

## Sluicing in Indo-Aryan: an investigation of Bangla and Hindi

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### 9.1. Introduction

This chapter establishes a profile of sluicing constructions in two widely-spoken Indo-Aryan languages of South Asia: Bangla and Hindi. Although traditionally described as being *wh* in situ languages, both Bangla and Hindi have a distribution of *wh* elements which suggests that they are actually languages with overt *wh*-movement (Simpson and Bhattacharya 2003) and so might be expected to permit sluicing formed by *wh*-movement and PF clausal deletion as hypothesized for languages such as English (Ross 1969, Merchant 2001, Fox and Lasnik 2003). The chapter consequently attempts to determine the degree to which sluicing in Bangla/Hindi may parallel or differ from the production of sluicing in English-type languages, and also how it may relate to sluicing patterns in typologically closer Japanese, where sluicing is often assumed to have a rather different syntactic derivation to English (Nishiyama et al 1999, Fukaya and Hoji 1999, Hiraiwa and Ishihara 2002). The structure of the chapter is as follows. Section 9.2 first outlines basic properties of Bangla/Hindi and the formation of *wh*-questions in these languages. Section 9.3 then introduces sluicing proper and examines what kind of analysis would seem to be supported by the patterning observed in Bangla/Hindi, considering with some care whether a form of the reduced cleft/copula analyses of sluicing in Japanese and Chinese might be appropriate for Bangla/Hindi. Arriving at the conclusion that it is *wh*-movement rather than copula

deletion or cleft reduction which underlies Bangla/Hindi sluicing, section 9.4 proceeds to investigate the potential effect of movement-associated constraints on sluicing in Bangla/Hindi, in particular Superiority and Subjacency/the CED. This leads to the observation of an unexpected difference in patterning in Bangla and Hindi, and an interesting challenge for the construction of theories on cross-linguistic variation in island sensitivity in sluices. After some consideration of the potential causes of the variation, section 9.5 concludes the chapter with an outline of the further comparative research amongst Indo-Aryan (and other) languages which seems to be required as the result of the present investigation of Bangla and Hindi.

### 9.2. Bangla, Hindi, and the syntax of *wh*-questions

Bangla and Hindi are both languages that have commonly been described as dominantly head-final and neutrally SOV in word order (Dasgupta 1980, Kachru 2006), though with regular post-verbal extraposition of tensed complement clauses causing stylistically neutral SVO sequences (as in German). Bangla and Hindi have also regularly been referred to as *wh* in situ languages, due to the lack of obvious *wh* fronting in examples such as (1) and (2) below, where the SOV word order of a declarative equivalent appears to be maintained (Bayer 1996, Srivastav 1991):

- |   |        |
|---|--------|
| (1) jOn kon boi-Ta poRlo <sup>1</sup><br>John which book-CL read<br>'Which book did John read?' | Bangla |
| (2) us-ne kOnsii gaaRii kharidii<br>he-ERG which car bought<br>'Which car did he buy?'          | Hindi  |

In Simpson and Bhattacharya (2003) this *wh* in situ characterisation of Bangla/Hindi is however questioned, and with a primary focus on Bangla, it is argued that overt movement of *wh*-elements does in fact occur to the C-domain, as in many other languages. Such movement is suggested to be frequently disguised by the higher occurrence of subjects in clause-initial topic position in Bangla, but becomes clearly observable in multi-clause structures where a *wh*-element from an embedded clause is interpreted with interrogative scope in a higher clause. In Bangla (3), for example, it is ungrammatical for the *wh*-phrase *ke* 'who' to remain 'in situ' in the embedded clause, as in (3a), and overt movement into the matrix clause is necessary to license the *wh*-phrase. This can be achieved either via raising of simply the *wh*-phrase, as in (3b), or via pied piping of the entire clause containing *ke*, as in (3c). In both instances it is assumed that the matrix clause subject is in a topic position located higher than the *wh*-licensing position:

- (3) a. \*JOn bhabche [ke cole gEche].  
John think who leave gone?  
b. JOn ke<sub>i</sub> bhabche [t<sub>i</sub> cole gEche].  
John who think leave gone?  
c. JOn [ke cole gEche]<sub>i</sub> bhabche t<sub>i</sub>?  
John who leave gone think?  
'Who does John think left?'

Similar patterns occur in Hindi, though with two differences worthy of note. First of all, when *wh*-phrases undergo overt movement from an embedded clause, they are frequently positioned before the matrix clause subject, as in (4b) below. Secondly, the clausal pied piping option seen in Bangla (3c) is not available as an alternative fronting strategy in Hindi:<sup>2</sup>

- (4) a. \*Raam-ne socaa [ki kOn aayaa hE]  
Ram-ERG thought that who come has

- b. kOn<sub>i</sub> Raam-ne socaa [ki t<sub>i</sub> aayaa hE]  
who Ram-ERG thought that come has  
'Who did Ram think has come?'

(adapted from Mahajan 1990)

In multiple *wh*-questions, the occurrence of multiple *wh*-movement is attested. For example, in (5) and (6), where both *wh*-phrases originate in the embedded clause but can only be interpreted with matrix clause interrogative scope (as the embedding verb does not permit a question complement), overt movement of both *wh* elements to the matrix occurs and results in a fully grammatical output. As the (c) examples importantly show, raising of just one of the pair of *wh*-phrases is not sufficient to license the multiple *wh* questions in (5) and (6), and both *wh*-phrases are required to undergo movement to the matrix. Bangla and Hindi are therefore multiple *wh* fronting languages similar in their *wh* syntax to members of the Slavic group described in Bošković (2002):

- (5) a. \*tumi bhabcho [je Se kOkhon ki kineche] Bangla  
you think that s/he when what bought  
'When do you think she bought what?'  
b. tumi kOkhon<sub>i</sub> ki<sub>k</sub> bhabcho [je Se t<sub>i</sub> t<sub>k</sub> kineche]  
you when what think that s/he bought  
'When do you think she bought what?'  
c. \*tumi kOkhon<sub>i</sub> bhabcho [je Se t<sub>i</sub> ki kineche]  
you when think that s/he what bought  
'When do you think she bought what?'<sup>3</sup>
- (6) a. \*raam-ne socaa [ki kOn kis-ko maaregaa] Hindi  
Ram-ERG thought that who whom will-hit  
'Who did Ram think will hit who?'  
b. kOn<sub>i</sub> kis-ko<sub>k</sub> raam-ne socaa [ki t<sub>i</sub> t<sub>k</sub> maaregaa]  
who whom Ram-ERG thought that will-hit  
'Who did Ram think will hit who?'

- c. \* **kOn<sub>i</sub>** raam-ne socaa [ki t<sub>i</sub> kis-ko maaregaa]  
who Ram-ERG thought that whom will-hit  
'Who did Ram think will hit who?' (from Mahajan 1990)

Given the occurrence of *wh*-movement in Bangla/Hindi as illustrated above, one might expect that Bangla/Hindi would both permit sluicing constructions, as sluicing is often suggested to be parasitic on *wh*-movement, and significant numbers of languages with overt *wh*-movement have also been found to allow for sluicing (Merchant 2001). Such an initial expectation is indeed borne out, and, as will be illustrated in some detail in section 9.3, both Bangla and Hindi show fully productive patterns of sluicing similar in many ways to those observed in other languages. This therefore raises the possibility of investigating sluicing as a general cross-linguistic phenomenon from the particular perspective of Indo-Aryan languages and using these to achieve further insight into the ways that sluicing constructions may possibly vary within different language groups. This is the goal of sections 9.3-5, where we first address the issue of whether sluicing in Bangla/Hindi is most plausibly attributed to instances of *wh*-movement and remnant deletion, or perhaps some other kind of process of ellipsis, and then examine how various constraints specifically associated with movement may interact with sluicing in the two languages.

### 9.3 *Sluicing in Bangla and Hindi: initial properties*

#### 9.3.1 *An introduction to sluicing patterns in Bangla/Hindi and general hypotheses of sluicing.*

Sentences (7) and (8) below present two initial examples of sluicing in Bangla and Hindi respectively, confirming that sluicing is indeed a property of these languages.<sup>4</sup>

- (7) Mini-r dokan-theke keu ek-Ta boi curi-koreche, kintu  
ami jani na ke  
Mini-GEN shop-from someone one-CL book stole, but I know  
not who  
'Someone stole a book from Mini's shop, but I don't know  
who.'
- (8) Raam-ne us-dukaan-se kuch kharidaa, par mujhe nahii  
maluum ki kyaa.  
Ram-ERG that-shop-from something bought but to-me not  
known C what  
'Ram bought something from that shop, but I don't know  
what.'

A widespread assumption about the syntax of sluices in general is that the *wh*-phrase appearing in sentence-final position and corresponding to an indefinite expression in an earlier part of the sentence is the remnant of a deletion process applying to (most of) a selected embedded clause containing the *wh*-phrase (see Merchant 2001 and references therein). Such a necessarily multi-clausal analysis of sluicing is in contrast with the possible view that the *wh*-phrase might be a direct argument of the (most deeply embedded) overt verb present in sluicing sentences, e.g. 'guess' in 'Guess who.' As in many other languages, there is simple evidence in Bangla and Hindi indicating that *wh*-phrases in sluices are indeed components of some lower, phonetically unrealized clause rather than being arguments of the verb which precedes them in the overt, surface output. For example, Bangla *ke* in (7) above occurs in a nominative case shape rather than the accusative case form *kake* which might be expected if 'who' were to be the complement of the preceding verb 'know', and in Hindi (8), there is the clear presence of a complementizer element *ki* signalling that *kyaa* 'what' is part of a semi-deleted lower clause.

If it is reasonably straightforward to assume that the *wh*-phrases present in sluices in Bangla/Hindi are the remnants of a process of clausal ellipsis, the next important question, as with sluicing in other languages, is what can be concluded about the identity and underlying shape of the elided clause? Specifically, does this have a structure which can be assumed to be parallel to that of the overt clause containing the antecedent of the *wh*-phrase, or are there reasons to believe that the elided/phonetically unpronounced clause containing the *wh*-phrase has a structure which is non-isomorphic with that of the 'antecedent clause'? Quite generally, from a cross-linguistic perspective, there are two broad types of analysis of the elision of clauses in sluicing which have been cogently argued for in recent years and which should be considered in relation to sluicing in Indo-Aryan. Each of these approaches can be shown to be supported by a range of observable patterns in sluicing constructions, and it is possible and also likely that both types of analysis are in fact correct, though crucially for different sets of languages.

The first general mode of analysis of sluicing argued for in a considerable number of works (among which Ross 1969, Merchant 2001, Fox and Lasnik 2003 and many of the chapters in this volume) is the hypothesis that sluicing regularly results from the partial deletion of an embedded clause which is largely isomorphic in structure with the clause containing the indefinite antecedent of the *wh*-phrase. In such an approach it is commonly claimed that *wh*-movement first promotes the *wh*-phrase from within the clause to a clause-peripheral position and then is followed by deletion of the clausal residue, i.e. deletion of the largest constituent present in the clause which does not contain the *wh*-phrase. In the case of English, the suggestion is that movement of the *wh*-phrase to SpecCP is followed by ellipsis of the TP complement to C as in (9):

- (9) Jane just married someone, but I don't know [<sub>CP</sub> who [<sub>TP</sub> ~~she just married who~~]].

The assumption that sluicing is derived via *wh*-movement from a clause which is isomorphic in structure to the overt antecedent clause is well supported by a number of arguments, as frequently noted in the literature. For example, it allows for a simple explanation of the observation that non-default case-marking present on the sluiced *wh*-phrase regularly corresponds to the case which would be assigned to a *wh*-phrase occupying a structural position paralleling that of the indefinite antecedent in the overt antecedent clause. It also captures correlations between the occurrence and properties of sluicing in a language and the availability and form of *wh*-movement that a language may have. For example, English does permit (and in fact requires) *wh*-movement but limits this to movement of a single *wh*-phrase per +Q Comp, and sluicing is found to have a similar restriction, regularly allowing just a single *wh*-phrase to occur in common, well-formed sluices (viz. 'Someone just stole something from our office, and I know who (\*what).').<sup>5</sup> Romanian, by way of contrast, allows multiple overt *wh*-movement and is found to permit multiple *wh* elements to occur in sluicing constructions (Hoyt and Teodorescu, this volume). Such correlations, and others noted in Ross (1969) and Merchant (2001), can be naturally accounted for if it is assumed that sluiced *wh*-phrases undergo regular *wh*-movement in a clause structurally parallel to the clause containing their antecedent(s), and are otherwise difficult to capture in a principled and convincing way.

The second broad approach to sluicing, argued to be appropriate for certain languages with patterns rather different from those in English, Spanish, German and other languages with clear occurrences of overt *wh*-movement suggests that sluicing may be produced by the reduction of a clause built around a copula, in two distinguishable ways. The first type of copula-centered analysis of sluices posits the existence of a clause containing a copula, a pronoun, and a *wh*-phrase. The former two elements may frequently be phonetically empty/unpronounced, either in virtue of a language

having null copulas and null pronouns in general and employing these in sluices, or due to TP ellipsis deleting the phonetic matrix of the pronoun and copula following *wh*-movement to SpecCP. The latter analysis was in fact originally suggested for English in Erteschik-Shir (1977), and was suggested to create underlying forms such as (10), in part justified by the possibility of overt non-elided sequences such as (11):

- (10) Someone from Bristol is coming to dinner. Guess [<sub>CP</sub> who [<sub>TP</sub> # is ~~who~~]].
- (11) Someone from Bristol is coming to dinner. Guess [<sub>CP</sub> who [<sub>TP</sub> it is ~~who~~]].

In a similar vein, though without the assumption of *wh*-movement, analyses of sluicing in Japanese have been proposed in Nishiyama et al (1996) and Fukaya and Hoji (1999) in which the *wh*-phrase occurs in a clause with a null pronominal subject and a frequently null copula as the main verbal element:

- (12)a. Mary-ga nanika-o katta.  
Mary-NOM something-ACC bought  
'Mary bought something.'
- b. Boku-wa [\_ nani(-o) (dearu) ka] wakaranai  
I-TOP pro what-ACC be Q do-not-know  
'I don't know what (it is).' (from Takahashi 1994)

Again, the existence of fully overt forms such as (13) is used to support such an analysis, as in Erteschik-Shir (1977), together with the observation in Nishiyama et al (1996) that sometimes a copula must in fact be present in a sluiced clause:

- (13) Boku-wa [sore-ga nani-o dearu ka] wakaranai  
I-TOP that-NOM what-ACC be Q do-not-know  
'I don't know what it/that is.'

Chinese has also been argued to be best analyzed as having 'sluices' arising via the use of null pronominal subjects and a sometimes necessarily overt copula (Adams 2003, Wei 2004, Adams and Tomioka this volume), and this would indeed seem to be the most plausible analysis of Chinese, given the patterns found in the language.

The second copula-centred analysis of sluicing suggests that sluices may critically result from the reduction of a *cleft* structure (see, for example, Fukaya and Hoji 1999, Hiraiwa and Ishihara 2002).<sup>6</sup> In such an approach, sluicing arises from the deletion of a CP clause in which movement has occurred to create a cleft structure, as well as frequent deletion/non-pronunciation of both the copula which embeds this CP clause, and the pronominal subject of the copula.

Both *wh*-movement + IP/TP-deletion and copula-centred analyses of sluicing are motivated by the need to explain variation in the patterning of sluices in different languages (such as, for example, the frequent intrusion of copulas in sluices in certain languages but not others). Because the two modes of analysis consequently hypothesize different underlying structures (and processes) in 'sluicing', they give rise to different expectations about the surface effects of such structures, for example with regard to clause-internal positioning of the *wh*-phrase, case on the *wh*-phrase, single/multiple *wh* sluicing restrictions and various other phenomena. In a copula-centred analysis of sluicing, for instance, one might naturally expect that the case on the *wh*-phrase 'remnant' would be licensed by the copula (or its associated functional structure) and hence be invariant, whereas in a *wh*-movement analysis of sluicing, there is an expectation that *wh*-phrase remnants will occur in variant/different case-forms, reflecting the case assigned to the *wh*-phrase in the deleted underlying clause prior to *wh*-movement and TP-deletion. Similarly, if copulas and copulas in clefts are restricted to selecting a single complement XP, one might not expect a copula/reduced cleft analysis to be appropriate for a language which permits multiple *wh* sluicing.

Despite the availability of various broad diagnostics bearing on the structure of sluicing constructions, much care is still needed in the application of default expectations about case and other patterns in cross-linguistic investigations of sluicing, and there may not be any fully fixed set of properties that are associated with copula-type sluices as opposed to sluices involving *wh*-movement and deletion of an isomorphic clausal structure. For example, if one considers Japanese as a language where a good case can be made for a reduced cleft copula analysis of sluices, it is found that (a) case is not invariant on the *wh*-phrases in sluices, and *wh*-phrases appear marked in various ways with case and postpositions, and (b) the occurrence of multiple *wh*-phrases is actually possible. Although perhaps unexpected if a unitary cross-linguistic conception of the behavior of elements in clefts and copula sentences is entertained (as copulas and clefts do not permit multiple complements with potentially different case forms in many languages), from the standpoint of Japanese, properties (a) and (b) are fully consistent with the properties of cleft sentences in the language. Japanese clefts do allow for clefted elements to occur in case-forms or with postpositions that corresponds to gap positions in the embedded CP constituent present in clefts, and it is also possible for there to be clefting of more than just a single element in cleft sentences in Japanese. Consequently, although variant case-marking may be advanced as an argument for a *wh*-movement + TP-deletion analysis of sluices, it may not be a fully reliable indicator of such a derivation, as similar patterns may sometimes also arise in cleft constructions in a language. Similar conclusions may apply to other 'default' expectations used to argue for either a *wh*-movement + TP-deletion analysis or alternatively a non-isomorphic copula analysis of sluices. What is therefore clearly required in each fresh examination of sluicing in a language is a careful comparison of sluices with other patterns in the same language, in particular those relating to *wh*-movement, case, copulas and cleft constructions. With this caution in mind, we now turn

our attention back to Bangla and Hindi and consider what mode of deletion would seem to be operative in sluicing within these languages.

### 9.3.2 Probing the properties of sluices in Bangla/Hindi

The question to be approached here with regard to Bangla and Hindi is whether clausal reductions in sluicing sentences result from *wh*-movement and the ellipsis of a structure isomorphic with the clause containing the indefinite antecedent of the *wh*-phrase (the correlate), or alternatively whether sluiced clauses are underlyingly some kind of copula structure. Considering sluicing in Bangla first, certain data might seem to be open to either analysis, e.g. (14) below:

- (14) Mini kichu kinechilo, kintu ami jani na ki  
Mini something bought but I know not what  
'Mini bought something, but I don't know what.'

The Bangla *wh* word *ki* 'what' in (14) is invariant in its shape in both object and subject functions and so could be occurring either as an object form in (14), produced by the deletion of an underlying structure mirroring that of the clause containing *kichu* 'something', or *ki* could perhaps be occurring as a subject-form associated with a null copula. In Bangla the copula is regularly not expressed in any overt form in the present tense, and so (14) might potentially allow for an analysis as a null copula structure. The use of *wh* expressions other than *ki* is however more revealing, and the equivalent of 'who' occurs in distinct nominative, accusative, genitive and genitive/dative-plural forms, respectively *ke*, *kake*, *kar* and *kader*. Such forms furthermore regularly occur in sluices as illustrated in (15-17):

- (15) ami Sunlam je keu Jonaki-ke Thokieche, kintu ami jani na ke  
I heard that someone Jonaki-ACC cheated but I know not  
who-NOM  
'I heard that someone cheated Jonaki, but I don't know who'

- (16) ami Sunlam je Ram kau-ke biye-koreche, kintu ami jani na kake  
 I heard that Ram someone<sub>EACC</sub> married but I know not whom<sub>ACC</sub>  
 'I heard that Jonaki married someone, but I don't know who.'

- (17) karo rag koreche, kintu ami jani na kar  
 someone-GEN anger has-happened but I know not who-GEN  
 'Someone has become angry, but I don't know who.'

In all the above examples, the patterns appear to show "case-matching/P-matching" and marking of the *wh*-phrase with a case/postposition form which also occurs on the indefinite antecedent of the *wh*-phrase. Such a correspondence relation, and the occurrence of non-default case on the *wh*-phrase might be assumed to be caused by deletion of an underlying structure paralleling that of the clause containing the antecedent of the *wh*-phrase, and might be less naturally attributed to an underlying copular structure. However, as noted in the preceding section, there is a clear need to be careful here, as in certain languages case- and P-marked DPs are sometimes found to occur with copulas. In Bangla, whether a null (or deleted) copula might be able to co-occur with and license DPs in different case-forms and marked with different postpositions is difficult to establish with present-tense time reference, as Bangla has no common present-tense copula form that is overt. However, for past time reference there is an overt form which can be used to test copula compatibility with DPs marked by different cases and postpositions - the element *chilo*. This element can be used to produce sequences such as (18) below:

- (18) keu Jonaki-ke Thokiechilo, kintu ami jani na je Se ke chilo  
 someone Jonaki-ACC had-cheated but I know not C s/he who-NOM was  
 'I heard that someone had cheated Jonaki, but I don't know who it was.'

Significantly, although it is possible for a *wh*-phrase in nominative case to occur in a past tense copula clause, it is not possible for *chilo* to license or co-occur with a *wh*-phrase in accusative or genitive case, as seen in (19) and (20) below. Instead, it is necessary for the *wh*-phrase to appear in nominative case in such examples:<sup>7</sup>

- (19) ProkaS kau-ke Thokiechilo, kintu ami jani na je Se ke/\*kake chilo  
 Prakash someone-ACC had-cheated but I know not C she who-NOM/\*whom-ACC was  
 'Prakash cheated someone, but I don't know whom.'
- (20) karor OSukh korechilo, kintu ami jani na je Se ke/\*kar chilo  
 someone-GEN sickness had-done but I know not C s/he who-NOM/\*who-GEN was  
 'Someone was sick, but I don't know who.'

If the copula *chilo* is not present but overt pronoun-forms such as *Se* 's/he' or *Se-Ta* 'it' occur in addition to a *wh*-phrase (as they do in (19) and (20)), this will correspond to a simple (present-tense) null copula structure paralleling that in non-slucied *wh*-questions such as (21):

- (21) Se ke?  
 s/he-NOM who-NOM  
 'Who is s/he?'

When the projection of null copula structures is forced by the presence of pronouns such as *Se* and *Se-Ta*, it is found that a nominative case *ke* 'who' is required and accusative *kake* and genitive *kar* are again not licensed in the presence of a pronoun:

- (22) karo rag hoeche, kintu ami jani na Se ke/\*kar  
someone-GEN anger has-happened but I know not s/he who-  
NOM/\*who-GEN  
'Someone has become angry, but I don't know who.'
- (23) Ram kau-ke biye-koreche, kintu ami jani na Se ke/\*kake  
Ram someone<sub>ACC</sub> married but I know not she who<sub>NOM</sub>/  
\*whom<sub>ACC</sub>  
'Ram married someone, but I don't know who.'

This indicates that copular structures do not license *wh*-forms such as *kake* and *kar*. As these elements however freely occur in sluice constructions, it can be concluded that they are not licensed by a deleted/null copula structure, but by the elided predicate of a clause isomorphic to the clause containing the indefinite antecedent of the *wh*-phrase. Such a conclusion is further strengthened by the observation that the case-matching noted to occur in (15-17) is actually a strict requirement in sluices where the *wh*-remnant is the only element present in the elided clause and there is no other overt nominative pronoun present to induce an underlying null copula structure e.g:

- (24) Raj kau-ke Thokieche, kintu ami jani na kake/\*ke  
Raj someone-<sub>ACC</sub> cheated but I know not who-ACC/who-NOM  
'Raj cheated someone, but I don't know whom.'

- (25) karo gaRi baire park kOra ache, kintu amra jani na kar/\*ke  
someone<sub>GEN</sub> car outside park done is but we know not who-  
GEN/\*who-NOM  
'Someone's car is parked outside, but we don't know whose.'
- (26) Mini karo Songe kOtha bolechilo, kintu ami jani na kar  
Songe/\*ke  
Mini someone-GEN with word spoke but I know not who-  
GEN with/who  
'Mini spoke with someone, but I don't know who.'

The set of patterns presented here indicate fairly clearly that two kinds of output with closely related meanings but different syntactic structures are possible in Bangla. First of all it is possible to identify structures containing an overt pronoun, an overt/covert copula form and a *wh*-phrase in nominative case (but not in accusative or genitive case), as in (18), (22), and (23). Secondly, elided structures are possible in which only a *wh*-phrase corresponding to a preceding indefinite antecedent is present, and the *wh*-phrase necessarily occurs in the same case/postposition-marked form as its antecedent. This is seen in (24-26) as well as (15-17).<sup>8</sup> It is this latter set of forms which are sluices proper, derived via the deletion of some large non-copula component of the clause, which appears to match the structure of the clause containing the antecedent of the *wh*-phrase.

Relative to such deletion structures two further important points can be made. First, it is found that more than one *wh*-phrase can be present in sluicing constructions in Bangla, as shown in (27a) and (28a) (with case-matching clearly seen on *kake* 'whom' in (27a)). As illustrated in (27b) and (28b), such multiple *wh* forms cannot be the output of any copula construction, null or overt, and any attempt to have an overt pronoun form (or overt past-tense copula) in addition to the *wh*-phrases as indication of a copula structure results in ungrammaticality:<sup>9</sup>



- (27) a. Ram kau-ke kichu diyeche, kintu ami jani na ka-ke ki  
 Ram someone-DAT something gave but I know not whom-DAT what  
 'Ram gave someone something, but I don't know what and to whom.'  
 b. \*Ram kau-ke kichu diyeche, kintu ami jani na Se-gulo ka-ke ki (chilo)  
 Ram someone-DAT something gave but I know not they whom-DAT what was  
 'Ram gave someone something, but I don't know what and to whom.'
- (28) a. keu kichu bheNgeche, kintu ami jani na ke ki  
 someone something broke but I know not who what  
 b.\*keu kichu bheNgeche, kintu ami jani na Se-gulo ke ki (chilo)  
 someone something broke but I know not they who what (were)  
 'Someone broke something, but I don't know who and what.'

Secondly, Bangla can be noted to be a language which does not have cleft constructions. Consequently, the case-/P-matching which is found in sluices cannot be attributed to any reduced cleft form and the occurrence of non-default case/postpositions on *wh*-phrases due to hypothetical raising of the latter from positions within the CP component of a cleft. This absence of cleft constructions in the language, together with the observation of necessary case-/P-matching and the potential occurrence of multiple (case-marked) *wh*-phrases in sluices suggests that a copula-centred analysis of sluices is not appropriate for Bangla and can justifiably be discounted.

Similar facts also obtain in Hindi, and are in certain ways clearer as Hindi is not a null copula language. Considering similar patterns to those observed in Bangla, it can first of all be noted that non-elided,

non-sluice forms with copulas as in (29) are possible, with a nominative case *wh*-phrase *kaun* 'who':

- (29) Ram-ne kisi-se baat-kii-thii, par mujhe nahii maluum ki voh kaun hai.  
 Ram<sub>ERG</sub> someone-OBL with speech-did but me-OBL not know C s/he who-NOM is  
 'Ram spoke with someone, but I don't know who s/he is.'

As further illustrated in (30-32) below, in sluicing constructions where ellipsis of part of the clause appears to have occurred, a variety of other non-nominative case-forms and postpositions can also occur on *wh*-phrases:

- (30) Ram-ne kisi-ko kitaab dii-thii, par mujhe nahii maluum ki kis-ko.  
 Ram<sub>ERG</sub> someone-DAT book gave but me-OBL not know C who-DAT  
 'Ram gave a book to someone, but I don't know who.'
- (31) Mini-ne kisi-se Saadi-kii-thii, par mujhe nahii maluum ki kis-se.  
 Mini-ERG someone-with marriage-did but me-OBL not know C who-with  
 'Mini married someone, but I don't know who.'
- (32) kisi-ne meri ghari cori-kii-thii, par mujhe nahii maluum ki kis-ne.  
 someone-ERG my watch stealing-did but me-OBL not know C who-ERG  
 'Someone stole my watch, but I don't know who.'

Considering now whether *wh*-phrases marked with non-nominative case or with postpositions may occur in (overt) copula constructions parallel to (29), examples such as (33) and (34) show that this is not possible:

- (33) \*Ram-ne kisi-ko kitaab dii-thii, par mujhe nahii maluum ki voh/yeh kis-ko hai.  
Ram<sub>ERG</sub> someone-DAT book gave but me-OBL not know C s/he/it who-DAT is  
'Ram gave a book to someone, but I don't know who.'
- (34) \*Mini-ne kisi-se Saadi-kii-thii, par mujhe nahii maluum ki voh/yeh kis-se hai  
Mini-ERG someone-with marriage-did but me-OBL not know C he/it who-with is  
'Mini married someone, but I don't know who.'

Because non-nominative and postposition-marked *wh*-phrases cannot be licensed by copulas but do regularly occur in sluices, this indicates fairly clearly that copulas are not involved in the production of sluiced clauses. As Hindi furthermore has no cleft constructions, like Bangla, sluices in Hindi can also not be analysed as the reduction of some underlying cleft structure. This therefore leads to the conclusion that sluicing in Hindi must arguably result from the reduction of a structural copy of the clause containing the antecedent of the *wh*-phrase, and that the non-default case and postpositions appearing on sluiced *wh*-phrases are licensed by their base-generation within such a clause. Concerning the latter case/postposition-marking, it can be noted that there is a strict case/postposition-matching requirement in Hindi sluices, as in Bangla, and the case/postposition marking a *wh*-phrase must correspond to the case/postposition present on its antecedent DP, as illustrated in (35) and (36):

- (35) Ram-ne kisi-ko kitaab dii-thii, par mujhe nahii maluum ki kisko/\*kaun.  
Ram-ERG someone-DAT book gave but me-OBL not know C who-DAT/who-NOM  
'Ram gave a book to someone, but I don't know who.'
- (36) Mini-ne kisi-se Saadi-kii-thii, par mujhe nahii maluum ki kisse/\*kaun  
Mini-ERG someone-with marriage-did but me-OBL not know C who-with/who-NOM  
'Mini married someone, but I don't know who.'

In both Bangla and Hindi there is consequently good evidence indicating that sluices are not derived from underlying copula structures or clefts, and are instead instances of deletion of a clausal structure which appears to be isomorphic to the structure of the antecedent clause containing the correlate to the *wh*-phrase. As Bangla and Hindi can furthermore both be argued to be languages in which overt movement of *wh*-phrases regularly occurs, the ellipsis of the clause containing the *wh*-phrase in sluices can be suggested to be directly facilitated by *wh*-movement and the evacuation of *wh*-phrases from their base-generated positions in the underlying copy of the antecedent clause. As additional support for such an assumption, one can usefully consider the derivation of non-sluiced equivalents to sluice constructions, in which no deletion of material matching that of a preceding clause has occurred. As seen in example (37a) from Bangla below, the *wh*-phrase *ki* 'what' must necessarily undergo movement from its base-generated position in the lowest clause to a position in the higher clause selected by *jani* 'know', where it can be licensed and also satisfy the interrogative selectional requirements of *jani*. Example (37b) shows that the non-occurrence of movement of the *wh*-phrase in the same structure automatically results in ungrammaticality. Overt *wh*-movement similar to that in (37a) can therefore naturally be

assumed to occur and to be necessary where the PF deletion of material repeated in a preceding clause occurs, i.e. sluicing:<sup>10</sup>

- (37) a. Mina bhabche je Ram kichu curi-koreche, kintu amra jani na  
Mina thinks C Ram something stole but we know not  
Mina ki bhabche [je Ram t<sub>i</sub> curi-koreche]  
Mina what thinks Ram stole  
b. \*Mina bhabche je Ram kichu curi-koreche, kintu amra jani na  
Mina thinks C Ram something stole but we know not  
Mina bhabche [je Ram ki curi-koreche]  
'Mina thinks that Ram stole something, but we don't know what Mina  
thinks that Ram stole.'

Ultimately then, the analysis of sluicing in Bangla and Hindi which would seem to be most clearly supported by patterns observable in the two languages is that sluicing has essentially the same kind of derivation as regularly suggested for languages such as English in Ross (1969), Merchant (2001), and Fox and Lasnik (2003), being driven by a combination of *wh*-movement and the deletion of a clausal structure paralleling the antecedent clause. Before we go on to consider how the movement assumed to occur in Bangla/Hindi sluices potentially interacts with various restrictions on movement in section 9.4, the final part of the present section will briefly consider how sluicing in Bangla and Hindi may also show certain differences to sluicing in English and other similar languages, and how these differences may possibly be accounted for.

### 9.3.3 *Distinctive properties of sluicing in Bangla and Hindi*

#### 9.3.3.1 *Complementizer deletion*

In sluicing constructions in many languages the application of clausal ellipsis following *wh*-movement to SpecCP results in the *wh*-phrase being the sole overt remnant of the elided clause, and it is this occurrence of across-the-board deletion of material in the sluiced clause which has in large part motivated the analysis of deletion of a single clausal constituent in sluicing (the IP/TP). Considering sluices in Bangla and Hindi, there is certain variation between the two languages with regards to full deletion of CP-internal material, specifically relating to the occurrence of overt complementizers in sluicing. In Hindi, there is a strong pressure for the complementizer *ki* 'that' to be overt in sluices and precede the *wh*-phrase as in (38). In Bangla, by way of contrast, overt use of the complementizer *je* in a similar position in sluices is felt to be quite unnatural and even ill-formed. Sluices are therefore commonly formed without *je* as in (39):

- (38) Ram-ne kuch ciiz cori-kii-thii, par mujhe nahii maluum \*(ki) kyaa  
Ram-ERG some thing stealing-did but me-OBL not know C what  
'Ram stole something, but I don't know what.'  
(39) Mini kau-ke biye-koreche, kintu ami jani na (\*??)je kake  
Mini someone-ACC marriage-did but I know not C whom-ACC  
'Mini married someone but I don't know who.'

The obvious question is how to interpret this variation in the occurrence of complementizers in Bangla and Hindi, and whether to assume that it reveals some difference in the underlying syntax of sluices in the two languages. We would like to speculate here that it

does, and that it may relate to a difference in the height of the landing-site of movement in Bangla and Hindi sluices. Considering Hindi first, the regular occurrence of *ki* before *wh*-phrases in Hindi sluices might seem to indicate that *wh*-phrases undergo raising to a lower part of the C-domain than that occupied by embedding complementizers, and to a *wh*-licensing position similar in height to the landing-site of *wh*-movement in Hungarian (also below an embedding complementizer, Kiss 2002).<sup>11</sup> Turning now to Bangla, because the complementizer *je* cannot co-occur with movement of a *wh*-phrase to the C-domain, we suggest this indicates that *wh*-phrases may regularly undergo raising to a higher part of the C-domain in sluices, and disallow the occurrence of *je* either due to a doubly-filled comp type violation or because the occurrence of a *wh*-phrase in the Spec of a C occupied by *je* would result in a clash of opposing features (+interrogative and +declarative). Raising of a *wh*-phrase to such a height might furthermore be expected to correspond to a form of topic-like interpretation being associated with the *wh*-phrase, and such an assumption is not implausible for sluice constructions, in which the indefinite antecedent of the *wh*-phrase first introduces a new entity in the antecedent clause, and the questioned reference value of this entity subsequently becomes the link-topic of the following (sluiced) clause. Because of such a topic-like interpretation being arguably open to the *wh*-phrase in sluices, this additionally often licenses and results in movement of the sluiced CP remnant to a higher topic position preceding the subject of the embedding clause, not only in Bangla, as illustrated in (40), but also in languages such as English and German, which otherwise do not readily permit the topicalization of *wh* elements:

- (40) gOto SOpata-e Mini kau-ke biye-koreche, kintu [<sub>CP</sub> [<sub>DP</sub> kake] ]<sub>i</sub>  
 amra jani na t<sub>i</sub>  
 Last week-DAT Mini someone-ACC marriage-did but  
 whom-ACC we know not  
 'Last week Mini got married to someone, but we don't know  
 who.'

- (41) John just got engaged to someone, but [<sub>CP</sub> [<sub>DP</sub> who] ]<sub>i</sub> we really  
 don't know t<sub>i</sub>.
- (42) Johann hat das Buch jemandem gegeben, aber [<sub>CP</sub> [<sub>DP</sub> wem] ]<sub>i</sub>  
 wissen wir gar nicht t<sub>i</sub>.  
 Johann has the book someone-DAT given but whom-DAT  
 know we not-at-all  
 'Johann gave the book to someone, but [<sub>CP</sub> whom] we really  
 don't know.'

This topic-fronting of the sluiced CP containing the *wh*-phrase is also possible in Hindi, and when it does occur, it is noticeable that the complementizer *ki* does not and cannot occur:

- (43) Sita-ne kisi-se Saadi-kii-thii, par [<sub>CP</sub> \*(ki) kis-se] (yeh) mujhe  
 nahii maluum  
 SitaERG someone-with marriage-did but C who-with it me-  
 OBL not know  
 'Mini married someone, but I don't know who.'

This may therefore suggest that when a *wh*-phrase is interpreted in a topic-like way in Hindi sluices, it actually undergoes raising to a higher position in the C-domain as in Bangla, causing deletion of *ki* and fronting of the CP unit to topic position in the higher clause.<sup>12 13</sup> Note that the potential occurrence of the resumptive expletive *yeh* should indicate that the entire sluiced clause is fronted here and not just the *wh*-phrase, as extraction of elements from within CPs is noted to be unacceptable when the clausal expletive *yeh* co-occurs with a CP (Mahajan 1990). Variation in the occurrence of complementizers in sluicing in Bangla and Hindi in both post-verbal and clause-initial positioning of sluiced CPs may consequently be useful and informative and potentially allow for a finer picture of *wh* raising to unfold (see also

van Craenenbroeck, this volume, for interesting discussion of *wh*-movement to different positions within the C-domain).

### 9.3.3.2 Subjects in sluiced clauses

A second issue which arises in regard to possible differences in sluicing in Bangla and Hindi is whether sluicing in these languages involves the deletion of a single clausal unit (e.g. TP), or the deletion of more than just a single constituent. A now widely-held assumption about sluicing in English and many other languages (Merchant 2001 and others) is that *wh*-movement to SpecCP makes it possible for the full residue of a clause to be elided in a single occurrence of deletion. This is because *wh*-movement in English-type languages commonly raises *wh*-phrases to a position higher than other elements in the clause. In Bangla, however, it is not uncommon for *wh*-phrases to undergo raising to a position which is lower than the position of the subject, as illustrated in (44):

- (44) JOn ke<sub>i</sub> bhabche [ t<sub>i</sub> cole gEche].  
John who think leave gone?  
'Who does John think left?'

If such a sequence were assumed to be the input to sluicing (within a larger structure), the question is whether there might need to be two operations of deletion, one eliding the clausal constituent below the position of the raised *wh*-phrase, and the second deleting the subject? Following on from this, supposing more than one constituent were to undergo necessary ellipsis in sluicing in certain languages, this would then call into question whether the occurrence of such obligatory multiple deletion might potentially weaken the common analysis of across-the-board deletion effects in sluices as resulting from the deletion of a single clausal constituent.

Concerning the first question, what is actually observed in Bangla (and Hindi) is that there is indeed necessary deletion of all material in the sluiced CP that would be a repetition of material in the antecedent clause, with the exception of the *wh*-phrase. Hence (non-*wh*) subjects in sluices must undergo ellipsis in the same way that other non-*wh* material does. In (45), for example, what is assumed to be present underlyingly in the sluiced, biclausal part of the structure is the sequence of words *Mina ki bhabche je Ram curi-koreche*, literally meaning 'What does Mini think that Ram stole?', when unembedded. In this sequence, the *wh*-element *ki* 'what' has undergone movement from its base position as the object of *curi-koreche* 'stole' in the lower clause to a position following the subject, which is assumed to be in a topic position in the higher clause. This post-subject/topic position is where the *wh*-phrase would naturally move to if the sequence were to serve as a non-sluiced direct or indirect/embedded question. When sluicing occurs, not only the clausal material following the raised *wh*-phrase is eliminated, but the pre-*wh*-phrase subject/topic is also necessarily left unpronounced/phonetically deleted, as shown in (45):

- (45) Mina bhabche je Ram kichu curi-koreche, kintu amra jani na  
Mina thinks C Ram something stole but we know not  
\*(Mina) ki ~~bhabche je Ram t<sub>i</sub> curi-koreche~~  
Mina what thinks C Ram stole  
'Mina thinks that Ram stole something, but we don't know what.'

It therefore may seem necessary to assume two separate deletion operations in such cases of sluicing, eliminating not just post-*wh* but also pre-*wh* material. In considering whether it is theoretically undesirable to allow for the occurrence of multiple operations of deletion within a 'single' instance of sluicing, it can be noted that such an issue is actually not confined to languages like Bangla and Hindi (and Turkish and Romanian as described in Ince and Hoyt and Teodorescu,

this volume), but actually also occurs in English in certain circumstances. For example, when the *wh*-element in a sluice is a possessor phrase 'whose', there is fairly automatic deletion of the NP which it qualifies, and retention of the NP is unnatural:<sup>14</sup>

- (46) Someone's car is on the lawn, but we don't know whose  
?(car).

As the NP possessee occurs in SpecCP, its deletion will constitute a second operation of ellipsis distinct from deletion of the TP clausal unit. Were it therefore to be necessary to concede the occurrence of potentially multiple, individual occurrences of ellipsis in sluicing for languages such as Bangla, Romanian, and other languages where raised *wh*-phrases are commonly preceded by certain other elements, this ultimately might not be so particularly unusual, as it may perhaps also be necessary to assume multiple constituent deletion (in certain circumstances) in languages where *wh*-phrases raise to the highest, leftmost position in a clause, such as English.

It can also be suggested that there may be other ways of looking at the application of ellipsis in Bangla and other similar languages, and that it may be possible to avoid the conclusion that sluicing involves multiple instances of deletion. This can be done by challenging the assumption that the input to sluicing is in all ways bound to resemble the form of a non-sluiced *wh*-question. In Simpson and Bhattacharya (2003), the frequent occurrence of a non-*wh* subject to the left of a raised *wh*-phrase in regular *wh*-questions is attributed to the subject occurring in a high topic position. Considering sluicing constructions, it might be reasonable to suggest that because everything (assumed to be) in the underlying structure of a sluiced clause is a repetition of material from the antecedent clause, it is all equally old material (with the exception of the *wh*-phrase), and no single non-*wh* element is distinguished as a topic. If this were to be so, it could be assumed that there is no necessary placement of other non-

*wh* material in topic-like positions preceding the raised *wh*-phrase and the *wh*-phrase would indeed naturally occur as the highest element in the clause in Bangla, allowing for single constituent deletion of all other elements in the residue of the clause, as is assumed to occur in English sluices. A parallel here can be drawn with English to illustrate this line of thinking. In spoken, colloquial English it is actually not uncommon to hear *wh*-questions produced with an initial non-*wh* topic-like element such as a frame-setting adverbial, as in (47):

- (47) Yesterday, what do you buy in that shop?

Because this kind of structure is possible, and because the antecedent clause to a sluice may occur with an adverbial in clause-initial position, one might perhaps be led to expect that an adverbial could precede a raised *wh*-phrase in the CP to be sluiced. This being so, one would in theory be faced with the same problem as in Bangla, that of explaining why elements assumed to occur in a pre-*wh* position must also undergo ellipsis along with post-*wh* material. (48) below indicates that an adverbial in pre-*wh* position is clearly unacceptable in sluices in English:

- (48) Yesterday John bought something, but we don't know  
\*(yesterday) what.

Here, as proposed above, it can be suggested that the potential occurrence of an element in pre-*wh* topic position in regular non-sluiced *wh*-questions does not necessarily mean that the same element can or necessarily should occur in a topic position within a sluice construction (where the *wh*-phrase itself may in fact be the event-participant most construed in a topic-like way), and it may be perfectly legitimate for such an element to be base-generated and built in some lower position within the clause. This theoretical possibility then provides a plausible way of preserving the view that sluicing is ellipsis

of a single, clausal constituent.<sup>15 16</sup> If this proves to be sustainable as a hypothesis, it may in turn suggest that sluicing in languages such as Bangla and Hindi is actually parallel to English in resulting from *wh*-movement and a single occurrence of across-the-board deletion of all material present within TP.

To sum up now what has been considered in this section as a whole, the aim of the section has been both to provide an initial characterisation of a range of basic properties of sluicing in Bangla/Hindi and to attempt to establish what kind of analysis of sluicing constructions would seem to be appropriate for Bangla/Hindi - one incorporating movement and clausal ellipsis, or alternatively the assumption of some kind of copula-centred structure with (potentially) no displacement of the remnant *wh*-phrase. Having considered a variety of copular and case-related patterns in the two languages, it was concluded that the observable evidence does not motivate an underlying copula (or reduced cleft) structure and instead points towards an analysis of sluicing in Bangla and Hindi much closer to the *wh*-movement and IP/TP-deletion analysis now widely assumed for languages such as English. If this is indeed correct and the most plausible interpretation of sluicing patterns found in Bangla and Hindi, a next, natural step in the investigation is to consider how common restrictions on (*wh*-)movement may apply to the movement of *wh*-elements in Bangla/Hindi sluices. This is now taken up as the subject matter of section 9.4.

## **9.4 Sluicing, Superiority and island effects**

The general assumption that sluicing is the result of *wh*-movement and clausal ellipsis creates the expectation that sluices should show the effects of restrictions on movement (for example, Subjacency, the ECP etc), and the issue of island effects within sluicing constructions has recently become a topic of considerable interest (Chung et al 1995,

Fukaya & Hoji 1999, Merchant 2001, Lasnik 2001, Fox & Lasnik 2003). To a significant extent the discussion has been centered on English, reference to certain other European languages, and Japanese. The goal of the present section is therefore (in part) to help broaden the areal coverage of descriptions of locality effects and sluicing with a consideration of sluicing into island constituents in Bangla and Hindi. To this we also add an investigation of Superiority and its potential effects in sluicing constructions, a topic which has not received as much attention as island phenomena in recent works on sluicing.<sup>17</sup>

### **9.4.1 Multiple *wh* sluicing and Superiority**

Ever since Chomsky (1973) multiple *wh* questions have been noted to be subject to restrictions on the way that raising of their *wh*-phrases takes place, with certain sequences of raised and in situ *wh*-phrases being fully acceptable and others quite ill-formed and exhibiting a 'Superiority effect'. Although initially a phenomenon observed in languages such as English where just a single *wh*-phrase undergoes overt movement, Superiority effects have now also been extensively documented for languages with multiple overt *wh*-movement, such as Bulgarian and Romanian (Rudin 1988, Bošković 2002, Richards 2001). If sluicing constructions are derived via multiple *wh*-movement in various languages, there is clearly an expectation that one might observe Superiority effects in some of these languages, this to some extent depending on how Superiority is understood to operate as a constraint. A common intuition present in many analyses of Superiority phenomena is that the acceptability of multiple *wh* questions requires that the *wh*-phrase structurally closest to an interrogative C be attracted to this C before other *wh*-phrases in its scope. Such an understanding of Superiority has however been formally stated in two rather different ways in recent years and is seen by some as a derivational constraint (Chomsky 1995) and by others as a constraint

on representations (Aoun and Li 2003). Concerning multiple *wh* sluices, these two modes of description can be noted to make slightly different predictions. If Superiority reduced to the Shortest Move/Minimal Link Condition is a constraint on derivations, then it is expected that violations of such a constraint during the syntactic derivation of a sluice construction will necessarily result in ungrammaticality, and multiple *wh* sluices will be expected to exhibit the same Superiority effects that are otherwise present in non-sluiced multiple *wh* questions. If Superiority is however a constraint on representations, it is possible that 'violations' of Superiority might allow for some kind of mitigation due to the special reduced form of representation that sluiced clauses have at Spell-Out/PF due to TP-deletion, as is suggested to occur in the case of various islands (Lasnik 2001, Fox and Lasnik 2003). Superiority effects are therefore not necessarily predicted to occur in multiple *wh* sluices under a fully representational view.

Turning now to consider multiple *wh* sluicing constructions in Bangla, it is found that Superiority effects do seem to occur, as illustrated in (49):

- (49) a. Mini-ke kal-rate keu kichu diyeche, kintu ami jani na [ke ki].  
Mini-ACC last-night someone something gave but I know not who what  
b.\*Mini-ke kal-rate keu kichu diyeche, kintu ami jani na [ki ke].  
Mini-ACC last-night someone something gave but I know not what who  
'Last night someone gave Mini something, but I don't know who and what.'

Such patterns might therefore be analyzed as violations of Shortest Move/the Minimal Link Condition, with the violation of such constraints not being mitigated by sluicing and clausal ellipsis, unlike the situation with island violations as discussed in Lasnik (2001), and Fox and Lasnik

(2003). However, we suggest that this is actually not the correct interpretation of the unacceptability of (49b) and other similar cases. In Bhattacharya and Simpson (2007), a general reconsideration of Superiority phenomena leads to the suggestion that Superiority effects are not the result of a purely hierarchical/structural restriction such as the Shortest Move Condition enforcing attraction of the highest *wh*-phrase to a +Q C before all other *wh*-phrases, but should instead be attributed to a representational constraint on the linear sequencing of information, which requires that the initial (first moved) *wh* in a multiple *wh* question be naturally open to construal as a focal centre of interest with a greater informational prominence than secondary/additional *wh*-phrases present in the question (hence essentially be more 'topic-like' than the other *wh*-phrases present). Where it is difficult to naturally construe the linearly initial *wh*-phrase as having such a property, for example when an inanimate bare patient 'what' is promoted over a +human agent 'who', Superiority effects are clearly perceived, but these are a function of the mismatch between relative focal prominence of *wh*-phrases and their positioning in a sequence of *wh*-phrases, rather than being due to the distance and timing of movement of the *wh* elements present. When factors such as relative animacy and prosody are carefully controlled for and speakers are guided to background contexts where (for example) objects can be credited with a greater natural salience than subjects, then Superiority effects are suspended from constructions that might be expected to have them on purely structural grounds. In sum, then, what is (suggested to be) critical for the licensing of multiple *wh* sequences (of either Bulgarian or English types) is that the hearer can construct a context in which the linearly initial *wh*-phrase is interpreted naturally as more of a topic and centre of interest than the remaining *wh* elements.

Multiple *wh* sluicing constructions, approached from such a viewpoint, are particularly interesting, and especially so in those languages referred to as 'discourse configurational languages' (Kiss 1995), where free word order permutations tend to mirror the



informational status of participants in a clause/event. In sluicing constructions, *wh*-phrases regularly have antecedents explicitly represented in a clausal structure which is assumed to correspond closely to the structure containing the *wh*-phrases. Consequently, an informational structuring and relative prominence relation may be regularly imposed on the antecedents of *wh*-phrases in the antecedent clause and guide hearers to assume that the same relative prominence relation should hold for the corresponding *wh*-phrases. In sluicing constructions hearers will therefore be led to assume that the relative prominence of DPs/PPs encoded in their linear ordering in the antecedent clause should normally be mirrored by a parallel ordering in the sluiced CP, and it may be less easy for hearers to accept a non-parallel sequencing of *wh* elements. These hypothesized properties of sluicing in languages with free word order now lead to two expectations which can be empirically investigated. The first of these is that it may be anticipated that Superiority effects will be felt more strongly in sluices than in non-sluiced multiple *wh* questions (which are not embedded in an explicit context), as the latter allow hearers more freedom to build contexts that will license *wh*-phrases in various linear orders due to the projection of different prominence relations among the *wh*-phrases. This expectation turns out to be generally correct in Bangla, and Superiority effects in sluices are considerably clearer than in non-sluiced multiple *wh* questions.

The second expectation raised by the above is that the availability of free word order might be used to build an ordering of elements in the antecedent clause of a sluice which would help license a (parallel) ordering of *wh*-phrases that technically 'violates' the Shortest Move Condition. For example, if the unacceptability of the *ki>ke* 'what<sub>object</sub>' before 'who<sub>subject</sub>' ordering in (49b) is due to it being a genuine violation of Shortest Move, the expectation is that such orderings should always be unacceptable. However, if the ill-formedness of (49b) is instead due to the difficulty of accepting bare 'what' as more focal and topic-like than 'who', then it might be

expected that a manipulation of the order of the antecedents to the *wh*-phrases in the matrix clause might render a what>who ordering in the sluice more acceptable. If scrambling (or some other type of movement) can be used to promote an object *kichu* 'something' over a subject *keu* 'someone' and present it as putatively more topic-like than a subject *keu*, this might have effects on the acceptability of a *ke>ki* ordering in the sluice, structuring a context that might allow for patient/theme *ke* 'what' to be interpreted as genuinely more of a centre of interest than agent *ke* 'who'. The results of investigating such a possibility are interesting and described below.

An initial attempt at switching the order of the antecedent DPs in the matrix clause and trying to copy this linear sequencing into the order of the sluiced *wh*-phrases does *not* appear to allow for the legitimate occurrence of *ke>ki* 'what'>'who' in the sluice, and a 'non-matching' *ki>ke* 'who'>'what' order is still necessary:

- (50) a. \**kichu keu curi-koreche, kintu ami jani na [ki ke]*  
something someone stealing-did, but I know not what who  
b. *kichu keu curi-koreche, kintu ami jani na [ke ki]*  
something someone stealing-did, but I know not who what  
'Someone stole something, but I don't know who and what.'

The resistance to a WH<sub>SUBJECT</sub> > WH<sub>OBJECT</sub> order therefore continues to be considerably strong and might be seen to support a Shortest Move analysis of Superiority in sluices. However, if the sluiced CP containing the *wh*-phrases is fronted to the topic position of the higher embedding clause, it is found that inversion of the sequencing of the antecedent DPs does have a very clear effect on the sequencing of the *wh*-phrases in the sluice, and a 'what'>'who' order becomes fully acceptable:

- (51) Mini-ke kichu kal rate keu diyeche,  
Mini-ACC something last night someone gave  
kintu [ki ke] amijani na  
but what who I know not  
'Last night someone gave something to Mini, but I don't know  
who and what.'

Note that the occurrence of a 'what'>'who' order in this pre-subject topic position is clearly dependent on the inversion of the antecedent DPs in the initial clause and is unacceptable as an ordering if there is no re-sequencing of the antecedent 'something' to a position before 'someone', hence it is not true that the occurrence of *wh*-elements in the pre-subject position is unconstrained:

- (52) \*Mini-ke kal rate keu kichu diyeche,  
Mini-ACC last night someone something gave  
kintu [ki ke] amijani na.  
but what who I know not  
'Last night someone gave Mini something, but I don't know  
who and what.'

Furthermore, if a linear sequencing of 'something'>'someone' occurs in the antecedent clause, this enforces the Superiority-violating 'what'>'who' order in the raised pre-subject sluiced CP, and a non-matching 'who'>'what' order is in fact not permitted:

- (53) \*Mini-ke kichu kal rate keu diyeche,  
Mini-ACC something last night someone gave  
kintu [ke ki] amijani na  
but who what I know not  
'Last night someone gave Mini something, but I don't know  
who and what.'

Such patterns therefore clearly support an approach to Superiority which allows for contextual prompts and the manipulation of information structure to license  $WH_{OBJECT} > WH_{SUBJECT}$  configurations and are unexpected in analyses which attribute Superiority effects to purely structural conditions such as Shortest Move. Reflecting on why a realignment of the indefinite antecedents permits a 'what'>'who' sequencing when the sluiced CP is fronted but not when it follows the verb, one possible explanation is that this relates to the rather different intonation possibilities open to *wh*-phrases in the two positions. In post-verbal, final position, *wh*-phrases in sluices are restricted in the level of stress they commonly bear, whereas in the pre-subject fronted position sluiced *wh*-phrases actually must occur with a significant degree of stress and also allow for slight pausing to occur in multiple *wh* sequences (which is not a natural intonation pattern for post-verbal multiple *wh* sequences). It is possible that the 'legitimization' of a bare inanimate 'what' as more focal and topic-like than a subject 'who' may require the use of special intonation patterns in conjunction with the re-sequencing of the DP antecedents, and such intonation is only naturally produced in the pre-subject position.<sup>18 19</sup>

Finally it can be noted that there is a second pragmatic way to influence the acceptability of 'what'>'who' sequences in sluicing constructions which further motivates an approach to Superiority which is not purely based on hierarchical structure. If an emphatic adverbial such as *Sotti* 'really' is used to qualify the verb of cognition which embeds the sluiced CP, it is found that either ordering of a bare *wh*-subject and *wh*-object are possible in sluices *without* movement of the sluice to pre-subject position, and also without any re-sequencing of the antecedent DPs.

- (54) Mini-ke kal rate keu kichu diyechē,  
Mini-ACC last night someone something gave  
kintu ami Sotti jani na [ke ki]/[ki ke].  
but I really know not what who who what  
'Last night someone gave Mini something, but I really don't  
know who and what.

This licensing effect of the introduction of the adverbial is interestingly also one which is sensitive to the linear ordering of the adverbial and the sluiced *wh*-phrases, something which may perhaps be a processing effect. If the sluiced CP containing the *wh*-phrases is fronted to the topic position of the higher clause and so precedes the adverbial *Sotti*, the licensing effect of the adverbial is lost and only the order 'who' > 'what' is possible, as shown in (55). For the special ordering of 'what' before 'who' to be possible and accepted by speakers, it therefore seems that *Sotti* has to be processed before the Superiority-violating *ki>ke* sequence.<sup>20</sup>

- (54) Mini-ke kal rate keu kichu diyechē,  
Mini-ACC last night someone something gave  
kintu [ke ki]/\*[ki ke] ami Sotti jani na .  
but who what what who I really know not  
'Last night someone gave Mini something, but I really don't  
know who and what.

Such a patterning is again rather unexpected for purely hierarchical analyses of Superiority phenomena, but less surprising for accounts which also accord an importance to the linear presentation of elements in a structure.

In sum then, the set of patterns observed above in multiple *wh* sluicing provide useful information and insight into the nature of Superiority, in part because of the effects that the antecedent clause and its manipulation can have on the sequencing of *wh*-phrases, and

also because of the ability of the *wh*-phrases contained in the sluiced CP to occur in different positions in the sentence and give rise to different Superiority effects accordingly (though maintaining the same relative sequencing of *wh* elements). Sluicing constructions may also show Superiority effects more strongly/clearly than non-sluiced multiple *wh* questions. Quite generally, the observation that Superiority effects can be overcome by the control of elements external to the CP constituent in which *wh*-movement occurs and by the positioning of the CP itself can be noted to be difficult to reconcile with analyses of Superiority which only focus on the movement of *wh*-phrases inside a CP and which characterise Superiority effects as the violation of a purely structural constraint computing the distance (and timing) of *wh*-movement. The variety of patterns attested in sluices instead provide important support and justification for a view of Superiority as an information structure restriction on the output of (*wh*-)movement, requiring that the linearly initial *wh* element in a multiple *wh* question be naturally interpretable as the primary focus of the question. By making use of the particular properties of sluicing constructions it is therefore possible to probe the underlying nature of a constraint regularly associated with movement and to identify patterns which pose an interesting challenge to established views, just as has similarly occurred in relation to island phenomena in recent years, as will be shortly discussed.

#### ***9.4.2 Sluicing and islands in Bangla and Hindi***

If sluicing constructions are frequently the result of operations of *wh*-movement applying within an underlying clausal structure elided at PF, a second natural expectation is that this movement would be island sensitive and not permitted out of configurations blocking other pre-Spell-Out extraction. An intriguing and interesting surprise about sluices in English and a variety of other languages is therefore that

sluicing often seems to be acceptable in structures assumed to contain islands prior to PF ellipsis. The reaction to such an unanticipated patterning in Lasnik (2001) and Fox and Lasnik (2003) has been to suggest that the apparent ability of *wh*-movement in sluices to violate regular locality restrictions is a function of the clausal ellipsis operation at PF; sluicing of the TP containing the path of *wh*-movement results in deletion of all illicit traces of *wh*-movement and so gives rise to the phenomenon of 'PF island repair'. Potentially in conflict with such a theory and the patterning which supports it, however, is Japanese, where sluicing has been argued to be island-sensitive and not permitted when the *wh*-phrase relates to a position within an island for movement (at least, when the *wh*-phrase is case-marked; Takahashi 1994, Fukaya & Hoji 1999). This fully opposite patterning in Japanese is genuinely puzzling and raises the question of why there should be a difference in languages with regards to the effects of PF ellipsis of island structures, and whether the occurrence of PF island repair might indeed be open to some kind of parametric variation. If it were to be so, one would certainly expect to find other languages with island-sensitive sluicing patterns similar to those described for Japanese, and so it is useful and important to expand the cross-linguistic depth of coverage of the interaction of sluicing with island configurations. As Bangla and Hindi have now both been argued to have sluicing constructions resulting from *wh*-movement and clausal deletion, they clearly have the potential to contribute to the issue of the (non)-occurrence of island effects in sluices. Typologically, Bangla and Hindi are also similar to Japanese in a number of ways, being pro-drop, case-marking, free word order languages with neutral SOVAux patterns, and so might perhaps be expected to show a similar island sensitivity in sluices to that reported for Japanese.

Considering first Bangla, it is found that island restrictions actually do *not* appear to affect sluicing constructions, and *wh*-phrases are free to relate to positions within the full range of island types in the (hypothesized) underlying structure. We illustrate this here with

examples of relative clause islands (55), co-ordinated DP structures (57), complex NPs (59), adjunct CPs (61), and *wh*-islands (63). As is shown in (56), (58), (60), (62) and (64), all such configurations are strong islands for non-sluced overt *wh*-movement/extraction. The patterning of island-related sluices in Bangla would therefore seem to further support the generalization based on languages other than Japanese that the effects of islandhood can be voided by PF clausal ellipsis. Note, furthermore, that case-matching effects are observed in the Bangla island sluices just as in non-island sluicing (see (57), (59), (61) and (63)):

Relative clause

- (55) ora Emon kaw-ke nite cay je kono Ek-Ta bharotiyo bhaSa  
bOle,  
they such someone-DAT take want who who one-CL Indian  
language speaks  
kintu amar mone nei, kon-Ta  
but I-GEN mind-in not-be which-CL  
'They want to hire someone who speaks an Indian language,  
but I don't know which one.'
- (56) \*ora [kon bharotiyo bhaSa] Emon kaw-ke nite cay je t<sub>i</sub> bOle  
they which Indian language such someone-DAT take want who  
speaks  
'\*Which Indian language do they want to hire someone who  
speaks?'

### Co-ordinated DP

- (57) ora [jonaki ebon onno ar-Ek-jon chatro-ke] Sahajjo korte  
ceSTa korlo,  
they Jonaki and another and-one-CL student-DAT help to-do  
try did  
kintu amar mone nei kake  
but my mind-LOC not-is who-DAT  
'They tried to help Jonaki and some other student, but I don't  
recall who.'
- (58) \*ora kon chatro-ke<sub>i</sub> bollo tumi [jonaki eboN t<sub>i</sub>] Sahajjo korte  
ceSTa korlo?  
they which student-DAT said you Jonaki and help to-do try  
did  
'\*Which student did they say you tried to help Jonaki and?'

### Complex NP

- (59) ami [Mina-r Sikriti je Jonaki kaw-ke bhalobaSe] biSSaS kori,  
I Mina-GEN acknowledgement C Jonaki someone-DAT loves  
believe do  
kintu ami jani na ka-ke  
but I know not who-DAT  
'I believe Mina's acknowledgement that Jonaki loves  
someone, but I don't know whom.'
- (60) \*tumi ka-ke<sub>i</sub> [Minar Sikriti je Jonaki t<sub>i</sub> bhalobaSe] biSSaS kOro?  
you who-DAT Mina-GEN acknowledgement C Jonaki loves  
believe-do  
'\*Whom do you believe Mina's acknowledgement that Jonaki  
loves?'

### Adjunct CP

- (61) Jonaki parTi cheRe cole gElo [karon Ek-jon otithi o-ke Opoman  
korlo],  
Jonaki party leave walk went because one-CL guest him  
insult did  
kintu o amake bollo na ke  
but he me-DAT said not who-NOM  
'Jonaki left the party because one of the guests insulted him,  
but he didn't tell me who.'
- (62) \*ora kon otithi<sub>i</sub> bollo je Jonaki parTi cheRe cole gElo  
they which guest said C Jonaki party from walk went  
karon t<sub>i</sub> o-ke Opoman korlo  
because him insult did  
'\*Which guest did they say that Jonaki left the party because  
(that guest) insulted him?'

### Wh-island

- (63) Jonaki bojhar ceSTa korche je kon chatro kono Ek SOmoSSa-r  
Somadhan  
Jonaki understand-GEN try is-doing C which student some one  
problem-GEN solution  
jane, kintu amader bolche na kon-Ta-r  
knows but us is-saying not which-CL-GEN  
'Jonaki is trying to work out which student knows the solution  
to some problem, but he's not telling us which one [which  
problem].'

- (64) \*Jonaki kon SOmoSSa-r<sub>i</sub> bojhar ceSTa korche  
Jonaki which problem understand-GEN try is-doing  
je kon chatro t<sub>i</sub> Somadhan korte parbe  
C which student solution to-do will-be-able  
'\*Which problem is Jonaki trying to work out which student will be able to do?'

Turning now to Hindi, an investigation of parallel patterns to the above, making use of the same data set with a range of linguistically sophisticated informants resulted in a surprising non-uniformity of judgements on the acceptability of sluicing with island structures, and considerable variation in reaction to the data presented. This ranged from rejection/non-acceptance of all attempts to build sluices incorporating island structures, through a middle ground of finding some but not other structures unacceptable, to a more general acceptance of the majority of island configurations in sluicing sentences. A subset of the data used to elicit judgements from linguist native speakers is given below in (65-69), with a % symbol marking examples which were acceptable to some but not other speakers:

#### Relative clause

- (65) %vo log kisi ek aadmii-ko nOkrii-dena-aahte hEN jo koi ek bhaartiya  
those people some one mane-ACC want-to-hire be C some one Indian  
bhaSa boltaa hai, par mujhe nahiiN maalum ki kOn-sii language speak be but me-DAT not known C which  
'Those people want to hire someone who speaks an Indian language, but I don't know which one.'

#### Adjunct CP

- (66) %mE-ne sunaa hE ki Sharma-ji bahut khuS honge agar Raam unkii kisi  
I-ERG heard be C Sharma-POL very happy be if Ram his some baccii-se Sadii-kar-le, par mujhe nahiiN pataa ki kis-se daughter-with marries but me-DAT not known C who-with  
'I heard that Mr. Sharma will be very happy if Ram marries one of his daughters, but I don't know which one.'

#### Wh-island

- (67) \*Raam pataa kar rahaa hai ki kOn-sii laRkii uskaa ek kamraa kiraaye-par-legii,  
Ram know do ASP be C which girl his one room will-rent par mujhe nahiiN maalum ki kOn-saa but me-DAT not known C which  
'Ram is finding out which girl will rent one of his rooms, but I don't know which one.'

#### Co-ordinated DP

- (68) %Un logoM-ne Raam Or ek laRkii se madad karne-ko kaha par mujhe nahiiN pataa ki kOn-sii but me-DAT not known C which  
'Those people asked Ram and one girl to help but I don't know which (girl).'

### Complex NP

- (69) %mE Minaa-kii yah baat maantaa huN ki Raam kisi se pyaar-kartaa hE,  
I Minaa's this word believe be C Ram someone-with love be  
par mujhe nahiiN pataa ki kis se  
but me-DAT not known C who-with  
'I believe Minaa's claim that Ram loves someone, but I don't know who.'

As indicated by the star in (67), sluicing involving a *wh*-island was felt to be unacceptable by all consulted. The adjunct CP and relative clause examples (65) and (66) were accepted or rejected by equal numbers of speakers, and complex NP and sentential subject structures were accepted more regularly than they were rejected.

At the present time, it is not fully clear how to interpret this variation in reaction to sluicing with island structures in Hindi. With regards to the unacceptability of similar forms in Japanese, Nakamura (this volume) raises the interesting possibility that this may be due to differences in the way that case is assigned in Japanese and English-type languages. Supposing there were to be a genuine difference between Bangla and Hindi in island-related sluicing, one might wonder whether this could then be related to differences in case assignment mechanisms in the two languages. However, although there are indeed certain differences in the case systems present in Bangla and Hindi, with Hindi case being somewhat more segmentable than Bangla (and hence more like Japanese in the relevant way), these differences do not seem substantial enough to us to justify significantly distinctive mechanisms of case assignment. In addition to this, it is not obvious how internal variation among speakers of Hindi would be naturally captured in such a case-based approach.

One potential clue to variation in the acceptance of island-sludging that may be more relevant and promising to consider relates to

the physical instantiation of the *wh*-phrase in the remnant clause in the Hindi examples, either the use of a bare *wh* form such as 'who/what' etc, or a 'which(-NP)' type phrase. When the latter were used, it was frequently reported that there was a clear preference for non-deletion of the NP complement, and if the elided NP part of such phrases were restored in various of the island violation cases such as (65) and (68), this resulted in a marked improvement of their acceptability. This suggests that the unacceptability of sluicing with islands in at least certain instances may be a parsing-like difficulty some speakers experience in recovery of the reference of the *wh*-phrases; when the *wh*-phrase is more explicitly specified, its link to the antecedent is more easily established. Note that 'which' in Hindi is actually inflected with gender features, and Bangla bare 'which' (where the NP is elided) regularly occurs with a classifier attachment. Both of these specifications has the potential to provide (what one might expect would be) unambiguous clues to the reference of the antecedent of the *wh*-phrase. However, possibly the gender specification in Hindi is not perceived as salient enough when the antecedent of a *wh*-phrase is embedded in the more complex surrounding structure of an island configuration, and retention of the NP complement is required to fully disambiguate the linking. A related preference for 'which-NP'-forms over bare *wh*-phrases such as 'who/what' was also attested in island-related sluicing in the investigation of Hindi and is paralleled by similar preferences in English sluicing with islands, as illustrated in (70b), where the antecedent of the *wh*-phrase is contained within a relative clause island:

- (70) a. Bill just criticised one of the teachers, but I don't know who.  
b. I just talked with someone who knows one of your teachers, but I can't remember ?who/which teacher.

If there is certain variation among speakers in the way that *wh*-phrases are naturally linked to syntactically legitimate antecedents (in

Hindi this possibly being related to the salience with which clues such as gender-marking are perceived), this may allow for the beginnings of an account of the variation perceived within Hindi in cases of sluicing with island constituents.<sup>21</sup> The natural question following on from this is whether *all* cases of island-slucices classed as unacceptable might ultimately be reduced to a recovery problem or not?

Supposing that it were to be so, it is then tempting to wonder whether certain other cross-linguistic cases of apparent island violations with sluicing might also be reduced to issues of recoverability, with three cases in particular suggesting themselves here. First of all, there is the recovery of the content of 'implicit correlates' (Merchant 2001), which is noted to be easily made in non-island environments, but not possible in island configurations.<sup>22</sup> Secondly, there is the recovery of the attachment-site of *wh*-adjuncts in the antecedent clauses of sluices in Japanese (and possibly other languages): Nakamura (this volume) notes that sluiced *wh*-adjuncts cannot be interpreted as relating to positions within an island configuration in the antecedent clause, and this locality restriction is not the result of the case-assignment mechanism proposed in the chapter, which only imposes a locality restriction on *wh*-arguments. Thirdly, there is the linking of *wh*-adjuncts in sluices in Chinese to positions in an antecedent clause; in Wei (2004) this is described as not being possible to positions within preceding island structures. However, no *wh*-movement is assumed to occur in the construction of Chinese sluice-type constructions, and hence the locality restriction on adjuncts must be given some other kind of explanation.

Furthermore, variation in the acceptance of sluicing with islands such as that encountered in the investigation of Hindi is actually not so fully absent from other languages regularly discussed in the literature. Although English is now commonly described as not showing island effects in sluicing constructions, when sluicing in English was originally considered in Ross (1969), it was suggested that it was in fact constrained by syntactic islands.<sup>23</sup> Conversely, with regard to Japanese,

although Fukaya and Hoji (1999) present case-marked sluicing in Japanese as being regularly unacceptable with island structures, Fukaya (2003) notes that various speakers report different judgements and find island-related sluicing of the type discussed to be actually quite acceptable.

All the above seems to highlight the need for careful control of the data and for further testing to discover whether the unacceptability reported in various instances of island-slucicing is due to real syntactic differences among languages, or is alternatively a non-syntactic artefact of the data, perhaps arising from added complications in the information structure present in more complex syntactic configurations. With regards to the situation in Hindi, this will have to be the target of a future investigation which focuses specifically on islands, and cannot be resolved here.<sup>24</sup> We will therefore have to leave the jury currently out and in need of further evidence before being able to reach a solid verdict on the sensitivity of Hindi sluicing to syntactic islands, and whether this would in turn result in a real difference to the patterning in Bangla. If a rigorous further probing of Hindi confirms that island restrictions are indeed present in the language but remain absent from Bangla, what would then seem to be required is a wider, careful survey of Indo-Aryan languages to determine how these might vary with regard to the presence/absence of locality restrictions in sluicing, and whether it may be possible to systematically relate this to other properties found in such languages. With such a future call to arms, we now close the present chapter with a brief summary of progress made in the course of this study of sluicing in Bangla and Hindi.

## **9.5 Concluding remarks**

The aim of this investigation was to build up an understanding of the way that sluicing constructions are derived and syntactically structured



*Sluicing in a cross-linguistic perspective*, edited by Jason Merchant and Andrew Simpson, Oxford University Press (to appear)

in Bangla and Hindi as a step towards incorporating such languages in wider debates on cross-linguistic properties of sluicing. Viewed from a traditionalist perspective, Bangla and Hindi are both *wh* in situ languages and so are not obviously expected to exhibit sluicing on the assumption that this requires operations of *wh*-movement. Reconsidered in a rather different way, however, and following Simpson and Bhattacharya (2003), Bangla and Hindi can actually both be argued to exhibit overt *wh*-movement in regular *wh*-questions, and therefore might well be expected to license movement-derived sluice constructions. The chapter also carefully examined a number of alternative possibilities, suggested to be instantiated in sluices in other '*wh* in situ' languages, but demonstrated that such potential analyses would not be consistent with observable language-internal properties of Bangla and Hindi. It was therefore concluded that the most plausible analysis of sluicing in Bangla/Hindi is indeed that it is produced, as in English and many other languages, by a sequence of *wh*-movement and PF ellipsis of a clause broadly isomorphic in structure to that of the antecedent clause. Such a conclusion then naturally led to an examination of how various constraints assumed to restrict (*wh*-) movement interact with sluicing constructions. Considering the case of Superiority first, it was argued that Superiority effects are in fact the result of an output constraint on the linear sequencing of *wh*-phrases rather than a hierarchical restriction on the attraction of *wh*-phrases to Comp, and that various of the properties of sluicing constructions in particular can be used to demonstrate this, with interesting variation in Superiority effects appearing in topicalized and post-verbal positions of sluiced CPs. Finally, the chapter examined how the introduction of island constituents into sluicing constructions may have effects on their well-formedness, and detected intriguing differences in reactions to island-sluices in Bangla and Hindi. While further exploration now seems to be necessary to ascertain the real loci of variation within Hindi, this first pass at Hindi and Bangla suggests that the study of

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sluicing and islands has the potential to be a highly interesting area of future comparative research within the Indo-Aryan group of languages.

## Notes

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<sup>1</sup> The following symbols are used to represent certain sounds in Bangla and Hindi: T, D, R represent retroflex /t/, /d/, /r/. S is palato-alveolar /s/. N is a velar nasal. M is nasalization. E is an open mid front vowel, O is an open mid back vowel.

<sup>2</sup> Hindi does however allow the construction of *wh*-questions with *wh*-expletives as an alternative to *wh*-fronting, as in (i) below. For analyses of *wh*-expletive questions in Hindi see Mahajan 1990, Simpson 2000, Lahiri 2002, Manetta 2010, among others.

(i) Raam-ne kyaa socaa [ki kOn aayaa hE]

Ram-ERG Q thought that who come has

'Who did Ram think has come?'

<sup>3</sup> (5c) is acceptable only if the first *wh*-phrase (*kOkhon* 'when') is interpreted as originating in the matrix clause and refers to the time of 'thinking' rather than 'buying'.

<sup>4</sup> The occurrence of sluicing in Hindi is also noted and illustrated in Merchant (2001) in the presentation of sluicing patterns from a wide range of languages.

<sup>5</sup> There have been certain suggestions that some multiple *wh* sluicing may be possible in English, but there is much disagreement on the acceptability of the data. Even in instances where it is argued that multiple sluicing may be acceptable, it is noted that there are very special restrictions which do not apply in languages that regularly allow for multiple *wh* sluicing (for example, the second *wh*-phrase must be a PP and cannot be a regular DP argument, as noted in Lasnik 2006). This suggests that structures which appear to be multiple sluicing in English are actually formed by quite a different process from those in other languages.

<sup>6</sup> Note that Fukaya and Hoji 1999 examine both types of copula-related sluicing analysis mentioned here, and suggest that both are in fact made use of in Japanese.

<sup>7</sup> It should be added that occurrence of the copula *chilo* in (18) may be felt to be a little unnecessary and a present-tense null copula may even be preferred. However, (18) is at most a little over-specified and in strong contrast to (19)

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and (20) which are clearly ungrammatical and contain case forms which cannot be produced by the syntactic structure/components of the sentence.

<sup>8</sup> Note that in the absence of overt clues indicating a non-elided null/overt copula structure (such as the presence of pronouns), there seems to be a considerably strong pressure in Bangla for matching of the covert structure of the embedded clause containing the *wh*-phrase in (24-26) with that of the 'antecedent clause' resulting in use of a case-form of the *wh*-phrase which corresponds to the case-form of the indefinite antecedent DP (i.e. a considerable pressure for isomorphic sluicing). In theory, one might expect that examples such as (24-26) would actually be acceptable with a nominative case-form *ke*, produced by the combination of a null copula and a null pronoun/pro in place of an overt *Se* 's/he'. However, such a hypothetically available form does not seem to be tolerated, and where there is no overt pronoun present forcing the assumption of an underlying null copula structure, speakers automatically require case/P-matching and the projection of an isomorphic sluiced structure.

<sup>9</sup> The multiple *wh* sluices in (27) and (28) are instances in which the indefinite antecedents of the *wh*-phrases both originate in the same clause. In Japanese multiple *wh* sluicing it has been suggested (Takahashi 1994) that there may be a clausemate condition on multiple *wh* sluicing, requiring the indefinite antecedents of *wh*-phrases to be base-generated in the same clause. The effects of a similar restriction in Bangla are quite interesting to observe. In Bangla, a bi-clausal structure such as in (i) with an indefinite DP/PP in the higher clause and a second indefinite DP/PP in the lower, embedded clause can only serve as the antecedent for a single *wh* sluice structure, which indicates that a clausemate restriction on multiple *wh* sluicing does indeed hold in Bangla. However, such a restriction can interestingly be overcome by raising the indefinite in the lower clause to a position in the higher clause adjacent to the first indefinite, focusing the two indefinites in the same clausal position, as illustrated in (ii):

- (i) tumi **kawke** bolle [je bacca-Ta **kichu** curi-koreche], kintu ami jani na kake (\*ki)  
you someone told C child-CL something stole but I know not whom what  
'You told **someone** that the child stole **something**, but I don't know whom.'
- (ii) tumi **kawke kichu** bolle [je bacca-Ta ~~kichu~~ curi-koreche], kintu ami jani na kake ki  
you someone something told C child-CL stole but I know not whom what  
'You told **someone** that the child stole **something**, but I don't know to-whom what.'

Note that a *wh*-phrase in a non-multiple *wh* sluice is able to refer back to an indefinite antecedent in an embedded clause, so it is not the depth of embedding of the second indefinite in (i) which disallows its participation in sluicing, rather it is the separation of the two indefinites in different clauses.

<sup>10</sup> If movement of a *wh*-phrase to the left periphery is what critically permits PF deletion of the TP part of a clause in sluicing, it might be expected that the movement of other non-*wh* elements to similar left-peripheral positions might also allow for a non-*wh* equivalent to sluicing – 'stripping' (Fukaya and Hoji 1999). In particular, focus-movement of DPs and PPs might be anticipated to provide a possible input to TP-deletion and the creation of non-*wh* 'sluices', as discussed in Hoyt and Teodorescu (this volume). This does indeed seem to be possible to a certain extent in Bangla and also in English, though there are signs that it is more restricted and less automatic in its application than regular *wh* sluicing. Examples (i) and (ii) show relevant patterns in Bangla with a 'sluiced' DP and PP following the verb *bolna* 'to say':

- (i) keu Mini-r kOmpiuTar-Ta curi-koreche, ebong ma bollen ProkaS  
someone Mini-GEN computer-CL stole and mother said Prakash  
'Someone stole Mini's computer and mother said (it was) Prakash.'
- (ii) ei-matro masTar-mOSai karo Songe kOtha-bolchilen. ProkaS bollo Mini-r Songe.

just now teacher someone-with was-speaking Prakash said Mini-GEN with  
'Just now the teacher was talking with someone. Prakash said with Mini.'

With regard to English, Hoyt and Teodorescu indicate that the attempted sluicing of non-*wh*-phrases is regularly ungrammatical. However, there are in

fact many instances where it can legitimately occur. What seems to be critically necessary is that there is some potential focus on the remnant XP, and that no overt complementizer occurs. The examples below are modifications of examples given by Hoyt and Teodorescu with deletion of the complementizer present in their examples:

3. Its true that many people voted for Blair, but I don't think EVERYONE.
4. Sue just left with someone, but I don't think with YOUR date.
5. Carmen wants to buy herself a car, and I suspect PRETTY SOON.

The no-overt-complementizer restriction may perhaps be understood to be a result of the doubly-filled Comp filter, if focused XPs in English non-*wh* sluice constructions undergo raising to SpecCP rather than a focus position following C (which might otherwise be presumed on the basis of rather stylistically-marked literary English examples such as '?John thought that liberty they would not achieve.').

<sup>11</sup> It might also be possible that *wh*-movement in Hindi takes place to the vP edge, as suggested in Manetta (2010), rather than a lower part of the C-domain. More precise information on the location of the subject and certain other pre-*wh* elements in Hindi is necessary before it can be concluded how high in the clause *wh*-phrases are actually raised to.

<sup>12</sup> The suggested sequence of *wh*-raising to a high topic-like position within the sluiced CP followed by pied piping of the CP to a higher clause topic position is similar to operations of focus-movement and clausal pied piping in Basque (Urbina 1990). In Basque it is frequently found that an element may first undergo focus-movement to the clause-initial SpecCP focus position in an embedded clause, and then trigger pied piping of this CP to the SpecCP focus position of a higher clause. One focus-driven movement therefore results in a second focus-related movement of a larger clausal constituent. See Urbina (1990) for examples and further discussion of this sequencing of movement.

<sup>13</sup> The non-occurrence of the complementizer *ki* (and Bangla *je*) here can be noted to be in marked contrast with the observation that fronting of a CP in English requires the necessary occurrence of a complementizer *that* which is otherwise quite optional in its occurrence:

- (i) [\*(That) John is not coming], I simply don't believe.

<sup>14</sup> If the NP is retained, then focal pitch on *whose* has to be significantly increased and the NP must be fully destressed: '...but we don't know WHOSE car. However, simple deletion of the NP would seem to be the much more common strategy that speakers employ.

<sup>15</sup> Another possibility for languages such as Bangla would be to suggest that the subject is realized as a *pro*, and so syntactically present but phonetically null.

<sup>16</sup> In order to eliminate the assumption that raised possessor-*wh* cases such as (46) require a second application of deletion in sluicing, it may be possible to suggest that the *wh* constituent 'whose' is extracted from the DP in its TP-internal position, and this does not result in a Left Branch Condition violation due to island repair effects from the PF deletion of offending traces (Lasnik 2001, Fox and Lasnik 2003). The NP residue of the DP remnant could then be deleted as part of the TP and only one instance of constituent deletion would occur in the sluice.

<sup>17</sup> We are actually not aware of any other studies of Superiority phenomena in sluice constructions, though it is possible that these exist somewhere in the literature.

<sup>18</sup> A similar observation about the effect of prosody on Superiority violations in English is made in Bhattacharya and Simpson (2007), and may well be relevant for German too, as noted in footnote 18.

<sup>19</sup> Interestingly, a pattern very similar to that described here in Bangla is found in German. German is a language in which Superiority effects seem to be largely absent. However in multiple *wh* sluices, Superiority effects are actually felt very clearly, as illustrated in (i).

(i) Gestern hat Hans jemandem etwas besonderes gegeben,  
yesterday has Hans someone<sub>DAT</sub> something special given  
aber ich weiss nicht wem was/\*was wem  
but I know not whom what what whom  
'Yesterday Hans gave someone something, but I don't know whom  
and what.'

Here if topicalization of the indefinite object *was* 'what' is employed to try to promote its interpretation as more focal and topic-like than *wem* 'whom', this

is not sufficient to license a *was>wem* order in the post-verbal position (as in Bangla). However, topicalization of the object combined with fronting of the sluiced CP does allow for such an order to occur:

(ii) Etwas besonderes hat Hans gestern jemandem gegeben,  
something special has Hans yesterday someone<sub>DAT</sub> given  
aber [was wem] weiss ich gar nicht  
but what whom know I at-all not  
'Yesterday Hans gave someone something, but I don't know whom  
and what.'

This patterning is fully parallel to that described for Bangla, and also seems to be licensed by different intonational properties of the post-verbal and topicalized position of the sluiced CP. Many thanks to Joachim Sabel for helpful discussion of the German data here.

<sup>20</sup> In terms of its contribution to the meaning of the sentence, the use of *Sotti* seems to result in a highly non-d-linked interpretation of the *wh*-phrases, indicating that the speaker has no idea of the identity of the item given and the person given to. This is interesting because it is often suggested that an *increase* in the d-linked interpretation of *wh*-phrases can lead to Superiority violations being overcome (Pesetsky 1987). Here, however, the opposite effect appears to be attested, and the highlighting of specifically non-d-linked interpretations of *wh*-phrases seems to allow them to licitly occur in a Superiority configuration.

<sup>21</sup> To some extent, the situation could be likened to the occurrence of *pro* in a Rizzi (1986)-like approach, where there is an important distinction in the licensing and recovery of the content of *pro*. The sluicing of island structures might be licensed by syntax and PF deletion, but be perceived as unacceptable due to a failure to successfully link a *wh*-phrase with its intended antecedent and so recover the potential content of the *wh*-phrase.

<sup>22</sup> Examples of the use of implicit correlates in sluicing, also given in Potsdam (this volume), are:

(i) She's reading, but I can't imagine what.  
(ii) \*Kim knows the person who was reading, but she won't say what.

<sup>23</sup> Though sluicing constructions involving islands were characterized as being less ungrammatical than their non-sluced counterparts, typically with an unacceptability ranging from '?' for Complex NP Constraint violations, through '??' for Co-ordinate Structure and Sentential Subject Constraint violations to '\*' for Left Branch Condition violations (Ross 1969, examples (71)-(74).

<sup>24</sup> However, initial signs are that issues of recoverability will not be the appropriate way to attempt to explain all cases of perceived unacceptability in Hindi island-slucices, and the clear ill-formedness of sluicing with *wh*-islands in particular seems to suggest that syntactic locality principles are being violated in such configurations.