On the Accentuation of Vedic *-ti*-Abstracts

Evidence for Accentual Change

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Abstract

This paper offers a new explanation for the barytone and oxytone accents attested for the Vedic *-ti*-stems. The two accents are commonly taken to derive from separate reflexes of a once unified proterokinetic paradigm, and it is against this account I will propose the divergence is instead chronological: oxytones belong to the oldest layer of the Vedas, barytones to the younger. The diachronic change we observe occurs within the Vedic period, and is localized to the accentual properties associated with the suffix *-ti*-. Our philological analysis of the *-ti*-stems across Vedic texts will support the “compositional approach” championed recently by Kiparsky (2010) and Kümmel (2014) against previous approaches. Finally, I will suggest answers to the question of how the accentual properties of *-ti*- changed based on recent research into the lexical phonology of accent systems.

Keywords

accentuation – Vedic – ablaut – diachronic prosody – lexical phonology

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1 Vedic -*ti*-Abstracts: The Problem

In all stages of Old Indic, simplex *ti*-abstracts are plentifully found and present a clear morphological profile: the suffix builds deverbative, abstract nouns (which may become concretized) of feminine gender, e.g. to the verbal root *bhar-* ‘bear, carry’ is formed Ved. *bhṛtí-* ‘bearing; gift’. Within the oldest layer of Old Indic texts, the Rig-veda (RV), most *-ti*-stem nouns are accented on the suffix *-tí-* (traditionally and here “oxytone”), such as *matí-* f. ‘thought’ or *bhṛtí-* f. ‘bearing, gift’. Beside this majority, there are found in the RV a few nouns with leftmost accent (traditionally and here “barytone”), which occur with increasing frequency in later Vedic texts; their significance is disputed and forms the primary topic of the present paper.

In nearly all recent scholarship, the divergence of accents of the type oxytone *bhṛtí-* (RV) vs. later Vedic *bhṛti-* or oxytone *matí-* (RV) vs. later Vedic barytone *máti-* would provide evidence for erstwhile accentual mobility within a single paradigm, crucially with concomitant ablaut alternations, followed by subsequent levelings of accent, accentual mobility, and ablaut, i.e. a “proterokinetic” paradigm. The original proposal to treat the alternation in accent as indicative of proterokinesis seems to go back to Kuiper (1942: 221), “In the different accentuation of *máti-h* (śB., Pāṇ.): *matí-h* (śs.+) we find a slight trace of the shifting accent in **ménti-s/ *mṛtí-s*.”¹ Under this analysis, the Vedic evidence is best explained as representing the leveled reflexes of an internally reconstructed, pre-PIE paradigm with surface stem forms distributed according to strong cases ***mén-ti-* vs. weak cases ***mṛ-té-*.² The zero-grade ablaut of the root will have been leveled throughout the paradigm in Vedic, but with a bifurcating accen-

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- 1 Kuiper’s reconstruction should be read together with his more cautious appraisal of accentual data (p. 170): “The original accentual oppositions have been discarded and in general it will be safe to draw no conclusions from the accent.” On the reconstruction of proterokinetic *-ti*-stems see further the standard handbook treatments in Rix (1992: 146) and Meier-Brügger (2010: 342–343), whose discussion is useful and clear. Of other approaches to these divergent accents, Liebert (1949: 88–89) could not find a rule underlying the distribution of the oxytone and barytone accents, a position echoed by later scholars, e.g. Burrow (1973: 168–169), “The accentuation of these action nouns is subject to no rule.” The subject-to-no-rule description may be improved upon by showing there are in fact non-trivial generalizations to be made over the material.
 - 2 The accent and ablaut paradigms are not often explicitly treated as belonging to pre-PIE as reached by internal reconstruction, but they were reconstructed as such in the theory’s foundational documents, most explicitly in Schindler (1975: 260–262), whom I follow here; cf. methodological discussion in Hale (2010).

tual leveling: leveled accent of the strong cases would be preserved in some Vedic traditions (i.e. leveled **mṛ̥-ti-* > *máti-*), the leveled accent of the weak preserved in others (i.e. leveled **mṛ̥-tí-* > *matí-*). Affirmations of this approach come from various quarters, and we may note in particular the meticulous collection of material in Schaffner (2001: 436–440). In his widely followed account of the **-ti*-abstracts,³ Schaffner argues that the Vedic evidence for barytone and oxytone accents shows that mobile accent was preserved into a prestige of the language and was then subsequently leveled one way in some Vedic traditions, another way in others.⁴ Interpretation of the Vedic accentual data has always been of signal importance for the reconstruction of proterokinetic accent and ablaut mobility in the PIE **-ti*-stems, since the evidence on which the reconstruction rests stems especially from the accented zero-grades in Vedic, which are thought to point in the direction of the original accented full grade.

But there are serious objections to be raised against the proterokinetic explanation of the *-ti*-stems. Problematically for the Vedic data at hand, it remains unclear why one Vedic tradition will have leveled the accent of one series of case forms, e.g. why the composers of the Śatapatha Brāhmaṇa used *bhṛ̥ti-* with leveled accent of the reconstructed strong from **bhér-ti-* (and ablaut of the zero-grade reconstructed for the weak cases), while the poets of the RV leveled the accent of the weak cases (consistently oxytone *bhṛ̥tí-*, see § 2.2). Nor is it self-evident that we should assume independent accentual traditions for the RV vs. the other Vedas; such an assumption requires independent support (which could come in the form of accentual isoglosses dividing the RV “dialect” from that of the other Vedas), without which it becomes a costly, auxiliary hypothesis to make. Perhaps most damagingly, the proterokinetic explanation reduces to a coincidence the fact that oxytones consistently belong to older texts, while barytones belong to younger ones. This chronological split was seen by Debrun-

3 Schaffner is followed recently by a number of scholars, e.g. Grestenberger (2014: 88) and Kim (2013: esp. 82–83). Kim acknowledges that the reconstruction of a proterokinetic paradigm depends largely on the standard assumptions about the prehistoric relation of surface accent and full-grade vocalism, and maintains that scattered examples in IE languages of deverbal nouns in **-ti-* do reflect accented and/or full grade root. The Vedic evidence adduced in favor of this reconstruction is “Ved. *matí-* beside *máti-* ‘thought.’” We will turn to precisely this evidence presently.

4 His formulation (p. 440) is: “Dieses Material des vedischen Altindischen zeigt, daß der Wurzelablaut der grundsprachlichen Paradigmen zugunsten der Nullstufe der Wurzel ausgeglichen werden, gleichzeitig aber der mobile Akzent bis in eine Vorstufe der Einzelsprachen bewahrt werden konnte.”

ner (*AiGr.2.2*: 631–632) who states the descriptive situation clearly: “Im RV. sind die Simplicia auf *-ti-* in der Regel oxyton, kl[assisch] bei gewöhnlicher Bedeutung immer auf der Wurzelsilbe betont.” Debrunner’s observations seem oddly ignored in subsequent literature on this class, a curious fate perhaps stemming in part from the irresolution with which he concludes his discussion, “Warum die Barytonese siegte, ist unklar” (*AiGr.2.2*: 632), a problem we will try to resolve below. Notice that he had no doubt that the barytonesis *siegte*, his uncertainty was *warum*.

In this paper I will argue that the proterokinetic approach does not best explain the Vedic forms at hand and that instead a change in the accentual properties of the suffix *-ti-* has taken place within the history of Vedic. I suggest that critical evidence has been undervalued (or overlooked), i.e. the chronology of Vedic texts. If it turns out that the divergent accent types pattern consistently with distinct chronological stages of texts, the hypothesis that we are dealing with a change in the accentuation associated with the suffix *-ti-* internal to the history of Vedic becomes significantly more compelling. It will be shown below (§ 2) that the evidence does indeed pattern chronologically: oxytone stems in the oldest texts, barytones in the younger (e.g. RV *bhṛtí-* beside ŚB *bhṛti-*). Because the accents of *-ti-*stems have not been treated in full in any recent work, and further because the motivation for the divergent accents remains in dispute, it will prove worthwhile to offer a new philological evaluation of the evidence. In a similar vein, Kiparsky (2010: esp. 162 f. with n. 27) has recently leveled a strong criticism against treating the accents of Vedic *-ti-*nouns (and indeed treating any Indo-Iranian material) as evidence for proterokinetic accent and ablaut and he is followed in this critique by Kümmel (2014: 165–168).⁵

Our task in this paper is not to decide the question of whether “proterokinetic” accent and ablaut mobility is to be reconstructed (either in general or for this class in particular) but whether the Vedic evidence is best interpreted in this light. It is, for instance, theoretically possible that pre-PIE had proteroki-

5 Similar objections have been raised in other recent works, see especially Keydana (2013: 42–43) who proposes an alternative analysis of the *-ti-*stems which foreshadows the account offered here (though without discussion of the textual data). See further e.g. Olander (2009: 58) and Hock (2013). Kümmel (2014: 167–168) also treats the ablaut of the suffix as non-probative for proterokinesis; rather, it would be tied directly to syllable structure and whether the inflectional ending was consonant or vowel initial. Note Kümmel’s cautionary statement (pp. 167–168): “Anstelle einer vorschnellen Identifikation von Suffixablaut mit Akzentwechsel scheint es nun jedoch geboten, zunächst einmal deren Interaktion genau zu prüfen, indem man mit den belegten Sprachsystemen beginnt.”

netic accent mobility and accent-conditioned ablaut in this stem class, and that fixed zero-grade root, oxytone accentuation characteristic of the weak stem, and the zero-grade suffix of the strong stem have all been generalized; the Vedic evidence would not be inconsistent with such a claim. But it must be acknowledged that the reconstruction itself rests on sparse direct evidence, since nowhere in Vedic (nor in any Indo-European language) do we find mobility of the accent or ablaut alternations of the root within a *-ti*-stem paradigm; and if my conclusions are accepted, the Vedic accents cannot be invoked to bolster such a reconstruction.⁶ Our philological analysis of the *-ti*-stems across Vedic texts will support the “compositional approach” championed by Kiparsky and Kümmel against previous approaches.

Following an assessment of the forms, we will turn to questions that had not been posed in previous research on this stem class: How do we model the synchronic split between the oxytone suffix *-tí-* and unaccented *-ti-* (§ 3.1)? Why do a few nouns remain oxytone into the later Vedic texts? How do we implement the diachronic change from an inherently accented suffix *-tí-* to an unaccented *-ti-* (§ 3.2)? What I hope to accomplish in this paper is a clarification of the Vedic forms on which any synchronic analysis and diachronic reconstruction must rest. It is the Vedic data that provides the richest material for accentuation of this nominal class and it is, I argue, the complexities of the Vedic data that have been flattened out or forgotten in recent treatments of *-ti*-nouns.

2 Vedic *-ti*-Abstracts in the Chronology of Vedic Texts

2.1 *Alternations within the RV?*

In order to understand more clearly the Vedic evidence at hand, we need to consider more narrowly the stratification of *-ti*-stems in Vedic texts. In doing so, we turn to the stages of Vedic accent in this class established by Liebert (1949: 7–13 *et passim*) and Debrunner (cf. *AiGr.2.2*: 631–633):

6 Discussion of the (pre)PIE reconstruction exceeds the limits of this paper, which attempts to explain only the diachrony of the suffix *-ti-* in Vedic. I intend to discuss the Greek evidence (as well as further IE evidence) in full elsewhere; preliminary conclusions on the Greek nouns in *-σις* were presented as Lundquist 2015. To speak on the Germanic evidence would require another article at least: see the thorough book-length study by Schaffner (2001), whose conclusions disagree strongly with mine, but notice that Kiparsky (2010: 160–166) and Garrett (2011) have since proposed that Verner’s Law doublets arose due to an oxytone to barytone change of accent position internal to Germanic, which would accord well with the proposal in this paper regarding the Vedic accents.

- Stage 1, RV: majority oxytone like *matí-*, *bhṛtí-*.
- Stage 2, words that are attested as oxytones in the RV show up as barytones in later texts. Debrunner writes: “schon vorkl[assisch] durch Barytonese ersetzt ... solche, die bereits im RV schwanken, sind nun stets baryton.” His examples of words attested as oxytones in the RV that are barytone in the later texts include *íti-* ‘going’, *pákti-* ‘cooking’, (beside retained *paktí-* MS, TB, ŚB), *púṣti-* ‘growth’ (beside AV *puṣṭí-* 2×), *bhṛtí-* ‘prosperity, wealth’, *bhṛtí-*, *mátí-* (the latter two discussed in much greater detail below, § 2.2), *vṛṣṭi-* ‘rain’, *śrúṣṭi-* ‘obedience’.
- Stage 3 (or 2a), forms first attested after the RV mostly barytone (“meist sind sie baryton”); some few show fluctuation; some few are oxytone. His examples include barytone *kṣṭi-* ‘destruction’ (tr. Whitney) AVŚ XI.7.25 (versus om. AVP XVI); VIII.4.26; 12.5.16, 33; *śánti-* ‘peace’ (AV+); *mṛṣṭi-* ‘grooming’ (MS); *sthṭi-* ‘rule’ (ŚB); oxytone *bhittí-* ‘splitting’ (ŚB).⁷
- Stage 4, latest Vedic/Pāṇini’s Sanskrit, all forms (i.e. whether unattested till this period, or earlier attested with an oxytone accent) are now always barytone: “immer auf der Wurzelsilbe betont” (described by P. 3.3.94 *ktin*, listing oxytones from the older Vedas, *manṭre*, at 3.3.96–97).⁸

In what follows I will discuss the *-ti*-abstracts in accordance with the chronology of Vedic texts, beginning from the RV and moving into Vedic prose.

There are two words in the RV attested with both accentuations, bary- and oxytone: *śakti-* ‘skill, ability’ and *tṛpti-* ‘satisfaction’.⁹ These two are held to be

7 It falls beyond the remit of this paper to offer up exhaustive lists of *-ti*-stems and their frequencies in post-RV texts; for the data, see especially Liebert (1949: 7–13), from whose collection of material my own data in large measure derives.

8 See the important interpretation of this rule by Thieme (1935: 39–41), who discusses the extent to which our attested Vedic texts bear out the Pāṇinian rule. His example of *vṛṣṭi-* is instructive: it is always oxytone in mantra texts (including quoted verses in the Maitrāyaṇi Saṃhitā), but barytone in brāhmaṇas, a distinction given up in the VS and ŚB, which have only barytone *vṛṣṭi-* throughout.

9 Another form would be *cítti-* ‘thought, understanding’ beside *cittí-*, except that in this case it remains disputed whether these are in fact the same lexical item(s). Mayrhofer (1986–2001: 1.542) treats the oxytone form as “unklar” and notes that it might be onomatopoeic for ‘crackling’, if not in fact an error for *cittí-*. At 1.164.29c (a long and tortured riddle hymn), the only passage listed by Mayrhofer, Jamison and Brereton (2014) translate “with the sound ‘chit-chit’ becoming lightning.” One further passage is VIII.79.4a *cittí* instr.sg. ‘through your perception,’ which appears to be one further case of an oxytone (hapax) attested beside barytones. As these forms are disputed and do not substantially impact the argument presented here, I will not discuss them further.

reflexes of proterokinetic inflection (by e.g. Schaffner 2001: 438–439) but these two items conform in fact to the diachronic change we will see time and again in the Vedic texts: oxytones in the older texts, barytones in the younger. The cases of fluctuation are the following:

- (1) Oxytone and barytone attested for the same word in the RV
 - a. Older *śakti-* ‘skill, ability’ to $\sqrt{\text{śak}}$ ‘be able’ is relatively well attested (10×) and occurs mostly in the family books, while *śakti-* occurs less often (4×) and exclusively in the notoriously younger first and tenth books of the RV.¹⁰
 - b. Older oxytone *tṛptīm* ‘satiety’ (VIII.82.6c) to $\sqrt{\text{tṛp}}$, younger *tṛptih* once, in IX.113.10c (an “Anhangslied” in the judgment of Oldenberg 1912: ad loc.)

These items exhaust the cases of “fluctuation.” The remaining, purely barytone words fall mostly under the headings of late or weakly attested forms, a few of which I will discuss here for the sake of illustration.¹¹ Some barytones of the RV are clear backformations, like *dīti-*, PN of a goddess (RV 3×, Ved.+), regularly taken as a backformation to the name of the goddess *Āditi*;¹² or else late forms (i.e. hapaxes limited to book 10 such as *jīti-* f. ‘conquest’ x.53.11d), and/or forms with poorly understood morphology, such as *vāṣṭi-* ‘willing, ready(?)’ (v.79.5c), which Lubotsky (1988: 34) tentatively classifies with $\sqrt{\text{vāś}} < *wek$, while cautioning that neither meaning nor formation are clear.¹³

10 The occurrences of barytones are: *śaktim* x.134.6b; *śakti* I.31.18b; *śaktibhiḥ* x.25.5a, x.88.10b. Though labeling RV books I and x as “young” represents an oversimplification (since each book also contains older material), the division of the data along these lines still seems to me significant; see too Lubotsky’s estimation (Lubotsky, 1988: 37, and cf. 33) “In view of the late attestation of the barytone forms, I consider the oxytonesis original.”

11 A complete list of barytone stems in the RV comprises *iṣṭi-*, *kṛti-*, *gāti-*, *cīti-*, *jīti-*, *jūṣṭi-*, *tṛpti-*, *dīti-*, *dādhiti-*, *dhṛti-*, *yāti-*, *rānti-*, *vāṣṭi-*, *vāddhi-*, *śakti-*, *śrūti-*. Frequency counts for these items are provided below. The full attestations for each stem may be recovered from Lubotsky (1997), and with more detailed lemmas Grestenberger (2009).

12 Mayrhofer *EWA* s.v. *dīti-* “Künstliche Gegenbildung zu *āditi-*”, and s.v. *Āditi* ‘Ungebundenheit’. Notice that the simplex derives uncontroversially from a “decompositional” origin, and is assigned barytone accent; we will return to the significance of this observation below (§ 3.2).

13 Debrunner (*AiGr.* 2.2: § 472a) allows the possibility that it is somehow a form of the inflected 3rd sg. pres. Jamison and Brereton (2014) translate “eager,” taking it to the root $\sqrt{\text{vāś}}$. It is not, at any rate, a canonical instance of an early Vedic *-ti*-stem.

I have collected and assessed all *-ti*-stems in the RV and, though space forbids such an appendix to this paper,¹⁴ it may be useful to tally here the figures for the RV, since this textual layer provides our starting point for diachronic developments in Old Indic. These figures are my own and were obtained by going through simplex and compound *-ti*-stems in the RV; they may be compared against similar summations in Lubotsky (1988: 33–35) and Liebert (1949: 150 with n. 2, revising an earlier reckoning by Renou). Numbers differ slightly, since researchers may differ on individual details, depending on their principles of in- and exclusion. For instance, Lubotsky (1988: 33) excludes barytone *yáti*- as the “name of a mythical race,” and so it is (see the extensive discussion in Jamison, 1991: 54–67); but in at least one passage of the RV it is better taken as meaning ‘holding’ and derived from *yam* + *-ti*- (RV VII.13.1d); likewise in another passage (IX.71.7c) reference to the mythical race is unlikely and *yáti*- seems to be better translated ‘leader, leading’. By my count, then, there exist 16 barytone types like *gáti*- occurring 43×, while for the oxytone stems such as *bhṛtí*-, there are 48 types occurring 1170×. As we will see in some detail below, after the RV the number of oxytones steadily diminishes since old oxytones cede to younger barytones (e.g. *bhṛtí*-, *matí*-, *ití*-, *paktí*- etc. are attested as barytones in later texts), while new formations and forms that are first attested post-RV are mostly barytone. By the end of the Vedic period barytonesis wins out completely: *-ti*-stems become “immer auf der Wurzelsilbe betont” (*AiGr*.2.2: 631, cf. §468a–c).

2.2 Evidence from Vedic: RV *bhṛtí*- vs. *śB bhṛtí*-

Examples of *-ti*-nouns in post-RV texts mirror the evidence drawn from the RV: we have an ever-increasing number of barytones (both in terms of words first attested post-RV and words that were in the RV oxytone) as we move through Vedic into younger and younger textual layers. One difficulty we will encounter repeatedly in assessing forms first attested as a barytone after the RV is whether this late attestation is owed to a genuinely late formation or to its low frequency in the earliest stages of the language, whereby a given form could be unattested in the earlier sources due to chance (or equivalently, the word might have been excluded from RV discourse for pragmatic reasons).¹⁵

14 I intend to make a fuller appendix available online.

15 That this is a real concern in assessing morphological productivity is made clear by Probert (2006b: 166–173), who shows that in compiling lists of forms first attested at a later chronological stage rare words are likely to be overrepresented and hence skew one’s results in favor of chronology for what is on closer inspection a frequency effect.

Given this difficulty, we will focus on items that are attested at two distinct chronological stages with two accents, since these items demonstrate more clearly the correlation between accent and date of attestation (as opposed to accent and frequency), and furthermore it is these items that have been held to be leveled reflexes of accentually mobile paradigms.

Thus to take one example commonly cited in support of ancient accent alternation, oxytone *bhṛtí-* ‘offering, present, bearing’ is the only form in the RV (occurring 4 × in 3 cases), beside compound forms like *prābhṛti-* ‘offering’, *idhmābhṛti-* ‘kindling-bringing’, etc.¹⁶ The consistently oxytone *bhṛtí-* of the RV is at odds with the barytone *bhṛti-* which first occurs in the late Vedic prose of the Śatapatha Brāhmaṇa (ŚB). Damaging to the “accent alternation” argument is that the lone barytone form occurs against the consistent oxytones in the RV, and precisely this change (oxytone to barytone accentuation) is what we find within the diachronic history of the Vedas. Thus the analysis of a change in the accentual properties of this word (i.e. the suffix is no longer inherently accented /-tí-/; see below) gains in plausibility: this one lexical item will represent an example of diachronic change rather than appearing as a retained remnant of paradigmatic alternation. It is an innovation, not an archaism.

The barytone form occurs only once in Vedic literature (so far as I am aware) and as it has been used as evidence in the evaluation of Vedic *-ti*-abstracts, it is worthwhile to examine the passage.¹⁷ Barytone *bhṛti-* occurs only in the ŚB(M), at 1.8.1.2, “Manu and the flood.” Here a fish is talking to Manu, and instructing Manu to rear him properly so that he (Manu) may survive the imminent flood.

- (2) *sá hāsmāi vācam uvāda, bibhṛhí mā pārayiṣyāmi tvéti kásmān mā párayiṣyasíty aughá imāḥ sárvāḥ prajā nirvoḍhā tátas tvā pārayitāsmīti káthaṃ te bhṛtir íti.*

(ŚB(M) 1.8.1.2)

16 In three of the four passages in question *bhṛtí-* is translated “present” by Jamison and Brereton 2014, viz. VIII.1.66.11d, IX.103.1c, X.29.4c. At 1.8.4.16d *bhṛtyām* (loc.sg.) is translated “in bearing”.

17 This passage from ŚB represents the sole attestation with barytone accent according to the Vedic Word-Concordance, Vishva Bandhu et al (1973: s.v., p. 1108 col. 1). That barytone *bhṛti-* is first attested in ŚB and therefore does not constitute good evidence for proterokinetic inflection was observed earlier by Kiparsky (2010: 162 f. with n. 27), followed by Kümmel (2014: 165–166), though without discussion of the passage.

‘It spake to him the word, ‘Rear me, I will save thee!’ ‘Wherefrom wilt thou save me?’ ‘A flood will carry away all these creatures: from that I will save thee!’ ‘How am I to rear thee?’ [lit. ‘how is your rearing?’ JSL.]’

tr. EGGELING

From the passage it is clear that Manu’s *bhṛti-* is a nominalization of the fish’s imperative *bibhṛhí*; proof of this derivation comes from the fact that the meaning of *bhṛti-* here matches perfectly the semantics of the verb, yet differs from the RVic passages discussed above where *bhṛti-* is translated ‘present, offering.’ As seen by Jamison (1991: 124, 236–237), this particular formulation appears to reflect a verbal command by which a dependent can force his master to assume custody, since this same command is used this way in other passages (Jamison gives ŚBM 11.3.4.7, and notes that the command is reflected also in Jaiminīya Brāhmaṇa 1.186). I would treat the noun *bhṛti-* as a derivative formed synchronically in order to nominalize the verbal command, a derivative whose accentuation results from the changed accentual properties of the suffix *-ti-* in the late Vedic period. At this stage of the Vedas, all new *-ti-*abstracts are assigned barytone accent (see below, § 3.1). By this analysis, the form is evidence for a rule of late Vedic accent assignment in this nominal class, not ancient leveling from a mobile accent paradigm (a leveling that would have to have eluded the RVic tradition). Furthermore, we need to acknowledge that the philological evidence of this passage is not unequivocal since the two recensions of ŚB disagree on the correct reading: while the “M” recension (Mādhyamīna-śākhā, ed. Weber) attests *bhṛti-*, the “K” (Kāṇḍiyya recension, ed. Caland and Vira) attests instead a gerundive (ŚBK 2.7.2). Whose recension represents the older reading (*utrum in alterum*) cannot be determined with confidence. If in fact the witness of the kāṇḍiyya-recension preserves the older reading, then the mādhyamīna-recension is even less likely to represent an archaism in this form.¹⁸

Finally, we may observe that *bhṛti-* does not represent the sole new barytone formation to penetrate into this younger text level of the Vedas: within ŚB,

18 A word of caution is necessary on interpreting the accentuation of the ŚB (the text just printed has acute standing as a proxy for the understroke of the manuscripts). I have followed in the main the interpretation proposed by Hoffmann (1975: 132 ff.) and Kiparsky (1982: 68 ff.) (accepted by Witzel 1974: 475–476 and Witzel 1997: 327–328 with n. 360) that the horizontal understroke in the MSS indicates a following svarita, disagreeing with others who would treat the sign as indication of the udātta, though in many cases (including the present one) the descriptive result is identical. An alternative, and not unanimously accepted, proposal is put forward by Cardona (1993).

Liebert (1949: 10) lists a total of four new *-ti*-stems, *jágdhi-* ‘eating’, *púti-* ‘cleansing’, *spṛti-* ‘releasing’ and *spṛṣti-* ‘touching, handling’. At this age of the Vedas, new *-ti*- formations are regularly barytone, including every example in the śB, while only a few, highly frequent oxytones retain their old oxytonesis; for example, both *máti-* and *matí-* are attested within the śB, an example to which we now turn.

2.3 Evidence from Vedic: RV *matí-* vs. later *máti-*

Perhaps the most commonly cited example of “alternation” is “Ved. *matí-* / *máti-*,” but that these two accents represent in fact bifurcated accentual levelings rather than serving as a witness to diachronic change seems dubious. The quality of the evidence parallels *bhṛti-*: once again *matí-* is the sole form known to the poets of the Rígveda¹⁹ as well as occurring in later literature, while barytone *máti-* belongs to a later stage of the Vedic tradition. Let us focus on the barytone form *máti-*, for which I offer discussion of only a few representative examples.

The oldest example I have been able to trace is Maitrāyaṇī-Saṁhitā (IV.9.6: 126.5 Schroeder), *mátiḥ kavīnām pátiḥ prajānām* ‘thought of the praise-poets, lord of offspring’. The passage is paralleled in the Kāṭha-Āraṇyaka (2.112, Witzel 2004: 42–44), though this particular phrase appears to be absent. It seems possible that barytone *máti-* represents a textual error in the course of transmission, or else represents a linguistically real barytone, perhaps influenced by the immediately following *pátiḥ prajānām* and the growing class of barytone *-ti*-stems. But I leave the question aside, since my main point has been made: the earliest form is the oxytone *matí-*, and this is the exclusive accentuation known to the poets of the RV. Barytone *máti-* is certainly post-RV; whether it really occurs first in this passage of the MS, or in the later passages to be cited presently, may remain open for the moment.

We have barytone *máti-* in three occurrences in the Taittirīya Ār.: TĀ IV.7.4, v.6.8, v.6.9. The first passage is a ritual litany (quoted below), followed by two passages (v.6.8 and 9) which form part of the Pravargya-Brāhmaṇa (explanatory prose to the mantras in TĀ IV.7.4).²⁰

19 See the entry in Lubotsky (1997: s.v., II.1014–1015).

20 I am grateful to Arlo Griffiths, editor of the TITUS text of the TĀ (<http://titus.uni-frankfurt.de/texte/etcs/ind/aind/ved/yvs/ta/ta.htm>), for help with the transmission of the accents in the TĀ. These three examples represent all the occurrences of barytone *máti-* in this text according to Vishva Bandhu et al (1973: p. 1132, col. 1).

- (3) *gárbho devánām pitá matínām pátiḥ prajānām mátiḥ kavīnām sám devó devéna savitráyaṣṭa*

‘seed of the gods, father of hymns, lord of offspring, the thought of the praise-poets, with god Savitar the god has striven ...’

Why *máti-* in these passages of the TĀ should represent an archaism independent of the RV, rather than being another representative of the accentual change to barytones, is left unexplained by proponents of the accent leveling approach. As far as a synchronic semantic difference between the two accented forms may be discerned, notice that Houben (1991: 119–120) claims that *matí-* oxytone in this passage means “thoughts that concretely acquired the shape of hymns and formulas”, while “*máti* (note the accent) is used in its more abstract sense: (inspired) thought of the poets.” If I am right to argue that by this stage of Vedic prose old oxytone forms are lexicalized stems, not productively formed derivatives, then it becomes possible that the old oxytone has been lexicalized here with the specific meaning Houben attributes to it, while the productively formed barytones take on a different nuance, though I do not have the space to pursue this argument further here.²¹

Finally, let us turn again to the ŚB, whose distribution of oxytone and barytone forms merits attention. Within ŚB, barytone *máti-* occurs beside oxytone *matí-*, a form frequent in other later Vedic texts as well. The barytone forms represent creeping innovations, occurring twice in a repeated passage that is not really in the ŚB proper, but rather the final portion of the text, viz. the Bṛhad Āraṇyaka Upaniṣad (BĀU), a kind of appendix, later in composition than the core of the main text.²² The passage is rife with the root *man-*.

21 I have not been able to find similar semantic splits in other cases of relic beside innovation, but it would not be at all surprising to find further evidence paralleling *máti-* / *matí-*. Notice that another analysis is possible for these forms: it could be the case that both meanings existed at one point for the old oxytone stem *matí-*, but via semantic change they came to be treated as two lexical items, and subsequently barytonesis affected one (by default accentuation, see below) but not the other. This possibility should be borne in mind, though in the particular case at hand such an analysis seems undercut by the fact that both meanings are not attested from an equally early date. Further, it could be objected that we might expect the abstract meaning to remain in the oxytone relic, since this meaning was associated with the semantic core of the suffix.

22 The two passages are ŚB(M) XIV.7.1.28; XIV.7.3.21 = ŚBK XVI.6.3 = BĀU(M), BĀU(K) IV.3.28.

- (4) *yád vai tán ná manuté, manvānó vai tán mantávyam [K om.] ná manute, ná hí mantúr máter viparilopó vidyáté 'vināśitvān, ná tú tát dvitīyam asti. táto 'nyád vibhaktaṃ yān manvītā.*

'Nor does he think of anything here; but although he does not think, he is quite capable of thinking, for it is impossible for the thinker to lose his capacity to think, for it is indestructible. But there isn't a second reality here that he could hear as something distinct and separate from himself.'

ŚB(M) XIV.7.1.28= XIV.7.3.21, tr. OLIVELLE (1998)

In this passage the older *matí-* has in all probability ceded to *máti-*, a form which is generated by synchronic rules of accent assignment discernable in later Vedic texts. Note that even within this text we do have evidence for some retention of older oxytone *matí-*, in BĀU(K) II.4.5.²³

To conclude this section, let us recall that in a widely followed account of the **-ti*-abstracts, Schaffner (2001: 436–440) maintains that the Vedic material shows that mobile accentuation was preserved into a prestage of the language and was then subsequently leveled one way in some Vedic traditions, another way in others. Against this claim I have argued that the chronological split in our data does not support such an analysis. I hope to have demonstrated that forms first attested in the early RV later turn up as barytones; that previously unattested *-ti*-stems usually turn up as barytones, not oxytones; and finally, by the end of the Vedic period, all *-ti*-stems are treated as barytone. Under this analysis, the barytone forms are very unlikely to show anything of (pre-) PIE vintage, and therefore cannot be deemed sufficient indices to reconstruct mobile accent and ablaut paradigms for this nominal class.²⁴

23 The accented mss. for BĀU(K) have been collated for book I by Maue (1976), book II (with some later parts also) by Coffie (1994). In Coffie (1994: 412) we can see that the mss. for K and M recensions do agree on barytone *máteh* (gen.sg.) for the passage given above, but in the word's occurrence at BĀU(K) II.4.5, Coffie records the accent of the word as oxytone *matyá* (instr. sg.).

24 A similar conclusion was reached recently (and independently) by Kümmel (2014), who argues cogently that the accent and ablaut patterns attested within Indo-Iranian are best explained without reference to a PIE proterokinetic accent and ablaut paradigm; consequently, the accentuation of the *-ti*-abstracts is instead taken as evidence for an accentual change internal to Old Indic. Additionally, this is perhaps the best place to note that Iranian contributes little indeed to our picture of Indo-Iranian accent (on the data cf. Liebert, 1949: 91–99). One relevant form is Avestan (OYAv.) *aši-* 'reward', a form Hoffmann (1992: 837–844) proposed to be a further reflex of a proterokinetic paradigm

If I am correct that this kind of evidence (later Vedic barytones like *bhṛti-*, *māti-* against the RV) does not reflect the retention of a deep archaism, but was created by speakers at a later age when barytonesis was the rule, we come to an important corrective and an interesting question:

- OBSERVATION: The evidence of older oxytones vs. later barytones is best understood as a diachronic change in the accentual properties of the suffix *-ti-*, changes that will have occurred *internal to Vedic*.
- INTERESTING QUESTION 1: How do certain lexical items resist the diffusing change to barytonesis, remaining oxytone against the general current?

This is a question we turn to in the following section.

3 History of the Vedic -ti-Abstracts

3.1 Deriving Accentual Change

A diachronic account of these facts needs to take into consideration the chronological stages at which different rules of accent assignment and different accentual properties of a given element would be productive. The analysis pursued here will treat the earliest Vedic and securely pre-Vedic stage as possessing a suffix *-tí-* that is lexically accented, i.e. “accentedness” would be an inherent property of the morpheme. The suffix is realized with a surface accent by phonological principles that determine which morphological constituent surfaces with the accent. It is standard in generative analyses of lexical accent systems to treat accentedness as a property of morphemes, and to derive the mappings from underlying accent to surface accent by phonological computation over the prosodic properties of constituent morphemes; this approach will be followed here. It has been applied to IE (see the attempt by Kim 2013; brief overview in Weiss 2011: 107–108) and especially to Vedic in a long series of articles by Kiparsky (1973, 1984, 2010, fthcm.). Analyses within the generative tradition have been proposed for Ancient Greek by Steriade (1988), Probert (2006b: 117–123, 145–151 *et passim*, defined 413–414), and Gunkel (2014), and Anatolian now sees a similar treatment by Yates (2015).²⁵ To what extent a “compositional

(p. 844). However, that this example is best interpreted as reflecting an archaic accent and ablaut alternation has been seriously challenged by Cantera (2003: 260f.) and Kümmel (fthcm.: § 3 with n. 2 of the preprint).

25 Similar analyses by phonologists working on non-IE languages have been employed by e.g.

approach” (as Kiparsky calls it) applies to PIE proper and to pre-PIE is a controversial matter and one I will not enter into here; in any event, a generative analysis provides a powerful means for describing Vedic and Greek accentuation and will be put to that use in this paper.

To illustrate compositional accent with the case at hand, the accent of an oxytone form like *bhṛtí-* will be derived from an underlyingly accented suffix /-tí-/ , such that /bhar + tí/ → *bhṛtí-*. Notice that this informal derivation assumes an active zero-grade rule operating over full-grade inputs at the relevant historical stage.²⁶ However, it is clear that by the time our speaker of ŚB(М) produced *bhṛtí-*, the accentual properties of the derivational suffix *-ti-* have changed from those the poets of the RV knew, or else we would have the same result, viz. *bhṛtí-*. At this later diachronic stage, the suffix *-ti-* no longer bears the property of inherent accent (for reasons why, see § 3.2). While it is clear that the suffix does not surface with the accent, we need a phonological principle to govern accent assignment to the leftmost syllable. One such recognized principle for Vedic is the “Basic Accentuation Principle” (BAP) posited by Kiparsky and Halle (1977: 209),²⁷ which we may formulate as follows:

Revithiadou (1999) on lexical-interface systems in a broad range of languages (“interface” refers to morphologically governed accent combined with phonological principles), and Alderete (2001) with reference especially to Cupeño (Uto-Aztec, Southern California) and Japanese.

- 26 The relationship of (surface) accent to vowel deletions has been investigated since the 19th century, yet the precise conditioning environments for Vedic (and PIE) have still not been fully worked out and remain a topic for future research. On Vedic (with 19th-cent. literature) see Wackernagel (1896: pp. 64–65) and note the illuminating discussion of de Saussure’s generative analysis (*avant la lettre*) by Watkins (1969: 24–25). Weiss (2011: 47,1) offers an up-to-date formulation of the problem, observing that the correlation of zero-grade to surface accent is commonly believed to be “the result of some pre-Proto-Indo-European syncope rule” but in PIE as reached by the comparative method too many counter-examples exist (i.e. accented zero-grades) for this rule to be tenable; similar problems plague the study of *o*-grade vocalism and its relationship to (surface) accent, cf. Weiss (2011: 47,j). See further the helpful overview of the question by Clackson (2007: 79–88).
- 27 Cf. further his updating in Kiparsky (2010: 144) and Kiparsky (fthcm.: 1 *et passim*). Notice that Kiparsky’s claim holds for PIE, in his view, but is founded primarily on Vedic evidence and so may be used to describe the synchronic rules of accent assignment for Vedic. Related is the demonstration by Probert (2006b: 128–144) that the Ancient Greek recessive accent—shown to be the default accentual pattern of the language—reflects the same principle by which one accents the leftmost accentable syllable in the absence of other, dominant accents. The principle of default accentuation to the leftmost syllable has been applied successfully to Anatolian by Yates (2015).

(5) BASIC ACCENTUATION PRINCIPLE (BAP)

If a word has multiple underlyingly accented syllables, the leftmost of these acquires the surface accent. If a word has no underlyingly accented syllable, the leftmost syllable acquires the surface accent.

At this later stage of Vedic, when the unaccented suffix */-ti-/* is combined with a root—presumably now with morphological selection of the zero-grade, no longer tied to a phonological rule of vowel deletion in the root syllable—we would have underlying */bhr + ti/*. There are no underlying accents, so the surface form will be *bhṛ̥ti-* by a rule of default accent assignment to the left-edge of words, i.e. by application of the Basic Accentuation Principle. Any new *-ti-* formations will be built by these rules, and consequently surface with barytone accent, exactly as they do in the history of later Vedic texts. Though it may seem that we have introduced a lot of machinery to explain the late Vedic barytone *-ti-* stems, Kiparsky (2010) has demonstrated that the BAP explains a number of disparate phenomena under a single phonological principle, and so we invoke it here as an independently motivated explanation which we have extended to explain as well the diachronic history of this nominal stem class, and we will return to it below (§ 3.2).

Although in late Vedic most *-ti-* nouns are barytone, a few accentually irregular oxytones persist into late stages of the Vedic language. It seems not to have been explicitly observed that a strong correlation appears between those forms that remain oxytone longest and their high token frequency in the earliest texts. Consider the following forms (with appended judgments from Debrunner *AiGr.2.2*: 631–633):

(6) Examples of Oxytone Holdouts

- a. *ūtí-* ‘help, aid’ 289 × RV (most frequent *-ti-* noun in RV, occurring in a number of formulas) remains oxytone *ūtí-* “bis in die Brāhmaṇas.”
- b. *dhītí-* ‘thought’ 73 × RV, remains “bis in die Saṃhitās.”
- c. *kṛṣṭí-* ‘furrowed land, peoples’ 54 × RV, remains “bis in die Saṃhitās.”

The evidence suggests that highly frequent nouns in earliest Vedic conserve their oxytonesis far better than less frequent items; more broadly, we may state that high token frequency seems to be a necessary but not sufficient condition for retaining an archaic accent.²⁸ Frequency is known to affect the

28 I say that high frequency is not a sufficient condition, since we have cases such as highly frequent *matí-* (143 × in RV) that does exhibit barytonesis from an early period, as described above (§ 2.3).

preservation or loss of archaic forms: highly frequent irregular forms may be stored in memory, while less frequent irregular, as well as regular, forms are produced by the productive rules for the language.²⁹ For the case at hand, this means that very frequent lexical items should conserve their oxytonesis better since they are stored lexically with their irregularity intact, while rules of accent assignment determine barytone accent for all productively formed *-ti*-stems.

One way to understand the irregular accent of these nouns would be to specify that they must owe their accentuation to a different principle from that which obtains for the barytone class. Put differently, barytone *-ti*-stems are being produced by a synchronic rule at this stage of Vedic and clearly the oxytones cannot be produced by the same rule or else we would have the same result. I would suggest that the oxytones are entered into the lexicon with their accentuation fully specified; in this sense they may be deemed lexical exceptions.³⁰ To illustrate the last point, at this later stage a form such as *ūtí-* is now underlyingly a stem */ūtí-/*, which derives $\rightarrow \bar{u}tí-$. Had it been generated by the productive rules of word-formation, it would have undergone the same course as */bhr + ti/* $\rightarrow bhṛti-$ and so ended up as */ū + ti/* $\rightarrow \bar{u}tí-$. The diachronic strata of word-formation rules would run as follows:

- I. In earliest Vedic the *-ti*-nouns are built up “analytically” by productive rules of wordformation, e.g. */bhar + tí/* $\rightarrow bhr-tí-$.
- II. Highly frequent items like *ūtí-* become listed in the lexicon with prespecified accent of the stem (i.e. they are not built up by morphology). We may say they are “nonanalytically” listed in the lexicon: */ūtí-/* $\rightarrow \bar{u}tí-$.
- III. The properties of the suffix change from lexically accented to unaccented, and any new stems receive accent by the Basic Accentuation Principle (ex.

29 A vivid demonstration of the correlation between frequency, memory, irregular forms and regular rules is Pinker (1999: esp. 122–128), who discusses the importance of the fact that the irregular verbs in a given language will be the most common by token frequency, and vice-versa, the regular verbs, produced by morphological rules rather than lexical storage, are not the most frequent. See also Phillips (2006) and Sandell (2015: *passim*) for up-to-date discussions of frequency effects, with references.

30 More technically, the division between forms with clear morphological constituency vs. forms treated as undivided units may be described as “parsed” or “analytical” vs. “holistic” or “non-analytical” storage in the lexicon. These terms are common in the literature on morphological productivity (cf. Baayen and Schreuder, 1995), and I take them over from Bermúdez-Otero (2012: 18), discussed below; see further the extensive treatment of morphological parsing in historical corpora (esp. the Indo-European languages) in Sandell (2015: ch. 3 et *passim*).

5, i.e. to the left-edge of the word): /bhr + ti/ → *bhṛ̥ti-*; likewise, retained *-ti-* stems with lower frequency will be liable to have their accent determined by the BAP, which is another possible analysis for *bhṛ̥ti-*, whose underlying representation would in that case be /bhrti-/ or /bhṛ̥ti-/.³¹

The kinds and degrees of interaction between the lexicon and the grammar (in particular the phonology) in determining the labor of morphophonology have proven an important locus of research in diachronic linguistics, and such work may shed light on the problem at hand. Consider a case of accentual split from English. One well-known stress-changing suffix is *-ic* /-ɪk/, which derives denominal adjectives and attracts primary stress to the preceding syllable. The process of attracting primary stress to the preceding syllable is wholly productive in English, and occurs with thousands of forms. Interestingly, however, this rule does sustain lexical exceptions.

- (7) Split Stress in English: the suffix *-ic* /-ɪk/
- a. REGULAR: *acrobát-ic*, *genét-ic*, *harmón-ic*, *titán-ic*, *miltón-ic*.
 - b. EXCEPTIONAL: *Árabic*, *aríthmetic*, *ársenic*, *cadáveric*, *cátholic*, *héretic*, *lúnatic*, *pólitic(s)*, *rhétoric*, *túrmeric*.³²

One approach to formalize conflicting patterns of accent has recently been proposed and strongly argued for by Bermúdez-Otero (2012: 17–21).³³ With regard to the lexical exceptions (*Árabic* etc.), he posits three ingredients to handle their exceptional accentuation:

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- 31 As mentioned above, determining with certainty whether a stem such as *bhṛ̥ti-* truly represents a novel formation built on productive rules or rather a pre-existing lexical item that was formerly oxytone but has become barytone seems to me a *quaestio perplexa*, and the analysis here may be considered tentative. Notice that some degree of variation in generating the accent for this class would be expected while the change from oxytonesis to barytonesis runs its course (cf. Bermúdez-Otero, 2007: 498–499 on Latin accentuation), though we lack access to such conditioning factors for the Vedic period.
 - 32 I believe this list is exhaustive; see Fournier (2010: 28) from whom I take my examples: “... on ne compte en effet en tout et pour tout que les 10 exceptions suivantes ... Auxquelles on peut ajouter *bíshopric* et *chívalric*, bien qu'il ne s'agisse pas, historiquement, du même suffixe.”
 - 33 He is building on earlier work in lexical phonology, as well as treatments of regularity versus irregularity in grammar by Pinker and Ullman (2002) and others; see the exceptionally rich bibliography in Bermúdez-Otero (2012).

- I. Stem-level constructs like *-ic* adjectives should be entered into the lexicon with phonological properties, prosody included, fully specified (e.g., in the example given above it is entered as *Árabic*, not *Arab + ic*);
- II. the presence of an entry for e.g. *Árabic* in the lexicon must block the morphosyntax from building the adjective through the addition of *-ic* to the noun stem *Arab* so we do not end up with **Arábic* (in the same way that the lexical entry for the past-tense *drove* blocks the rule-driven application **drive-d*);
- III. finally, we need to ensure that the lexical entry for *Árabic* can withstand neutralization to the default pattern exemplified by *idýll-ic*, *Miltón-ic*, *titán-ic* etc.; he handles this in a constraint-based approach, appealing to a high ranking of faithfulness in the phonology (more specifically of metrical faithfulness in the stem-level constraint hierarchy countenanced in his framework, Stratal Optimality Theory).

The formalization of how the labor of grammar is divided over morphology and phonology in Bermúdez-Otero (2012) may be translated fairly straightforwardly into the analysis produced just above. In later Vedic, the presence of an entry in the lexicon for e.g. *ūtí-* blocks the morphosyntax from building the noun by the productive rules of wordformation, i.e. through the addition of *-ti-* to the verbal root *avⁱ/ū*, so not */ū + ti/ → *ūtí-* (cp. *bhṛ́-ti-*). In order for the stem-level *ūtí-* to surface with oxytone accent, this accentuation needs to outrank the pull for *ūtí-* to join the class of barytone formations. This may be stated in phonological terms, continuing to follow Bermúdez-Otero (2012), as the result of a high ranking of faithfulness constraints that enforce the oxytone accent to surface. That is, barytone accentuation defines a default pattern for this nominal class (*bhṛ́ti-* etc.) but its application is blocked by prespecified information from the lexicon (so *ūtí-*).

Although I believe a model of the morphology-phonology interface such as that argued for by Bermúdez-Otero enriches our understanding of accentual change by providing principled arguments for exceptional forms and their accentual patterns, the data at hand may be formalized differently depending on one's theoretical commitments. Regardless of the formalism adopted to best explain the data, it is the basic accentual split that needs to be clearly registered: some few oxytone holdouts persist, otherwise barytones win in the end.

3.2 *Oxytone > Barytone*

The final question we will ask in this paper is not “Did the change happen?” since I hope it has been conclusively demonstrated that the split accentuation

does represent a diachronic change, but “Why did the change happen?” It must be conceded that in posing this question we encounter special difficulties, given the limitations of our philological records; however, there exists a clear diachronic trajectory from accented suffix *-tí-* in the earliest texts to the last stages of Vedic where all *-ti*-nouns are barytone, and this trajectory impels us to seek a motivation for the change. In our case I will suggest possible answers by making reference to the use of *-ti*-stems in compounds and the loss of morphological parsability, since these factors have been shown to condition accentual changes in other languages, yet it should be borne in mind that my suggestions in this section need to be read more as proposals than as definitive analyses.

At this point it will be useful to recall a traditional claim about the **-ti*-abstracts: they were primordially compositional suffixes, in systematic opposition to simplex *-tu*-stems, as argued forcefully by Meillet (1925), but vigorously disputed by Liebert (1949: 149–170); see the helpful discussion by Vine (2004: 371).³⁴ To my mind, against Meillet, the more mitigated view presented by Wackernagel rings truer, viz. that we have strongly developed compositional capacity already from PIE.³⁵

Let us recall that many *-ti*-abstracts (including barytones) are found beside compounds. Crucially, when compounded with an accentable first member, the second member in *-ti*- regularly cedes its accent; cf. Wackernagel's formulation (*AiGr*.2.1: 214 § 90a), “die [Komposita] mit einem Nomen actionis auf *-ti*- haben den Akzent ursprünglich auf dem Vorderglied”, with the examples *úḍ-iti-* ‘Anfang,’ *hásta-cyuti-* ‘Bewegung der Hände,’ *prá-tūrti-* ‘Eile,’ *áty-āpti-* ‘volle

34 There is no question of settling here the original distribution of **-ti-* vs. **-tu-*, nor of assessing in any depth the complex relationship between **-ti*-nouns and **-to*-verbal adjectives (including, but not limited to, whether **-to*-adjectives and **-ti*-nouns stood in a derivational relationship to one another). The evidence presented in Vine (2004) for *-ti-* as a first compound member (e.g. *dāti-*) remains unclear to me. If Vine is correct to see in first members like *dāti-* an old *-ti*-stem directly related to nouns like *bhṛtí-*, *matí-*, his thesis could still easily align with what I am presenting here: old **-ti*-nouns like **d(e)h₃-tí-* would have been judged phonotactically illicit in their zero-grade, at least the **dh₃-* onset word-initially (since this sequence was well-formed as a second member in compounds). If illicit, one repair would be to maintain the full-grade allomorph of the root, and this repair might well have been available already in the proto-language to judge from Vine's evidence, hence **deh₃-ti-* > *dāti-*.

35 Wackernagel (1905: 190 § 81b) speaks of a “stark entwickelte Kompositionsfähigkeit aus der Grundsprache, wie bei denen auf *-ta-*, zu denen sie die Abstrakta bilden und mit denen sie im Akzent zusammengehen.”

Erreichung'.³⁶ Examples of this type of compounded *-ti*-stems are legion, e.g. (all examples from the RV),

- (8) Examples of *-ti*-stems beside compounds
- matí-* 'thinking, thought' (143×) beside *átí-mati-*, *ánu-mati-*, *prá-mati-* etc.
 - bhṛtí-* 'bearing; gift' (4×) beside *idhmá-bhṛti-*, *upábhṛti-*, *prá-bhṛti-* etc.
 - gátí-* 'path' (hapax v.64.3a) beside *ágati-*, *sám-gati-*
 - júṣṭi-* 'enjoyment' (3×) beside *ájusṭi-*, *havyájusṭi-*

A tally of simplex to compound stems may be useful here. By my count, in the barytone forms the ratio of compound token frequency to simplex is 217× (to 9 types, like *sám-gati-*) to 46× (to 16 types, like *gátí-*). In the oxytone stems, the ratio of compound token frequency to simplex is the narrower 827× (to 28 types, like *prá-bhṛti-*) to 1170× (48 types, like *bhṛtí-*). Finally, there are 48 stems that only occur in compounds (e.g. *sám-dṛṣṭi-* 'sight' without corresponding *dṛṣṭi-**), occurring 611×. The token frequencies may be tabulated thus:

- (9) Type Frequencies of the *-ti*-Stems in the RV

	Simplex	Compound
Barytone	16	9
Oxytone	48	28
Cpd. only		48

36 One important exception is compounds with arguably unaccented—in terms of underlying, lexical accents—first members *su-*, *dus-*, e.g. *su-matí-*, *dur-matí-* (*AiGr.2.1*: § 94b). Interestingly, this exceptional accentuation is gradually lost and in late Vedic (in accordance with the rule given by P. 6.2.50) *su-*, *dus-* are “immer betont”; in fact, we find a few examples of precociously accented *su-*, *dus* already in the RV (*sú-miti-* ‘having a good foundation’, *sú-śiṣṭi-* ‘having good instruction’, *sú-ṣuti-* ‘an easy birth’) and one case of fluctuation in *dúṣ-ṣṭuti-* / *duṣ-ṣṭuti-* ‘having dispraise’. The topic of the accentuation of Vedic compounds and how to derive their synchronic, or diachronic, properties far exceeds what I can cover in this paper, though it certainly merits further attention (see Wackernagel’s aporia p. 215 on the accent of these compounds, “Die Ratio des Unterschieds liegt im Dunkeln.”) and I hope to return to it elsewhere. For the data, see Whitney (1889: § 1274, 1287d), Macdonell (1910: p. 91ff.), and esp. Wackernagel (*AiGr.2.1*: 214–232).

(10) Token Frequencies of the *-ti*-Stems in the RV

	Simplex	Compound
Barytone	46	217
Oxytone	1170	827
Cpd. only		611

What can we make of these numbers? In the RV we have a substantial number of *-ti*-stems in compounds that do not correspond to a simplex, i.e. the *sámdṛṣṭi*-type, making up nearly half of all the compounded *-ti*-stems of the RV (48/112, 43%). Further, in the class of barytones we have a significant distribution of compounds (*sámḡati*-type) to simplex.³⁷ I suggest that the extended use of the suffix *-ti*- to derive not only primary deverbative simplex nouns (*bhṛtí*-, *matí*-) but also compounds and secondary stems where accent was not on the suffix (e.g. *prá-bhṛti*-, *prá-mati*-) led to loss of the accentual properties of the suffix.

This change could have come about as follows. First, we need to recall that the surface accent of these compounds is diagnostic of morphological constituency: the suffix *-ti*- is a primary derivational suffix added to the root, and it is with this root + suffix combination that the preverb is compounded (using square brackets to show constituency):

- (11) Preverb + [root + suffix]: [*prá* + [*bhṛ-tí*]] (as opposed to ^x[[*pra-bhar*] + *tí*])

The surface accent of this type of compound falls out readily from the principle of “leftmost accent wins” which we introduced above (the Basic Accentuation Principle, ex. 5). *prá* is the first accented morpheme in the word and thereby “wins”; schematically: / *prá* + *bhṛtí*- / → *prá-bhṛti*-. Crucially, notice that the surface form occults the accentuation of the root + suffix combination. For the examples at hand, this would mean that from the predominant use of compounds like *prá-mati*-, *prá-bhṛti*- etc., it could (and presumably did) become

37 The ratio of simplex to compounds between barytones and oxytones is significant as determined by a chi-squared test of statistical significance, $\chi^2 = 156.27$, $p < .0001$. However, it needs to be noted that this significance is owed to the highly frequent outlier *áditi*- (174×) to simplex *díti*- which, if removed, seriously diminishes the statistical import. I am grateful to Ryan Sandell for help with this point.

unclear to learners whether the underlying input was *prá* + /man-tí-/ , /má-ti-/ or /mati-/ (e.g.; other underlying representations are thinkable). So when a new simplex needed to be formed the input was no longer /man-tí/ but either /ma-ti-/ (if the form is still built up by productive suffixation) or /mati-/ (if the form is learned as a stem). In either case accent would be assigned by default accentuation in the phonology, thereby deriving *máti*-. Thus in compounds, an important locus where language learners (baby Rigvedins) would hear increasing tokens of surface *-ti*- without accent, it would be possible that the accent of the underlying compound noun became unclear and, in the absence of clear indications that *-ti*- should be lexically accented, the stem was assigned default accent by the Basic Accentuation Principle.

This “de-compositional” explanation need not be regarded as the sole conditioning factor for the loss of inherent accent on the suffix. Another locus of change would be nouns that have undergone “demorphologization,” a term and concept introduced in Probert (2006b: 259, 291, 412 et aliter), which we may define as follows: a stem formed with an inherently accented suffix may come to be treated as monomorphemic if, for some formal or functional reason, the word loses its connection with a synchronically clear category of words containing the suffix. Probert describes the effects demorphologization may wreak on accentuation as follows (Probert, 2006b: 291),

When a word has undergone ‘demorphologization’ its accentuation can no longer be determined by the presence of an inherently accented suffix as the suffix is no longer treated synchronically as present ... the word may lose its inherent accent altogether, in which case a recessive accent will be assigned by default.³⁸

It is certainly possible that at least some lexical items from the *-ti*-stems would have shifted their accentuation due to demorphologization.

To illustrate a functional reason for a stem to lose its synchronic analyzability: originally the suffix *-ti*- derives **abstract** nouns, so e.g. **gʷm̥ + -tí* ‘a going, motion’; but if a noun composed with this suffix comes to be used in a **concrete** sense (and so drifts from the prototypical semantics associated with the

38 See Probert (2006b: 440 s.v. ‘demorphologization’) for cases in point from Ancient Greek; see also Probert (2006a) for discussion of the relationship between semantics and the accentuation of a given suffix with the example of the Greek deverbative nouns in *-ā*. Notice that Keydana (2013: 43) also employs an account along similar lines to explain the barytone *-ti*-stems.

suffix), the noun may no longer be understood as belonging to the same morphological class of abstract nouns. The degree of semantic differentiation may be correlated with the accentuation of a given lexical item: if the noun loses its morphological or semantic compositionality, it may consequently have its accent determined by the default accent for that language. The surface forms and semantic changes for the case in hand would be pre-Ved. **gātís* ‘a going, motion’ > **gātís* ‘a way, path’ > RV hapax *gātís* ‘way, path’.

(12) *yán nūnám aśyām gátim*

‘That I might now reach the way’

V.64.3a, tr. JAMISON and BRERETON 2014

It is worth emphasizing that this process of semantic concretization is viewed here (as it is in Probert 2006a,b) as a necessary but not sufficient condition for change, and it must be conceded that there are many examples of concrete *-ti*-stems in Vedic that do not undergo this change by the time of the RV. For the present case, I think it is likely that the change or not to a barytone stem would depend on frequency of usage, since this factor often influences whether an item undergoes change or not in languages for which we have appropriate data on frequency effects, as discussed above. But due to our limited knowledge on this point, my suggestions must remain speculative.

We may conclude as follows: the Vedic suffix *-ti-* changes its accentual properties within the attested course of Vedic, from inherently accented to unaccented. I have proposed two reasons for this change:

- I. A very high token frequency of the suffix in compounds (e.g. *prámati-*, *prábhṛti-* etc.) where the surface accent is not on *-ti-* leads to a loss of evidence for inherent accentuation, and subsequently default accent for stems belonging to this class takes over.
- II. Some lexical items will have been “demorphologized,” and when their stems came to be no longer treated as pertaining to the accented *-ti*-nouns, they too yielded to default accentuation.

4 Conclusions on the Accentuation of Vedic *-ti*-Abstracts: Evidence for Accentual Change

The accentual evidence of the *-ti*-stems has long been disputed. As we have seen, earlier scholarship found no discernible rule behind the alternations,

while much research in the latter half of the twentieth century (and up to the present day) has seen in these accents evidence for bifurcated accentual levelings. I have argued that there are serious objections to be raised against both accounts and have therefore advanced a different proposal, namely that the Vedic accents offer evidence for a change in the accentual properties associated with the suffix *-ti-*. This change will have taken place in the observable history of Vedic and therefore should not be explained with reference to (pre-)PIE processes.³⁹ Furthermore, under the analysis developed above, the Vedic evidence will not provide comparanda on which to found a reconstruction of an accent and ablaut paradigm.

Once viewed in this light, questions that had not been posed in previous research emerge, for some of which we have proposed solutions. To restate our observations and new questions:

- OBSERVATION: The evidence of consistently older oxytones vs. later barytones represents a diachronic change in the accentual properties of the *-ti-* stems.
- INTERESTING QUESTION 1: How did certain oxytone *-ti-* stems resist the diffusing change to barytonesis? They occurred with high frequency and came to be stored in the lexicon with their irregular oxytone accent, thereby blocking application of default, barytone accentuation.
- INTERESTING QUESTION 2: How did the suffix *-ti-* change its accentual features from accented to unaccented? I have suggested that a number of factors might have been involved, including its use in further derivations (compounding especially) and loss of synchronic parsability.

Compared with standard treatments of *-ti-* stems in the Indo-Europeanist literature, the main novelty introduced in this paper is treating accents not only with regard to their surface position in the word but with attention to their underlying lexical properties and the phonological principles required to generate the surface forms.⁴⁰ Under this analysis, it would be a methodological mistake to

39 One of the referees raises the question of whether other suffixes commonly reconstructed as proterokinetic, such as the action nouns in **-tu-* or **-men-*, might be reinterpreted along the lines suggested here. This seems possible, but is a question I leave open for the time being.

40 Such an approach to accentuation certainly has antecedents in Indo-European studies, e.g. Kiparsky and Halle (1977), Kiparsky (1984), Hock (1994, 2013) and Keydana (2005). See further the helpful introductory overview in Clackson (2007: 79–89).

argue from surface agreements in the position of the accent without considering first each accentual system *per se* with all its innovations. An example or two may illustrate my point.

Vedic *bhrátaram* ‘brother’ (acc.sg.), Gothic *bróþar* and Latin *frátrēm* all accent the first syllable of the word and so form a surface equation for reconstructing such an accent for PIE. But in fact the initial accent of Gothic (fixed accent on the first syllable) and that of Classical Latin (accent the first syllable of basically all disyllabic words) are irrelevant for comparison, because the systems that assigned those accents differ crucially from Vedic. The accentual correspondence is a mirage. Or to consider another example, Ved. *éti* ‘he goes’ and Gk. εἶσι ‘id.’ display first syllable accent in what are evidently cognate formations, but they do so for divergent reasons, since in Greek (nearly) all finite verbs retract the accent as far as the law of limitation in Greek permits; likewise Ved. *gáchati* ‘goes’ and Gk. βᾶσθε ‘go’, yet the correspondence of Ved. *gáchati* (securely from older < **gacháti*) and Gk. βᾶσθε clearly shows two parallel, independent innovations. To return to the case study at hand, by the same line of reasoning we cannot say that Vedic *gáti-* and Greek βᾶσις correspond until we demonstrate that their surface accents derive from an underlying matching form as well. A recent formulation of this point by Kiparsky is worth citing in full: “The locus of morphophonological variation and change are not the word accents themselves but the system which assigns them, comprising the lexically specified accentual properties of morphemes and the rules by which the accent is computed from them in the lexical phonology” (Kiparsky, 2015: 82–83).⁴¹

Any comparative reconstruction must rest first and foremost on a synchronic analysis, and it is due to the imposition of a top-down reconstruction on the forms in Vedic that generalizations were missed (the data points to a diachronic change in accentual properties) and interesting questions left unasked (how does an accent change? how is an inherited accent retained?). Many problems of accentuation await us in the texts, and I hope that this philo-

41 A similar point was made by Calvert Watkins in 1963 (= Watkins 1994: 4), who argued that in historical linguistics we need to pay close attention not to the transmission of the “physical body of the sentence” but to the underlying systems that generate surface forms (his discussion is mainly concerned with syntax, but he mentions explicitly phonology and morphology as well). In the same vein, see more recently Hale (1998: 16): “Historical linguists have simply focused, not surprisingly, on what one can actually see in the historical record. This has affected their work in phonology (where far too little attention has been paid to both more abstract aspects of phonological structure and to more concrete, phonetic aspects of the data)” (cf. also Hale, 2014).

logically oriented paper will show that their solution will most likely come from the happy marriage of philology and theoretical linguistics. The approach to accent change outlined here promises to clarify old accentual cruces in our texts with light brought in from the study of language change and thereby provide a firmer foundation on which to reconstruct back to Proto-Indo-European.

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