

LANGUAGE IN INDIA
Strength for Today and Bright Hope for Tomorrow
Volume 7 : 3 March 2007

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**ADVERBIALS IN BANGLA -
A STRUCTURAL AND SEMANTIC APPROACH**

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**Adverbials in Bangla -
A Structural and Semantic Perspective**

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Abstract

This study focuses on the structural and the semantic nuances of the Adverbial Group in Bangla. In describing the Bangla Adverbial Group, this paper concentrates on its structure and semantics of the Adverbial Phrase alongside Adverbial Clause for the purpose of identification and understanding of the function of such groups with the help of a set of chunking [1] rules that has been thoroughly discussed in the course of this paper. These rules have been carefully formulated after a detailed study of the Adverbial chunks in Bangla. In Bangla, identifying different 'Karakas' with the help of the Karaka marker i.e. the 'Bibhakti' has proved to be a rather non-deterministic method, especially in the field of Machine Translation since there are ample instances where a single Bibhakti can be used for representing multiple 'Karakas' or the Bibhakti getting dropped [2]. These chunking rules can prove to be an effective solution to this problem. This may be considered to be a maiden effort in analyzing the Adverbial groups in Bangla since not much work has been conducted to identify and study such Adverbial groups in Bangla.

Key Words

Karaka, Bibhakti, Semantic chunks, Non-finite Verb, Karti Karaka, Karana Karaka, Adhikarana karaka

1. Introduction

In the Indian grammatical perspective, the minimal syntactic constituents are usually inflected units, which show signs of mutual relationship with each other and build up the sentence [3]. This mutual relationship is usually termed as the *Karaka* relationship, which helps in identifying the semantic chunks consisting of functional units. For Bangla to English Machine Translation, identifying such semantic chunks with the help of *Bibhakti* often becomes a difficult task, which leads to lots of ambiguity as Bangla *Bibhaktis* are generally mapped onto the English temporal [4] and locational Prepositions [5]. But places where the *Bibhakti* gets dropped or a single *Bibhakti* is used for representing multiple *Karakas* [6] it is almost impossible to map them to any English Prepositions. So, these linguistics rules can help in the generation of the appropriate forms in the target language as it was intended in the source language for conveying the exact meaning. Thus, these adverbial-chunking rules can prove to be one of the alternative solutions for the correct identification and understanding of such adverbial local word groups [7] or semantic chunks in Bangla. Although the Adverbial Group consists of different subgroups, the discussion in this paper would primarily revolve around on the Adverbial Phrase and the Adverbial Clause in Bangla.

In this paper, Bangla script has been written in Roman fonts following the ITRANS notation. [8]

2. Methodology

For analyzing the Bangla Adverbial Phrase and the Adverbial Clause, a Bangla corpus of almost 3 lacs sentences were carefully studied and 2000 sentences were manually selected. These sentences were then functionally tagged and tree structures were constructed by expert linguists. Adverbial Phrases and Clauses were marked. This resulted in a set of rules. The rules were examined on a set of 5000 sentences with 80% accuracy.

3. Head of the Adverbial Phrase and Adverbial Clause

3.1 Functional Adverb

A Functional Adverb is the head of the Adverbial Phrase and Adverbial Clause in Bangla. A functional adverb is a syntactic element within an adverbial phrase or a clause which behaves and functions like an adverb although it may or may not belong to the adverb part of speech class.

For Example:- Table 1

1.Functional Adverb
1a. ডিশটা টেবিলে রাখা আছে। (The dish is kept on the table.) ITRANS Form: DishTA Tebile rAkhA AChe Tree: [(DishTA)CN]NP[(Tebile)RBCN]RBP [(rAkhA)VNN(Ache)VB]VP
Note: The syntactic element টেবিলে (টেবিল/Noun+এ/Suffix) is inflected form which behaves and functions as an adverb. On the contrary, lexical adverbs are not only the member of the adverb part of speech class but also function as adverb
2.Lexical Adverb
1b. সে খুব তাড়াতাড়ি খায়। (He eats very fast.) ITRANS Form: se khuba tA.DatA.Di khAYa Tree: [(se)PR]NP[(khuba)INT(tA.DatA.Di)RB]RBP[(khAYa)VB]VP
Note: তাড়াতাড়ি 'tA.DatA.Di' is a lexical adverb

3.2 Functional Adverb in an Adverbial Group

In an Adverbial Phrase, a functional adverb generally takes the form of an Adverbial Noun, Locational or Temporal Postposition of the phrase. These terms are later examined in details. While in case of an Adverbial Clause, the functional adverb mostly takes the shape of a non-finite verb excluding the gerund form (verbal noun).

For Example:-Table 2

Functional Adverb(Adverbial Phrase)	Functional Adverb(Adverbial Clause)
<p>1a. এই দেশে আমার জন্ম। (I was born in this country)</p> <p>ITRANS Form: ei deshe AmAra janma.</p> <p>Tree: [(ei)JJ(deshe)RBCN]RBP [(AmAra)JJPR(janma)CN]NP.</p> <p>Note: দেশে (deshe)is the functional adverb in an Adverbial Phrase</p>	<p>1b বিশ্বপ্রতাপ হেসে ছেলের পিঠ চাপড়ালেন। (Bishapratap smiled as patted on his son's shoulder.)</p> <p>ITRANS Form: BishbapatApa hese Chelera piTha cApa.DAlena</p> <p>Tree:[(BishbapatApa)PN]NP[(hese)RBV]RBCL[(Chelera)JCN(piTha)CN]NP[(cApa.DAlena)VB]VP</p> <p>Note: হেসে (hese) is the functional adverb in an Adverbial Clause</p>

4. Adverbial Phrase

The Adverbial Phrase plays an important role in Bangla. Be it an assertive sentence (affirmative as well as negative), an imperative or an interrogative sentence, Adverbial phrases are very frequent in number when it comes to Bangla sentence. Adverbial phrases may be of various constructs. The functional adverb acts as the head of the Adverbial phrase. Unlike, the Adverbial Clause, Adverbial Phrases are marked by the absence of a non-finite verbal form which acts as the functional head within the Adverbial Clause.

Examples of Adverbial Phrases in Bangla:-Table 3

Bangla Examples
<p>1 সে ধীরে ধীরে খাচ্ছে। (He is eating very slowly.)</p> <p>ITRANS Form: se dhIre dhIre khAchChe</p> <p>Tree :[(se)PR]NP[(dhIre)RB(dhIre)RB]RBP [(khAchChe)VB]VP</p> <p>Note: ধীরে ধীরে (dhIre dhIre) is the Adverbial Phrase in this sentence</p>

২ সে খুব তাড়াতাড়ি খায় । (He eats very fast.)

ITRANS Form: se khuba tA.DatA.Di khAYa

Tree :[(se)PR]NP[(khuba)INT(tA.DatA.Di)RB]RBP[(khAYa)VB]VP

Note: খুব তাড়াতাড়ি (khuba tA.DatA.Di) is the Adverbial Phrase in this sentence.

৩ আমার প্রশ্নে পপি খিল খিল করে হেসে উঠলেন । (Having heard my question, Popi started giggling.)

ITRANS Form: AmAra prashne papi khila khila kare hese uThalena

Tree :[(AmAra)JJPR(prashne)CN]RBP[(papi)PN]NP[(khila khila)ON(kare)RBV]RBP [(hese)RBV]RBCL[(uThalena)VB]VP

Note: খিল খিল করে (khila khila kare) is the Adverbial Phrases in this sentence.

৪ জল নামার পর পাহাড় আবার জেগে উঠেছিল । (The mountain again became prominent after the water level decreased.)

ITRANS Form: jala nAmAra para pAhA.Da AbAra jege uTheChila

Tree :[(jala)CN(nAmAra)JJVNN(para)PPSL]RBP[(pAhA.Da)CN]NP[(AbAra)CC][(jege)VNF (uTheChila)VB]CMV

Note: জল নামার পর (jala nAmAra para) is the Adverbial Phrase in this sentence.

4.1 Structural rules and concepts of Adverbial Phrase

Adverbial Phrase: Structural rules-The structural rules (not in any fixed order) of the identification of the Adverbial Phrase are as follows:

1. Adjectival Phrase/Null+ Adverbial Common Noun

Example of Rule 1: Table 4

Bangla Examples

1. আমি এই সুন্দর দেশে থাকি। (I live in this beautiful country.)

ITRANS Form: Ami ei sundara deshe thAki.

Tree: [(Ami)PR]NP[(ei)JJ(sundara)JJ(deshe)RBCN]RBP[(thAki)VB]VP

2. তুমি কাজে মন দাও। (You pay attention to the work.)

ITRANS Form: tumi kAje mana dAo

Tree: [(tumi)PR]NP[(kAje)RBCN]RBP[(mana)CN(dAo)VB]VP(IDU)

a. Adverbial Common Noun- When suffixes such as-এ, -য়, -তে, -এতে, -এই/ও, -তেই/ও,-এতেই/ও gets affixed to Common noun and the inflected nominal form that emerges can be referred to as the Adverbial Nouns. At times it happens so that the suffix gets dropped as well. Semantically, the Adverbial Common noun reveals information regarding the locational and the temporal aspect of the verb. bibhaktis get dropped if the nominal form, semantically belongs to the 'location' category. There are also cases where the above mentioned bibhaktis are used for representing multiple Karakas, such as the *Karti Karaka* and the *Karana Karaka*.

For example: গরুতে ঘাস খেয়েছে। (garute ghAsa kheYeChe) [Karti Karaka]

এই বাঁটিতে মাছ কেটো না। (ei ba.NTite mAcha keTo nA) [Karana Karaka]

The solution to this problem can come from the analysis of the active and passive sentences in Bangla along with the semantic analysis of Bangla nominal forms.

For example:-

1. বাড়িতে (bArite) is the Adverbial Noun in the sentence বাড়িতে খাবার নেই। (bA.Dite khAbAra nei)

2. বাজারে (bAjAre) is the Adverbial Noun in the sentence সে বাজারে গেছে। (se bAjAre geChe)

2. Adjectival Common Noun/ Adjectival Proper noun/Adjectival Pronoun + Adverbial Common Noun

Example of Rule 2: Table 5

Bangla Examples

1. সে দেশের কাজে মন দিয়েছে। (He has devoted himself to the nation's welfare)

ITRANS Form: se desera kAje mana diYeChe)

Tree:[(se)PR]NP[(desera)JJC�(kAje)RBC�]RBP[(mana)CN (diYeChe)VB]VP(IDU)
2. আমি রামের বাড়িতে কাল যাব । (I will go to Ram's house tomorrow.) ITRANS Form: Ami rAmera bA.Dite kAla JAba) Tree:[(Ami)PR]NP[(rAmera)JJP�(bA.Dite)RBC�]RBP[(kAla)RB]RBP[(JAba)VB]VP
3. আমি তোমার বাড়িতে কাল যাব । (I will go to your house tomorrow.) ITRANS Form: Ami tomAra bA.Dite kAla jAba Tree:[(Ami)PR]NP[(tomAra)JJPR(bA.Dite)RBC�]RBP[(kAla)RB]RBP[(JAba)VB]VP

a. Adjectival Common Noun/ Adjectival Proper Noun/Adjectival Pronoun- A syntactic unit formed when the possessive or the genitive suffix **-র, -এর** gets affixed to Common Noun/Proper noun/Pronoun and is followed by a common noun or an adverbial common or adverbial proper noun. This nominal form can be referred to as the Adjectival Noun/Adjectival Proper Noun/ Adjectival Pronoun.

For example:-

1. দেশের (desher) is the Adjectival Common Noun in the sentence
সে দেশের কাজে মন দিয়েছে ।(se desera kAje mana diYeChe)[He has devoted himself to the nation's welfare]

2. রামের (rAmera) is the Adjectival Proper Noun in the sentence
আমি রামের বাড়িতে কাল যাব । (Ami rAmera bA.Dite kAla JAba) [I will go to Ram's house tomorrow.]

3. তোমার (tomAra) is the Adjectival Pronoun in the sentence
আমি তোমার বাড়িতে কাল যাব । (Ami tomAra bA.Dite kAla jAba)[I will go to your house tomorrow.]

3. Genitive Nominal(Common/Proper)/Genitive Pronominal/ Null + Adverb: Locative postposition

Example of Rule 3: Table 6

Bangla Examples
<p>1. যতীন মন্দিরের দিকে গেল ।(Jotin went towards the temple)</p> <p>ITRANS Form: jatIna mandirera dike gela</p> <p>Tree: [(jatIna)PN]NP[(mandirera)GCN(dike)PPSL]RBP[(gela)VB]VP</p>
<p>2. রাম রাধার পাশে বসেছে ।(Ram has sat beside Radha.)</p> <p>ITRANS Form: rAma rAdhAra pAshe baseChe</p> <p>Tree: [(rAma)PN]NP[(rAdhAra)GPN(pAshe)PPSL]RBP[(baseChe)VB]VP</p>
<p>3. রাম তোমার পাশে বসেছে ।(Ram has sat beside you.)</p> <p>ITRANS Form: rAma tomAra pAshe baseChe</p> <p>Tree: [(rAma)PN]NP[(tomAra)GPR(pAshe)PPSL]RBP [(baseChe)VB]VP</p>
<p>4. রাম পাশে বসেছে ।(Ram has sat beside you.)</p> <p>ITRANS Form: rAma pAshe baseChe .</p> <p>Tree: [(rAma)PN]NP[(pAshe)PPSL]RBP[(baseChe)VB]VP</p>

a. Genitive Nominal(Common/Proper)/Genitive Pronominal -A syntactic unit formed when the possessive or the genitive suffix **-র, -এর** gets affixed to Common Noun/Proper noun/Pronoun and is followed by a postposition. This nominal form can be referred to as the Adjectival Noun/Adjectival Proper Noun Adjectival Pronoun.

For example:

1. মন্দিরের (mandirera) is the Adjectival noun in the sentence যতীন মন্দিরের দিকে গেল । (jatIna mandirera dike gela.) [Jotin went towards the temple]

2. তোমার (tomAra) is the Adjectival Pronoun in the sentence তোমার পাশে যতীন বসবে । (tomAra pAshe jatIna basabe) [Jotin is going to sit beside you]

3. **রামের** is the Adjectival Proper noun in the sentence **রামের পাশে যতীন বসবে ।** (rAmera pAShe jatIna basabe) [Jotin is going to sit beside Ram]

b. Adverb: Locative Postposition - In the semantic level, Postpositions [9] which carries the locational or the temporal information along with it, can be referred to as Adverb-Locative Postposition [The list of the Locative Postposition is given in the Appendix]

For example:

1. **কাছে** is the locative postposition in the sentence **রামের বাড়ির কাছে যতীন থাকে ।** [rAmera bA.Dira kAChe jatIna thAke][Jotin lives near Ram's place]

2. **পাশে** is the locative postposition in the sentence **রাম তোমার পাশে বসেছে ।** (rAma tomAra pAShe baseChe) [Ram has sat beside you.]

4. Adjective(only these four forms- উত্তর , দক্ষিণ , পূর্ব , পশ্চিম) + Adverb: Locative postposition

Example of Rule 4: Table 7

Bangla Examples
1. সে উত্তর দিকে থাকে । (He lives in the northern region.)
ITRANS Form: se uttara dike thake
Tree:[(se)PR]NP[(uttara)JJ(dike)PPSL]RBP[(thake)VB]VP

5. Adjectival Common Noun/Adjectival Proper noun /Adjectival Pronoun/ Null + Repeated Adverbial Noun + Repeated Adverbial Noun

Example of Rule 5: Table 8

Bangla Examples
1. ডালের ডগায় ডগায় লাল লাল কচি পাতা । (There are red leaves on all the branches.)
ITRANS Form: Dalera DagAYa DagAYa lAla lAla kachi pAtA
Tree :[(Dalera)JJC�(DagAYa)RBC�(DagAYa)RBC�]RBP[(lAla)JJ(lAla)JJ]JJP [(kachi)JJ(pAtA)CN]NP
2. কুকুরটা রামের পায়ে পায়ে ঘুরছিল । (The dog is following Ram)

ITRANS Form: kukuraTA rAmera pAYe pAYe ghuraChila.

Tree: [(kukuraTA)CN]NP[(rAmera)JJPN(pAYe)RBCN(pAYe)RBCN]RBP [(ghuraChila)VB]VP

3. তাদের ঘরে ঘরে আজ উৎসব। (Today, there is festivity in every home)

ITRANS Form: tAdera ghare ghare Aja utsaba.

Tree: [(tAdera)JJPR[(ghare)RBCN(ghare)RBCN]RBP[(Aja)RB]RBP [(utsaba.)CN]NP

4. আজ ঘরে ঘরে উৎসব। (Today, there is celebration in every home.)

ITRANS Form: Aja ghare ghare utsaba

Tree: [(Aja)RB]RBP[(ghare)RBCN(ghare)RBCN]RBP[(utsaba)CN]NP

a. Repeated Adverbial Noun - The Adverbial Nouns when consecutively repeated generating a single translation in the target language can be referred to as Adverbial Noun Repeated.

For example:

1. মনে মনে (mane mane) is the Repeated Adverbial Noun in the sentence সে মনে মনে তাকে ভালবাসে। (se mane mane tAke bhAlabAse.) [He used to love her in his mind]

2. ঘরে ঘরে (ghare ghare) is the Repeated Adverbial Noun in the sentence আজ ঘরে ঘরে উৎসব। (Aja ghare ghare utsaba) [Today, there is celebration in every home.]

6. Adverb(onomatopoeic word)+Adverb: Non-finite verb করে (Kare)

Example of Rule 6: Table 9

Bangla Examples

1. আমাদের দেখে ফস্ করে উড়ে গেল বাসা থেকে। (Having seen us, it flew away quickly)

ITRANS Form: AmAdera dekhe phas kare u.De gela bAsA theke

Tree: [(AmAdera)JJPR(dekhe)RB] RBCL [(phas)ON(kare)RBV]RBP[(u.De)VNF(gela)VB]VP[(bAsA)CN(theke)PPS]PP

a. Adverb: Non-finite verb করে (Kare) - Here, the non finite verbal form করে (Kare) carries no meaning, so when such onomatopoeic words are followed by the non-finite verbal form করে (Kare), they form an Adverbial Phrase rather than forming an Adverbial Clause.

7. Intensifier/ Null+ Adverb(lexical)

Example of Rule 7: Table 10

Bangla Examples	
1. খুব তাড়াতাড়ি এখান থেকে চলে যাও। (You move away from this place very quickly.)	
ITRANS Form: khub tA.DatA.Di ekhAna theke chale JAo	
Tree: [(khub)INT(tA.DatA.Di)RB]RBP[(ekhAna)PR(theke)PPS]PP[(chale)VNF(JAo)VB]VP	
2. তাড়াতাড়ি এখান থেকে চলে যাও। (You move away from this place quickly)	
ITRANS Form: tA.DatA.Di ekhAna theke chale JAo	
Tree: [(tA.DatA.Di)RB]RBP[(ekhAna)PR(theke)PPS]PP[(chale)VNF(JAo)VB]VP	

8. Adjectival Common Noun/Adjectival Proper noun/Adjectival Pronoun/Null+ Common Noun+ Adjectival Verbal Noun+ Adverb: Locative postposition

Example of Rule 9: Table 11

Bangla Examples	
1. ঘরের কাজটা করার আগে তার অনুমতি নি। (Take his permission before you start his room's work	
ITRANS Form: gharer kAjaTA karAra Age tAra anumati nin	
Tree: [(gharer)JJCN(kAjaTA)CN(karAra)JJVNN(Age)RB]RBP[(tAra)JJPR(anumati)CN]NP [(nin)VB]VP	

<p>2. রাম বাবুর কাজটা করার আগে তার অনুমতি নিন। (Take his permission before you start Ram)</p> <p>ITRANS Form: Babu's work rAma bAbura kAjaTA karAra Age tAra anumati nin</p> <p>Tree: [(rAma bAbura)JJPN(kAjaTA)CN(karAra)JJVNN(Age)RB]RBP [(tAra)JJPR(anumati)CN]NP [(nin)VB]VP</p>
<p>3. তার কাজটা করার আগে তার অনুমতি নিন। (Take his permission before you start his work)</p> <p>ITRANS Form: tAra kAjaTA karAra Age tAra anumati nin</p> <p>Tree: [(tAra)JJPR(kAjaTA)CN(karAra)JJVNN(Age)RB]RBP [(tAra)JJPR(anumati)CN]NP [(nin)VB]VP</p>
<p>4. কাজটা করার আগে তার অনুমতি নিন। (Take his permission before you start the work.)</p> <p>ITRANS Form: kAjaTA karAra Age tAra anumati nin</p> <p>Tree: [(kAjaTA)CN(karAra)JJVNN(Age)RB]RBP [(tAra)JJPR(anumati)CN]NP [(nin)VB]VP</p>

a. Adjectival Verbal Noun- A syntactic unit that emerges when the possessive or the genitive suffix -র, -এর gets affixed to Verbal noun and it is followed by a locative postposition. This nominal form can be referred to as the Adjectival Verbal Noun.

For example: কাজটা করার আগে তার অনুমতি নিন।
করার is the Adjectival Verbal Noun in the above sentence

9. Adverbial Proper Noun

Example of Rule 10: Table 12

Bangla Examples
1. যতীন কলকাতায় থাকে। (Jotin lives in Kolkata.)
ITRANS Form: jatIna kalakAtAya thAke
Tree: [(jatIna)PN]NP[(kalakAtAya)RBP]RBP[(thAke)VB]VP

a. Adverbial Proper Noun -When suffixes such as এ, -য়, -তে, -এতে, -এই/ও, -তেই/ও, -এতেই/ও gets affixed to Proper noun (abstract, location), the inflected Proper nominal form that emerges can be referred to as the Adverbial Proper Noun.

For example:-

1. কলকাতায় is the Adverbial Proper Noun in the above sentence.

10. Adverbial Proper Noun(initial)+...Conjunction+ Adverbial Proper Noun(final)

Example of Rule 11: Table 13

Bangla Examples

1. আজ কলকাতায় ,দিল্লীতে এবং ভোপালে এই আন্দোলন শুরু হয়েছে ।(Today, this movement has begun)

ITRANS Form: Aja kalakAtAya dillIte eba.n bhopAle ei Andolana shuru haYeChe

Tree:[(Aja)RB]RBP[(kalakAtAya)RBPNI(dillIte)RBPN(eba.n)CC(bhopAle)RBPNF]RBP[(ei)JJ(Andola

a. Adverbial Proper Noun (initial)-In the above sentence

কলকাতায় can be marked as Adverbial Proper Noun Initial and দিল্লীতে as Adverbial Proper Noun

Adverbial Proper Noun (final) - In the above sentence, ভোপালে can be marked as Adverbial Proper Noun (final).

4.2 Semantic aspect of Adverbial Phrase

Adverbial phrases modify the verb group by primarily revealing the temporal and the locational aspect of the action, almost in the same way in which the *Adhikarana karaka* functions for Indian languages. At times, Adverbial Phrases also unveil the manner in which the action has taken place.

4.2.2 Temporal Sense

For example:- কাজটা করার পরে (kAjaTA karAra pare) in the sentence কাজটা করার পরে ওর সাথে একবার দেখা করিস ।

(kAjaTA karAra pare ora sAthe ekabAra dekhA karisa.)[Meet with him after you have completed the job] reveals information regarding the time of the action.

4.2.3 Manner

For example: খিল খিল করে (khila khila kare) in the sentence আমার প্রশ্নে পপি খিল খিল করে হেসে উঠলেন ।

(AmAra prashne papi **khila khila kare** hese uThalen)[Having heard my question, Popi started giggling] informs about the manner in which the action has taken place. When an onomatopoeic word is followed by the functional adverb (non finite verbal form –Kare), semantically the chunks expresses the manner in which the action has taken place.

4.2.4 Locational Sense

For example: **রামের বাড়ির কাছে** (rAmera bA.dira kAChe) in the sentence **রামের বাড়ির কাছে যতীন থাকে ।** (**rAmera bA.dira kAChe** jatIna thAke)[Jotin lives near Ram’s home] reveals the information about the location of the action.

5. Adverbial Clause

Another significant structural phenomenon in Bangla is the occurrence of the Adverbial Clause. Like the Adverbial Phrases, the Adverbial Clause is quite recurrent in Bangla sentences. The Adverbial Clause too modifies the verb, revealing important information regarding the temporal aspects and the manner in which the action has taken place.

Although the Adverbial Clause in Bangla may seem to be similar to that of the Adverbial Phrase as far as their semantic characteristic is concerned, but structurally they are far apart. The basic difference in their structure is marked by the presence of the non-finite verbal form in the Adverbial Clause which is otherwise absent in the Adverbial Phrase. Apart from those adverbial constructions such as the compound adverb and the conjunct adverb, which are explained in the later sections of the paper, can occur in the Adverbial Clause; do not occur in the Adverbial Phrase. The occurrence of Adverbial Clauses is more frequent in Bangla active sentences than in passive sentences.

Adverbial Clauses essentially consist of a non-finite verbal form (-এ, -তে, -লে form) excepting the verbal noun. This non-finite verbal form behaves as the functional adverb and the head of the clause.

For example: **বিশ্বপ্রতাপ হেসে ছেলের পিঠ চাপড়ালেন ।** (BishbapratApa **hesse** Chelera piTha cApa.DAlena)[Bishwapatap smiled as patted on his son’s shoulder.]

5.1 Structural Rules and Concepts of Adverbial Clause

Adverbial Clause: Structural rules- The structural rules (not in any fixed order) of the identification of the Adverbial Clause are as follows:

1. **Adjectival Common Noun/Adjectival Proper noun/Adjectival Pronoun+ Adverb (locative postposition) + Adverb: Non-finite verb**

Example of Rule 1: Table 13

Bangla Examples
1. সে দেখল দীপা ঘরের দিকে তাকিয়ে নিঃশব্দে হাসছে ।

(He saw that Dipa is smiling silently while looking at the room.)

ITRANS Form: se dekhala dIpA gharera dike tAkiYe nihshabde hAsaChe.

Tree: {[(se)PR]NP[(dekhala)VB]VP}S1[(Ye)Null]CC {[(dIpA)PN]NP[(gharera)JJCN(dike)PPSL (tAkiYe)RBV]RBCL[(nihshabde)RB]RBP[(hAsaChe)VB]VP}S2

2. সে দেখল দীপা রামের দিকে তাকিয়ে নিঃশব্দে হাসছে ।

(He saw that Dipa is smiling silently while looking at Ram.)

ITRANS Form: se dekhala dIpA rAmera dike tAkiYe nihshabde hAsaChe.

Tree: {[(se)PR]NP[(dekhala)VB]VP}S1[(Ye)Null]CC {[(dIpA)PN]NP[(rAmera)JJPN(dike)PPSL (tAkiYe)RBV]RBCL[(nihshabde)RB]RBP [(hAsaChe)VB]VP}S2

3. সে দেখল দীপা তার দিকে তাকিয়ে নিঃশব্দে হাসছে ।

(He saw that Dipa is smiling silently while looking at him.)

ITRANS Form: se dekhala dIpA tAra dike tAkiYe nihshabde hAsaChe.

Tree: {[(se)PR]NP[(dekhala)VB]VP}S1[(Ye)Null]CC {[(dIpA)PN]NP[(tAra)JJPR(dike)PPSL (tAkiYe)RBV]RBCL[(nihshabde)RB]RBP[(hAsaChe)VB]VP}S2

2. Adjectival phrase/Null + Common noun + Verbal noun + Adverb: Non-finite verb [only with roots- হ, আছ □]

Example of Rule 2: Table 14

Bangla Examples

1. রূচিসম্মত পোশাক পরা হলে সবাইকেই সুন্দর দেখায়।

(If someone wears decent clothes, they look good.)

ITRANS Form: ruchisammata poshAka parA hale sabAikei sundara dekhAYa.

Tree: [(ruchisammata)JJ(poshAka)CN(parA)VNN(hale)RBV]RBCL[(sabAikei)PR]NP[(sundara)JJ]JJP[(dekhaYa)VB]VP

2. স্নান সারা হলে তারা উড়ে এসে বসল নিমগাছের ডালে।

(After having finished bathing, they flew away and sat on the branch of a Neem tree.)

ITRANS Form: snAna sArA hale tArA u.de ese basala nimagAChera Dale

Tree :[(snAna)CN(sArA)VNN(hale)RBV]RBCL[(tArA)PR]NP[(u.de)RBV(ese)RBV]RBCL[(basala)VB]VP[(nimagAChera)JJPN(Dale)RBCN]RBP

3. Adverb: Repeated non-finite verb + Adverb: Repeated non-finite verb

Example of Rule 3: Table 15

Bangla Examples

1. ওকে বলতে বলতে আমি ক্লান্ত হয়ে গেছি। (After repeatedly telling him for several times, I have become tired)

ITRANS Form: oke balate balate Ami klAnta haYe geChi.

Tree: [(oke)PR]NP[(balate)RBV(balate)RBV]RBCL[(Ami)PR]NP [(klAnta)JJ(haYe)VFM (geChi)VB]CJV

a. Repeated non-finite verbs-When similar non-finite verbal forms are repeated consecutively, they can be referred as repeated non-finite verbs.

For Example: বলতে বলতে in the sentence ওকে বলতে বলতে আমি ক্লান্ত হয়ে গেছি। [oke balate balate Ami klAnta haYe geChi.](After telling him several times, I have become tired)

4. Compound Adverb-[Adverb (non-finite verb)+ Adverb: Non-finite verb

Example of Rule 4: Table 16

Bangla Examples

1. যতীন হঠাৎ করে উঠে পরে বাড়ি চলে গেল। (Suddenly, Jotin got up and went away to his house)□□

ITRANS Form: jatIna haThAt kare uThe pare bAri chale gela

Tree:[(jatIna)PN]NP[(haThAt)RB(kare)RBV]RBCL[(uThe)RBV(pare)RBV]RBCV [(bAri)RB]RBP[(chale)VNF(gela)VB]VP

a. Compound Adverbs in Bangla

Compound Adverbs are constructions consisting of two verbal components; both the components are non-finite verbal forms. While the first one carries the meaning, the other does not but only carries the syntactic information regarding tense, aspect, modality and agreement. On the other hand, Compound verbs consist of two verbal components; the first non-finite verbal component carries the meaning while the other is essentially a finite verbal form, which does not carry any meaning but only carries the information regarding tense, aspect, modality and agreement [10].

For example: উঠে পরে (uThe pare) in the sentence
যতীন হঠাৎ করে উঠে পরে বাড়ি চলে গেল । [jatIna haThAt kare uThe pare bAri chale
gela] (Suddenly, Jotin got up and went away to his house) □ □

5. Conjunct Adverb-[Adjective+ Adverb: Non-finite verb] -[Common noun+ Adverb: Non-finite verb]

Example of Rule 5: Table 17

Bangla Examples
1. যতীন গান করে নাম করেছে । (Jotin has acquired fame through singing) ITRANS Form: jatIna gAna kare nAma kareChe Tree: [(jatIna)PN]NP[(gAna)CN(kare)RBV]RBCJ [(nAma)CN(kareChe)VB]VP(IDU)
2. আপনি সুন্দর করে বাগানটা সাজান । (You should decorate the garden beautifully) ITRANS Form: Apani sundara kare bAgAnaTA sAjAna Tree: [(Apani)PN]NP[(sundara)JJ(kare)RBV]RBCJ[(bAgAnaTA)CN]NP [(sAjAna)VB]VP

a. Conjunct Adverbs in Bangla

Conjunct Adverbs are syntactic constructions where the first component is either a noun or an adjective and the second component is a non-finite verb. Here, primarily the roots কর, মার, দে, পা form the second component [11]. While Conjunct verbs are constructions made up of two or more units, where the first component is either a noun or an adjective and the second is a finite verb [12].

For Example: গান করে in the sentence যতীন গান করে নাম করেছে । [jatIna gAna kare nAma kareChe.] (Jotin has acquired fame through singing)

সুন্দর করে in the sentence আপনি সুন্দর করে বাগানটা সাজান । [Apani sundara kare bAgAnaTA sAjAna.] (You should decorate the garden beautifully)

6. Adverb-lexical+ Adverb: Non-finite verb

Example of Rule 6: Table 18

Bangla Examples
1. সে হঠাৎ করে বাড়ি চলে গেল । (He eats quickly) ITRANS Form: se haThAt kare bA.Di chale gela.
Tree: [(se)PR]NP[(HATHAT)RB(kare)RBV]RBCL[(chale)VNF(gelo)VB]VP

7. Adjectival Phrase/Null+ Common Noun+ Adverb: Locative postposition+ Compound verb

Example of Rule 7: Table 19

Bangla Examples
1. তারা উড়ে যাচ্ছে প্রকাণ্ড দুই ডানা দুদিকে মেলে দিয়ে । (They are flying away with their huge wings spread wide apart) ITRANS Form: tArA u.De JAchChe prakAnDa dui DAnA dudike mele diYe Tree:[(tArA)PR]NP[(u.De)VFN(JAchChe)VB]VP[(prakAnDa)JJ(dui)JJ (DAnA)CN(dudike)PPSL{(mele)RBV(diYe)RBV}RBCV]RBCL
2. দুদিকে ডানা মেলে দিয়ে তারা উড়ে যাচ্ছে । (Having spread their wings wide apart, they are flying away.) ITRANS Form: dudike DAnA mele diYe tArA u.De JAchChe Tree : [(dudike)PPSL(DAnA)CN{(mele)RBV(diYe)RBV}RBCV]RBCL [(tArA)PR]NP[(u.De)VFN(JAchChe)VB]VP

8. Common Noun +Postposition (থেকে,হতে,হইতে)+ Adverb: Non-finite verb

Example of Rule 9: Table 20

Bangla Examples
1. বাড়ি থেকে বেরোতেই তার সঙ্গে দেখা হল । (As soon as I went out of my

house, I met him)

ITRANS Form: bA.Di theke berotei tAra sa~Nge dekhA hala

Tree: [(bA.Di)CN(theke)PPS(berotei)RBV]RBCL[(tAra)GPR(sa~Nge)PPS]PP
[(dekhA)VNN(hala)VB]VP

5.2 Semantic aspect of Adverbial Clause

Adverbial phrases modify the verb group by primarily revealing the temporal and the locational aspect of the action, almost in the same way in which the *Adhikarana karaka* functions for Indian languages. At times, Adverbial Phrases also unveil the manner in which the action has taken place.

5.2.1 Manner

For example: - আপনি সুন্দর করে (Apani sundara kare) in the sentence

আপনি সুন্দর করে বাগানটা সাজান । (Apani sundara kare bAgAnaTA sAjAna)[You should decorate the garden beautifully] reveals the manner in which the action has taken place.

5.2.2 Temporal sense

For example: - ওখানে গিয়ে in the sentence
সে ওখানে গিয়ে তাকে দেখতে পেল । (se okhAne giYe tAke dekhate pela) [She saw him after she went there.] reveals information regarding the time when the action took place.

6. Further scope of work

While analyzing the adverbial phrase or the adverbial clause in Bangla, the *Bibhaktis* play a very important role since they carry necessary information for the accurate analysis and identification of such adverbial chunks within a sentence. But these *Bibhaktis* frequently tend to get dropped in Bangla which leads a lot of ambiguity, more so in case of functional adverbs.

Example 1: Table 21

Bangla Examples

1. আমি বাড়ি যাব । (I will go home)

TRANS form: Ami bAri jAbo .

Tree :[(Ami)PR]NP[(bAri)RBCN]RBP[(jAbo)VB]VP

Note: Here বাড়ি is the adverbial since it conveys the locational information. The bibhakti -তে is never affixed to the form বাড়ি although such an inflected form is not

ungrammatical. This sentence would hardly create any problem since ‘to’ is missing in the translated output as well

Example 2: Table 22

Bangla Examples
<p>1. আমি তোমার বাড়িতে কাল যাব। (I will go to your house tomorrow)</p> <p>ITRANS form Ami tOmAra bArite kAla jAbo</p> <p>Tree : [(Ami)PR]NP[(tOmAra)JJPR(bAjAre)RBCN]RBP[(kAla)RB]RBP [(jAbo)VB]VP</p>
<p>2. আমি আমার বাড়িতে আজ যাব। (I will go to my house today)</p> <p>ITRANS form :Ami AmAra bArite Aja jAbo</p> <p>Tree :[(Ami)PR]NP[(AmAra)JJPR(bArite)RBCN]RBP [(Aja)RB(jAbo)VB]VP</p>
<p>Note: The syntactic form বাড়িতে will never occur without the bibhakti -তে</p>

Example 3: Table 23

Bangla Examples
<p>1. আমি বাজার যাব। (I will go to the market.)</p> <p>ITRANS form : Ami bAjAra jAba</p> <p>Tree :[(Ami)PR]NP [(bAjAra)RBCN(jAba)VFM]VP.</p>
<p>2. আমি বাজারে যাব। (I will go to the market.)</p> <p>ITRANS form :Ami bAjAre jAba</p> <p>Tree :[(Ami)PR]NP[(bAjAre)RBCN(jAba)VB]VP.</p>
<p>Note: In above case, the syntactic form বাজারে generally occurs without the bibhakti-এ.Hence the form বাজার is not ungrammatical.</p>

Example 4: Table 24

Bangla Examples
1. আমি তোমাদের বাজারে কাল যাব । (I will go to your marketplace tomorrow.)
ITRANS form: Ami tOmAdera bAjAre kAla jAba
Tree :[(Ami)PR]NP[(tOmAdera)JJPR(bAjAre)RBCN]RBP[(kAla)RB]RBP [(jAba)VB]VP
Note: But in the above sentences, the syntactic form বাজারে will never occur without the bibhakti -এ

Example 5: Table 25

Bangla Examples
1. আমি ভাত খাব । (I will eat rice.)
ITRANS form: Ami bhAta khAba
Tree:[(Ami)PR]NP[(bhAta)CN]NP[(khAba)VB]VP
Note: The verb যাব 'jAba' (go) is intransitive whereas খাব 'khAba' (eat) is a transitive verb. The system identifies both বাজার 'bAjAra' and ভাত 'bhAta' to be the object of 'jAba' and 'khAba' respectively. Since 'jAba' is an intransitive verb so 'bAjAra' is not the object but its adverbial modifier.

Although a detailed study is required to solve this problem, from initial study it can be deduced that the dropping of the Bibhakti is directly related to the transitivity and intransitivity of the finite verbal element of the sentence. It can also be commented that Bibhaktis do not tend to get dropped when some additional information is been conveyed through the sentence as in example: আমি তোমাদের বাজারে কাল যাব । [Ami tOmAdera bAjAre kAla jAba] (I will go to your marketplace tomorrow.)

The problem of identifying the *Karaka* in Bangla, especially in cases where a single *Bibhakti* being used for representing multiple *Karaka* poses to be a potential difficulty, which is yet to be solved.

Another major problem that surfaces while analyzing such adverbial groups lies in the fact that there are a number of postpositions which are identical to certain non-finite verbs. This at times leads to confusion since identifying such syntactic units becomes difficult.

These postpositions are as follows:-

চাইতে, চেয়ে, হয়ে, হইতে,হতে,থেকে, দিয়ে/দিয়া,তরে
ধরে/ধরিয়া,করে/করিয়া, ছাড়া/ছেড়ে, হয়ে

Initial study has revealed that when these postpositions occur as non-finite verbs they are generally preceded by an adverb. In the absence of an adverb they function as postpositions.

Although not much study has been conducted in the area of bibhakti dropping or multiple Karaka representation of a single bibhakti, still it would not be too ambitious to comment that the dropping of the bibhakti or multiple Karaka representation of a single bibhakti happens in a fixed environment. Analysis of the active and passive Bangla sentence and the Bangla noun semantics can prove to be a fruitful solution to such complex problems.

7. Conclusion

In this paper, the structure and semantic aspects of the Bangla Adverbial Phrase has been described for the purpose of local word grouping and enhanced understanding of the Adverbial chunks in a Bangla to English Machine Translation system. Certain new concepts details such as Adverbial Noun, Adverbial Proper Noun, Adjectival Noun/Pronoun, Adverb: Locative Postposition, Repeated Adverbial Noun, Adjectival Verbal Noun, Compound Adverbs and Conjunct Adverbs have been coined, defined discussed in. In addition, the rules and the tree diagrams presented in this paper will assist further study and understanding of the theoretical problems regarding the Bangla Adverbial Group.

8. Appendix

8.1 Certain tags have been used in the bracketed notation of the tree structure of all the examples for the rules. The tags that have been used in course of this paper are as follows:-

S1& S2-Sentence	JJ-Adjective
CC-Conjunction	JJCN –Adjectival Common Noun
CJV-Conjunct Verb	JJP-Adjectival Phrase
CMV-Compound Verb	JJPN-Adjectival Proper Noun
CN-Common Noun	JJCN –Adjectival Common Noun
INT – Intensifier	JJP-Adjectival Phrase
JJ-Adjective	JJPR-Adjectival Pronoun
JJPN-Adjectival Proper Noun	RBCN-Adverbial Common Noun
JJVNN-Adjectival Verbal Noun	RBCV- Compound Adverb
NP – Noun Phrase	RBP – Adverbial Phrase
ON-Onomatopoeic words	RBPN-Adverbial Proper Noun
PN – Proper Noun	RBPNF- Adverbial Proper Noun
PP-Postpositional Phrase	(Final)
PPSL-Locative Postposition	RBPNi- Adverbial Proper Noun
PPS-Postposition	(Initial)
PR – Pronoun	RBV-Adverb: non finite verb
RB-Adverb (mostly lexical)	

RBCJ-Conjunct Adverb
RBCL-Adverbial Clause

VB- Finite Verb
VNF-Non-finite verb
VNN- Verbal Noun
VP – Verb Phrase

8.2. Following is the list of Locative Postpositions in Bangla:

Locative Postposition Semantic Aspect

অন্তরে	Locational
অভিমুখে	Locational
আগে	Temporal when preceded by a verbal noun
আশেপাশে	Locational
উপর/ওপর	Locational
উপরে/ওপরে	Locational
কাছাকাছি	Locational
কাছে	Locational
দিকে	Locational/Directional
নিকটে	Locational
নীচুতে	Locational
নীচে	Locational
পর/পরে	Temporal when preceded by a verbal noun
প্রতি	Locational
পশ্চাতে/পিছনে/পেছন	Locational
পানে	Locational
পাশে	Locational
বরাবর	Locational
বাইরে/বাহিরে	Locational
ভিতর/ভিতরে/ভেতরে	Temporal when preceded by a verbal noun
মধ্যখানে/মাঝখানে	Temporal when preceded by a verbal noun
মধ্যে	Temporal when preceded by a verbal noun
মাঝে	Temporal when preceded by a verbal noun
সম্মুখে/সামনে	Locational

8.3. Following is the list of adverbial suffixes which may help in the identification of certain Lexical Adverbs.

Adverbial Suffix	Semantics
-কাল	Temporal
-মাত্র	Temporal
-ভাবে	Manner
-রূপে	Manner
-বারে	Frequency
-দিনে	Temporal
-ক্ষণে	Temporal
-কালে	Temporal
-ক্ষেত্রে	Temporal
-বার	Frequency
-দিকে	Locational/Directional
-ক্ষণ	Temporal
-ক্রমে	Manner
-দিন	Temporal

8. 4. Bangla script in ITRANS notation (<http://www.aczoom.com/itrans/beng/beng.html>)

<i>bwti</i>	<i>ItsBeng</i>	ITRANS
অ	অ	a
আ	আ	aa or A
ই	ই	i
ঈ	ঈ	ii or I
উ	উ	u
ঊ	ঊ	uu or U
ঋ	ঋ	RRi or R~i
এ	এ	e
ঐ	ঐ	ai
ও	ও	o
ঔ	ঔ	au

<i>bwti</i>	<i>ItsBeng</i>	ITRANS
০	০	0
১	১	1
২	২	2
৩	৩	3
৪	৪	4
৫	৫	5
৬	৬	6
৭	৭	7
৮	৮	8
৯	৯	9

<i>bwti</i>	<i>ItsBeng</i>	ITRANS
গ	গ	ga.n
গা	গা	gaa.N
গা	গা	aa`r
ম্	ম্	m.h
ত্	ত্	t.h
দুঃ	দুঃ	duH
জ্	জ্	Gya

Vowels

Numerals

Accents/Specials

<i>buti</i>	<i>ItsBeng</i>	ITRANS	<i>buti</i>	<i>ItsBeng</i>	ITRANS	<i>buti</i>	<i>ItsBeng</i>	ITRANS
ক	ক	ka	চ	চ	cha	ট	ট	Ta
খ	খ	kha	ছ	ছ	chha	ঠ	ঠ	Tha
গ	গ	ga	জ	জ	ja	ড	ড	Da
ঘ	ঘ	gha	ঝ	ঝ	jha	ঢ	ঢ	Dha
ঙ	ঙ	ˆNa or Nˆa	ঞ	ঞ	ˆna or nˆa	ণ	ণ	Na
ত	ত	ta	প	প	pa	য	য	Ja or ya
থ	থ	tha	ফ	ফ	pha	র	র	ra
দ	দ	da	ব	ব	ba	ল	ল	la
ধ	ধ	dha	ভ	ভ	bha	ব	ব	ba
ন	ন	na	ম	ম	ma	শ	শ	sha
ষ	ষ	Sha	ক্ষ	ক্ষ	kSha or xa			
স	স	sa	য়	য়	Ya			
হ	হ	ha	ড়	ড়	.Da			
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9. Reference

1. Abney Steven P, 'Parsing by Chunks', Principle-Based Parsing: Computation and Psycholinguistics [257-278], Kluwer Academic Publishers, 1991.
2. Chakraborty Bamandev, Uchchoto Bangla Vyakarana, chapter 7[123-162], Akshay Malancha Prokashok O Pushtokbikreta
3. Gangopadhyay Malaya, The Noun Phrase in Bengali, chapter 2[31-59], Motilal Banarsidass, 28-29, 1990
4. Quirk Randolph, Greenbaum Sidney 'A University Grammar of English' [158-168], Dorling Kindersley Publishing Inc.
5. Quirk Randolph, Greenbaum Sidney 'A University Grammar of English' [158-168], Dorling Kindersley Publishing Inc.
6. Pabitra Sarkar, Bhasha Jigyasa[112-115], Vidyasagar Pustak Mandir, 2003
Chakraborty Bamandev, Uchchoto Bangla Vyakarana, chapter 7[123-162], Akshay Malancha Prokashok O Pushtokbikreta

7. Bharati Akshar, Chaitanya Vineet, Sangal Rajiv, 'Local Word Grouping', Natural Language Processing: A Paninian Perspective [54-64], Prentice Hall of India Pvt Ltd, 2000.

8. Chopde Avinash, 2002.

9. Pabitra Sarkar, Bhasha Jigyasa[112-115], Vidyasagar Pustak Mandir, 2003.

10. PabitraBhushan Sarkar, 'Aspects of the Compound Verb in Bengali', June, 1975.

11. PabitraBhushan Sarkar, 'Aspects of the Compound Verb in Bengali', June, 1975.

12. PabitraBhushan Sarkar, 'Aspects of the Compound Verb in Bengali', June, 1975

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