

Topological Spatial Relations in Bengali

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Abstract— This paper investigates how topological spatial relations are expressed in Bengali. The data was gathered by eliciting locative expressions from three Bengali native speakers using Topological Relations Picture Series.

1 INTRODUCTION

Languages vary in the way they express information about spatial relations. Differences could also be found in the same language but in different situations. In answering a question like where is X? The basic locative construction in any language could be made of adpositions, nominal predicates, case inflections or locative verbs (Levinson & Wilkins 2006). An extensive amount of research has been done on spatial relations. To examine locative expressions in a language, a task like Topological Relations Picture Series (known as BowPed) could be used. The stimulus was designed and developed by Melissa Bowerman & Eric Pedersonto to elicit natural responses in describing topological spatial relations, which identifies how an object is placed in space in relation to another object. In this research, the task was used to find an answer to the question how locative relations are expressed in daily speech in Bengali. In Bengali, locative expressions consist of both ground and figure in addition to postpositions to describe how they are related.

2 BACKGROUND

Bengali is spoken in Bangladesh and the Indian states West Bengal, Tripura and southern Assam. It is also spoken by a significant number of immigrant communities in the United States, the United Kingdom and the Middle East. It is considered the most spoken language in Bangladesh and the second most spoken in India. In addition, around 300 million people speak Bengali worldwide as a native or second language making it the seventh most spoken language in the world. The Bengali language is a member of Indo-European language family. However, other language families in South Asia have influenced its vocabulary and structural form.

3 METHOD AND DATA GATHERING

The Bengali data was gathered in elicitation sessions that were run with three native Bengali speakers. The three speakers also speak English as a second language. The participants were two men and one woman from India and Bangladesh. All three of them use Bengali at home and with family members and use English in school or work. In addition, the purposes of the research was explained to each participant in English. They were presented with the Topological Relations Picture Series (known as BowPed). This stimulus consists of seventy-one pictures specific spatial relations. Each picture consists of two objects. One is the Ground, which is an anchor for another object. The other object is the reference point that needs anchoring, and called the Figure (Talmy 2000). The

speakers were asked to describe where the figure is in relation to the ground imagining that they are describing the scene to someone who cannot see it. They were asked for each picture the question "where is the [figure] in relation to the [ground]?" Their responses were both written and voice recorded.

A spot of bother occurred because the language used to communicate, which is English, is different than the target language (Bengali). Therefore, participants tend to describe the scene in English first then translate it to Bengali resulting in inaccurate and unnatural response. To overcome this, they were asked to describe the scenes in Bengali only. After describing the whole series, they were asked to listen to their voice record and translate to English. Thus, more accurate and natural responses were gathered.

4 PARTICIPANTS

Name	Gender	Age	Occupation	Region
Abhishek	M	25	Student	India
Mohammed	M	35	Banker/student	Bangladesh
Laboni	F	25	—	Bangladesh

5 RESULTS AND ANALYSIS

In analyzing the data, the use of the ground and the figure in the discourse was examined first to see which was expressed before or after the locative expression. It was found that the locative expression after its object in all responses. As a result, it is safe to say that Bengali uses postpositions because the words of locative function come after the components. In addition, in examining the locative constructions, it appears that Bengali postpositions used in the participants' responses require the object to take a genitive case. The nouns presiding the postpositions carry inflectional possessive markers such as (-er) and (-r). For example, in response for the first picture in the BowPed series, all three speakers gave the same response, which is:

Example (1):

table er upor cup rakha ache
table POSS on cup placed
The cup is on the table

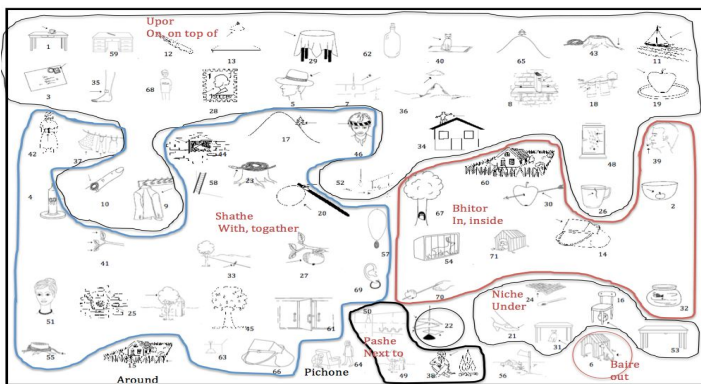
5.1 The postpositions used in describing the Topological Relations Picture Series

Postposition	Meaning
[upor]	On, on top of
[b ^h i ^t or] [mod ^h e]	In, inside, in between, among
[ʃa t ^h e]	With, together, along with
[baire]	out
[ni tē ^h e]	Under
[pit ^h one]	Behind
[ʃamen]	In front of
[paʃe]	Next to, beside
[aʃepaʃe]	Around

5.2 Pragmatic meaning components

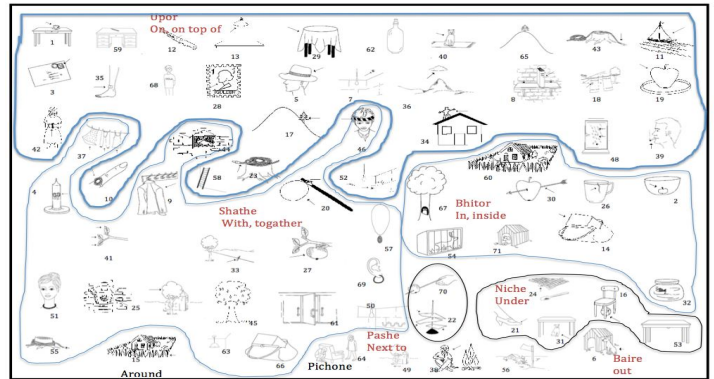
The responses of the three participants on Topological Relations Picture Series are represented in following Venn diagrams:

Speaker #1: (Abhashki)



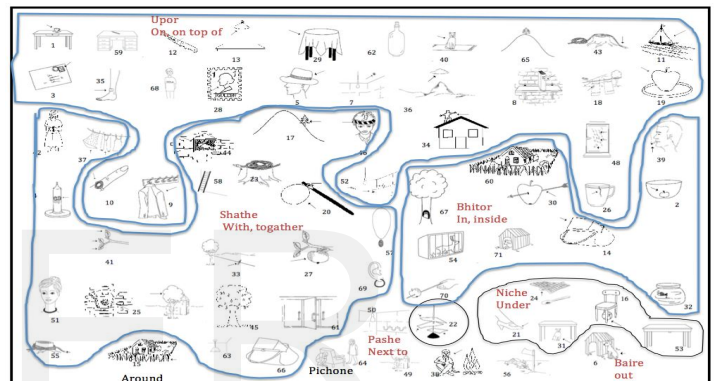
Figur (1)

Speaker #2: (Mohammed)



Figur (2)

Speaker #3: (Laboni)



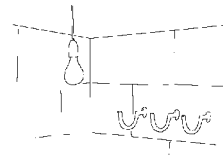
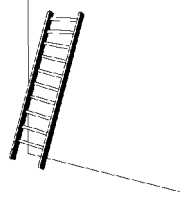
Figur (3)

5.3 The postposition upor 'on'

Looking at the responses with the postposition upor 'on', it could be said that the three speakers have the same mental lexicon entries for upor. However, there are few differences that could be explained. For example, speaker 1 used the postposition upor in describing picture number sixty-five but, unlike the other two speakers, did not use it in describing picture number seventeen.



This suggests that the speaker has a sense that upor means 'on top of' more than just 'on'. On the other hand, the second speaker included pictures number fifty-eight and forty-two to upor meaning that he has a broader sense of 'on'.



Furthermore, in all pictures with an object hanging, all three participants used the verb jahola “hanging” with the postposition shathe “with”.

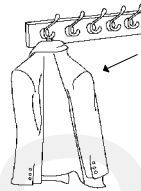
Example (2):

Fol -ti gaach -er daal -er shathe jhula -ache
Fruit ART tree POSS branch POSS with hang-PROG
“The fruit is hanging on the branch”

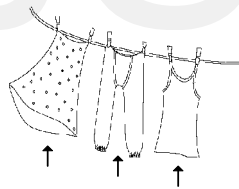
However, speaker number 1 was the only one to use picture number nine with the postposition upor “on” with the verb tangano ‘hanging’.

Example (3):

hook -er upor shirt tangano hoy-eche
hook POSS on shirt hang-PROG ART
“the shirt is hanging on the hook”



To understand the participant’s choice of the postposition, her sentence was compared with the other participants’. It was also compared with her responses to other similar pictures. For example, picture number thirty-seven where the speaker used the verb jhula ‘hanging’ with the postposition shathe ‘with’. There is no obvious pragmatic reason for this choice but the choice may be for syntactic reasons.



5.4 The postposition bihtor ‘in’

Speaker number one was different than the other two speakers in the use of the postposition bihtor ‘in’ because he was the only one who used it to describe the locative relation in picture number thirty-nine.



Example (4):

Cigarette ti ei loktar much-er bhitor ache
Cigarette-ART ART man mouth-POSS inside there is
‘There is a cigarette inside the man’s mouth’

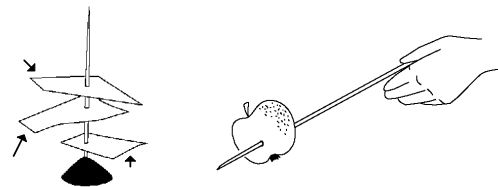
The reason of this choice is that this speaker thought of it as if the cigarette is inside the mouth while the other two speakers used the postposition upor ‘on’ because the thought of the cigarette as if it is on the lips.

Moreover, speaker number three was the only one to use the postposition bihtor ‘in’ to describe the locative relation in the three pictures below:

She looked at these attached figure and ground as if one is inside the other unlike the other speakers who thought the postposition shathe ‘with’ to describe the relation.

5.5 The postposition shathe ‘with’

Speaker two was the only speaker to describe the relation on the pictures seventy and twenty two using the phrasal verb dara gatha ‘by’ ‘throw’ contrasting other speakers who chose to use shathe.



other speakers never used ‘through’ to describe these pictures or other pictures which makes me think it is not regularly used in Bengali.

6. CONCLUSION

The primary focus of this paper has been to examine topological spatial relations expressed in Bengali using Topological Relations Picture Series (known as BowPed).

Responses of Bengali native speakers were collected and analyzed to find out when and how postpositions are used in the language. The results bring out few pragmatic and syntactic differences between the speakers in using Bengali postpositions.

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