

Na: Beyond Negation

Anil Thakur

Department of Linguistics
Banaras Hindu University
Varanasi, UP-221005, India
mi_anil@yahoo.com

Sanjukta Ghosh

Department of Linguistics
Banaras Hindu & University
Varanasi, UP-221005, India
san_subh@yahoo.com

Abstract

The particle *na* in Hindi is traditionally categorized as a negative particle. But it is highly ambiguous in its different uses either as a single element or as part of a phrase. Because of this ambiguous nature of this particle, it poses a major problem for various natural language processing tasks including machine translation. The current paper collects, analyzes and tags the different uses of *na*. Finally it also attempts to provide disambiguation strategies for each of its different uses. Some of the prominent uses of *na* which came from the corpus lead us believe its important connection with some speech act strategy as well as certain TAM information. For all of the different uses of *na*, equivalent Bangla translations are done. The translation into Bangla sometimes provides us relevant insight to understand the particular grammatical role of that use of *na*. In this way, we are also able to find out how far the identification of different roles of Hindi *na* can lead us to a cross-linguistic generalization.

Keywords: particle, tagging, word sense disambiguation, disambiguation strategies.

1 Introduction

Particles are one of the most interesting and tough to analyze and formalize parts of speech in a language. Traditionally a lot of words that could defy a straightforward formal analysis (could not be easily categorized under any of the major categories) got clubbed under particle elements. These words are generally indeclinable in form which in

the Sanskrit grammar has been referred to as *avyaya* or indeclinable. The particle *na* is one such interesting particle element in Hindi. There are three particles used for negation in Hindi: *mat*, *nahiiN* and *na* with different distribution patterns in their use as negation element (Bhatia 1995, Lamp 2006). However, we take only *na* and look into its various functions, particularly those that go beyond negation, the traditionally canonical function of this particle. The different functions of *na* are related to its different senses depending on the position of its occurrence in a sentence. *na* for its multi-functional role in the interpretation of text presents an interesting topic in the area of natural language processing research. The task of identifying the different senses of an element and disambiguating their contexts are needed to obtain correct interpretation of the text. The issue of word sense disambiguation (WSD) is a challenging task in the area of natural language processing applications (Stevenson and Wilks, 2003) and works on this topic in some languages in the recent decades have significant implications for extending such works in other languages too (Möllering 2001, Aijmer. 2002, Xiao and McEnery 2008). Some recent works on these issues with respect to Indian languages are also reported (Thakur et al 2004, 2006). The paper is divided into three parts. In the next section, we collect various uses of *na* from corpus comprising Hindi books (literature, songs, etc) as well as from the native speakers. After analyzing the functions of each of the use, we assign an appropriate tag to it. The third section provides the disambiguation rules for each identified use of *na* in Hindi. We conclude the paper with the discussion of its overall relevance in theoretical as well as in computational linguistics.

2 Beyond Negative: Different uses of *na*

Traditionally it is categorized as a negative particle, translated in English as ‘not’. But our examples show that negative is only one of the multiple uses of *na*. The method we have adopted in this section is to provide the Hindi example sentences in the first line, followed by the Bangla parallels, glosses and the translations into English. Whenever, the Hindi and Bangla sentences cannot be aligned with the English glosses, we have taken the Hindi sentence first with the aligned gloss of English and then the Bangla sentence in similar way. After providing the examples, we discuss the function of each type of use and accordingly decide the tag for them.

1. Negation Particle: We start with the traditional use of *na* as a negative particle as in (1-2).

- (1) maiN kuch kah na sakaa (H)
 I anything SAY-inf neg can-pt-1p-m-sg
 aami kichu balte paari ni. (B)
 I anything SAY-inf can-1p neg
 ‘I could not say anything.’
- (2) maiN kuch na kah sakaa. (H)
 I ANYTHING not say-inf can-pt-1p-m-sg
 aami kichui balte pari ni.
 I ANYTHING say-inf can-1p neg
 ‘I could not say anything.’

In both (1) and (2), *na* functions as a negative particle, though the position of the particles change in Hindi. In sentence (1), it comes between the verb and the auxiliary and in sentence (2), it is before the verb and the auxiliary. The difference in these two sentences is that in (1) the focus is on *kahaa* and in the second it is on *kuch*.

2. Confirming Questioning Particle

- (3) a. ghar to jaa hii rahe ho na? (H)
 baRi to jacchoi, tai na? (B)
 home TopicP go-pr-cont-2p-emph na
 ‘You are going home, isn’t it?’
- (3) b. godaam ke pichewaali na? (H)
 gudamer pechonerTa, (tai) na? (B)
 godown-gen. back of (behind), na
 ‘It’s behind the godown, isn’t it?’
- (3) c. tumhaare kahne kaa matlab yah bhii hai
 na ki vah acchii-sii
 you-gen. say-gerund-gen meaning this also
 be-pr-3p-sg na that that good-particle
 laDkii main nahiiN huN?

girl I not be-pr-1p-sg
 ‘Didn’t you also mean that I am not that suitable girl?’

In all the sentences above, *na* is a questioning particle occurring sentence-finally. It functions in such a way as to affirm the answer to be true of the sentence it is questioning. It can be tagged as Confirming Question Particle or CQP.

3. Conjunctive Negative Particle

- (4) na kisi ne khaanaa banaayaa na kisi ne khaayaa. (H)
 ConNegP anyone food make-pstpft-3p
 ConjNegP anyone eat-pstpft-3p-pl
 Keu raMdheo ni, khayoni. (B)
 Anyone cook-part neg, eat-part-neg
 ‘Neither anyone cooked nor did anyone eat.’

In these sentences *na* is used twice in Hindi before the proposition it negating. In this kind of structure it can also come with *to* which gives more emphasis to the negation. As it does the function of connector for two sentences as well as negate them it can be tagged as Conjunctive Negative Particle or ConjNegP. The logical representation is $\sim p$ & $\sim q$.

4. Disagreement Particle

- (5) a. na na aise mat karo. (H)
 naa naa erakam koro naa. (B)
 PrNegP like do-pr-2p-sg
 ‘No, don’t do like this.’
- (5) b. na na maine to aisaa kabhii (bhii) nahiiN kaha. (H)
 naa naa ami to erakam kakhano(i) boli ni. (B)
 PrNegP I-erg TP like this ever Emph.
 neg say-pr-1p
 ‘No, I never said (anything like) that.’

Na occurring in reduplication in the beginning of a proposition indicates a strong opposition of the speaker for the following proposition. It is a speech act marker, reinforcing the speaker’s disagreement and may be tagged as Disagreement particle.

5. Some-or-other Particle

- (6) a. kaise na kaise meraa kaam to puraa ho hi jaayegaa. (H)
- (6) b. jeman kore hok aamaar kaaj to seś hayei jaabe. Be-fut-1p
 Part. my work TP finish Aux EM Aux
 ‘Somehow or other my work will be finished’

- (6) c. basti se bhi kuch-na-kuch mil hi jaataa thaa. (H)
- (6) d. gram thekeo kichu-na-kichu peyei jaye. (B)
Village from also Part get-pst-cont-3p EM
'Also from the village he used to get something or other.'
- (6) e. tu jahaaN jaataa hai, vahiiN tujhe koi-na-koi gyaanii mil jaataa hai. (H)
- (6) f. tui jekhaanei jash, kono-naa-kono ostaad Thik peye jaas. (B)
You-inf wherever go Aux there you Part. wise person meet Aux
'Wherever you go, you meet some wise person or other.'

In this kind of sentences *na* occurs between two negative polarity items (NPI) starting with *k*-sound like *kabhii*, *kaise*, *kahii* etc. and forms a compound. These words when used in reduplication with the intervening *na* lose their NPI semantics and can be used in an affirmative sentence. They may be tagged as *Some-or-other* Particle.

They give the sense of 'no matter what' in the sentence. The only exceptions in this set are the existential quantifiers *kuch* 'something' and *koi* 'someone' and its oblique form *kisii*.

6. Question-topicalizer particle (QTP)

- (7) a. maiN chintaa meN thaa ki na-jaane kaun iskaa maalik hai. (H)
- (7) b. ami cintaa karchilaam je ki-jaani ke aabar er maalik. (B)
I worry-ed in Aux that QTP know who it master be-pr-1p
'I was worried that who could be its master.'

In this kind of sentence *na* is attached to a particular stative verb form *jaane* and is followed by a question word. The phrase expresses a sense of doubt of the answer of the following question as well as topicalizes the question.

7. Assurance Particle

- (8) a. kuch din kaam kijiye, tarakki hogii na (Premchand, raNabhumi, Pg 16) (H)
- (8) b. kichu din kaaj karo, saaphalya esei jaabe. (B)
Some day work do-pr-2p-hon, success be-pr-f AssuranceP
'Work for some days you will surely get success.'

In this use, *na* functions not as a negating particle but instead gives the sense of positive assurance to what is being said in the sentence. So it can be tagged as AssuranceP. Bangla does not have an equivalent of this use. For assurance, Bangla uses an emphatic particle *-i* with the main verb. For question topicalization, Bangla uses *ki* instead of a negative particle with the same stative verb *jaanaa*. *Ki* in Bangla is not the usual complementizer as it is in Hindi, however, it may come sometimes in the position of a complementizer when the speaker expresses hesitation saying the embedded clause, as in the following sentence.

- (9) aami balchilaaam ki, tumi baraN calei jaao.
I say-pt-prog-1p ki you rather go-emph
'I was saying (with a hesitation) that rather you would go.'

8. Emphatic negation particle

- (10) zaraa saa jhum luN maiN. (H)
A little bit enjoy take-imp-1p-sg I
na- re-baabaa-na!
Emp Neg
'Let me enjoy a little bit.'
'No, no way.'

Emphatic negation is expressed through the phrase *na-re-baabaa-na* or *na-baabaa-na* and is always used as an answer to some question. In Bangla, it is generally expressed by *naa baabaa*.

9. Subjunctive Modal particle (SMP)

- (11) a. kyuN na ham coffee piine caleN ? (H)
Why SMP we coffee drink-prpft-pl go-subjunctive
- (11) b. calo naa aamra kafii kheyee aasi..(B)
go-subjnc. Neg we coffee take come
'Why don't we go for a cup of coffee?'/
'Let's go for a cup of coffee.'

This *na* is used always with a subjunctive form of verb after the question word *kyun* to express desire.

10. Topicalizer Particle (TP)

- (12) a. pataa hai meri maa na bahut acchaa khanaa banaatii hai (H)
- (12) b. Jaano aamaar maa naa daarun raanna kare.(B)
Know-pr-2p my mother TP very good food make-pr-3p-sg-f
'Did you know my mother makes very good food?'

This use of *na* is preceded by the subject of the sentence and it topicalizes the subject. The same use is also found in Bangla. However, topicalization of the object is generally done by the particle *to*.

11. Politeness Particle (OP)

- (13) a. muhN kholkar bolo na!
mouth open say-pr-imp-2p OP
(14) b. ekTu jore bal na! (B)
'Why don't you say it louder?'
(13) c. vahaaN jaakar baitho na!
there go-inf sit-pr-imp-2p OP
(13) d. okhane gie boSo na! (B)
'Why don't you go and sit there?'

This use of *na* is found with a particular speech act, viz., mild ordering. Sometimes it is accompanied by the speaker's irritation, however, a mild ordering as the speech act is always present with it.

12. Adverbial particle (ADVP in the sense of already)

- (14) kaha na, nahiiN!
say-pr-pft-1p already, no
'I had already said no'
(15) kaha na, kuch nahiiN.
say-pr-pft-1p already, nothing
'I had already said, it's nothing'

This use of *na* is used when the event has already occurred at least once before the current speech event. Bangla may use the particle *to* in the above cases. However, *naa* may be used in the sense of *already* usually when the following is a full sentence as in (18).

- (16) ballaam naa, aamaar kicchu bhaalo laagche naa.
say-pt-1p ADVP, I-gen nothing good feel-pr neg
'I already said that I am not feeling good at all.'

13. Aspectual Use

- (17) a. tiisre din suryodaya hote na hote uskaa jiivan ast ho gayaa (H)
(17) b. tritiiya din suryodaya hote naa hote or jiiban surya asta hae gelo. (B)
Third day sunrise be-inf as soon as be-inf life set be-pst-3p-sg

'On the third day as soon as the sun rose his life ended'

This use of *na* provides an aspectual reading of the event with which it is attached to. It connects the event of the following clause with that of the adjunct clause where it occurs by an immediately following relation.

14. Contrastive Clause Connecting Particle (CCP)

- (18) maiNe tumhe paRne ke liye kaha thaa na ki sone ke liye.
I-erg you-obj study-inf postposition say-pst-1p CCP sleep-inf
'I asked you to study not to sleep.'

The particle *na* when followed by *ki* connects two contrastive clauses and focuses the clause before the particle which is marked with a stress in speech. This is one strategy of showing contrastive focus in Hindi. The English equivalent of it is *not*. *na-ki* may be mapped on *nay* in Bangla which comes at the end of the sentence and connects two contrastive clauses. E.g. the equivalent of the sentence above would be *ami tomaake paRte balechilam, ghumote nay* 'I asked you to study not to sleep'.

15. Negative Conditional Particle

- (19) na itnaa milegaa na sahii; iskaa aadhaa to milegaa! (Premchand Rangbhumi-pg103)
Not this much get-fut okay; of it half part. get-fut
'No problem, if we don't get this much, at least half of this we will certainly get.'

When *na* occurs before *sahii*, it provides the sense of negative conditional *if not*. The logical representation of the sentence above is $\sim p \rightarrow q$.

16. Optionality Particle

- (20) a. ham jaaye na jaaye, aap zarur jaaiyegaa. (H)
(20) b. aamraa jaai naa jaai, aapni niScay jaaben.
whether we go or not, you-hon certainly should go
'Whether we go or not, certainly you should go.'

na occurring between two subjunctive forms of verbs states optionality between two events and is translated as *whether or not* in English.

17. Probability Particle

(21) ho-na ho aapkaa naam usmeN ho.
 perhaps, your name in that is
 ‘Perhaps your name is there.’

English equivalent of this *ho-na-ho* phrase is *perhaps, probably*. Bangla does not have an equivalent of this construction.

3 Disambiguation Strategies

In this section, we provide rules for disambiguating each use from the other. The rules are written using convention of writing linguistic rules.

Neg. Particle *na*/ {V__Aux
 __V Aux

Confirming QP/ {__?#
 __ ki S₂?#}

Conjunctive Negative P/ __... __

Disagreement P/ #_ _s[...*mat/nahiiM V*]

Some-or-other Particle/ *k-word*_x *k-word*_x
 [*k-words=kabhii, kisii, koi, kuch, kahii, kaise, kisko, kisse*]

Question Topicalizer P/ *_jaane S*

Assurance P / V_#

Emphatic Negation P/_ re-baabaa
 re baabaa}

Subjunctive Modal P/ _ ...V?

[+subj]

Topicalizer P/s[NP_ ...]

Politeness P / V __!

[+Imp]

Adverbial P/ V __!

[+Imp]

Aspectual P/ V-*te* _V-*te S*

Contrastive Clause Connecting P/ Cl₁-*ki* Cl₂

Conditional Negative P/ __ *sahii*

Optionality P/ V __ V

[+Subj] [+Subj]

Probability P/ *ho__ho*

4 Concluding Remarks

We have identified 17 different uses of the particle *na* of which only 4 uses have some semantics of negation. Remaining 13 functions are as varied as modal, aspectual, adverbial, conditional, topicalization, pragmatic such as speech act mark-

ing, politeness marking etc. It is indeed a puzzle how one particular particle can develop such different kinds of functions. Among these uses only three do not have similar equivalents with some negative word in Bangla. These are probability marker *ho-na-ho*, assurance particle and question-topicalizer particle.

We conclude from the above data and discussion that the various uses of the negative particle are not unique to Hindi. We have already identified most of the functions in Bangla also. Many of these functions may be found in other Indian languages as well which will only simplify the task of mapping equivalents across the languages.

It will be interesting to find out how the negative particle *na* has historically evolved to do such multiple functions. There is immense scope of future research to investigate the relation between negation and speech act phenomena as well as negation and topicalization.

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