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A Two-Tiered Theory of Case Features: The Case of the Hindi Case(-Marking) System

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1. Introduction

The aim of this talk
to propose a two-tiered theory of case features from the perspective of post-syntactic morphology (Halle and Marantz 1993, 1994; Embick and Noyer 2007) and to describe its application to Hindi.

Three layers of forms that may involve case(-like) functions in Hindi (Masica 1991)

	Spencer (2005) (cf. Otoguro 2006)	Mohanan (1994a, 1994b) (cf. Butt and King 2005)
Nominal Inflections	Case Values [Nominative, Oblique, Vocative]	
Postpositional Clitics		Case Values [Nom, Dat, Acc, Erg, Gen, …]
Complex Postpositions		

Previous Accounts
Mohanan (1994a, 1994b) argues that the postpositional clitics realize case values, while Spencer (2005) proposes that the nominal inflections realize three case values: nominative, oblique, and vocative.

(1) *Nominal Inflections and Postpositional Clitics*
a. ilaa-ne mãã-ko baccaa diyaa.
Ila-ERG mother.OBL-DAT child.NOM give.PERF
"Ila gave a/the child to the mother."
Complex Postpositions
b. bacce-ke liye
child.OBL-GEN.OBL for
"for the child"
c. bacce-ke dvaaraa
child.OBL-GEN.OBL through (the agency of)
"through (the agency of) the child"

Proposal
The nominal inflections and postpositional case clitics in Hindi realize the same set of syntactic case values despite their radically different morphological appearances.

2. Hindi Data

2.1 The Nominal and Adjectival Declension

The Nominal Declension

The nominal declension involves a three-way case distinction: **nominative**, **oblique**, and **vocative**.

The Nominal Declension System in Hindi (Agnihotri 2007: 50-53)

Table 1(a): *kamraa* "room", *ghar* "home"

	Singular	Plural
Nominative	*kamraa*	*kamre*
	ghar	*ghar*
Oblique	*kamre*	*kamrõ*
	ghar	*gharõ*

Table 1(b): *nadii* "river", *kitaab* "book"

	Singular	Plural
Nominative	*nadii*	*nadiyãã*
	kitaab	*kitaabẽ*
Oblique	*nadii*	*nadiyõ*
	kitaab	*kitaabõ*

Nominative nouns occur in isolation, while most oblique-marked nouns occur with one of the following postpositional clitics: *-ko* (Dative/Accusative), *-ne* (Ergative), *-k(aa/e/ii)* (Genitive), *-se* (Instrumental), *-mẽ* (Locative 1: "in"), and *-par* (Locative 2: "at, on") (Mohanan 1994a):

(2) a. bacce-ne kiyaab paḍ^{h}ii.
child.OBL-ERG book.NOM read.PERF
"The child read a book."

b. niinaa bacce-ko uṭ^{h}aayegii.
Nina.NOM child.OBL-ACC lift.FUT
"Nina will pick the child up."

c. niinaa-ne bacce-ko kitaab dii.
Nina-ERG child.OBL-DAT book.NOM give.PERF
"Nina gave the child a book."

d. raam-ne bacce-kaa naam pukaaraa.
Ram-ERG child.OBL-GEN name.NOM call.PERF
"Ram called the child's name."

e. raam-ne ḍaṇḍe-se sãã̃p-ko maaraa.
Ram-ERG stick.OBL-INSTR snake-ACC kill.PERF
"Ram killed the snake with a stick."

f. baccaa kamre-mẽ baiṭ^{h}aa hai.
child.NOM room.OBL-LOC sit.PERF be.PRES
"The child is sitting in the room."

Oblique nouns may occur in isolation (i.e. without any postpositional clitic) in most dialects when they refer to a locational goal (Mohanan 1994a: 88):

(3) raam Kalkatte gayaa.
Ram.NOM Calcutta.OBL go.PERF
"Ram went to Calcutta."

Butt and King (2005) claim that the above usage of the oblique inflection is the only one that preserves its case function.

Generalization
The oblique inflection subsumes the ergative, accusative, dative, instrumental, locative, and genitive cases.

Two comments about the postpositional clitics

1. The accusative clitic is syncretized with the dative clitic (*-ko*).
2. The genitive clitic *-k(aa/e/ii)* is different from all the other case clitics, in that it inflects for gender, number, and case of the possessed noun in the same way as variable adjectives do.

Table 2: Declension of the Genitive Clitic (Agnihotri 2007: 188)

Masculine

	Singular	Plural
Nominative	*-kaa*	*-ke*
Oblique	*-ke*	*-ke*

Feminine

	Singular	Plural
Nominative	*-kii*	*-kii*
Oblique	*-kii*	*-kii*

Table 3: Correspondence between the Nominal Inflections and Postpositional Clitics

Syntactic Case Values	NOM	DAT	ACC	ERG	INSTR	LOC	GEN
Nominal Inflections	Nom	Oblique					
Postpositional Clitics	*-ø*	*-ko*		*-ne*	*-se*	*-mẽ, -par*	*-k*

The Adjectival Declension

Invariable adjectives do not decline at all, while *variable adjectives* inflect for gender, number, and case of the modified noun.

The declension of a variable adjective *lambaa* "tall" (Agnihotri 2007: 98):

Table 4(a) : "tall boy(s)"

	Singular	Plural
Nominative	*lamb-aa* laṛkaa	*lamb-e* laṛke
Oblique	*lamb-e* laṛke	*lamb-e* laṛkõ

Table 4(b): "tall girl(s)"

	Singular	Plural
Nominative	*lamb-ii* laṛkii	*lamb-ii* laṛkiyãã
Oblique	*lamb-ii* laṛkii	*lamb-ii* laṛkiyõ

The genitive clitic inflects for gender, number, and case in the same way as variable adjectives such as *lambaa* "tall" (see Tables 4(a,b) above).

An NP marked by the genitive clitic may function as the subject of existential constructions that indicate the relation of possession (see Payne 1995: 293-296 for further discussion of the status of the genitive clitic) (Mohanan 1994a: 177):

(4) a. raam-kaa ek beṭaa hai.
Ram-GEN(NOM.SG.MASC) one son.NOM be.PRES
"Ram has one son."

b. raam-kii ek bahin hai.
Ram-GEN(NOM.FEM) one sister.NOM be.PRES
"Ram has one sister."

The Status of the Genitive Clitic

The genitive clitic is a chimera, in that it may behave as a case marker of syntactic subjects (see Mohanan 1994a: 181-182 for evidence) despite its adjective-like declension.

Split Accusativity and Ergativity in Hindi (Mohanan 1994a: 70, 79, 80, 85):

(5) a. raam-ne ravii-ko piiṭaa.
Ram-ERG Ravi-ACC beat.PERF
"Ram beat Ravi."

b. raam ravii-ko piiṭegaa.
Ram.NOM Ravi-ACC beat.FUT
"Ram will beat Ravi."

c. ilaa-ne ek bacce-ko/*baccaa uṭʰaayaa.
Ila-ERG one child-ACC/child.NOM lift.PERF
"Ila lifted a child."

d. ilaa-ne haar-ko uṭʰaayaa.
Ila-ERG necklace-ACC lift.PERF
"Ila lifted the/*a necklace."

e. ilaa-ne haar uṭʰaayaa.
Ila-ERG necklace.NOM lift.PERF
"Ila lifted the/a necklace."

f. ilaa-ne mãã-ko baccaa/*bacce-ko diyaa.
Ila-ERG mother-DAT child.NOM/child-ACC give.PERF
"Ila gave the/a child to the mother."

Animacy/Definiteness-based Split Accusativity

The degree of animacy and definiteness that requires or allows O arguments to be marked by the case clitic *-ko* is subject to dialectal/idiolectal variation (see Aissen 2003: 458-472 for the initial proposal to describe split accusativity in Hindi in terms of OT).

Aspect-based Split Ergativity

A arguments that occur in perfective clauses are marked by the ergative clitic *-ne*.

Mohanan (1994b) attributes the nominative marking of O arguments of ditransitive verbs as in (5f) (which are nominative-marked, irrespective of their animacy and definiteness) to the **Case OCP**, a ban on the occurrence of two identically-marked adjacent NPs in a clausal domain.

I leave it to another occasion to recast Aissen's (2003) grammatical-relations-based OT account of split accusativity and Deo and Sharma's (2006) OT account of split ergativity (cf. Keine 2007) in Hindi in terms of the present framework that refers to generalized semantic roles termed **macroroles** (Van Valin and LaPolla 1997) rather than grammatical relations.

3. Theoretical Assumptions

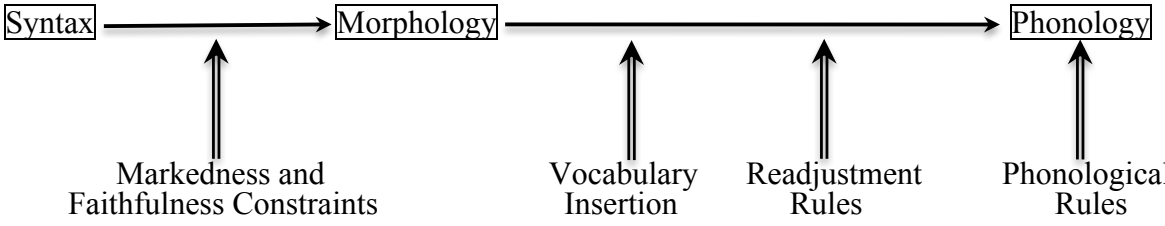
3.1 Distributed Morphology

Distributed Morphology [**DM**] (Halle and Marantz 1993, 1994; Embick and Noyer 2007)

① **Late Insertion Hypothesis** [**LIH**]

② **Underspecification** of Vocabulary Items

Figure 1: Correspondences between Syntax, Morphology, and Phonology



(6) **Subset Principle** [**SP**] (Halle 1997)
A vocabulary item V is inserted into a functional morpheme M iff (i) and (ii) hold:
(i) The morphosyntactic features of V are a subset of the morphosyntactic features.
(ii) V is the most specific vocabulary item that satisfies (i).

(7) **Specificity**
A vocabulary item V_1 is more specific than a vocabulary item V_2 iff V_1 contains more morphosyntactic features than V_2.

The LIH and underspecification of vocabulary items (coupled with the SP) play a critical role in accounting for the two types of case syncretism in Table 3.

What distinguishes the present framework from the standard DM is that the syntax-morphology mapping is determined, not by morphological rules (e.g. **impoverishment rule**), but by a competition between markedness and faithfulness constraints.

3.2 Six Assumptions about Case Features

(i) Case features are **interface features** (Svenonius 2007; Corbett 2012) that operate across syntax and morphology.

(ii) Morphological case features show up only when the mapping between syntactic case features and their morphological counterparts is not one-to-one (allomorphy and/or syncretism) (cf. Corbett 2012: 50-51).

(iii) Case features are privative and don't lend themselves to morphosyntactic decomposition (as proposed by Bierwisch (1967), Wiese (1996), and Calabrese (2008), among others).

(iv) Syntactic case feature values are defined by OT constraints in (8): (8a)-(8d) apply in clausal domains, while (8e) applies in nominal domains:

(8) a. The higher-ranking macrorole argument receives ERGATIVE [ERG] case.
b. The lower-ranking macrorole argument receives ACCUSATIVE [ACC] case.
c. Some argument receives NOMINATIVE [NOM] case.
d. Non-macrorole core arguments receive DATIVE [DAT] case.
e. Adnominal possessors receive GENITIVE [GEN] case.

(9) a. Accusative Case System: (8b), (8d) >> (8c) >> (8a)
b. Ergative Case System: (8a), (8d) >> (8c) >> (8b)
c. Three-way Case System: (8a), (8b), (8d) >> (8c)
(e.g. Hindi, Wangkumara, Nez Perce)

(v) Morphological case feature values constitute two markedness hierarchies in (10a,b), which rank the propositional and adnominal case morphemes and adverbial case morphemes in terms of their morphological markedness:

(10) **Case Hierarchy** (Silverstein 1976, 1993)
a. Propositional/Adnominal: Nom < Dat < {Acc, Erg} < Gen
b. Adverbial: Dat < Loc, Instr ...

(vi) Case syncretism involves varying degrees of **markedness reduction** countered by **contrast maintenance** and that case-marking systems emerge as a result of the competition between markedness reduction and contrast maintenance in the syntax-morphology mapping.

Given these assumptions, I propose to derive the morphological case values from their syntactic counterparts through the competition between a partially ranked markedness constraints (derived from the two markedness hierarchies in (10a,b)) and two faithfulness constraints in (11):

(11) a. **Markedness Constraints**: *Gen >> {*Acc, *Erg} >> *Dat, *Loc, *Instr >> *Dat

b. **Faithfulness Constraints**: MAX [Case], IDENT [Case]

Three comments about (11)

(i) These constraints do not refer to the least marked case value (nominative) (the nominative case is NOT underspecified in the morphosyntactic representation) (cf. Calabrese 1995; Nevins 2007).

(ii) The relative ranking of '*Acc' and '*Erg' is determined on a language-particular basis.

(iii) 'IDENT [Case]' is a shorthand for a **local conjunction** of two subconstraints that are in contrast with respect to whether they include the accusative (Acc) or ergative (Erg) case value as part of their arguments:

(12) IDENT [Case] = IDENT [Dat, Acc, Gen, Loc, Instr] &
IDENT [Dat, Erg, Gen, Loc, Instr]

4. The Inflectional and Postpositional Case-Marking Systems

(13) a. Constraint Ranking for the Postpositional Case-Marking System

MAX [Case] >> IDENT [Case] >> {*Gen, *Instr, *Loc} >> *Acc >> *Erg >> *Dat

b. Constraint Ranking for the Inflectional Case-Marking System

{*Gen, *Instr, *Loc} >> *Acc >> *Erg >> MAX [Case] >> IDENT [Case] >> *Dat

Table 3: Correspondence between the Nominal Inflections and Postpositional Clitics

Syntactic Case Values	NOM	DAT	ACC	ERG	INSTR	LOC	GEN
Nominal Inflections	Nom	Oblique					
Postpositional Clitics	*-ø*	*-ko*		*-ne*	*-se*	*-mẽ, -par*	*-k*

Five comments about (13a,b)

(i) (13a,b) rank '*Acc' higher than '*Erg' (this means that a violation of '*Acc' counts as more severe than that of '*Erg').

(ii) The relative ranking of 'IDENT [Case]', '*Acc', and '*Erg' ('IDENT [Case] >> … >> *Acc >> *Erg') ensures that ergative (but not accusative) case value is realized faithfully.

(iii) 'IDENT [Case]' requires both the dative and genitive case values to be realized faithfully in (13a).

(iv) (13b) requires all the non-nominative case values to be realized by a dative case morpheme.

(v) The nominative case value is realized faithfully in (13a,b), since there would be a violation of one of the markedness constraints, if it is realized by any non-nominative case morpheme.

Table 5(a): OT Evaluation of the Input 'ERG-ACC' (Postpositional Case-Marking System)

Input: ERG-ACC	MAX [Case]	IDENT [Case]	*Gen / *Instr, *Loc	*Acc	*Erg	*Dat
Erg-Acc				*!	*	
☞Erg-Dat					*	*
Erg-Nom	*!	*			*	
Dat-Acc				*!		*
Nom-Acc	*!	*		*		
Dat-Dat		*!				*

Table 5(b): OT Evaluation of the Input 'ERG-ACC' (Inflectional Case-Marking System)

Input: ERG-ACC	*Gen / *Instr, *Loc	*Acc	*Erg	MAX [Case]	IDENT [Case]	*Dat
Erg-Acc		*!	*			
Erg-Dat			*!			*
Dat-Acc		*!				*
☞Dat-Dat					*	**
Dat-Nom				*!	*	*

*The output in Table 5(b) is the two oblique-marked nouns (the oblique inflection is analyzed as carrying the dative case value according to the constraint ranking in (13b)).

(14) Vocabulary Items for the Postpositional Case Clitics
- a. *-ø* [ø, ø, Nom]
- b. *-ko* [ø, ø, Dat]
- c. *-ne* [ø, ø, Erg]
- d. *-k* [ø, ø, Gen]
- e. *-se* [ø, ø, Instr]
- f. *-mẽ*, *-par* [ø, ø, Loc]

Table 2: Declension of the Genitive Clitic (Agnihotri 2007: 188)

Masculine

	Singular	Plural
Nominative	*-kaa*	*-ke*
Oblique	*-ke*	*-ke*

Feminine

	Singular	Plural
Nominative	*-kii*	*-kii*
Oblique	*-kii*	*-kii*

(15) Morphological Case Values in the Nominal Declension (Output of (13b))
- a. Nominative Inflection [ø, ø, Nom]
- b. Oblique Inflection [ø, ø, Dat]

I abstract away from the question of how to derive morphophonological forms of the two inflections, but see the Appendix (see Singh and Sarma 2010 for a DM-based account of the nominal inflections; cf. Shapiro 2000; Kachru 2006).

5. The Adjectival and Personal Pronominal Declensions

5.1 The Adjectival Declension

Table 4(a) : "tall boy(s)"

	Singular	Plural
Nominative	*lamb-aa* laṛkaa	*lamb-e* laṛke
Oblique	*lamb-e* laṛke	*lamb-e* laṛkõ

Table 4(b): "tall girl(s)"

	Singular	Plural
Nominative	*lamb-ii* laṛkii	*lamb-ii* laṛkiyãã
Oblique	*lamb-ii* laṛkii	*lamb-ii* laṛkiyõ

The adjectival declension varies according to the gender of nouns adjectives modify and includes the declension of the genitive case clitic (Table 2) as one instantiation.

Table 2: Declension of the Genitive Clitic (Agnihotri 2007: 188)

Masculine

	Singular	Plural
Nominative	*-kaa*	*-ke*
Oblique	*-ke*	*-ke*

Feminine

	Singular	Plural
Nominative	*-kii*	*-kii*
Oblique	*-kii*	*-kii*

The nominative-oblique contrast is retained only in the masculine-singular: *-aa* is the masculine-singular-nominative form, *-e* is the default masculine form, while *-ii* covers all the feminine forms.

(16) Vocabulary Items for the Adjectival Declension
- a. *-aa* [Masc, Sing, Nom]
- b. *-e* [Masc, ø, ø]
- c. *-ii* [Fem, ø, ø]

(15) Morphological Case Values in the Nominal Declension (Output of (13b))
- a. Nominative Inflection [ø, ø, Nom]
- b. Oblique Inflection [ø, ø, Dat]

5.2 The Personal Pronominal Declension

The personal pronominal declension has two synthetic forms, the "objective" (dative/accusative) and "possessive" forms (both of which are shaded in Table 6), and that the "objective" case may be realized by either a synthetic form that varies according to the person and number or by an analytic form (i.e. the oblique form followed by the case clitic *-ko*):

Table 6: Personal Pronominal Declension in Hindi (Agnihotri 2007: 129-133)

		1st Person		2nd Person		3rd Person (this/that)	
		Sing	Pl	Sing	Pl	Sing	Pl
Nominative		*mãĩ*	*ham*	*tuu*	*tum*	*yah/vah*	*ye/ve*
Oblique		*mujh*	*ham*	*tujh*	*tum*	*is/us*	*in/un*
"Objective"		*mujhe* mujh-ko	*hamẽ* ham-ko	*tujhe* tujh-ko	*tumhẽ* tum-ko	*ise/use* is-ko/us-ko	*inhẽ/unhẽ* in-ko/un-ko
"Possessive"	Masc	*meraa*	*hamaaraa*	*teraa*	*tumhaaraa*	*iskaa/uskaa*	*inkaa/unkaa*
	Fem	*merii*	*hamaarii*	*terii*	*tumhaarii*	*iskii/uskii*	*inkii/uskii*

*Pronouns are not sensitive to the gender distinction except in the case of "possessive" forms that behave like adjectives and inflect for gender and number of the modified noun.

(17) The Set of Morphological Case Values (Output of (13a))
Nom, Dat, Erg, Gen, Loc, Instr

(18) Morphological Case Values in the Personal Pronominal Declension

a.	Nominative Forms	[ø, ø, Nom]
b.	Oblique Forms	[ø, ø, ø]
c.	"Objective" Forms	[ø, ø, Dat]
d.	"Possessive" Forms	[ø, ø, Gen]

6. Conclusion

Syntactic Case Values

(8) a. The higher-ranking macrorole argument receives ERGATIVE [ERG] case.
b. The lower-ranking macrorole argument receives ACCUSATIVE [ACC] case.
c. Some argument receives NOMINATIVE [NOM] case.
d. Non-macrorole core arguments receive DATIVE [DAT] case.
e. Adnominal possessors receive GENITIVE [GEN] case.

(9) a. Accusative Case System: (8b), (8d) >> (8c) >> (8a)
b. Ergative Case System: (8a), (8d) >> (8c) >> (8b)
c. Three-way Case System: (8a), (8b), (8d) >> (8c)
(e.g. Hindi, Wangkumara, Nez Perce)

Mapping between Syntactic and Morphological Case Values

(13) a. Constraint Ranking for the Postpositional Case-Marking System in Hindi

MAX [Case] >> IDENT [Case] >> { *Gen, *Instr, *Loc } >> *Acc >> *Erg >> *Dat

b. Constraint Ranking for the Inflectional Case-Marking System in Hindi

{ *Gen, *Instr, *Loc } >> *Acc >> *Erg >> MAX [Case] >> IDENT [Case] >> *Dat

(14) Vocabulary Items for the Postpositional Case Clitics

a.	*-ø*	[ø, ø, ø]
b.	*-ko*	[ø, ø, Dat]
c.	*-ne*	[ø, ø, Erg]
d.	*-k*	[ø, ø, Gen]
e.	*-se*	[ø, ø, Instr]
f.	*-mẽ*, *-par*	[ø, ø, Loc]

(15) Morphological Case Values in the Nominal Declension (Output of (13b))

a.	Nominative Inflection	[ø, ø, Nom]
b.	Oblique Inflection	[ø, ø, Dat]

(16) Vocabulary Items for the Adjectival Declension

a.	*-aa*	[Masc, Sing, Nom]
b.	*-e*	[Masc, ø, ø]
c.	*-ii*	[Fem, ø, ø]

(17) The Set of Morphological Case Values (Output of (13a))
Nom, Dat, Erg, Gen, Loc, Instr

(18) Morphological Case Values in the Personal Pronominal Declension

a.	Nominative Forms	[ø, ø, Nom]
b.	Oblique Forms	[ø, ø, ø]
c.	"Objective" Forms	[ø, ø, Dat]
d.	"Possessive" Forms	[ø, ø, Gen]

Appendix

Six Inflectional Classes of Hindi Nouns (Singh and Sarma 2010: 309-310; cf. Shapiro 2000; Kachru 2006)

Table 1: Three Types of Inflection Classes in Feminine Nouns

	Type 1 (Class A)		Type 2 (Class B)		Type 3 (Class C)	
	Singular	Plural	Singular	Plural	Singular	Plural
Nominative	-ø (null)	-ø (null)	-ø (null)	-yãã	-ø (null)	-ẽ
	aag "fire"	*aag*	*nadii* "river"	*nadi-yãã*	*raat* "night"	*raat-ẽ*
Oblique (Dative)	-ø (null)	-ø (null)	-ø (null)	-yõ	-ø (null)	-õ
	aag	*aag*	*nadii*	*nadi-yõ*	*raat*	*raat-õ*

Table 2: Three Types of Inflection Classes in Masculine Nouns

	Type 1 (Class A)		Type 2 (Class D)		Type 3 (Class E)	
	Singular	Plural	Singular	Plural	Singular	Plural
Nominative	-ø (null)	-ø (null)	-ø (null)	-e	-ø (null)	-ø (null)
	krodh "anger"	*krodh*	*laṛkaa* "boy"	*laṛk-e*	*aadmii* "man" *ghar* "house"	*aadmii* *ghar*
Oblique (Dative)	-ø (null)	-ø (null)	-e	-õ	-ø (null)	-õ/-yõ
	krodh	*krodh*	*laṛk-e*	*laṛk-õ*	*aadmii* *ghar*	*aadmi-yõ* *ghar-õ*

Singh and Sarma (2010) collapse Type 1 of feminine nouns and Type 1 of masculine nouns into one class (Class A) and rename the remaining 4 types as follows:

Class A	Type 1 of feminine/masculine nouns
Class B	Type 2 of feminine nouns
Class C	Type 3 of feminine nouns
Class D	Type 2 of masculine nouns
Class E	Type 3 of masculine nouns

Vocabulary Insertion Rules (cf. Singh and Sarma 2010: 316)

-yãã	[ø, Pl, ø]/Class B
-yõ	[ø, Pl, Dat]/Class B&Class E (Condition: stem ending *ii* or *yaa*)
-õ	[ø, Pl, Dat]/Class C&D&E
-ẽ	[ø, Pl, ø]/Class C
-e	[ø, Pl, ø] or [ø, Sing, Dat]/Class D
-ø [null]	[ø, ø, ø]

Readjustment Rules (Singh and Sarma 2010: 316):

Stem final /aa/ -------> *-ø*/Class D with *-e* or *-õ*
e.g. *laṛkaa-e/õ* -------> *laṛk-e/õ*
Stem final /uu/ -------> *u*/*-ẽ* or *-õ*
e.g. *bahuu-ẽ/õ* "daughter-in-law" ------> *bahu-ẽ/õ*
Stem final /ii/ --------> *i*/*-yãã* or *-yõ*
e.g. *nadii-yãã/yõ* -------> *nadi-yãã/yõ*, *aadmii-yõ* -------> *aadmi-yõ*

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