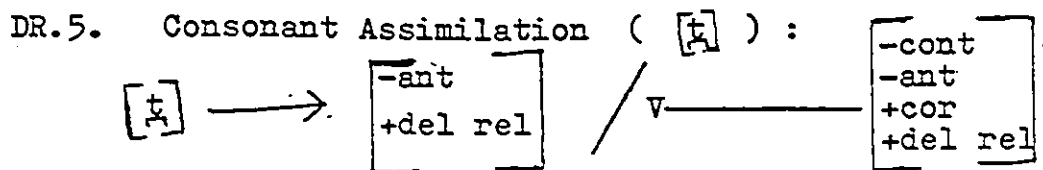
$$\begin{bmatrix} + \text{ syl} \\ - \text{ lo} \\ - \text{ bk} \end{bmatrix} + \emptyset \rightarrow \left. \begin{bmatrix} + \text{ syl} \\ - \text{ hi} \\ - \text{ lo} \\ + \text{ bk} \end{bmatrix} \right\} [- \text{ cont}]$$

Coming to [ɾ] deletion (item 5. above), we note that it happened when [ɾ] occurred between two consonants. We would write DR.4. for [ɾ] deletion:

DR.4. Consonant Deletion ([t̥]) :

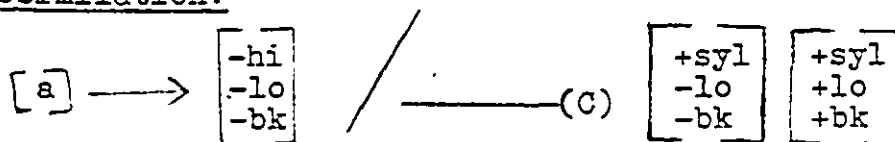


We notice that [t̥] assimilates to the following [çh] (item 6 above) only when it is preceded by a vowel and nothing intervenes between it and the following [çh] (pages 22 and 24). We would write DR.5. for the assimilation of [t̥] :



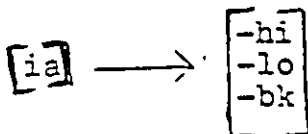
For the assimilation of [a] to the following [-lo] vowel (item 7 above, see page 24), we would write rule DR.6.:

DR.6. Vowel Assimilation:



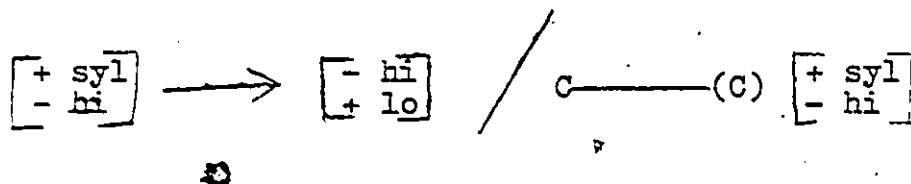
Because we find that "šadhu" [ia] always became e in "čolito" (item 8 above) (e.g., see page 15), irrespective of any environment we would write DR.7. to account for that change in the following way:

DR.7. Vowel Change:



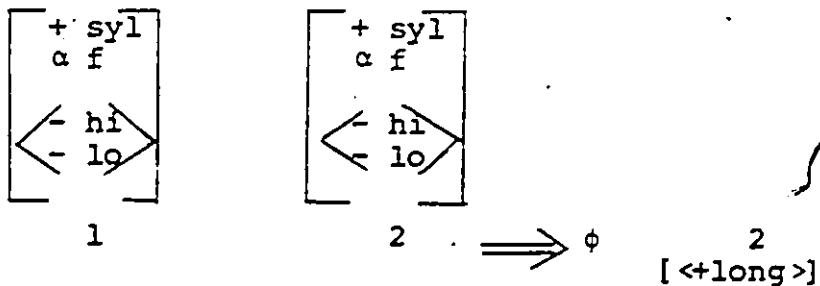
For cases like [šikha] → [šekha] , [dekha] → [dækha] (see pages 29, 30) and [gune] → [gone] (see page 36), (item 9 above), we have to write a vowel lowering rule. We would write such a vowel lowering rule in the form as is given in DR. 8. below.

DR.8. Vowel Lowering:



Identical vowel deletion (item 10. above) and vowel lengthening (item 11. above) can be put together in one rule because we have seen (pages 22, 24, 25) that although when two identical vowels occur together one is deleted, the vowel that is not deleted becomes [+ long] if it is a $\begin{bmatrix} - \text{ hi} \\ - \text{ lo} \\ - \text{ bk} \end{bmatrix}$ vowel. So we would write rule DR.9. to accommodate both these phenomena.

DR.9. Identical Vowel Deletion and Vowel Lengthening:



The last rule that we have to write here involves dissimilation. We saw ("Data V") that [kh] becomes [-hsp] when it preceded another aspirated consonant. The dissimilation does not take place when there is an intervening vowel. So we write the dissimilation rule in the following way:

DR.10. Dissimilation:

$$\begin{bmatrix} - & \text{cont} \\ + & \text{hsp} \end{bmatrix} \rightarrow [- \text{ hsp}] / \text{---} \begin{bmatrix} - & \text{cont} \\ + & \text{hsp} \end{bmatrix}$$

2.3.2.

We have formulated rules DR.1. to DR.10. here in order to be able to claim that "çolito" was derived from "šadhū" historically. We believe that these rules in essence worked over a long period of time to bring about the change from "šadhū" to "çolito". While we cannot make any absolute claim that these were the very rules that worked, what we can do and what in fact we are doing is that since it makes sense to assume that these rules operated on "šadhū" forms for the derivation of "çolito", we are making that assumption. Rules DR.1. to DR.10. describe what it requires to make a claim that "çolito" was derived from "šadhū". That is, faced with a question like "What do you mean by 'çolito' was derived from 'šadhū'?"--our answer would be that in Bengali sound changes captured by DR.1. to DR.10 were operative.

2.3.3.

It must be pointed out here that in writing these rules we have glossed over questions like the time gap between one change and another. We have assumed one simple step where there could be a number of steps. A case in point is the change of [ia] into [e] (see DR.6. above). We have assumed there to be one single process here which could be a total of several processes. We have done so because we have no way of checking all those processes and also for our purpose it is beside the point. However, we cannot accept Chatterji's (1929) suggestion that [rekhe] was derived from [rakhia] in the following way: [rakhia] → [raikha] → [rekkha] → [rekhe] (cf. "Data VI").

Chatterji (1929) took these forms from the two dialects but he never mentions them by name. He suggests this as a possibility and he says that he is doing so on the basis of what he found in one regional dialect. Now, we find this "some dialect" argument unacceptable because firstly, we have no documentation of the different regional dialects of Bengali. Secondly, formulating on a language, depending on one regional dialect where we have no dialect survey or anything like that, is questionable. Thirdly, one regional dialect cannot be the only source to provide a conclusive evidence about the historical development of a language. For example in the regional dialect of Barisal (a fairly large area in former Bengal and present Bangladesh), the following change occurs.

bataš (air)	becomes	bašat
rikša (rickshaw)	becomes	riška
bakšo (box)	becomes	baško

It would not be reasonable to assume that the Metathesis of [s] in these words show a general pattern of the Barisal dialect or of the Bengali language, because, for one thing, there are words in the same dialect where this movement does not occur. For example:

adṛšo (ideal)	does not become	adṛšo
bataša (sweets)	does not become	bašata
hṛtaša (despair)	does not become	hṛšata
akaš (sky)	does not become	ašak

Another reason is such movement is not known to take place in any other dialect.

2.3.4.

What we have done in this chapter can be summed up as follows. We set out with the assumption that "čolito" was derived from "šadhu". We have considered sets of data consisting of equivalent forms from the two dialects, one of which ("šadhu") being the earlier standard and the other being present standard Bengali. We have seen that the existence of certain "čolito" forms can be explained only if we assume that "čolito" was derived from "šadhu". We

have proposed certain rules which we believe to have been operative in essence historically in the derivation of "čolito" from "šadhu".



CHAPTER 3

3.1.1.

In this chapter we will consider some synchronic sound changes in Bengali. While some of these regularly occurring sound changes were true of "šadhu", others are true of "colito". If it is made clear that there is a relationship between the two sets of changes it will reinforce our claim in Chapter 2 that "colito" has been derived from "šadhu". The synchronic changes will be considered under two general headings: (1) vowel changes and (2) consonant changes. Before we talk about these things we would like to clarify a phenomenon of Bengali language known as "šondhi" (translated in English as Permutation). We have to understand "šondhi" because we will consider data that involve "šondhi". "šondhi" is a morphological process in Bengali that combines:

- (a) two free morphemes;
- (b) one free and one bound morpheme;
- (c) two bound morphemes.

We give below three examples for the three above types of "šondhi" phenomena in Bengali. We have placed

a plus sign between the two elements that are joined. The plus sign was placed, in traditional grammars, between the two elements that were joined by "ṣondhi". We use the same sign to indicate that and also the fact that the changes occurred at a morpheme boundary in which case the plus sign will facilitate locating the change.

	<u>"ṣondhi"</u>	<u>Derived Word</u>
1.	bidda + al̄y (lēarning) (abode)	biddal̄y (sch̄ool)
2.	nih + ṣeṣ (there is not, does not have) (end)	niṣeṣ (endless)
3.	soṭ + čar (being with) (movement)	soččar (forceful)

In the first example, two words that have independent meanings and can be used independently are combined and a new word is derived. In the second example, of the two elements combined the first one [nih] cannot be used unless it is combined with some other morpheme. In example number 3, neither of the two elements combined can be used independently. After this brief digression into the area of "ṣondhi", which we believe will help us understand Bengali "ṣondhi" and hence some of our data involving "ṣondhi", we return to the consideration of the sound changes in Bengali that we have indicated to be synchronic.

3.2.1.

In this section we will consider one type of vowel change in modern Bengali. The following set of data is a list of some words that exist in both "śādhu" and "čolito".

"Data VIII"

	<u>Bengali</u>	<u>English Gloss</u>
1.	citrarpito	still (as in a picture)
2.	mukhagni	fire in the mouth (a Hindu religious rite of putting fire in the mouth of the dead)
3.	śokanol*	the fire of mourning
4.	čoronamrito	the nectar of foot
5.	močabelombi	follower of an opinion
6.	mitāčar	balanced behavior
7.	śištāčar	good behavior
8.	betraghat	whipping
9.	bhojonačoy	restaurant
10.	mutrašoy	kidney
11.	biddalačoy	school
12.	mohašoy	Sir, Mister
13.	mitthacar	false behavior
14.	mohanondo	great joy
15.	nidračchonno	in deep sleep
16.	mohanol	big fire
17.	bočononaujai	according to description
18.	mohašur	big giant
19.	kočthaujai	according to words
20.	bočononaušare	as per description

* As will be seen in the next set of data, some final vowels were [-tns] in "šondhi" and in "śādhu" derived forms. As far as the final vowel tensing is concerned, we have given the "čolito" forms here, since we believe that final vowel tensing is a synchronic rule of "čolito".

Traditional grammars of Bengali (that is of "šadhū") describe words as above as the result of vowel permutation. As we will see some phonological process is at work here which was neither understood nor described by any of the people who have worked on Bengali phonology. "šondhi" is a very important process in Bengali because for many words "šondhi" is the process through which they are derived. In "Data VIIIa" we give the "šondhi" for the forms in "Data VIII".

"Data VIIIa"

	<u>"šondhi"</u>	<u>Derived Word</u>
1'.	čitr + rpit (picture) (placed)	čitrarpit
2'.	mukh + rgni (mouth) (fire)	mukhagni
3'.	šok + anl (mourning) (fire)	šokanol
4'.	čoronam + rit (foot) (nectar)	čoronamrito
5'.	mo + lombi (opinion) (follower)	moabolombi
6'.	mit + ačar (balanced) (behavior)	mitačar
7'.	šist + ačar (good) (behavior)	šistačar
8'.	be + rghat (whip) (strike)	betraghat
9'.	bhoj + aloy (eating) (abode)	bhojonaloy
10'.	mut + ašoy (urine) (container)	mutrašoy

"Data VIIIa"
(Continued)

<u>"sondhi"</u>	<u>Derived Word</u>
11'. bid ^o da + a ^o l ^o y (learning) (abode)	biddal ^o y
12'. mo ^o ha + a ^o š ^o y (great, big) (container)	mo ^o haš ^o y
13'. mit ^o tha + a ^o č ^o ar (false) (custom, behavior)	mit ^o thacar
14'. mo ^o ha + a ^o nond ^o (great, big) (joy)	mo ^o hanond ^o
15'. nid ^o ra + a ^o č ^o chonn ^o (sleep) (covered)	nid ^o rač ^o chonn ^o
16'. mo ^o ha + o ^o n ^o l (great, big) (fire)	mo ^o hanol
17'. b ^o rn ^o na + o ^o nu ^o jai (description) (according to, as per)	b ^o rn ^o nanu ^o jai
18'. mo ^o ha + o ^o š ^o ur (great, big) (giant)	mo ^o haš ^o ur
19'. ko ^o tha + o ^o nu ^o jai (word) (according to, as per)	ko ^o thanu ^o jai
20'. b ^o rn ^o na + o ^o nu ^o šare (description) (according to, as per)	b ^o rn ^o nanu ^o šare

We see from the "šondhi" process in "Data VIIIa" that in forms 1'-5' two [o] sounds come together and become [a]. In forms 6'-10' [a] was derived when [o] was followed by [a]. In forms 11'-15' [a] was derived and finally, in 16'-20' [a] was derived when [o] followed [a] in a "šondhi" situation. We can list what happened in the following manner.

o + o = a

o + a = a

a + a = a

a + o = a

We could write the following rule to formalize the process at work here:

SR.1. Vowel Deletion:

+ syl + bk - hi	+	+ syl + bk - hi	→	φ	2	3	[+10]
1							

The process exemplified by the above sets of data and formalized in SR.1. is a process of vowel change wherein the most important fact is that when two vowels came together in a "son̄dhi" situation, one vowel was lost. What we are interested in is the loss of vowel. Historically "son̄dhi" was a synchronic fact of "sad̄hu" and the results of such a process was handed down to "colitō". By this we mean that the words derived through "son̄dhi" are available in "colitō". We believe that a rule like SR.1. above is a synchronic rule for "colitō" too. By this we mean that a speaker of standard Bengali today ("colitō") is aware of the process of derivation of a word like "mohas̄y" (see items 12 and 12' above) and so derives words like the

following by applying the same rule as in the case of "mohasoy", that is rule SR.1. above.

"sondhi"

Derived Word in "colito"

durɔ + alaponi
(distant) (that which talks)

duralaponi
(telephone)

monɔ + onɔr
(mind) (difference)

monantor
(difference of
mind, hostile
attitude)

Derivation of words as above by "šondhi" in the "colito" of today only confirms our rule SR.1. This is quite natural since we have claimed in Chapter 2 that "colito" was systematically derived from "šadhu". As we will see in the following sets of data there were different types of vowel change in "šadhu" when two vowels came together in a "šondhi" situation.

3.2.2.

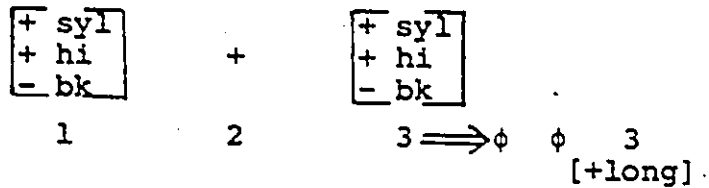
Of the other kinds of vowel changes in "šadhu" that we would like to consider, one concerned high front vowels. "Data IX" shows what happened when two high front vowels came together and a "šondhi" was made.

"Data IX"

	<u>"son̄dhi"</u>	Derived Word in "saḍhu"
1.	moni + indr̄ḡ (jewel, a Hindu god)	m.ni:ndr̄ḡ (the jewel of Indra, a Hindu name)
2.	obhi + iḡst̄ḡ (above) (a god, desire)	obhi:ḡst̄ḡ (goal, aim)
3.	jḡṭi + indr̄ḡ (stop) (a Hindu god)	jḡṭi:ndr̄ḡ (Indra stopper, a Hindu name)
4.	oti + indrio (much) (sense organ)	oti:ndrio (supernatural)
5.	robi + indr̄ḡ (the sun) (a Hindu god)	robi:ndr̄ḡ (the sun of Indra, a Hindu name)
6.	odhi + i:ḡṣṣ̄ḡḡ (upon) (god)	odhi:ḡṣṣ̄ḡḡ (sovereign ruler)
7.	dilli: + i:ḡṣṣ̄ḡḡ (Delhi) (god)	dilli:ḡṣṣ̄ḡḡ (god of Delhi, a Mughal emperor of India)

In the above forms the vowels that come together are identical except for the fact that in item 6 one vowel is [+ long] and in item 7 both vowels are [+ long]. The vowels in the derived forms are identical. For every pair of vowels in the "son̄dhi", we have a long vowel in the derived form. We could write a rule as in SR.2. below to account for such a fact as exemplified in "Data IX".

SR.2. Identical Vowel Deletion
and Vowel Lengthening:



We have written this rule in this way so that the first rather than the second of the two vowels is deleted because, as we will see in subsequent data, we have reason to believe that in "šadhū" when a vowel deletion occurred where two vowels came together, it was the first vowel that was deleted. We must point out here that like all long vowels in "šadhū", the long high front vowel also lost its length and became [- long] in "čoliṭo".

In the next set of data, we will see what happened when a high vowel followed a non-high vowel.

"Data X"

	<u>"songhi"</u>	<u>Derived Word</u>
1.	pɔɔɔɔ + iššɔɔ (the most, only) (god)	pɔɔɔɔeššɔɔ (Almighty God)
2.	debo + indro (god) (Indra)	debendro (god Indra, a Hindu name derived from the name of Indra)

"Data X"
(Continued)

	<u>"Sondhi"</u>	<u>Derived Word</u>
3.	mɔɔɔɔ + ičča (death) (wish, desire)	mɔɔɔɔnečča (desire to die)
4.	jɔɔɔ + ičča (as, so) (wish)	jɔɔɔhečča (as one likes)
5.	moha + iššɔɔ (great, big) (god)	moheshšɔɔ (great god)
6.	jɔɔɔ + ištɔ (as, so) (a god, desire)	jɔɔɔhestɔ (enough)
7.	anɔɔɔ + utšɔb (joy) (celebration)	anɔɔɔotšɔb (a joyous celebration)
8.	sɔɔɔ + uɔɔɔ (heaven) (garden)	sɔɔɔgɔɔɔ (garden of heaven)
9.	gaɔɔɔ + utthan (body) (raising)	gaɔɔɔotthan (getting up)
10.	// jɔɔɔ + upɔɔjuktɔ (as, so) (deserving, fitting)	jɔɔɔthɔɔjuktɔ (as one deserves)
11.	moha + utšɔb (great, big) (celebration)	mohotšɔb (big celebration)
12.	jɔɔɔ + učit (as, so) (one should)	jɔɔɔhočit (as one deserves)

In forms 1-3 [ɔ] is followed by [i] and in 4-6 [a] is followed by [i]. In each case one vowel is deleted and the other changes into a new vowel sound. We believe that in these cases [i] was changed into [e] and the vowel that preceded it was deleted. In forms 7-9 [u] follows [ɔ] and in forms 10-12 the same sound follows [a]. Here also, of the two vowels that come together one is deleted and we end up with a new vowel sound, that is [o]. We believe that

[u] changed into [o] and the preceding vowel was deleted. If we take these two phenomena together (that is 1-6 and 7-12), we have a situation where a non-high vowel sound is followed by a high vowel sound where the latter changed into a new vowel and the former was deleted. We could write SR.3. to account for such a situation as is exemplified in the above set of data.

SR.3. Vowel Assimilation and Vowel Deletion:

$$\begin{array}{ccccccc}
 \boxed{\begin{array}{l} + \text{ syl} \\ - \text{ hi} \end{array}} & + & \boxed{\begin{array}{l} + \text{ syl} \\ + \text{ hi} \end{array}} & + & \phi & \begin{array}{l} 2 \quad 3 \\ \boxed{\begin{array}{l} - \text{ hi} \\ - \text{ lo} \end{array}} \end{array} \\
 1 & & 2 & & 3 & &
 \end{array}$$

In the "Data XI" below we will see that when the high front vowel was followed by a different vowel (that is, other than [i]), the consonant preceding the former was geminated while the vowel itself was deleted. We will also find support here for our assumption that in a "šondhi" situation of the two vowels coming together, it was the first that was deleted.

"Data XI"

	<u>"sondhi"</u>	<u>Derived Word</u>
1.	proṭi + antar (to, towards) (heart, difference)	proṭṭantar (in the nooks and corners)
2.	goti + antar (speed, means) (heart, difference)	gottantar (alternative)
3.	oti + anto (much) (end)	ottanto (too much)
4.	proṭi + anto (to, toward) (end)	proṭṭanto (far-flung)
5.	iṭi + adi (end) (beginning)	ittadi (etcetera)
6.	oti + aṅgar (much) (custom, behavior)	ottaṅgar (torture)
7.	oti + aścarj (much) (surprise)	ottaścarj (very surprising)
8.	oti + abhṣṣak (much) (necessary)	ottabhṣṣak (essentially necessary)
9.	oti + utpadan (much) (production)	ottutpadan (excessive production)
10.	proṭi + uttar (to, towards) (answer, reply response)	proṭṭutar (response, where response is called for)
11.	oti + ucc (much) (high)	ottucc (very high)
12.	oti + utsahi (much) (enthusiastic)	ottutsahi (over enthusiastic, much enthusiasm)
13.	bonni + utṣab (fire) (celebration)	bonnutṣab (celebration with fire)
14.	ogni + uppat (fire) (throwing up)	ognuppat (volcanic eruption)

In items 1-12 we find that whenever [i] was followed by another vowel, the consonant that preceded it geminated while the [i] was deleted. We also find that the vowel that followed [i] was not affected. In forms 13-14 only [i] is deleted. In all the items here the first of the two vowels that come together is deleted. We would write SR.4. to account for the vowel deletion and gemination that take place in items 1-12 and SR.5. to delete [i] when it is followed by a back vowel (as in 13-14).

SR.4. Vowel Deletion and Gemination:

[+ syl]	[- syl]	+ syl - bk + hi	+	+ syl + bk	
1	2	3	4	5	⇒ 1 2 2 φ φ 5

SR. 5. Vowel Deletion:

+ syl - bk + hi	+	+ syl + bk	
1	2	3	⇒ φ φ 3

We would like to point out that the words derived by the application of the above synchronic rules in "śadhu" have been handed down to "çoliṭo". For the speakers of standard Bengali today (that is, speakers of "çoliṭo"), the derivation of such words can only be explained by referring to rules that were operative in "śadhu".

3.2.3.

We indicated in Chapter 2 (page 15 fn) that "čoliṭo" has a vowel tensing rule that affects the word final vowel. "Čoliṭo" has only one lax vowel [ɔ], (see Ferguson, 1945). By "final vowel tensing rule" we mean that [ɔ] becomes [o] in the word final position irrespective of what goes before. In all the data we have considered thus far, the word final [ɔ] in "sadhu" will always become [o] in "čoliṭo". We believe that this is a synchronic phenomenon in "čoliṭo". Consider, for example, the future time indicating morpheme in both the dialects. In "šadhu" it is [bɔ] and in "čoliṭo" it is [bo]. In "Data I" in Chapter 2, we have seen that [kɔr] is the root of [kɔrɔ] and [kɔro] (item 4) in "šadhu" and "čoliṭo" respectively. If we compare this item with item 21 we see the same difference, that is, for a "šadhu" [ɔ] we have [o] in "čoliṭo" (in word final position). The same relationship exists between "šadhu" and "čoliṭo" in respect of items 4 and 21 in data sets 1-3 and 5-7 in Chapter 2. Since we do not think that "čoliṭo" and "šadhu" have two different grammars, we would conclude that there is a vowel tensing rule in "čoliṭo" that could be written in the following way.

SR.6. Vowel Tensing:

$$[\text{ɔ}] \rightarrow [+ \text{tns}] / \text{---} \#$$

3.3.1.

Consonant changes are a very important phenomenon of modern Bengali. We considered in Chapter 2 some consonant changes that help to establish a derivative relationship between "śad̥hu" and "colito". Here we will consider consonant changes, some of which worked in "śad̥hu" and some still work in "colito". The first type of consonant change involves what we would call h-deletion which was a synchronic fact of "śad̥hu". We saw in Chapter 2 (page 23; see also "Data II") that in "śad̥hu" the [h] in the root of verbs like [čah] is deleted in various forms. For example, when the infinitive morpheme [a] is added to the root, the [h] is replaced by the glide [w]. So for the root [čah]* we have in "śad̥hu" and in "colito" the infinitive [cawa]. We pointed out in Chapter 2 (page 23) that the forms 3-5 (page 22) having the root [h] were earlier forms and latter "śad̥hu" and "colito", both are h-less for those items. We suggested that there could be a feedback effect on "śad̥hu" by which we mean that "colito" forms derived from "śad̥hu" were incorporated in the "śad̥hu" (e.g., items 3-5, "Data II"). If we assume that "śad̥hu" and "colito" have two different roots (that is [čah] and [ča]), then we cannot explain this feedback. Again, we cannot claim two different roots for the same meaning and, except for [h], for the same forms.

* Note that both Hindi and Urdu have the same root for a verb having the same meaning but [h] is never deleted there.

One could argue that the [h] of the root changes into a glide when a [-hi] vowel follows it at the morpheme boundary. But we have reason to believe that in fact [h] did not become a glide [w]; it was deleted and a glide was inserted between the two [-hi] vowels. If we consider a verb like [pawa] or [jawa] (page 23, Chapter 2) which belong to the same group of verbs as [čawa] except for the *h*-fullness* of the latter verb, we find that the glide [w] was inserted between two low vowels even though there was no [h] in the root. So for the root [pa], the infinitive is not

pa + a → paa

but

pa + a → pawa

If we considered all this, we would possibly argue for the following two synchronic rules in "sadhu".

SR.7. Consonant Deletion [h]:

[h] → ∅ / $\left[\begin{array}{l} + \text{ syl} \\ + \text{ lo} \end{array} \right] _ + \left[\begin{array}{l} + \text{ syl} \\ + \text{ lo} \end{array} \right]$

SR. 8. Epenthesis:

∅ → w / $\left[\begin{array}{l} + \text{ syl} \\ + \text{ lo} \end{array} \right] _ + \left[\begin{array}{l} + \text{ syl} \\ + \text{ lo} \end{array} \right]$

* This refers to the fact that certain verbs of this group had [h] in some form of "šadhu" as shown in "Data II" of Chapter 2.

We believe that rule SR.7. became more general in its diachronic form when it applied to "šadhū" for the derivation of "colito". So we have formulated the diachronic h-deletion rule as R.1. (page 40, Chapter 2) which says that [h] is deleted whenever it follows a vowel. In "songhi" also we find that under certain circumstances [h] was either deleted or it changed into a different sound. "Data XII" shows what happened to [h] when it occurred at the morpheme boundary in a "songhi" situation in "šadhū".

"Data XII"

	<u>"songhi"</u>	<u>Derived Word in "šadhū"</u>
1.	nih* + rōb (there is not) (sound)	nirōb silent
2.	nih + šim (there is not) (end)	nišim endless
3.	nih + śōbdō (there is not) (sound)	niśōbdō silent
4.	duh + śōpnō (bad) (dream)	duśōpnō nightmare
5.	nih + cōl (there is not) (movement)	niścōl (still, having not movement)
6.	duh + cīnta (bad) (thought)	duścīnta worry
7.	nih + cīdro (there is not) (hole)	niścīdro faultless

* Cf.
[nehi] in Hindi and Urdu having the same meaning, the only difference between the two is while in Bengali it is a bound form, in Hindi and Urdu it is a free form.

"Data XII"
(Continued)

	<u>"ṣondhi"</u>	<u>Derived Word in "ṣadhu"</u>
8.	nih + pap (there is not) (sin)	niṣpap (innocent, having no sin)
9.	nih + phol (there is not) (fruit)	niṣphol (barren)
10.	ḍuh + karjḍ (bad) (work)	ḍuṣkarjḍ (misdeed)
11.	nih + kam (there is not) (sexual desire)	niṣkam (having no sexual overtones)
12.	nih + olōṣ (there is not) (idle)	nirōlōṣ (very active, ceaseless)
13.	nih + ḍḍoradh (there is not) (crime)	nirḍḍoradh (innocent)
14.	ḍuh + ḍḍneḍ (bad, far from) (that which cannot be wiped)	ḍurḍneḍ (that which cannot be cleaned)
15.	nih + apḍḍ (there is not) (danger)	nirapḍḍ (safe)
16.	nih + aṣa (there is not) (hope)	niraṣa (hopelessness)
17.	ḍuh + aṣa (bad, far [from]) (hope)	ḍuraṣa (long shot)
18.	nih + uḍḍom (there is not) (initiative)	niruddom (having no drive or initiative)
19.	nih + uṣṣah (there is not) (courage)	niruṣṣah (dispirited)
20.	nih + jib (there is not) (life, animal)	nirjib (lifeless)
21.	ḍuh + jry (far [from], bad) (conquer)	ḍurjry (unconquerable, rare)

"Data XII"
(Continued)

	<u>"songhi"</u>	<u>Derived Word</u> <u>in "saḡhu"</u>
22.	nih + ḍoy (there is not) (kindness)	nirḍoy (ruthless)
23.	duh + ḍom̄niḡ (bad, far [from]) (can be checked)	duḡḍom̄niḡ (indomitable)
24.	nih + bak (there is not) (speech)	nirbak (speechless)
25.	nih + bh̄y (there is not) (fear)	nirbh̄y (dauntless)
26.	nih + m̄l (there is not) (dirt)	nirm̄l (clean, clear)
27.	duh + b̄l (far [from] bad) (strength)	duḡb̄l (weak)
28.	duh + ḡm (far [from] bad, to go) (possible)°	duḡḡm (impenetrable)
29.	nih + j̄h̄n̄jat (there is not) (trouble, problem)	nirj̄h̄n̄jat (having no trouble)
30.	duh + gh̄ot̄na (bad, far [from]) (incident)	duḡgh̄ot̄na (accident)
31.	duh + nam (bad, far [from]) (name)	duḡnam (infamy)

In the above set of data, we find that [h] changes in the following three ways:

- a) it is deleted when it is followed by either [r] or [š] (items 1-4);

- b) it becomes [ʃ] when it is followed by any of [c, ch, p, ph, k] items 5-11;
- c) it becomes [r] when it is followed by either
- (i) a vowel (items 12-19) or
 - (ii) a voiced consonant (items 20-31)

These changes could be formally accounted for by writing the following synchronic rules for "śadhu":

SR.9. Consonant Deletion [h]:

[h] + ϕ / _____ +

- syl
+ cont
+ cor

SR.10. Consonant Assimilation:

[h] +

- syl
- ant
+ cor
+ cont
+ str
- vd

 / _____ +

- syl
- son
- vol

SR.11. Consonant Assimilation:

[h] +

- syl
- cons
+ cor
+ cont

 / _____ +

+ seg
+ vd

What we want to do with the above set of data and the rules that follow it is that we would like to make a claim to the effect that [h]-loss started synchronically

in "šadhū". [h] was either deleted or it changed into a different sound when it was followed by certain sounds after morpheme boundary. We believe that the misunderstanding of people like Ferguson (1945)* could be avoided (see page 6, Chapter 1) if they had this analysis available to them.

3.3.2.

Another type of consonant change we would like to talk about here involves assimilation in respect of voicing and place of articulation. Although Bengali does not have an intervocalic voicing rule, it seems that "šadhū" had certain types of assimilation rules--voicing and others. In the description of "šondhi" in traditional grammars, we notice certain regularly occurring changes that the sound [t̪] undergoes. Since such a phonological process was not the concern of the traditional grammarians, the grammars do not capture the changes in any framework of phonological description. The following set of data shows the changes the sound [t̪] was subject to in "šadhū".

*(His belief that some consonants had an [h] after them.)

"Data XIII"

	<u>"sondhi"</u>	<u>Derived Word</u>
1.	sṛt* + ṛtho (meaning)	śṛdṛtho (good meaning)
2.	kṛt + ṛjḥ (bad, distorted) (appearance)	kṛdṛjḥ (ugly)
3.	sṛt* + aḥar (custom, behavior)	sṛdaḥar (good custom, good behavior)
4.	sṛt* + aśoy (container)	sṛdaśoy (generous, benevolent)
5.	ṣṛt + upay (dishonest, bad, etc.) (means)	ṣṛdupay (dishonest means)
6.	sṛt* + icḥha (wish, desire)	sṛdicḥha (good intention)
7.	sṛt* + uttar (answer, reply)	sṛduttar (satisfactory answer)
8.	sṛt* + guru (teacher)	sṛdguru
9.	hṛrit + dar (green) (door)	hṛridar (having green doors, Hindu holy shrine)
10.	ut** + dhar (near, close)	uddhar (rescue)
11.	hṛrit + bṛno (green) (colour)	hṛridbṛno (having the colour green)
12.	sṛt* + bicar (judgement)	sṛdbicar (justice)
13.	sṛt* + bhab (manner, relation)	sṛdbhab (good relationship)

* [sṛt] means in combination, having existence, real, honest, virtuous, good, excellent, solemn or charitable.

** Prefix denoting up, above, excessive, going beyond, etc.

"Data XIII"
(Continued)

	<u>"songhi"</u>	<u>Derived Word</u>
14.	sot* + č̣ritṛ (character)	s.č̣č̣ritṛ (having a good character)
15.	sot* + čar (having with) (movement)	soččar (powerful)
16.	ut** + čaṛn (activities, moving about)	uččaṛn (pronunciation)
17.	sot* + čhidṛ (hole)	soččidṛ (having holes)
18.	ut** + ched (root)	učched uproot
19.	ut** + čḥl (full of sound)	učcḥl (full of vitality)
20.	sot* + j̣n (person)	saj̣j̣n (a good man)
21.	kuṭ + j̣ḥtika (bad, distorted, etc.) (storm)	kuj̣j̣ḥtika (severe storm)
22.	mrit + moy (clay) (full of)	mrimoy (made of clay)
23.	j̣ogot + moy (world) (full of, all over)	j̣ogomoy (all over the world)
24.	ṭot + moy (that) (full of, all over)	ṭanomoy (engrossed, rapt)
25.	ut** + lekh (writing)	ullekh (mention)
26.	sot* + korṃ (deed, work)	s.ṭkorṃ (good deed)

* [sot] means in combination, having existence, real, honest, virtuous, good, excellent, solemn or charitable.

** Prefix denoting up, above, excessive, going beyond, etc.

"Data XIII"
(Continued)

	<u>"Sondhi"</u>	<u>Derived Word</u>
27.	ut** + kiron (ray, light)	utkiron (engraving)
28.	ut** + khipṭo (thrown)	utkhipṭo / (thrown up, erupted)
29.	sot* + patrṭo (object, pot)	sotpatrṭo (a good object)
30.	mrit + patrṭo (clay) (object, pot)	mritpatrṭo (a pot of clay)

* [sot] means in combination, having existence, real, honest, virtuous, good, excellent, solemn or charitable.

** Prefix denoting up, above, excessive, going beyond, etc.

In items 1-7 [ṭ] is voiced when it is followed by a vowel and in items 8-13 it is voiced when it is followed by a voiced stop. We could write synchronic rule SR.12. to account for the voicing assimilation as shown by items 1-13.

SR.12. Voicing Assimilation:

$$[t] \quad + \quad [+vd] \quad / \quad \text{---} \quad + \quad \left. \begin{array}{l} [+syl] \\ -syl \\ -cont \\ +vd \end{array} \right\}$$

Also in the above set of data we have a different kind of assimilation as shown in items 14-25, an assimilation to which [ṭ] is subject. [ṭ] assimilates to the following sound except the stops (items 26-30). For this assimilation

we would write synchronic rule SR.13.

SR.13. Consonant Assimilation:

$$[t] \rightarrow \begin{bmatrix} \alpha \text{ ant} \\ \beta \text{ del rel} \\ \gamma \text{ lat} \\ \langle +\text{nas} \rangle \end{bmatrix} \text{ --- } + \begin{bmatrix} \alpha \text{ ant} \\ \beta \text{ del rel} \\ \gamma \text{ lat} \\ \langle +\text{nas} \rangle \end{bmatrix}$$

It should be noted here that the changes the sound [t] underwent in "śaḍhu" are described here on the basis of information available in traditional grammar. The change that used to take place in "śaḍhu" might have been more general in nature. However, insofar as our present purpose is to indicate the types of change that were operative in "śaḍhu", rules 12 and 13 above serve that purpose.

3.3.3.

Although the morphological process of "śoḍhi" as a whole does not work in "ḥoliṭo", many words derived by "śoḍhi" in "śaḍhu" are used in "ḥoliṭo". These words bear witness to the fact that certain types of phonological rules were operative in "śaḍhu". These are, however, rules of consonant changes in "ḥoliṭo" that are synchronic in nature which could be claimed to be similar to certain synchronic rules in "śaḍhu". We will take up this issue later on after we have discussed rules of consonant changes in "ḥoliṭo" that we consider to be synchronic. The next set of data from "ḥoliṭo" show voicing assimilation as it works on different consonant sounds.

"Data XIV"

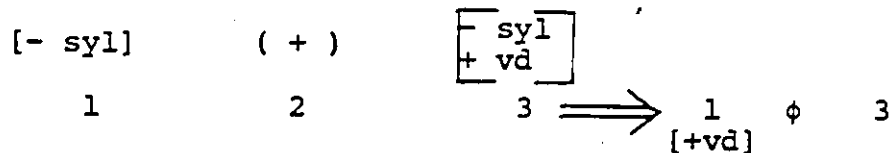
	<u>"Coligo"</u>	<u>Derived Word</u>
1.	ek + j̄n (one) (person)	egj̄n (someone)
2.	śak + dh̄owa (vegetable leaves) (washing)	sagdh̄owa (washing vegetable leaves)
3.	lakh + gela (one hundred thousand) (to swallow)	laggela (one who swallows one hundred thousand, a white elephant)
4.	mukh + dekhe (mouth, face) (having seen)	mugdekhe (seeing the face)
5.	pāč + bhūṭ (fire) (evil spirit)	pāj̄bhut (people unaccounted for)
6.	pāč + gh̄nta (fire) (hours)	pāj̄gh̄nta (fire hours)
7.	mačh + bhāṭ (fish) (rice)	maj̄bhāṭ (fish and rice)
8.	gāčh + gulo (tree) (plural)	gaj̄gulo (the trees)
9.	lat̄ + bahāḍur (governor) (performing a great feat)	lad̄bahāḍur (great governor)
10.	at + j̄n (eight) (person)	adj̄n (eight people)
11.	kath + gulo (wood) (plural)	kadgulo (the woods)
12.	moth + bari (abbey) (house)	modbari (an abbey)
13.	nat̄ + bou (grandson) (wife)	nadbou (grand-daughter-in-law)
14.	bhūṭ + bh̄oy (evil spirit) (fear)	bhudd̄bh̄oy (fear of evil spirits)

"Data XIV"
(Continued)

	<u>"Coligo"</u>	<u>Derived Word</u>
15.	pəṭh + bhola (way) (to forget)	pəḍbhola (a lost person)
16.	pəṭh + ghat (way) (stairs in the pond)	pəḍghat (ways)
17.	pap + bhora (sin) (full of)	pabbhōra (sinful, full of sins)
18.	sap + dhōra (snake) (to catch)	sabdhōra (one who catches snakes)
19.	bəṛəph + gōla (ice) (to melt)	bəṛəbgōla (that which melts ice)
20.	bəṛəph + ḡhōra (ice) (to drop)	bəṛəbḡhōra (that which drops ice)

We find here that a consonant in "Coligo" becomes voiced when it is followed by any voiced consonant. We would write rule SR.14. to account for such voicing assimilation.

SR.14. Voicing Assimilation:



We would like to note two things here. First, the assimilation rule is a regressive one. Second, we have made the morpheme boundary optional because we have reason to believe that the voicing assimilation works also where

there is no such boundary. We saw in Chapter 2 that while forms like [mapa] ("Data VI", item 2) did not become [maba], forms like [mapbo] became [mabbo] ("Data VI", item 18). We can now claim that this was done by the voicing rule SR.14. We also note that the application of this rule was made possible there by the application of rule 2 (Chapter 2, page 40) (which we have claimed to be a diachronic rule) that deleted the [i] between [p] and [b].

In the next set of data we have some other consonant assimilation rules working in "čoligo".

"Data XV"

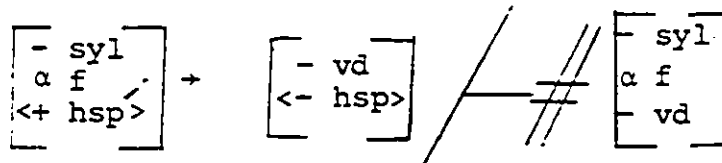
	<u>"čoligo"</u>	<u>Derived Word</u>
1.	rag # kora (anger) (to do)	rakkora (to be angry)
2.	bhag # khawa (share) (to eat)	bhakkhawa (to eat or swallow a share)
3.	bagh # kata (share) (to cut)	bhakkata (cancelling a share)
4.	ka ^ŷ # čor (work) (thief)	kaččor ^{ŷŷ} (one who cheats in work)
5.	ka ^ŷ # čara (work) (without)	kaččara ^{ŷŷ} (without work)
6.	ma ^ŷ h # čala (middle) ([having] roof)	maččala ^{ŷŷ} (having a middle roof)
7.	ma ^ŷ h # čere (middle) (leaving)	maččere ^{ŷŷ} (leaving the company [of])
8.	čha ^ŷ # tola (roof) (to raise)	čhattola ^{ŷŷ} (raising a roof)

"Data XV"
(Continued)

	<u>"coligo"</u>	<u>Derived Word</u>
9.	chad # theke (roof) (from)	chattheke (from the roof)
10.	badh # gola (dam) (to raise)	battola (raising a dam)
11.	sob # pap (all) (sin)	soppap (all sins)
12.	sob # phul (all) (flower)	sopphul (all flowers)
13.	lobh # pawa (greed) (to get)	loppawa (to become greedy)
14.	bhat # cawa (rice) (to want)	bhac̣cawa (to want rice, food)
15.	hat # chara (hand) (to leave without)	hac̣chara (getting out of hand)
16.	poth # cola (way, road) (to go, to walk)	poč̣cola (walking on a way)
17.	poth # chara (way, road) (to leave, without)	poč̣chara (without a way, to leave the way)
18.	nat # jamai (grandson) (son-in-law)	najjamai (grandson-in-law)
19.	hat # jhara (hand) (to dust)	hajjara (dusting the hands off)
20.	sath # jawa (with) (to go)	sajjawa (going with)
21.	lath # jhara (kick) (to throw)	lajjara (throwing a kick, to kick)

Items 1-13 above embody the operation of what we would call a devoicing rule in "Colito". What is happening here is that a voiced consonant is devoiced in assimilation to the voiceless consonant that follows the former after a word boundary. We note that the consonants involved belong to the same class of sounds except for aspiration. The devoicing rule is different from the voicing rule SR.14. in that the latter works irrespective of any class of sounds that might be involved (see "Data XIV" above). Although both the assimilations are regressive, we have to make the devoicing rule of a more restricted nature in its application than the voicing rule (SR.14.) which is of a general nature. We would formalize the devoicing rule as in SR.15.

SR.15. Devoicing:



Items 14-21 in the above set of data show changes that [t̥, t̥h] undergo when they are followed by certain sounds after a word boundary. We noted the voicing [t] in "Data XIV" and rule SR.14. takes care of that. That the sound is very susceptible to changes by the influence of sounds after a word boundary is also a fact of "Colito" as shown in items 14-21 above. We would write rule SR.16. to account for the assimilation of [t̥, t̥h] to the following sound.

SR.16. Consonant Assimilation:

3.3.4.

Since we consider aspiration an important fact of Bengali largely overlooked by people working on Bengali, we are going to take up changes in aspiration separately from other consonant changes. In Chapter 2 we maintained that to establish "çoliṭo" derivation from "šadhu", among other things, we have to account for the loss of aspiration.* We formulated DR.10. (Chapter 2, page 43) to take care of the fact that some aspiration in "šadhu" was lost in "çoliṭo". As we will see in the following set of data, loss of aspiration is very common in "çoliṭo". One can identify two phonological processes at work in the loss of aspiration in "çoliṭo"--assimilation and dissimilation. Items 1-18 show the process of assimilation while items 19-28 show the process of dissimilation both resulting in the loss of aspiration.

* See Chapter 1, page 6 for a discussion of aspiration in Bengali.

"Data XVI"

	<u>"Coligo"</u>	<u>Derived Word</u>
1.	lakh* # k ^o ṭha (one hundred thousand) (words)	lakk ^o ṭha (many words)
2.	mačh # č ^o r (fish) (thief)	mačč ^o r (one who steals fish)
3.	roṭh # ṭ ^a r (chariot) (his/her)	roṭṭ ^a r (his/her chariot)
4.	math + ta (field) (the)	maṭṭa (the field)
5.	bagh + gulo (tiger) (plural)	baggulo ([the] tigers)
6.	duḍh # do ^a (milk) (to milk)	duḍḍo ^a (milking)
7.	duḍh + ḍ ^a ra (milk) (with)	duḍḍ ^a ra (with the milk)
8.	megh # ko ^a (cloud) (to do)	mekko ^a ** (to become cloudy)
9.	duḍh # to ^a (milk) (to pick up)	duḍḍo ^a ** (to vomit milk [like a child])
10.	labh # pa ^a (profit) (to get)	lappa ^a ** (to earn profit)
11.	gačh # ṭ ^a r (tree) (whose)	gačč ^a ** (the owner of the tree)
12.	pith # ḍ ^a la (back) (to rub)	piddḍ ^a ** (rubbing the back)
13.	rakh + ṭ ^e (keep) (for, to)	rakte (for keeping)
14.	poṭh + ta (road, way) (the)	poṭṭa (the way)

* Implies many, innumerable.

** Refer to devoicing rule SR.15. page

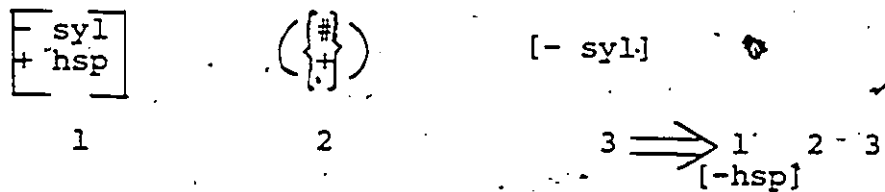
*** Refer to voicing rule SR.14. page

"Data XVI"
(Continued)

	<u>"Collo"</u>	<u>Derived Word</u>
15.	gačh # kata (tree) (to cut)	gačkata (cutting trees)
16.	mačh + kota (fish) (the ones)	mačkota (the fish)
17.	gačh # lagano (tree) (to plant)	gačlagano (plantation)
18.	mačh # mara (fish) (to kill)	mačmara (fishing)
19.	kath # thokra (wood) (the one who pecks)	katthokra (woodpecker)
20.	kach + čhara (near) (without)	kaččhara (to be far from)
21.	gudh # dhar (milk) (loan)	duddhar (a loan of milk)
22.	poth + theke (way, road) (from)	potheke (from the road)
23.	kath # phata (wood) (to crack)	katphata (causing wood to crack, e.g. burning sun)
24.	roth + khana (chariot) (the)	rotkhana (the chariot)
25.	hāph # čhara (breath) (to let out, to leave)	hāpčhara (letting out a sigh of relief)
26.	kath # khor (wood) (hay)	katkhor (much ado)
27.	mukh # phola (mouth, face) (to swell)	mukphola (swollen faced)
28.	bağh # bhora (tiger) (full of, to fill)	bagbhora (full of tigers, e.g. a forest)

Items 1-18 in the above set of data show that aspiration was lost when an aspirated consonant was followed by a non-aspirated consonant while items 19-28 show loss of aspiration in a consonant when it was followed by another aspirated consonant. While one could claim that aspiration is lost in "čoliṭo" by both assimilation and dissimilation, we would like to write rule SR.17. which, we believe, would capture the general principle at work here. However, we would like to point out again that here also the determining factor is what follows the affected segment.

SR.17. De-aspiration:



3.3.5.

In this chapter we have examined certain synchronic facts of "šadhu" and "čoliṭo" and formulated rules to account for the data presented from the two dialects. We noted facts like similarity between rules for two dialects and the characteristics of sound changes which we plan to take up for some detailed discussion in the next chapter, where we would like to conclude this thesis.

CHAPTER 4

4.1.1.

We have seen in Chapter 2 that we have to assume a number of phonological rules to have operated on the old standard Bengali "šadhū" for the derivation of the new standard forms, that is, "čoliṭo". In Chapter 3 we have seen that certain types of rules were synchronically operative in "šadhū" and some are still operative in "čoliṭo". We have given our reasons for assuming that the rules that we proposed for the "čoliṭo" derivation from "šadhū" were in fact operative. Now we will consider the relationship between the two types of rules--synchronic and diachronic--because we believe that if it can be shown that they are related to one another it will be extra evidence for our claim that "čoliṭo" was derived from "šadhū" and also it will help us to conclude that synchronic and diachronic rules are not so distinctly separable as they have been assumed; on the contrary, they are interrelated and one can be established with the help of the other. In this connection we would like to note that Bailey (1973) argued that the dichotomy between diachronic and synchronic approaches to language change is a misguided one. He argues that although diachronic and synchronic studies are not

the same their essential method is the same in that they both attempt to "artificially freeze" language data and both ignore the ongoing nature of linguistic change (1973: 14).

4.1.2.

The diachronic rules we proposed in Chapter 2 can be grouped as in List A.

List A Rules of Sound Change

Vowel

- | | | | |
|----|-----------------|-----------|---------|
| 1) | assimilation | DR. 6 | page 41 |
| 2) | deletion | i) DR.3. | page 40 |
| | | ii) DR.9. | page 42 |
| 3) | change (ia + e) | DR.7 | page 41 |
| 4) | tensing | DR.2. | page 40 |
| 5) | lowering | DR.8 | page 42 |

Consonant

- | | | | |
|----|---------------|-----------|---------|
| 1) | assimilation | DR.5. | page 41 |
| 2) | dissilimation | DR.10. | page 43 |
| 3) | deletion | i) DR.1. | page 40 |
| | | ii) DR.4. | page 41 |

In the same way the synchronic rules we proposed for "šadhu" and "colito" can be grouped as in List B.

List B
Rules of Sound Change

Vowel

- | | | | | |
|----|--------------|------|-------|---------|
| 1) | assimilation | | SR.3. | page 57 |
| 2) | deletion | i) | SR.1. | page 52 |
| | | ii) | SR.2. | page 55 |
| | | iii) | SR.3. | page 57 |
| | | iv) | SR.4. | page 59 |
| | | v) | SR.5. | page 59 |
| 3) | tensing | | SR.6. | page 60 |

Consonant

- | | | | | |
|----|---------------|------|--------|---------|
| 1) | assimilation | i) | SR.10. | page 66 |
| | | ii) | SR.11. | page 66 |
| | | iii) | SR.12. | page 70 |
| | | iv) | SR.13. | page 71 |
| | | v) | SR.14. | page 73 |
| | | vi) | SR.15. | page 76 |
| | | vii) | SR.16. | page 77 |
| 2) | deletion | i) | SR.7. | page 62 |
| | | ii) | SR.9. | page 66 |
| 3) | de-aspiration | | SR.17. | page 80 |
| 4) | epenthesis | | SR.8. | page 62 |

4.1.3.

The vowel deletion rules (that is SR.1. - 5.) show that whenever in "šadhu" two vowels came together one was deleted (see page 42). Only when two

+hi
-bk

 vowels came together did one become [+long] while the other was deleted. This was a phonological process in "šadhu" standard. Now if we look at vowel deletion rule DR.9. (page 42) in List A, we find that in a similar way, of the two vowels that were together in "šadhu" one was deleted for the derivation of "čoliṭo". We also note that in the derived form the

vowel was lengthened when both the vowels in "šadhū" were $\begin{bmatrix} \text{bk} \\ \text{-lo} \end{bmatrix}$, while the synchronic rules (SR.1. - 5.) in "šadhū" worked when the vowels were brought together by "šonđhi" (see "Data VIIIA, IX, X; XI"). In the "čolito" derivation from "šadhū" we find that rule worked on the vowels that existed together in "šadhū". The same is true of DR.7. (page 41). "šadhū" had forms where two vowels existed together, but when two vowels were brought together in a "šonđhi" situation, one of them was deleted. From all this we can suggest that the general rule of deleting one of two vowels or deriving one vowel out of two (DR.7., page 41) that we have assumed to have operated on "šadhū" for the derivation of [c] was present in a more restricted form in "šadhū" as a synchronic rule. We also note that in the process of identical vowel deletion (DR.9., page 42), the only vowel that was lengthened was a [-lo] vowel which has a counterpart in the synchronic part of "šadhū" (e.g., SR.2.), where also the only vowel that is lengthened is a [-lo] vowel.

We also notice a similarity between the vowel lowering rule (DR.8., page 42) that we have proposed to have worked for the derivation of "čolito" from "šadhū" and the synchronic process of vowel lowering in "šadhū" described in SR.1. (page 52). In both cases when the two [-hi] vowels came together, one became [+lo]. Here also we could argue that the vowel lowering rule DR. 8. is a more general rule than SR.1.

In a vowel change we find a somewhat general similarity between the two types of rules. In SR.1. - 3. (List B), we have a situation where the first of the two vowels coming together is deleted. Now, it could be argued that we wrote the rule like that and we could as well write the rule deleting the second vowel. As we gave reasons (pages 55, and 57), we believe that in a two-vowel situation it was the first vowel that was deleted. Consider SR.4. (page 59) and SR.5. (page 59). We could not write these rules to delete the second instead of the first of the two vowels because this is not what is happening here. In DR.2., DR.8., and DR.6. (List A), we have a two-vowel situation where the first one is affected. In DR.2. we find a process where a vowel in the verb root is changed by what follows it. We believe that the regressive quality of the change in vowel in the derivation of "čolito" from "šadhu" is related to a similar quality in vowel rules in "šadhu".* Since "šadhu" preceded "čolito", we can claim that in the derivation of the latter from the former synchronic facts worked diachronically.

4.1.4.

We also find a lot of similarity between the consonant rules of the two types. In List B we have four rules

* We have already noted in several places (pages 65-66, 73, 80) that in synchronic rules the determining factor, in most cases, is what follows the affected segment.

(SR.7., SR.9., SR.10. and SR.11) that change [h]. While two of these rules (SR.10. and SR.11.) change [h] into different sounds, the other two delete [h] in certain environments. In List A the [h] deletion rule (DR.1.) is more general in that it deletes [h] when it follows a vowel. One could argue that the [h] deletion rule DR.6. instead of being a new phenomenon, in Bengali was a rule that was derived from similar synchronic facts of Bengali.

The consonant assimilation rule (DR.5., page 41) that we have assumed to have worked for the derivation of "čolito" from "šadhu" was operative in "šadhu" in a slightly different form as in SR.13., List B. The same assimilation is synchronically operative in the "čolito" of today as is shown in rule SR.16. (page 77). Considering the fact that the assimilation rule for [t] in "šadhu" has a counterpart in "čolito", it would not be unreasonable to argue that a rule of the similar type (DR.5.) worked in the derivation of "čolito" from "šadhu".

In SR.12. (page 70) in List B, we have a voicing assimilation rule that voices a consonant that is followed by a voiced segment after a morpheme boundary. This boundary is important here since we know that Bengali does not have interocative voicing. That a similar rule of voicing assimilation is synchronically operative in "čolito" (e.g., SR.14.) shows that the rules of "šadhu" are closely related to the rules in "čolito".

Coming to de-aspiration that is synchronically present in "čoliṭo" (SR.17., page 80) we note that it is a regressive rule that de-aspirates an aspirated sound. As we suggested earlier (page 80), such a rule also takes into account the process of dissimilation. We wrote DR.10. to account for the loss of aspiration in "sadhu" as a process of dissimilation which occurred in the historical derivation of "čoliṭo" from "šadhu". We believe that the de-aspiration process started in "šadhu" while it was changing into "čoliṭo" and for "čoliṭo" it became a more general rule of a synchronic nature.

4.1.5.

We can sum up the relationship between the two types of rules as listed in A and B as follows:

- i) Most of the rules in the two lists are regressive.
- ii) Voicing assimilation rules are similar in nature.
- iii) Vowel deletion rules in the two lists are similar.
- iv) Consonant assimilation rules are similar.
- v) Loss of particular sound (e.g. [h]) is almost equally present in the two types of rules.

- vi) In many cases an assumption of going from one kind of rule to another (that is synchronic to diachronic and vice versa) would involve a process of making rules more general.

4.2.1.

By showing the relationship between the "ṣaḍhu" and "ḥoliṭo" dialects of Bengali we have established that the former has metamorphosed into the latter. We have also established that the clues to this metamorphosis is present in the language. We have seen that the diachronic sound changes through which the present standard was derived from the older dialect have certain similarities with the synchronic rules of the language. We have also seen that there is a lot of similarities between the nature of the two types of rules in Bengali. We may conclude that we have established our hypothesis that "in Bengali the diachronic rules are closely related to the synchronic rules."

4.2.2.

We have seen that the rules that were responsible for the derivation of "ḥoliṭo" from "ṣaḍhu" were not something of chance occurrence. They are natural rules the likes of which were and are operative in the language. Not only that one kind of rule establishes or justifies another kind but also they show that the sound changes that are diachronically true are synchronically true and vice versa.

Considering the fact that the nature of sound changes has remained essentially the same for Bengali in its metamorphosis of "śadhu" into "colito" we may venture to suggest that synchronic rules contain the clue to the diachronic changes in a language. We, by looking at the diachronic rules of a language, can make general assumptions about the nature of the synchronic rules and, conversely, by considering the synchronic rules of a language can make general predictions about the possibility of future changes in that language.

4.2.3.

As we pointed out at the outset, Bengali phonology is a largely unexplored area. Work in one area would be as rewarding as in any other. However, in the light of our present work in the area of sound changes, we would think that one major area of research could be the sociological aspects of language change in Bangladesh.

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