

CHAPTER 1

Language in Ancient Asia and the Americas: an introduction

ROGER D. WOODARD

- 1 O Bṛhaspati. When in giving names they first set forth the beginning of Language,
Their most excellent and spotless secret was laid bare through love.
- 2 When the wise ones formed Language with their mind, purifying it like grain with a winnowing
fan,
Then friends knew friendships – an auspicious mark placed on their language.
- 3 Through sacrifice they tracked the path of Language, and within the poets found it.
Bearing it, they spread it abroad – in many places; the seven singers together spoke it loud.
- 4 One looking did not see Language; another listening did not hear it;
Language unfolds itself to another – like a wife, beautifully adorned and willing, to her husband.

Rig-veda 10.71.1–4

The present volume covers far greater geographic space than any of its companion volumes: all of Asia is included – excepting the linguistically rich regions of Asia Minor, with Transcaucasia (see *The Ancient Languages of Asia Minor*) and southwest Asia (which readers will find covered within the volumes entitled *The Ancient Languages of Mesopotamia, Egypt, and Aksum* and *The Ancient Languages of Syria-Palestine and Arabia*) – as well as the American continents (or continent, as one prefers). Over half of the languages examined in the chapters that follow were spoken in ancient Iran, central Asia, and the Indian subcontinent; and of these, all were Indo-European languages, with the exception of the Dravidian language of Old Tamil. From more easterly Asian locales, the only language to be preserved out of antiquity is Chinese – the speech of a culture whose influence dominated ancient east Asia – occupying a position of prestige and primacy comparable to that of Egypt in the ancient Mediterranean world – and which, as the third millennium AD begins, gives every sign of being poised for resurgence in a world gone global. Continuing farther east, across the Bering Strait, one finds a place, the Americas, that provides only limited evidence for the linguistic life of its ancient peoples – all of it emanating from the cinctured waist of the continent(s) that is Central America.

Of the languages described in the chapters that follow, the “oldest” is Sanskrit, an ancient language of India (see Ch. 2). Sanskrit is a member of the Indo-European language family, belonging to the subgroup called Indo-Iranian, which is itself divided into two branches: Indo-Aryan (or simply Indic) and Iranian. The earliest form of this “oldest” language, Sanskrit, is the one found in the ancient Brahmanic text called the *Rig-veda*, composed c. 1500 BC. The date makes Sanskrit one of the three earliest of the well-documented

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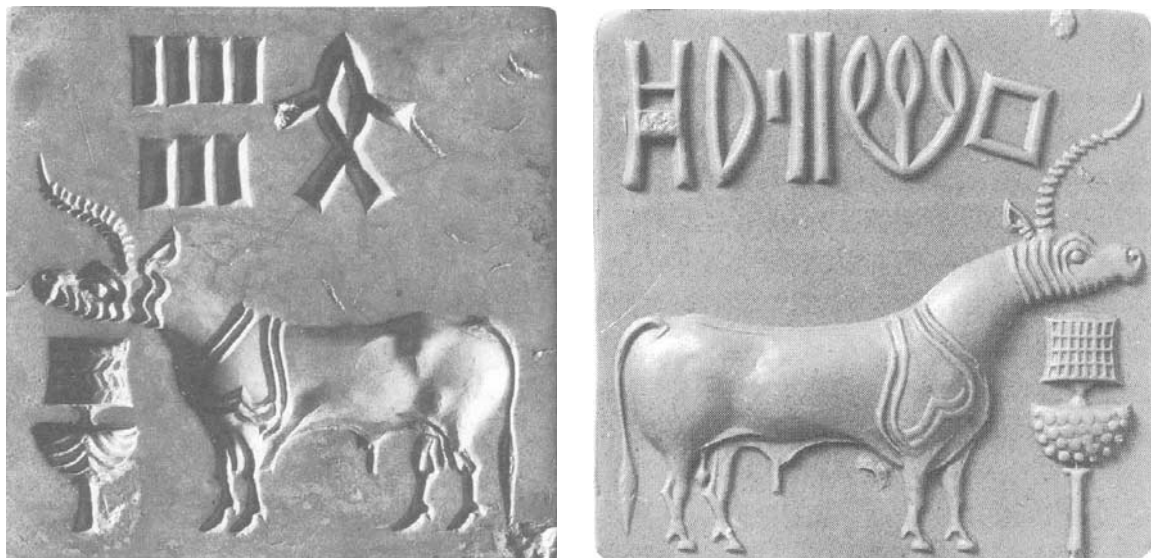
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Figure 1.1 Indus Valley inscriptions

languages of the Indo-European family – the other two being Old Hittite (see WAL Ch. 18, §1) and Mycenaean Greek (see WAL Ch. 25, §1.2) – and, in keeping with its early appearance, Sanskrit has been a cornerstone in the reconstruction of the parent language of the Indo-European family – Proto-Indo-European (see the Appendix in the companion volume, *The Ancient Languages of Europe*).

Sanskrit is not, however, the oldest *documented* language of South Asia. That distinction belongs to a language that is not presently understood – the language of an undeciphered script – and, hence, a language that cannot be given any sort of well-informed linguistic description. In the mid third millennium BC, writing emerges in the archeological record of the Harappan culture of the Indus Valley. The characters of this Indus Valley script (see Figure 1.1) are of a well-developed, somewhat conventionalized pictographic nature at the earliest phase of the script's attestation (possibly suggesting some earlier unattested developmental stage). The number of characters identified likely reveals that the script operates with both logograms (symbols representing entire words) and syllabograms (phonetic symbols having the value of a syllable). Lying behind the Indus Valley script may well be a Dravidian language (see Ch. 4, §1) or possibly an early form of Indo-Aryan (see Ch. 2, §1). On the Indus Valley script and its attempted decipherment, see Parpola 1996 and 1994.

In point of fact, Sanskrit is not even the earliest (demonstrably) Indo-European language of South Asia to be attested by inscriptional evidence. While Vedic Sanskrit represents the *earliest preserved* language of those languages described in this volume, the *Rig-veda*, like all of the Vedas (see Ch. 2, §1), was passed along orally for many centuries before being given written form. The earliest surviving Indo-European *texts* of South Asia are the inscriptions left by Aśoka, ruler of the Maurya Empire of India during the second and third quarters of the third century BC (see, *inter alia*, Keay 2003:1:88–113, especially pp. 98–113). The language of these inscriptions constitutes one particular form of Middle Indic, “the designation for a range of Indo-Aryan languages displaying characteristic phonological and grammatical developments from Old Indic (i.e. Sanskrit)” (see Ch. 3).

When Indo-Europeans entered the subcontinent of India at some point in the second millennium BC, among the peoples whom they there encountered, some were undoubtedly

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speakers of languages belonging to the Dravidian family. The earliest known of the Dravidian languages is Old Tamil (see Ch. 4), a language spoken in southern India and northern Sri Lanka. As with Indo-Aryan (i.e. Middle Indic), the Dravidian language of Old Tamil is first attested in inscriptions produced during the third century BC.

The Iranian branch of the Indo-Iranian subfamily of Indo-European is represented by several languages known from antiquity. Avestan (see Ch. 6), closely related to Sanskrit, is the language of the Zoroastrian legal and religious documents that comprise the *Avesta*. The date of the composition of the earliest Avestan materials is uncertain, but to situate them in the late second millennium BC, while controversial in some circles, would not be unreasonable from a linguistic perspective. The earliest portion of the *Avesta*, the set of hymns called the *Gāthās*, has traditionally been attributed to Zarathuštra, the prophetic founder of the Zoroastrian religion. Later Avestan documents, among many other types of texts, were recorded in Middle Iranian languages, often collectively designated by the name Pahlavi (see Ch. 7).

From a different sacred textual tradition comes – perhaps somewhat unexpectedly – a reference to another influential Iranian figure of antiquity:

... “He is my shepherd,
and he shall fulfill all my purpose”;
saying of Jerusalem, “She shall be built,”
and of the temple, “Your foundation shall be laid.”
Thus says the Lord to his anointed, to Cyrus,
whose right hand I have grasped,
to subdue nations before him
and ungird the loins of kings,
to open doors before him
that gates may not be closed.
Isaiah 44.28–45.1 (Revised Standard Version)

The Biblical prophet who composed these lines in which Yahweh proclaims “Cyrus” to be “his anointed” speaks of the Iranian monarch Cyrus the Great (d. 530 BC) – founder of the Achaemenid Empire of Persia – who had overthrown the Babylonian king Nabonidus, opening the way for exiled Jews in Babylonia to return to Jerusalem and rebuild their ruined temple. The Western Iranian language of the Achaemenid Empire is Old Persian (see Ch. 5), far less robustly attested than Avestan. No Old Persian inscriptions survive from the reign of Cyrus; all come from the era of his successors, stretching from Darius I to Artaxerxes III (the period 522–338/7 BC). For their recording, a unique cuneiform script is used (see Ch. 5, §2) – one based stylistically on Mesopotamian cuneiform (see WAL Ch. 8, §2 and the Appendix accompanying that chapter) but operationally quite distinct from it.

On its eastern fringe, the speech area of the Iranian languages in antiquity stretched to Chinese Turkestan. Here, speakers of known Middle Iranian languages such as Saka and Sogdian interfaced not only with other Indo-Europeans – the Tocharians (whose language is first attested too recently to be included in the present volume) – but with speakers of Chinese and Tibetan as well (see Narain 1994:173–176). Concerning these extreme eastern Indo-European peoples, Narain writes (p. 176):

It is their movement which brought China into contact with the Western world as well as with India. These Indo-Europeans held the key to world trade for a long period . . . They acted as carriers of religious doctrines and artistic traditions from the east to the west and vice versa . . . In the process of their own transformation, these Indo-Europeans influenced the world around them more than any other people before the rise of Islam.

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The groups with which these Indo-Europeans were interacting so as to exert such a far-ranging influence – the people activating such influence – were, of course, first and foremost Chinese. The earliest surviving Ancient Chinese documents are “oracle bone” inscriptions of the fourteenth century BC (thus almost contemporaneous with the composition of the Vedas), written in that form of the near-hypnotically intriguing Chinese script called *jiaguwen* – having recognizably pictographic characters in many instances (see Ch. 8, §2 and Table 8.1). Here too – in China – writing was first employed for purposes of the sacred – or at least first survived in such usages. Tortoise-shell or bones – often ovine or bovine scapulas – were engraved with text and then heated until they cracked; oracular responses were then divined by reading the text demarcated by the fracture-lines.

Long, long before Indo-Europeans had made their way into Chinese Turkestan, long, long before the Chinese language was ever committed to writing on tortoise-shell and bone, when ice still bridged Asia and America, some group, or groups, of Asian peoples trekked across that ice and began the long process of settling the New World. But the specifics of such settlement are a matter of great uncertainty and disagreement; as Campbell (1997:93) observes: “opinions concerning the origins of Native American languages at present differ widely and the topic is surrounded by controversy. These different views reflect different approaches to the classification of American Indian Languages, and the different classifications which have been proposed have distinct implications for the origins of the languages.” The very number of distinct native American languages that can be identified is disputed – perhaps about 900 still spoken (see Campbell 1997:3), with many, many others long or recently extinct (on which see generally Crystal 2002) – as is the number of linguistic families that these individual languages comprise, though “most [scholars] believe that there are approximately 150 different language families in the Western Hemisphere which cannot at present be shown to be related to each other” (Campbell 1997:105).

The earliest graphic remains of native America are rock carvings – petroglyphs – many certainly dating back thousands of years before the present time (though precise dating is often difficult; see Bahn 1998, especially pp. 142–169). But these widely occurring, often starkly beautiful, artistic images of ancient American peoples do not constitute writing – that is, they do not preserve *language* in graphic form. With the exception of only a few languages of Mesoamerica – Mayan, Epi-Olmec, Zapotec – the native American languages of antiquity are known solely through linguistic reconstruction – the remarkable method that allows for the scientific recovery of unattested proto-languages (i.e. ancestral languages) by comparing the attested descendant languages. The reader will find a careful treatment of the comparative method in Appendix 1 located at the end of this volume.

Regarding the above-mentioned ancient Mesoamerican languages, only two are, at present, sufficiently well understood to be given a full linguistic description: Mayan, the better-known, is treated in Chapter 9 and Epi-Olmec in Chapter 10. Zapotec inscriptions, carved in stone like those of the Mayans and Epi-Olmecs, may date to as early as 500 or 600 BC (though the earliest uncontroversial dates are between 400 and 200 BC) and are last attested in about AD 900 (Zapotec manuscripts also occur in the sixteenth century, though the corpus is small). Several dozen short inscriptions exist, as well as a large number of calendrical citations, providing perhaps 100–300 distinct glyphic components. Owing to the difficulty in obtaining information on this language, a brief grammatical sketch of Zapotec, based on our present, limited understanding of the language, has been included as an Appendix to Chapter 10.

Since the evidence for language in early America is so limited, mention should also be made of the early Mesoamerican languages of Mixtec and Aztec. Both are attested by about AD 1100 (and so fall outside of the chronological scope of this volume) but are best known

from sixteenth-century AD manuscripts. For Mixtec see, *inter alia*, Marcus 1992:57–67 and Jansen 1992; for Aztec, see Marcus 1992:46–57 and Prem 1992. In addition, on the pictographic records of the Tlapanecs, see Vega Sosa 1992.

Bibliography

- Bahn, P. 1998. *The Cambridge Illustrated History of Prehistoric Art*. Cambridge: Cambridge University Press.
- Bricker, V. 1992. *Epigraphy*. Supplement to the Handbook of Middle American Indians, vol. V. Austin: University of Texas Press.
- Campbell, L. 1997. *American Indian Languages: The Historical Linguistics of Native America*. Oxford: Oxford University Press.
- Crystal, D. 2002. *Language Death*. Revised edition. Cambridge: Cambridge University Press.
- Jansen, M. 1992. "Mixtec pictography: conventions and contents." In Bricker 1992, pp. 20–33.
- Keay, J. 2003. *India: A History* (2 vols.). London: The Folio Society.
- Marcus, J. 1992. *Mesoamerican Writing Systems*. Princeton: Princeton University Press.
- Narain, A. 1994. "Indo-Europeans in Inner Asia." In D. Sinor (ed.), *The Cambridge History of Early Inner Asia*, pp. 151–176. Reprint. Cambridge: Cambridge University Press.
- Parpola, A. 1994. *Deciphering the Indus Script*. Cambridge: Cambridge University Press.
- . 1996. "The Indus Script." In Daniels and Bright 1996, pp. 165–171.
- Prem, H. 1992. "Aztec writing." In Bricker 1992, pp. 53–69.
- Vega Sosa, C. 1992. "The annals of the Tlapanecs." In Bricker 1992, pp. 34–52.
- Whittaker, G. 1992. "The Zapotec writing system." In Bricker 1992, pp. 5–19.

CHAPTER 2

Sanskrit

STEPHANIE W. JAMISON

1. HISTORICAL AND CULTURAL CONTEXTS

Sanskrit is an Indo-European language, a member of the Indo-Aryan branch of the Indo-Iranian subgroup of that family. It is chronologically and in terms of linguistic development the “oldest” Indo-Aryan language and consequently often referred to as *Old Indic* (Altindisch) or *Old Indo-Aryan*; its descendants include a range of linguistic varieties classified under the rubric Middle Indic (or Prākṛit, see Ch. 3), as well as the Modern Indic (New Indo-Aryan) languages spoken today, such as Hindi, Gujarati, Bengali. It is not related genetically to the Dravidian languages of South India, such as Tamil and Telugu.

The oldest form of Sanskrit is so-called *Vedic Sanskrit*, the language of the four collections of liturgical texts known as the Vedas and of the early exegetical literature on these texts. The oldest Veda is the *Ṛgveda* (*Rig-veda*), a compilation of 1,028 hymns which took shape around 1500 BC in northwest India, though the composition and collection of hymns clearly occupied several centuries. In language, style, and phraseology the *Ṛgveda* resembles the earliest texts of its closest linguistic relative, the *Gāthās* attributed to the prophet Zarathustra, composed in Old Avestan (see Ch. 6).

Though the composition of Vedic texts can be dated with fair confidence to the period of c. 1500–500 BC, direct records of them are only found several millennia later. The “texts” were transmitted orally, with minimal alteration, and even after they were also committed to writing, the manuscripts were perishable and less reliable than the oral tradition.

Through the approximately thousand years of Vedic textual composition, the language shows gradual changes, especially in the loss of certain grammatical categories and the reduction of variant forms. Around 500 BC the Sanskrit then current among cultivated speakers received a magnificent description by the grammarian Pāṇini in his treatise, the *Aṣṭādhyāyī* (“[Work] consisting of eight chapters”), whose level of detail and theoretical sophistication has not been equaled to this day.

Pāṇini inadvertently froze the language in this particular form forever. What was composed as a *descriptive* grammar (though descriptive of a geographically and socio-culturally limited speech form, not the speech of the whole society) became a *prescriptive* grammar of a learned language. All subsequent Sanskrit follows, or attempts to follow, the rules of Pāṇini. Though there are systematic variations in later texts, these are essentially stylistic and distributed according to textual genre. The language of the great epics, the *Mahābhārata* and the *Rāmāyaṇa*, deviates somewhat from the Pāṇinian norm and is therefore sometimes distinguished as *Epic Sanskrit*; it displays some Middle Indic tendencies. Inscriptional Sanskrit also commonly shows nonsanctioned forms. Despite these minor exceptions, Sanskrit no longer had a history in the accepted linguistic sense of this term – even though the greater

part of its literature remained to be composed. The great flourishing of Sanskrit literary production lasted through the first millennium AD.

The language as fixed by Pāṇini is commonly known as *Classical Sanskrit*, or *Sanskrit* proper. Indeed, the term *saṃskṛta* means “perfected” and refers to the language generated according to Pāṇini’s rules, as opposed to the vernacular Prākṛits, from *prākṛta* “natural, unrefined.” Strictly speaking, the pre-Pāṇinian language of the Vedic texts is not “Sanskrit,” and is sometimes called simply *Vedic*, rather than Vedic Sanskrit. In this work, however, *Sanskrit* will denote all varieties of Old Indic.

2. WRITING SYSTEM

The earliest Sanskrit texts were composed and transmitted orally, not written down for centuries after their first “attestation.” Indeed, the first documentary evidence of Indo-Aryan languages in the Indian subcontinent comes not from Old Indic but Middle Indic: the inscriptions of the ruler Aśoka in the third century BC (see Ch. 3, §1.1). The first direct attestation of Sanskrit comes from around the beginning of the present era. The first extensive inscription is that of the ruler Rudradāman c. AD 150 at Girnar in western India; the first extant manuscripts, found in central Asia, date from about the same period.

The writing system found in most of the early inscriptions is *Brāhmī* (another, less widespread system, *Kharoṣṭhī*, an adaptation of Aramaic, is found in the northwest, already in the Aśokan edicts). Brāhmī seems to have been adapted from a Semitic writing system, though the exact details are unclear, as is the date of its introduction into India, a subject of much controversy. Brāhmī is the ancestor of most of the writing systems used in India.

Until the advent of printing and the regular publication of Sanskrit texts, Sanskrit manuscripts were written in various local scripts. Now Sanskrit is almost exclusively printed in a script known as *Nāgarī* or *Devanāgarī*, a medieval offshoot of Brāhmī, and perfectly adapted to the writing of Sanskrit, with a one-to-one correspondence between sound and symbol. The conventional transcription of Devanāgarī into Roman characters was established finally at the Tenth Congress of Orientalists, 1894. Transliterations in works published before often show deviations from the modern norm.

The system can be considered a modified or pseudo-syllabary in that each consonantal symbol represents a consonant with following short *a*-vowel (the commonest vowel in the language), for example, क = *ka*, ख = *kha*, ग = *ga*, घ = *gha* (not *k*, *kh*, *g*, *gh*); see Table 26.1. However, unlike “pure” syllabaries, a different symbol is not necessary to represent consonants followed by other vowels (e.g., *kā*, *ki*, *kī*, etc.). Instead, a set of universally applicable diacritics can be used to cancel the inherent short *a* and substitute a different following vowel: thus, का = *kā*, कि = *ki*, कु = *ku*, and so forth. There are also separate signs for independent vowels, for example, अ = *a*, ए = *e*.

Another drawback of some syllabaries, the inability to represent consonant clusters unambiguously, is overcome by the system of ligatures. Portions of each consonant in a cluster are combined into a single conventional sign, for example, त (ta) + क (ka) = त्क (tka). Final consonants can also be represented, by a stroke (*virāma*) under the sign, which cancels the short *a*: thus त = *ta*, but त् = *t*. Thus, the system combines the flexibility of an alphabet with some of the spatial economy of a syllabary.

Devanāgarī writing of Sanskrit lacks word divisions. Each linguistic string, regardless of morphosyntactic structure, is treated as a sequence of syllables (*aṣṭaras*) consisting of onset

Table 2.1 The Devanāgarī script									
Vowel symbols									
a	ā	i	ī	u	ū	ṛ	ṝ	ḷ	
अ	आ	इ	ई	उ	ऊ	ऋ	ॠ	ऌ	
e	ai	o	au						
ए	ऐ	ओ	औ						
Consonant + vowel symbols									
ka	kha	ga	gha	ṇa					
क	ख	ग	घ	ङ					
ca	cha	ja	jha	ṇa					
च	छ	ज	झ	ञ					
ṭa	ṭha	ḍa	ḍha	ṇa					
ट	ठ	ड	ढ	ण					
ta	tha	da	dha	na					
त	थ	द	ध	न					
pa	pha	ba	bha	ma					
प	फ	ब	भ	म					
ya	ra	la	va						
य	र	ल	व						
śa	ṣa	sa	ha						
श	ष	स	ह						
Sample vowel diacritics									
kā	ki	kī	ku	kū					
का	कि	की	कु	कू					
kṛ	ke	kai	ko	kau					
कृ	के	कै	को	कौ					

consonant(s) (if present) plus vowel. Thus, a string like *tad etad rūpam*, with word divisions as given in transliteration, would obligatorily appear in Devanāgarī as *ta de ta drū pa m* त दे त द्रू प म् (though without spaces between the characters).

3. PHONOLOGY

3.1 Diachronic overview

From the point of view of reconstructed Proto-Indo-European, the most important phonological development in Sanskrit (and indeed in Indo-Iranian) is vowel-merger: short **e*, **o*, and **a* all merge as *a*; long **ē*, **ō*, **ā* (and short **o* under certain conditions) merge as *ā*. Since much of Proto-Indo-European morphology was based on alternations of vowels with **e*-timbre and those with **o*-timbre (qualitative ablaut), these mergers had major effects on the morphological system.

On the other hand, Sanskrit maintained the Proto-Indo-European consonantal system with some fidelity, only enlarging its inventory. The three series of stops – voiceless (T), voiced (D), and voiced aspirated (Dh) – traditionally reconstructed remain in Sanskrit, and

a fourth was added, voiceless aspirated (Th). As in other satem languages the labiovelars merged with the plain velars. There was secondary palatalization of the resulting segments, reflected in thoroughgoing synchronic alternations within Sanskrit (see §3.4.2.2). Otherwise, the inventory of places of articulation was increased by the creation of a series of retroflex dental stops. For the comparatist an especially important retention in Sanskrit is the preservation of **y*, **w*, and **s* intervocalically, thus avoiding the loss of morphological clarity attendant on vowel contraction that bedevils the historical linguist in languages like Greek.

3.2 Vowels

The cardinal vowels *i*, *u*, *a* distinguish length; in addition, short *a* is a closer vowel than *ā*, equivalent to schwa. The mid vowels *ē* and *ō*, as monophthongizations of the Indo-Iranian diphthongs **ai* and **au* (preserved in Iranian), are inherently long and are so marked in the phonological sections of this work, though they are not usually so transcribed. The true diphthongs *āi* and *āu* (usually now transcribed simply *ai* and *au*) also count as long. The vocalic liquid *ṛ* represents a merger of PIE (Proto-Indo-European) **r* and **l*. However, long *ṝ* is an invention of the system and found in a few analogically generated morphological categories; PIE **ṝ* has different, biphonemic outcomes in Sanskrit, as we will see. Vocalic *ḷ* is even more limited, found in only one morpheme.

(1) Sanskrit vowel phonemes

monophthongs: *i* / *ī* *u* / *ū* diphthongs: *āi* *āu*
 ē *ō*
 a vocalic liquids: *ṛ* / *ṝ* *ḷ*
 ā

3.3 Consonants

The consonantal inventory of Sanskrit is presented in Table 2.2:

Table 2.2 The consonantal phonemes of Sanskrit						
Manner of articulation	Place of articulation					
	Labial	Dental	Retroflex	Palatal	Velar	Glottal
Stops and affricates						
Voiceless	p	t	ṭ	c	k	
Voiceless aspirated	ph	th	ṭh	ch	kh	
Voiced	b	d	ḍ	j	g	
Voiced aspirated	bh	dh	ḍh	jh	gh	
Nasals	m	n	ṇ	ṇ̐	ṇ̐	
	ṁ anusvāra (see below)					
Fricatives						
Voiceless		s	ṣ	ś		ḥ visarga
Voiced						h
Liquids		l	r			
Glides	v			y		

The apparent symmetry of this consonantal system conceals some failures of parallelism in distribution, often the results of historical changes:

1. The voiceless aspirated series is an addition to the system and significantly rarer than the other three. It is often found in etymologically obscure words.
2. The retroflex sibilant ς is the automatic product of dental s following i , u , r , and k (mnemonically “ruki”), a process also found not only in Iranian but in part in Balto-Slavic.
3. The series of retroflex stops was a creation of Indic, in most cases as a conditioned result of regressive assimilation to rukiified ς and therefore distributionally limited; in particular, initial retroflexes are almost never found. The retroflex nasal is ordinarily the automatic product of dental nasal when the word contains a preceding r (subject to some conditions). Thus, all the retroflexes are in origin conditioned alternants of dentals, though from the beginning of the language they have a qualified independence.
4. The palatals are affricates, not stops. In the palatal row the voiced aspirate $j\dot{h}$ is a new and extremely rare phoneme; the phoneme patterning with the palatals as the voiced aspirate for morphophonemic purposes is glottal h (see §3.4.2.1).
5. The palatal nasal is a conditioned variant of n occurring next to palatal obstruents; the velar nasal is also ordinarily a conditioned product of n , found before velar stops, but further phonological developments (loss of final or cluster-internal velar stop) can allow the velar nasal an independent if marginal existence. *Anusvāra* is a conditioned alternant of postvocalic nasals, under certain sandhi conditions.
6. *Visarga* is a word-final (sometimes morpheme-final) conditioned alternant of s and r under certain sandhi conditions.
7. The glides and liquids regularly alternate with vowels: $i \approx y$; $u \approx v$ ($[w]$); $\text{ṛ} \approx r$; $\text{ḷ} \approx l$ (under conditions discussed below).

3.4 Phonological alternations

Sanskrit is characterized by a pervasive series of phonological alternations occurring on several different linguistic levels and displaying varying degrees of transparency. We begin with the most transparent.

3.4.1 External sandhi

The surface form of any linguistic string is subject to phonological rules of combination (*sandhi* or “putting together”). In other words, phenomena of the English *gonna* (from *going* + *to*) type apply to any two words in contact within a sentence, and even between sentences in a discourse. Most sandhi rules involve regressive assimilation, especially in voicing: for example, (with underlying *tad*) *tad bhavati* but *tat phalam*. Assimilation in manner of articulation is also met with (e.g., *tan manas*). Like vowels coalesce into a single long vowel (e.g., *vada* + *agne* $\Rightarrow$ *vadāgne*), and unlike vowels undergo diphthongization or glide-formation (e.g., *vada oṣadhe* $\Rightarrow$ *vadauṣadhe*; *asti agniḥ* $\Rightarrow$ *asty agniḥ*). Despite the simplicity of the principles, the details of sandhi rules are sometimes opaque. For example, though the change of final *-as* to *-o* before voiced sounds historically involves regressive voicing assimilation, this process is not synchronically transparent. The rules of external sandhi ordinarily apply also at compound seams, and many but not all of the same rules at morpheme boundaries.