Tanmoy Bhattacharya

Optionality and Variation in Agreement in some Participles in Hindi-Urdu

Abstract: Optionality in participial agreement in Hindi was noted in Kachru (2006: 163), where an adverbial participle may optionally agree with the subject NP in number and gender if the NP is in the direct case. For the present paper, I expand this observation further and demonstrate the existence of extensive (syntactic) variation in participial agreement in Hindi with data that has not been reported or analyzed in the literature. In the case of relative participles, where Kachru did not report any variation, the range of judgments indicates a general reluctance of the number feature to be available too low in the structure; this becomes apparent if we use an object relative in these constructions; the optionality in participial subject agreement that Kachru captured seems to take place in the case of participial object agreement as well. For the complex adjectival/ adverbial adjuncts, though Kachru (2006) reported variation by one factor, the extent of variation is found to be much wider. The judgments on these variants indicate that the feature of person seems to be available high up in the clause and gender lower down but it is number that hovers in between. This is in line with the general observation that participle agreement is with number and gender and never with person, unlike subject agreement in general – another reason why this type of agreement should be seen as different from (subject) argument agreement on verbs. Theoretically, the findings indicate that the trigger for the number agreement cannot be lower than at least the main clause aspectual head. The paper proposes three distinct syntactic operations – valuation, relaying, and copying which, together with standard Agree applying top-down, derive the full range of the results obtained.

Keywords: Participles, Agreement, Optionality, Hindi-Urdu

Tanmoy Bhattacharya, Department of Linguistics, University of Delhi, Delhi, 110007, India.
Email: tanmoy1@gmail.com

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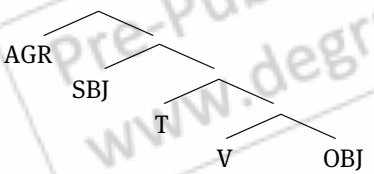
1 Introduction

This paper is about the role of variation in grammar in general and microvariation in particular (section 3). The discussion in the first three sections broadly problematizes agreement studies in general by pointing out the somewhat skewed development in the area, setting the stage for looking at variation within participles (section 2), and then engaging in specific discussion about variation in the context of Hindi-Urdu participles. Thus, all these three sections work towards contextualizing the problem at hand.[1]

The data on Hindi-Urdu participial agreement is presented in section 4. In section 5, I present the speaker variation in judgments on agreement across the two relevant data-sets – participial relatives and adjectival/ adverbial participial adjuncts; section 6 provides an analysis of the variation data and section 7 concludes.

In the familiar structure of a clause within the generative framework, for various reasons, Agreement was thought to deserve a place, and a new head called AGR found a place in the tree in its own right (see (1) below), which was crucial in obtaining agreement (and case). Soon, however, it was realized that there should be two of them, not one, the latter being a reflection of the research energy being spent mostly studying languages showing the single argument agreement phenomenon, that is, agreement with the subject.

(1)



Just to elaborate on this point a little, take a look at the world according to WALS (World Atlas of Language Structures, Siewierska 2013), looking at only 378 languages, where person marking on the verb is depicted (in the legend in the inset) in Figure 1. The color that dominates this map here is black, which stands for languages showing both agent and patient argument agreement, roughly the

1 The discussion in these sections also points to a certain hegemonic approach towards the study of agreement in particular (and maybe syntax in general), which indicates the existence of a much larger problem in the discipline that continues to remain unaddressed.

verb showing both subject and object agreement marking.[2] Double or multiple agreement therefore seems to be the more common strategy, yet the little history of theoretical linguistics (or more accurately, syntax) that is related to the above through clause structure is dominated by the grey triangles in the map; that is, languages with agreement with only the subject, with the area marked out on the map showing the concentration of Romance and Germanic languages. However, this sample suggests that by far most languages that show agreement also show multiple-argument agreement (>51%).[3]

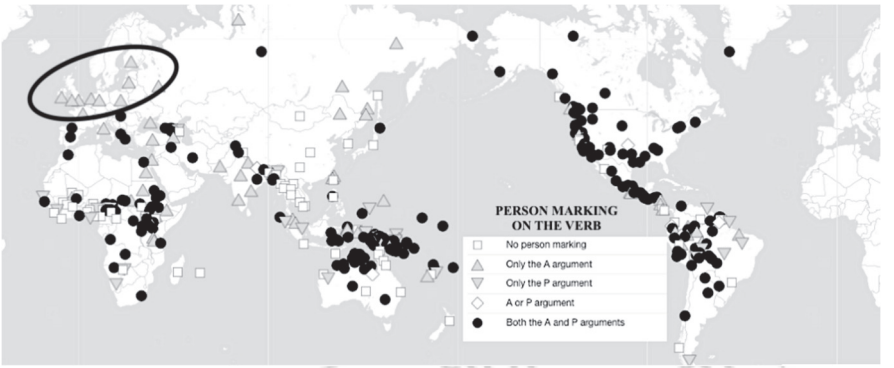


Fig. 1: Map showing person marking on the verb (WALS: Siewierska (2013); http://wals.info)

In Bhattacharya (2016), I tried to show that a group of languages that evolved from Māgadhi Prākrit, namely, languages such as Maithili, Magahi, Angika etc., that are different from languages that evolved from Sauraseni Prākrit, namely, Hindi-Urdu, are multiple-argument agreement languages; making these groups of languages parametrically different from Hindi-Urdu in certainly this aspect of agreement, calling for a different theoretical explanation for the phenomenon. Bhattacharya (2017a,b, 2018b) shows that in the Munda group of languages, at least in the Kherwarian or North Munda languages like Mundari, Santhali and Ho, a different phenomenon of pronominal cliticization obtains where both the subject and the object pronominals cliticize on to the predicate (and/or a pre-

2 Equating Agent/ Patient with Subject/ Object is problematic, but this is supposed to be a rough equivalence to make essentially the point that one type of languages is preferred over another.

3 Although counting is not crucial for making a certain syntactic theoretical move (I thank an anonymous reviewer for pointing this out); but the point remains that multiple agreement languages are rarely showcased as typical exemplars of the phenomenon of agreement.

verbal element). This phenomenon, being different technically from agreement, requires a different theoretical treatment. In Bhattacharya (2018a) and Bhattacharya and Sharma (forthcoming), this observation was extended to the agreeing Tibeto-Burman languages across the Himalayan region (including Nepal) and southern Chin languages in Mizoram. Apart from these being micro-parameters across a contiguous belt extending eastward from the foothills of the Himalayas to Burma, verb-indexation and/or agreement with more than one argument seems not to be that uncommon even within South Asia. Again, syntactic accounts of agreement within the context of at least languages in India have been dominated by studies on Hindi-Urdu, a "sin" I am going to partake in in this paper.

In short, historically, the minority agreement pattern, that is, single-argument agreement, has exerted the most theoretical push in the domain of agreement.

In spite of the limited sample, it is still the case that between the subject and object, subject agreement (19%) is more common than object agreement (6%). Thus, it is no surprise that object agreement in fact makes its entry into generative grammar in the historically important year of 1989, the year of many new proposals and innovations (Bhattacharya 2015–2016 is an account of the importance of that year) – Kayne, Pollock, Chomsky, and Mahajan all made important contributions that year, which could therefore be hailed as the year of agreement since all the four papers make significant contributions to a revision in the clause structure as shown in (1) above in terms of the AGR head(s).

To begin with, there was one AGR node inserted, for the reasons discussed above.[4] Kayne (1989) and Mahajan (1989) are crucially significant in this connection; it can be said that the need for a second AGR projection in the clause was proposed by Kayne and well-supported theoretically (and empirically) by Mahajan. The data for both of these works were based on object agreement of sorts, past participial agreement in French for Kayne, and object agreement in Hindi-Urdu for Mahajan. The proposal for a second AGR position lower in the clause can be termed the Kayne-Mahajan Hypothesis (KMH). In passing, it may also be mentioned that Kayne's (1989) analysis is the basis for the SPEC-HEAD technology that was soon widely adopted.

4 In the original proposal by Pollock (1989), the AGR head follows the T head (i.e. T>AGR) but it was soon accepted that the AGR>T order is supported by the Mirror Principle (Baker 1985) and arguments in Belletti (1990). Morpheme order in languages bear this out, for example, *dekh-e-ch-il-am* '(I) had seen' in Bangla, that is, V-ASP-AUX-T-AGR; Chomsky (1995) therefore adopted the AGR>T order.

Participial agreement in Romance is significant in the context of KMH. However, participial agreement in the context of South Asian languages still awaits a complete syntactic treatment. How does participial agreement in these languages line up with the agreement story so far? The current paper is a very initial attempt at finding a theoretical grip on participial agreement in Hindi-Urdu; although participial agreement has been noted in agreement accounts of Hindi-Urdu, most notably in Mahajan (1990) (but also Bhatt 2005, Bhatt and Walkow 2013, and Bhatt and Keine 2017 – the latter discussed further in section 3 in the context of syntactic microvariation), it has been done so far only in passing.

At present, this paper is only a partial account of the participial agreement phenomenon, even while staying within the syntax of participles. However, the paper does not attempt to compare the various characteristics of participial agreement in other languages from other language families within South Asia and outside with the Hindi-Urdu facts, with one exception. This exception highlights the issue of variation that is found in the domain of participial agreement. Is there a theoretical reason for this variation? And how should a formalist look at variation to begin with?

Theoretically, past participle agreement in Romance and other languages was a demonstration of the relation between movement and agreement – it is only the movement of the object that triggers agreement on the verb (see 2 and 3 below). However, as pointed out in Longenbaugh (2018), the dependency between movement and agreement could not be sustained since agreement "at a distance" was shown to operate in many languages. The challenge Longenbaugh (2018) sets up is to account for movement-related agreement and long-distance agreement in general. However, in this paper, I will show that a further challenge is to account for participial agreement itself being "at a distance".

2 Participial Agreement in Romance

Kayne (1989) noted that past participles in French optionally agree with an object clitic or a wh-construction instead of the subject. However, he not only noted that this agreement is different from the usual subject agreement but also that this agreement is optional. Thus Kayne's (1989) contribution can be stated as not only proposing a second AGR head in the clausal spine but also showing that it is different from the high AGR head, in addition to a theoretical account of the optionality of participial agreement. The fact that the lower and the upper AGR heads differ can be the basis for marking them differently, as AGR_S and AGR_O, although in Chomsky (1995), these same two heads are considered syntactically identical

barring their syntactic position. In Chomsky (1995), these heads are where agreement and case of the subject and object respectively are established via the checking mechanism established through SPEC-HEAD relation, as was the proposal in early Minimalism. This uniformity, which is much celebrated for obvious reasons, is, from this perspective, misplaced. In fact, as was pointed out in Belletti (2001, 2006), past participle agreement in Romance is achieved through a low Agreement position headed by AgrPstPrt, different from the AGR position responsible for case and agreement on the object.

Kayne (1989) presented two basic types of optional object agreement in past participles in French; these are shown in (3) and (4), compared with (2) which shows no agreement:

Object in-situ: no agreement

(2) *Paul a repeint/*es les chaises*
Paul has repainted/*PL the chairs

Object as a clitic: optional agreement

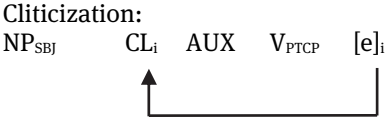
(3) *Paul les a repeintes/ repeint*
Paul them has repainted

Wh-object: optional agreement

(4a) [*les chaises que*] *Paul a repeintes/ repeint*
the chairs that Paul has repainted
(4b) [*combien de tables*] *Paul a repeintes/ repeint*
how many of tables Paul has repainted

To summarize the data, agreement with the object takes place in French participles only when the object moves from its base position across the participle; however, this agreement is optional. Note that therefore we get a non-canonical order (SOV) in the object agreement configuration. The object movement to the left in these examples can be schematized as in (5).

(5a) Cliticization:



(5b) Wh-movement:

Kayne's suggestion is that the agreement between the moved clitic/ Wh-object is mediated by a lower AGR position in the clause:

(6) NP_{SBJ} CL_i AUX $[e]_i$ AGR V_{PTCP} $[e]_i$

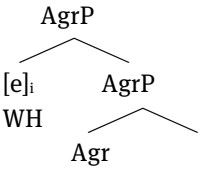
According to Kayne, the optionality in agreement observed is dependent upon the movement path, which can be shown as follows in terms of (7a) or (7b):

(7a) NP_{SBJ} CL_i/WH_i AUX $[e]_i$ AGR V_{PTCP} $[e]_i$

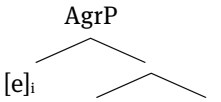
(7b) NP_{SBJ} CL_i/WH_i AUX [e] AGR V_{PTCP} $[e]_i$

In case of the movement path in (7b), no agreement results as the clitic/WH does not stop in the intermediate position nearer the lower AGR. Although the WH and clitic movement are not distinguished in (7a) in the above schema, there is a difference in the movement path of each in Kayne (1989). Specifically, it is proposed that the clitic movement is a substitution to [Spec, AgrP], whereas in the case of the Wh-phrase, it is a case of adjunction. Since this was before the SPEC-HEAD agreement configuration module was crystallized, movement to a "Spec-like" position (that is, the adjoined position) was enough to establish agreement with the head (based on Government). The difference, therefore, is the location of the intermediate *e* position in (7a) for the WH and NP clitic, which can be shown as in (8a) and (8b) respectively:

(8a)



(8b)



Although French does not distinguish empirically the two processes – namely (Wh-)agreement versus cliticization – based on comparative evidence, Kayne

claims them to undergo different processes (that is, different movement paths), where the clitic does not adjoin.[5]

Also, it must be the case that for the Wh, there should be another movement to the [Spec, CP] position, whereas for the Clitic movement as schematized in (7), this must be the last phrasal movement before it undergoes head movement. The subcases of Wh past participle and clitic agreement are different; though not visible in French, the difference is clear in Italian (also in Catalan, varieties of Occitan, Beuil dialect, Corsican, Milanese, Cremonese, and Bolognese dialects of Italian), which can be attributed to a difference between adjunction and substitution, respectively:

(9a) *Paolo ha visto le ragazze*
Paolo has seen.SG the girls
(9b) *Paolo le ha viste/ *visto* CL
Paolo them has seen.PL/*seen.SG
(9c) *le ragazze che Paolo ha visto/*viste* WH
the girls that Paolo has seen.SG/*PL
(Kayne 1989: 33)

Comparing data in (3) and (4) with data in (9) clearly shows variation in participial agreement within Romance. Such variation can be more succinctly captured in the data in contrastive triple in (10), which shows differences across French, Spanish, and Italian:

(10a) *Juan la ha comidol/*a* (Spanish: Obligatory non-agreement)
Juan it.F has eaten.M/*F
'Juan has eaten it.'
(10b) *Gianni l' ha mangiata/*o* (Italian: Obligatory agreement)
Gianni it.F has eaten.F/*M
'Gianni has eaten it.'
(10c) *Jean l' a mangé/ée* (French: Optional agreement)
Jean it.F has eaten.M/F
'Jean has eaten it.'
(Franco 1994: 247)

5 Although Greek clitics have been claimed to be adjoined to TP, where the [Spec,TP] position remains empty, if they are X^0 clitics, they adjoin to the head. Here, too, the movement path of the clitic is supposed to go through a phrasal position (Spec of AgrPstPrtP) and then move into the V head, to highlight the XP/X^0 character of these clitics (Belletti 2006).

Such differences in agreement across languages are not an isolated case, as in French itself many speakers have a Spanish-like obligatory non-agreement in participles. Further, in "substandard" Italian (Parisi 1976: 78), agreement is possible with the in-situ object:

(11) *Paolo ha viste le ragazze*
Paolo has seen.PL the girls

This version is attested in the Salentino dialect of southern Italy and the Corese dialect as well as in several varieties of Occitan. I address the possibility (and importance) of such cases of dialectal variation, immediately below.

3 Participial Agreement as a case of microvariation

Coming back to a point about variation mentioned earlier, any modern agreement account must deal with the reason for such an increased possibility of variation within participles, which perhaps indicates that clausal agreement differs from participial agreement. In Lee (2016), variation was also reported in English in the case of Wh-clefts: *What I really need is/are books*. One can thus claim that the variation in French Wh-object agreement (and no such variation in Italian) is reflected to some extent in English too; the ambiguity, in turn, can be accounted for in terms of movement through [Spec, AgrP] in cases of agreement. Note that specificational copular sentences in Italian show NP2 agreement, contrasting with Wh-objects not agreeing, as reported above in (9c). This again shows that the two types of agreement are different.

Although traditionally variation in judgement has been termed "speaker behavior", it is worth briefly revisiting in the context of the present discussion. It is important to underline that variation in judgment can be accounted for within the paradigm of generative linguistics. The findings will reveal that in each case – that is, for each of the two sets of data described, namely, relative participle and adjectival/ adverbial adjunct – the relevance of what is "clearly disliked" and what is "clearly liked" is pertinent for the analysis; see, for example, the results summarized in Table 6, where the median scores cluster at two ends as '2' (clearly liked) and '5' (clearly disliked). Thus, in spite of the shades of variation, it is broadly true that the set of judgments cluster around what is broadly grammatical and ungrammatical.

It is relevant to consider in this connection the importance of microparametric research in syntax in the last 25 years or so. With the development of Minimalism (Chomsky 1995), a gradual demise of macroparametric research has been noted. However, syntactic studies largely ignore this crucial development and *de facto* practice comparative syntactic research of the type that is more in tune with the 1980s. Take, for example, Bhatt and Keine's (2017: 50) discussion around their observation that in participles (past/passive), among other constructions, number is neutralized in the context of the feminine in Hindi-Urdu; they provide data such as the following for the progressive auxiliary *rahā*:

(12a)	*rahā*	*rahe*
	M.SG	M.PL
(12b)	*rahī*	*rahī*
	F.SG	F.PL

Note that the two feminine forms in (12b) are identical since the singular-plural distinction is neutralized in the feminine. They also note that in many of the neighboring Indo-Aryan languages – like Punjabi, Sindhi, Kashmiri, and Marathi – this pattern of neutralization does not occur.

This kind of comparative syntactic research is set very much in the mold of parametric research of the early 1980s, when, for example, the null subject parameter (NSP) was considered the most celebrated example of what a parameter is. Note that the NSP was, if not a macro-, certainly a meso- or medio-parameter – Baker (2008) in fact identifies it as such, when comparing the working of this parameter within the Romance group of languages. Looking at one point of difference within broadly northern Indo-Aryan languages like Hindi-Urdu, Punjabi, Kashmiri, etc., is also a case of 1980s-style study of a macro/medio-parameter. If, instead, such studies care to look at dialects of Hindi-Urdu, or dialects of Punjabi, or dialects of Marathi, an entirely different perspective may emerge.

In fact, the dataset that I will be presenting below (see section 4) from Hindi-Urdu participles represents speaker variation in participial agreement in adjuncts. If we take these instances of genuine speaker variation as syntactic variation across languages/ dialects, each of these variants would represent a language/ dialect.[6] That is, the data on speaker variation is really the data on language/ dialect variation. In fact, within the data presented in the next section,

6 The variation reported does indicate a trend even if the sample studied for this paper is admittedly small. The fact that, even in such a small sample, wide variations are found only highlights the importance of syntactic variation.

there are various examples containing the passive participle and progressive auxiliary where number neutralization does not take place in the presence of the feminine – see data in (26e), (26g) and (26h). Questions such as where does this data showing feminine plural agreement come from, or how do we account for this data, can no longer be ignored.

Note that this kind of phenomenon is reminiscent of the variation in Romance past participles discussed in section 2. In particular, Kayne (1996) points out in this connection that there are different levels of parameters. For example, one could say that at the surface level the relevant parameter within the domain of past participle agreement in Romance is as noted in section 2; that is, it is optional in French, obligatory in Italian, and absent in Spanish. However, once we go deeper and study the phenomenon in the dialects of these languages, we discover a finer-grained effect of this parameter; for example, some of the dialects (= languages, for Kayne) allow participial agreement in both WH- and clitic constructions, but some only in clitics (Kayne 1989). And once we are prepared to go even further and study the phenomenon in greater detail across the individual dialects, we discover that some of them allow agreement with all object clitics whereas some allow it only with 3rd person objects. Thus, any study looking only at the operation of a parameter among broadly related languages like Hindi-Urdu, Punjabi, Kashmiri, etc., is bound to meet the same fate as NSP, whereby many such macro- or medio-parameters made way for microparameters arrived at by studying closely related dialects instead.

The explosion of microparametric research in the mid-1990s is also in consonance with the theoretical shift that took place with the advent of Minimalism. The place of parameters as such, or more accurately, macro-parameters, became more and more reduced, and as Richards (2008) puts it – UG is maximally emptied of parameters, a change that was heralded with the reaffirmation of the strong minimalist thesis, namely, that the faculty of language is optimally designed for the purpose of its interactions with the semantic and sensorimotor interfaces. The rise of microparametric research in syntax predicted in Kayne (1996), and reaffirmed in Kayne (2005), is the guiding principle for the present work which clearly shows, that for whatever reasons, feminine plural agreement does show up in participles in Hindi-Urdu.[7]

7 Bhatt and Keine (2017: 53 n. 1) note that plural agreement may obtain in the feminine optionally, as shown in data on the internet. The data and arguments in the present paper show that such facts need not reside in footnotes as asides but can be very much a part of the mainstream discussion representing a thriving speech community outside the internet, too, that deserves its due place in scientific research.

4 The Participial Agreement Data in Hindi-Urdu

I begin by looking at reported facts on participial agreement in one of the earliest texts on Hindi-Urdu grammar. Kachru (2006: 163) notes that Hindi has optional participial agreement where the participial adverbial auxiliary may agree with the subject NP in number and gender if the NP is in the direct case (13a); (13b) shows lack of agreement:

(13a) *laṛkiyā̃ bhāgtī huī āyī̃/ bhāgte hue āye*
girl.F.PL run.IPFV.F PTCP.F come.PFV.F.PL run. IPFV.PL PTCP.PL come.PFV.PL
'The girls came running.'

(13b) *laṛkī-ne* [*kamre-se nikalte hue*]
girl.F-ERG room.M.SG.OBL-ABL emerge.IPFV.OBL PTCP.OBL
darvāzā band kar diyā
door.M shut do give.PFV.M.SG
'The girl closed the door (as she was) leaving the room.'

However, since this is a case of the intransitive predicate, the agreement is with the sole argument, that is, the subject; to create a set that can be compared with the data in Romance easily, let us consider transitives. Let us in fact look at the agreement possibilities in a relative participle clause in Hindi-Urdu which is derived from a transitive base, as in the following:

SET I: (Relative) Participial agreement where the object is relativized:

(14) *ravi-kī paṛhī huī kitābẽ*
Ravi-GEN read.PFV.F PTCP.F book.F.PL
'Books that have been read by Ravi.'
(Lit. Ravi's read books.)

Since the subject is case-marked in the case of perfective participles inside a prenominal relative clause, the (past) participial agrees with the object. As in the case of French object agreement in participles, a non-canonical order obtains (SVO), although this is only an NP/DP. The object movement is due to relativization, assuming Bhatt (2002) arguing in favor of a raising analysis of the relative clause. In fact, the agreement facts in the relative participle in Hindi-Urdu can be seen as strong support for the raising analysis of RCs. Apparently, it is not possible to relativize the subject in prenominal relatives, and therefore we do not obtain (15); this has also been pointed out in Mahajan (2018: 93):

(15) *[*kitāb* *paṛhī* *huī*] *laṛkiyā̃*
book read.PFV.F PTCP.F girl.F.PL
*'The book-read girls.' (= The girls who have read the book.)

Thus, we can say that the participle in RCs agrees with the postverbal argument, which can only be the object.

The participles that are adjuncts (and not prenominal RCs), show agreement with the subject, as in the oft-repeated instruction on airplane seats in India:

(16) [*bæṭhe* *hue*] *kursī ki* *peṭī* *bāndhe* *rakkhẽ*
sitting. IPFV.OBL PTCP.OBL chair GEN belt tie.OBL keep.2HON
'Fasten seat belt while seated.'

In such cases, the subject (here 2.HON *pro*) agrees with both the participle in the adjunct[8] (not visible in 16, since the agreement is with an imperative pro-dropped honorific argument, but see footnote 8) as well as the main clause verb. The participial adjunct (both the verb stem as well as the auxiliary) may also show agreement with the object, when the subject is blocked for agreement by case, as in the following, where the subject is case-marked and the object 'birds', may agree in gender with the participial:

8 Although there are no instances, as far as I can see, where the invariant form of the participle (as in 16) is not available, there seems to be both gender and number agreement across different persons. Gender agreement in the singular obtains in 1st and 3rd person for both genders, as well as in the 2nd feminine; for plural, gender agreement only obtains in 2nd and 3rd feminine. For number, again only 2nd and 3rd feminine is marked for some speakers. However, the data collected is not enough to report in the main study. A table such as the following can be drawn in support:

Person	Number	Masculine	Feminine
1	SG	gender/ invariant	gender/ invariant
	PL	invariant	invariant
2	SG	invariant	gender/ invariant
	PL	invariant	invariant/?gender-num
3	SG	gender/ invariant	gender/ invariant
	PL	invariant	invariant/?gender-num

(17) *Ravi-ne ciṛiyā* [PRO *uṛte/uṛtī* *hue/huī*]
Ravi-ERG bird.F.PL fly.IPFV.OBL/FLY. IPFV.F PTCP.OBL/PTCP.F
dekh-ī/ĩ *haĩ*
see-PFV.F./PL be.3.PL
'Ravi has witnessed birds flying.'

Note here that although the gender agreement with the object (*ciṛiyā* 'birds') through the object-controlled PRO within the adjunct is optional, the main verb and auxiliary agree with the object,[9] since the subject is case-marked. Similarly, with a dative experiencer subject, agreement in the main clause is with the object but the agreement inside the adjunct is optional:

(18) *Ravi-ko ciṛiyā* [PRO *uṛte/uṛtī* *hue/huī*]
Ravi-DAT bird.F.PL fly.IPFV.OBL/FLY.IPFV.F PTCP.OBL/PTCP.F
nazar āyĩ
notice come.3.F.PL
'Ravi has noticed birds flying.'

Here, the complex predicate (*nazar ānā*) is formed when the noun is denominalized by incorporating it into an empty V which then merges with a light verb head (*v*) *ānā* 'come' (Hale and Keyser 1993, 1998). In both cases (17, 18), the ergative/dative subject is blocked from agreeing and therefore the object (*ciṛiyā*) agrees with the verb, and in both cases the adjunct can optionally have the invariant form, or it can agree with the gender and number of the object.

SET II: (Complex) Adverbial/Adjectival Participial Agreement[10]

In the present, in their adverbial modifying role, participles in Hindi-Urdu may show agreement with the PRO subject of the participial clause, as in the following (from Kachru 2006):

9 Note that the participial agrees with the object-controlled PRO in this example, which is the subject of the adjunct clause as shown in (17) and (18).

10 The clarificatory word "complex" being added to indicate that simple adjectives/ adverbs do not show agreement (p.c. K.V. Subbarao), as in (i):

(i) *laṛke/ laṛkiyā̃* *acchā* *gānā* *gāte/* *gātī(ĩ)* *haĩ*
boys/ girls good song sing.3MPL/ sing.3FPL be.3PL

In the analysis section, I will comment on them being a case of perhaps concord.

(19) *laṛkī* [*maze mẽ gātī* *huī*] *jhulā* *jhul* *rahī* *hai*
girl.SG fun in sing.IPFV.F PTCP.F.SG swing swing PROG.F.SG be.PRS.3SG
'The girl is swinging in the swing while singing in gay abandon.'

Note that here in the case of adverbial agreement, we obtain subject agreement. This is so because the subject is not overtly case-marked and the object is incorporated into the verb anyway, and is therefore not available for any possible agreement. For both cases of (14) and (19), what is of interest is that we find agreement inside the adjunct.

With regards to the example in (19), Kachru (2006: 228) notes that the participle agreement (of the adjunct) is optional:

(20) *laṛkī* [*maze mẽ gāte* *hue*] *jhulā* *jhul* *rahī* *hai*
girl.SG fun in sing.IPFV.OBL PTCP.OBL swing swing PROG.F be.PRS.3S
'The girl is swinging in the swing while singing in gay abandon.'

Here, the adjunct shows the invariant form [V-*te hue*] and therefore does not agree with the main clause subject. However, as I will immediately show, the extent of variation in the data is much more than what is reported in Kachru (2006).

5 Variation in Hindi-Urdu Participial Agreement

For the current paper, I have tested sentences of the pattern in (14) and (19)/(20), that is relative participle and complex adverbial participles respectively, for variation. I will present here two sets of judgments from 5 and 6 native speakers, respectively.[11]

11 The speakers for the two sets are different but they do overlap; in total there were 8 speakers, all of them have lived and studied/worked in Delhi or nearby regions. If I am pushed to assign a variety to them, then I would say 4 of them are perhaps "Delhi Hindi" speakers and the rest speak some version of "Uttar Pradesh Hindi". With an average age of about 45 years, there were 6 females and 2 males. The data was collected in 2015.

5.1 Variation in relative participles

Let us first look at the judgement for the relative participle case. Note that Kachru did not report any variation in this case. The following are the 4 variants obtained – in (21) – over which the total judgments are reported as in Table 2:

(21a) *paṛhī huī kitābẽ* (GND in both V and PTCP)
read.F PTCP.F book.F.PL
'Read books' (= Books that have been read.)

(21b) *paṛhĩ huī kitābẽ* (NUM + GND in V, GND in PTCP)
read.F.PL PTCP.F book.F.PL

(21c) *paṛhī huĩ kitābẽ* (GND in V, NUM + GND in PTCP)
read.F PTCP.F.PL book.F.PL

(21d) *paṛhĩ huĩ kitābẽ* (NUM + GND in both V and PTCP)
read.F.PL PTCP.F.PL book.F.PL

In reporting the results of the two sets of data – relative participles (Set I) and adjectival/ adverbial adjuncts (Set II) – a Likert scale of 4 values (for Set I) and 5 values (Set II) are used in order to obtain ordinal data in terms of numbers. As is well known, Likert scales are one of the most effective ways of measuring attitudes; for example, shades of grammatical judgments on a construction, in our case. Since the distances between the various responses in such cases are not measurable, ranking is often the most effective way of measuring attitudes, even as uncommonly as measuring attitude towards a sentence. The underlying variable that is being tested in each case through the various items, that is, the example sentences together with their associated responses, is the nature of the agreement with its head noun of a prenominal relative participle (Set I) and with the subject for a participle inside an adjectival/ adverbial adjunct (Set II).

In the case of Set I, the following four values are used (see Table 1); note that although the scale is bivalent (ranging from 'acceptable' to 'unacceptable'), it is not symmetrical since there is no obvious neutral choice measuring central tendencies among four given choices, although [2] is clearly a neutral choice:

Tab. 1: Likert scale values of grammatical judgements for Set I

Standard diacritic	L-scale value	L-scale rank
✓	'acceptable'	[1]
?	'neither fully grammatical nor fully unacceptable'	[2]
??	'almost unacceptable'	[3]
*	'unacceptable'	[4]

Speaker judgments on the 4 variants in (21a)–(21d) above are shown in Table 2, values for 5 speakers arrived at using the Likert scale established above:

Tab. 2: Speaker judgments on the 4 variants in relative participle agreement

Sentence type	[1]	[2]	[3]	[4]
a.	2	1	2	–
b.	–	–	3	2
c.	4	–	–	1
d.	–	2	1	2

In terms of speaker behavior, although not revealed in the Likert values, we may note that except for one speaker, who is very strict in their judgment, all the rest show a great range of variation. Among the variants, it is first of all surprising that there is little agreement on the so-called standard form in (21a) in terms of speakers' judgments. Secondly, the variant (21c) is most preferable, more than the standard form that is (21a).

In the following (see Table 3) is provided the summary of the distribution of ϕ-features along with a somewhat controversial concept of an "average" judgment in the last column based on speaker behavior and regional information. Note first that one of the advantages of a 4-value scale is that it avoids the disadvantages of a central tendency observed in a symmetrical 5-value scale; 4 value scales are also effective with small samples like the present one, although Set II employs a standard 5-value scale. Secondly, note that calculating the average of a Likert scale is generally not a good idea, since sometimes it is meaningless to assign a value to something like 'almost unacceptable', for example. Instead, it is considered better to calculate the Median score or/ and the Inter-Quartile Range; however, since the sample size here is very small, quartile values are not

feasible. Therefore, whenever "average" judgment is mentioned, what is implied is the associated median score (calculated as the average of two numbers lying exactly in the middle), as shown in the last column of Table 3.[12]

Tab. 3: Distribution of ϕ-features and Median score ('average' judgment)

VARIANT	RELATIVE CL.		RELATIVIZED NP	Median Score ('average' judgment)
	V	PTCP		
a.	Gender	Gender	Gender + Number	2
b.	Gender Number	Gender	Gender + Number	3
c.	Gender	Gender Number	Gender + Number	1
d.	Gender Number	Gender Number	Gender + Number	3

One thing that using a Likert scale (along with the median scores) in this case reveals, which simple speaker-based grammaticality judgments do not, is that nothing is completely unacceptable (since a Median score of 4 does not obtain). The results can be summarized as follows:

(22) Results for relative participle agreement:
i. agreement in gender on both the verb and participle preferred (21a)
ii. number agreement on V is not acceptable (21b)
iii. number agreement on the participle is preferable (21c)
iv. number agreement on both V and participle is not acceptable (21d)

The table in general is very instructive and we can take the following to be the main syntactic finding of the exercise:

(23) Given the judgments for the variants (21b) and (21d), there is a general reluctance of the number feature to be available too low in the structure.

This can be schematically shown as follows:

12 Note that a blank in the tables (shown by an en-dash) indicates absence of any response for a given judgment.

(24) [RC V AUX] NP (Set I, Phrase)
GND GND GND
*NUM (NUM) NUM

5.2 Variation in participial adverbials

Let us now move on to the next construction tested for this study, that is, the complex adjectival/ adverbial adjunct. As we saw in (19) and (20), repeated here as (25), Kachru (2006) already observed variation (by one factor) in these examples:

(25) laṛkī { (i) *maze mẽ gātī huī* / (ii) *maze mẽ gāte hue* } *jhulā jhul rahī hai*
{ (i) fun in sing.IPFV.F be.F.SG / (ii) fun in sing.IPFV.OBL be.OBL }

However, as noted earlier, the extent of variation is much broader than only one factor, as shown by the observations in the current study. As before, the following is a list of the 8 variants tested in the study:

(26a) *laṛkī* [*maze mẽ gāte hue*] *jhulā jhul rahī hai*
girl.SG fun in sing.IPFV.OBL be.OBL swing swing PROG.F.SG be.PRS.3SG
'The girl is swinging in the swing while singing in gay abandon.'
(26b) *laṛkī* [*maze mẽ gātī huī*] *jhulā jhul rahī hai*
girl.SG fun in sing.IPFV.F be.F.SG swing swing PROG.F.SG be.PRS.3SG
(26c) *laṛkīyã̃* [*maze mẽ gāte hue*] *jhulā jhul rahī hai*
girl.PL fun in sing.IPFV.OBL be.OBL swing swing PROG.F.SG be.PRS.3SG
(26d) *laṛkīyã̃* [*maze mẽ gātī huī̃*] *jhulā jhul rahī hai*
girl.PL fun in sing.IPFV.F be.F.PL swing swing PROG.F.SG be.PRS.3SG
(26e) *laṛkīyã̃* [*maze mẽ gātī huī̃*] *jhulā jhul rahī̃ hai*
girl.PL fun in sing.IPFV.F be.F.PL swing swing PROG.F.PL be.PRS.3SG
(26f) *laṛkīyã̃* [*maze mẽ gātī huī*] *jhulā jhul rahī hai*
girl.PL fun in sing.IPFV.F be.F.SG swing swing PROG.F.SG be.PRS.3SG
(26g) *laṛkīyã̃* [*maze mẽ gātī huī*] *jhulā jhul rahī̃ hai*
girl.PL fun in sing.IPFV.F be.F.SG swing swing PROG.F.PL be.PRS.3SG
(26h) *laṛkīyã̃*[*maze mẽ gātī huī(ī̃)*] *jhulā jhul rahī(ī̃) haĩ*
girl.PL fun in sing.IPFV.F be.F.(PL) swing swing PROG.F.SG(PL) be.PRS.3PL

Note that this is not an exhaustive list of combinations of a sprinkling of the ϕ-features; there are other possible combinations, especially the ones with the number marking on finiteness carrying auxiliary of the main clause, as is the case with variant (26h). However, in spite of the non-exhaustiveness of the set, the judgments on these eight variants already tell us something which is of interest.

The Likert scale values and attributes used for this set of data are shown in Table 4:

Tab. 4: Likert scale values of grammatical judgments for Set II

Standard diacritic	L-scale value	L-scale rank
✓✓	'strongly acceptable'	[1]
✓	'acceptable'	[2]
?	'neither fully grammatical nor fully unacceptable'	[3]
??	'almost unacceptable'	[4]
*	'unacceptable'	[5]

Note that the scale in Set II is both bivalent and symmetrical; however, since this is too small a sample, hopefully, the usual pitfalls of a central tendency are avoided.

The judgments on these variants for 6 speakers are captured in Table 5:

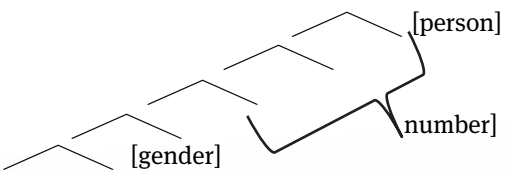
Tab. 5: Speakers' judgments on the 8 variants in adjectival/ adverbial adjunct agreement

Variant	[1]	[2]	[3]	[4]	[5]
a.	1	4	1	–	–
b.	–	4	2	–	–
c.	–	–	–	–	6
d.	–	–	–	–	6
e.	–	1	2	2	1
f.	–	–	–	–	6
g.	–	1	2	1	2
h.	–	5	1	–	–

The table represents the judgments of 6 speakers on a 5-point scale (from [1] to [5]) for the variants (26a) to (26h). As can be clearly seen, none of the 6 speakers liked the variants (26c), (26d), and (26f) as all 6 speakers marked them [5] or 'unacceptable' (see Table 4).

Given the first look at the variation noticed above in the relative participle and the adverbial participle in Hindi-Urdu, one thing that becomes more or less clear with regards to agreement in this language is shown schematically in (27). This observation that person lies in the outermost periphery, gender in the innermost, and number in between, seems to be one conclusion that has been pointed out in several studies by different authors, working on or commenting on the agreement phenomenon in this language:

(27)



This has also been the general consensus regarding the positioning of these features. That is, person seems to be available high up in the clause and gender lower down but it is number that hovers in between, except that the results in this paper show that number cannot be too low in the structure (see 23). This is also in line with the general observation that participle agreement is with number and gender and never with person, unlike subject agreement in general, another reason this type of participle agreement should be seen as different from (subject) argument agreement on verbs.[13] Note that the distribution of features as above also implies that participial agreement has to be lower in the clausal spine if participial agreement is restricted to only gender and number.

In the following is provided the summary of the distribution of ϕ-features along with the concept of an "average" judgment based on Median score, in the last column, arrived at by looking at the distribution of the responses:

13 As noted by Mahajan (2017), person does not show up in object agreement cases in Hindi-Urdu either (Mahajan 2017: 9, n. 10).

Tab. 6: Summary of distribution of ϕ-features and Median scare ('average' judgment)

VARIANT	$SUBJ_{MAIN}$ NUMBER	ADJUNCT		MATRIX CL.		Median Score ('average' judgment)
		V	PTCP	ASP	AUX	
a.	Singular	Oblique invariant		Gender	Person	2
b.	Singular	Gender	Gender	Gender	Person	2
c.	Plural	Oblique invariant		Gender	Person	5
d.	Plural	Gender	Gender Number	Gender	Person	5
e.	Plural	Gender	Gender Number	Gender Number	Person	3.5
f.	Plural	Gender	Gender	Gender	Person	5
g.	Plural	Gender	Gender	Gender Number	Person	2
h.	Plural	Gender	Gender (Number)	Gender (Number)	Person Number	2

First, note that the results here demonstrate exactly the point raised and discussed in section 3, that the strength of studies on syntactic variation lies in the conviction that existing theoretical proposals are adequate to provide an account of variation as well since, in spite of the gradation noticed in speakers' judgments, it is still the case that results seem to verge on clearly acceptable and clearly unacceptable. We see the same pattern here in Table 6, where a., b., g., and h. are obviously acceptable, whereas c., d., and f. are clearly unacceptable.

A couple of results stand out in this dataset; again, it has to do with where and how deep the number feature is visible/accessible. First, looking at the judgments for the variants (26a) and (26b), it is clear that whether there is agreement inside the adjunct or not, does not really matter. Note here that the main clause subject is in the singular and the default value for singular being null, the result here can also be interpreted as saying there is number agreement in the main clause. However, the theoretically interesting question, how does one account for the optionality in agreement inside the adverbial adjunct in these examples, will be taken up in the next section. For now, we can note that the following is the first result in the case of adverbial adjuncts:

(28) Result 1: Within the Adverbial participle, presence or absence of number agreement with the sentential subject does not matter in the case of singular subjects.

With a plural matrix clause subject, the story is more complicated (and as mentioned above with relation to judgment 26h, not complete), but one result that can be considered a finding is the average judgment for variant (26e) and (26g); the former seems to be marginally acceptable whereas the latter is plain acceptable. In light of the fact that for plural subject number, agreement on the main clause finiteness carrying element (Aux here) is the only way to get full grammaticality (the variant 26h here), these results for (26e) and (26g) are interesting. The shading in the table above indicates that somewhere in the matrix clause the number feature needs to be visible – this can be seen in the Median score of 5 ('unacceptable') for examples in (26c), (26d), and (26f) which fail to meet this requirement; its availability only in the adjunct does not fulfill the requirement (variant 26d). Note also that (26e) and the acceptable (26h) are in conflict with what Bhatt and Walkow (2013: 954), and as pointed out earlier, Bhatt and Keine (2017: 50) observe:

(29) Agreement markers on participles (habitual, perfective/passive, progressive) and infinitives distinguish singular and plural forms for masculine, but not feminine.

Comparing the results in (26e), (26g), and (26h), we infer that having [NUM] in the matrix clause is better (26g, 26h) than having it in the matrix and the participial adjunct (26e). We can summarize the observation with regards to Table 6 as the following:

(30) Result 2: Number agreement either just on the main clause ASP (26g) or on the participle and the main clause aspect (26e), is (marginally) acceptable.

Note in this connection the judgment (26d), where number agreement is available only on the participle in the adjunct. Therefore, Result 2 cannot be interpreted as indicating that the visibility of the number agreement *anywhere* is still more acceptable to some extent than its complete invisibility, otherwise (26d) would have been acceptable. We can thus refine Result 2 as follows:

(31) Result 3: Number agreement either with the participle and the main clause aspect, as in (26e), or just on the main clause ASP, as in (26g), is preferable to number agreement just on the participle, as in (26d).

Note that this result is very similar to what we noted with respect to the Relative Participle example, as noted in result (23) (that number cannot be too low). This is a desirable unifying finding about a general character of the number agreement in the language. Both (23) and Result 2/3 above, point in the same direction.

Theoretically, this refined result indicates that the trigger for the number agreement cannot be lower than *at least* the main clause aspectual head. This can be schematized as follows:

(32a) [$_{\text{PTCPP}}$ V-*tā*/*ī* PTCP-**NUM**] ASP^0-**NUM** ↑ AUX^0
(32b) [$_{\text{PTCPP}}$ V-*tā*/*ī* PTCP] ASP^0-**NUM** ↑ AUX^0

If the trigger for number agreement is below ASP^0, then we cannot account for either (32a) or (32b) (since the Aspect must get it too); therefore, the trigger has to be above ASP^0, which would imply that it could be the T^0 itself, as is standard. However, placing the trigger in T^0 would make it difficult to account for the surprising variants (26e) and (26g) (though not 26h), since for both of these, the number features are *not* available in the matrix Aux. The empirical facts thus tell us that there must be a trigger for number agreement *also* between ASP^0 and AUX^0, in addition to T^0 (for 26h); this is indicated in (32) by a vertical arrow.

Finding the trigger for number agreement above ASP^0 argues against what is stated in Bhatt (2005: 764), since it is claimed that case-licensing of objects in Hindi-Urdu is independent of what appears above the *v*P; Butt (1995) is also cited there as supporting the same claim. Note that Bhatt (2005) states this in the context of case-licensing rather than agreement; as far as I can see, there is no empirical evidence in Bhatt (2005) that argues against higher positioning of the trigger. My suggestion (to be elaborated in the next section) of placing the trigger for agreement higher than ASP^0, as indicated in (32), therefore implies that aspectuality of the clause does have something to do with the agreement inside *v*P – the insight in Mahajan (1989) with regards to Case that Bhatt was arguing against. I will take this up in the next section.

6 Analysis

By consolidating the results in Table 3 and Table 6, we obtain the following generalized pattern:

(33a) [$_{RC}$ V AUX] N (Set I, Phrase)
GND GND GND
*NUM (NUM) NUM

(33b) [$_{ADJ/ADV\ PTCP}$ V AUX] ASP AUX (Set II, Clause)
GND GND GND PER
*NUM (NUM) (NUM) (NUM)

Combing these two, we derive the following findings:

(34a) The feature [PER] is at the outermost periphery, while [GND] is the innermost one, and [NUM] is something that is in between the two.
(34b) It is only the [NUM] feature that shows optionality – it being optional on AUX (Set I), AUX$_{EMBEDDED}$, or AUX$_{MAIN}$, and ASP (Set II).
(34c) [NUM] clearly cannot sit on V (Set I & II), but it can sit on AUX$_{EMB/MAIN}$ and ASP (Set II).

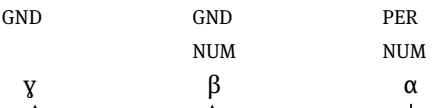
Given the above findings, the analysis presented here reaffirms the operation of the standard Agree model (Chomsky 2000, 2001), rather than its various later versions like Multiple Agree (Nevins 2007, 2011), Cyclic Agree (Béjar and Řezáč 2009), reverse Agree (Adger 2003; Bošković 2007; Zeijlstra 2008, 2012), and indeed, agreement as feature-sharing as in Pesetsky and Torrego (2007), and its various extensions.[14]

A lack of agreement in raising constructions (in English) seems to be the reason for Pesetsky and Torrego (2017: 280 n. 9) to critique Chomsky-Agree, where [uϕ] on probes is the source for case on goal NPs. However, the languages we deal with show agreement in such cases as well as in participles (the topic of the present paper) and at long-distance; there is no strong reason therefore to reject Chomsky-Agree. Additionally, the summaries of the findings in (33) and (34) suggest that to apply a feature-sharing model, all values of α will be shared with β

14 For example, Agree as feature-sharing as applied to different domains, such as for negative concord as in Haegeman and Lohndal (2010).

and ɣ, and all values of β will be shared with ɣ if the probes are at α and β, respectively, as shown in (35):

(35a)



(35b)

As shown in (35a), the system will wrongly copy [PER] value on AUX and ASP, and both [PER] and [NUM] value on V; (35b) shows that the system will wrongly copy [NUM] value on V. Thus, since in the Pesetsky and Torrego system all instances of a particular uninterpretable feature must share the same value, there is no scope of differential or partial ϕ-feature access in this system. For example, in their demonstration of the case of raising infinitivals, Pesetsky and Torrego show that finally when valuation does take place in the domain of the finite *v*, all three instances of [uT], namely, on the subject DP (moved to the [Spec,vP_{matrix}]), on the non-finite embedded T, and on embedded *v*, get the [uT:val] of the matrix *v*.

Following standard Agree assumes using the definition of Agree as in Chomsky (2000, 2001), as follows:[15]

(36) Agree:
(i) An uninterpretable (and unvalued) feature F on a Probe (a head) seeks for another (valued) instance of F on a Goal with which to Agree in its c-command domain.
(ii) The value of the Goal is assigned as the value of the Probe and all instances of uninterpretable features deleted.

For the purpose of this paper, staying with standard Agree, I will assume that Agree takes place in a top-down fashion, that is, *v*-Agree follows T-Agree (T-Agree > *v*-Agree). Furthermore, based on (27), I will assume that a strict structural ϕ-feature hierarchy such as the following exists:

(37) PER > NUM > GND

15 This definition combining the two works of Chomsky is summarized somewhat differently in Pesetsky and Torrego (2007: 265).

That is, the ϕ-features are accessed strictly in the order specified. Note that this is different from prominence hierarchies and is specific to syntactic mechanisms involving differential ϕ-feature access.[16] With this, we are ready to tackle the cases of syntactic variation reported here.

As we saw in Result 1, the presence or absence of agreement inside the adjunct does not matter when the subject of the main clause is in the singular. With regards to the placement of the adjunct, I will assume that it is adjoined at the VP level since these adverbial or adjectival adjuncts modify the VP in terms of manner. Syntactically, the finding of Result 1 indicates that the adjunct can be somewhat independent, or more technically, there can be a trigger of agreement inside the adjunct as well. The fact that there is no visible number agreement on the matrix finiteness carrying verb, namely, the AUX in instances where the matrix subject is in the singular, tells us that we cannot really decide about the agreement process inside the adjunct. In particular, we cannot decide – as shown by a '?' mark on the last copying stage in (38) – whether or not the agreement process – which now I shall identify as Agree – inside the adjunct is *dependent* on the trigger for agreement in the main clause.

Result 1 is therefore obtained by establishing a simple Agree relation from the matrix T. Note that, in this example, no Agree relation can be established within the VP-shell – with the little *v* – as the object is noun-incorporated into the main V. At the most, we can say that there is a split in the ϕ-features whereby person and gender are copied and/or relayed on to the appropriate heads differentially. This is roughly shown below in (38) for (26a) and (26b) (details to be worked out as we proceed).[17]

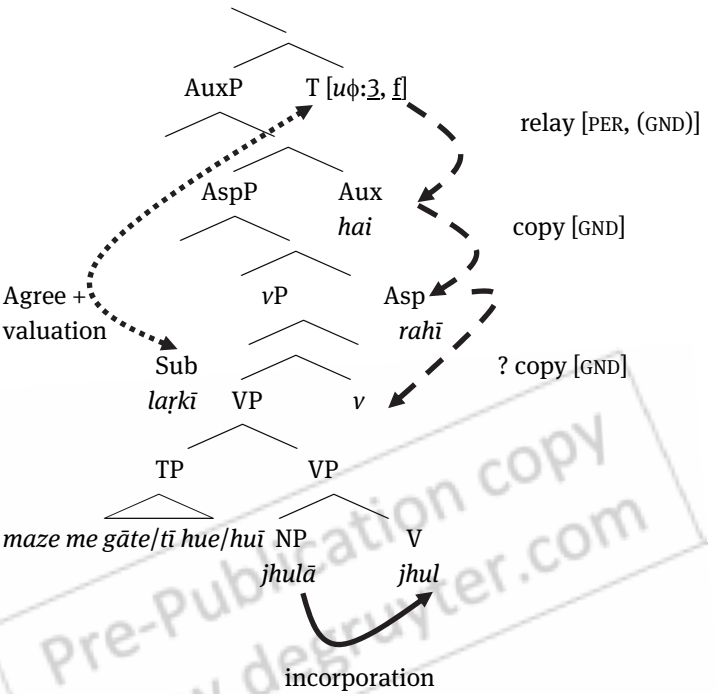
In the case of the result for the variant in (26b), where there is gender agreement inside the adjunct, it is possible to say that the T inside the adjunct can probe the gender feature of the PRO at the subject position of the adjunct TP. However, one has to be careful in designing the mechanism in such a manner that only a reduced set of the subject's features are available as a PRO (that is, the full set of ϕ-features is not available in the base-generated PRO position, being controlled by the matrix subject). Note also that given the discussion in footnote 19, these adjuncts are not really fully-fledged TPs, since T seems to be defective.

16 See relevant references on differential ϕ-feature access theories in Bhattacharya (2016) and Bhattacharya and Sharma (forthcoming).

17 Note especially with regard to relaying of the [GND] feature on to the lower AUX head from T, that a default [GND] feature is assumed to be passed on, which is later copied on the ASP head in step 2; however, the AUX never shows up the [GND] feature in the singular, making this move non-sustainable. I will resolve this issue in the revised structure presented further below. I will also clarify the process of "relay" and how it is different from "copy".

Thus, if there is independent probing inside the adjunct, it has to be the *v* and not the T, making the accessibility of the PRO inside the adjunct questionable. I will come back to this aspect of Agree inside the adjunct right at the end of this section.

(38)

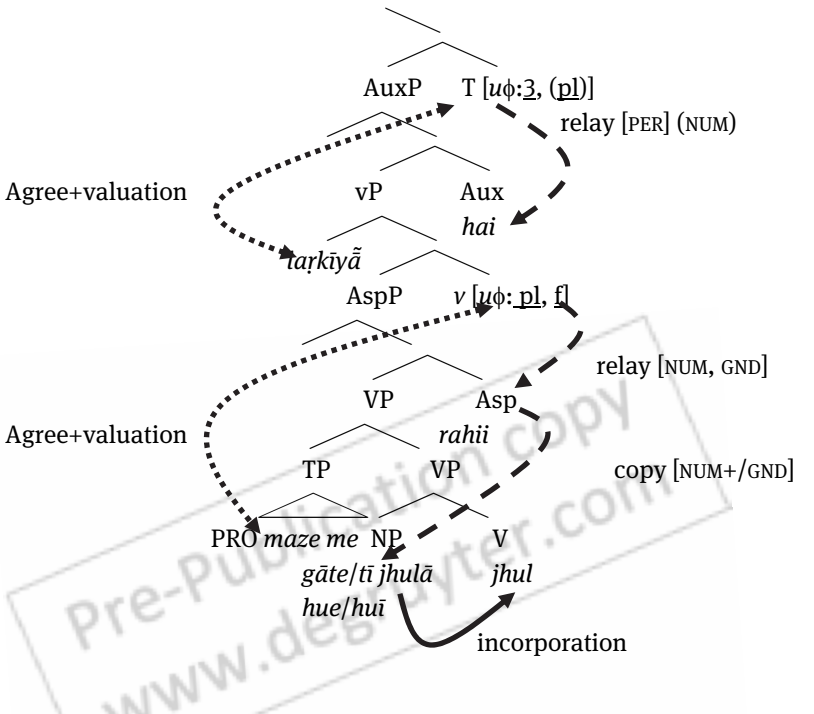


The split between the ϕ-features is going to become important as we proceed to analyze the rest of the data in this paradigm. Let us now switch attention to the cases when the matrix subject is plural (i.e. (26c)–(26h) and Table 6). As we reported through the findings in Results 2 and 3, the trigger for the number feature cannot be too high or too low, given the results for variants (26e) and (26g). For various reasons, this will become impossible to implement (as I will show), unless we allow the possibility of probing into the adjunct from the matrix *v*, (rather than a reduced Agree inside the adjunct as conjectured in the previous paragraph with regards to 26b), *if and only if* the matrix *v* is higher in the structure.

That is, we need to revise the structure in (38) by placing the matrix *v* in between the Aux and Asp head. Although there is no substantial morphological evidence in favor of such a structure, given the results for the variants in (26e) and (26g), we are pushed towards this conclusion. Furthermore, MacDonald (2006:

65) also settles for a structure of the *v*P where the order of the heads are V-ASP-*v*-AUX-T; this is especially justified to account for aspectual distributions of bare plurals and mass nouns. In addition, with this, we have now found a Probe position as suggested through the arrowheads in (32). (39) represents the data set in (26):

(39)



Note that we are making a distinction between three Agree-based operations: valuation, relaying and copying – this will become apparent immediately below in (42). The different aspects of these three operations are noted below:

(40) 3 Agree-based operations:

VALUATION: This is familiar from standard Agree models whereby the uninterpretable features of a Probe get valued by the interpretable features of the Goal, as seen in the definition of Agree in (36).

RELAY: This mechanism is assumed by everyone but never formalized; for example, English subject-verb agreement is obtained in classic textbook fashion by relaying the valued features from the T head onto the *v* (see for example Adger 2003: 221). I will call this relay and not Agree as otherwise,

a reverse Agree will result. Thus, copying of features from a just valued head is relay in this proposal.[18] I will also restrict relaying to a one-step-only process. We will see that *under-relaying*, that is, copying a partial set of values, is a violation.

COPYING: Copying of a feature is like relay but it is a "lower-level" process since it cannot copy more than one feature at a time; however, it is not restricted to a one-step-only process. It is suggested here that the copying process is restricted between contiguous non-probing heads. Note that copying is copying of an already relayed feature from a higher head – a kind of valuation through relay. We will see that *over-copying*, that is, copying more than one value at a time, is a violation.

The copying process is familiar from Norris (2014), Åfarli (2016), Velle (2016) and others, where at least in the domain of adjectival agreement (both attributive and predicative agreement), it has been realized that *both* Agree and copy are required. The copying process is also reminiscent of Bhatt's (2005) attempt to capture the dependency between the finite head and the participle in terms of agreement in Hindi-Urdu – Bhatt calls it "covaluation" (Bhatt 2005: 769).

Note that dispersal of the [NUM] feature in both sets of data is indicative of the operation of either relay or copy as a one-step process since the data shows that there is no instance of the feature being copied/ relayed more than once, that is, there is no instance of its occurrence more than 2 times in consecutive heads. Consider, for example, data (21c) and (21d) for Set I, and (26e) and various versions of (26h). I will therefore restrain relay to a one-step only operation – and copy too when it comes to the feature [NUM] – whereas copying can be done more than once. Furthermore, I distinguish copying as a low-level operation and therefore restrict it to copying only one feature per copy operation; or else, it ends up *over-copying*, as is the case with (43e).

Furthermore, for Bhatt (2005), covaluation is proposed as a(n) (desirable) alternative to probing from two heads (T and Asp, in Bhatt's case); for the data-results being presented here, I will show that both copying and probing by different heads is required. One way of restraining copying, I will assume, can be achieved if dominance plays a role (Norris 2014) – the syntactic account provided

18 Although, the Chomsky definition of Agree assumes that once Agree takes place, no history of the operation is remembered for the purpose of the derivation (Pesetsky and Torrego's 2007 feature-valuation proposal crucially differs in this respect), and therefore a just-valued feature can participate in Agree again. I will, however, invoke relay rather than another Agree in such cases.

for both the paradigm cases this paper deals with incorporate this restriction on copying. By assuming a second probing from the matrix *v*, the result obtained with regards to the variant d. easily falls out – if there is no "valued-[number] copy" in the head immediately dominating the adjunct (namely, ASP), then there cannot be a "valued-[number] copy" inside the adjunct either. Thus, the contiguity or adjacency effect of copying is scanned from a "bottom-up" direction as follows:

(41) If a head has a feature, it must be the case that the immediately dominating head too has the same feature but not the other way round.

With regards to the results obtained for the standard (26h), and the surprising results (26e) and (26g) (which forced us to position the matrix *v* higher in the structure, now being able to probe into the adjunct), the following rough schema is suggested to be elaborated for each case immediately further:

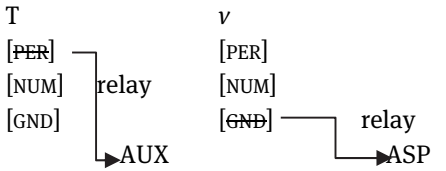
(42a) Matrix T probes matrix subject in [spec,*v*P] and gets part of ϕ-set valued, namely [PER] (and [NUM] for (26h);
(42b) The features are relayed on to the immediately dominated head, namely, AUX (as in 26h);
(42c) Matrix-*v* then probes (as copying is only between contiguous non-probing heads, and Probe *v* intervenes copying features from AUX to ASP) the PRO into the adjunct and gets valued for [NUM] and [GND], as a *v* can never probe a [PER] feature;
(42d) The features are relayed onto the immediately dominated head, ASP, as in (26e), (26g) and (26h);
(42e) These valued features from ASP can be copied into the adjunct in one step, as in (26e) and (26h);
(42f) No valued features can be copied into the adjunct if that feature is not available in the immediately dominating head, as in (26d).

Note that by doing this, we are now creating a conflict with what we conjectured with regards to the optional agreement of [GND] inside the adjunct in the case of a singular subject, namely the result for variant b. This conflict can be resolved if we uniformly adopt the second probing possibility from matrix *v* for singular subject cases also; since the [NUM] feature does not matter for singular anyway, only the [GND] features will be copied into the adjunct. Giving up Agree inside the adjunct is a good thing anyway; unless we are willing to adopt a Bidirectional/ reverse Agree (Preminger and Polinsky 2015; Wurmbrand 2012; Zeijlstra 2012, among others),

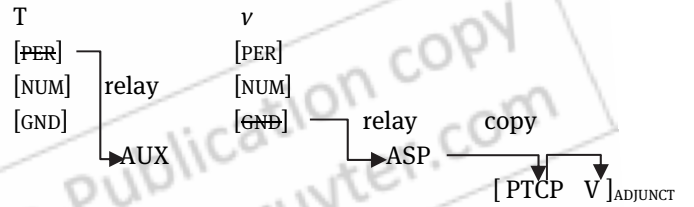
there is no way to access the PRO (in [Spec, *v*P]) from *v* inside the adjunct; Bidirerectional Agree can probe upward from PRO and value the ϕ-features of *v*.

I will now elaborate each derivation of Set II schematically. Note that the feature access hierarchy noted in (37) and the T-Agree > *v*-Agree work hand-in-hand along with the stated restrictions on relay and copy to produce the results; the letter-number indicates the sentence type as in (26), strikethrough indicates valuation, shaded indicates valued already, light font indicates not relevant, double asterisks indicate violation of feature access hierarchy:

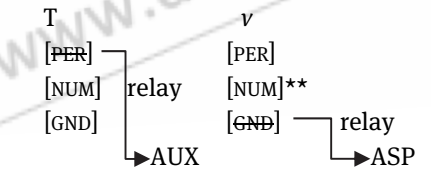
(43a) Median score = 2



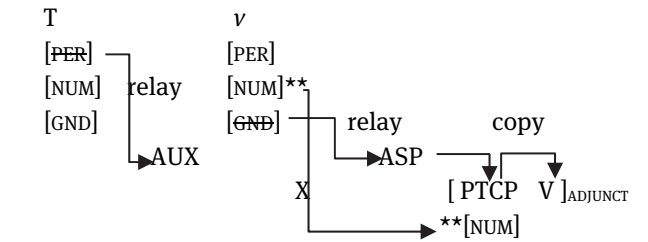
(43b) Median score = 2



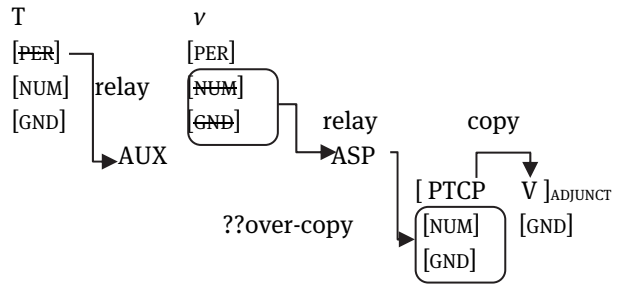
(43c) Median score = 5



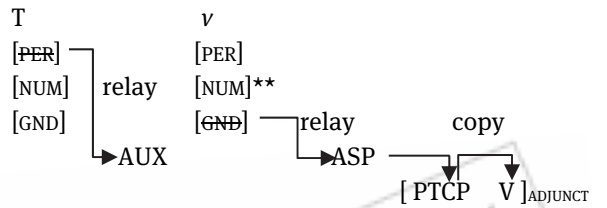
(43d) Media score = 5



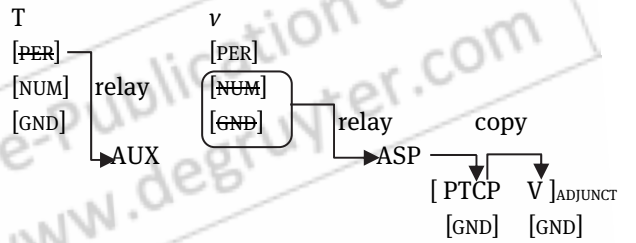
(43e) Median score = 3.5



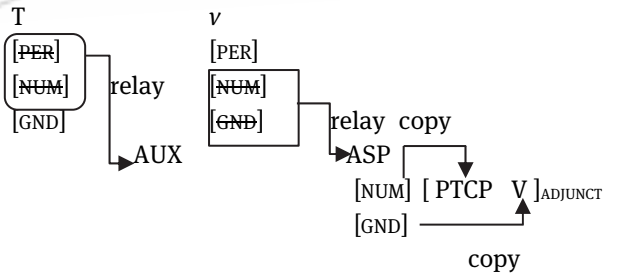
(43f) Median score = 5



(43g) Median score = 2



(43h) Median score = 2



From the above schema, we can now easily match the Median score with the derivation to figure out that those with the score of 5 (c., d. and f. in Table 6) have

skipped a step in the feature-access hierarchy in the *v*-Agree cycle and instead valued the lowest feature, namely, [GND]. Similarly, the 3.5 Median score for e. is accounted for by *over-copying*, copying two features at a time from ASP to PTCP into the adjunct. Note that for the derivation in (26h), although there is no violation of hierarchy or copy, the [NUM] feature is accessed by both the Probe heads, and furthermore, there are two copy operations from the same head ASP. However, since (26h) is a condensed version of at least 4 different examples and since data for all the various possibilities are not available, these extra steps in the derivation may be seen as a reflex of collapsing 4 different variations together.

With regards to the first paradigm (Set I), that is, the relative participle case, the general picture of the derivation remains the same as in the adverbial participle case, and is given in (46), for the so-called standard result, namely (21a), where the copying of the [NUM] feature does not take place. However, we saw that the (21c) variety, where the [NUM] feature is copied onto the participle, is in fact better than the standard. However, the result in (21d) cannot be explained through the above derivation, because if the [NUM] feature is available at the PTCP (as a result of copying it from *v*), then it should be able to copy into the V as well (or the V will pick it up by head movement), yet the result is not acceptable. Here, then, we have to reconsider the standard T-Probe story. Recall that unlike in the adverbial adjunct participle case, here we are dealing with Agree within the relative participle itself, and given the nature of participles, T cannot act as a legal Probe as it is not clear if a full TP is available in such structures. Given that negation within the RC is not admissible, as in (44), it is highly likely that even if there is a T, it is highly defective:[19]

19 I thank Ayesha Kidwai for pointing this out to me. Although, note that as pointed out in Mahajan (2017: 86), the lack of Tense (as well as relative pronouns and a subject) seems to be a feature of the prenominal relative clauses (and not the postnominal ones); interestingly, the example Mahajan uses for the point does contain a time adverb, as in the following:

(i) [*tumhāre kal kharīde hue*] *vo phūl bahut acche haĩ*
your yesterday buy.PFV.M.PL be.PFV.M.PL those flower.M.PL very nice.M.PL be.PRS.PL
'The flowers that you bought yesterday are very nice.'

It is also fine to include a temporal adverb inside an adverbial adjunct (*kal gānā gāte hue* 'yesterday while singing songs'). However, temporal adverbs are event modifying ones and therefore are taken to attach at the *v*P/ VP level (Ernst 2002, Haider 2000). Note though that if a sentence adverbial like *sac mẽ* 'in truth' "truly" is stuck at the initial position of the RC, it is odd if it is interpreted inside the RC in (i), or indeed inside an adverbial adjunct. I take this to mean that even if T is available in the RC, it is of a reduced nature, perhaps ϕ-incomplete, not being able to either participate in case marking (of a possible subject) or carrying finiteness. Note here that Mahajan identifies the so-called invariant participle form identified by Kachru (2006), V-*te hue*, as plural.

(44) **Ravi-kī nahĩ paṛhī huī kitabẽ*
Ravi-GEN not read-F PTCP.F books.F.PL
'The books not read by Ravi.'

In this derivation, therefore, given the discussion in footnote 19, I will assume that the relative participle clause is perhaps not a full TP with a ϕ-complete T,[20] and therefore probing for ϕ-features is initiated from *v* instead. A point that needs to be stated here is that Mahajan (2018: 93) makes a claim that even the *v* head is not available in these highly reduced prenominal relative clauses. This claim is based on the empirical fact that direct objects cannot remain in-situ in prenominal relatives with perfect participles, showing in turn that there is no case assigning head inside the relative clause. I will not adopt this stance here since the agreement facts clearly indicate that there is some Agree relation taking place inside the relative clause. In fact, I will take the stance more as in Mahajan (2017) which considers these clauses to have a *v* that is unable to assign case.[21] On the other hand, with regards to imperfective prenominal relative clauses, since the DO is allowed to remain inside such a clause, they ought to have an active *v*:

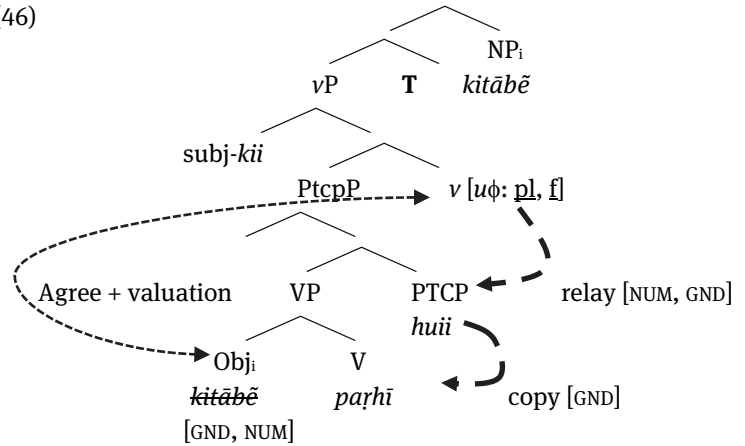
(45) *kitāb paṛh-tī (huī) laṛkī*
book read-IPFV.F (be.PFV.F.SG) girl
'The book-read girl.'

As before, relaying of features is a one-step process each, and copying here too is by default a one-step process since there is one Agree cycle only; additionally, I will consider that the last copying step cannot be copying [NUM], which also ensures that the [NUM] feature does not get copied "too deep", in consonance with findings in (23) and Result 2/3. The derivation sketched below in (46) represents the derivation for (21c) which has a Median score of 1, being judged more acceptable than the standard in (21a).

20 Apart from the reasons given in the text, this is also because the verb in prenominal participial relative clauses is always non-finite, as also noted in Mahajan (2017).

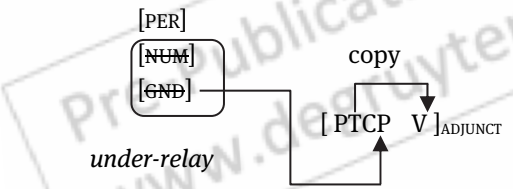
21 Note that one reason for this *v* being different could be because it is ϕ-incomplete due to lack of [person] feature, but I will not pursue it further here, noting that for our purposes, this incomplete *v* can still act as a Probe.

(46)



The standard in (21a) scoring less than the above is explained by looking at the schematic derivation in (47), which shows the phenomenon of *under-relaying*; that is, although both the [NUM] and [GEN] features are accessed (and valued) in the *v*-Agree cycle, only the latter is relayed on to the PTCP head in the adjunct:

(47) Median score = 2



The result in (21b) is ruled out in the above derivation by prohibiting the copying of a feature that is not available on the immediately dominating head (see 41); since the PTCP head does not have the [NUM] in that variant, it is not possible to copy it onto the lower head V. Copying by default here is only a one-step operation that refers to the immediately dominating head. Derivation of the result in (21d) – where both the V and PTCP carry both [GND] and [NUM] – can be ensured by invoking the requirement that copying is always a lesser operation than relaying; that is, it deals with a smaller set of features. Thus, if two features are relayed,

then one feature is copied.[22] In any case, the result in Set I being consistent with the result in Set II in not allowing the [NUM] feature to be copied too deep, any constraining principle should satisfy this requirement.

As noted, no further indep0endent Probe is available inside the adjunct; we considered this possibility with respect to the adverbial participles too (in 38). As mentioned previously, the adjunct T is highly deficient; for one, the verb form inside these adjuncts is always non-finite, making the adjunct T, if present, ineligible to act as a Probe by itself. It is also mentioned that the *v* too in these adjuncts is weak; however, even if *v* were to act as a Probe inside the adverbial adjunct, it would not be able to find the PRO as a Goal (assuming standard Agree), since due to a weak T, the PRO remains at [Spec, *v*P] position. In this paper, therefore, a system of probing from the main clause into the adjunct is established for Set II data, in particular through the matrix *v*, which finds the PRO inside the adjunct as the nearest Goal to Agree with, as is the case with derivation (39). Keeping to a phase-based derivation, I assume with Fischer and Høyem (2017) that PRO can be displaced at the edge of the adjunct for it to be licensed or accessed for Agree. Since the adverbial participles are all attached under the domain of T, an Agree relation between the matrix *v* and the PRO in the adjunct can be considered as establishing (obligatory) control.

7 Conclusions

This paper has laid out first the data and then the analysis of that data in support of the theory that microvariation ought to be studied more syntactically. The paper shows that the understanding of the agreement phenomenon in Hindi-Urdu obtained through broad comparative studies paints a picture perhaps more simplistic than it really is – a microparametric comparison, on the other hand, reveals minute details of agreement that are otherwise easily missed in the broad strokes.

The extent of variation reported in the domain of participial agreement in the two sets of data studied in this paper is given a syntactic analysis using the existing standard Agree model, which is shown to be capable of dealing with the

22 Note that since gender can be low in these cases of agreement, the [GND] feature does not have this restriction; this is confirmed by data such as the following where all are ungrammatical, showing that the [GND] features are copied all the way to V.

(i) *[*paṛhā* *huī*] *kitāb*/*kitābe*/*kitābẽ*
read-PFV.M be.PFV.F book/ book.OBL/ book.F.PL

extent of variation observed. One common observation that emerged from the data is that although the availability of the number feature should be lower than the person feature, it cannot be too low in the structure; this observation was captured in an analysis that proposed a system of locality by using the notion of relay – which is restricted to a one-step mechanism – and copying that has the restriction of copying one feature at a time.

The alignment of ϕ-features also implicates their accessibility in terms of T- and then *v*-Agree in consecutive cycles. The differential ϕ-feature access also indicates that participial agreement has to be lower in the clausal spine if participial agreement is restricted to only number and gender. As far as the alignment of different heads is concerned, this paper's findings suggest that they should be aligned as V-ASP-*v*-AUX-T – this is obtained through the variation data that shows that the [NUM] feature valuation can be a result of two different probes, either T or *v*. The similarities between the two sets of data also prompted an analysis that employed similar syntactic processes to account for the extent of variation.

Abbreviations

1 = first person; 2 = second person; 3 = third person; ABL = ablative; ADJ = adjective; ADV = adverb; AGR = agreement; ASP = aspect; AUX = auxliary; CL = clitic; DAT = dative; ERG = ergative; F = feminine; GEN = genitive; GND = gender; HON = honorific; IPFV = imperfective; M = masculine; NUM = number; OBJ = object; OBL = oblique; PER = person; PFV = perfective; PL = plural; PROG = progressive; PRS = present; PTCP = participle; RC = relative clause; SBJ = subject; SG = singular

Transcription

The transliteration of Hindi data in this paper follows the standard ISO-15919. https://en.wikipedia.org/wiki/ISO_15919

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