Developments of nasals in early Indo-Aryan: anunāsika and anusvāra

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Abstract

The development of nasals in early Indo-Aryan has been the object of dispute. A major point of contention has been whether the distinction which Pāṇini and authors of prātiśākhya and śikṣās make between the entities referred to by anunāsika and anusvāra has to do with a difference in the language or is a difference regarding merely how various scholars viewed the same matter. Whitney maintained the second view. He was criticized by later scholars but his position has not been refuted definitively. In this paper, I establish that the distinction in question definitely reflects a difference in language, between nasalized vowels and nasal stops, referred to by anunāsika, and a post-vocalic nasal segment, referred to by anusvāra, which had different dialectal realizations. I consider also related questions concerning differences in timing, transitions and consonant doubling.

The paper is organized as follows: 1. Introduction. 2. Examples of statements in Pāṇini’s Aṣṭādhyāyī and in prātiśākhya texts illustrating both differences of opinion with respect to the analysis of a single entity and differences of real usage. 3. Phonological rules from the Aṣṭādhyāyī and prātiśākhya texts concerning word-final -m and related rules concerning -n. 4-6. These rules cannot be interpreted under Whitney’s thesis. Nor is the evidence alleged by Whitney from the Devanāgarī script acceptable. Conclusion: The phonological rules in question concern real dialectal differences, which are reflected in various traditions of recitation. 7. Phonological and phonetic properties of anusvāra; metrical evidence. 8. Historical developments of -m involve differences in timing and transition. 9. Parallels for such differences, involving consonantal doubling and transitions between tonal segments. 10. Summary.
The development of nasals in early Indo-Aryan has been the object of dispute. One of
the major points of contention has been whether the distinction — made by Pāṇini and
authors of prātiṣākhya and śiksās — between the entities referred to by anunsīka and
anusvāra is to be accepted as having to do with a difference in the language or merely a
difference regarding how various scholars viewed the same matter. The second view was
maintained by W. D. Whitney. In his note on TPr. 2.30, Whitney (1868: 67-8) says the
following concerning anusvāra:

Some held it to be a pervading nasalization of the preceding vowel; others, a nasal addition to
that vowel. The former view is adopted and consistently maintained by the Atharva-
Prātiṣākhya, which acknowledges nasal consonants and nasalized vowels, but no tertium quid.
The Prātiṣākhya of the Rik and White Yajus are equally consistent in their recognition of an
anusvāra as a nasal appendage to the vowel, and the latter of them gives ... detailed directions
as to the quantity belonging to each element. The Taittiriya-Prātiṣākhya adopts prevailingly
the same view, but lets the other appear distinctly in some rules.

Subsequently, Whitney adds (1868: 68):

I very much doubt whether this difference of views is founded upon an actual difference in
pronunciation; it is probably due rather to a discordant apprehension and analysis of a single
mode of utterance.

He then goes on to say (1868: 68):

Without entering into any detailed discussion of the subject, I will simply say I incline to side
with the Atharvan school, and to believe in nasal vowels rather than in anusvāra. No one of
the Prātiṣākhya gives an intelligible definition of the phonetic character of anusvāra,
considered as an independent alphabetic element; if it is to be so considered, we shall hardly
be able to make of it anything but a bit of neutral vowel (u of but) nasalized, or the sound of
the French um, and shall have to regard it as attached to the vowel much in the same way as, by
us who speak English, the same sound not nasalized is attached to most of our long vowels
before an r—for example in there, here, oar, cure, fire, sour ....

In what was apparently his definitive statement on this topic, Whitney discusses varying
statements on anusvāra and remarks (1889: 25 [§ 71g]):

It is evidently a fair question whether this discordance and uncertainty of the Hindu
phoneticists is owing to a real difference of utterance in different classes of cases and in
different localities, or whether to a different scholastic analysis of what is really everywhere
the same utterance. If anusvāra is a nasal element following the vowel, it cannot well be any
thing but either a prolongation of the same vowel-sound with nasality added, or a nasalized bit
of neutral-vowel sound (in the latter case, however, the altering influence of an i or u-vowel on
a following s ought to be prevented, which is not the case ...).

As a matter of convenience, Whitney also chose to distinguish graphically in
transliteration between m and n, the former for instances involving original m, the latter
for instances like devānis ca ‘and the gods’ (acc. pl.), where -n goes to anusvāra (see
below, 3.1.1a, d-e, 3.1.2), which Whitney transliterates (1889: 70 [§ 208]) devānç ca.
He says (1889: 26 [§ 73c]):

It is convenient also in transliteration to distinguish the assimilated m by a special sign, m̄, from the anusvāra of more independent origin, ŋ; and this method will be followed in the present work.

Wackernagel (1896: 257 [§ 223 Remark]) simply declares that Whitney wrongly denies any distinction between anunāsika and anusvāra: ‘Unrichtig leugnet Whitney ... jeden Unterschied zwischen Anunāsika und Anusvāra und will mit APr. nur Nasalvokale als wirklich vorhanden anerkennen.’ W. S. Allen (1953: 42) too differs from Whitney, though he also notes points he considers to favor Whitney’s viewpoint:

On the basis of analogies in other languages it is therefore tempting to assume that the value of m was a nasalization and lengthening of the vowel (if not already long); this view was adopted by Whitney, and has support in the fact that the TP speaks of anusvāra as having precisely this value, whilst the AP makes no mention of it apart from anunāsika ....

But on the other hand some of our authorities quite certainly distinguished the terms anunāsika and anusvāra, as the following passage from the VP indicates ....

Other discussions of anusvāra and related topics, though at times valuable in contributing insights about historical and theoretical points, have also confused some issues. Thus, in an otherwise extremely worthwhile contribution, Siddheshwar Varma starts his discussion of anusvāra saying (1929: 148):

As regards the nature of the Anusvāra, three different views may be mentioned:

1. According to the first view, represented by the Atharvaveda Prāt. and the Siddhāntakaumudi, the Anusvāra was a pure nasalized vowel. The former work describes the phenomenon as the elision of n or m, and the consequent nasalization of the preceding vowel. There is no doubt that the term Anusvāra does not occur in this Pratiṣākhya, an omission which has led Whitney to the erroneous supposition that the Atharvaveda Prāt. does not acknowledge the Anusvāra. Whitney, in my opinion, is not right, because this Pratiṣākhya distinctly describes the same phenomenon which is specified by other grammarians with the name Anusvāra. Thus, while Pāṇini specifically speaks of the Anusvāra as a sound into which “m” is changed before a consonant, and while his expounder Bhaṭṭoji Dīkṣīta speaks of it as a pure nasal sound arising from the nose, the Atharvaveda Prāt. has described the same as the dropping of the m and the nasalization of the previous vowel. In both cases, it is the m that has led to a particular change; in both cases no original nasal vowel has been acknowledged.

To be sure, the Śaunakiyā Caturādhīḥyaṅyikā describes changes for -m and -n which the Aṣṭādhīḥyāḥ and other pratiṣākhyaḥs describe (see 3) and none of these assumes an underlying nasal vowel. On the other hand, the evidence of the texts makes it undeniable that Pāṇini recognizes a distinction between two different outcomes — nasalized vowel and vowel plus anusvāra — also recognized in pratiṣākhyaḥs other than the Śaunakiyā

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2 Allen cites VP 3.130-132 (sec 3.4.1.3a) and refers to the Vāyaśāśikṣā. The support which Allen (1953: 42 n. 7) sees for the purported value of anusvāra is TPr 15.1. The rule itself does not lend support to the view in question; see 3.4.2.1g, 3.4.2.3c. Note that I have used m instead of a symbol Allen uses which is not available in my font.
Caturādhyāyikā, which knows only of nasalized vowels as results of the changes in question. In addition, it is not proper to say that the Siddhāntakaumudi views anusvāra as a nasalized vowel. What Bhaṭṭoji says (see 7.2.2e) is that the proper place of production for anusvāra is the nose, not that ‘the Anusvāra was a pure nasalized vowel.’

In what is, to my knowledge, the most recent treatment of anusvāra, Srivastava makes some important observations but, I think, also leaves some confusion. For example, he continues the tradition of attributing to early phoneticians, phonologists and grammarians ‘discord as to the use of the term anusvāra/anunāsika’ while saying (Srivastava 1972: 204-205):

Undoubtedly, there is a fair amount of discord as to the use of the term anusvāra/anunāsika in the earlier writing of Indian grammarians. Some confusion as regards its real character may perhaps be avoided if the different actualizations of /N/ are viewed partly as consequences of certain constraints on the application of the phonological rules and partly as dialectal variations. For example, as regards the phonetic nature of the actualized variant of anusvāra, we find three different views...

1. Anusvāra as a pure nasalized vowel (Atharvaveda Prātisākhya, Siddhāntakaumudi)
2. Anusvāra as entirely a nasal consonant (homorganic in nature). [Taittirīya school, Vādikābharāpa, Sarvasammata śīkṣa, Yājuśabhūṣaṇa]
3. Anusvāra as either a vowel or a consonant (Rgveda Prāt.)

This inconsistency in employing the term anusvāra is mainly due to the fact that the same term has been allowed to stand for the units of different levels of description i.e. categories of phonemic and phonetic levels have not been sharply maintained by attaching different labels to them. In other words, Indian grammarians have meant by the term anusvāra either a nasal archi-segment /N/ or nasal homorganic [N*]. Likewise, those who have accepted the realized variant of anusvāra as a nasalized vowel intend to refer by the term ‘anunāsika’ to both units —/N/ as well as one of its actualized variants namely, [V].

Srivastava repeats what Varma had said, then adds some claims which are not justified by the original sources. The confusion of levels which he attributes to these sources is in fact not found therein. Thus, rules of the Aṣṭādhyāyī providing for m and n to be replaced by anusvāra (see 3.1.1) are phonological rules, as are prātisākhya rules that let -m and -n undergo changes, with possible consequences for vowels preceding these (see 3.2-3.5). On the other hand, prātisākhya and śikṣā statements describing the places of production for Sanskrit sounds, including anusvāra (see 7.2.2) are clearly phonetic, and the two types are kept apart in prātisākhyas. Moreover, anunāsika refers to any sound produced in the oral cavity and the nose simultaneously (see 7.2.2g-h and note 99).

Concerning Whitney’s position that anusvāra was a pervading nasality of a vowel, Srivastava has the following to say (1972: 204):

Whitney’s statement that anunāsika and anusvāra are originally and properly equivalent can be accepted only when it is taken as representative of phonemic representation. In other words, it
can be said that in underlying representation in the environment in which anunāśika and anusvāra occur there is a unique nasal archi-segment (unspecified in feature matrix except the feature nasality i.e. \( N = + \text{nas} \)) which depending either upon certain constraints within a single variety of a language or upon diatopic differences across varieties is realized sometimes as anunāśika (nasalization) and at time anusvāra (nasalized vocoid fragment).

Srivastava goes on (1972:205) to criticize Whitney as follows:

His insistence upon keeping anusvāra (vowel-variant of a nasal archi-segment) distinct as a separate category from the nasal homorganic (consonant-variant of a nasal archi-segment) or his further subdivision of anusvāra into \( m \) and \( n \) types, is directly opposed to the earlier more scientific description of anusvāra which was functionally considered as a single unit and was phonetically characterized as a 'conditioned' sound 'dependent' upon some other sound for its actualization. In fact, Whitney's definition and classification of anusvāra is phonetically motivated.

This glosses over the fact that Whitney explicitly said he distinguished \( m \) and \( n \) in transliteration as a matter of convenience. Moreover, there was indeed a distinction between word-final anusvāra and nasal stop homogeneous with a following stop, as in \( kāṭaṁ\) karoti and \( kāṭaṇ\) karoti (see 3.1.1a-b, 3.1.2). In fact, as can be seen from Pāṇini’s rules, an archi-segment \( N \) is appropriate only for word-interior nasals before stops and spirants, where anusvāra before spirants and nasal stop homogeneous with a follow stop are in complementation. Srivastava was surely aware of this, yet he puts the archi-segment to use in an unjustified manner.

In addition to criticizing Whitney, Srivastava puts his archi-segment \( N \) to work in a series of rules intended to capture certain features of Sanskrit phonology associated with anusvāra, \( n \), and \( m \). His principal contribution, if I understand his arguments correctly, would be to generalize and account for aspects of Sanskrit nasal assimilation in a more principled manner than had been accomplished by earlier scholars. Srivastava refers (1972: 215) to W. S. Allen’s observation (1962: 83) that, although \( n \) and \( m \) are both nasals, the latter show more tendency to assimilate than the former. Allen simply gave \( m \) a greater potential for assimilation. Srivastava considers examples given by Allen and argues as follows:

But such explanations based on the articulatory process only beg the question. Allen is unable to explain why \( m \) has phonetically greater potentiality than \( n \) for assimilation. His classification of stops into interfering and non-interfering classes is nothing more than the feature [+ cor] and [- cor].

It is more logical to assume that both final \( m \) and \( n \) are basically the same, i.e. \( /N/ \) but while in the case of mahān and tān it is followed by dental archi-segment /S/ which is even attested by their alternative pronunciation as [mahānt] and [tānt], in items like tam and uktam, it is followed by pause. Thus, by MS-rule (1) /tāN/ is realized as [tam] in isolation but later by P-rule (1) it is actualized as [taṇ] when followed by word [kavim], i.e. /tam#kaviN/ [taṇkavim].
But as /S/ exists finally in lexical items like [mahän] and [tän] and as P-rule (1) precedes the consonant deletion rule (rule 3), /mahänNS/ and /tänNS/ are realized first as mahânt and tânt and then by rule 3 take their final phonetic form as mahan and tan.

To appreciate what Srivastava claims, consider how he derives pumān (nom. sg.) ‘man’, pumāmsam (acc. sg.) and mahān of mahān kavih ‘great poet’ (Srivastava 1972: 210, 216): (a) pumānS+S# → pumānt+S# (rule 5) → pumān (rule 3), (b) pumānS+am# → pumāns+am# (rule 5) → pumāns+am# (rule 2), (c) mahānS#:kavih → mahānt# ... (rule 5) → mahān# ... (rule 3). (a) and (c) are parallel. Accordingly, parallel to (b) and invoking the very same rules shown, as formulated by Srivastava and to which he himself refers, one should derive (d) mahānS+am# → mahāns+am# (rule 5) → mahās+am#. This is empirically wrong: the accusative corresponding to mahān is mahāntam. And the usual accusative singular corresponding to pumān is pumāmsam, with anusvāra. I therefore think Pāṇini and other early grammarians were right in recognizing different base forms: mahat and pums; see Cardona 1997: 469, 473. In addition, I do not think one should find strange the observation that n and m differ with respect to assimilation. It is undeniable that -m and -n differ phonologically: the former can occur preceded by a short vowel and immediately followed by another vowel; the latter cannot and one has instead -n n-; see 9.1.2.7. It is also true, and well known, that dental stops and labial stops differ in their historical developments later in Indo-Aryan: intervocalic voiceless dental stops are subject to voicing and ultimately to deletion, but -p- is replaced by a fricative -v-; -n- is retained, but -m- goes to a nasalized -v-. A similar disparity of development is seen in Romance.

2 It is fair to say, I think, that scholars who have come after Whitney, even such careful and philologically accurate scholars as Wackernagel, have not succeeded in settling the questions which Whitney raised concerning the putative distinction between segments called anusvāra and others, called anunāśika, and the historical developments associated with these. More recent scholars, especially linguists who are not well acquainted with Sanskrit prātiśākhya and vyākaraṇa texts, might then still be tempted to argue that statements such as the one Allen cites can be interpreted as merely stating an analysis of a particular scholar with respect to the very same thing that others analyze differently. It is worthwhile, therefore, to adduce evidence to demonstrate that Whitney’s position is not defensible and to treat the development of anusvāra and related nasal segments along with allied issues of early Indo-Aryan phonology.

2.1 Consider first the following sūtras.

RṣPr. 13.15-18: प्राचीनेणवधूपत्तांवाकारमेकुन्तुस्मतनुनासिकानाम। सोमनाथसोमस्मामथवहूः सस्वानेन।
This set of statements concerns views about a particular analysis of sounds. Some (eke)³ consider that stops other than voiced unaspirated stops are derived from these in a componential system. The phonological property of voicing (ghoṣam) for voiced stops (ghoṣavatām) other than aspirates is said to be the vowel a except for nasalized stops (anunāsikānām), the voicing of which is anusvāra. The same scholars say (āhuh) that the property of being aspirated (soṣmatām) is to be gotten with the spirant (uṣmanā) that has the same place of production (sasthanena) as the stop in question, but this applies only for voiceless aspirates, since the aspiration of voiced (ghoṣinām) aspirates is obtained through the voiced spirant (ghoṣinā [uṣmanā]) h. According to these scholars, then, one has k, to which voicing as represented by a is added to get g, voicing and nasality as represented by anusvāra is added to get n, aspiration represented by jihvamuliya is added to get kh, and voiced aspiration represented by h is added to get gh. Others (apare), on the other hand, maintain that sounds are not thus built up, and that the phonological properties of being spirants and being voiced (usmaghosa) are there (utpanna `arisen`) in sounds (atra `therein`) as they are produced. These are clearly statements regarding the very same entities, sets of sounds like k kh g gh n, about which different scholars entertain varying opinions.

Similarly, although e and o are admittedly monophthongs, the Rgvedaprātiṣākhya notes that some treat these as composed of a and i, u; see Cardona 1983a: 16.

2.2 ṚPr. 1.52: 
concerns something Vedamitra says:⁴ when it comes between (madhyam etya) two vowels (dvayoḥ svarayor), -d- (dakāraḥ) becomes (sampadyate) -l- and aspirated -dh- becomes -lh-. The very wording of the statement precludes considering this an opinion concerning the analysis or interpretation of a single entity. Instead, this is a statement of what occurs instead of intervocalic -d- and -dh-.

2.3 The sūtras

ṚPr. 1.15-16: 
also concern particular scholars. The first sūtra states that according to Gārgya, only a voiced unaspirated stop (ṭṛtīyam) occurs in final position (avasāne), except for nasals,⁵

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³This is understood from the preceding sūtra (ṚPr. 13.14: एकं वान्निष्कृतिकृतः कर्मवर्त्तिः).
⁴vedamitraḥ is understood from the preceding sūtra.
⁵tasmād anyam ‘other than that’; tasmāt refers back to anunasika of the preceding sūtra (ṚPr. 1.14: 

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This is understood from the preceding sutra (ṚPr. 13.14: एकं वान्निष्कृतिकृतः कर्मवर्त्तिः).

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veshmanām uṣmanām, which provides that the last sound in each stop series (varge varge [ṚPr. 1.12]) has the class name anunāsika.
which occur in this position; the next states that according to Śākaṭāyana voiceless unaspirated stops (prathamam) occur in this position. These sūtras contain nominative terms (nom. sg. gārgyayah, śākaṭāyanaḥ), as do RPr. 13.15 (eke ‘some’) and RPr. 13.18 (apare). Moreover, it is appropriate to supply a verb form to be construed with each of these. Uvata supplies manyate ‘thinks, considers’. This does not mean, however, that Gārgya and Śākaṭāyana differ as to how they view a given single entity. It would be difficult to defend the opinion that RPr. 1.15-16 say Gārgya considers the -k of vāk ‘word, speech’ (nom. sg.) to be -g, while Śākaṭāyana considers this to be -k. On the contrary, as Uvata also notes, RPr. 1.15-16 concern the possible occurrence of voiceless and voiced unaspirated nonnasal stops in word-final position. Another rule of the Rgvedapratīṣākhya states that certain sounds do not occur in word-final position (nāntayṁ yānti): spirants (ūṣman) other than visarjanīya (h), semivowels (antasthā), ḍ, aspirates (soṣman), and palatal stops (cakārvarga). Remaining sounds can occur in this position, including voiceless and voiced unaspirated stops and nasal stops other than palatals. RPr. 1.15-16 state that Gārgya and Śākaṭāyana respectively allow voiced and voiceless unaspirated stops. That is, we have here a variation, also taken into account by Pāṇini, between word-final voiced and voiceless stops.

2.4 The following statements concern something attributed to Gārgya (gārgyasya [gen. sg.]):

RPr. 6.36-38: यमाजातिकांग्यं सक्रपस्सि स्वाभावन् गार्गर्यस्। अभया सांपल्य। वर्जितस्य।

According to Gārgya, in sequences such as palikkānīṁ ‘grey’ (nom. pl. fem.), amatthānāt ‘took away’ (3sg. impfct.), a nasal (nāsīkyā) epenthetic vowel segment (svarabhaktih) occurs after a yama, as in palikkānīṁ, and a spirantal segment (ūṣman) is inserted after an aspirated yama, as in amatthānāt. RPr. 6.38 states that one should avoid (varjayet) the latter (tam). The only interpretation which makes sense here is that Gārgya represents a mode of recitation that is unacceptable, hence rejected.

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8RPrU 1.15: सत्यातुत्तुतत्त्वकात्मनं पदवबनम् स्वयं गार्ग श्राव्याच्ययः स्व तूलीयं नक्षते। 1.16: शाकटायन श्राव्याच्ययः प्रथम मन्ते।

9RPr. 12.1: अभमानस्त्वनस्त्वनानाम प्रकरणं नानात्वन्त्वम् विसर्जनीयते।

10RPrU 1.15: अभमानस्त्वनस्त्वनानाम प्रकरणं नानात्वन्त्वम् नानात्वन्त्वम् विसर्जनीयते।

A 8.2.39: भस्माऽस्माऽ। प्रवदे। अववदितयम्। श्राव्याच्ययः।

8RPrU 1.15: सत्यातुत्तुतत्त्वकात्मनं पदवबनम् स्वयं गार्ग श्राव्याच्ययः स्व तूलीयं नक्षते। 1.16: शाकटायन श्राव्याच्ययः प्रथम मन्ते।

Concerning the derivation of pralikhnīṁ, amatthānāt. Under the derivational procedure adopted in the Rgvedapratīṣākhya, the stops -k-, -th- are replaced by identical voiceless stops with the added property of nasality (RPr. 6.29-30, 32: यमाजातिकांग्यं सक्रपस्सि स्वाभावन् गार्गर्यस्। अभया सांपल्य। वर्जितस्य।). Consonant doubling then applies (RPr. 6.1-2: 9.1.2.2a), with the unaspirated stop corresponding to -th- preceding this. The nasalized velar kḥ and dental thū are among the sounds called yama (‘twin’).
2.5 Consider now a set of rules that have to do with word-final -y and -v preceded by a-vowels:

   a. TPr. 10.19-21, 23: lūpyate tvaḥśānau द्वानक्तरि | नेच्चांस्य | वकारलु | साहकृत्यस्य | लेखे वातस्त्रयाणयोः।

According to TPr. 10.19, -y and -v (yavakārau) preceded by an a-vowel (avarnapūrvau) are deleted (lupyte) before a vowel. For example: āpay undantu (“May the water moisten ...”) → āpa undantu ...,11 tā abṛtām ... (← tāv abṛtām).12 TPr. 10.20, on the other hand, states that according to Ukhya -y and -v are not (na) deleted under the conditions given. Instead of āpa undantu ... and tā abṛtām, the tradition of recitation which Ukhya represents has āpay undantu and tāv abṛtām. Further, as noted in TPr. 10.21, according to Śāṅkṛtya -v alone is not dropped. In Śāṅkṛtya’s tradition, then, one recites āpa undantu ..., without -y, but tāv abṛtām, with -v.13 According to TPr. 10.23, in the mode of speaking represented by Vātsapra, there are still other variants: -y and -v are pronounced as very light glides.14 āpa'v undantu ..., tāv abṛtām. No one could seriously doubt that these statements deal with variant pronunciations in different dialect areas as represented in traditions of recitation attested to by named representatives.

In the language Pāṇini describes, one finds a comparable variation, accounted for by the following sūtras:

   b. A 8.3.18-19, 22: व्योलपप्रयात्नारह: शाकक्तयस्य। लेप: शाकिक्तयस्य। हली सर्वचाम्।

According to Śākaṭāyana, -v and -y are replaced by sounds that have an extremely light articulatory effort (laghuprayatnatarah), but for Śākalya they are replaced by zero (lopaḥ). This variation applies only before vowels, since all (sarvesām) agree that word-final -v and -y are deleted before consonants (hali). 2.6 Finally, consider

A 7.3.98-100: स्तदक प्रकरण। (चिकेसे [96] हृद [93]) ब्रह्म गार्गयालघोः। ब्रह्म: सर्वचाम्।

which have to do with imperfect forms of certain verbs. By the first sūtra, after the five verbs of the subset starting with rud ‘cry, weep’, an ending that consists of a single sound

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11TS 1.2.1.1: चर्मेन उदन्तु जीवसे दीर्घमुल्यसे वर्णे ’May (these) waters wet (this yajamāna’s hair so that he may) live, have a long life’s duration, brilliance.’ āpay undantu derives from āpah undantu (padapātha: अ) उदन्तु।।

12According to TPr. 9.10 (ब्रह्म गवर्णो वकारल:), visarjanīya changes to -y before a vowel.

13This is what one finds in standard editions.

14Pr. 10.23 clearly refers to both the semivowels, since it uses the genitive dual etayoh. The Tribhāṣaṭaratna explains that leṣa signifies a light pronunciation, as though the semivowels were dropped (luptavat uccāranam): लेषोऽन लुप्तवत्स्याराम। The Vaidikabhārana, on the other hand, understands lupyte from 10.19, contextually modified to the singular lupiyate in construction with leṣah, which is said to mean ‘a part’ (ekadesāh). Under this interpretation, TPr. 10.23 states that part of -y and -v is dropped: लुप्तवत्स्याराम। वकारलुम्भ मने एतकृत्यायकारयोः लेशः एकदेशः व्याप्तिवृत्तिये लुप्ते। एकदेशस्तु ब्रह्मेः।
— that is, in this instance, -t or -s — receives the initial augment ī (ī): arodīt (3sg. impfct.), arodīh (2sg. impfct.); asvapīt, asvapīh ‘slept’; asvāsīt, asvāsīh ‘breathed’; ānīt, ānīh (prānīt, prānīh) ‘breathed’; ajakṣīt, ajakṣīh ‘ate’. A 7.3.99 states that, according to Gārgya and Gālava, the augment a is added to the endings in question after the same verbs: arodat, arodah, and so on. Further, all (sarveṣām) agree that this augment is added after ad ‘eat’, as in adat, adah.

2.7 As shown (2.1), there are indeed prātiśākhya statements that describe a point of view adopted by some scholars with respect to the very same entity or entities which others view differently. As I have also shown, however, this is by no means the norm for statements in which different authorities are mentioned. Usually, such statements concern real differences in usage such as the occurrence of intervocalic -d- and -dh- instead of -d- and -dh- (2.2) or of final voiced and voiceless stops (2.3). In addition, the strict tradition of the Rgveda could condemn a variant mode of pronunciation (2.4). Further, the variation in question can be fairly complex, as in the occurrence of -y, -v, light glides .shadow and the absence of either (2.5). Nor are such differences in usage limited to aspects of pronunciation. They can be grammatical differences, such as imperfects of the types arodīt and arodat (2.6). As I have noted, moreover, evidence for such differences in uses with respect to phonology and grammar is to be found not only in prātiśākhyas but also in Pāṇini’s grammar. The only justifiable conclusion to be drawn from such evidence is the obvious one, which most scholars have long known: The treatises in question reflect wide dialectal differences that are reflected in differences of recitation of Vedic texts and in the language Pāṇini describes.

It is nevertheless undeniable that early grammarians in India could differ in the ways they chose to account for the same facts. An additional example, concerning grammatical units, will serve to bring home the point. To account for as and s in asti ‘is’, stah ‘they two are’, santi ‘they all are’, Pāṇini posits basic as and lets the vowel of this base be deleted before particular affixes. It is known that some other grammarians posited s as the base and accounted for asti and so on by adding a. On such differences of procedure, see recently Cardona 1987, 1997: 787, 824. We learn of such disagreements from a comparison of various grammars and from what commentators tell us. On the other hand, neither Pāṇini nor other grammarians, go out of their way to inform us that others accounted for certain facts in a way different from theirs.

3 This established, let us return now to the issue of anunāsika and anusvāra, considering first the pertinent rules from the Aṣṭādhyāyī and prātiśākhyas along with texts which exemplify the usages accounted for by such rules.
3.1 In the Aṣṭādhyaśī, Pāṇini formulates rules for replacing \( m \) and \( n \) with anusvāra, subject to further substitution. He also provides for the replacement of -\( n \) and -\( m \) by -\( R \) (\( ru \)) — \( r \) marked with \( u \) to distinguish this replacement for -\( s \) and -\( s \) from original -\( r \) — which entails either nasalizing a preceding vowel or letting anusvāra follow this vowel.

3.1.1 According to

a. A 8.3.23-24: मोनुसवा: (हलि [22]) नस्कायमांस्य्य भलि।

word-final -\( m \) (mah)\(^{15} \) is replaced by anusvāra (\( m \)) before a consonant (hali), and this substitution applies not only to \( m \) but also to \( n \) (naś ca) which is not the final sound of a word (apadāntasya), if it is followed by a consonant other than a semivowel or nasal (jhalī). The following provide for replacing anusvāra (anusvārasya):

b. A 8.4.58-59: भन्ंसवारस्य यथि परसवर्फः। वा पन्नायस्य।

Before a consonant other than a spirant (yai), \( m \) is replaced by a sound homogeneous with the following consonant (parasavarnah); the replacement is optional (vai) for word-final (padāntasya) -\( m \). In addition, a dental stop (toh) is replaced by a consonant homogeneous with a following l (li):

c. A 8.4.60: लोत्तस्य।

The following sūtras state conditions under which -\( R \) substitutes for -\( n \) and -\( m \):

d. A 8.3.5-9: रि कु ति रि [1]) \( \text{पु}ः \) क्षय्यम्प्यं। नश्य्यव्यम्यस्य। उच्म्यः। रिपार्द्यत्वं समानायं।

-\( R \) replaces the -\( m \) of sam (samah) before the initial augment sut (suti) and the -\( m \) of pum (pumah)\(^{16} \) before a voiceless stop (khayi) which is followed by a vowel, semifowel or nasal (ampare). Excepting praśan ‘calm’ (apraśan), -\( R \) replaces -\( n \) (nah) before voiceless palatal, retroflex, and dental stops (chavi). In the same contexts, -\( n \) in rcs (yksu) behaves both ways (ubhayathā); that is, it is either replaced by -\( R \) or not. After a long vowel (dīrghāt), -\( n \) is replaced by -\( R \) if a vowel or a semifowel other than l follows (ati) in the same verse section (samānapāde). Replacement by -\( R \) entails operations for vowels that precede original -\( m \) and -\( n \), stated in the following sūtras:

e. A 8.3.2-4: अनुनासिकोऽपर्यंधुः च। अनुनासिकं नित्यम्। अनुनासिकं परमेश्वयाम्।

A nasalized vowel (anunāsikah) optionally (vai) substitutes for the sound preceding (pūrvasya) final consonants replaced by -\( R \) as provided for in following rules (atra ‘here’), but this substitution applies obligatorily (nityam) to ā (ātah) before -\( R \) followed by a vowel or semifowel other than l (ati).\(^{17} \) Anusvāra (anusvāraḥ) follows (parah) a

\(^{15} \) A 8.3.23-24 are rules of a section headed by A 8.1.16: ज्योऽपि। Operations stated in rules of this section apply to a unit called pada. See Cardona 1997: 105.

\(^{16} \) Pum itself derives from pums, with deletion of -\( s \) by a rule (A 8.2.23: समयानास्य लोक्या) which provides that the final sound of a word ending in a consonant cluster is deleted.

\(^{17} \) This applies where A 8.3.9 applies, so that the usage covered is Vedic.
vowel that is not nasalized\(^{18}\) consequent upon replacement of \(-m\) or \(-n\) by \(-R\).

In the spoken language Pāṇini’s grammar accounts for, then, anusvāra occurs before \(r\) and spirants, word-final anusvāra alternates with stops homogeneous with following stops, and in particular contexts nasalized vowels alternate with complexes consisting of clear vowels followed by anusvāra.

### 3.1.2 Examples

- \(κατάμ \ kαροτί\) ‘... is making (καροτί) a mat (κατάμ)’ \(→ κατάμ \ kαροτί \ (8.3.23) \ → [optionally] κατάμ \ kαροτί \ (8.4.59), \ gαμ-\ sya-\ te \ ‘will be understood’ (3sg. fut. pass.) \ →\ ga\ṃsyate \ (8.3.24), \ pumāṃs-am \ ‘man’ (acc. sg.) \ → pumāṃsam, \ yu-n-j-tas \ ‘they two are joining, yoking’ (3du. pres. indic. act.) \ → \ yu-n-g-tas (A 8.2.30: चैः चैः) \ → \ yu-n-g-tas \ (8.3.24) \ → \ yu-m-k-tas \ (8.4.55) \ → \ yuṅktas \ (8.4.58),\textsuperscript{19} \ yu-n-j-anti \ (3pl.) \ → \ yu-m-j-anti \ → ... yuṅjanti, \ tam \ lokam \ ‘that world’ (acc. sg.) \ → \ taḍh \ lokam, \ anumśmin \ loke \ ‘in that world’ (loc. sg.) \ → \ anumśmīṃ \ loke; \ mahān \ indra- \ → ... \ mahām \ indra-, \ vṛṣṭimāṃ \ iva \ → ... \ vṛṣṭimāṃ \ iva,\textsuperscript{20} \ sam \ skaroti \ ‘... is adorning’ \ → \ saṃR \ skaroti / saṃR \ skaroti \ → ... saṃśkarotī / saṃśkarotī,\textsuperscript{21} \ puṃskāmā \ → ... puṃskāmā / puṃskāmā \ ‘a woman who desires men’, \ bhavān \ cinoti \ → \ bhavānR \ cinoti / bhavāmR \ cinoti \ → ... bhavāṃś \ cinoti / bhavāṃś \ cinoti \ ‘you (bhavān) are heaping, plucking ...’ \ tasmin \ ca \ ‘and (ca) in that’ \ → \ tasminR \ ca / tasminR \ ca \ → ... \ tasminś \ ca / tasminś \ ca, \ asmān \ ca \ ‘and us’ \ → \ asmān \ ca,\textsuperscript{22} \ tān \ ca \ → \ tāṃR \ ca \ → ... tāṃś \ ca ‘and those’.\textsuperscript{23}

### 3.2 In the recitation tradition of the Rgveda accounted for by the Rgvedapātriśākhya, anusvāra does not occur as a word-final segment before stops and semivowels. Instead, full assimilation takes place. Here, anusvāra occurs only before spirants and \(r\).

#### 3.2.1 The following rules account for assimilations for \(-m\):

**a. RPr. 4.6-8:** विस्तथे स्मः उदये नकार: सर्वसांविद्विष्टस्योऽस्य सर्वस्। वर्त्त्वासुस्य रक्षति वर्त्त्वासु सर्वाद्यमद्यादिभिनुसारिकान्त। तथा नकार उदये लकरी।

If a stop (sparśe) follows (udaye) which has a different place of production (visthāne) from that of \(-m\), \(-m\) (makāraḥ) changes to the nasal stop (uttamam) proper to the stop

\textsuperscript{18}As transmitted by Pāṇiniyas, A 8.3.5 has anumāsikā, which should be considered a haplographical shortening of original anumānāsikā. See Cardona 1983b.

\textsuperscript{19}For rules involved in the derivation and not dealt with here, see Cardona 1997: 544, 578.

\textsuperscript{20}E.g., RV 8.6.1: \(हृदय知 य योजते सुरस्यां मृत्तिकायं हृदय। ‘Great (is) Indra who in his strength is like Parjanya full of rain.’

\textsuperscript{21}For the Pāṇinian rules that state the pertinent replacements, see Cardona 1997: 557, 561, 574.

\textsuperscript{22}In Pāṇinī’s system, \(-n\) \(→ -\tilde{n}\) by a rule (A 8.4.40: लोकोऽनस्ति) whereby \(ś\) and palatal stops (\(c\)) substitute for \(s\) and dental stops (\(m\)) contiguous with \(ś\) and palatal stops. The Rgvedapātriśākhya accounts for the assimilation by a rule (RPr. 4.9: अक्षरं सहकर्षितकर्षित्वर्ग: [कक्षर: 5]) according to which \(-n\) (nakāraḥ) changes to \(-\tilde{n}\) (ḥakāraṃ) if \(ś\) or a palatal stop (ṣakāraḥṣakāravargayoh) follows.

\textsuperscript{23}RV 2.1.16c: \(सुम्भाषु गाढः प्र हि नेपु वर्षु वा ‘Lead us and them to great good.’

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series of the following stop (udayasya svam). 24 Before word-initial (parāsu padādiṣu) semivowels (antasthāsu) other than r (rephavarjam), -m changes to those very semivowels (tām tām), only nasalized (anunāsikān tu). Similarly, -n (nakārah) changes to a nasalized l if an l follows (udaye lakāre).

As shown, the change of -m to a nasalized semivowel is excluded before r-. When this semivowel and spirants follow (rephoṣmaṇor udayoḥ), -m changes to anusvāra (anuvāram): 25

b. RPr. 4.15: रेपोष्मोखोद्योजकारोज्ञुस्वारात्मत्प्रियमहुँ।

The following rules are part of a group of rules that deal with changes for -n in particular contexts in the Rgveda:

c. RPr. 4.65, 68-70, 74, 75: नकार बहाकारोप वधानांदस्य तद्पति। विवृत्तिभिभावेऽपि च पीठोप्रष्ठान सायवर्ध: दच्छल्यो यो ज्ञुरुषयों। यो यस्य यथा देय संख्यी। हत्योऽन्नी वचोपयमेन्नृन्दुपनिगातिति इत्यकारकारणहितो रेपमेशु। यथेऽच। चर्च्यास्य च। चर्च्यास्य च। स्मरणसाधनमण्ड्यमुः।

-n (nakārah) is deleted (lupyate) if it is preceded by -ā- (ākāropadhah) and followed by a vowel (svarodayah). It also drops in collocations which have -ān as though in hiatus — so that they are called vivṛtyabhiprāya — although a consonant follows original -n. These are specified in RPr. 4.68: पिवोण्मान् रायियदह, ददधावान्य यह, जुजुवान्य यह, स्वावान्य यातु, ददवान् वा: -n preceded by ī or ū (ikārokāropahitah) changes to -r (repham) before the voiced consonants of certain words listed in RPr. 4.69: hatam, yonau, vacobhih, yān, yuvanyūn, vanīṣṭā. This change also applies before vowels (svaresu). -n behaves like -h (visorjanīyavat) if it is preceded by a long vowel (dīrghopadhah) and there follows one of the items carati, cakre, camasān, ca, co, cit, carasi, cyautnah, caturah, cikitvān. In particular items, -n does not (na) behave like visarjanīya: asmān, camasān, pasūn.

The pertinent operation relative to visarjanīya is stated in

d. RPr. 4.31: ब्राह्मोपेक्षां चीमांस्य स्वर्यं उद्धे तत्तत्त्वात्मनमृयमयर्य स्वर्यां (विकृतावितिः [24]):

If there follows (uttare) a voiceless (aghōse) stop (sparsē) that is not itself followed by a spirant (anuśmapare), -h — whether or not it is of the type that changes to -r before vowels and voiced consonants (rephy arephi) — changes to the spirant (ṁanām) which

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24 RPr. 4.6 specifies that this change applies according to all authorities (sarvesāṃ eva), because the preceding two sutras deal with changes proper to the recitation tradition represented by the father of Śakalya.
25 RPr. 4.15 also says that this is called paripanna (tat paripannam āhuh). RPr. 5.25 (संधिं चास्य परिशेष्टा वेद) provides for the s of sa to remain unchanged after a retroflexing sound if sa is the element preceding a paripanna element (paripannopadā cet), that is, if it precedes anusvāra as gotten by RPr. 4.15. A finite form of the causative corresponding to paripanna is used in RPr. 14.37 (paripādayanti ‘change to anusvāra’); see 4.2.5c.
has the same place of production as the following stop (tatsathānām).

When -n (nakārasya) is dropped or changes to -r or a spirant (loparephośmabhāve), the vowel (svarāḥ) that precedes (pūrvāḥ) the original -n (tatsthānāt) is nasalized (anunāsīkāh):

e. RPr. 4.80: नकारस्य तोपरेस्मभावे खर्शत्वदनादनासिकः खर्शतः।

3.2.2 Examples

a. RPr. 4.6: yam kumāra ‘young man, ... which ...’ → yan kumāra,26 ahām ca tvam ca ‘I and you’ → ahaḥ ca tvah ca,27 tam te ‘that for you’ → tan te;28 RPr. 4.7: yam yujam ‘whomever ... an ally’ → yavīḥ yavīḥ yujam,29 esāṁ lakṣmī- ‘of these ... a mark’ → eśāṁ lakṣmī-,30 tam vah ‘that one of yours’ → tavīḥ vah;31 RPr. 4.8: jīgīvān lakṣam ‘winning ... stake’ → jīgīvān lakṣam32

b. RPr. 4.15: navam ratham → navam ratham (RV 10.135.3a, see note 26), tvam sattāḥ ‘you a true one’ → tvam sattāḥ, tvam satt ‘you who overcome’ → tvam satt, tvam śūṣṇām ‘you ... Śūṣṇa’ → tvam śūṣṇam33
c. RPr. 4.65: sargāṁ iva ‘like flows’ → sargarh iva,34 mahāṁ indra- → mahāṁ indra-(RV 8.6.1, see note 20); RPr. 4.68: pīvoannān (‘that have rich food’) rayivrhdhaḥ (‘that grow in wealth’) → pīvoannāṁ rayivrhdhaḥ;35 RPr. 4.69: ut paṁhat am ‘do away with the misers’ → ut paṁḫār hatam;36 RPr. 4.70: raṁśīn iva ‘like reins’ → raṁśīṁr iva,37 abhiśūn iva ‘like reins’ → abhiśūṁr iva;38 RPr. 4.74: mahāṁ ca ṛcati ‘the great one

26RV 10.135.3ab: चरुरर्वन नवं रघुवनमस्करकश्चरी। ‘Young man, the new wagon without wheels that you made in your mind ...’ The interpretation of this section of a riddle-hymn does not concern us here.

27RV 8.62.11.a: नह है वचन हृदलोकर्षेत्वादयतः। ‘Indra, let’s you and I be allied for acquisitions.’

28RV 3.48.2cd: नहेतु माता पार्व अतितीय्य महः नित्यपुर्दश्व बासिन्द्रग्रुः। ‘That (Soma juice) did your mother, a young woman, pour for you at the very outset in the home of your great father.’

29RV 2.25.1d: वचन्त्युपूजः कृषुः अर्थलक्षमादिसः। ‘... who Bhraspati makes an ally.’

30RV 10.71.2d: स्त्रीगर्त्तैस्तिक्रिष्टोपतितिष्ठानाय वाचनृ। ‘An auspicious mark is set down on their speech.’

31RV 6.48.14ab: नन्दा हृदस्यकृतत्वमेवाक्षरमीव। ‘That one of yours (do I praise who is) of good insight like Indra, clever like Varuṇa.’

32.2.12.acd: श्रीश्रीं यो वर्गोत्सवार्थाश्रद्धवः। ‘Who, like a victorious player, took the stake of the Ari ...’

33RV 1.63.3: तस् सुवर्णेऽद्व धनात्मकम्भवतः तन्यस्य पावः। ‘That Soma juice gave you wealth’ (RV 1.63.3) ‘Indra, you (have struck) these, you the true one, the bold one, leader of the Rbhus, beneficial to men, you who overcome; as an ally ..., you killed Śuṣṇa for the young Kutsa.’

34RV 8.35.20ab: समींद्रम सुधापति श्रयवेयभूतिः सत्वो बेलार्थना। ‘(Asvin), let loose like flows the good praises of Śyāvāśva as he presses (the Soma) ...’

35RV 7.91.3ab: पार्वमर्जिता वर्तमानी। ‘The white (wind) follows those that are endowed with rich food, that grow with wealth ...’

36RV 1.184.2b: स्त्रीगर्त्तैस्तिक्रिष्टोपतितिष्ठानाय। ‘(Asvins), rejoicing in a flood (of Soma), do away with the misers.’

37RV 8.35.21a: स्त्रीगर्त्तत्वमेवाद्विप्रया। ‘(Asvins), take up the rites (of Śyāvāśva) like reins.’

38RV 6.57.6ab: नन्दा हृदस्यकृतत्वमेवाक्षरमीव। ‘We draw up Pūṣan as a charioteer does reains.’
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3.2.3 In addition to the realizations illustrated in 3.2.2c, pronunciations of the type pīvoannāṃ rayivṛdhah, ut panīṃr hatam, mahāṃs carati — with vowels followed by anusvāra instead of nasalized vowels — are known in the traditions of Ṛgvedic recitation. Such realizations, however, were considered errors and censured; see 4.2.5c.

3.3 Contrary to what is true of the language described in Pāṇini’s Aṣṭādhyāyī (3.1) and of the language reflected in the recitation tradition described in the Ṛgvedaprātiṣākhya (3.2), the Atharvaveda tradition reflected in the Śaunakīyā Caturādhyāyikā has nasalized vowels and semivowels but lacks anusvāra.

According to

a. ŚCĀ 2.31-33 [2.1.31-33]: makkarasyāṃ vasyāṃ paritāthā: oṣṭha yo ṭhāṃ su loṭā: oṣṭhambhāṃvapaṇḍe.

The following rules state replacements for -n (nakārasaya):

b. ŚCĀ 2.35 [2.1.35]: upavatātakāre ṭakāroṇuṇāṣikā: oṣṭha yo ṭhāṃ su loṭā.


Before voiceless palatal, retroflex and dental stops (caṭatavargēsvaṣaṃ āghoṣeṣu) not followed by spirants (anūṣmapareṣu), -n is replaced by visarjanīya. This replacement applies to -n before a vowel (svare), if it is preceded by -ā- (ākāropadhasya) in passages with upabaddhāṃ and so on. If, however, it is preceded by a retroflexing vowel,40 -n before a vowel is replaced by -r in sequences such as rtūmr ut srjate. The substitution by visarjanīya only results in an intermediate stage. Before a voiceless consonant (āghoṣe), -h (visarjanīyasya) is replaced by a spirant with the same place of production as the following consonant (parasasthānāḥ); before a vowel (svare), it is replaced by -y (yakāraḥ). Moreover, word-final (padāntayoh) -y and -v preceded by a vowel (svarāt) are deleted:

d. ŚCĀ 2.40-41 [2.2.1-2]: visarjanīyaṃ paritāthāloṣṭhaṃ: oṣṭha yo ṭhāṃ su loṭā.

e. ŚCĀ 2.21 [2.1.21]: svareṣvah: oṣṭhambhāṃvah: [Deshpande: svareṣvah: oṣṭha yo ṭhāṃ su loṭā]

Further, when -n and -m are deleted (nakāramakārayor lope), the preceding (pūrvasya)
vowel is replaced by a nasalized one (anunāsikā), and this applies also when \(-n\) and \(-m\) change to \(-y\), \(-r\) or a spirant (yāroṣmāpattau):

f. ŚCĀ 1.67-68 [1.3.5-6]: 

3.3.1 Examples

a. ŚCĀ 2.31 [2.1.31]: sam kāśayámi ‘I show’ \(\rightarrow\) saṅkāśayámi;\footnote{AV 14.2.12a: संक्षेपायं वहुन्मुर् ‘I show the vehicle (in which the bride was brought here).’} 2.32 [2.1.32]: 

b. ŚCĀ 2.35 [2.1.35]: tam lokam ‘that world’ \(\rightarrow\) tām lokam,\footnote{AV 1.2.3ab: तं पद्यं ‘When the cows embrace the tree and sing to the arrow along with the quivering …’ As the commentator explains, vṛksam ‘tree’ and gavah ‘cows’ refer metaphorically to the wooden bow and the leathern bow-string from which an arrow is shot.} sarvān lokān ‘all the worlds’ \(\rightarrow\) sarvāṁ lokān\footnote{AV 3.28.5c: यथा शुद्ध्रं पितृं पूर्वं (the sun,) which goes around all the worlds to keep them.’} 

c. ŚCĀ 2.26 [2.1.26]: parvatān ca ‘and mountains’ \(\rightarrow\) parvatāṁ ca (1.68 [f]) \(\rightarrow\) parvatāṁśa ca (2.40 [d]);\footnote{AV 1.7.7ab: सयमे वायुपरि तस्य देवताम् तस्य अनन्तरहन्ति ‘Agni, bring here the witches, bound up.’} 2.27: upabaddhān iha ‘bound up … here’ \(\rightarrow\) upabaddhāḥ iha \(\rightarrow\) upabaddhāmy iha (2.41, 1.68 [d, f]) \(\rightarrow\) upabaddhāṁ iha (2.21 [e]);\footnote{AV 1.3.3ab: विद्यं सूर्यस्य मनोदितं विद्यं शरात्रायस्य ‘We know the father of the arrow to be Varuṇa of a hundred virile powers.’} 2.29: rtūn ut srjate ‘creates the seasons’ \(\rightarrow\) … rtuhṛt ut srjate\footnote{AV 6.36.2b: मृदुस्तरस्यं द्रुशयो ‘(Agni) … creates the seasons.’} 

3.4 The Yajurveda traditions accounted for in the Vājasaneyaprātiṣākhya and the Taittirīyaprātiṣākhya resemble the Rgveda tradition (see 3.2) in that anusvāra is distinguished from nasalized vowels and consonants, referred to by the term anunāsika. The recitation traditions reflected in these works, however, also differ from that of the Rgveda and bear resemblance to the state of language described in the Aṣṭādhyāyī (see 3.1) in that there is greater variation, so that one has both vowels followed by anusvāra and nasalized vowels as well as sequences with anusvāra in addition to nasalized semivowels.

3.4.1 It is best to begin with the Šukla Yajurveda recitation as account for by the Vājasaneyi-prātiṣākhya.
3.4.1.1 The following rules provide for changes that apply to -m:

a. VPr. 4.1, 10, 12: भनुस्वार रोमास्म मकारः। भनुस्वारमस्यास्सनांसिकास्म पारस्सनासः। भनजे परयमाः।

-m (makāraḥ) changes to anusvāra (anusvāram) before before r- and spirants (rosmasu); before semivowels (antasthāsu) it changes to a nasalized (anunāsikām) semivowel (antasthām) with the same place of production as the following semivowel (parasasthānām); and before a stop (sparśe), -m becomes the nasal stop of the series to which the following stop belongs (parapañcamam).

A series of sūtras under the heading of

b. VPr. 3.1.133: तुः।

provides that -n (nūh) undergoes changes in stated contexts. Among these rules are:

c. VPr. 3.1.134-135, 141-142: चछोऽग: लम्। तथयोऽग: लम्। शाकूऽग: परिशीलोऽग: नस्योत्तमोऽग: स्वरे रकम्।

-vakṣāroṣeṣi वक्षारः।

-n changes to ś (sam) before c- and ch- (cachayoh), to -s (sam) before t- and th-(tathayoh). The -n of the accusative plurals śatruṇ ‘enemies’, paridhīṇ ‘protective sticks forming an enclosure’, kratuṇ ‘insights, rites’, vanaspāṭiṇ ‘trees’ changes to -r (repham) before a vowel (svare); and -n becomes -y (yakāram) before a vowel if it is preceded by ā (ākārapadaḥ). According to
d. VPr. 4.127: तवकोऽग: पदात्योऽग: व्यवस्थितोऽग: लोपः।

intervocalic (svaramadhye ‘between vowels’) word-final (padāntayoh) -y and -v (yavayoh) are deleted (lopaḥ). Further, the rules in c are stated under the heading of
e. VPr. 3.130: भनुस्वारमस्यास्सनाः प्राप्तनःस्वाः।

This provides that in conjunction with the changes stated in subsequent rules, prior to VPr. 4.10 (prāgm antahsthāyāḥ, see a), the penultimate vowel preceding (upadāhā) the sound that changes itself changes to a nasalized (anunāsikām) vowel.

3.4.1.2 Examples

a. VPr. 4.1: apāṁ rasena ‘with the essence of the waters’→ apāṁ rasena,50 indram śriyai ‘Indra for magnificence’→ indram śriyai;51 VPr. 4.10: sam vāpāmi ‘I pour together’→ savāṁ vāpāmi;52 VPr. 4.12: bāhubhyāṁ pūṣṇo→ bāhubhyāṁ pūṣṇo (see note 52), vṛataṁ kṛṇuta ‘do your vow’→ vṛataṁ kṛṇuta,53 vṛataṁ carisyāmi ‘I will carry

50I use m to transliterate anusvāra in general, but m to transliterate the particular reflexes of anusvāra designated by symbols such as ś ṣ ā in Yajurveda traditions; see 7.2.3c-d.
51VS 19.94: ‘वरुणः वरुणः सर्वजनस्य वरुणः सर्वजनस्य वरुणः। ‘... as Varuna the king (bears the foetus) in the waters to engender (Indra) unto magnificence, with the essence of the waters, the sūman.’
52VS 1.21: ‘देवस्य त्वा सत्वनुभूषेश्वरोपदेशीत्रीन्द्रीयाहुधाबन्धुवाल्लवयोः हस्तवच्याम। सर्वविभागः ‘...I pour you (the flour into a vessel) under the impulse of god Savitṛ, with the arms of the Aśvins, the hands of Pūṣan ...’
53VS 4.11: ‘यज्ञस्य कृष्णः ...This has to do with carrying out the job of getting milk for the yajamāna to drink.'
out a vow’ → vṛataṇ carisyāmi\(^{54}\)

c-e. VPr. 3.134: aihin ca ‘and ... snakes’ → ahīṃś ca;\(^{55}\) VPr. 3.135: anyān te ‘others ... your’ → anyāṁs te;\(^{56}\) VPr. 3.141: śatrūn apa ‘enemies ... away’ → śatrūṁr apa;\(^{57}\) VPr. 3.142: mahan indra- → mahānī indra-mahān indra-.\(^{58}\)

3.4.1.3 As shown, according to VPr. 3.130 (3.4.1.1e) a vowel preceding original -n that changes to -ś and so on is nasalized. This is not the entire story, however. According to

a. VPr. 3.131-132: स्वर जीपशितस्। अनुस्वरेष व्यज्ञन।

Aupaśavi lets this nasalization apply only if -n subject to change precedes a vowel (svare); before a consonant (vyāñjane), according to Aupaśavi, the vowel preceding -n is separated from the consonant in question by anusvāra (anusvāreṇa).\(^{59}\) That is, in the tradition of recitation which Aupaśavi represents and teaches, one has śatrūṁr apa (↔ śatrūn apa) and mahān indro (↔ mahān indraḥ), with nasalized vowels as in other traditions, but ahīṃś ca and anyāṁs te, where, instead of nasalized vowels, one has pure vowels followed by the nasal segment anusvāra.

There is evidence of additional variation in the Śukla Yajurveda recitational traditions. Consider now

b. VPr. 4.2, 4-5: नुञ्जन-पदं त्रेतेक। अनुमासिका चोपाम। पूनश्रास्यपपाक्तानाम।

As shown earlier (3.4.1.1a), VPr. 4.1 provides for -m going to anusvāra before r- and spirants. VPr. 4.2 concerns m and n (muś ca) in the interior of a word (antarhpaḍe): these also go to anusvāra before the sounds given in the previous rule, excepting r (arephe). Further, VPr. 4.4 states that the sound preceding (upadhā) the operand is nasalized (anuṁśitā), and according to VPr. 4.5, Kāśyapa and Śākaṭāyana (kāśyapaśākaṭāyana) hold that m and n are dropped (lopaṁ) in the contexts stated. Now, VPr. 3.130 already provides for nasalizing a vowel that precedes a consonant which undergoes changes by subsequent sūtras, so that VPr. 4.4 must serve a special purpose. As explained by commentators, this serves to set two options apart: It is the case that m and n change to anusvāra, but not for all authorities; and if they do not, then the vowel that precedes them

\(^{54}\)VS 1.5: कर्मेन व्यायते व्रतार्थिस्यभाष ‘Agni, master of the vow, I will carry out a vow.’

\(^{55}\)VS 16.5: वर्तनीशयं सतिःविवधवतं ... ‘... and destroying all the snakes ...’

\(^{56}\)VS 17.11: बुन्न्यपति बुन्न्यपतेन हेतुपत ‘Let your missiles burn others than us.’

\(^{57}\)VS 7.37: दर्ता तद्यकृष्ण पूर्वं तुदर्त ‘(Indra,) kill the enemies, push away those who scorn us.’

\(^{58}\)VS 7.40 (= RV 8.6.1 [see note 20]): वर्तनी हस्ती ...

\(^{59}\)Since VPr. 3.132 is an instrumental anusvāreṇa, the only plausible interpretation is that found in the commentaries. The Vaidikabharana supplies vyavadhiyate ‘is separated’: the penultimate vowel is separated from the consonant originally following -n by anusvāra (व्यव्यद्धियते अनुस्वरेष व्यव्यद्धियते।) The Tribhāṣyaratna remarks that the teacher Aupaśavi requires (icchati ‘desires, accepts’) a separation of the vowel from the consonant by an adventitious (āgamikenā) anusvāra: नकरात्मरे व्यव्यद्धियपरिधिष्ठितमण्डितो विपरिताचारिः।
is nasalized.\textsuperscript{60} Thus, if \textit{m} and \textit{n} are deleted, as called for according to Kāśyapa and Śāktaśīyana, then a preceding vowel is nasalized; for example, \textit{apāṁ rasena} $\rightarrow$ \textit{apāṁ rasena}, \textit{indram śrīyai} $\rightarrow$ \textit{indram śrīyai}, with nasalized vowels instead of vowels followed by anusvāra (see 3.4.1.2a). Moreover, the same alternation is now provided for in the interior of a word in forms like \textit{jakṣivāṁśaḥ} / \textit{jakṣivāṁśaḥ} ‘having eaten’, \textit{papivāṁśaḥ} / \textit{papivāṁśaḥ} ‘having drunk’ (pft. ptcple. nom. pl. masc.), \textit{havīṁśi} / \textit{havīṁśi} ‘oblations’.

3.4.2 The Taittirīyaprātiśākhya also shows evidence of comparable variation in traditions of the Kṛṣṇa Yajurveda.

3.4.2.1 The following rules of the Taittirīyaprātiśākhya provide for changes that -\textit{m} undergoes:

\begin{itemize}
    \item[a.] TPr. 5.27-29: \textit{makāraṁ} followed by a stop (\textit{sparśaparahaḥ}) changes to the nasal (\textit{anunasikam}) stop that has the same place of production (\textit{sasthānam}) as the following consonant. If it is followed by a semivowel (\textit{antasthāparahaḥ}), -\textit{m} changes to a nasalized (\textit{anunasikam}) version of the same sound (\textit{savarnam}), but -\textit{m} followed by -\textit{r} (\textit{rephaparahaḥ}) does not (\textit{na}) undergo this change. If it is followed by -\textit{r} or a spirant (\textit{rephosmaparahaḥ}), -\textit{m} is dropped (\textit{makāralopahaḥ}).
    
    Other rules concern changes for -\textit{n}. Both -\textit{t} and -\textit{n} change to -\textit{l} (\textit{lakāram}) if they are followed by -\textit{l} (\textit{laparaus}), but -\textit{l} which thus derives from -\textit{n} is nasalized (\textit{anunasikam}):
    
    \item[b.] TPr. 13.1-2: \textit{prakāraṁ} followed by -\textit{n} (\textit{nakaraḥ}) changes to -\textit{r} (\textit{repham}) if it is followed by a vowel other than that of -\textit{iti} (\textit{anitisparahaḥ}) -\textit{n} (\textit{nakaraḥ}) changes to -\textit{r} (\textit{repham}) when preceded by -\textit{i} or -\textit{u} (\textit{ikārokapūrvaḥ}), to -\textit{y} (\textit{yakāram})\textsuperscript{61} when preceded by -\textit{a} (\textit{ākārapūrvaḥ}) in passages of the sections referred to by graha (TS 1.4.1-42) ukhya (TS 4.1-4.2, excluding the final anuvāka of each), yūjya (the final anuvāka of each prapāthaka in TS 1.1.14-4.3.13 plus 2.6.11, for a total of 23 anuvākas), prṣṭhya (9 anuvākas: TS 4.4.12, 4.6.6-9, 4.7.15, 5.1.12, 5.2.11-12), hiranyavarnīya (TS 5.6.1).
    
    \item[c.] TPr. 9.20: (\textit{nakaḥ: [19]}) \textit{prathṣṭiḥ} (\textit{prathṣṭiḥ}) changed to \textit{ś} (\textit{śakāram})
    
    \item[d.] TPr. 5.20: (\textit{nakaḥ: [20]}) -\textit{n} followed by -\textit{c} (\textit{caparahaḥ}) changes to -\textit{s} (\textit{sakāram})
    
    \item[e.] TPr. 5.20: (\textit{nakaḥ: [20]})
\end{itemize}

\textsuperscript{60}VP\textit{U 4.4:} \textit{nakānasikam} \textit{matrām} \textit{pratāpanāyyaḥ} \textit{pratāpanāyyaḥ} \textit{śaivaḥ} \textit{pratāpanāyyaḥ} \textit{śakāram}.

\textsuperscript{61}This -\textit{y} is then subject to the changes stated in TPr. 10.19 and following; see 2.5a.
When followed by *t-* (*taparah*) in specified items, -n changes to -s (*sakāram*) on condition that the -n in question is original (*prāktaḥ*) — that is, does not result from a sandhi alteration of *-m* before *t-* — and the *t-* in question is obligatory (*nitya*) — that is, does not arise from contextual alteration. The particular terms with -n are: *-tarhan* (acc. pl. *śatatarhān* ‘who crush a hundred at one blow’), *tasmin* (loc. sg.) ‘in that’, *lokān* (acc. pl.) ‘worlds’, *vidvān* (nom. sg. masc.) ‘knowing’, *tān* (acc. pl. masc.) ‘those’, *trīn* (acc. pl. masc.) ‘three’, *yuśmān* (acc. pl.) ‘you all’, *ūrdvān* (acc. pl. masc.) ‘erect’, *ambakān* (acc. pl. *tryambakān* ‘Tryambaka offerings’), *ṛtān* (acc. pl. masc.) ‘seasons’, *aśman* (voc. sg.) ‘stone’, *kṛtyan* (nom. sg. masc.) ‘making’, *piṭṭhān* (acc. pl.) ‘fathers’, *anān* (acc. pl. masc. *prānān* ‘breaths’), *kapālān* (acc. pl. masc.) ‘potsherds’, *tīṣṭhan* ‘standing’ (nom. sg. masc.) with a high-pitched first vowel, *devān* (acc. pl.) ‘gods’ preceded by *nemir* ‘wheel rim’, *paśūn* (acc. pl. masc.) ‘animals’ preceded by *savane* (loc. sg.) ‘pressing’. These are specified in the following sutra:

**f. TPr. 6.14:**

When -n (nakarasya) becoming -r, a spirant, or -y (rephosmayakarabhavat), as well as upon its being deleted (*lupte ca*), and once *-m* has been deleted (*malopac ca*), a preceding vowel (*purvasvarah*) is nasalized (*anunasikah*):

**g. TPr. 15.1:**

3.4.2.2 Examples

**a. TPr. 5.27:** *yam kamayeta* ‘with respect to whom he should wish’ → *yan kāmayeta*, *puronuṃkāyāyān dadhyāt* ‘he should put ... in the invitation verse’ → *puronuvākyāyān dadhyāt*;

**b. TPr. 13.1-2:** *pratyuṣṭam rakṣah* ‘the demon has been burned away’ → *pratyuṣṭaṃ rakṣah* (15.1 [g])

**c. TPr. 5.25-26:** *amūṣmīn loke* → *amūṣmīṃ loke* (see note 64)
d. TPr. 9.20: mahān indra- → ... mahāṁ indra-\(^66\) sarvān agnīn apsusādah ‘all the fires located in the waters’ → ... sarvān agnīṁr apsusādah (15.1 [g]),\(^67\) śatrūn apa → śatrūṁr apa

e. TPr. 5.20: ahīn ca → ahīṁś ca (15.1 [g])\(^68\)

f. TPr. 6.14: śatatarhāṁ tṛṃhanti ‘crush those who crush with a single blow’ → śatatarhāṁs tṛṃhanti (15.1 [g]),\(^69\) tasmin tvā ‘in that ... you’ → tasmiṁś tvā\(^70\)

3.4.2.3 This is not all, however, since the Taittirīyaprātiṣākhya also records different recitation allowed by various authorities. TPr. 5.29 (3.4.2.1a) says that -m does not change to a nasalized semivowel before r-. In addition,

a. TPr. 5.30: ,lachRLqii-ii~i,-iF

says that for some teachers (ekēsam aćāryāṇām) -m does not undergo this change also if it is followed by y- and v- (yavakāraparaś ca). According to these teachers, -m is dropped when followed by these semivowels, as it is before r-:

b. TPr. 13.3: ,,-1aa,R4R ai3-1i-aNkrr+(1a->it(-11ti, [1])i

Further, when -n changes to -r, a spirant or -y and when -n or -m is deleted, it is not only the case that the preceding vowel is nasalized (TPr. 15.1 [3.4.2.1g]). In addition, according to some (ekēsam), this nasalization does not (na) apply and, instead, anusvāra follows (tatah ‘after it’) the vowel:

c. TPr. 15.2-3: 4 I nnR-ca7V-.1R: I

Thus, in addition to sāmyātā (see 3.4.2.2a), there are two other pronunciations recognized by the Taittirīyaprātiṣākhya: sāmyātā and sāṃyātā. sāmyātā shows full assimilation of -m to the following semivowel, agreeing with the accepted mode of recitation for the Rgveda and the Vājasaneyisamhitā (see 3.2.1a, 3.4.1.1a). sāṃyātā shows a nasalized vowel, agreeing with the mode of recitation for the Atharvaveda as reflected in the Śaunaksiyā Caturādhyāyikā (see 3.3.1a, e). The spoken language which Pāṇini describes has forms of the types sāmyātā and sāmyātā in alternation (see 3.1.1b).

Similarly, TPr. 15.2-3 allows alternants of the type ahīṁś ca, śatatarhāṁs tṛṃhanti, tasmiṁs tvā in addition to ahīṁś ca, śatatarhāṁs tṛṃhanti, tasmiṁs tvā. Such variation is the norm in Pāṇini’s language (see 3.1.1e). The Taittirīyaprātiṣākhya rules also

\(^66\)TS 1.420: mūhā hṁō j koraśa pūrṇānāṁ vṛddhiṁ hṛtāṁ. See note 20.

\(^67\)TS 5.6.1.2: sarvēva bhūnotīruṇyatātvā hṛtvā. ‘I call all the fires located in the waters.’

\(^68\)TS 4.5.1.2: bhāṛiṁś sarvātmayam. \(^8\)

\(^69\)TS 1.5.7.6: pūrṇāḥ h mūh j hṛtvā bṛṣṇuṇāśaḥ. ‘With that did the gods crush those of the Asuras who could crush a hundred at one blow.’

\(^70\)TS 1.6.5.1: tāṁrīrṇāḥ dāhāṁ. ‘I put you in that (world).’
recognize alternants like pratyuṣṭaṁ rakṣaḥ, mahaṁ indro, sarvāṁ agniṁr apsuṣadāḥ in addition to pratyuṣṭaṁ rakṣaḥ, mahaṁ indro, sarvāṁ agniṁr apsuṣadāḥ.

Finally, consider

d. TPr. 5.31: उत्तमलाभावतः

This records what Ātreyā says (īty ātreyah): when a nasal (-m, -n) becomes l (uttamaṁlabhavat), the preceding (purvah) vowel is nasalized (anunāśikah). Ātreyā would recite amuṁl lokam and amuṣmiliṁ loke, with fully nasalized vowels followed by l, instead of amuḷṁ lokam amuṣmiliṁ loke, with pure vowels preceding nasalized l.

It is noteworthy that commentators indicate which of the variants noted in such rules they can accept. Thus, the Tribhāṣyaratna and the Vaidikabharaṇa on TPr. 5.31 say that the pair of sūtras TPr. 5.30-31 is unacceptable.71 Both the commentaries note that TPr. 13.3 also is not accepted.72 That is, in the Taittiriya recitation tradition received by these commentators, the accepted mode of pronunciation was with nasalized semivowels yṁ, vṁ, bṁ. On the other hand, in this tradition the accepted mode of recitation was of the type ahīṁś ca, satatarhāṁs tṛṣṁhanti, tasminś tvā, mahāṁ indro, sarvāṁ agniṁr apsuṣadāḥ, with pure vowels followed by anusvāra, instead of fully nasalized vowels.

For the same commentators remark that TPr. 15.2-3 state what is acceptable to the author of the prātisākhya.73

Moreover,
e. VS 236-237: रोषभा वातु नात्वं लुधां बाल दुन्दा सत्यां

say that the augment (āgama) anusvāra (anusvārāgamaḥ) is added when a -n changes to -r or a spirant, when -m is dropped, and when -n changes to -y.

3.5 In this connection, recall that the tradition received by Aupaśāvi has sequences of the type ahīṁś ca and anyāṁs te, with pure vowels followed by anusvāra instead of nasalized vowels (see 3.4.1.3). Now, consider the following sūtras:
a. VPr. 5.43-44: अनुस्वारिक पृक्तिकोपदान प्रक्तिकोपदान

These concern the fact that a break between padas is not made in saṁskṛtam, saṁskṛtih, māṁspacanyāḥ, puṁścalīṁ in the Vājasaneyipadapātha. Two reasons are given. It is first said that this is the case because the first constituent that would be separated has a nasalized vowel as a penult (anumāśi kopadhatvā). VPr. 5.44 goes on to note that some (eke) say this is not done because the constituent contains anusvāra as an augment

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71TPrS 5.31: सूत्रादेशायम्
TPrG 5.31: नेत्य सूत्रादेशायम्

72TPrS, TPrG 13.3: नेत्य सूत्रादेशायम्

73TPrS 15.2: 'This alone is accepted, not the preceding.' TPrG 15.3: 'This is a formulation of his own view.'
Developments of Nasals in Early Indo-Aryan: Anunasika and Anusvara

Uvata and Anantabhatta remark that 5.43 reflects the Vajasaneyin (Madhyandina) tradition, 5.44 the Kanya traditions. That is, according to these commentators, alternations of the type sanaskritin, sanaskritin are associated with different sakhas.

3.6 The possible outcomes for original -m and -n in various contexts provided for by rules of the Astadhyayi and pratishakhyas can be summarized as shown in chart I.

4 While presenting phonological rules concerning -m and -n (2-3) I have proceeded under the assumption that the variations noted in the Astadhyayi and pratishakhyas represent true differences in pronunciation. I now turn to the evidence which demonstrates that this is not a mere assumption. There are two main points to consider. First, do anunasika and anusvara as used by authors of pratishakhya works and siksas and by Paniini and Paniiniyas refer to distinct entities? Secondly, even if anusvara refers to something other than the nasality of a nasalized vowel, does this reflect a true difference in pronunciation between nasalized vowels and nasal consonants on the one hand and sequences consisting of pure vowels followed by anusvara?

4.1 The available evidence demonstrates that for the authors of pratishakhyas and for Paniini anusvara was indeed a distinct linguistic entity. In accordance with the order of presentation I followed earlier, I will begin with evidence from the Astadhyayi and Paniiniyas, go on to evidence from pratishakhyas, and then consider materials from siksas and other texts.

4.1.1 The sound units with which Paniini operates can be divided into two groups: those found in basic — “underlying” — forms in his system and those which occur only as replacements of such units. Anusvara is one of several elements that are not part of basic items but are introduced as substitutes. As shown in 3.1.1, anusvara replaces word-final -m as well as word-interior -m-, -n- and is itself then subject to replacement by a consonant homogeneous with a following one, optionally across a word boundary. Another such element is visarjaninya (h). In Paniini’s system, -s is replaced by -R, and then this as well as basic -r undergo certain replacements. Before voiceless consonants and pause, -R is replaced by -h, which is itself then replaced by -s before voiceless consonants. Before voiceless spirants, however, -h is optionally retained, and before velar and labial voiceless stops respectively, it is optionally replaced by the fricatives k

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74VPrU 5.43: ... वाजसंयनिमुनियसनामसनकारावाह्ये । कालवादनां तु वशप्राप्तस्य ई । 5.44: कालवादनामयं पाते चोभम् । VPrA 5.44: एकुस्त्रोत भृहस्म्भवेत । तथे वादनामयापेत।

75A 8.2.66: संस्कृत: ।
As a replacement for other, basic sound units, anusvāra is as much a distinct sound unit as h, k, and p. Moreover, from the time of earliest Pāṇinīyas anusvāra is explicitly recognized as a separate unit, on a par with h and certain other sounds that are not parts of posited basic units, all referred to by the term ayogavāha. Thus, in the Mahābhāṣya discussion of śivasūtra 5, the following issue is taken up. The ayogavāha sounds are not recited anywhere among the fourteen sūtras that make up Pāṇini’s sound catalog (aṅkṣarasamāmnāya) but they are indeed heard (śṛyānte); they should be recited somewhere in order to allow for operations involving them. The question then is posed: what are these ayogavāha sounds? And Pataṇjali answers: visarjanīya (h), jihvāṃūliya (k), upadhmaniya (p), anusvāra, the nasal element that is pronounced as a transition between h and a following nasal stop (nāsikya), and the nasal elements that are pronounced as transitional elements between nonnasal stops and nasal stops (yama). In addition, Pataṇjali explains that these are called ayogavāha because they are not “yoked” (ayuktāḥ) — that is, are not linked with any śivasūtra — and yet they “flow, transport” (vahanti) — that is, they are uttered in usage, which they serve to accomplish; they are not recited (amupadiṣṭāḥ ‘not taught’) among the śivasūtras, yet they are heard (śṛyānte).

4.1.2 The Ṛgvedapratisākhya begins with a series of rules which refer to an ordered set of sounds and classifies these sounds for the purpose of phonological rules by assigning to them particular class names (saṁjñāḥ) which will be used in rules stating phonological operations relative to these classes.

a. ṚPr. 1.1-3, 5-6: ॠत्र समनासाक्षरायाचिति: । तत्तत्त्वादि समतं वर्त्ताचि: । ऐतं स्वरं: । ब्रह्मस्वरो व्यज्ञनं वा
क्षरं वा । सर्वं: शेषी व्यज्ञनायेव।

provide that the eight (astau) sounds first listed (āditāḥ ‘at the beginning’) — i.e., a ā r ō i ī u ū — are called saṁmāṅksara (‘simple vowels’) and the four given thereafter (tataḥ catvāri) — i.e., e o ai au — are called sandhyāksara (‘complex vowels’). These (ete) are all called svara (‘vowels’). Anusvāra, on the other hand, bears either of two class names: vyanjana (‘consonant’) or svarā. The entire remainder (sarvaḥ śeṣaḥ) consists of sounds given the name vyanjana alone. According to

76For the pertinent sūtras see the references given in note 21.
77Bh. 1.28.16-18: इदं विचारितं । इमेहेचोन्विधिनां कवितंदिष्टवणे ब्रह्मने च । तेन ताम्रां कामांवर्गं वपुर्व्यः । के पुनः पुनर्योगवातः । विश्वसौत्तर्विज्ञानोऽवधानायात्मानाधिनांनाशिक्यं । के पुनः पुनर्योगवातः । वद्युक्तः वहत्त्वनुपविशिष्टः क्रुप्तः ।
Kielhorn-Abhyankar (Abhyankar 1962) reads विश्वसौत्तर्विज्ञानोऽवधानायात्मानाधिनांनाशिक्यं: and BhN 1.127b reads विश्वसौत्तर्विज्ञानोऽवधानायात्मानाधिनांनाशिक्यं. BhV 1.1.132b and BhR 1.97-98 read विश्वसौत्तर्विज्ञानोऽवधानायात्मानाधिनांनाशिक्यं: This last reading has the support of pratiṣākhyas, which recognize a separate element called nāsikya; see notes 79, 84, 85. For the present discussion, this point is not crucial.
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b. ṚPr. 1.7-14: नेयाराणां यथार्थसः। पश्च तेन पञ्चवाणाः। चतुर्वेदानुसारसतः। उपरेत्वर्णोऽक्षमाः। चन्द्रः सससमग्नाणाणाः। पश्च तेन पञ्चवाणाः। चतुर्वेदानुसारसतः। उपरेत्वर्णोऽक्षमाः। चन्द्रः सससमग्नाणाणाः।

the first (adyāh) of these (teśām) are called sparsa (`stops'), subdivided into five (pañca) series of five members each (pañcavargāh). The next (tatah) four (catasrah) sounds — i.e., y r l v — are called antasthā (`semivowels'). The following (uttare) eight (aṣṭau) are called āśman (`spirants'): h s ş s h k p m. The last seven (antydh sapta) of these (teśām) are called aghoṣa (`voiceless'), as are also the first two (prathamau) sounds in each stops series (vargs varge): k kh c ch ṭ ṭh t th d dh p ph. The even sounds (yugmau) in each such series — kh gh and so on — are called sośman (`aspirates'), and the last (antyāh) sound of each series is called anusmāsa (‘nasal’).

The Rgvedapratisākhyā explicitly recognizes eight sounds called āśman. As Uvāṭa notes,78 this means that anusvāra is given independent status as a separate element listed among the spirants.

The eighth chapter of the Vājasaneyipratisākhyā gives the traditional sound list associated with this treatise. This list includes the sounds called ayogavāha (cf. 4.1.1), and anusvāra is included among these sounds.79

4.1.3 As is known, among the early sīkṣās, the Āpiṣalaśīkṣā is the most general treatise, not restricted to any particular Vedic corpus. Here too, anusvāra is recognized as a distinct entity, as when Āpiṣali treats of external efforts (bāhyaprayatna) in the production of sounds and says80 that the third and fourth sounds of the stop series, semivowels, h and anusvāra, as well as the third and fourth yamas are produced with close glottis (sāmyrvatākṣaḥ), have nāḍa as their accompanying property, and are voiced (ghoṣavantah).

The metrical version of the Pāṇinīyaśīkṣā81 in the text reconstructed by Manomohanghosh begins by giving an inventory of sounds: There are twenty-one vowels, twenty-five stops, a group of eight consisting of semivowels and spirants, four yamas, anusvāra, visarga, k and p.82

4.1.4 Pratisākhyas contain statements that can justifiably be considered rules of

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78ṚPrU 1.10: बनस्यवप्य उपरेत्वर्णोऽक्षमाः बविदतमतः। यथा ह द र स शः। उः यः जः हृः हृः हृः। Due to font limitations, I have used उ and य to represent jihvāmūliya and upadhmāntya.
79VPr. 8.18-24: ब्रह्मवर्गायमायाः। इह इति विवेकान्तियाः। यः इति विद्वानवायाः। यां इति विद्वानवायाः। इहूः इति नान्वत्त्वः। इहूः इति श्रवणवायाः। इहूः इति नान्वत्त्वः। इहूः इति नान्वत्त्वः। इहूः इति नान्वत्त्वः। इहूः इति नान्वत्त्वः। इहूः इति । For the present discussion, it is not crucial that the chapter in question is probably an accretion.
80ĀPŚ 4.4: वर्गानां तृतीययुग्मानां चतुर्वेदानुसारस्यां ग्रुप्तरूपमां तृतीययुग्मानां संग्रहानुसारमां ग्रुप्तरूपमां प्रमिलनात्मकोऽसंक्षेपः।
81Although this text is post-Pāṇinian, it antedates Bharṭhāri (late fourth century A.D.), who cites from it.
82PŚ 1-2ab (PŚR 4-5ab): स्वरत्र विशालप्रक्ष्य स्मृतानि प्रख्यातिः। यादवः स्मृताः हृद्दे चल्लक्ष्यवच्चमाः। यादवः। इहूः इति नान्वत्त्वः। इहूः इति नान्वत्त्वः। इहूः इति नान्वत्त्वः। इहूः इति नान्वत्त्वः। इहूः इति नान्वत्त्वः।
syllabification. These provide that particular consonants in given contexts form parts 
(aṅga) of a syllable constituted by a certain vowel. Two such rules are RPr. 1.24: एवंवाया
वार्ताविस्मरितीय ि (see 9.2.2a) and TPr. 21.6: प्रत्यक्षारस्वपनिक्षिक (see 9.2.3a). According
to the first sūtra, anusvāra and h (anusvāravisarjanīyau) go with a preceding vowel; the 
second rule provides that anusvāra and an epenthetic vowel (svarabhaktiś ca) go with a 
preceding vowel. Clearly, anusvāra is given a status in a syllable comparable to that of h 
or an epenthetic vowel.

4.1.5 The available evidence thus leads to the conclusion that anusvāra in the Aṣṭādhyāyī 
and its commentatorial tradition as well as in prātiṣākhya and śikṣa works refers to an 
entity that is distinct from what is referred to by anunāsika.

4.2 The issue which remains to be resolved, then, is the following. Pāṇini provides for 
anusvāra to follow a vowel that has not been replaced by a nasalized vowel (A 8.3.4 
[3.1.1e]) and the Taittirīyaprātiṣākhya says that anusvāra follows a vowel (TPr. 15.3 
[3.4.2.3c]). Such statements might be interpreted in either of two ways:

a. They concern sequences of the type Vīn, such that a pure vowel is followed by a 
nasal segment called anusvāra.

b. They are statements of the type considered above in 2.1 and concern nasalized 
vowels (Vīn), which are analyzed as consisting of a vowel and an entity that imparts 
nasality to the vowel.

b alone can be harmonized with Whitney’s stand that the treatises in question concerned a 
‘discordant apprehension and analysis of a single mode of utterance.’

4.2.1 It is difficult to see how one could take position b with respect to what Pāṇini says. 
The sūtras in question definitely do not concern a description of segments. Nor have 
they to do with opinions attributed to different scholars, although Pāṇini does indeed 
have occasion to refer to what different scholars say (see 2.5). The only intelligent 
interpretation of A 8.3.2, 4 (3.1.1e) is the one universally adopted: These sūtras state that 
a vowel preceding -n or -m which -R replaces by subsequent rules is either replaced by a 
nasalized vowel or followed by anusvāra. That is, the reasonable interpretation is in 
harmony with position a.

4.2.2 Some of the prātiṣākhya statements considered above (3.4.1-3.4.2), on the other 
hand, do indeed represent what different authorities have to say, so that one might 
consider oneself on firmer ground in maintaining position b of 4.2 with respect to these 
rules. More careful consideration, however, shows that this too cannot be accepted.

In accordance with b, VPr. 3.130-132 (3.4.1.1e, 3.4.1.3) would state the following: a
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vowel which precedes -n subject to changes stated in subsequent rules is nasalized when
these changes apply; Aupaśavi holds that this nasalization applies only if -n occurs before
a vowel; if a consonant follows -n subject to the changes, then anusvāra comes between
the vowel preceding original -n and the consonant which followed this; in this way,
Aupaśavi, who maintains that anusvāra is tantamount to nasality of a vowel, accounts for
the nasality of the vowel preceding original -n. Even the most ardent adherent of
Whitney’s position would have to admit, I think, that this is a strange procedure. It
certainly does not fit in with the kind of statement made in RPr. 13.15-18 (2.1). On the
contrary, VPPr. 3.130-132 are worded in the way other phonological rules of the whole
section are worded, including the use of a locative (svare) to designate the entity before
which something applies.

4.2.3 The same is to be said of the Taittiriyaprātiśākhya rules treated in 3.4.2.3. In this
connection, consider now

a. TPr. 2.46-48: क्षुद्रस्वर्णी विषयविश्वस्त्रीयः। उदयस्वरादिश्वराय हकार एकेशाप्। पूर्वादिश्वराय

These concern the place of production (sthāna) for h and h (hakāravisarjanīyau). The
first sūtra states that both sounds have the back of the throat for their place of production
(kaṇṭhasṭhānau). The next two rules say what some (ekesām) consider the sthāna for
these sounds: h is produced at the place where the beginning of the following vowel is
produced (udayasvarādīsthānāḥ), -h at the place where last part of the preceding vowel is
produced (pūrvāntasasthānāḥ). Saying that h is produced in the throat can be considered
simply a recognition that this sound has no particular oral point of production.
Attributing to h the place of production of a vowel segment that follows accounts for the
same thing in a slightly different manner. On the other hand, the different places
specified for -h can be based on actual differences. There may have been speakers in
whose speech h was not colored by the preceding vowel, others in which the vowel color
carried over.

This is made all the more probable by something the Ṛgvedaprātiśākhya says in its
chapter on faults of pronunciation:

b. ṚPr. 14.30: स्वरान्त स्वरावर्थाविदितिः। निश्चयन्ति यथा।

One of the observations this makes about visarjanīya is that some pronounce this sound
with the same place of production (sasthānau) as a preceding vowel (svarāt).83

The following concern the nasal transitional sounds, referred to by the term nāsikya,

83ṚPr. 14.30 involves some difficulty of interpretation in that it contains dīrghat ‘long’, so that, at first
blush, it speaks only of h following long vowels. Uvaṭa goes into this issue, which I do not take up here.
Uvaṭa also cites TPr. 2.46-48.
which are pronounced between nonnasal stops or \(h\) and following nasals.\(^{84}\)

c. TPr. 2.49-50: नासिक्यया नारिकारथनानाः। नुस्तानासिक्यया वा।

The first sutra says they have the nose as place of production (\(nāsikāsthānāḥ\)), and the second provides an option (\(vā\ ‘or’): they are oral-nasal (\(mukhanāsikyāḥ\)). Here there is no question of any other scholars, so that the Vaidikābharaṇa may well be correct in remarking that the two options concern respectively the nasal transitions following stops on the one hand and \(h\) on the other.\(^{85}\)

What most bears stressing here, however, is that TPr. 2.46-48 are part of the section in which details concerning the production of sounds are dealt with. Similarly, RPr. 13.15-18 (2.1) are sutras in the chapter of the Rgvedaprātiṣākhya that deals with the production of sounds. The Taittirīyaprātiṣākhya rules considered in 3.4.2.3, on the other hand are parts of sections of phonological rules.\(^{86}\) Accordingly, it is proper to consider that these sutras too provide for different operations that involve true differences in the language.

4.2.4 This conclusion receives support from other evidence. As I noted earlier (4.1.1), Patañjali speaks of the ayogavāha sounds as distinct speech units that are heard (\(śrūyante\)). It would be inappropriate to accept on the one hand that \(k, p, h\) and nasal transition sounds are indeed distinct elements that are uttered and perceived but that anusvāra signifies nothing more than the nasal quality of nasalized vowels. Moreover, we have the evidence of Patañjali’s predecessor Kātyāyana to show that \(yaynīya-\) and \(yamya-\) — in the intensive of \(yam\ ‘control, raise’ (3sg. pres. indic. \(yaynīmam̥yate, yamyemyate\)) — were distinct, the former pronounced with a nasalized \(y\), the latter with \(y\) preceded by anusvāra. In his second and third vārttikas on A 7.4.85 (पुण्यम् नुस्तानासिक्ययाः, see Cardona 1997: 386), Katyāyana proposes that such forms are accounted for by stating that the augment (\(āgama\) anusvāra is introduced after the vowel of the first syllable of two syllables that result from doubling and by having the final sound of the syllable be treated as though it were word-final (\(padāntavat\)), so that the optional assimilation

\(^{84}\)According to TPr. 21.12-13 (स्यस्यदन्तुनुस्तानासिक्याः नसिकीयाः। नानाशास्त्रोकारे इत्यंतः।), after nonnasal stops followed by nasal stops, the corresponding nāsikya sounds are introduced, which some call \(yama\) (cf. 2.4 with note 10). TPr. 21.14: हकारात्मकप्राचारित्वम्। provides that nāsikya is introduced after \(h\) which is followed by \(n, n\) or \(m\).

\(^{85}\)TPrG 2.50: पुण्यम् नुस्तानासिक्यया। स्यस्यदन्तुनुस्तानासिक्ययाः। हकारात्मकप्राचारित्वम्।

\(^{86}\)W. S. Allen (1953: 42) remarks that Whitney’s view ‘... has support in the fact that the TP speaks of anusvāra as having precisely this value ...’ and cites (1953: 42 n. 7) TPr. 2.30 with TPr. 15.1. This will not do. The latter simply provides that a vowel which precedes sounds subject to stated changes is nasalized; the former states that anusvāra and nasal stops are nasalized segments (\(anumāsikāḥ\)); see below. These do not justify the conclusion that anusvāra is nothing more than the nasality of a vowel or semivowel.
provided by A 8.4.59 (3.1.1b) takes effect. Here Kātyāyana speaks of anusvāra as an augment that is introduced, a separate segment, not mere nasality of another unit.

4.2.5 As can be seen from the Rgvedaprātiṣākhya rules considered in 3.2.1, the tradition of recitation for the Rgveda accounted for by these sūtras is relatively homogeneous when compared with the sorts of variations that the Taittirīyaprātiṣākhya accounts for in recitation of the Taittirīyasamhitā. Yet the Rgvedaprātiṣākhya also takes into account some variation which involves anusvāra, only it does so in a chapter devoted to faults that are to be avoided in a proper recitation of the Rgveda. Consider now

a. RPr. 14.54: ब्रह्मवालागुणं वाचयंस्म वर्गयास्तीयमण्ड समायमो तद गन्यांजनं जः सन्नात्रेष्येन सन्नात्रेष्येन
   (सन्नात्रेष्येन: शृङ्खला [53] पूर्वम् [52])

b. RPr. 14.56: रत्नांगामी न तु नृः नृः नृः नृः नृः नृः नृः

The first sūtra concerns sequences such that a nasal (raktāt) is preceded by a vowel (svaropadhat) and followed by an aspirated stop or a yama (soṣmayamodayas cet), as in taṁ ghnanti ‘... kill him’. Some insert an anusvara before the nasal (anusvāram raktā [53] pūrvarm [52]): tamḥ ghnanti. In addition, some convert the nasal to anusvara: tam ghnanti. Once we consider RPr. 14.56, we can rule out the possibility that when RPr. 14.54 speaks of placing an anusvara before the nasal it is merely saying that the vowel which precedes this nasal is itself nasalized. For the second sūtra explicitly takes into account a fault involving nasalization in sequences like na nūnā ‘not now’. Here the fault of pronunciation consists in the nasality (rāgah) of the vowels (svaranam) which are in conjunction with nasals (raktaiḥ samavaye). That is, some nasalize the vowels in such instances. If RPr. 14.54 were speaking merely of nasalizing vowels, it could have formulated the fault in the way that RPr. 14.56 is worded. Moreover, since both these sūtras concern the actual pronunciation of particular kinds of sequences, there is no question of RPr. 14.54 concerning the use of anusvāra with reference to nasality in a vowel under a particular analysis.

In the same vein, consider

c. RPr. 14.37: स्पशासनांविनिष्कर्षानुप्रायाक्ष परिवर्धयन्ति

This has to do with the collocations dealt with in RPr. 4.74, 69, and 68 (see 3.2.1c), which

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877.4.85 vit. 2-3: ब्रह्मवालागुणं वाचयंस्म वर्गयास्तीयमण्ड समायमो तद गन्यांजनं जः सन्नात्रेष्येन शृङ्खला [53] पूर्वम् [52]. This is not the place to enter into details concerning how the sūtra itself is interpreted in the tradition to provide for the desired results.
88RV 2.27.13cd: नान्तिः न नृः नृः नृः नृः नृः नृः नृः नृः ‘None slay him from near or far who is under the guidance of the Ādityas.’ This is one of six examples which the sūtra refers to explicitly.
89As shown, the first alternative involves understanding raktāt and pūrvarm. The second alternative involves understanding only raktaḥ from the preceding sūtra and contextually converting this to an accusative. Uvāta notes these two and a third possibility: that an anusvāra is inserted after the nasal.
90RV 1.170.1a: न नृः नृः नृः नृः नृः नृः ‘There is not now nor will be tomorrow.’
involve a stop and a spirant (*{}*), a stop and -r (*{}*), and those called vivṛtyābhūprāya: In all these, some commit the error of converting -n to anusvāra (*{}*, see note 25) instead of dropping it and nasalizing the preceding vowel. That is, as in Yajurveda traditions there were pronunciations such as ahīṃśa ca, with anusvāra (see 3.4.1.3, 3.4.2.3), so too did some recitors of the Rgveda use comparable pronunciations, but the strict tradition to which Śaunaka adheres censures these as errors.

5 In arguing for his position, Whitney laid some stress on symbols for anusvāra in the Devanāgarī script, saying (1868: 68-69):

Which of the two views is originally favored by the Devanāgarī alphabet does not admit of much question; the writing of amāca,* for example, with a nasal sign over the vowel of the first syllable, is an unequivocal recognition of the quality as something affecting the vowel itself. If it had seemed to the framers of this alphabet to be a something interposed between the vowel and the following consonant, they would doubtless have found for it a sign to stand between those of the other elements. This has actually been done, out of a true regard for consistency, by the writers of the Vājāsaneyi and Tāttiriya texts; for lack of a better device, they have brought down one of the usual signs of nasality from above the syllable to a position between the syllables, giving it an addition which enables it to maintain its place there* —in the Tāttiriya texts, we have the dotted crescent with the virāma, the usual mark for a consonant not graphically combined with a following consonant, beneath it. The scribes of the Rig-Veda seem to have been less solicitous to make their practice square with their theory.

Whitney’s footnote on page 68 reads: ‘Namely, ,,ir, or r‘ and his first note on page 69 reads: ‘Thus, for ,,i i or ,4‘1, the Vaj. S. writes r, the Taitt. S. ‘ r‘vr.’ This argument should better be passed over in silence were it not that a more recent author (Allen 1953: 42) alludes to it without comment. For, although it is not difficult to see how Whitney could present such an argument in the 1860’s, it is difficult to accept it in view of what has been learned about the history of various orthographic systems in India. Evidence does not support Whitney’s argument and his claim of priority for the positioning of the bindu. As Bühler already remarked (1896:56), in early Brāhmī as found in Aśoka’s inscriptions:

The Anusvāra mostly stands opposite the middle of the preceding Māṭkā, as in mamī (32, VIII). But in connection with i it is placed regularly in Delhi-Sivalik, Delhi-Miraṭ, Mathia, Radhia, Jaugada, and Dhauli, inside the angle of the vowel, as in tim (18, VI). There are also other cases in which it occasionally appears, as in the later scripts, above its Māṭkā, and sometimes, as in mamī (32, II), it sinks to the foot of the latter ….

More recently still, Srivastava (1972: 217, 219) almost casually makes use of orthographic evidence:

By making signs for anusvāra [N*] and anunasika [v] entirely different in character from regular letters used for nasal mutes, Indian grammarians have established two different types of phonemic units — nāsikya (nasal mutes) and unusvāra/anunasika, i.e. /N/. After grouping
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the latter into a distinct category they have further subdivided that according to major types of realizations — anusvāra [N*] and anunāsika. While dealing with the phonetic facts they have not set aside the faculty of generalization which is evident from their proper use of a separate sign for homorganic nasals. By placing both the signs * and -- above the preceding vowel letter, they even suggested that both are metrically equivalent and have the function of “something added, in making a heavy syllable.”

Now, as is also well known, the earliest orthographic evidence is from a script devised for Middle Indic, and any such orthographic evidence from Devanāgarī materials all postdate the prātiśākhyaśas and Pāṇinī by a considerable time. To be sure, in later Devanāgarī materials, anusvāra is generally symbolized by a bindu above an akṣara, but in modern scripts there is regional variation in how the anusvāra symbol is written. What has to be kept in mind is that Pāṇinī and the authors of prātiśākhyaśas and early śikṣā works all deal with the spoken language and texts orally transmitted according to certain traditions of recitation. The oral transmission of the Vedic texts continued into the times when they were set down in writing, and in these manuscripts the Yajurveda materials make more detailed distinctions with respect to anusvāra, as they do with respect to consonant doubling and accentual notation. In discussing what anusvāra was at the times that Pāṇinī and authors of prātiśākhyaśas were describing their language and recitation practices, it is not appropriate, I think, to grant weight to much later evidence about how anusvāra and nasalized vowels were symbolized.

In sum, the evidence from Pāṇinī and early Pāṇinīyas as well as from prātiśākhyaśa and śikṣā texts does not support Whitney’s claim that what early sources call anusvāra was nothing more than the nasality of a vowel. On the contrary, the evidence supports the following conclusions:

a. There was a difference between anunāsika elements — nasal stops, nasalized vowels and nasalized semivowels — and anusvāra in the spoken language which Pāṇinī describes and in all Vedic traditions except that of the Atharvaveda as reflected in the Śaunakīyā Caturādhyāyikā, where there is no anusvāra.

b. Anusvāra for -m before spirants and r- is the rule in Pāṇinī’s language and all Vedic recitation traditions traditions except for the Atharvaveda, where -m in these contexts is dropped and a preceding vowel is nasalized.

c. In Pāṇinī’s language, anusvāra occurs for pada-final -m also before semivowels

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91 For example, what is written श्रम in Devanāgarī as used for languages like Hindi or Marathi and स्रम in Gujarati is written in other scripts (e.g., Bengali and Grantha) with the anusvāra symbol following an akṣara.

92 This in no way is meant to imply that the symbol referred to as anusvāra — namely the superscript dot or circle — could not used to designate nasality. This is indeed one of the functions of this symbol. For example, Old Gujarati ી ‘I’ had a nasalized vowel, as does Modern Gujarati ી.
other than $r$ and before stops, but in alternation with nasalized semivowels ($\tilde{v}n \, vîn \, lîn$) and nasal stops. Full assimilation of $-m$ to following stops is the norm in Vedic.

d. There is also evidence of considerable variation from Vedic traditions. Pāṇini’s spoken language has an alternation between $-\tilde{V}i\tilde{n}ś$ / $-\tilde{V}i\tilde{n}s$ / $-\tilde{V}i\tilde{n}r$ and $-\tilde{V}i\tilde{n}s$ / $-\tilde{V}i\tilde{n}s$ / $-\tilde{V}i\tilde{n}r$. In Vedic traditions, forms with nasalized vowels were the norm, but there are also traces of forms with vowels followed by anusvāra. As could be expected, the Kṛṣṇa Yajurveda shows evidence of greatest diversity; e.g., saymîyattâh / saîmyattâh / saîmyattâh, amulîn lokam / amulîn lokam. The Vājasaneyin tradition too shows variation, as in ahînś ca / ahînś ca. Moreover, in the Rgveda tradition also there was comparable variation, but with this difference, that here the variant with anusvāra was condemned.

7 We have now to consider the phonological and phonetic properties of anusvāra.

7.1 Anusvāra has properties that allow it to be viewed either as a consonant or a vowel. For example, in syllabification, it goes with a preceding syllable nucleus, so that it patterns like a consonant; see 4.1.4, 9.2. On the other hand, it also patterns like a vowel. For example, the first consonant of a cluster is subject to doubling after a vowel, and this applies also after anusvāra; see 9.1. Accordingly, the Rgvedaprātiśākhya allows anusvāra to be classed as either a consonant or a vowel:

RPr. 1.5: ॠनुनवार व्यञ्जना वा स्वर वा।

In referring to anusvāra, moreover, the actual term anusvāra is used and larger class names are not used. Thus, the general rule that provides for repeating the initial consonant of a cluster (RPr. 6.1 [9.1.2.2a]) specifies that the consonant be preceded by either a vowel or anusvāra (svarānu-svāropahitaḥ).

Moreover, the Rgvedaprātiśākhya classes anusvāra among the voiceless spirants; see 4.1.2b. It is alone in doing this, however, and for a good reason, as has been recognized before (Allen 1953: 41): In the Rgveda recitation tradition accounted for by this treatise, anusvāra occurs only before $r$ and voiceless spirants and $-m$ is fully assimilated to following stops and semivowels.

7.2 In considering the phonetic properties of anusvāra, it will be best to deal with features of voicing and so on separately.

7.2.1 As was noted earlier (4.1.2b, 7.1) the Rgvedaprātiśākhya classes anusvāra among the consonants called āśman (‘spirant’) and provides also that it bears the class name aghoṣa (‘voiceless consonant’). The phonetic correlate of the latter is that the air flow which constitutes anusvāra is svāsa, produced when the glottis is open. Accordingly, anusvāra in this tradition of recitation is phonetically voiceless. In other traditions,
however, it is not classed as a spirant, nor is it voiceless. For example, the Taittiriyapratiśākhya assigns the class name aghoṣa to spirants other than h and to the first two stops in each stop series; remaining consonants are called ghoṣavat. In a section describing how sounds are produced, the same text says the material cause for sounds called svāra (‘vowel’) and ghoṣavat is nāda, the air flow produced when the glottis is close, for h and voiced aspirates the cause is the air flow termed hakaṟa, produced when the glottis is in a mid state; and the material cause for voiceless consonants is śvāsa, the air flow produced when the glottis is open. Here, then, anusvāra is phonetically voiced.

7.2.2 As for the place of production (sthāna) for anusvāra, authorities agree on one point but differ on another. It is generally agreed that anusvāra is produced in the nose (nāṣikā, du. nāśike ‘nasal passages, nostrils’), so that this segment is called nāṣikya ‘nasal’. a. VPr. 1.74:

ApŚ 1.14: 

PŚ 14ab (PSR 22ab):

Similarly, after stating that certain sounds are guttural and so on, the Rgvedapratiśākhya says the remainder (sēṣah) is labial (oṣṭhyah), excepting nasal sounds (apavāḍya nāṣikyān), then specifies that the sounds thus excepted are the nasal segment which occurs between h and a nasal stop (nāṣikya, see notes 79, 85), yamas (see note 10) and anusvāra:

b. RPr. 1.47-48:

The description of the nose as the sole proper place of production for anusvāra is accepted by later Pāṇiniyas, so that, for example, Bhaṭṭoji Dīkṣita again says this in a section listing the places of production (sthānāni) for sounds:

c. SK I.18: 

Complications arise, however, once we consider the possibility of oral places of production for anusvāra. This actually involves two questions: First, does anusvāra have a definite oral sthāna of itself or does it take on the oral sthāna of a vowel which it

93In the phonological system which the Taittiriyapratiśākhya adopts, there are only six sounds called ūṣman (TPr. 1.9: परं घुष्मांगः): kṣ k ṣ s g h.

94TPr. 1.12-14: कृपाविशेषस्वरूपमेततुः प्रयोगः । न हकारः । त्वयानंस्योऽपाश्चातः ।

95TPr. 2.8-10: सर्वस्यप्रतिष्ठानं स्वरस्मृतस्य हकारस्तु हकारतुष्ट्वर्णः । प्रयोगः भासः । See Cardona 1986 for details.

96nāṣikya is to nāṣika as dantya ‘located at the teeth’ is to danta ‘tooth’, tāḷavya ‘located at the palate’ is to tāḷu ‘palate’, and so on. Pāṇini accounts for such derivates, meaning ‘located at...’, by introducing the taddhita affix yat after terms with a seventh-triplet (locative) ending following a base which signifies a body-part: A 4.3.53, 55: तत्र च महाद्वन्ध (महेन्द्र [54]); see Cardona 1997: 344-345.

97The Rgvedapratiśākhya section in question ends with RPr. 1.49: इति स्वानासः । ‘Thus the places of production.’
follows? Secondly, does this apply to any anusvāra or to anusvāra in particular contexts?

As shown above under a, PS 14ab says that the place of production for anusvāra is the nose. On the other hand, according to

d. PS 15ab (PSR 22cd):

sounds called *ayogavāha* (sec 4.1.1) share the places of production of the sounds on which they are dependent (*āskrayasthānabhāgāgināḥ*). As Rudra Prasāda explains in his commentary,\(^{98}\) -ὴ has the same oral places of production as the vowels on which it depends, so that the -ἠ of ῥάμα has postpalatal and the -ἥ of ἱρῆ is palatal (cf. TPr. 2.48 [4.2.3a]). By the same token, an anusvāra will have the oral place of production that pertains to the vowel with which it goes. For example, the -ṁ of *harim* is a nasal segment with the oral place of production of the preceding vowel, that is, the palate (*tālu*), so that -im symbolizes a vowel -i- followed by a nasalized segment in.

One must assume that ĀpŚ 1.14 (a) also refers to anusvāra viewed in this manner. For, Āpiśāli goes on to note that some (eke) say anusvāra has both the postpalatal area of the mouth (*kaṇṭha*) and the nose as its places of production (*kaṇṭhanāsikyam*):

e. ĀpŚ 1.15:

I will come back to this particular sūtra below.

Consider now

f. TPr. 2.35-37:

These describe the configuration of an active articulator and a place of production in producing stops of the *k*-series (*kavarga*: *k kh g gh n*), *c*-series (*c ch j jh n*), and *t*-series (*t th ċ dh n*). In producing the first (*kavarge*), one makes contact (*sparśayati* ‘causes to touch’) at the root of the jaw (*hanumule*) with the root of the tongue (*jihvamule*) in producing the second set of stops, one makes contact with the middle of the tongue (*jihvāmadhyena*) at the palate (*tālau*); and in producing stops of the *t*-series, one makes contact at the area immediately back of the alveolae (*mūrdhani*) with the tip of the tongue (*jihvagrena*), after curling this back (*prativeśtya*) to that spot. This recognizes that the stops *n, ṅ, ṇ* have fixed oral points of articulation. In addition, these stops are nasal. Accordingly,

g. TPr. 2.30:

says that anusvāra and final members of stop series (*anusvārottamāḥ*) are nasal (*anunāsikāḥ*), and

\(^{98}\)PSRP 22: ...
h. TPr. 2.52: नासिकाविवरणस्करादाननासिकयम्

states that the property of being nasal (ānumāsikyā) that pertains to such sounds results from opening the nasal passage (nāsikāvivaranāt) while articulating.

It is clear that, in contrast with nāsikya, the term anumāsika as used in TPr. 2.30 with respect to nasal stops has to do with sounds that are nasal and also have a fixed oral place of production.⁹⁹ In this regard, what is said in

i. TPr. 2.18-19: उपसयहतारे न जिज्ञासुयकाकरिलकरेतु वस्त्रैपूर्वस्यहरति (हनु [16])। एकेकामनुस्वारः

is of interest. TPr. 2.18 has to do with how r, l, and l are pronounced. This śūtra says that in articulating these sounds, the jaws (hanum) are brought quite close together¹⁰⁰ and one brings the tip of the tongue (jihvāram) into proximity (upasainharati) with the alveolae (barsvesu). TPr. 2.19 deals with anusvāra and the epenthetic vowel segment (svarabhakti) that occurs between -r- and consonants: for producing anusvāra also, the jaws are brought quite close together and for producing the vowel segment also the tip of the tongue is brought into proximity with the alveolae. It is noteworthy that TPr. 2.19 says this is what holds for some (ekeśām). Since this śūtra describes a definite positioning of organs in the oral cavity, it is reasonable to conclude that it describes a pronunciation of anusvāra such that this sound has a definite oral place of production. Moreover, since this is what some hold, according to others anusvāra is properly nasal, without a fixed oral place, a segment that acquires an oral position from the preceding vowel.¹⁰¹

The most immediate interpretation of TPr. 2.19 would let the segment called anusvāra as pronounced by some be a velar element with nasality, distinct from the velar nasal stop n. Moreover, ĀpŚ 1.15 (above, e) explicitly attributes to some the position that anusvāra is produced at the post-palatal area and the nose at once (kanthanāsikyām). In connection with TPr. 2.19, I think, one has to consider also what is said in

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⁹⁹ Cf. A 1.1.8: मुल्लानासिकाकरीनासिकयम्। VPr. 1.75: मुल्लानासिकाकरीनासिकयम्।

¹⁰⁰ That is, the degree of oral closure is the same as in pronouncing e; cf. TPr. 2.16: उपसयहतारे हनु [एकेके [15]].

¹⁰¹ If I understand correctly, this is what the Tribhāṣyaratna conveys in its comments on TPr. 2.19: ... ब्रजस्वारे हन्तरकस्यहरत: स्वरलिमी विज्ञारयाय वस्त्र वूर्वस्यहरतः। इत्यदेवं भ्रमः। अन्यायाः तु मतमुत्त्वातःनासिकयमकालः ... The Vaidikābharaṇa's comment I find puzzling. According to this, the persons whose view is given in TPr. 2.19 hold that anusvāra is a nāsikya element and the position of the author himself is that it is an anumāsika element, in accord with TPr. 2.30: एकेकान नाथाय भ्रमस्य हन्तरकस्यहरतः: कार्यो विज्ञारयाय वस्त्र वूर्वस्यहरतः। केवल विभक्तिः। लेङ्गाननासिकाकरिलकस्यहरतः। अन्यायाः तु मतमुत्स्वारमयायाय वस्त्र वूर्वस्यहरतः। अनुस्वारस्यहरतः। नासिकाकरिलकस्यहरतः। ... TPrG 2.30 emphasizes that in the Taittiriyā sākha anusvāra is uniquely consonantal and has the form of half a g: ... ब्रजस्वारे हन्तरकस्यहरतः अनुस्वारस्यहरतः। केवल विभक्तिः। Since TPr. 2.19 specifies a configuration in the oral cavity, on the other hand, it would seem preferable to say this śūtra concerns the pronunciation which involves a definite oral place, the velar area.
This sūtra concerns an active articulator (karana) for k, referred to as jīhvāmūliya (‘located at the root of the tongue’), and anusvāra: these are produced with the root of the jaw (hanumūlena); that is, the mandible is brought to a position such that there is little opening of the mouth. Now, k and velar stops are said explicitly to be produced at the root of the tongue (jīhvāmūle),102 that is, the area of the velum. In addition, the Vājasaneyiprātiśākhya also states that for nāsikya sounds (see VPr. 1.74 [above, a] and note 79) and labials the place of production and active articulator are the same.103 Accordingly, anusvāra as described here is a nasal segment with a definite oral position: the velar area. Note, moreover, that the Rgvedaprātiśākhya mentions the view of Vyādi, according to whom anusvāra can be an anunāsika element, not merely a nāsikya element.104 Uvāta is without any doubt correct when he interprets this sūtra as stating that according to Vyādi any anusvāra can have not only the nasal cavity as its proper place of production but both this and an oral place.105

This evidence from prātiśākhyaśas and the Āpiśalaśīkṣā supports, I think, the conclusion that at the time the Yajurveda prātiśākhyaśas were being composed, recitation of Yajurveda texts included a velar segment called anusvāra. This is well known from other Yajurveda treatises. Thus, according to

k. VS 238-239: 
when anusvāra occurs in the Yajurveda, it is conjoined with g (gakarasamuyuktah) — which changes to k before voiceless segments — unless the śa of śaanti or sarū (of sarūpan) follows. Further, according to

l. SSS 43: 
in the Taittirīya tradition, when anusvāra would occur, its first half (ādyardhaḥ) is g (gakāraḥ) and its second half is a nasalized segment (anunāsikah). According to tradition, the anusvāra is thus pronounced guṅ, with g followed by a nasalized u. The Vaidikābharana also remarks that anusvāra contains a velar consonant (see note 101). In the Mādhyanandina tradition of the Śukla Yajurveda too, according to

m. PrS 3.1: 
anusvāra has a particular pronunciation before voiceless spirants and r. This is

102VPr. 1.65: ज्वलकी जिहवानुलाः।
103VPr. 1.80: स्मातस्यानजनानः नासिकायः।
104RPru 13.37: व्यासाणीनिर्देशस्यधनुष्कुटकां श्वासोऽवश्यः।
105RPru 13.37: व्यासाणीनिर्देशस्य मुनिनिर्देशस्यान्तः श्वासोऽवश्यः। It is possible that the sutra concerns only the instances of anusvāra dealt with earlier in the section, so that it involves only anusvāra before -s- and -ś- of neuter plural forms, but this does not change matters crucially.
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traditionally considered to be guṇ or güm.\textsuperscript{106}

7.2.3 The duration of segments in complexes of the type \textit{Vn} also varies. In general, a consonant (\textit{vyāñjanam}) has the duration of half a short vowel (\textit{hrasvārdhakālam}), that is, half a mora (\textit{ardhamātrā}):

a. TPr. 1.37: 
\textit{hravārdhakālānaḥ} \textit{vyāñjanam}.

VPr. 1.59: \textit{vyāñjanam}.

Although anusvāra counts as a consonant, however, it does not conform to the duration of other consonants. Thus, according to

b. TPr. 1.31-34: 
\textit{uṇakālā} \textit{hravār} \textit{vāraḥ} \textit{adrhamāt} \textit{vār}.

\textit{a} and \textit{i} are called \textit{hrasva} (‘short’), as is also \textit{a} (\textit{akārāḥ}) and any vowel that is of the same time duration (\textit{samānakālasvarāḥ}) as this (\textit{tenā}). In addition, anusvāra also is said to have the duration of \textit{a} and consequently to count as a short segment of one mora.\textsuperscript{107}

Other treatises treat in more detail variations in the relative duration of segments in complexes with anusvāra. The most straightforward are

c. VPr. 4.150-151: \textit{dr̥ṣṭaḥ} \textit{hrasvāpūrvavah} \textit{vāraḥ} \textit{vāraḥ} \textit{vāraḥ} \textit{vāraḥ}.

\textit{Rā} 1.2-3: \textit{vā} \textit{hravār} \textit{vāraḥ}.

According to VPr. 4.150-151, anusvāra preceded by a short vowel (\textit{hrasvāpūrvavah}) has the duration of one and one-half morae (\textit{adhyārdhamātrā}), and the vowel preceding it lasts for only half a mora (\textit{ardhamātrā}) instead of the usual full mora; after a long vowel (\textit{dīrghāt}), anusvāra counts for half a mora and the preceding vowel counts for one and one-half morae instead of the usual two morae.\textsuperscript{108} The Rūktantra simply says that a long anusvāra occurs after a short vowel and a short one after a long vowel. Comparably,

d. PrS 3.2: \textit{dṛ̥ṣṭaḥ} \textit{hrasvāpūrvavah} \textit{vāraḥ} \textit{vāraḥ} \textit{vāraḥ} \textit{vāraḥ} \textit{vāraḥ}.

\textit{Śv} \textit{s s h r} has three varieties (\textit{traividhyam}): after a long vowel, it

\textsuperscript{106}See also the editor’s comment on YŚ 2.41 (p. 106). Uvata too mentions the pronunciation of anusvāra in the manner noted; see 7.2.3f with note 110. The wording of PS 3.1 is noteworthy. The sūtra uses the term \textit{aḍeśaḥ} construed with the genitive \textit{anusvārasya}. The simplest interpretation of this is that \textit{aḍeśa} signifies, as in Pāṇini’s grammar, a replacement. Strictly speaking, then, the segment in question is a replacement for a segment called \textit{anusvāra}, found elsewhere.

\textsuperscript{107}TPrG 1.34 interprets this as saying that anusvāra also has the time duration of \textit{a}: \textit{ḥṛṣṭaḥ} \textit{ḥṛṣṭaḥ} \textit{ṭvāraḥ} \textit{ṭvāraḥ} \textit{ṭvāraḥ} \textit{ṭvāraḥ} \textit{ṭvāraḥ}. The Tribhāṣyaratna, on the other hand, interprets the sūtra as providing that anusvāra also has the class name \textit{hrasva}. It points out that this rule thereby counters what would obtain by TPr. 1.37: \textit{ḥṛṣṭaḥ} \textit{ḥṛṣṭaḥ} \textit{ṭvāraḥ} \textit{ṭvāraḥ} \textit{ṭvāraḥ} \textit{ṭvāraḥ}. Strictly speaking, then, the segment in question is a replacement of the segment called \textit{anusvāra}, found elsewhere.

\textsuperscript{108}On VPr. 4.150, see also note 171. YŚ 2.42 (\textit{vahḥ} \textit{vahḥ} \textit{vahḥ} \textit{vahḥ} \textit{vahḥ}) literally says that anusvāra has the duration of two morae (\textit{dvimatrīkāh}) if a unimoraic sound precedes (\textit{vahḥ} \textit{mātṛīkā pūrve) but has one mora’s duration (\textit{mātṛīkā}) if a bimoraic sound (\textit{dvimatrīkā}) precedes. As Amaranātha Sāstrī shows in his commentary, this can be interpreted to agree with what is said in VPr. 4.149-150, but it is not necessary to go into this issue here. Note that according to Uvata and Ananatābhaṭṭa VPr. 4.150 has to do only with anusvāra that does not precede a consonant cluster.
is short, after a short vowel it is long, and before a cluster it is heavy (guruh).

The Rgvedapartisākhya also notes what some say (āhur eke) concerning the relative duration of segments in sequences of the type \( \text{Vm} \):

e. RPr. 13.32-33: हस्ता सर्वस्य सर्वमात्रामात्रा सर्वस्य सर्वमात्रामात्रा च हस्तोपथम्।

A short vowel (hrasvām) preceding anusvāra (anusvārasayopadhāṃ) is lessened (asamāptām ‘incomplete’) by the duration of half a svarabhakti segment (ardhasvarabhaktya) — that is, by one-fourth of a mora — and the anusvāra increased by that amount (tāvataivādhikam). An anusvāra preceded by a long vowel (dirghapūrvam) is lessened by the same amount (tadānam), one-fourth of a mora.

In the same section, moreover, the Rgvedapartisākhya has a set of rules specifying instances of non-final (anantastham) anusvāra. For example, the first sūtra of this group,
f. RPr. 13.22: नूपसकं यदुपमवति तत्स्वरापिनाकाम।

says that the anusvāra which appears in plural forms (bahvabhidhānajāh) of neuters ending in spirants (napumṣakam yard uṣmāntam), in words with -si, -ṣi (sisyanteṣu padeṣu), of the types avāṃsi ‘aids’, caksuṃsi ‘eyes’ is preceded by a long vowel (dirghapūrvah). After thus specifying instances where a long vowel precedes word-internal anusvāra — and including an exception — the text sums up: this is the extent of anusvāra (etdvan anusvarah) after a long vowel (dirghāt) in \( \text{rcs} \); any word-interior anusvāra other (itarah) than one in the specified environments follows a short vowel (itarathā ‘differently’):
g. RPr. 13.28-29: एतवानुसवारहि दैविनानि। इतानेव:।

The group of rules in question ends by stating that prior rules say what applies to anusvāra that is not final:
h. RPr. 13.36: चन्द्रस्य तत्तमनस्वारागुः।

Now, in his comments on RPr. 13.22 Uvāṭa questions the need for this and subsequent related rules, given that the quantity of the vowels precede anusvāra in the instances concerned is known from the very recitation itself. One of the reasons considered has to do with the pronunciation of a velar segment where anusvāra should occur (see 7.2.2j-m): Some wrongly recite items like havāṃsi ‘oblations’ with -n- instead of the usual anusvāra and with a transitional -k- after -n-: havāṅksi and so on.109 The rules specify that anusvāra follows the vowels in the items concerned, thus excluding such a pronunciation.

109Note in passing that the Sārvasvatavyākaraṇa of Anubhūtisvarūpa (13th-14th c.) has a rule (SĀV I.153.46: ब्राह्मणोऽपि पुरुषं क्रमं च पुंसा) providing for the stem pums- to receive the augment k before the locative plural ending su: pumksu instead of pumsa ‘men’. Candrakīrtī’s commentary says that asambhave refers to Vedic usage. In the present discussion it is not necessary to enter into further details concerning this rule and its interpretation.
Uvāṭa realizes brings up an objection to this explanation. Those who pronounce -nk- do so also in items where word-final anusvāra precedes a spirant. For example, the accusative singular tvām ‘thee’ can be followed by h-, as in RV 1.63.6a (त्वं ह…) ‘Thee, truly …’). Therefore, if the purpose were to exclude such a pronunciation, an effort would have to be made to take care of these instances also. This objection is met by saying that RPr. 4.15 (see 3.2.1b) provides by rule where word-final anusvāra occurs but no comparable provision is made for word-internal anusvāra. But this too is found insufficient. Those who pronounce havānśi and so on with -nk- also pronounce items like viṁśatī ‘twenty’ (instr. sg.), aṁsesu ‘shoulders’ (loc. pl.) with -nk-, so why specify the contexts with long vowels? The answer to this objection is that the -n- pronounced instead of anusvāra is more clearly perceptible in forms with long vowels. Uvāṭa also finds this reasoning insufficient, since he goes on to note an answer offered by others. Some reciters recite forms like viṁśatī, aṁsesu lengthening the vowel that precedes anusvāra. To exclude such improper recitation of the rś in question, the Rgvedaprātiśākhya specifies just where word-internal anusvāra is preceded by a long vowel.110 Whatever interpretation one find preferable, one thing is clear: Uvāṭa knew of reciters of the Rgveda who realized word-internal anusvāra as -nk- after long vowels.

7.2.4 The variation in duration that pertains to each component of a complex consisting of a vowel followed by anusvāra has a parallel in the diphthongs ai and au. As long vowels, these have the value of two morae. According to

a. VPr. 1.73: ऐकर्तीकारयो: करावद्धा पूर्वां मात्रा ताल्लोद्धोरत्तरा।

the first (पुर्वा ‘prior’) mora of ai and au is a kaṇṭhya element — that is, a — and the second mora is produced at the palate for ai, at the lips for au.111 In other words, each component of the diphthongs has the same time duration as the other. On the other hand,

b. TPr. 2.26, 28-29: ब्रकारस्यमकर्तीकारयोगदिद। ईकरोऽध्ययः पूर्वस्यः उकरास्यस्यः।

110RPrU 13.22: क्रिष्णचन्द्रनुवासर्य दीप्यपूर्वस्य पदमये तत्त्वायाम्य बहुभि: शरीरेणलंकार्यं निधित्वते र्नत्वा नावत्सिद्दधुर्यं। सत्यम्। किंतु दुरालमनिर्वचनस्य शिष्मपालमथेवय: वर्तमानां तर्कलं कियते। ... कथा पुन्तुप्रतान्तप्रस्थ:।

111Given that the second half of the diphthongs has the value of one mora only, it would make immediate sense to say that the composition is then ai- and au-. However, both Uvāṭa and Anantabhaṭṭa say the second half is e and o. Their view may well be based on phonological considerations, but this detail need not concern us here.
say that the first part of ai and au consists of half an a (akārārdham) and the second part of one and one-half i and u respectively. That is, the two morae of these diphthongs are now distributed differently: half a mora of a-vowel followed by one and one-half morae of i and u. This composition was known to Katyāyana, who explicitly mentions the view that the second part of ai and au takes a greater part of the vowels.112

The Rgvedaprātiśākhya also deals with the composition of the vowels called sandhyaksara, namely e o ai au. Concerning the last two (pare) in particular,

c. RPr. 13.41: हस्ताक्षर्यस्यावस्थनतितिप्रवर्तिते ।
says that their composition is like that of a short vowel followed by anusvāra. That is, as a short vowel followed by anusvāra is abbreviated by one-fourth of a mora and the anusvāra following it is increased by an equivalent amount (RPr. 13.32 [7.2.3e]), the i and u constituents of ai and au take up a greater part of these diphthongs than does the first constituent a-segment.113

7.2.5 The tendency to give anusvāra the greater part of the duration in a sequence where it follows a short vowel can also be linked to a tendency noted in the Rgvedaprātiśākhya’s chapter concerning faults of pronunciation that are to be avoided in reciting the Rgveda. According to

a. RPr. 14.51: रक्तम ह्रस्वानुसारं रूपः ।
some lengthen (drāghayanti) a short nasalized vowel (raktam hrasvam), as in ugram okah ‘mighty (Indra, make) an abode’ (RV 7.25.4cd: विभिन्नतानि तत्त्वोपयुक्ताः उर्द्धं त्र्यंकग: कृतत्वं हरिपुरं न तन्भविः ।). Instead of reciting ugram with a short nasalized -a (am), some commit the fault of lengthening such a vowel. Comparably, the nasal segment anusvāra in a sequence like am is given greater duration than would normally pertain to an ordinary consonant.

There is additional evidence that in some dialects a nasalized vowel was lengthened. This is linked to another feature, the relative nasality of segments according to various authorities, as dealt with in

b. TPr. 17.1-5: तीस्रोपमानुसाराद्याद्यस्यात्मेष्यति तत्वायसः । समावेशितं कौशल्यमुः । चनुर्वारे दिष्टिन्ति भार्त्रायः । नक्करस्य रेन्द्रस्यकर्मकार्यवार्तपुमुः च मलोपाठौद्धारस्यन्तन्तरमिति स्थविरः कौशिक्य: ।

According to Śaityāyana, the nasality (ānunāṣikyam) in anusvāra and nasal stops

1121.1.48 vt. 4: ऐशाकोशिक्यधिष्ठाय । See Cardona 1983a: 27-28. In their commentaries on VPr. 1.73, Uvaṭa and Anantabhaṭṭa also remark that some say only half a mora in ai and au is made up of a: प्रकारस्यार्थायः । प्रकारस्यप्राध्यायामार्थायः एकर्त् । प्रकारस्यप्राध्यायामार्थायः ब्रह्मत्तकमिति तत्त्वायः । (VPrU 1.73); similarly VPrA 1.73.

113Thus RPrU 13.41: । किन्तु भविति । यथा तत्त्वालयः पादमायानिको उपाधया च तत्त्वं मुन्या एवेनिहारं इति श्रन्यय। ।
।
Developments of Nasals in Early Indo-Aryan: Anunasika and Anusvara

(anusvārottamesu) is more intense (rīvrataram) than in other nasal segments, that is, in nasalized vowels; but according to the son of Kauhali, nasality is the same everywhere (samaṁ sarvartra). Bhāradvāja, on the other hand, maintains that the nasality in anusvāra is very slight (aṁu). In addition, the elder Kauṇḍinya says that there is a gradation of nasality in the following circumstances: when -n is converted to -r, to a spirant, to -y or is dropped, and when -m is dropped. A vowel that precedes an -n or -m subject to these changes is nasalized (TPr. 15.1 [3.4.2.1g]). The nasality of the vowel for each successive instance is more intense than for the preceding (uttarottaran rīvrataram). Thus the nasality of the nasalized vowels of agnōṁr apusuṣadaḥ, ahīṁś ca, mahāṁy indraḥ, mahāṁ indraḥ, and pratyasṭaṁ rakṣaḥ is relative: most intense in the last example, relatively less intense in the next-to-the-last, and so on. Moreover, according to the elder Kauṇḍinya, in such instances, where a vowel is nasalized, it has an additional duration (kālaś ca svarasyātrādhikah) equivalent to the duration of a consonant (vyanjanakalah), that is, of half a mora. In the elder Kauṇḍinya’s recitation, then, the nasalized vowels of the examples shown have the duration of two and a half morae and not of two morae, which is the norm for long vowels.

7.3 The evidence of prātiśākhyaṣ and śikṣās thus leads to the following conclusions.

a. Anusvāra is a nasal (nāsikya) segment (7.2.2a-c) which could be without a fixed oral place of production. Anusvāra could then have the oral place of production of a following spirant or r-, and also be a voiceless spirant (4.1.2b, 7.1, 7.2.1). In addition, it could be produced at the place proper to the vowel which it follows. It is then a nasalized continuation of a clear vowel. Further, the nasal segment before spirants and r- could be lowered and backed to the point where it is articulated as a velar element accompanied by nasality (guṁ, ůn: 7.2.2d-k, 7.2.3f, note 110). These are varieties accounted for in different traditions, and alternatives are attributed to several authorities. Accordingly, it is plausible to view them as dialectal outcomes in early Indo-Aryan.

b. Just as the phonetic realizations of anusvāra differ dialectally, so does the distribution of time duration between constituents of vowel-anusvāra sequences (7.2.3). This is paralleled by differences in the duration of components in the diphthongs ai and au (7.2.5).

7.4 As noted in 7.2.3, a complex of the type -am, such that anusvāra follows a short vowel, has a longer duration than a simple short vowel. From what is said in RPr. 14.51 (7.2.5a), moreover, one must conclude that a nasalized short vowel remained short, although in some recitations it was lengthened. This has import for metrics.

7.4.1 To begin, let me refer to two well known verses that set forth how light (laghu) and
heavy (guru) syllables are constituted:

a. तीर्म संयोगस्य तव प्रसूत स्यात्मस्यमुपन्नम्। सानुस्वर्य गुरू स्यामर्थ्येवस्य स्यात्मस्यम्।

b. VR 1.9: सानुस्वरो विसर्गयो दीर्घी युक्तपद्यं। वा पादाने त्वस्री ग्वारो उपेयोऽयो भास्को लूकः।

According b, a short vowel accompanied by anusvāra or followed by visarga, a short vowel followed by a consonant cluster, as well as a long vowel are guru, and a short vowel is optionally guru if it occurs at the end of a verse section. A vowel of one mora occurring in other contexts is laghu. Guru and laghu syllables are respectively symbolized by $s$ (vakra) and $l$ (rju). The first verse deals explicitly only with guru syllables, which are said to be: a long vowel, a vowel followed by a cluster, an extra-long vowel, one that is followed by a final consonant before pause or by a spirant — i.e., $-h, k, p$ — or accompanied by anusvāra; a vowel that qualifies a guru is also sometimes laghu in absolute final position.

In Prākṛta metres also the same situation holds in general. For example, Prākṛtapaingalam 1.2 (Vyas 1959:2) states that a long vowel ($dīho$), a vowel followed by a consonant cluster ($samjuttaparo$), one combined with a bindu ($bindujuo$) — that is, one with anusvāra, symbolized by a bindu — as well as a vowel that is put at the end of a verse section ($pādio a caranamte$) is guru ($sa gurū$), symbolized by $s$ (vanka) and has the value of two morae ($dumatto$); any other ($anno$) vowel is laghu ($lahu hoi$) and has the value of one mora ($ekkaalo$):

c. दीर्घो संयुक्तस्य विनुस्तुष्य राढ्यों या चार्यों। स गुरू श्वस्त्र्य ज्ञयों हो हुष्ठकं एककाल्यो।

Note that, although a syllable containing vowel with anusvāra counts as heavy, nasalization of a vowel does not of itself result in a syllable's being heavy. As has long been recognized by modern scholars (e.g., Pischel/Jhā 136 [§ 179]), bindu makes position but '... ardhacandra never makes position.'

7.4.2 The same holds also in general for Vedic. Consider first

a. VPr. 4.109: संयोगविपर्ययः सन्तानस्यासनात्। खर्का हिमाखल:।

According to this, vowels which precede a consonant cluster ($samyogapūrva$), which precede a final consonant ($yvaṁjanānta$), and which occur in absolute final position ($avasāna$) have the time duration of two morae ($dvimātrāḥ$). That is, as Uvāṭa and Anantabhaṭṭa note, such vowels are heavy ($guravah$) though not phonologically long vowels ($dīrghāḥ$).
Other prātiśākhyaśas have rules which directly concern light and heavy syllables. According to

b. ṚPr. 1.20-21: गुरुः दीर्घाः | लक्षेता रसोऽनुस्वाराः | श्रवणोऽनुस्वाराः |

c. ṚPr. 18.38-39: लघु देश्य न च वे न्योऽनुस्वारः | अनुस्वारः |

long vowels are called guru (‘heavy’), as are those among other vowels (itareśām) that are followed by a consonant cluster or anusvāra (samyogānusvārparāṇī). A short vowel (hrasvam) counts as light (laghu) unless (na cet) neither a consonant cluster or anusvāra follows (samyoga uttaraḥ anusvāraḥ ca). Similarly,

d. TPr. 22.14-15: यद्यपि ज्ञाते यदु चापि होऽनुस्वार महोऽनुस्वार | अनुस्वारः |

announce what kinds of units count as heavy (guru) and light (laghu), as follows: A syllable with a long vowel (dīrgham), one that ends with a final consonant (vyanjanantam), one in which a vowel occurs before a consonant cluster (samyogapurvam), and one with anusvāra (anunasikam) is heavy. The remainder are light, and this remainder consists of any syllable that does not end with a consonant (avyaṅjanantam), contains a short vowel (hrasvam) not followed by a consonant cluster (asamyog-aparam) or one that is not accompanied by anusvāra (anuvāraḥ) or a following consonant cluster (asamyuktam).16

7.4.3 That anusvāra serves to make position in Vedic metres can easily be illustrated. It will suffice to consider a few examples from the Rgveda:

a. RV 2.7.1c: गैयत्री | नृत्यम् | (Gāyatrī, cadence: • v :sprham rayim) |
b. RV 3.12.1a: हृदयान्तां गतं सुन्दरम् | (Gāyatrī: ... gataḥ sutam) |
c. RV 2.39.7b: स्तव्वत्तम | (Triśṭubh, cadence: • -tam rajāmśi) |
d. RV 2.39.7d: स्तव्वत्तम | (... saḥ śiśītām) |
e. RV 2.2.3d: स्तव्वत्तम | (Jagatī, cadence: • -sam praśamśi) |

The converse — that a short nasalized vowel retains the metrical value of an unnasalized short vowel — cannot be demonstrated directly for the traditions represented in the Rgvedaprātiśākhya and the Taittirīyaprātiśākhya. For phonological nasalization applies generally to long vowels, and, where one has optional nasalization of short vowels, it is in prepause position, where a syllable is anacrusis. Thus, according to

16Since TPr. 22.15 has anuvāraḥ, the antithesis of this in the preceding verse TPr. 22.14, designated by anunasikam, must be a vowel accompanied by anusvāra. Recall that anusvāra and nasal stops are both nasal elements, named anunasika (TPr. 2.30 [7.2.2g]). In his comments on TPr. 22.14, Whitney says (1868: 401), “The use of the word anunasika in describing a syllable containing anusvāra is (as already noted under ii.30) one more sign of a theory which regards the anusvāra as a quality and not an element.” As has been shown earlier in my discussion (4-6), however, this claim cannot be maintained. Moreover, as Whitney also remarks in his comments on this rule, the metre of the verse would be more appropriate with tathāanusvāraḥ instead of tathāanusikam.
teachers say (acāryā āhuḥ) that the first eight vowels (aṭṭāv ādyān svārān) of the Rgvedapratisākhya catalog — that is, a ā r ī i ī u ā — are nasalized (anunasikān) if they are not pragṛhya elements, when they occur before pause (avasāne). In a comparable manner, in

h. A 8.4.57: ब्रजोऽग्रामस्याध्यात्मकः (वाक्यासि [56])

Pāṇini provides that a vowel a ā i ī u ā (anahā) that is not a pragṛhya element (aprāgrhyasya) is optionally (vā) replaced by a nasalized (anunasikān) counterpart, if it occurs before pause. Similarly,

i. TPr. 15.6.: अप्राग्रहाः समानावर्गयुनासिकान्येक्वात्प्रक" (3) says that according to some (ekesam) non-pragṛha simple vowels (samānāksarāni)\footnote{TPr. 1.2 (चत्वारितस्मानास्वरवर्गः 1) provides that the first nine items of its sound lists — namely a ā ā ā ā ā ā ā ā ā ā ā ā — bear the class name samānāksara.} are nasalized.

Nevertheless, recall that RPr. 14.51 (7.2.5a) notes as a fault the lengthening of such final nasal vowels and that TPr. 17.5 (7.2.5b) records the lengthening of word-final nasalized vowels only as something found in the tradition sanctioned by the elder Kaunḍinya. Moreover, there is one pratiṣākhya which explicitly says that a nasalized vowel (anunasikā) in the interior of a word (antahpaḍe) belongs to the class of vowels termed hrasva (‘short vowels’):

j. ŚCā 1.83 [1.3.21]: अनुनासिकोऽन्यं पद्दे हस्यः

Subsequent rules go on to list the categories where word-interior long nasal vowels occur; for example,

k. ŚCā 1.84 [1.3.22]: दौरते पञ्चसमक्षुचने

states that the nasal vowel in a neuter plural form (napūṁsakabahuvacane) — of the type havīṃśi corresponding to havīṃśi / havīṃśi of other traditions — belongs to the category of long (dārgaḥ) vowels. Consequently, j concerns only underlying short vowels. In other words, in the tradition represented by the Śaunakīyā Caturādhyāyikā, nasalization of a vowel does not entail its lengthening.

7.4.4 This is of interest in view of some metrical facts. The same pratiṣākhya also has rules that correspond to those considered in 7.4.2:

a. ŚCā 1.51-54 [1.2.11-14]): हर्सम् लक्षसंगोऽम। गृह्न्यूत। अनुनासिकं पदते च।

A short vowel (hrasvam) is called laghu (‘light’) provided it is not followed by a consonant cluster (asamayo); any other (anyat) vowel is called guru (‘heavy’). Moreover, a nasalized vowel (anunasikam) also is called guru, as is a vowel in word-
final (padānte) position.\textsuperscript{118} That is, the nasalized vowel of \textit{aṁhasaḥ} ‘danger’ (abl. sg.) is phonologically a short vowel but metrically the first syllable of this item counts as heavy. This is required, as in

\textbf{b. AV 2.4.3cd:}

The third pāda of this verse has a cadence \textasciitilde\textasciitilde\textasciitilde, as expected; the last pāda too has this cadence once \textit{pātv} is resolved to \textit{pātvu}, provided also that \textit{aṁhasaḥ} begins with a heavy syllable.\textsuperscript{119}

In a tradition where anusvāra is found, \textit{am-} of \textit{aṁhasaḥ} counts for two morae and the syllable is heavy. But the nasalized vowel of \textit{aṁhasaḥ} in the tradition represented by the Śaunakīyā Caturādhyāyikā is short and counts for one mora only. This apparent conflict is resolved once we make a fairly straightforward historical assumption, as follows. The Śaunakīya Atharvaveda saṁhitā as originally transmitted was like other Vedic saṁhitās in that it had anusvāra before \textit{r} and voiceless spirants. Accordingly, syllables of the type found in \textit{aṁhasaḥ} counted as metrically heavy. In a particular dialect area, however, a sequence of the type \textit{-am} developed to a nasalized vowel before \textit{r} and voiceless spirants, without vowel lengthening. Recitors representing this dialect transmitted the Atharvaveda saṁhitā as accounted for in the Śaunakīyā Caturādhyāyikā.

8 In view of the data discussed, I think it is possible to set forth a plausible set of historical developments for nasals in early Indo-Aryan which would account for the distribution of anusvāra and nasalized vowels, as follows.

8.1 Word-final \textit{-Vm} was subject to several dialectal outcomes based on transitional differences of timing in the onset of nasality in assimilatory processes.

\textbf{a.} There is onset of nasality with anticipation of the place of production of the following consonant. Accordingly, there is full assimilation of \textit{-m} to following stops, semivowels, and spirants: \textit{-Vm k-} \rightarrow \textit{-Vm k-} and so on; \textit{-Vm y-} \rightarrow \textit{-Vm m-} and so on; \textit{-Vm ű-} \rightarrow \textit{-Vm ū-} and so on, where \textit{m} symbolizes a voiceless spirant with nasality, referred to as anusvāra.

\textsuperscript{118}This can apply to pre-pause word-final vowels, as Deshpande remarks (1997: 190). In some modern recitations too, final short vowels are lengthened. I have recorded this practice also for the Āṣṭādhyāyī as recited by a Maharashtrian scholar.

\textsuperscript{119}The extreme irregularity of metrical schemes in the Atharvaveda has been remarked upon often by modern scholars, so that no comment concerning this is called for here. I nevertheless think it appropriate to note, albeit in a tentative manner, that assuming an original \textit{Vvm}, with a nasalized vowel segment of the same color as a preceding vowel, can restore metrical regularity in certain instances. For example, consider AV 1.24.2cd: \textit{व्रम्भवहितो सतपातपायनसः} Elsewhere the final \textit{-am} of \textit{kīласaḥ} would have the value of two morae (see 7.2.3c-e). Assuming either the well known distention of a long vowel to two syllables — of the type \textit{-am = -aam} — or a pronunciation such that the nasalized segment representing the realization of anusvāra is given separate status, the third pāda of AV 1.24.2 then has eight syllables, as does the last pāda. The same can be said of some other examples (e.g., AV 2.6.5d). I emphasize, however, that this is tentative.
b. -m loses its occlusion, and nasality sets in as a property in the continuation of a preceding vowel, which begins as a clear vowel: \(-Vm \rightarrow V\nu m\), where \(\nu m\) symbolizes a nasal segment that has the place of production of the preceding vowel. This segment too is referred to as anuvāra.

c. The nasal segment in \(-V\nu m\) before spirants and \(r\) is lowered and backed to the point where it acquires occlusion, resulting in a velar articulation, either with an accompanying nasal vowel \((-Vg\nu m\) or with a transitional voiceless velar before spirants \((-V\nu k\)). This segment, which replaces anuvāra (see 7.2.2m with note 105), also is referred to as anuvāra.

d. -m loses its occlusion, and anticipatory nasality sets in with the beginning of the preceding vowel, so that the outcome is a fully nasalized vowel. Such a vowel is referred to by the term anunāsika.

8.2 Word-final \(-Vn\)s was subject to comparable developments, yielding sequences of the types \(-V\nu s\) before voiceless consonants and \(-V\nu r\) before voiced segments, both alternating with complexes in which an anuvāra followed the vowel. It is common knowledge that the type ahiṃs ca represents a development involving an inherited -ns. It is equally clear, moreover, that a reanalysis took place quite early, so that sequences \(-V\nu s\) and so on were treated synchronically as derived from complexes with word-final -n. Consequently, one could have tasmiṃs tvā already in Vedic (see 3.4.2.2f), involving a form — the locative singular tasmin — which etymologically did not have an -s. The rules of the Aṣṭādhyāyī and prātisākhyaśtras, which start with \(-Vn\) and let -n go to \(-r\) and so forth (see 3.1.1d-e), are thus synchronically appropriate.

8.3 The same alternation between vowels followed by anuvāra and nasalized vowels is found in forms of the type havīṃṣi: havīṃṣi, havīṃṣi, havīṃṣi. See 3.3.1a (ŚC Ā 2.33), 3.4.1.3b (VPr. 4.5).

8.4 The development noted in 8.1c is vouched for by prātisākhya statements and statements of commentators (see 7.3a). The type \(-V\nu k\)- associated with anuvāra reflects a wide-spread transitional phenomenon attested to in early Indo-Aryan by Pāṇinī and authors of prātisākhyaśtras. The following rules have to do with such transitions:

a. A 8.3.28-31: ढ़ोः कुष्टुकारिणि (वा [26]) । ड़ः सि प्रोः । नशः । गिर तुसः।

TPr. 5.32-33: कपुर्वः कवासतन्त्रकारपणः । टक्कारर्युवभ तकारः ।

ŚC Ā 2.8-9 [2.1.8-9]: टकिरतस्य सरसरियः । इवधनेन्न्याः कपरे: शपस्योः।

The Pāṇinīan sūtras (see Cardona 1997: 560) provide for certain sounds optionally (vā) to occur as final and initial augments to word-final and word-initial segments: \(-n\) -ṇ (न्नोह)
Developments of Nasals in Early Indo-Aryan: Anunasika and Anusvara respectively receive the augments -k -t (kuk tuk) if any voiceless spirant follows (sari); after -d (dah), s- gets the initial augment dh (dhuft) — which is subsequently replaced by t — and this applies to s- also after -n (naś ca), which is augmented with -t (tuk) if ś-follows. The prātiśākhya rules are textually more restricted in their scope. TPr. 5.32-33 provides that k (kakārah) occurs as a transitional augment preceded by -n (napūrvah) and followed by s- or s- (saśakāraparāh), with which t (takārah) occurs as an augment preceded by -t or -n (tanakārapūrvah). The Śaunakīyā Caturādhyāyikā rules provide that in a sequence -t s- the two consonants are separated by t (takārena) and that -n, -t, and -n respectively are separated by k t t (kaṭataih) from following ś ś s. For example: san sadṛṇa → santsadṛṇa ‘being ... similar’, sadṛṇ samānaih ‘similar to equals’ → sadṛṇksamanaih;120 pṛtanāṣāt suvivārah ‘victorious over armies in battle, accompanied by good heroes’ → pṛtanāṣāṭtsuvivārah.121

b. RPr. 4.16-17: *-1,--1),=41,,-1,-i)s---------a~Itl I za-)R-irnrtqlc1: *f*I-r.rlt--ciarw-I , I provide for comparable transitions, but specify that some (eke) say (aḥuh) these apply: k (kakaram) between (antara) contiguous sounds when -n occurs (nakare) followed by a voiceless spirant (aghoṣosmapare); t occurs when -t -n (takaranakarayoh) are followed by s- (sakarodayoh).

Further,

c. VPr. 4.15-16: s,-I'lr,Ii<r(--u1t~1----------I provide that -n and n (tnau) are respectively separated by k and t (ktāhyām) from a following s- (saṅkare), and that this does not (na) apply according to Dālbhya.

Such dialectal transitional features are of interest in connection with anusvāra also. There is some evidence, albeit tenuous, for another particular realization of anusvāra before spirants and r. The metrical version of the Pāṇiniyāśikṣā as commented on in the Paṇjikā and in Rudraprasāda’s edition has a verse that reads as follows:

b. PŚR 23 (= PŚPa. 17): अत्रासुवीकाशिनियोऽनुमुद्यन: स्वरानम्। ब्रह्मावर्त्मांनेत्र्यमविनिन्धिः। शत्सेषु च।।

This states that anusvāra occurs after vowels (svarān anu) — a quasi-etymological statement — obligatorily (nityam) before h r s s. It also describes how anusvāra sounds: It has the sound of a vīṇā made from the Alābu gourd (alābuvīṇānirghoṣah). Moreover, the passage gives an oral place of production for this anusvāra. As shown, this version has dantamulyaḥ ‘located at the roots of the teeth’. Commentators also explicitly

120TS 2.2.8.6: योगाः द्वियें सस्सुमह, कर्मभूष्य्यान्तत्वम् ‘... (for one) who is worthy of great wealth yet is on a par with his equals.’
121AV 11.1.2ed: ब्रह्मावर्त्मांप्रत्येकात्सुविनेय चेत देवता बरस्थिन दस्यूं।। ‘This is Agni the one who overcomes in battle, who has great heroes, with whom the gods prevailed over the Dasyus.’
mention and explain this in their comments. On the other hand, in his reconstructed text Ghosh (1938: 3, verse 15) reads and translates (1938: 68): ‘The anusvara after the vowels not pronounced at the root of the teeth, should be made sonorous like the sound of an alābu-vīnā, but when it stands before h, ś, s and s this pronunciation is compulsory.’ Since there are no vowels said to be pronounced at the root of the teeth and the text has a nominative singular instead of an accusative plural, this interpretation is suspect and dantamūlyah accepted by commentators is to be preferred. Nor is it difficult to understand that, at least before r and spirants other than h, anusvāra could be realized with the tongue tip near the lower teeth.

As was shown quite some time ago (Varma 1929: 152), there is also inscriptional evidence for both the velar and dental reflexes of anusvāra, as in vanśe‘lineage’ (loc. sg. vanśe), vanśalakṣmīm ‘splendor of the lineage’; abhrānsi ‘clouds’ (abhrāmsi), yaśānsi ‘renowns’ (yaśāmsi). Varma also noted (1929: 53) contrasts such as the one between the Hindi and Panjabi words for ‘bamboo’: H bās (बास): P vaṇjh. The former has a long nasal vowel, the latter a short vowel followed by a nasal consonant. Moreover, as Bloch noted (Bloch/Master 1965: 91 [88]), the development seen in Panjabi vaṇjh and Sindhi vaṇjhū is to be accounted for on the assumption that a transitional -t- was used.

8.5 In sum, the single term anusvāra was used in by early authors on Sanskrit grammar, phonology and phonetics to refer to dialectally diverse outcomes of complexes with m and n.

9 The reanalysis that allowed for innovations such as tasmīṁs tvā (see 8.2) requires that speakers have treated items of the type ahīṁś in ahīṁś ca as contextual variants related to forms of the type ahīn, with -n due to final cluster reduction, forms which occur before pause. That is, word boundaries come into play. Word boundaries play a role in the alternation between -m and nasalized segments homogeneous with following semivowels and stops (see 3.1.1b). Given that the full assimilation of -m to a following stop applies for early Vedic in general, it is reasonable to assume that the alternative occurrence of word-final -m before stops is an innovation. This is comparable to what occurred in retroflexion. At an early stage, the retroflexion of s to ś after i ĭ u ū r e o r and velars applied to word-final -s as well as others. In the spoken language Pāṇini describes, on
the other hand, this retroflexion regularly applies to s which is not word-final. One also has variation of the type -Vmy y- / -Vym y- across word boundaries in Vedic (see 3.4.2.3), even in dialects where the full assimilation of -m to following stops is the norm.

If the different outcomes reflect various timings in the onset of nasality and also reflect transitional phenomena, it is reasonable to bring into consideration other aspects of transition, namely consonantal doubling and the transition from one tonal unit to another.

9.1 Prātiśākhyas and the Aṣṭādhyaīyī have rules which provide for sequences of the type VCCV instead of VCV. The descriptions account for such sequences by doubling consonants and introducing augments.

9.1.1 It will be simplest to start with Pāṇini’s rules:

a. A 8.4.46-52: व्रो राख्ममदक्षे (ये वा [45]) वरन्धि च वानिद्याङ्क्यानुप्रयवे शरू पद्धि। विंध्मनि

The first two sūtras provide for optionally (vā) replacing with two (dve) a consonant other than h (yarah). This doubling applies to a consonant which follows r or h (rahābhyaṁ) preceded by a vowel (acah) or which directly follows a vowel and precedes a sound other than a vowel (anaci). For example: arkah → arkah ‘ray, sun’, brahmā → brahmā ‘Brahman’, apa hmute → apa hmute ‘denies’, putrādinī → putrādinī ‘one who eats her child’, adya → addya ‘today’, dadhy atra → dadhdhy atra → daddhy atra ‘there is yogurt here’. The next sūtra concerns a particular term in a specific collocation under a special meaning condition: doubling does (na) apply to putra before ādin if censure is understood to be conveyed (ākroṣe): putrādinī tvam asi ‘You’re a child-eater!’ The next rule disallows consonant doubling in a particular phonological context. This does not apply to a voiceless spirant (śarah) followed by a vowel (aci); e.g., varsatī ‘It is raining’, where the -s- which follows -ar- is not subject to doubling. The last three sūtras of the set also provide that doubling does not apply, but now according to certain authorities. For Śākatāyana (śākatāyanasya), doubling does not apply in clusters of three or more consonants (triprabhyāts); e.g., indraḥ ‘Indra’, ustrah ‘camel’, in which cluster-initial -n- and -s- are not doubled. Śākalya (śākalyasya), on the other hand, disallows doubling under any circumstances (sarvatra ‘everywhere’). And according to some teachers (ācāryānāṁ), doubling fails to apply after a long vowel (dīrghat); e.g., dātṛam ‘sickle’, sūtram ‘thread’.

125A 8.3.55: व्रो राख्ममदक्षे (ये वा [45]) वरन्धि च वानिद्याङ्क्यानुप्रयवे शरू पद्धि। विंध्मनि

126By A 8.4.53: a consonant other than a semivowel or nasal (jhalām) is replaced by a voiced unaspirated stop (jas) if it occurs before a voiced stop (jhasī).
There are also contexts in which cch occurs instead of ch. Pāṇini accounts for these by introducing the final augment tuk to a vowel preceding ch under stated conditions, the t of tch then being replaced by c (see Cardona 1997: 536):

b. A 6.1.73-76: तृ (हस्तस्मय तुक) [71] । भ्राह्माभिश । दीर्घान्त । पदानाद्य ।

A short vowel (hrasvasya) is augmented with tuk before ch (che). This augmenting applies also to a long vowel (dirghāt), but only optionally (vā) if the vowel is word-final (padāntāt). On the other hand, ā of the particle ān and the negative particle mān receives the augment obligatorily before word-initial ch-. For example: gacchati (← gatčh-a-ti) ‘is going, goes’, icchati (← ich-a-ti) ‘wishes, desires’, hṛicchati ‘is ashamed’, kuśchāya / kuśicchāya ‘shade of a hut’, ācchādayati (← ā chādayati) ‘covers’, mācchaisīt (← mā chaisīt) ‘may he not cut off’.

As shown in the examples given, these rules apply both across word boundaries and within words. There are also transitional phenomena that appear only across word boundaries (see 8.4a). The following sūtra concerns sequences in which word-final -n, -n, and -n preceded by a short vowel (hrasvāt) occur before a word-initial vowel (aci).

c. A 8.3.32: दोद्वादात्म व्रम्मिनति (पदस्य [8.1.16])

n-, n-, and n- are then added as initial augments (namu) to the word-initial vowel. For example: pratyān āste → pratyānānāste ‘... is seated facing west’, kurvan avocat → kurvannavocat ‘... spoke while doing something’.

9.1.2 Among prātiśākhyaas, the Taittirīyaprātiśākhya contains the most detailed statements regarding such doubling, so that I begin with sūtras from this work.

9.1.2.1 The following provide that a consonant (vyājnam) is doubled (dvivarnam [sc. āpadyate] ‘[becomes] two sounds’) under stated conditions.

a. TPr. 14.1-4: स्वरपूर्व व्रेंवनसिंह भ्रांत भ्रांत । लवकारायणस्वर्ण भीष्टाष्ट्रे । स्वराः एवेकारायणाः ।

Two types of doubling are allowed for: (1) VC,C2 → VC,C,C2, (2) VC,C2 → VC,C2C2. TPr. 14.1 gives the most general condition, providing for (1): a consonant preceded by a vowel (svarapūrvam) and followed by another consonant (vyājnamaram); e.g., iše tvā → iṣetvā (‘you for nourishment’),127 uru prathasva → urupprathassva (‘spread wide’).128

The next three rules provide for (2). By TPr. 14.4, a consonant undergoes doubling after -r preceded by a vowel; e.g., ūrminīth madhumattamāḥ → ūrmminīrmmadhu-mattamāḥ

127TS 1.1.1.1: उसे स्त्वार्थम् ‘(I cut) you for nourishment, you for strength.’

128TS 1.1.8.1: ... द्वि पुष्कस्तिः न ह स्वर्णसिद्ध्वर्णसिंह भ्रांततः ‘Spread wide, (you puroḍāsa cake,) may your ritual master be wide spread.’
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(`full of flow, most sweet'). TPr. 14.2-3 concern sequences in which a stop (sparsāḥ) is preceded by l or v (lavakārapūrvavah) that follows a vowel. According to Pauṣkarasāḍi, both the stop and the preceding l or v are subject to doubling; according to some teachers (ekesām acāryānām), on the other hand, only the stop (sparsa eva) undergoes doubling under these conditions; e.g., kalpān juhoti → kalppāṇjuhoti / kalppāṇjuhoti (`offers with kalpa mantras'), vibhūdāvne → vibhūdāvsvne / vibhūdāsvne (`who grants power').

According to some teachers, however, one says only kalppāṇ juhoti and vibhūdāsvne.

As shown above (a with note 126), in Pāṇini’s system, doubling applies to give dadhdhy, then the first of the contiguous aspirates is replaced by an unaspirated stop. Under the procedure adopted in the Taittiriyapratisākhya, similar results are accounted for in a different manner. Instead of providing for an aspirated stop to be doubled, the corresponding unaspirated stop is introduced before the aspirate.

b. TPr. 14.5-7: द्वितीयचतुर्थोत्तरत्म्यजनोत्तराध्यायं: पूर्वः | रक्षपूर्वोपपरस्तियम् | लक्ष्याक्रमः च।

concern such consonants. TPr. 14.5 provides that second and fourth stops (dvitiya-caṭūrtvarah) — that is, voiceless and voiced aspirates — followed by a consonant (vyaḥjanottaravah) receive as an augment the stop which precedes them (pūrvah) in their series; e.g., akhyat → akkhyat (`looked'), manasa dhīyati → manasāddhyāyati (`considers with the mind'). In addition, aspirates preceded by r (rephāpurvavah) are always (nityam) similarly augmented, whether or not a consonant follows the aspirate; e.g., mūrkhā (`foolish, given to angry behavior’) → mūrkhā (TS 7.1.6.2: मूर्ख, ūrdhvah

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129 TS 1.1.3.1: सम्बुध्यायत्मकतयाश्रयोभि्मयामपूर्वमेऽन्नम्: ‘(Waters,) full of truth, of floods, most sweet, blend with (the milk).’

130 Commentators agree that the second option alone is acceptable, rejecting Pauṣkarasāḍi’s way of reciting (इन्तबेद सुगमितं न तृप्तम्युम्म | [TPrS 14.3], नें सुविद्याम् | [TPrG 14.2]), so that the accepted recitation has only kalppāṇ, vibhūdāsvne. They differ, however, in how the understand TPr. 14.2 to provide for the two possible doublings noted. According to Somayārya, ca `and, also’ of TPr. 14.2 serves to indicate that doubling (dvitvam) and being preceded by a stop (sparsāpurvavam), stated in the previous sūtra, also are referred to here: व्याहजनोत्तरत्म्यधातृतः चक्षुः | (TPrS 14.2). Since, moreover, TPr. 14.3 states a restriction using eva ‘only’ and this sūtra is separately formulated, it is understood that the previous rule allows doubling of l and v according to Pauṣkarasāḍi: ब्रजनादशारणेन पुष्ट्यन्तरसारं क वेद्यकारात्मिनान्त्वल्लकारी च। (TPrS 14.3). Gārgya Gopāla, on the other hand, understands that ca is used in TPr. 14.2 so as to allow the doubling not only of a consonant following l or v but also of these semivowels: लक्षारावः परस्याः द्वितीयचतुर्थवेग्यतः। (TPr 14.2G).

131 TS 5.4.8.5: कल्पसिद्धार्थत्वसंसद्धार्थ भगवतः ‘(The Adhvaryu) offers with the kalpa mantra in order to obtain capacity for one who is not capable.’

132 TS 3.5.8.2: ... तथां च कल्पसिद्धार्थे द्वितीयाः ... दुःखीं ‘I offer you to ... Prajāpati ... who grants power.’

133 TS 4.1.2.2: ब्रञ्ज्यंसमाप्तायसागरधितः ‘Agni gazed on (and thus illuminated) one after the other the beginning of the dawns.’

134 TS 2.5.11.5: यात्र अर्थात्वयात्म तद्युत्त्तैं वाङ्गतिः ‘One utters in speech what one thinks of in one’s mind.’
Further, if a voiced aspirate is preceded by \( l \) (\( \text{lakārapūrve} \)), it is augmented similarly; e.g., \( \text{pragalbhah} \rightarrow \text{pragalbbhah} \) (‘adept, capable’).\[135\]

c. TPr. 14.8: \( \text{उष्णप्रायोगित्रिघन्यमयप्रस्तवृत्ति चिकित्सयेन च} \)

provides for augmenting similarly \( ch \) (\( \rightarrow \text{cch} \)), \( kh \) in \( \text{khi} \) (\( \rightarrow \text{kkhi} \)), and \( bh \) in \( \text{bhuja} \) (\( \rightarrow \text{bbhuja} \)) after preverbs and certain other specified items. For example, \( \text{ā chettā} \rightarrow \text{ācchettā} \) (‘cutter’).\[137\]

d. TPr. 14.9: \( \text{प्रथमो बिन्दुप्रक्षिप्तर्म} \)

After a voiceless spirant (\( \text{aghosad usmanah parah} \)) followed by a stop (\( \text{sparśaparāt} \)), an unreleased voiceless unaspirated stop (\( \text{prathamo 'bhinidhānah} \)) with the same place of production (\( \text{mauthānah} \)) as the voiceless stop is introduced. For example, \( \text{yah kāmayeta} \) (‘who should wish ...’) \( \rightarrow \text{yaṅkāayamayeta} \) (e.g., TS 2.1.2.3).\[138\]

There are also rules which disallow (\( \text{na 'not'} \)) consonantal doubling and its equivalent. These are stated under the heading (\( \text{atha 'now'} \)) of
e. TPr. 14.14: \( \text{च न} \)

The following rules come under this heading:
f. TPr. 14.15-16, 23-24: \( \text{चर्चासे च विशेषनीय अनुस्मृतिप्रेषनीयम्} \)

No consonant undergoes doubling or the augmenting equivalent to this if it is followed by a pause (\( \text{avasāne} \)); nor are \( r, h, k, p \) (\( \text{ravisarjanayajihvamulayopadhmanayah} \)) subject to doubling. For example, in the padapātha one has \( ūrk \) followed by a pause; contrary to

\[135\]TS 1.2.14.2: \( \text{कुद्यो भव (Agni,) be erect ...} \)

\[136\]TS 2.5.5.3: ... \( \text{प्रमणोऽस्मात्यजाति 'An adept (son) is born to that (yajamāna).} \)

\[137\]TS 1.1.2.1: \( \text{कर्मणु स्वरप्रभावते} \) (‘Barhis,) may I who cut you not suffer harm.'

\[138\]TPr. 14.9 can also apply to introduce a transitional element in examples like \( \text{grīśme} \) (‘in the hot season’): \( \text{grīśme} \) (e.g., TS 2.1.2.5: \( \text{ग्रिस्मी} \)). As stated in TPr. 14.10 (\( \text{र्थवृत्तम्ये} \), however, according to Plāśi this applies only when a voiceless consonant follows (\( \text{aghose} \)), so that no transitional stop is introduced in \( \text{grīśme} \). Further, TPr. 14.11 (\( \text{उष्णप्रायोगित्रिघन्यमयप्रस्तवृत्ति} \)) informs us, according to Plāśi, a voiceless unaspirated stop is introduced after a voiceless aspirant followed by a nasal stop (\( \text{uttamāt} \)), as in \( \text{aṅātī 'eats'} \) (\( \rightarrow \text{aṅnātī} \)). In addition, TPr. 14.12 (\( \text{यस्माद्विभ्रमस्मार्थम्} \)) provides that a voiceless unaspirated stop followed by a spirant (\( \text{prathama 'üşmaparah} \)) — as in \( \text{tatt savituh} \) ‘that (brilliance) of Savitṛ’ (e.g., TS 1.5.6.4: \( \text{तत्सवित्वम्} \)) — changes to a voiceless aspirated stop (\( \text{dvitiyam} \)); \( \text{tatt savituh} \rightarrow \text{tattt savituh} \). As shown, doubling applies first, then the aspiration. This is explicitly noted in the Vaidikāhārana: \( \text{चः} \) भ्रमानि शरणापुर्वविदिते हितेषु जाते हितोऽविश्वक्तपुष्पिते हितीयदायिते। \) (TPrG 14.12).

Finally, TPr. 14.13 (\( \text{स्वकार्यवर्गस्मार्थम्} \)) takes into account what Bāḍabhikāra observes: the change stated in the preceding sūtra applies only if the stop is followed by a spirant with a different place of production (\( \text{asasthānaparah} \)). According to Bāḍabhikāra, then, the -\( t \) of \( \text{tatt savituh} \) remains unchanged, but the -\( t \) of \( \text{tattt savituh} \) becomes -\( t \). As shown, doubling applies first, then the aspiration. This is explicitly noted in the Vaidikāhārana: \( \text{चः} \) भ्रमानि शरणापुर्वविदिते हितेषु जाते हितोऽविश्वक्तपुष्पिते हितीयदायिते। \) (TPrG 14.12).
TPr. 14.4 (a), the -k of this word is not subject to doubling. In the samhitāpātha, on the other hand, the -k of urk is doubled before ca (‘and’): urkkca.\textsuperscript{139} The r of this and other clusters is also excluded from doubling, as are also the spirants in examples such as the following: manah kseme → manaṅkkseme (‘mind on maintenance’),\textsuperscript{140} yaṅkkāmayaeta (‘who would wish’), yaṅppāppmanā (‘who ... with sin’).\textsuperscript{141} Doubling would otherwise apply by the general rule TPr. 14.1 (a). Recall that in the language Pāññini describes a voiceless spirant is not doubled if a vowel follows (A 8.4.49 [9.1.1a]). This is true also for Vedic, and TPr. 14.16 provides that a spirant (ūṣmā) which is followed by a vowel (svarparah) is not doubled, contrary to what would obtain according to TPr. 14.4 (a). For example, the -n- of pūrṇa-is doubled, but the -s- of dārśa- is not: dārśapūrṇamāsau ‘new and full-moon rites’ (e.g., TS 1.6.7.1: दर्शपूर्णमास्य). TPr. 14.23-24 concern clusters such that the first consonant is followed by one which is either identical to it or of the same stop set (savarṇaṣavargyaparāh). In general, contrary to TPr. 14.1 (a), such a consonant is not doubled, but this exclusion does not (na) apply for a nonnasal stop followed by a nasal. For example, the initial consonant of -tt- is not doubled, as in sayāyattāḥ (see 3.4.2.2a), but the -p- of -pm- is doubled, as in pāppmanā (see above).

The section headed by (e) TPr. 14.14 includes statements which give details about what certain teachers representing recitation traditions disallow in this sphere, among them the following:

\begin{itemize}
  \item g. TPr. 14.17: प्रथमपरश प्राणसिद्धातासाद्योः (क्रम्य [16])
  \item h. TPr. 14.18-21: क्रमाशोधोऽहरोतत्सम रेत्तपश हाकार: | तर्थरक्ष तत्तपिर: | तत्तपिरी यथकारादिः
  \item i. TPr. 14.22: परश
  \item j. TPr. 14.25-28: ब्रह्मेभुमापूर्वायाः | लकारी हंसशकारादि: | स्वर्यस्पर्शिः | पदाठाक्ष क्वावपाः | प्राकृतः
\end{itemize}

\textbf{g} concerns the tradition represented by Plāksi and Plākṣāyaṇa, that is, by members in a family that traces its lineage to Plākṣa. Here a voiceless spirant also (ca) does not double if it is followed by a voiceless unaspirated stop (prathamaparāh); for example: viśpati ‘master of a clan’, aṣṭau ‘eight’, bhṛhaspati ‘Bhraspati’ instead of viśšpati, aṣṭau, bhṛasspati.\textsuperscript{142} Sūtras in \textbf{h} deal with contexts where Hārīta does not observe doubling. For him, doubling does not apply to the following: a voiceless (aghoṣah) spirant (ūṣmā) in any context, h followed by r (rephaparāh), a retroflex stop (javargah) followed by a

\begin{itemize}
  \item 139TS 4.7.4.1: ऊँबर्ते म ... ‘(May) strength (be) mine and ...’
  \item 140TS 5.2.1.7: तस्माद्वध्ययनस्यस्यस्यस्यस्यस्यकोणेन्द्रयायाम् ‘Therefore, the mind of some creatures is on active acquisition, of others on maintaining what has been acquired.’
  \item 141TS 2.3.13.2: वहाका अविन्दितपरस्य वाचकारं कालमयनं गृहति | ‘Varuṇa seizes him who is taken by sin with the noose of Varuṇa.’
  \item 142E.g., TS 2.3.1.3: विभयात्तति, TS 6.4.5.2: भ्रष्टावंधनी, TS 1.2.2.1: ब्रह्मस्फर्तिः हविताः वृद्धाः ‘May Bṛhaspati cause (the worlds) to grow with our oblation.’
\end{itemize}
dental stop (tavargaparaḥ), l and dental stops (latavargau) followed by \( y \) and \( v \)
(yavakārāparau). For example: pusyyati ‘thrives’, aduhran ‘milked’, vid dravinam ‘Vaishyas (your) wealth’, sinīvālyai ‘for Sinīvāli, and ise tvā instead of pusyyati, aduhran, vidddravinam, sinīvāllyai, and isettvā (see note 127). Harīta also disallows doubling of \( v \); e.g., vibhūdāvne (see a). The sūtras in (j) concern the practices of some teachers (ekēsām ācāryāṇām), according to whom doubling does not apply to the following: l followed by \( h, s \) or \( v \) (hasavakārāparah); any stop (sparśah) followed by a stop (sparśaparaḥ); a word-final (padāntah) stop followed by a consonant (vaṁjamaparah), if it remains in its original state (prākṛtah) — that is, if it is not subject to other contextual modification — before that consonant. For example: malhā ‘a female goat with two teats on its neck area’, śatavalha ‘with a hundred sprouting branches’, bilva ‘Bilva tree’ instead of mallha, śatavallasa, billva, ūrka ca instead of ūrkka ca (see note 139), and ādittyān yācīsāmahe ‘we will beg the Ādityas’ instead of ādittyeṇ yācīsāmahe.46

On the other hand, as the language Pāṇini describes does not allow sequences of the type -\( Vn \) -\( Vn \), -\( Vn \) -\( Vn \), in which a word-final \( -n \) or \( -n \) is preceded by short vowel (see

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43E.g., TS 2.1.9.4: Puruṣatā puruṣatā puruṣatā parlitī: ‘He thrives in offspring, in cattle.’ TS 1.7.1.1: Puruṣatā dvīya dvīya dvīya ‘The gods did milk dry the rite.’ TS 1.8.13.1: Hrīmaṇḍapā śūkla jātavati dvaratasmātuḥ sampratasyasāṃ toṣaṃ yuvakakāparahulavatāśravāya ācāryānām, take your stand in the west, among the metres let the jagati help you, let the saptadāśa stoma, the vairūpa sāman, the Maruts as the deity, the Vaishyas (protect your) wealth.’ TS 1.8.8: ... śūkla sūkla sūkla ‘... (puts down) a porridge for Sinīvāli ...’

44Commentators interpret TPr 14.22 disparately. According to Gārgya Gopāla, ca serves to indicate that \( v \) of yavakāra in the preceding rule is referred to, and the rule provides that a sound following (parah) this is not doubled: chaḥsūrī chaḥsūrī chaḥsūrī ‘... (PrG 14.22). Nevertheless, the only example cited is oṣīḥadhāvme (TS 1.6.12.3) ‘to him who gives (water countering) the most burning’, printed with -\( mn \) (PrM). Somayārya, on the other hand, understands that TPr 14.22 denies doubling of \( v \). He also gives two interpretations of the rule. First, ca serves to bring in hārīsāya and \( v \) of yavakāra in the previous sūtra is understood to be referred to by parah, since this is singular; this too does not undergo doubling according to Hārīta: śūkla śūkla śūkla ‘... (PrG 14.22). Alternatively para refers to the second of two consonants which result from doubling. As the Tribhāṣyaratna also notes, however, the doubling thus disallowed would be taken care of by TPr. 14.23 (f). Somayārya gets around this by remarking that TPr. 14.22 states a different opinion, so that 14.23 does not come into play: chaḥsūrī chaḥsūrī chaḥsūrī ‘... (PrS 14.22). This second alternative is the interpretation given by Māhīśeya (g) chaḥsūrī chaḥsūrī chaḥsūrī ‘... (PrM 14.23)), who, however, reads i after e. I can say no more.

45E.g., TS 1.8.19: adhīṣṭhām adhīṣṭhām adhīṣṭhām ‘One should immolate a pregnant ... dedicated to Aditi.’ TS 1.1.2.1-2: ... suḥsuklaṣṭhāḥ sam suḥsuklaṣṭhāḥ vi du var ‘Barhis of the gods,) grow with a hundred sprouts, we would grow with a thousand offspring.’ TS 2.1.8.1-2: bhūteṣu bhūteṣu bhūteṣu bhūteṣu ‘... (PrS 14.22). This second alternative is the interpretation given by Māhīśeya (g) chaḥsūrī chaḥsūrī chaḥsūrī chaḥsūrī ‘... (PrM 14.23)), who, however, reads i after e. I can say no more.

46E.g., TS 2.1.11.5: ‘... (PrS 14.22). This second alternative is the interpretation given by Māhīśeya (g) chaḥsūrī chaḥsūrī chaḥsūrī chaḥsūrī ‘... (PrM 14.23)), who, however, reads i after e. I can say no more.
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9.1.1b), so also are such sequences not permissible in the recitation tradition of the Taittīrīyasamhitā. According to

k. TPr. 9.18-19: हस्त्वपूर्वो डचारे द्विवर्तमान्य नकराश।

-*n preceded by a short vowel (hrasvapurvo nakāraḥ) is doubled (dvivarnam ‘[becomes] two sounds’), and the same applies to -n (nakaraś ca) preceded by a short vowel. For example: nyan aghih → nyamagnih (‘the fire altar face down’), asmin eva → asminneva (‘in this alone’).

9.1.2.2 The Ṛgvedaprātiṣākhya also provides details concerning consonant doubling, as in the following sūtras:

a. RPr. 6.1-2: स्वरवनिवर्त्तितं द्विवर्त्तं संयोगितं स च; क्रमोपक्रमेण सन। सौभगा तु पूर्वेषसहस्यस्य सकुलस्य।

b. RPr. 6.3: द्वियोगितार्थं च. च. च।

c. RPr. 6.4-5: परेकति। च. च।

d. RPr. 6.6, 9: ऋष्यो च। च।

A consonant which is preceded by a vowel or anusvāra (svarānuṣvāropahītah) is doubled (dvir ucyate ‘is uttered twice’) if it occurs as the first member of a consonant cluster (samyogādīth san), provided there is not an unchanged h in this position (avikrame); and if the consonant in question is an aspirated stop (soṃmā), it is uttered (ucyate) once (sakṛt) together with a consonant that precedes it in its stops set (pūrvyena saha svena). In addition (b), ch (chakaraḥ) is doubled even if it is not cluster-initial (asamyogadir api). Further (e), a consonant which follows cluster-initial r (rephār) preceded by a vowel is subject to doubling, and a stop (sparṣāh) is similarly (evam) doubled after cluster-initial l (lakārā). Moreover (d), a stop is optionally (vā) doubled after a cluster-initial spirant (ūṣmanah); and a conjoined spirant (ūṣmā samyuktah) is optionally doubled if it is not immediately preceded by another segment (amupadhaḥ), that is, if it follows a pause. For example: ā tvā → āttvā, somānam svaranā- → somānamssvaranā-, ati khyāḥ → atikkhyāḥ, upa chāyāṃ → upacchāyāṃ, astābbhiḥ

147TS 5.5.3.2: व्रह्माणिदते वैद्य नक्षत्रस्यग्निमित्ति स तृतीयप्रविधितः।

148E.g., TS 2.6.2.4: पुरुषसमस्तो च नक्षत्रसाधिकाः स्वयम्भूतं च ज्ञातित्वस्य ज्ञातित्वस्य।

149RV 8.68.1ab: इत्यादि सुद्धिभवे सुगोमयं गुरुप्यः। 'Indra,) we drive you hither like a chariot, for help and benevolence.'

150RV 1.18.1: सप्तहरूः क्रमेवः क्रमेवः सप्तहरूः। 'Brahmaṇaspati, make the offerer of Soma resound, a Kāśyipat son of Usīj.'

151RV 1.4.3c: भागद्विं विद्याभवस्य ब्राह्मणस्य। 'Indra,) do not overlook us, come.'

152RV 6.16.38.ab: उपे च्चार्ययामिति यक्ष्येव रश्मिः। 'Agni,) we have come to your shelter, as to the shade from heat.'
dasabhih → astābhirdaśabhih (‘with eight, ten’),
ulbam → ullbam (‘embryo covering’),
hvayāmi → hhvayāmi (‘I call’),
ścotanti → śścotanti (‘drip’).

A group of rules provide that doubling does not (na) apply to certain consonants, under stated conditions. According to

e. RPr. 6.7-8, 10: नाबिशिष्ठम। न रेऩः। न तुष्मा स्वरोपतिः।
a consonant in absolute final position, before a pause (avasitam), is not doubled; nor is r (rephaḥ) or a spirant (ūṃmā) which is followed by a vowel or another spirant (svaroṣmaparaḥ).

For example, parā vark ‘separated, cut off’ occurs at the end of a verse;

although k follows r, a context for doubling (RPr. 6.4 [c]), it is not doubled.
Similarly, the s of parsī ‘carry across’ (2nd sg. imper., e.g. RV 8.67.11a) remains single.

In both instances, cluster-initial r also does not get doubled. The cluster-initial spirant s in cetathas sutānām (‘you two are aware of the pressed Soma’) also is exempt from doubling.

In addition, in a sequence C1:C2 such that C2 is doubled, the preceding C1 that conditions doubling (parakramopadḥa) is itself not doubled:

f. RPr. 6.11: न परक्रमोपदः।

Thus, the -b- of ulbam is doubled, but not the l which precedes it.

As noted under b, ch is subject to special treatment. The special status of ch extends to the absence of doubling for this segment. Thus (g), word-initial (padādiḥ) ch- is not doubled if it is preceded by a long vowel (dīrghena [upahitah]) except for the -ā of the negative particle mā (metivarjam):159

g. RPr. 6.13: दोषेन च मेयिन्द्रीम (पदातिः खङ्कः [12]):

For example, the ch- of chādayāmi ‘I cover’ is not subject to doubling after the -ā of varmanā, but the ch- of chedma in mā chedma is doubled: mācchedma (‘let us not

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153 RV 2.18.4a-c: ब्राह्मणम् हर्ष्यांस्य भाषां मा भाषा चारुक्षर्यं पुनिःपुर्वस्मात्। ब्राह्मणहिंसामेयिन्द्रियसूत्रम् ‘(Indra,) with two, four, six, eight, ten horses, come to drink Soma.’
154 RV 10.51.1ab: महुतेऽवर्क स्वरोषमपराधार्या सर्ववर्धिनिधिः। भागीरथिः ‘Big and solid was that covering enveloped in which you entered the waters.’
155 RV 1.35.1a: हर्ष्यांस्य भाषां मा भाषा चारुक्षर्यं पुनिःपुर्वस्मात्। ब्राह्मणहिंसामेयिन्द्रियसूत्रम् ‘I first call Agni for well being.’
156 RV 1.87.2c: शोचेन्नितो भोजः वर्ष वो रूपम् ‘(Maruts,) the buckets (i.e., clouds) on your chariots let loose water.’
157 RV 10.8.9cd: विश्रावसं चिन्द्रविश्रावसं ... चारुक्षर्यं पराधार्यं ‘(Indra) cut off the three heads of Visvarūpa, son of Tvāṣtri ...’
158 RV 1.2.5ab: वायुवित्तरस्म चेताऽहस्वानिन्द्रियसूत्रम्। ‘Vāyu and Indra, you two ... are aware of the pressed Soma.’
159 RPr. 6.12 provides for not doubling word-initial ch preceded by particular words. It is not necessary to consider here the details of this sūtra.
160 RV 6.75.18a: ममवेन्त्रे वर्षमेक चारुक्षर्यं ‘I cover your vulnerable points with armor.’
In addition, consonant doubling does not apply in the speech of certain speakers. Thus,

h. ṚPr. 6.14: संयुक्तं व्यञ्जनं शाकलेन । 
states that according to the teaching of Śākalya (śākalena), a conjoined consonant (samyuktam vyañjanaṃ) is not doubled.\(^{162}\)

Again as in the spoken language Pāṇini describes (9.1.1b) and in the recitation tradition accounted for in the Taṇṭirīyaprātiśākhya (9.1.2f), in the tradition of Rgveda recitation which Śaunaka accounts for also -n and -n (padānīyo nakārao nakāraś ca) preceded by a short vowel (hrasvapūrvah) are not allowed to remain as such before a vowel (uttare svare); they are doubled (krāmataḥ):

c. ṚPr. 6.15: पदानीयो ह्रस्वपूर्वो डकारो नाकाल्य क्रामन उत्तरे स्वरे ।
For example, the -n of kādrīn `of what sort?' is doubled before the vowel of indrah, as is the -n of ahan `slew' before the vowel of ahim `serpent': kādnindrah, ahamahim.\(^{163}\)

9.1.2.3 Consider now consonant doubling rules that account for the tradition of recitation for the Vājasaneyasaṁhitā as described in the Vājasaneyiprātiśākhya. The following provide for doubling:

a. VPr. 4.101: स्वरासंयोगां द्विरुत्पत्तिः सर्वः ।
b. VPr. 4.102-104, 107: पदार्थस्वराः व्यञ्जनाः । व्यञ्जनश्वराः । जिज्ञासुवृत्तोपनांविभाज्याः । विगर्जनीयांविधाताः ।
c. VP4. 4. 110: व्यन्यायात्मकवृत्तिः ।

In general (a), the first consonant of a cluster (samyogādhiḥ) is uttered twice (dvir ucyate) following a vowel in any context.\(^{164}\) However (tu), doubling applies (b) to a consonant

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\(^{161}\) V 1.109.3a: भुज्यस्वरायिता नारद्यमा: '... calling for help, (saying,) “may we not cut the reins”.'

\(^{162}\) Uvata mentions different interpretations of h. According to some, dirghena and padādiḥ of the preceding two sutras are understood in this sutra, so that the exemption from doubling applies to word-initial consonants after long vowels. According to other interpreters, dirghena and padādiḥ are not understood in ṚPr. 6.14, which then provides for the absence of doubling for any cluster-initial consonant. ṚPrU 6.14: संयुक्तं व्यञ्जनं द्विरुचयं न क्रामते शाकलेन विधातनं ... पदार्थि व्यञ्जनां व ... पदार्थि व्यञ्जनाः भ ... नारधयति । विदेशीय सर्वं शाकलेनिच्छति । ṚPr. 6.14 is accordingly comparable to A 8.4.52 or 8.4.51 (9.1.1a). Now, Uvata glosses śākalena of the sūtra with śākalena vidhānena ‘provision taught by Śākalya’. This is appropriate: śākala is a derivative which is paraphrased by śākalena proktam ‘propounded by Śākalya’. In view of this, if the Śākalya whose teaching is alluded to in ṚPr. 6.14 is the same as the Śākalya to whom Pāṇini refers — something which, so far as I know, cannot be determined with certainty for this particular rule, although Pāṇini elsewhere refers to Śākalya the author of the Rgveda padapatha — then the second interpretation noted by Uvata is appropriate.

\(^{163}\) RV 10.108.3a: कोविक्ष्याधृतीहः सर्वः त्यत् | 'Saramā, of what sort is Indra ...' RV 3.32.11a: चह्वर्दित्तिःभागीनस्वर्गः | '(Indra) slew the serpent lying around the waters.'

\(^{164}\) Sarvatra ‘everywhere’. That is, doubling applies not only across pada boundaries but also within words. Similarly, ṚPr. 6.16 (भागीनस्वर्गः पदवद्भागीनस्वर्गः भविष्यति वैकुण्तसः) states that, if no special statement to the contrary is made (anādeṣe), a provision made in this chapter (paṭajale śmin vidhānam)
following r or h (param repahakahāṛāḥbhāṃ). Further, in clusters such that a stop (sparśāḥ) follows a spirant or a semivowel (üşmāntasthābhāṃ) as well as k or p (jīhvāṁśīyopadhmāntyābhāṃ ca), it is the stop that is doubled, and after -h (visarjanīyāt) a stop is doubled if it is followed by a consonant (vyāṅjanaparāḥ). Finally (c), voiceless and voiced aspirated stops (dvītīyāḥ, caturtīyāḥ) subject to doubling are uttered respectively with preceding voiceless and voiced unaspirated stops of their series (prathamaḥ, uttīyāḥ), that is, their unaspirated counterparts. For example: ise tvā → iisettvā, ārje tvā → ārūrvettvā,165 bahvīḥ → bahvīḥ (‘many’),166 vāyavah stha → vāyavasthā (‘you are the winds’), ... pra arpayatu śreṣṭhatamāya (‘make go to the best’) → ... prārppayatuśreṣṭhatamāya (see note 164), vah kāmadharanām → vakkkāmadharanām (‘your maintaining desires’),167 oṣadhiḥ pūrvāḥ → oṣadhipuppūrvvāḥ (‘plants first ...’),168 viṣṇoh kramah → viṣṇoḥkkramah (‘the stride of Viṣṇu’).169

The following rules disallow doubling:

d. VPr. 4.105: देतुप थैते पूर्वस्य।
e. VPr. 4.111-115: नासुखार | सवारी | चरवानी | लूसी | यमे।
f. VPr. 4.116-117: तिसर्जनीयाम | चरवर्गीया चानुवे।
g. VPr. 4.118: सर्वस्तितः।

Consonants which condition doubling of a following consonant (vaiḥ param) do not simultaneously condition doubling of a preceding one (taɪr na pūrvam). For example, sukṣmā ‘good earth’ meets the conditions for -k- to undergo doubling by virtue of being the first member of a cluster (VPr. 4.101 [a]) and -m- is eligible for doubling after the spirant -s- (VPr. 4.103 [b]). The stop which follows the spirant is doubled but not the one which precedes it: sukṣmmā (e.g., VS 1.27: सुख्मम्).170 Doubling is also excluded for for
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(e): anusvara; a consonant followed by one homogeneous with it (svarne), a consonant preceding r (rvarne), or a yama. For example: somānam svaranam → somānam svaranam, savī̇h vapāmi (see 3.4.1.2a), aniskṛtah ‘not defeated, harmed’ (VS 27.4: ज्ञातिक्रृत), ādhih ‘thriving’, klptam ‘what one has been capable of attaining’, sakthīṁnā (← sakthi) ‘by the thigh’ (VS 23.29: सुक्ष्यिनी). In the last example, the yama thī comes in as a transitional segment between th and the following nasal, and the first consonant of the cluster is exempted from doubling. Further (f), h is exempted from doubling, as is a stop preceding another stop of its own series (svarvargiye) unless the latter is a nasal (anuttame). And (g) an absolute final consonant is not doubled before a pause (avasitath ca). For example, divaḥ kakut ‘peak of heaven’, indraṅya (‘for Indra’), urk (padapātha for VS 18.9).

As elsewhere, however (see 9.1.1b, 9.1.2f, i), single word-final (padāntau) -n and -n

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As elsewhere, however (see 9.1.1b, 9.1.2f, i), single word-final (padāntau) -n and -n
followed by a vowel (svare) and preceded by a short vowel (hrasvapūrvavau) are
disallowed; instead, they are doubled:

h. VPr. 4.108: हनों चेताढ्यवर्यै त्वरे पदान्ती।
For example: yun asi (‘you are the yoker’) → yunāsi (VS 10.25: युनासि), aśman āryam
(‘the strength on the rock’) → aśmnnārirjām (VS 17.1: अश्मन्तृज़्ञन...).

9.1.2.4 The following rules of the Śaunakīyā Caturādhyāyīka concern consonantal
doubling:

a. ŚCĀ 3.27-28 (3.2.2-3): दश्ना हस्तोपहः स्वरः (पदान्ते हि: [26])। संस्कृतम् स्वरत्त।
b. ŚCĀ 3.29-30 (3.2.6-7): न विसर्जनीयः। सस्याने च।
c. ŚCĀ 3.31-32 (3.2.8-9): र maxHeight पर्यन्ताम्याम्। शपसा: स्वरे।

The first of these rules states that -n, -n and -n (padānte nnāh) preceded by short vowels
(hrasvopadhāḥ) are uttered twice if a vowel follows (svare), and the next sūtra provides
doubling of the first consonant of a cluster (saṃyogādi) after a vowel. Rules in (b) disallow
(na) doubling. This does not apply for -h (visarjanīyah) or to a consonant
preceding one with the same place of production (sasthāne). Also exempted from
doubling are (c) r and h (rephakārau) and s, s, s before a vowel. On the other hand, a
consonant that follows r, h (paran tābhyām) is doubled. In addition,

d. ŚCĀ 3.26 (3.2.1): पदान्ते क्योऽन्तनिष्ठ।

provides that a consonant undergoes doubling at the end of a word (padānte). These rules
are much more summary than those of other prātiṣākhyas. Moreover, ŚCĀ 3.26, for
which I can contribute no new explanation,177 is unique among these texts.178

9.1.2.5 As can be seen from the rules considered, there are certain broad principles that
apply generally for the transitional phenomena in question. Thus, in all Vedic recitation
traditions and in the spoken language which Pāṇini describes sequences of the type -n | V-
and -n | V- involving word final -n and -n preceded by short vowels are disallowed.
Instead, one has two identical nasals straddling the word boundary. There are also many
variations in different recitation traditions reflecting dialectal diversity, and some can
involve competing principles. Thus, in a cluster AS,K2 the spirant can be subject to
doubling by virtue of being the first member of a cluster. On the other hand, as can be
seen from Middle Indic assimilations of the type Pāli atthi ‘is’ (Skt. asti), the stop of such

177Possibly what is meant is that the consonant is checked and held, so that there is no immediate
release. I cannot discuss this further, since it would require a discussion of details concerning the checking
and holding of a consonant (abhinidhāṇa).

178I say ‘among these texts’ because Kātyāyana too allows for doubling a word-final consonant (8.4.47
vt. 3: यथास्यं च i). Patañjali (Bh. III.464.15-16) illustrates this option with vākk/vāk “speech”, tvakk/tvak
‘skin’, strukk/sruk ‘ceremonial ladle’: भव्यस्यं च भवति वात्स्येकम्। वात्स्यां, वस्यां, तवाक्क, तवाक, स्रुक्क, स्रुक्।
a cluster has a higher tendency to predominate, so that it can be doubled. It is not surprising, then, to find alternates of the kind shown under 4 of chart II. In addition, particular details in pratiṣākhya can be due to the fact that the specific texts for which these works account may or may not have instances of certain particular sequences. For example, these texts have no instances of word-final -n preceded by a short vowel and followed by a word-initial vowel.

Chart II summarizes the data considered.

9.1.2.6 The Ṛgvedapratiṣākhya acknowledges that anusvāra behaves phonologically like a consonant or a vowel (ṚPr. 1.5 [4.1.2a]). In its general rule for consonant doubling, the same treatise (ṚPr. 6.1 [9.1.2.2a]) provides that this applies to the first consonant of a cluster preceded by a vowel or anusvāra. It is to be assumed, I think, that, as doubling does not apply to a vowel, so also does it not apply to anusvāra, which is not treated as a cluster-initial segment. On the other hand, it is reasonable to conclude that the Vājasaneyipratiṣākhya treats anusvāra as a consonant and, accordingly, as a possible first member of a cluster. For it has a rule (VPr. 4.111 [9.1.2.3e]) specifically disallowing doubling of anusvāra. In both recitation traditions, then, anusvāra is not susceptible to doubling. In the traditions of the Taittirīyasaṁhitā, however, there is some variation concerning this point. Commenting on TPr. 14.1 (9.1.2.1a), the Vaidikabhāraṇa remarks that this sutra also provides for the first consonant of a cluster to undergo doubling in examples such as indraṁ ssvarājānam (← indraṁ svarājānam). This is explained as follows. There is a general metarule governing how sandhi rules apply: a linearly prior operation or a prior rule (pūrvaḥ pūrvaṁ) is applied first (prathamam):

a. TPr. 5.3: पूर्वं पूर्व्यप्यथम्.I

In accordance with this, doubling by TPr. 14.1 applies prior to the introduction of anusvāra by TPr. 15.3 (3.4.2.3c). Before anusvāra is introduced, then, one has indraṁ svarājānam, in which the cluster sv- directly follows a vowel, so that doubling can apply by TPr. 14.1; only after TPr. 15.3 has applied to introduce anusvāra is the first member of the consonant cluster separated from the preceding vowel. The Vaidikabhāraṇa immediately goes on, however, to note that according to the śikṣā anusvāra is doubled,

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179TS 2.3.6.1: तद्भवाध्येश्रमन्तर्यपदस्यमनामः "पुरुषार्थमर्घाणात्राशेषानां " स्याम "स्मार्काः " स्यायात्राशेषानां। That (food) encompassed and went beyond these worlds: (those ruled over by) king Indra, overlord Indra, self-ruling Indra.' Instead of इत्यदेहान्तत्त्वम् स्यायात्राशेषानां, with a single anusvāra, the edition of the Vaidikabhāraṇa prints a double anusvāra, but this is inappropriate for the context of the argument. It is only subsequently that Gārgyagopāla Yajvan goes on to note that doubling of anusvāra is desired in accordance with what the śikṣā says.

180TPrVA 14.1: नमस्तक्षणातयस्मे तु परस्परभिप्रस्थितमप्राधयकायकमप्रकाश्यम्। तेनवाद्वारस्य संरागार्देलस्य विपिननविद्विष्णुविनिर्मित्तत्त्वम्। The reference to the eighth adhyāya is to the Vaidikabhāraṇa on TPr. 8.15, which need not be considered here.
even though it is provided for by a later rule, and he cites

b. SSŚ 5: ... "nirudhyayet saṁyogena paratāstam".

according to which anusvāra should be uttered twice (anuvāra dvir ucjeta) if a consonant cluster follows (saṁyoge paratas sthite). This mode of recitation would correlate with the change of anusvāra to a velar consonant (see 7.2.2k-m).

9.1.2.7 As shown (see 9.1.1c, 9.1.2.1k, 9.1.2.2c, 9.1.2.3c, 9.1.2.4a, chart II.9), -m differs from -n, -n and -n with respect to a transitional property. A sequence of the type -an|A- is impermissible; instead, one finds -an | nA-. On the other hand, -am | A- does occur, and one does not have instead am | mA-, with a doubled m straddling a word boundary after a short vowel. This can be related with degrees of occlusion, such that -m is characterized by less occlusion than other word-final nasals. In turn, this is associated with the fact that -m assimilates fully to following consonants.

9.2 Prātiṣākhya also contain rules of syllabification. It will be best to begin with the rules of the Vājasaneyiprātiṣākhya.

9.2.1 The word which is generally translated syllable is aksara. It is clear from what the Vājasaneyi-prātiṣākhya says that the basic aspect of an aksara is its having a vowel, which is the proper tone bearer. Thus,

a. VPr. 1.99: स्वरोपः

provides that a vowel (svarah) has the class name aksara, and

b. VPr. 1.107: व्यञ्जन सर्वेऽसर्वस्तु

states that a consonant (vyanjanam) has a pitch tone (sasvaram) in association with the vowel (svareṇa) to which it is ancillary. A vowel by itself can thus constitute an aksara, which can also consist of a vowel with one or more consonants. Other rules of
this section state which consonants of a sequence go with what vowel:

c. VPr. 1.100-101: सहायदर्शनेः (स्वरेष्ठर्म [99]). उत्तरार्थसिद्धः।

d. VPr. 1.102-106: संवेदकोऽपि पुरुषः। क्रमज्ञः। तस्मादाधिक स्वरः। अत्तरसिद्धः।

A vowel forms an aksara together with (saha) initial consonants (ādyair vyañjanaiḥ) that precede it and with absolute final (avasitaiḥ) consonants that follow it (uttaraiḥ): CV-, -VC#. Certain consonants go with a vowel that precedes (pūrvasya): the first consonant of a cluster (sanyogādiḥ); a yama (yamaiḥ); the first consonant of a sequence which results from doubling conditioned by a preceding consonant (kramajam); the consonant that immediately follows this (tasmāt uttaram) and precedes a stop (sparsē); a final consonant before pause (avasitam). For example, in Īṣettvā (see 9.1.2.3a), the first consonant of the cluster -ttv- goes with the preceding vowel: i-ṣett-tvā. In sakththmna (4— sakthna), there is a cluster khththm; the yama (th̄m) that makes a transition between th and the following nasal goes with the preceding vowel, along with the th it accompanies: sakththm-nā.185 In varṣṣyāya (dat. sg. ← varṣyāya) ‘pluvial’ (VS 16.38: नमः वर्ष्याय), the cluster -ṛṣṣy- contains -ṣṣ as a result of consonant doubling after -r- (VPr. 4.1.102); the -r- (VPr. 1.102) and the first -ṣ- of this cluster go with the preceding vowel: vāṛṣ-ṣyā-ya. pāṛṣṣṇyā (instr. sg. ← pāṛṣṇyā) ‘with the heel’ contains a cluster -ṛṣṣṇy- in which -ṣṣ results from doubling after -r-, -m- from doubling after the spirant (VPr. 4.103 [9.1.2.3b]); the cluster-initial -r-, the -ṣ- following it (VPr. 1.104) and the -ṣ- and -n- which follow this (VPr. 1.105) all go with the preceding vowel: pāṛṣṣn-ṇyā.186

185If this nasalized transitional stop goes with a preceding vowel, the stop which accompanies must also do so. According to Uvata and Annanbhatta, ca of VPr. 1.103 serves to provide that a yama it goes with a preceding vowel accompanied by the stop that precedes: यम: पूर्वायुन्य भवति। (VPrU 1.103), ... (VPrA 1.103).

186Examples such as rukkman involve issues that I do not consider here. In his commentary on VPr. 1.103, Uvata remarks that this has a double k followed by a yama and m, with a division rukkkhi-mam: यथा रुक्क्ष्मम्। (VPrU 1.103), ... (VPrA 1.103).

187The example pāṛṣṣṇyā requires some discussion. Uvata and Annambhatta comment as follows: तस्मात् क्रमज्ञाद्वृत्तं व्यञ्जनं पद्धतिः भवति स्वरः पद्धति। यथा पार्शवयाय (Varma 1975: 57: पार्शवयाय)। (VPrU 1.105). It is noteworthy that both commentators state how the sequence of consonants arises and speak of a a prior y (पुर्वायुक्तय) and a second n (द्वियुक्तय), and that Annambhatra speaks of a first s (प्रत्ययक्त शाकारः). They thus assume that the form in question should indeed be realized as pāṛṣṣyā, under the view that VPr. 4.102-103 do not provide for optional doubling. If, on the other hand, these rules are considered to apply as alternatives one to the other, they would allow pāṛṣṣyā, with only one -r-, the first s would be assigned to the preceding vowel by VPr. 4.104, the second by VPr. 1.105. The reading pāṛṣṣyā (पार्ष्याय) is in fact found in some editions, for example that of Pt. Daulatram Gaur (1965). It is undeniable, however, that both Uvata and Annantabhatra doubtless have heard recitations with two y
9.2.2 According to

a. TPr. 21.1-2: व्यान्जनः स्वराङ्गमेति तत्ततस्वरः।

b. TPr. 21.3-6: प्रतिस्थापनवर्णं स्वायत्तदेव। परेण चास्ये विद्यते। प्रतिस्थापनवर्णभाष्करः।

A consonant (vyanjanam) is a subsidiary constituent relative to a vowel (svarangam); that is, it goes along with a vowel. Moreover, it partakes of the accentual properties of that vowel (parasvaram). A consonant followed by pause (avasitam), on the other hand, shares the accentual properties of a preceding vowel (pūrvasya), with respect to which it is a constituent (svarāṅgam). This is true also of: the first consonant of a consonant cluster (samyogādi); a consonant that is not directly joined with (asamhitam) a following vowel (pārena); anusvāra and an epenthetic vowel segment. The following provide that certain consonants which, by previous rules, would go with a preceding vowel do not (na):

c. TPr. 21.7-9: नातन्त्रायकस्वराङ्गमेति नातन्त्राय। स्वराङ्गस्त्रारस्त्रासयं उभ्या हृदरस्त्र।

The consonants in question are: one followed by a semivowel (antasthāparam), provided the two are not homogeneous, identical (asavarṇam); nasal segments introduced as transitions (nāsikāḥ); a stop (sparśak) followed by a spirant (āśmapaṛah), if the spirant goes with the following vowel (āśmā cet parasya).

For example: isettva (← iṣe tvā: TPr. 14.1 [9.1.2.1a]) = i-set-tva; vāk (VS 5.33 padapātha), urupprathassva (← uru prathasva) = u-rup-pra-thas-sva, ūrmiṁiṁrūmāḍauhaṁ (← ūrmiṁrūmāḍauhaṁ) = ūrmiṁrūmāḍauhaṁ, pratyuṣṭaṁ raksah (← pratyuṣṭaṁ raksah, see 3.4.2.3c) = prat-tus-ṣṭam rakṣaṁ, rukkkñīmam (← ruknam) = rukk-ṛṇīmam, tatthasavitaḥ (TPr. 14.12 [note 138]) = tat-thasavi-taḥ.

9.2.3 The following rules of the Rgvedapratisākhya also provide for consonants to go with vowels as syllabic members:

sounds here. There also remains a textual issue: instead of रेणकार्य one could better read रेण: चकार्य to accord with the rest of the commentaries. Other details need not be dealt with here. Note only that the Rgveda recitation tradition differs; see 9.2.3 with note 191.

187' tat 'that' in TPr. 21.2 refers to a consonant and svaraparam is susceptible to different interpretations. Somayārya interprets this as a karmadhāraya compound and supplies bhajate, so that the sūtra states that a consonant partakes of a vowel, is subservient to it, that is, it goes with it and shares its properties: ... तत् ब्रह्मवेत् श्रुतं परस्तरं भजते ... पारस्तर्व स्वरः स्तं स्वरस्तं। (TPrS 21.2). The Vaidikabharana specifies that the consonant partakes of the accentual properties of the vowel with which it goes: भ्रमं पूर्वस्यवर्गपदेशैः उत्सर्गकृत् विनियमानस्वरः। तत्रां यस्य परस्तर्वस्य-दात्वकृतम् भजते हि समानम्। Gārgyagopāla Yajvan understands svara as referring here to accentual features of a vowel. This makes it much easier to understand parasvaram as a bahuvrīhi: para uddāntādūpaḥ svara yasya tat: a consonant has the accent which follows; that is, it shares the accentual properties of a following vowel. Thus, TPr. 21.2 explains how a consonant is an ancillary constituent relative to a vowel (svarāṅgam): in general, it shares the properties of a following vowel. Subsequent sūtras provide that such and such a consonant is a svarāṅga relative to a preceding vowel; it has this status by sharing the accentual properties of that vowel.
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The first sūtra states that anusvāra and any consonant is a syllable constituent ancillary to a vowel (aksarangam). Consonants (vyanjanāni) that occur between vowels (svarāntare) belong to a following vowel (uttarasya). Anuvāra and visarjanāya, however, belong to a preceding vowel (pārvasya). The first member of a consonant cluster (samyogādih) optionally (vā) goes with the preceding vowel. In clusters where doubling applies to a consonant after another (parakrame), two consonants (dvē) that result also (ca) optionally go with the preceding vowel. In addition, by

an epenthetic vowel segment (svarabhaktī) introduced after post-vocalic r followed by consonants188 is a syllable consituent (aksarangam) that goes with the preceding vowel (pārvabhāk).

For example, the -y- of ayam ‘this’ (nom. sg. masc.) goes with the second vowel: a-yam. It thereby partakes of the high-pitch quality proper to this vowel, not the low-pitch of the first vowel.189 The first consonant of the cluster -tv- in āttvā (→ ā tvā: RPr. 6.1 [9.1.2.2a]) optionally goes with the first vowel: āt-tvā. The high-pitch of ā then extends through t, which is perceived as having this tonality, then a transition to low pitch applies starting with the t of tvā. On the other hand, if doubling does not apply (RPr. 6.14 [9.1.2.2h]), one can have ā tvā.190 In pārśṣṇyā (RV 1.162.17b: पार्ष्णी), the cluster

188RPr. 6.46-53 concern svarabhakti, the contexts in which it is introduced, its vowel-color, and its duration. I cannot consider these rules here.
189Uvāta makes a point of bringing out the accentual features, as when he says that since ayam has a high-pitched last vowel (antodattatvat), y is heard (sruyate) as high-pitched (udattavat): यथा ज्ञात... (RPrU 1.23).
190In his commentary on RPr. 1.25, Uvāta considers āttvā, about which he says the following. The first t, which results from doubling (kramajas takarah), goes with the preceding vowel; and since this vowel is high-pitched, the t is heard as high-pitched. The second t, which is the first consonant of the original cluster, goes either with the preceding vowel, in which case it too is heard as high-pitched, or with the second vowel, in which case it is heard as low-pitched. The v pertains to the second vowel and is heard as low-pitched because this vowel is low-pitched: यथा भवात् क्रमं हन्ति ही तकारी तन्त्रं संयोगः. तत्र क्रमं: प्रधानतत्त्व: पुंशस्यत्र तत् चादनात्तत्त्वतः (RPrU 1.23).

There are some points here that merit comment. First, the Rigvedapārāśikhyā does not have an explicit rule comparable to VPr. 1.104 (9.2.1d). Secondly, there is nothing in the text to indicate that sanyogādhi refers to anything other than the first consonant of a cluster. As is clear from RPr. 1.26, moreover, the rules of this section apply after rules of consonantal doubling have taken effect. Consequently, sanyogādhida of RPr. 1.25 should, on the face of it, refer to the first consonant of a cluster pure and simple, including the initial consonant of a cluster after doubling. Accordingly, āttvā could be segmented āt tvā or āt vā. In addition, if doubling does not apply, in accordance with Śākalya, ā tvā can at least theoretically be segmented also as āt vā.
-rṣṣṇy- contains -ṣṣ- due to doubling after -r- (RPr. 6.4); -r- along with its anaptyctic vowel segment goes with the preceding vowel; the doubled consonant -ṣṣ- optionally goes with the same preceding vowel or not: pārṣṣ-ṇyā / pār-ṣṣṇyā.191

9.2.4 Once more, the Śaunākīyā Caturādhyaṇyikā rules are the most summary:

ŚCĀ 1.55-58 [1.2.15-18]: परस्य स्वरस्य व्यञ्जनानि | संयोगादि पूर्वस्य | पद्यस्य | रेंटहकारस्यक्ति | In general, consonants (व्यञ्जनाणि) pertain to a following vowel (परस्य स्वरस्य). However, consonants in particular contexts go with a preceding vowel: the first consonant of a cluster (समयोगादि), a word-final consonant (पद्यस्य) before pause, and the first consonant resulting from doubling (क्रमायमादि) after r and h (see 9.1.2.4c).

9.2.5 There is also some evidence from the Aṣṭādhyaṇyī which should be noted in this context. This involves the derivation of desiderative bases from bases that begin with a vowel, formed with the suffix sa.192 For example edidhiṣa (3rd sg. pres. ind. edidhisate) is the desiderative of edh ‘thrive’. Pāṇini provides for repeating a segment of a base containing sa that contains a single vowel (ekāc), that is, a syllable. The general rule for all such repetition is that the first syllable is repeated, but if an item subject to this operation begins with a vowel, then the second syllable is repeated. Thus, in deriving bubbhāsa ‘wish to be’ (bubbhāsati) the first syllable of bhū-sa is iterated, but to derive edidhiṣa the second syllable of e-dhi-sa is iterated. Here the morphological division of the base prior to iteration is edh-isa, with the initial augment it added to the suffix.

Consider now the desideratives of und ‘wet’ and arc ‘praise, honor’: undidiṣa (undidiṣati), arciciṣa (arciciṣati). The morphological division here is und-isa, arc-isa. To arrive at undidisa and arcicisa, whence undidiṣa and arciciṣa, one of the segments is to be repeated. Moreover, we know from Vedic recitation traditions that there was variation in how the initial consonant of an interior cluster is distributed: generally, it goes with the prior vowel (VPr. 1.102 [9.2.1d], TPr. 21.3 [9.2.2b], ŚCĀ 1.56 [9.2.4]), but the Rgvedapratisākhya (1.25 [9.2.3d]) allows also both consonants of a biconsonantal cluster to go with a following vowel. If undisa and arcisa are segmented un-di-sa and ar-ci-sa, according to the prevailing pattern, nothing more need be said. Repeating the segments di and ci gives undidisa and arcicisa, as required. On the other hand if undisa

Certainly, Uvāṭa mentions a similar possibility. On the other hand, external sandhi rules call for voicing under such circumstances and the Taittirīyaapratisākhya explicitly says that a consonant other than an identical semivowel does not go with a preceding vowel (TPr. 21.7 [9.2.2c]). Therefore doubt that such a segmentation was truly made, although I cannot definitely prove this.

192san , with the marker n. On rules which apply relative to the derivation of desideratives with this suffix, see Cardona 1997: 24, 279, 382-383 and pp. xvi-xvii.
and *arcīsa are segmented *u-ndi-sa and *a-rei-sa, simply repeating the second segment leads to undesirable results. The immediate outcome of this operation is *u-ndi-ndi-sa and *a-rei-rei-sa. The first of two segments that result from such repetition is called abhyāsa, and only the first consonant of an abhyāsa is allowed to remain. Accordingly, the second consonant of *ndi- and *rei- would now be dropped: *u-ndi-ndi-sa → *u-ni-ndi-sa, *a-rei-rei-sa → *a-ri-rei-sa. The outcome would be *unindiṣa and *arirciṣa instead of undidisa and arcicīṣa. To avoid the undesirable results under this segmentation, then, requires one to disallow repeating the -n- and -r- of undisa and arcisa. The Aṣṭādhyāyī has a rule (A 6.1.3; न नः: संयोगदयः i) which states that cluster-initial (samyogādayāḥ) n, d and r (ndrāḥ) of a second segment with a single vowel are not (na) repeated under conditions stated. We have, then, to conclude that for Pāṇini undisa and arcisa were indeed segmented u-ndi-sa and a-rei-sa, so that cluster-initial -n- and -d- followed a vowel. This although the language does not allow word-initial ndV and rcV and the prevalent segmentation is otherwise.\footnote{This brings up the question, what relation do the syllabification rules given in pratiṣākhyaśas have to the phonological rules formulated in these texts. From what has been shown, it is clear that the syllable division rules presuppose the earlier application of phonological rules, including those which provide for consonant doubling and epenthesis. The segmentations provided by these rules thus does not play a role in the application of phonological rules. It is noteworthy that Pāṇini has a very detailed set of phonological rules, including rules providing for consonantal doubling — not, however, epenthesis rules — but does not have any syllabification rules. I therefore consider it appropriate to accept that the purpose of pratiṣākhya syllabification rules is as portrayed by commentators: These rules deal with segmentations involving transitions from one tonal unit to another. Although the common wisdom is that there is no ascertained correlation between any physical phonetic properties and syllables — which are phonological constructs — the fact that the pratiṣākhya segmentation rules serve no purpose in the phonological rules of these treatises forces us, I think, to two possible conclusions. First, the Indian phonologists/phoneticians did indeed perceive tonal transitions which they could associate with different segmentations. Alternatively, the segmentation rules formulated in the pratiṣākhyaśas are not syllabification rules as conceived of by modern phonologists.}

9.6 In sum, evidence from pratiṣākhyaśas and Pāṇini bears witness to a variation in syllabic segmentation also.

10. The available evidence requires one to accept that in early Indo-Aryan there was considerable variation with respect to timing and transitions, so that there were alternative sequences of the types āt-rvā, ā tvā (see 9.1-9.1.2.6), which involved differing transitions from one tonal segment to another (see 9.2-9.2.5). Dialectal variants of the types saṃyattāḥ, saṃyattāḥ, and saṃyattāḥ, with a nasalized consonant (yṅ), a nasalized vowel (aṅ), and a vowel followed by anusvāra, are also best interpreted as reflecting differences in transition, starting with samyattāḥ, in which a word boundary occurs between sam and yattāḥ (see 8-8.5).

Its phonological behavior justifies concluding that word-final -m was characterized by less occlusion than other word-final nasals. Accordingly, -m does not occur in sequences...
of the type -am | mA comparable to -an | nA (see 9.1.2.7). -m also does not occur as the initial consonant in consonant clusters of the type -m | Y-, which would be subject to consonantal doubling: -mmY- across a word boundary. Instead, -m assimilates to following stops and semivowels other than r: -m | Y- > -Ym | Y-, -m | K- > -K* | K-. In addition, the word boundary could have the effect of keeping -m with a preceding vowel as part of a grammatical and pitch segment, so that -Am could develop either into a nasalized vowel (-Aṁ) or a clear vowel followed by a vocalic segment of the same color but with nasality, that is, to a sequence of vowel and anusvāra. The Vedic evidence indicates it is reasonable to say these last two developments were originally restricted to -m followed by r or spirants and that they were subsequently generalized as variants before stops and semivowels other than r, as in the language described by Pāṇini.
### Chart I. Behavior of -m and -n (3-3.5)

<table>
<thead>
<tr>
<th>Original</th>
<th>Outcome</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. -Am</td>
<td>K-</td>
<td>-AK*</td>
</tr>
<tr>
<td>-Am</td>
<td>K-</td>
<td>-Am</td>
</tr>
<tr>
<td>2. -Am</td>
<td>Y-</td>
<td>-AYm</td>
</tr>
<tr>
<td>-Am</td>
<td>Y-</td>
<td>-Am</td>
</tr>
<tr>
<td>-Am</td>
<td>Y-</td>
<td>-Anm</td>
</tr>
<tr>
<td>3. -Am</td>
<td>Š-</td>
<td>-An</td>
</tr>
<tr>
<td>-Am</td>
<td>Š-</td>
<td>-Anm</td>
</tr>
<tr>
<td>4. -An</td>
<td>l-</td>
<td>-Alm</td>
</tr>
<tr>
<td>-An</td>
<td>l-</td>
<td>-Alm</td>
</tr>
<tr>
<td>5. -Am/Am</td>
<td>Cx-</td>
<td>-AmR</td>
</tr>
<tr>
<td>-Am/Am</td>
<td>Cx-</td>
<td>-AmR</td>
</tr>
<tr>
<td>[Cx = palatal, retroflex or dental voiceless stop]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. -Ān</td>
<td>A-</td>
<td>-Ān</td>
</tr>
<tr>
<td>-Ān</td>
<td>A-</td>
<td>-An</td>
</tr>
</tbody>
</table>
CARDONA, George

Chart II. Transitional phenomena (9.1-9.1.2.5)

[In addition to the symbols used in chart I, the following are used here: a: short vowel, K': stop of the same series (savargiya) other than a nasal, K': voiceless stop (prathama), K': retroflex stop (tavarga), K': dental stop (tavarga), Ś: voiceless spirant (aghosa ūśmā), #: pause. Subscripts indicate the position of a consonant; e.g., C₁, C₂ designate the first and second consonants of a cluster, K₂ a stop which is the second member of a consonant cluster]

<table>
<thead>
<tr>
<th>Original</th>
<th>Result of doubling</th>
<th>Doubling disallowed</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. AC₁C₂</td>
<td>AC₁C₁C₂</td>
<td></td>
<td>P TPr. ṚPr. VPr. ŚCĀ</td>
</tr>
<tr>
<td>2. ArC₂A</td>
<td>ArC₁C₂A</td>
<td></td>
<td>P TPr. ṚPr. ŚCĀ</td>
</tr>
<tr>
<td>3. AhC₁A</td>
<td>AhC₂C₂A</td>
<td></td>
<td>P VPr. ŚCĀ</td>
</tr>
<tr>
<td>4. a. AŚ₁K₂</td>
<td>AŚ₁Ś₁K₂</td>
<td>/ AŚ₁K₁K₂</td>
<td>ṚPr.</td>
</tr>
<tr>
<td>b. AŚK₂</td>
<td>AŚK₂K₂</td>
<td></td>
<td>VPr.</td>
</tr>
<tr>
<td>5. a. AŚC₁C₂</td>
<td>AŚC₁C₂C₂</td>
<td></td>
<td>VPr.</td>
</tr>
<tr>
<td>b. AYK₂</td>
<td>AYK₂K₂</td>
<td></td>
<td>VPr.</td>
</tr>
<tr>
<td>c. AṅK₂</td>
<td>AṅK₂K₂</td>
<td></td>
<td>VPr.</td>
</tr>
<tr>
<td>e. Ah</td>
<td>K₂C</td>
<td>Ah</td>
<td>K₂K₂C</td>
</tr>
<tr>
<td>6. a. A/K₂</td>
<td>A/K₂</td>
<td>A/K₂K₂</td>
<td>TPr. (Pauśkarasādi)</td>
</tr>
<tr>
<td>b. A/K₂</td>
<td>A/K₂</td>
<td>A/K₂K₂</td>
<td>TPr. (some) ṚPr.</td>
</tr>
<tr>
<td>7. a. AvK₂</td>
<td>AvvK₂</td>
<td>/ AvK₂K₂</td>
<td>TPr. (Pauśkarasādi)</td>
</tr>
<tr>
<td>b. AvK₂</td>
<td>AvK₂K₂</td>
<td></td>
<td>TPr. (some)</td>
</tr>
<tr>
<td>8. -AC</td>
<td>-ACC</td>
<td></td>
<td>ŚCĀ</td>
</tr>
<tr>
<td>9. a. āṅ</td>
<td>A-</td>
<td>āṅ</td>
<td>nA-</td>
</tr>
<tr>
<td>b āṅ</td>
<td>A-</td>
<td>āṅ</td>
<td>nA-</td>
</tr>
<tr>
<td>c. āṅ</td>
<td>A-</td>
<td>āṅ</td>
<td>nA-</td>
</tr>
<tr>
<td>10. a. āch</td>
<td>āch</td>
<td></td>
<td>P ṚPr.</td>
</tr>
<tr>
<td>b. -Ā</td>
<td>ch-</td>
<td>-Ā</td>
<td>ch-</td>
</tr>
<tr>
<td>c. mā</td>
<td>ch-</td>
<td>mā</td>
<td>cch-</td>
</tr>
<tr>
<td>d. ā</td>
<td>ch-</td>
<td>ā</td>
<td>cch-</td>
</tr>
</tbody>
</table>

[See also TPr. 14.8 (9.1.2.1e), ṚPr. 6.12-13 (9.1.2.2e, note 159)]

11. | Ś₁C₂ | | | | Ś₁Ś₁C₂ | | Ś₁C₂ | | ṚPr. |
12. -C # | -C₁C₁# | | | | | | ŚCĀ |
<table>
<thead>
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<th>Original</th>
<th>Result of doubling</th>
<th>Doubling disallowed</th>
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</tr>
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<tr>
<td>13. AC₁C₂</td>
<td>AC₁C₂</td>
<td>P ṚPr. (Śakalya)</td>
<td></td>
</tr>
<tr>
<td>14. ĀC₁C₂</td>
<td>ĀC₁C₂</td>
<td>P (ācāryas)</td>
<td></td>
</tr>
<tr>
<td>15. AC₁C₂C₃</td>
<td>AC₁C₂C₃</td>
<td>P (Śakaṭāyana)</td>
<td></td>
</tr>
<tr>
<td>16. AC₁C₁</td>
<td>AC₁C₁</td>
<td>TPr. ŚCĀ</td>
<td></td>
</tr>
<tr>
<td>17. a. AK₁K’₂</td>
<td>AK₁K’₂</td>
<td>TPr. VPr. ŚCĀ</td>
<td></td>
</tr>
<tr>
<td>b. AC₁C₁C₂</td>
<td>AC₁C₁C₂</td>
<td>ṚPr.</td>
<td></td>
</tr>
<tr>
<td>18. ArŚ₂A</td>
<td>ArŚ₂A</td>
<td>P TPr. ṚPr.</td>
<td></td>
</tr>
<tr>
<td>19. a. Ah</td>
<td>C</td>
<td>TPr. ŚCĀ</td>
<td></td>
</tr>
<tr>
<td>b. Aḥ</td>
<td>C</td>
<td>TPr.</td>
<td></td>
</tr>
<tr>
<td>c. Ap</td>
<td>C</td>
<td>TPr.</td>
<td></td>
</tr>
<tr>
<td>20. AŚK¹</td>
<td>AŚK¹</td>
<td>TPr. (Plāksi,Plākṣāyaṇa)</td>
<td></td>
</tr>
<tr>
<td>21. AŚ⁺₁C</td>
<td>AŚ⁺₁C</td>
<td>TPr. (Hārīta)</td>
<td></td>
</tr>
<tr>
<td>22. Ahr</td>
<td>Ahr</td>
<td>TPr. (Hārīta)</td>
<td></td>
</tr>
<tr>
<td>23. AK¹K¹</td>
<td>AK¹K¹</td>
<td>TPr. (Hārīta)</td>
<td></td>
</tr>
<tr>
<td>24. a. Aly</td>
<td>Aly</td>
<td>TPr. (Hārīta)</td>
<td></td>
</tr>
<tr>
<td>b. Aty</td>
<td>Aty</td>
<td>TPr. (Hārīta)</td>
<td></td>
</tr>
<tr>
<td>c. Alv</td>
<td>Alv</td>
<td>TPr. (Hārīta)</td>
<td></td>
</tr>
<tr>
<td>d. Atv</td>
<td>Atv</td>
<td>TPr. (Hārīta).</td>
<td></td>
</tr>
<tr>
<td>25. AvC</td>
<td>AvC</td>
<td>TPr. (Hārīta)</td>
<td></td>
</tr>
<tr>
<td>26. a. Alh</td>
<td>Alh</td>
<td>TPr. (some)</td>
<td></td>
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<tr>
<td>b. Alś</td>
<td>Alś</td>
<td>TPr. (some)</td>
<td></td>
</tr>
<tr>
<td>c. Alv</td>
<td>Alv</td>
<td>TPr. (some)</td>
<td></td>
</tr>
<tr>
<td>27. AC₁</td>
<td>C₂</td>
<td>AC₁</td>
<td>C₂</td>
</tr>
<tr>
<td>28. ArC #</td>
<td>ArC #</td>
<td>TPr. ṚPr. VPr.</td>
<td></td>
</tr>
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</table>
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ĀpŚ *Āpiśalaśikṣā*. See Yudhiṣṭhira Mīmāṃsaka.

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Bh. *Mahābhaṣya*. See Abhyankar.

BhN Nirmayasagar Press edition of the *Mahābhaṣya*. See Jośī, Bhārgavaśastrī et al.


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PŚ: *Pāṇiniyaśikṣā.* See Ghosh. [Reference is to the reconstructed text.]

PŚPa: *Paṇijkā commentary on Pāṇiniyaśikṣā.* See Ghosh.

PŚR: Rudra Prasāda Śarma’s edition of the *Pāṇiniyaśikṣā.* See Rudra Prasāda Śarmā.

PŚRP Rudra Prasāda Śarmā’s *Pradīpa* on the metrical *Pāṇiniyaśikṣā.* See Rudra Prasāda Śarmā.


RPrU Uvaṭa’s commentary on the *Ṛgvedaprātiṣākhya.* See Shasti, Mangal Deva.

RT: *Ṛktantra.* See Surya Kanta.

Rudra Prasāda Śarmā  


RV *Ṛgveda.* See Sontakke et al.

SaV *Sārasvatavyākaraṇa,* see Kara. [Reference to volume, page, sūtra number]

ŚCĀ: *Śaunakīyā Caturādhyāyikā.* See Whitney 1862, Deshpande 1997. [References to Deshpande’s edition appear in brackets following references to Whitney’s edition.]

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Surya Kanta


TPrM Māhiṣeya’s Padakramasadana. See Venkatarama Sharma.

TPrS Somayārya’s Tribhāṣyaratna. See Shama Sastri, R. and K. Rangacarya.

TS Taittirīyasamhitā. See Sontakke and Dharmadhikari

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VPrA Annambhaṭṭa’s commentary on the Vājasaneyiprātiṣākhya. See Varma, Virendra Kumar 1975.

VPrU Uvaṭa’s commentary on the Vājasaneyiprātiṣākhya. See Varma, Virendra Kumar 1975.

VrR Vṛttaratnākara. See Sharma, Aryendra et al.

VŚ Vyāṣaṣaṅkṣā. See Pattabhirama Sastri.

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初期インド・アーリア語における鼻音の発達：
アヌナーシカとアヌスヴァーラ

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キーワード：インド・アーリア語　音節と音声　鼻音　韻律　タイミングと遷移

要旨

初期インド・アーリア語の鼻音の発達についてはさまざまな議論がなされてきた。その主たる争点は、文法家バーニニやプラーティシャーキャ文献、シクサー文献の著者がアヌナーシカとアヌスヴァーラと呼ばれる音を区別していることが、実際の言語における区別を反映しているか、あるいは同じものか違うかという点であった。Whitney は後者の解釈をし、彼の見方をのちに批判されたものの、まだ決定的に論証されていない。本論で筆者は、問題の区別は実際の言語における、鼻音の前後続鼻音であるアヌナーシカと、母音に後続する鼻音分節音であるアヌスヴァーラの区別を明確に反映するものであることを論証する。また、それに関連したタイミング、遷移、子音重複の問題もあわせて考察する。

本論文の構成は以下の通りである：
1. はじめに 2. バーニニの『アシュター・ディヤーイ』やプラーティシャーキャ文献における、見解の違いと実際の用法の違いを示す記述の例 3. 語末の -m に関する『アシュター・ディヤーイ』とプラーティシャーキャ文献の規則、および関連する -n に関する規則 4-6. これらの規則が Whitney の説では解釈できず、Whitney が主張するデーヴァーダーガリー文字からの証拠も受け入れられない 7. アヌスヴァーラの音節・音声的性質：韻律からの証拠 8. タイミングと遷移に関する違いと -m の史的発展のいかわり 9. 子音重複や音調の遷移にかかわる、そうした違いの類例 10. まとめ