

1. Introduction

Figure 1: The Vedic Sanskrit verbal system, $\sqrt{\text{kar}}$ ‘do’

	Present		Perfect		Aorist		
Aspect [PFV]	-		+		+		
[STAT]			+		-		Mood
Tense [PST]	-	+	-	+	+		
	Pres.	Ipf.	Perf.	Pluperf.			
Ind.	<i>kr-nó-ti á-kr-no-t</i>		<i>ca-kâr-a á-ca-kar-/t/ [ácakar]</i>		<i>á-kar-/t/ [ákar]</i>		[-IRR]
Subj.	<i>kr-náv-a-t</i>		<i>cā-kár-a-t*</i>		<i>kár-a-t</i>		[+IRR, -DES]
Opt.	<i>kr-nu-yā-t</i>		<i>ca-kr-[i]-yā-t*</i>		<i>kr-[i]-yā-t</i>		[+IRR, +DES]

- Complex surface allomorphy: root *kar* / *kr* / *_C* / *kr* / *_V* ; suffix *-no-* (/ *nau-* /) / *_C* / *-nav-* / *_V* / *nu*.
- Alternations due to interaction of accentuation & [a]-syncope (& resyllabification: **kr-ya-* > *kriya-*).
- Full grade**: Morpheme alternants that contain the nucleus vowel /a/, e.g., *kar*; *-no-* / *-nav-*
- Zero grade**: Alternants in which /a/ is syncopated, e.g., *kr* / *kr*; *-nu-*

The accentual mobility of Vedic verbs is traditionally accounted for in terms of an idiosyncratic property of morphemes: some morphemes are accented, others are preaccenting (e.g., Kiparsky 2018).

2. Proposal

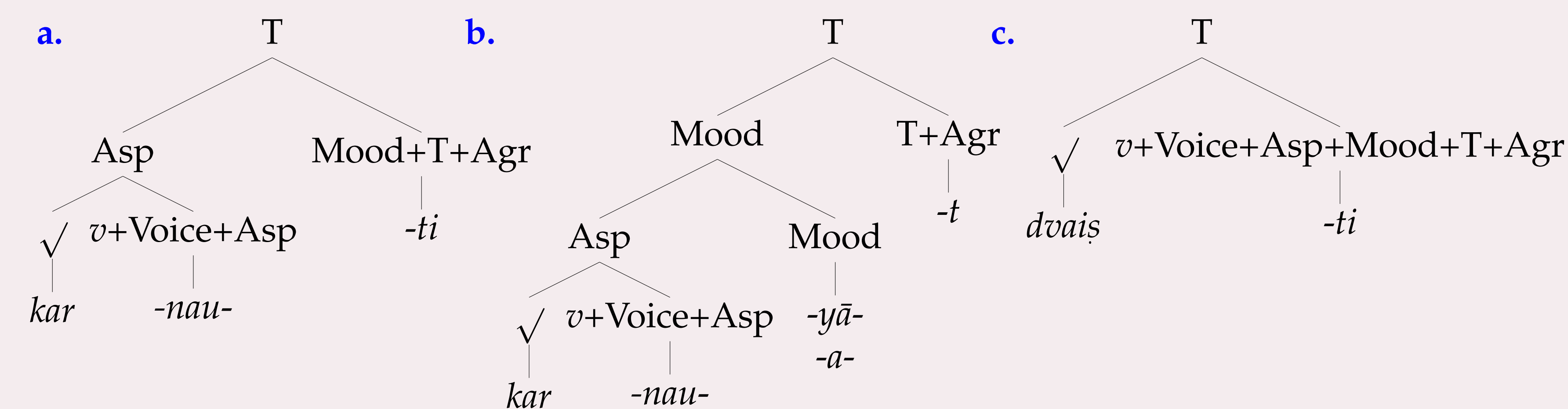
- We propose a parsimonious system without lexically assigned accents (Calabrese 2019; Calabrese & Grestenberger 2023); cf. Halle & Idsardi (1994); Halle (1997); Oltra-Massuet & Arregi (2005).
- Instead, accents are assigned to affixes by rule; mobility results from accent deletion under clash.

Ex. 1 The basic rules

- Accent Head Rule (AHR)**: assign an accent to the exponent of a functional head.
- Clash Resolution (CR)**: remove an accent before another accent.
- Zero Grade (Ø)**: delete an unaccented vowel before an accent (cf. Kiparsky 1982, 2010, 2018)

- These rules apply *cyclically* to the established morphosyntactic structure of the verbal forms
- Complex verb forms arise through head movement + adjunction + vocabulary insertion (VI)
- Morpheme order reflects syntactic structure (**Distributed Morphology**; Halle & Marantz 1993)
- Ø-nodes trigger **Pruning** (Embick 2010), followed by upward docking & **Fusion** of the features that consequently become floating (Christopoulos and Petrosino 2018; Calabrese 2019)

Basic structure of Vedic finite verbs (Grestenberger 2018, 2021; Calabrese 2019; Calabrese & Grestenberger 2023):

Figure 2: 3sg.prs.ind.act. (a.); 3sg.prs. subj./opt. act. (b.); 3sg.prs.ind.act., $\sqrt{\text{-prs. dvēs-ti}}$ ‘hates’ (c.)

- Basic Accentuation Principle (BAP)**: the leftmost accent receives ictus (main word stress); if no accent is present, the leftmost syllable receives accent & ictus (Halle & Kiparsky 1979)

3. Analysis: athematic verbs/mobile accent

- The AHR and CR interact cyclically with the structures in Fig. 2 → cyclic application of Zero Grade
- Exception to the AHR: sg. act. endings remain unaccented.

Ex. 2 Derivation of 3sg.prs.opt.act. *kr̥nuyāt*

	Root	[kar]
First Cycle:	VI	[[kar] nau]
	AHR	[[kar] náu]
	Ø	[[k_r] náu]
Second Cycle:	VI	[[[kr̥] náu] yā]
	AHR	[[[kr̥] náu] yá]
	CR	[[[kr̥] nau] yá]
	Ø	[[[kr̥] n_u] yá]
Third Cycle:	VI	[[[kr̥] nu] yá] t]
	AHR	n/a
	Output	<i>kr̥-nu-yā-t</i>

Ex. 3 Derivation of class II pres., 2sg.act. *dvēkṣi*, pl. *dviṣthá* ‘hate’

	[[[dvaiṣ ^{II}] -pfv] _{Asp} -pst,2sg.act] _{Agr}	[[[dvaiṣ ^{II}] -pfv] _{Asp} -pst,2pl.act] _{Agr}
1. cyc. VI	[[[dvaiṣ ^{II}] Ø] _{Asp} -pst,2sg.act] _{Agr}	[[[dvaiṣ ^{II}] Ø] _{Asp} -pst,2sg.act] _{Agr}
AHR	n/a	n/a
Ø	n/a	n/a
2. cyc. VI	[[dvaiṣ] si]	[[dvaiṣ] tha]
AHR	n/a	[[dvaiṣ] thá]
CR	n/a	n/a
Ø	n/a	[[dv_īṣ] thá]
BAP	[[dváiṣ] si]	[[dviṣ] thá]
Sandhi	ṣṣ > kṣ	
Output	<i>dvēk-ṣi</i>	<i>dviṣ-thá</i>

4. Analysis: thematic verbs/columnar accent

- Theme vowels** do not undergo CR or Ø → keep their accent
- Some theme vowels (e.g., of class I) trigger **accent retraction rules** → accented full grade root (e.g., *bhāv-a-ti* ‘becomes’)

Ex. 4 Derivation of class VI thematic pres., 2sg.act.

	[[[taud ^{VI}] -pfv] _{Asp} -pst,2sg.act] _{Agr}	[[[taud ^{VI}] -pfv] _{Asp} -pst,2pl.act] _{Agr}
1. cyc. VI	[[[taud] a] _{Asp} -pst,2sg.act] _{Agr}	[[[taud] a] _{Asp} -pst,2pl.act] _{Agr}
AHR	[[[taud] á]	[[[taud] á]
Ø	[[[t_ud] á]	[[[t_ud] á]
2. cyc. VI	[[[tud] á] si]	[[[tud] á] tha]
AHR	n/a (exc)	[[[tud] á] thá]
CR	n/a	n/a (exc)
Ø	n/a	n/a
BAP	[[[tud] á] si]	[[[tud] á] tha]
Output	<i>tudási</i>	<i>tudátha</i>

5. Analysis: Secondary conjugations & the “VP shell”

- Causative, denominative, future, verbal adj. *-ta-* = **dominant**.
- Dominant suffixes delete previously assigned accents (**[-del]**)

Ex. 5 Caus. of desid. *titikṣáya-* ‘cause to desire to become sharp’

	[[[[[taij] +des] _v +caus] _v ...] _{Asp} (...) _{Agr}]
1. cyc. VI	[[[taij] sa]
Redupl.	[ti taij sa]
AHR	[tí taij sá]
CR	n/a
Ø	[tí tij sá]
2. cyc. VI	[[tí tij sá] ay]
[-del]	[ti tij sa ay]
AHR	[ti tij sa áy]
CR	n/a
Ø	[ti tij s_ áy]
3. cyc. VI	[[ti tij s_ áy] a]
AHR	[ti tij s_ áy á]
CR	n/a (exc)
Ø	n/a
BAP	[ti tij s_ áy a (...)]

- Contrast (5) with desid. of caus. *dídḥārayiṣa-* ‘desire to cause to bear’; no **[-del]** because desid. ≠ dominant.

6. Implications & conclusion

Further evidence that Ø applies *before* post-syntactic resyllabification:

Ex. 6 Cyclic application of Zero Grade

- pi.pri.yé* /pi-pri-é/ $\sqrt{\text{prai}}$ ‘please.3SG.PF.MID’ not **pi.pr.yé*
- bru.ván.ti* /bru-ánti/ $\sqrt{\text{brau}}$ ‘speak.PRS.3PL’ not **br.ván.ti*

Conclusion: Derivational model in which cyclic rules apply to morphosyntactic structures can derive Vedic verbal accent alternations.

- Three cyclic rules (**AHR**, **CR**, **Ø**) + one word-level rule (**BAP**)
- Certain morphemes display exceptional behavior:
 - the act. sg. AGR endings do not undergo the AHR
 - the thematic vowels do not undergo CR
 - accent retraction rules; “dominant” (secondary) morphemes

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