Historical linguists use many tools to investigate the past. Among the most important are comparative reconstruction, the analysis of clues from dialect distribution, naive spelling, and orthoepic censure. But one of the most valuable tools is often overlooked, that is, the stratification of data into chronological layers. Such layering can allow a linguist to detect trends which would not have otherwise been discernible. The work of the historical linguist can, in fact, be compared with that of the archeologist: artifacts, whether tangible or intangible, have been laid down in layers. The researcher must not only unearth them, but must also recognize their stratified character. Just as an archeologist can read the clues of pottery sherds and figurines to judge their age, so must a linguistic archeologist sort out the data, interpreting one form as old, another as belonging to a more recent layer. Stratificational evidence can be drawn from any part of the grammar or lexicon, but some clues are more useful than others. Probably most valuable of all is the evidence to be gleaned from the morphology, for it is here that remnants of older systems persist.

In this paper, I demonstrate the extent to which morphologigical stratification can be utilized by examining one such category, the g-aorist of Sanskrit. The g-aorist is usually reconstructed as a category of Proto-Indo-European, since a number of Indo-European languages have preterital g-constructions:

1. Skt. avākṣam ‘conveyed’ ajaīsām ‘conquered’
   OCS vēsū ‘led’ nēsū ‘carried’ grēsū ‘buried’
   Lat. uōxī ‘conveyed’ -rēxī ‘directed’ dīxī ‘said’
   Gk. ὁρεξά ‘stretched out’ ἐδείξα ‘showed’
   ἑξά ‘collected’
   OIr. -léicius ‘left’ -morus ‘magnified’
   Toch. A (mid.) prāksāt ‘asked’
   Hitt. tarnaš ‘released’ paš ‘gave’

The IE g-aorist was presumably characterized by the lengthened grade in the active, as illustrated in the Sanskrit, Old Church Slavonic, and Latin examples above.
In Sanskrit, the lengthened grade (ṛddhi) appears as lengthening or diphthongization of the root vowel:

2. root vowel a ā i ī u ū ō
   ṛddhi ā āi āu āō

(Whitney 1889: 82)

This lengthened grade is used throughout the active g-aorist, whereas middle and subjunctive g-aorists generally have full-grade vocalism. The Sanskrit g-aorist is moderately well-attested and somewhat productive, especially in the Rgveda, the collection of the oldest hymns of Sanskrit. At first glance, then, it seems reasonable and uncontroversial to assume, with traditional scholars, that the lengthened-grade g-aorist reflects an ancient category.

A closer examination of the data demonstrates the incorrectness of this conclusion, however, and shows how essential the use of chronological stratification is, for if all attested RV g-aorists are sorted according to root type, a marked imbalance can be detected: some types of roots simply did not take the g-aorist in earliest times.

For example, roots in CRC (i.e., obstruent - ŏ-grade vowel - obstruent) apparently formed very few g-aorists in the earliest Rgveda. Actives of this root type are rare and isolated; middles are all built on more recent, productive forms, or on root aorists.

3. CRC actives: ṣṛj ‘release’ act. 3sg. asrāk 1x
   vs. mid. 3pl. asrksaṭa 21x
   middles: later, productive types
   vṛt ‘turn’ mid. 3pl. avṛtsaṭa
   or built on the root aorists
   dṛc ‘fill’ RV 3sg. mid. root aor. aprkta
   later 1sg. mid. s-aor. aprkṣi

Especially productive are middle endings in -ṣi (1sg.) and -ṣaṭa (3pl.) Their connection with the root aorist is signaled not only by their form (-g- + -i-; -g- + -ata-) but also by their ŏ-grade vocalism (Narten 1964: 24ff.)

A further indication of secondariness is the fact that only one g-aorist subjunctive is attested among CRC roots in the Rgveda:

4. CRC subjunctives: dṛṣ ‘see’ mid. 2sg. subj. dṛksaṣa
Sanskrit S-Aorist

Compare this to the typologically similar CaC category, where every root has a subjunctive.

Likewise, s-aorists of liquid-final roots are limited almost exclusively to later texts (e.g., Books I and X of the RV):

5. CR actives and middles:
hr 'take' act.1sg ahārsam (Book X) 3x
mid.3sg ahrṣata (Book X)

Only the subjunctive forms of dr 'split' and pr 'pass over, take over' show any productivity, and at least some of this productivity is decidedly late:

6. CR subjunctives: pr 'pass over' act.3sg parsat 11x
2du parsathas etc.

Most nasal-final roots are also to be excluded from the category of greatest antiquity because their medial forms are apparently rebuilt for purposes of root-recognition. These new s-aorists were created to replace or supplement root aorist forms in which the nasal was no longer apparent:

7. CaN middles: man 'think'
s-aorist mid. 1sg. maṃji
3pl. amāṃsata etc.
vs. root aorist mid.3sg. amata (<<ampta)

This imbalance in distribution clearly indicates that all of these forms constitute a later layer of the s-aorist category.

On the other hand, the two remaining root types, the obstruent-final roots with a vowel in a (e.g. bhaj 'divide') and the vowel-final roots (e.g. dha 'set') do show signs of greater antiquity. We can assume that these two categories represent a more archaic layer for three reasons:

-they are attested even in the earliest texts
-they form more complete paradigms while showing decidedly archaic forms
-they are not limited to secondary productive forms like the middles in -ṣi and -ṣata

Now that we have recognized the distinct signs of chronological stratification in the s-aorist system, and have identified the CaC and CV roots as more archaic, a rather startling observation emerges: we can identify
the original locus of lengthening as having occurred in
the 2nd and 3rd sg. active forms of old CaC roots.

8. Archaic root types: CaC & CV
   bhaj 'divide' act. 3sg. bhāk₂ (← bhaj-s-t)
   mid. 3sg. abhakta
   subj. 3sg. bhakṣat

Basic to this explanation is an important rule of sandhi
in Sanskrit which states that word-final consonant
clusters are not tolerated, and that only the first
consonant of the cluster will appear on the surface.
Thus, a Sanskrit speaker who wished to form a second or
third person singular g-aorist for a CaC root would
delete both the personal marker and the g-marker, and
would be left only with the final consonant of the root:

9. g-aor. 3sg. -bhaj - g - t --＞ -bhāk

I claim that it is precisely this deletion which is
responsible for the lengthening of the g-aorist, that is,
compensatory lengthening as a result of the loss of two
final consonants through sandhi.

It must be stressed that it is the loss of two (or
more) obstruents which produces compensatory lengthening.
The root aorist, which deletes only a single obstruent,
does not show similar lengthening:

10. root aor. 3sg. -ghas - t --＞ -ghas

Lengthening would then have spread to other parts of the
paradigm, becoming eventually, but only secondarily, the
regular vocalism of the g-aorist.

Several arguments could be raised against this
proposal. Traditional Indo-Europeanists might point out
that the lengthened grade is reflected in the long vowels
of Old Church Slavonic and Latin, so that it must be
reconstructed for the proto-language anyway; they would
thus prefer to derive a lengthened vowel in Sanskrit from
an original one in the proto-language. However, as I
explain in my dissertation (Drinka 1990), there is
actually little evidence for ancient length in either of
these languages; both produced length in different
environments, under different conditions and for
different reasons than Sanskrit did. Lengthening, then,
is better seen as an independent process which developed
in several of the languages having g-constructions, but
which does not pertain to the proto-language.
Another argument might be made by linguists like de Chene and Anderson (1979), who claim that only adjacent glides can cause vowels to lengthen through compensatory lengthening. They assume (1979: 526) that compensatory lengthening did not take place in Sanskrit when word-final consonants were deleted because the (somewhat irregular) adjectival forms like \textit{udān} < *udāŋ + g 'northern' do not show lengthening. What they are failing to consider is that productive adjectival forms like nom. sg. \textit{bhagavān} < *bhagavant-g 'fortunate' do show such lengthening. Furthermore, other evidence of compensatory lengthening without glide-loss exists in Sanskrit:

\begin{itemize}
  \item \textit{ruh} 'ascend' \textipa{ru\textsuperscript{sh}/ + /ta/}
\end{itemize}

\begin{itemize}
  \item assim. of pt. of artic. \textit{rudhta}
  \item progressive vce. assim. \textit{rudhda}
  \item cons. loss, with CL \textit{rūdhā}
\end{itemize}

(Whitney 1889: 75)

In conclusion, the sorting of morphological artifacts into archaic and innovative layers has allowed us to make several important observations which were not obvious to previous researchers. It has permitted us to pinpoint the original locus of lengthening within Sanskrit to the archaic set of roots in CaC, and to provide a natural but language-internal explanation for the change, that is, compensatory lengthening due to the loss of two consonants through sandhi. Thus, not only has it provided us with information about the stratification of the g-aorist category within Sanskrit itself, but it has also increased our understanding of the nature of the g-construction in Proto-Indo-European, as well.

\section*{NOTES}

'An aorist is a preterite which is indefinite (Gk. \textit{a-õristos}, lit. 'without limit') as to whether the action was completed, repeated or continuous.

'Sandhi rules dictate the replacement of palatals with stops in word-final (and other) positions. See Whitney 1889: 74 for a detailed discussion.

'Pace Szemerényi (1980: 109ff), who suggests that loss of a single -g is responsible for compensatory lengthening, especially in the nominal system.
REFERENCES


