NUMBER AND CASE IN HINDI

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1. Introduction

The Hindi plural morphemes have 5 morphological forms (marked in bold in Table 1) that are thought to require arbitrary lexical specification. The plural morphemes clearly separate into "oblique" (non-nominative) and "direct" (nominative) forms; only the latter further vary by N-subcategory of gender, and its overt or covert occurrence on N.

Table 1.   Hindi singular and plural N forms by case and overt/covert gender

	Nominative/ Direct		Non-nominative/ Oblique	
	1. Singular	2. Plural	3. Singular	4. Plural
Masculine 1	N-aa *laṛk-aa* 'boy'	N-**ee** *laṛk-ee*	N-ee *laṛk-ee*	N-**õõ** *laṛk-õõ*
Masculine 2	N-Ø *bandar* 'monkey'	N-**Ø** *bandar*	N-Ø *bandar*	N-õõ *bandar-õõ*
Feminine 1	N-ii *laṛk-ii* 'girl'	N-ii-**ãã** *laṛk-iy-ãã*	N-ii *laṛk-ii*	N-ii-õõ *laṛk-iy-õõ*
Feminine 2	N-Ø *ããkh* 'eye'	N-**ēē** *ããkh-ēē*	N-Ø *ããkh*	N-õõ *ããkh-õõ*

There have been a couple of Distributed Morphology (DM) accounts of Hindi noun inflection (Singh and Sarma 2010, Sinha 2018). Sinha's analysis, which I discuss here, is an advance on the former, and has points of convergence with the analysis I propose. I argue (nevertheless) that Sinha's analytic framework is unexplanatory: it essentially formalizes an enduring perception that the plural morpheme shapes are arbitrary, and (crucially) also fails to account for their distribution.

Sinha's vocabulary entries for the plural morphemes, in (1) below, assume a syncretism of case and number (with a single morpheme expressing two morphosyntactic categories). Case-synthetic forms of the Number morpheme, though perhaps less common than case-synthetic forms of demonstratives and pronouns, are attested in Finnish (its nominative-accusative plural morpheme -*t* is a "synthetic expression of case and number," Caha 2009: 73ff.), Latin (where "it is not possible to separate number marking from case marking," Blake 2001:18), and Ancient Greek ("a fusional inflecting language in which case marking could not be separated from number marking," loc. cit.), among other languages.

(1) (Sinha's (17)) [plural]/_D[oblique] → -õ
    (Sinha's (18)) [plural]/_D[direct], [Class I] → -ã
    (Sinha's (19)) [plural]/_D[direct], [Class II] → -ẽ

Sinha excludes from the set of plural morphemes, as I shall, the non-nasalized vowel *ee* of the "nominative masculine plural" (Table 1, row 1, column 2).[1] At issue is the occurrence of *ee* also as the "oblique singular" (Table 1, row 1, column 3). Are there then two morphemes *ee*? Traditional descriptions would suggest so; but there are convincing arguments (that I do not go into here) that *ee* cannot be an instance of Number (*ee* triggers adjective and genitive case concord, but there is no Number concord in Hindi). I analyze *ee* as one of three vowels *aa*, *ee*, *ii* that spell out the categorizing head *n* that forms noun-stems from roots (Sinha calls them "basic morphemes"). I shall argue for Pesetsky's (2013) identification of *n* as an affixal instance of the syntactic category N, i.e., an N feature.

I differ from Sinha in analyzing the three plurals *õ*, *ã*, and *ẽ* in (1) as bi-morphemic. I claim that the vowels are predictable. The only lexically-specified feature of the Number head (the plural morpheme) is the feature "nasal." Accordingly, plural is realized as only a nasal feature in (feminine) verb agreement; the vowels in the feminine plural suffixes are ignored.[2] These suffix vowels of the feminine plural are restricted to *aa* and *ee*, which happen to also spell out the "masculine" categorizing heads *n*. The suffix vowel of the oblique plural is *oo*. This occurs also in the accusative case-marker *k-oo*. Pesetsky (2013) proposes that Case is a syntactic category feature, and that accusative Case is a V feature. If so, Hindi *k-oo* decomposes into the oblique case stem *k-* and a V feature *oo*; and the vowel *oo* spelt out in the oblique plural morpheme is arguably this V feature. I thus analyze the plural suffix vowels as Case features. The nominative feminine plural vowels are N features. Nominative case (I now claim) is a complex of T, D and N features: T, and Hindi D, are silent, and the three lexical realizations of the N feature *aa*, *ee*, *ii* in effect spell out nominative case.

My bi-morphic analysis of Number is consistent with the fact that masculine "plural" *ee* is not nasalized: *ee* is not an instance of Number. Sinha's treatment of the plurals as vocabulary items does not address this spell-out difference between "plural" *ee* and Number. I attribute the multiplicity of the nominative plurals to the multiple spell-outs available for the N feature. Analyzing the Hindi plural vowels as case vowels thus constrains their shapes; whereas the DM vocabulary entries in (1) could just as well be stated to deal with any arbitrary vowels in the plural morphemes, or multiple oblique (as opposed to direct) plural vowels.

Returning to *ee*, given the claim that there is only one morpheme *ee*, we need to explain how it occurs both as "nominative plural" and "oblique singular." Sinha treats *ee* as an

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[1] I return to the Ø-marked N in rows 2 and 4 in §2.

[2] Sinha fails to connect nasalization in the Number morpheme with nasalization in plural verb agreement, only noting in a footnote (his n. 2) that "an additional morpheme (nasalization)" occurs in agreement "following the –i in the feminine plural, in certain syntactic contexts," referring the reader to Bhatt & Keine (2017).

underspecified, "elsewhere," noun stem. It merges as oblique "singular" by virtue of a rule of impoverishment that deletes the feature [singular] in the oblique:

(2) (Sinha's (14)) [singular, oblique] → [oblique]

This excludes the specifically singular masculine morpheme *aa* from the oblique, and allows underspecified *ee* to occur in a "non-plural" context.

In other languages with the same nominative/non-nominative stem alternation as in Hindi, the non-nominative stem has a third instantiation as "oblique plural." [3] Hindi, however, exhibits no *ee* in the oblique plural; the oblique plural is *õõ*. What accounts for this? Sinha assumes that the oblique plural *õõ* suffixes to *ee*, and posits a rule that deletes *ee* before a back vowel:

(3) (Sinha's (6)) e → ø / _ [V+back]

Granting that "this rule can account for some minor irregularities in the Hindi verbal inflection system," the point to note is that Number, i.e., a regular plural morpheme *õõ*, suffixes to *ee* in the oblique plural. But in the nominative, there is no Number morpheme; and *ee*, which is underspecified for singular or plural (and is not specified for case), suffices to mark plural. Why then does it not suffice to do so in the oblique as well – why must Number occur in the oblique? Or (to put it the other way around), why does Number not occur in the nominative plural?

Sinha simply stipulates: the plural morphemes "are only found in either feminine or oblique contexts i.e. they are not found in the masculine direct." He posits "two fission rules … that put [plural] on a separate node, when this feature co-occurs with [feminine] or [oblique];" the plural morphemes

are realizations of this newly created [plural] node, which is why they are only limited to plurals. These fission rules are also able to account for why these morphemes are only found in the feminine plural or oblique plural, and not in the masculine direct plural. In the masculine direct plural, there is no fission, and the node for the additional morpheme is not created.

(4) (Sinha's (15)) [feminine, ..., plural] → [feminine, ...] [plural]
    (Sinha's (16)) [oblique, ..., plural] → [oblique, ...] [plural]

The fission analysis begs the question why "there is no fission" in the masculine direct plural, and how the Hindi-speaking infant deduces this; fission could just as well be stated to deal with a precisely opposite set of facts. It fails to answer the question, why does only the oblique paradigm instantiate Number in the masculine?

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[3] McFadden (2018:25) tells us that the stem for 'person' in Finnish is *ihmi-**nen*** in the nominative singular, and *ihmi-**s(e)*** "everywhere else," i.e., the nominative plural, the genitive singular, and the genitive plural.

Sinha's fission rules for only [feminine] and [oblique] N, cited in (4), in effect encode the traditional analysis of *ee* as a "nominative masculine suppletive plural." This is at odds with its "elsewhere" status, and underspecified number. The traditional assumption is that in suppletion, a plural feature merges "low" (lexically); suppletion occurs where a suppletive form is available (privileging it over regular inflection). Indeed, there are two masculine stems in Hindi, as against a single feminine stem; but *ee* is not lexically a suppletive plural. Nothing but the lack of fission in the nominative allows *ee* to spell out a complex of features that includes plural; and again, nothing but fission explains why *ee* is not a suppletive plural in the oblique as well.

The problem of Hindi *ee* requires (I suggest) the approach to suppletion mooted in Kayne (2020). Quoting Barbiers (2007) ("...suppletion applies when a regular morphological process is blocked for independent reasons..."), Kayne suggests that "In every case of suppletion, we must ask why the non-occurring expected form is impossible… the existence of the unexpected form will be an indirect side effect of the impossibility of the expected one."

> In no case of suppletion will it be satisfactory to say that the expected form is impossible merely because there exists an unexpected form able to 'take its place'. In every case of suppletion, the opposite will be closer to the truth; there will be no direct competition between the two.

I contend that Hindi Number fails to occur in the nominative masculine because it must spell out Case; but in the masculine paradigm, it fails to spell out nominative case. Nominative case at Number (I claim) is spelt out *aa.* The nominative masculine singular noun is also spelt out *aa,* and there appears to be a prohibition against identical vowels spelling out the N feature at the *n* stem (which I analyze as [+/0SINGULAR]), and at ([−SINGULAR]) Number. Suppletion thus occurs in the masculine nominative paradigm, across the board. But the *n*-stem *ee* cannot be lexically specified as either plural or oblique, given its occurrence in nominal concord, and in both nominative and oblique case projections. The Hindi masculine plural is then not an "inner plural" (Collins and Kayne 2020) that merges with *ee* lower than Number does. Rather, I suggest, what happens when Number cannot project is that the [plural] feature adjoins to the [0SINGULAR] NP-*ee*, which projects.

A question central to the analysis of the Hindi plurals is why Number is required to express Case. There is some cross-linguistic evidence (I suggest) that the structural cases may form a hierarchy or hierarchies with the D-system of the nominal phrase: the case hierarchy (Caha 2009) does not exist in isolation from DP's functional structure. Number, I claim, may contain structural Case, when both are included in a Definiteness or Deixis hierarchy.

The paper is organized as follows. I section 2, I argue that the "gender phi-features" of the Hindi noun are the categorial feature N. Section 3 extends to Hindi Pesetsky's proposal that case is a categorial feature, and Caha's (2009) case hierarchy where accusative is the highest oblique case. It proposes that the N feature (the "gender phi-feature") spells out nominative case, and that Number is spelt out as a nasal feature. Section 4 motivates the spell out of Number's nominative Case feature as *aa*: generalizing from the fact that an unvalued N feature

at T is (in the context of agreement failure) spelt out as "default agreement" *aa*. Section 5 argues that Caha's syntactic account of case syncretism generalizes to Number and Case syncretism.

2. "Gender" as a category feature N

N in Hindi must assume one of the three canonical shapes N-*aa*, N-*ee* or N-*ii* to merge in the syntax. Even where *aa*, *ee*, and *ii* are not pronounced on N, these morphemes are realized on the concording adjective and genitive case marker, and in verb agreement; showing that merely the spell-out of these features is suppressed, and only at N.[4] (For perspicacity, I retain the traditional glosses for these morphemes.)

(5) i. us -k -aa kaal-aa bandar -Ø ucchl -aa.
    3OBL.-stem-M.SG. black-M.SG. monkey-Ø jumped-M.SG.

   'His/ her/its black monkey jumped.'

   ii. us -k -ee kaal-ee bandar -Ø ucchl -ee.
    3OBL.-stem-M.PL. black-M.PL. monkey-Ø jumped-M.PL.

   'His/ her/its black monkeys jumped.'

   iii. ṭhaṇḍ-ii hawaa-Ø chal -ii.
    cool -F. breeze-Ø started-F.

   'A cool breeze started.'

Giusti (2011) notes that Italian nouns derived from present participles (*patente* 'license,' *cantante* 'singer'), themselves unmarked for gender, trigger gender inflection on adjectives.

Though described as gender-number morphemes, *aa/ee/ii* are better analyzed as formal categorial features of N, *n*-heads that derive N-stems from roots (cf. Harris' (1991) analysis of the putative gender morphemes of Spanish as "word markers"). Gender is grammaticized in Hindi, with "masculine" the unmarked category. A productive class of deverbal, non-finite verbal forms of N that correspond to the English infinitive/ gerund must appear as N-*aa* in the nominative, and N-*ee* in the oblique; arguing both that "masculine" is the unmarked category of N, and that all N must carry a categorial feature.

(6) i. andar aa -n **-aa** manaa hɛ.
    in(side) come-NOMNL.-**aa** is forbidden

   'No entry.' [lit. 'Coming in is forbidden.']

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[4] Sinha posits (in addition to "Class I" nouns with the "basic morphemes" *aa/ee/ii*) "Class II" nouns with a Ø "basic morpheme" (his vocabulary entry (10)). Given his assumption that the adjectival head *a* receives gender-number features from the head noun's *n*, this incorrectly predicts that Ø-marked N do not trigger overt concord. (Irrelevantly, there are also "indeclinable" adjectives in Hindi.)

ii. andar   aa   -n   **-ee**   see/ par …
     in(side)   come-NOMNL.-**ee**   by/ on

     'By coming in/ on coming in, …'

The data in (6) also argue that the N features *aa*, *ee* do not carry an interpretable feature "singular number." Mass non-count N like *paani* 'water' also trigger "singular" *aa/ee*-concord in the nominative and oblique; and earlier in (5 iii) again, we saw that the abstract noun *hawaa-Ø* 'breeze' carries a silent N feature *-ii* that triggers so-called "feminine singular" concord. We can thus agree with Pesetsky (2013:10) that "(t)he forms traditionally identified as 'singular' are actually default number forms, compatible with everything except [−SINGULAR] …," retaining the claim that [−SINGULAR] is the head of Number (Ritter 1991).

Why do Hindi "feminine" N, unlike "masculine" N, have only one stem form N-*ii*? "Masculine" and "singular," realized as *-aa*, are the default features of N (thus, *-aa* occurs also as "default verb agreement," where the verb in fact fails to agree with anything). Suppose only one of N's two default features can be otherwise specified. Then N can have a specified feature value for either "gender" or for "number." Given that gender occurs nearer the N-root than number, N specified for "gender" as [−masculine] cannot be further specified for "number," and can have only the default (elsewhere) "number" feature: this is the N-*ii* stem. But "masculine" N can be further specified for a "number" feature. This cannot (however) be the interpretable plural feature [−SINGULAR], assuming this to be realizable only as Number. I propose that the two values of "elsewhere" number suggested by Pesetsky, "singular or absence of NBR," split in Hindi to occur at the two masculine stems *aa* and *ee* respectively, and indicate these as [+SINGULAR] and [0SINGULAR] respectively, as permitted in binary systems.

3. Case as a category feature: N- and V-features in Hindi

Pesetsky (2013) proposes that Case reduces to syntactic category features, which are "affixal realizations of the various *parts of speech*." He identifies these features (which manifest in the syntax through feature sharing) with the lexical "categorizing morpheme" added to category-neutral roots in the DM framework. Genitive case (he proposes) is an N feature, and Accusative case is a V feature. These two claims can be straightforwardly extended to Hindi.

3.1 Genitive and accusative case

The N feature appears in genitive case, spelt out as *k-aa*, *k-ee*, or *k-ii* to concord with the the possessed N (examples (5 i, ii) above illustrate the first two instances of genitive case concord). Hindi genitive case (thus) is *k*-N. We note (however) that Genitive is morphologically oblique in Hindi, and Dravidian. In Russian as well, genitive case is traditionally grouped among the obliques (Pesetsky 2013, n.2). Thus, the N feature of genitive case appears on the oblique case-stem *k*; and the plural marker in the genitive case phrase is the oblique *õõ*.

The accusative case-marker in Hindi is *k-oo*, where *k-* (we said) is the oblique case-stem. If accusative case is a V-feature, the vowel *-oo* must realize the syntactic category V. Some support for this is that the imperative form of the Hindi verb ends in *-oo*: *deekh-oo* 'see-IMP.' *nahaa-oo* 'bathe-IMP.' The imperative is not usually an inflected verb form; in English and some other languages it is the bare infinitive. If so, the *-oo* that surfaces in the Hindi imperative could be the V-feature (and not the "2nd person imperative" inflection). The morpheme *oo* also surfaces as a subjunctive inflection, where the verb is not tensed. Pesetsky (2013, n.12) suggests that "the so-called 'theme vowel' attached to the stem of the Russian verb is a V feature, the verbalizer of a category-neutral root." Hindi *-oo* functionally parallels such a theme vowel: it verbalizes a root *jaa-* in *jaa-oo* 'Go!' (Compare *jaa-n-aa* '(the) going,' where the root *jaa-* is nominalized by *-(n)-aa*, which displays the default N-features on a (non-bare) infinitive stem morpheme *n*.)

The fact that *õõ* is the plural marker in all oblique cases suggests the relevance to us of Caha's (2009:21ff.) Case hierarchy, a "cumulative sub-classification" of cases wherein each lower case has the higher cases' feature(s) plus its own distinct feature that separates it from them. Accusative, immediately below nominative, is the highest oblique case, and all non-nominative cases have the accusative case-feature. Genitive case is lower than accusative case, and therefore contains an accusative case feature. It is this accusative case feature that the Hindi genitive plural spells out. (I return to this point in §5.)

3.2   Nominative case

The logic of the proposed analysis requires that the nominative plural vowels in Table 1 spell out Nominative case. Nominative case is usually thought to have no morphological reflex. However, ever since the earliest accounts of nominative case assignment, Tense has been endowed with an unexplained set of (uninterpretable and unvalued) nominal features, called phi-features; and their appearance as "phi-agreement" has been viewed as an "imperfection" in language. We have said that the so-called phi-features *aa/ee/ii* of Hindi spell out the categorial N feature. These features at T are, therefore, not T's "gender phi-feature," but its N feature. T also has the nominal features of Number and Person. I shall therefore say that nominative case consists of the features T, D and N.

Pesetsky (2013) maintains that nominative case is D ("nothing external to the DP (plays) any role in the assignment of nominative morphology"). In Russian, D's categorial feature on N "deletes all but the outermost case suffix," such that "the surface form of nominative nouns in Russian shows no evidence of an NGEN suffix inside the DNOM." But in Hindi, the merge forms of N are the nominative singular forms: [[*laṛk*]-*aa*], [[*laṛk*]-*ee*] and [[*laṛk*]-*ii*] are all nominatives. Among the features T, D, and N, only the last is spelt out in Hindi: Hindi D is null, and T again is null in the majority of languages (Pesesky and Torrego 2007).

3.3 The spell out of Gender and Number Agreement in the nominative

The features *aa*/*ee*/*ii* appear also in verb agreement. I shall say that T's N feature is unvalued, and functions as a probe that obtains a value from the lexically valued *n* at the nominal head.

T also has an unvalued Num feature, which (when Number is projected in the DP) is valued and spelt out on the verb as number agreement. Hindi Number agreement manifests as just a nasal feature: in (7) below, a nasal feature occurs on the N "gender" feature *-ii* (recall that nominative Number is projected only in the feminine). The vowels *aa* and *ee* in the feminine plural suffixes for 'girls' (*ãã*) and 'eyes' (*ẽẽ*) do not occur in plural agreement. If the nominative plural morphemes were lexically specified for these vowels (as they are in (1)), we would expect them to be spelt out by the Number "phi-feature" valued at T.

(7) i. laṛk-i(y)-**ãã**   uṭh   **-ı̃ı̃.**
    girl -F.   -PL.   got up-F.PL.

    'The girls got up.'

  ii. ããkh-Ø-**ẽẽ**   khul   **-ı̃ı̃.**
    eyes -F.-PL.   opened-F.PL.

    '(The) eyes opened.'

4. Number and Case

Number in Hindi, like the Demonstratives, expresses (only) one of two cases: nominative, or non-nominative; i.e., the Hindi D-system distinguishes only the structural cases nominative and accusative. In this section I consider how case, in particular, nominative case, is spelt out at number. I motivate the spell out *aa* for it, and argue that Number cannot spell out its case feature *aa* when it suffixes to the masculine singular noun stem *aa*, owing to a prohibition against identical spell out of these two conflicting N features. Suppletion thus occurs where regular inflection fails.

In Caha's case hierarchy, morphologically adjacent cases may advertise their adjacency in one of two ways: by syncretism (Caha's main concern), and by "case-containment" or "compound case marking," where the morphological marking of cases lower in the hierarchy contains the morphological marking of higher cases. Thus, "in English or Bulgarian, all oblique cases are based on the accusative" (Caha 2009:37); as also in Dravidian (McFadden 2018). Hindi Demonstratives appear to be syncretic with case (cf. nominative *ya(h)*, *ye* 'this, these' with oblique *iss*, *in*); whereas Hindi Number (on my analysis) "contains" and expresses a nominative or accusative case feature. In §5 I propose that the nominal functional heads Number (and D/Dem) be included in Caha's theory of case sub-classification, such that syncretism or feature containment is consistently syntactic, requiring adjacency of nodes. For now, however, I merely postulate a case feature V or N at Number in Hindi:

(8) Number ⟶[[+nasal], [N]], or [[+nasal], [V]]

In Hindi, I assume, Nominative case is not a member of the case hierarchy headed by the accusative V-feature. For Caha, Nominative is the highest case in the same case hierarchy as the obliques; what separates it from them is merely its lack of the accusative feature. This allows nominative and accusative forms to synthesize, as in his example of the Finnish nominative-accusative plural morpheme -*t*. Hindi, however, maintains a strong oblique versus non-oblique distinction in the D-system, suggesting that nominative is excluded from the oblique case hierarchy.

4.1   The spell out of oblique case at Number

I shall assume with Caha that cases are base-generated on NP. Let us (for now) simply say that Number in the oblique case projection (9) occurs with the appropriate case feature, by virtue of selection at merge.

(9)
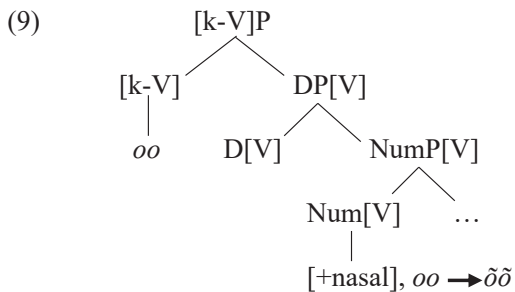
The V feature has the single spell out *oo*, and this combines with Number's nasal feature; thus, the oblique plural is spelt out *õõ*.

4.2   The spell out of nominative case at Number

What is the spell out for nominative case at Number? Here we need to consider some typical facts about the occurrence and spell out of the feature N. First, a nominal cannot surface without its categorial feature N: N is spelt out on a morphologically productive class of deverbal nominals (infinitivals/ gerundives), cf. (6). Second, the N feature cannot be silent except at lexically specified N. It cannot be silent in the productive class of nominals in (6). Nor can it be silent in nominal concord (5). Nor, indeed, can it be silent at T: hence (I claim) the occurrence of "default agreement." "Default agreement" *aa,* I suggest, is the default spell out of the N feature at T.

4.2.1   Default agreement

"Default agreement" (to briefly digress) is a misnomer for nominal morphology that appears on the verb in a finite clause where Agree has failed. It is the appearance of an N-("gender") feature at T in the absence of Agree, i.e., where T has not feature-checked any

argument to assign nominative case to it. In Hindi, Agree fails in (i) ergative clauses with a *k-oo*-marked object, where T can agree with neither the ergative-marked subject, nor with the overtly case-marked object; and (ii) in passive constructions where the verb carries passive morphology, but the thematic object retains its *k-oo* marker (precluding nominative case assignment to it). In both these kinds of clauses, the verb surfaces with so-called "default agreement," morphologically realized as -*aa*.

As pointed out by Anand and Nevins (2006:19), "default agreement" is a problem for classical Agree theory. These authors assume a unique head T*checked*, specific to Hindi, valued for the "3m.sg." feature. But it seems odd to designate a T that does not agree with any argument as a "checked" T: what has checked it? The presupposition is that for an uninterpretable "phi-feature set" at T to have a value and surface, it must have somehow been "checked," i.e., that T must Agree. But we have observed that the N feature cannot be silent unless lexically silenced; and that *aa* is a default value of N. Thus, we can conclude that unvalued N at T is spelt out with the default feature *aa* whether or not it Agrees (though where possible, it gets valued by Agree). Default agreement results (thus) not from the requirement that "T must Agree," but that the N feature at T must be spelt out when the verb raises to T.[5]

4.3   The spell out of N at Number

The consequence I derive for the spell out of [N] at Number is that it is spelt out as *aa*: the nominative Number suffix, I shall say, is *ãã*. We know that [N] at Number does not Agree: it does not concord with the nominal head's N features. Thus, the plural suffix for "feminine" N, N-*ii*, is spelt out with the "masculine" *n* stem vowels *aa* and *ee* (cf. (7)). Is there then a rule of dissimilation, that requires the plural vowel to spell out an opposite gender value than the head noun? If so, we should expect the masculine plural suffix to be *ĩĩ*: *laRkaa ~ laRkaa-ĩĩ* 'boy, boys,' should pair with the occurring *laRkii ~ laRki(y)-ãã* 'girl, girls.' The absence of **laRkaa-ĩĩ* 'boys' argues that there is no putative rule of dissimilation. I.e., [N] at Number does not Agree; so it must be spelt out with a default feature *aa*.

I now assume that there is a prohibition against identical spell out of N in the nominal head *n* and the plural morpheme, perhaps due to feature-conflict: the latter is [−SINGULAR], the former [+SINGULAR]) or [0SINGULAR]. (We may note that in a putative form **laRkaa-ãã*, Number would in effect be pronounced simply as a nasal feature on the non-plural N's vowel. Such a spell out of plural indeed occurs in Hindi verb agreement, but it seems that the Number suffix must not fuse with the head noun.) Thus, the plural suffix cannot occur in the nominative masculine.

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[5] Preminger (2009) discusses at some length the conditions under which default agreement can legitimately appear (namely, only where phi-agreement fails). He does not consider *why* it must appear at all, but given his assumption that it is a "phi (agreement)-feature," the conclusion must (still) be that "T must agree," for reasons unknown.

If the nominative plural is *ãã*, what accounts for the second nominative feminine plural suffix *ẽẽ*? This spell out of plural is contingent on spell out suppression of *ii*. Thus, the standard form *ããkh-(Ø)-ẽẽ* 'eyes' has a doublet *akh-iy-ãã* in classical Hindi poetry, showing that *ãã* is pronounced where *ii* is pronounced. In Dakkhini Hindi (on the other hand), even null-marked N surface with *ãã* in the plural: *ããkh-(Ø)-ãã* 'eyes', *aurat-Ø-ãã* 'women', *baat-ãã* 'words, speech', arguing that *ãã* is indeed the feminine plural suffix. Suppose in the sequence N-*ii-ãã*, the vowels *ii* and *aa* fuse in the phonology (cf. the pronunciation of this sequence as *i(y)-ãã* in, e.g., *laRki(y)-ãã*). Perhaps, then, *ii* alone cannot be targeted for deletion, and the vowel sequence deletes. This strands a nasal feature, and *ee* is inserted to allow it to be pronounced.

4.4   *ee* as suppletive Number

How is N-*ee* specified as plural in the nominative case projection? It occurs as "elsewhere" (non-plural) number in the oblique, where it takes a regular plural suffix (and deletes). If *ee* is the "absence of NBR" subcase of elsewhere number [0SINGULAR], it must merge with number (Pesetsky 2013).

Accounts of suppletive number (including Collins and Kayne (2020)) assume it to be more restricted than Number (applying only to specified roots/ stems), merging lower than Number (at the root or *n*) (Collins and Kayne posit an "inner plural" that an "outer plural" may select, allowing in some languages for double, i.e., irregular and regular, plural marking). But Hindi N-*ee* merges with the Number suffix in the oblique; this suggests that this is the level as well at which N-*ee* merges in the nominative with a [plural] feature, which (however) cannot project.

I adopt for the feature [plural] a proposal by Cable (2010) for question particles, that they may either project a QP that contains an XP with a *wh-* item, or adjoin to such an XP; and propose that [plural] can merge either as the head of Number, or (where Number fails to project) merge adjoined to NP at the level in the functional structure where Number usually instantiates.

(10) i. [plural] projects NumP:

NumP
 / \
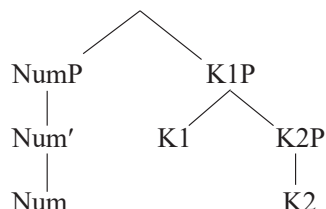Num   NP
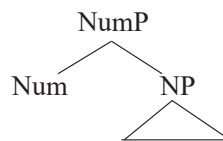
ii. [plural] adjoins to NP:

NP
 / \
Num   NP
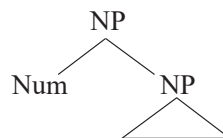
5.   Number, the Case hierarchy, and syncretism/ case containment

Number "suppletion" or "allomorphy by case" is currently handled by lexical specification. Sinha uses contextual features for the Hindi plural allomorphs, but DM also provides for

vocabulary insertion into post-syntactically fused nodes. Caha contrasts his syntactic account of case-syncretism with the prevailing lexical approach, but nevertheless resorts to lexical specification for Finnish *-t*, the nominative-accusative plural morpheme, "a portmanteaux morpheme … which spells out both case and number," "a synthetic expression of case and number." Caha's lexical entry (43) (=11 below) specifies *-t* for phrasal lexical insertion into both Num and Case nodes (Caha 2009: 73ff.).

(11)   Caha's (43) -t →

```
                          /\
                         /  \
                  NumP        K1P
                   |         /   \
                 Num'      K1    K2P
                   |              |
                 Num             K2
```

Because "case and number do not form a constituent to the exclusion of the NP" that receives case in the syntax, *-t* is spelt out at Number before to raises to above K1P. This immunizes the NP from further spell out when it moves to the left of the structural cases, although it ultimately contains these case features.

5.1   The Case hierarchy and the D-system

The Case hierarchy isolates Case from the other elements in the functional system of the nominal phrase, ignoring the possible syncretization of Case with Dem and Num. These instances must then be treated as language-particular accidents, resulting in a theoretical inconsistency in the treatment of syncretism. The conditions for case syncretism/ containment as stated by Caha are:

(12)   (Caha's (50), p. 33) Components of the theory

    a.   Individual cases are built from atomic features by Merge
    b.   The features are ordered in a universal functional sequence

There is a clear universal functional sequence of elements ordered in a binary sequence in the DP (other than in Case): namely, Cinque's (2005) sequence Dem-Num-A-N. What needs to be shown is that the functional elements Dem and Num share features with Case relevant to syncretism, that allows them to be part of the Case hierarchy. In such a putative hierarchy, D may be parallel with functional prepositions rather than case; it is not always morphologically a suffix. Plural, on the other hand, is usually a suffix, like case. I shall speculate here only about the relationship between Case and Number.

5.1.1   Number, Case, and definiteness

One possibility is that Accusative case has a feature of definiteness. In Bulgarian, where "full nouns bear only a nominative or accusative case suffix," "the distinction between nominative and accusative is made only with definite DPs" (Caha 2009: 34, and n. 22). In Hindi

(and the Dravidian languages), it is a commonplace that the overt manifestation of the accusative case-marker yields a definite reading of the direct object (Bhatt and Anagnostopoulou 1996).

Interestingly, the Hindi oblique plural *õõ* always occurs with the case marker *k-oo*. When *k-oo* does not occur, *õõ* cannot occur. This is illustrated in (13). The object argument in (13i) and (13iii) is plural but not definite. It displays absolutive plural morphology *-ee* or *ãã*, not accusative plural morphology *õõ* (the absolutive is morphologically identical with the nominative), and *k-oo* is prohibited (indicated as (*k-oo*)). (In (13i), irrelevant to my argument, *ghooḍ-ee* 'horse' can have a non-nominative singular but definite reading that can co-occur with accusative *k-oo*.) In (13ii) and (13iv), the plural object is definite. Accusative plural morphology *õõ* and *k-oo* must both occur.

(13) i.   vo   ghooḍ-ee   (*k-oo) beectaa hƐ.
         3SG. horse -ABS.PL.   *k-oo* sells

         'He sells horses.'

     ii. vo   ghooḍ-õõ   *(k-oo) beectaa hƐ.
         3SG. horse -OBL.PL.   *k-oo* sells

         'He sells the horses.'

     iii. vo   kahaan-iy-ãã   (*k-oo) likh-t-aa hƐ.
         3SG. story -ABS.PL.   *k-oo* writes

         'He writes stories.'

     iv. vo   kahaan-iy-õõ   *(k-oo) likh-t-aa hƐ.
         3SG. story -ABS.PL.   *k-oo* writes

         'He writes the stories.'

Some other data are suggestive also of a correlation between definiteness and genitive case in Hindi (recall that genitive case contains the accusative case feature in Hindi, as in the Caha hierarchy). Hindi has dative experiencers, but only genitive possessors (Dravidian, in contrast, allows dative possessors). Dative case on the possessor-experiencer appears to be contingent on DP's indefiniteness. In Hungarian, possessors are obligatorily dative in an indefinite DP, whereas in the definite DP they can also be nominative (Szabolcsi 1987). In South Asian languages, the experience-denoting head in the dative experiencer construction is typically indefinite (e.g., hunger, a headache, fever). Some experience-denoting nouns can (however) be pluralized. In English, e.g., *amusement/ excitement* can occur as count nouns (*the amusements in the park include a ferris wheel*, *the excitements of the day had tired us out*). In Hindi, such pluralized nouns must occur with a genitive-marked possessor; the dative case cannot occur. Note the dative-genitive contrast, i.e., experiencer and possessor contrast, in the paired examples below.

(14) i. mujh-ee   ummiid hɛ /   aasha hɛ   (ki …)
       I   -DAT. hope   be.SG   hope be.SG   (that …)

       'I hope (that …)' (lit. 'I have (a) hope that …')

  ii. mee-ri   (*mujh-ee) kaii ummiideẽ hɛ̃ / kaii   aashaayẽẽ hɛ̃
       I   -GEN.F (*I   -DAT.) many hope.PL. be.PL. many hope.PL.   be.PL.

       'I have many hopes/ wishes.'

(15) i. mujh-ee   tair -nee kaa   shouk   hɛ.
       I   -DAT. swim-INF. GEN.M fondness be.SG

       'I have (a) fondness for swimming.'

  ii. mee-r-ee   do shouk   hɛ̃   – taash aur sinema.
       I   -GEN.M.PL. two interests be.PL.   cards and cinema

       'I have two interests – cards and the cinema.'

Given these correlations between definiteness, accusative case, and plurality, suppose we assume that the Hindi definiteness feature projects a hierarchy that includes Accusative Case and Number:

(16)   [Definiteness]

      Acc. [V]

          Num [plural, V …]   …
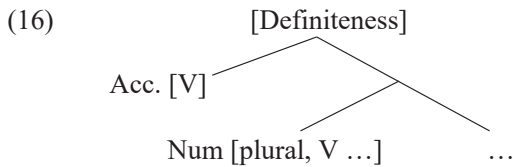
5.1.2   Number, Case, and deixis

Given that Hindi distinguishes "direct" from "oblique" case, and that Tense signals temporal deixis, a second possibility is that deixis is a feature that nominative case shares with the D-system:

(17)   Deixis

    T

      D

        Num   …
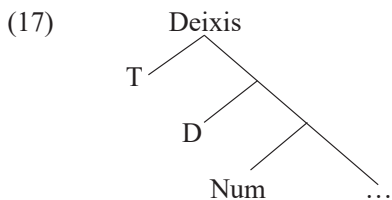
5.2 The spell out of Number and Case in syncretism and containment

In the Caha case hierarchy, genitive case contains a (usually non-overt) accusative case feature. But Number seems to spell this accusative case feature out. We have noted this for the Hindi genitive, and it seems to happen also in Caha's example of West Tocharian. As it stands, why Number should spell out an inner accusative case feature of genitive case, and how this is

to be implemented, is not clear. But if Number contains Accusative case, as in the suggested hierarchy (16), Accusative would raise to Number, and the latter is routinely spelled out.

The Hindi genitive (we said) is *k*-N. Its NP complement in the singular (18) is *laRk-ee*. This NP can simply move to a position c-commanding the genitive case suffix, which is taken to be the pronunciation of both the accusative and genitive features (Caha 2009:53). Or, we could say, the highest feature is spelt out. The accusative feature *oo* is not spelt out.

(18)   [[laRk-ee] k-aa kutta] 'the boy's dog'
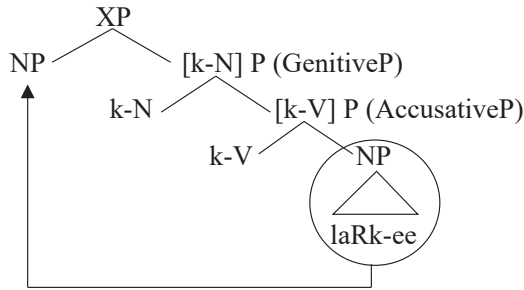
In (19), the possessor is plural. It takes the form *laRk-õõ,* where *oo* is the V feature of accusative case. I.e., the accusative feature of genitive case seems to be spelt out when what raises is NumP, not NP:

(19)   [[laRk-ee-õõ] k-aa kutta] 'the boys' dog'
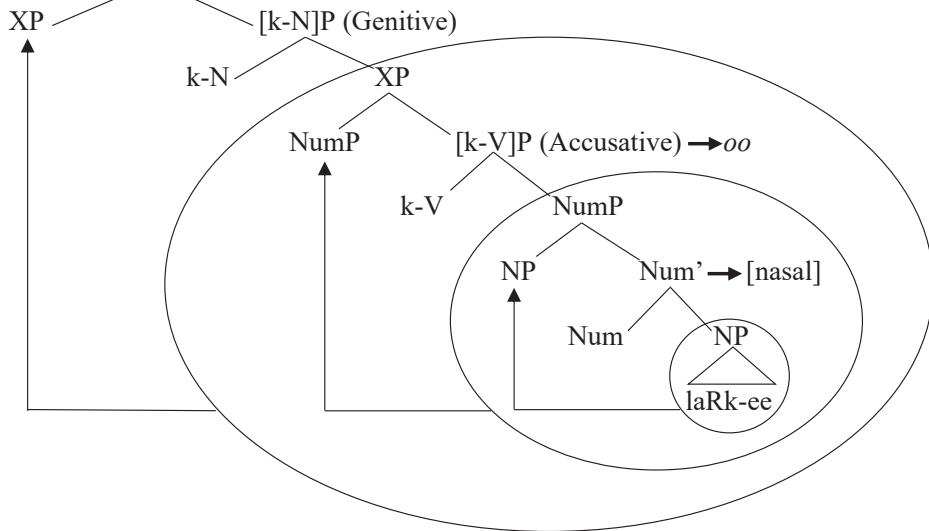
There is a striking parallel between these Hindi data and Caha's West Tocharian example (Caha 2009:69). In West Tocharian, "the GEN/DAT plural (*m̥-ts*) is based on the ACC plural (*m̥*)," although in the singular, "GEN/DAT attaches to the stem." Caha observes that the phenomenon receives "a straightforward implementation" in his framework: "(t)he language splits the

genitive plural into component parts: first the accusative is spelled out, and then separately the additional feature which turns the accusative into the dative."

But the point to note is that in West Tocharian as in Hindi, accusative case is not spelt out inside genitive/ dative case when N is not plural. Why is this so, and how do we specify this?

Suppose that in (19), Number actually projects above accusative, not below it: Number contains accusative case. Then Accusative is spelt out because it raises to Number. Accusative case is a member of two hierarchies in (19): one a case hierarchy, the other a definiteness hierarchy. In Caha's theory of Universal (Case) Containment, elements to the right in a sequence (i.e., lower in a hierarchy) can contain elements on the left. Thus, Genitive, lower than Accusative and to the right of it in the case sequence, contains Accusative (in the syntax, genitive occurs above accusative and contains it). Now in the Definiteness hierarchy (16), we have posited Number lower than Accusative; thus, Number contains the accusative case feature in the definiteness hierarchy. In the syntax, then, Number must project above the accusative case phrase, and Accusative is spelt out when Number is spelt out. The postulation of the hierarchies (16-17) thus accounts more generally for why Number in Hindi spells out case. I now revise (19) to (20).

(20)   [[laRk-ee-õõ] k-aa kutta] 'the boys' dog'
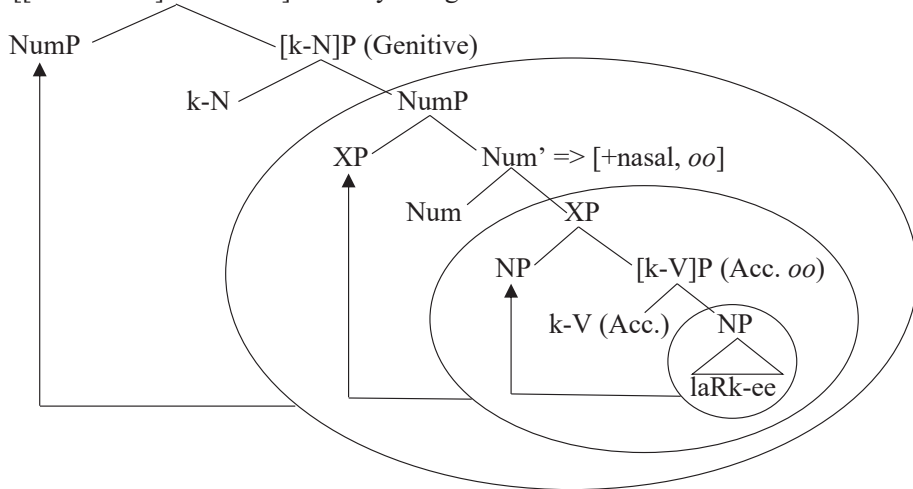
We now also have a possible account of Finnish nominative-accusative plural *-t,* a portmanteau morpheme that Caha needs to spell out below case at Number, because in the syntax "case and number do not form a constituent" that excludes the NP* that moves to receive case. In the regular Finnish obliques (excluding nominative and accusative), Number and Case are affixes that are spelt out in that order. NumberP is below Case in the syntax, as in (19) (cf. Caha's (40), p. 73). NP* first raises to Number, which is spelt out *-i-*. NP* then pied-pipes Number to raise to above a Case Phrase.

But if we assume this same derivation in the nominative and accusative (Caha points out), the portmanteau morpheme *t-* needs to be spelt out after NP* pied-pipes Number to above these

case phrases. But now there is no node that can be spelt out where "case and number form a constituent:" Number is not part of the case hierarchy for Caha.

I have suggested that Number can contain the structural cases; and that (case)-containment and suppletion are to be consistently analyzed in terms of syntactic relations. Suppose we now say that suppletion or containment of Case in number is contingent on a reversal of the containment relations between Case and Number in (19), where they are morphologically realized as affixes, to (20). In the Finnish accusative and nominative cases, therefore, NP* does not combine with Number before it raises to case. Number contains these cases; this is why syncretism becomes possible. What NP* raises to is a "D"P (Deixis/ DefinitenessP) that contains the structural cases and number, and spells these features out as -t. Then -t does not need the lexical entry (11) (Caha's (43)); and the suppletive plural occurs only where Number occurs in a hierarchy with the structural cases, which is not just a case hierarchy but a definiteness or deixis hierarchy, with spell out at the highest head.

6. Conclusion

I have argued that the Hindi plurals require an approach to suppletion as a failure of regular inflection, and to syncretism as a morpho-syntactic occurrence between adjacent functional heads in a hierarchy, contingent perhaps on their reversal. The DM machinery that allows formalization of the syncretism and suppletion facts so as to merely ensure appropriate vocabulary insertion for the Hindi plurals is too powerful to be explanatory. My account centres on the syncretism of Number with Case. I argue for Case as a syntactic feature, and the spell out of nominative case as an N-feature. In the absence of this last deductive claim, the shapes of the Hindi plurals, which obviously vary by case, cannot be seen to derive systematically from a case-feature.

This account of the Hindi plural morphemes amounts to catching a tiger by its tail, in so far as it proceeds to address the nature of Case, of syncretism and suppletion, and of morphological features; while also revealing aspects of the Hindi morphosyntax beast that constitute three of its well-known, if apparently exotic, puzzles: the occurrence of "default agreement" *aa* in the face of agreement failure; of a single morpheme *ee* interpreted as either "nominative plural" or "oblique singular;" and of a specific morpheme *aa* restricted to the nominative projection. Although I have not elaborated on the last point here, I believe it too to proceed from the occurrence of *aa* as a default N feature. The account of *aa* as specifically nominative, rather than *ee* as oblique, is crucial for a unitary account of *ee*; it is also an account that McFadden (2018) moots (but does not pursue) for a putatively non-nominative stem in languages such as Finnish.

happiest memories. I remember presenting some work on the topic of Number and Case in Hindi at Nanzan in 2010, and it has been one of my preoccupations since then; so, I am very happy to present my current thoughts on this topic once again, in this volume.

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