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Proto-Indo-European Voiced Aspirates in Italic: A Test for the 'Glottalic Theory'

I. Preliminaries

The 'glottalic theory' for reconstructing Proto-Indo-European (PIE) stops, as propounded in Gamkrelidze & Ivanov (1973, 1984),¹⁾ is best known for reinterpreting the plain voiced stops (*b/d/g/g^w) of 'traditional' 20th century reconstruction (e.g. Mayrhofer (1986); Rix (1976); etc.) as being instead glottalic stops (*p'/t'/k'/k^w) and for its accompanying glottalic account of various phenomena marking the traditional voiced stops as being unusual (e.g. the rarity of *b, root structure constraints, etc., all recently surveyed by Salmons (1993)). However, the 'glottalic theory' also revises the phonetics of the other traditional PIE stop consonants, to the extent that comparing the two theories becomes quite complicated because the differences between them are so multifaceted. Table (1) summarizes the overall system of stop consonants as reconstructed in the two approaches, using K/G as a cover symbol for the "tectals" (palatals/velars/labiovelars):

(1) 'traditional' theory (Mayrhofer; etc.) 'glottalic theory' (Gamkrelidze & Ivanov)

Series I:	*b	*d	*G	*p'	*t'	*K'
Series II:	*bh	*dh	*Gh	*b ^[h]	*d ^[h]	*G ^[h]
Series III:	*p	*t	*K	*p ^[h]	*t ^[h]	*K ^[h]

Even though it is difficult to compare the theories, there are, nonetheless, points of comparison that make some evaluation of the two possible. In particular, as (1) indicates, both theories posit voiced aspirated stops, the series II consonants, for PIE, but with a different status in each theory: the traditional theory has phonemically voiced and aspirated sounds (*bh/*dh, etc.),²⁾ whereas in the 'glottalic

¹⁾ For a similar approach to reconstruction of the PIE stop system see Hopper (1973).

²⁾ This view is not universally shared, however, and some have argued that the stops of this series might best be reconstructed as voiceless or as being unspecified for voicing [+ aspiration, ± voice] (see Hock 1986:623; Kuryłowicz 1973).

theory', the corresponding sounds are marked distinctively for voice but aspiration is said to be "a phonetically relevant but phonemically redundant feature" (and so symbolized *b^[h], etc.) (Gamkrelidze (1992b:1)).³⁾

In this paper, we focus on one very specific point for purposes of comparison, namely the outcome of series II stops in the Italic branch⁴⁾ of Indo-European in what we will call "diaspirate" roots, i.e. those that begin and end with a consonant from series II (e.g. PIE *dheyǵh- 'to form, fashion', in traditional notation; cf. Greek τείχος 'wall', Sanskrit dehī 'rampart').

The reasons for looking at the voiced aspirated stops in Italic are somewhat complicated in themselves, but they permit us to introduce how the two theories account for certain phenomena affecting series II stops, namely the "Grassmann's Law" phenomena.⁵⁾ For Grassmann's Law the traditional theory has posited the effects of sound changes that developed independently in Indic, Greek, and Tocharian (and there are good reasons for assigning the changes to the individual languages despite any similarities they might show);⁶⁾ these sound changes deaspirate a syllable-initial aspirate if another aspirate appears at the end of the same syllable or begins the following syllable, as detailed in (2). Note further that in the traditional account, the only PIE stops subject to Grassmann's Law were the voiced aspirated stops of series II.

³⁾ In several papers Gamkrelidze (1981:607; 1992a:63; 1992b:1) and Gamkrelidze & Ivanov (1984:21) emphasize the point that series II and series III consonants are not distinctively aspirated. Note, however, that the segments of both series II and III are actually assumed to be aspirated in underlying form, as Gamkrelidze (1981:607) himself notes: "Phonemically, we may posit a form such as /b^heud^h-, but phonetically we should expect either */b^heud- or */beud^h-".

⁴⁾ In order to avoid potential terminological confusion we point out here that we use Italic as the term for the IE branch that includes Latino-Faliscan (varieties of Latin and Faliscan) and Sabellian (Oscan, Umbrian, South Picene, Paelignian and other less well attested varieties).

⁵⁾ We note here that Gamkrelidze & Ivanov's view of Grassmann's Law has been the subject of criticism from several sources including Hayward (1989:48-50); Hock (1993:8-10); Mayrhofer (1986:115); Miller (1977a:382-384); and Vine (1988:398).

⁶⁾ For general discussion of Grassmann's Law in Sanskrit see Schindler (1976). For Greek see Lejeune (1972:56-58) and Miller (1974; 1977b). The Tocharian evidence is presented in Winter (1962); for Grassmann's Law as an independent innovation in Tocharian see Ringe (1988-90:78). Mayrhofer (1986:112-115) contains a very brief overview of Grassmann's Law in Greek and Sanskrit.

- (2a) PIE *dheyǵh- 'to form, fashion' > Proto-Greek *t^heyk^h- > (via GL in Greek) Greek τείχος
 (2b) PIE *dheyǵh- 'to form, fashion' > Proto-Indo-Iranian *d^hayz^h- > Proto-Indic *d^heh- > (via GL in Indic) Sanskrit dehī

In the 'glottalic theory', on the other hand, the Grassmann's Law effects are considered to be a feature of PIE and are accounted for by positing a rule specifying the distribution of plain voiced and voiced aspirated realizations of the series II stops.⁷⁾ The conditions governing the appearance of each allophone are not made entirely clear, but one overriding principle that Gamkrelidze & Ivanov keep coming back to is a proposed constraint that allows only one aspirated allophone per root.⁸⁾ Their claim is thus that both *D^heD- and *DeD^h- allomorphs of roots with two series II consonants were available in PIE under different specifiable phonological conditions, and that some languages (in particular Greek and Sanskrit) generalized the *DeD^h- allomorph.⁹⁾ "Grassmann's Law" as reformulated according to the 'glottalic theory' is presented in (3) below; the PIE root *d^[h]eyǵ^[h]- 'to form, fashion' is reconstructed with two allomorphs following the rule established for the distribution of the allophones of the series II stops.

(3) Reformulated Grassmann's Law:

- a. PIE */d^[h]eyǵ^[h]- 'to form, fashion' → [*d^heyǵ-] and [*deyǵ^h-]
 b. Language particular developments from [*deyǵ^h-] allomorph:
 [*d^heyǵ^h-] > Proto-Greek *teyk^h- > Greek τείχος
 [*deyǵ^h-] > Proto-Indo-Iranian *dayz^h- > Proto-Indic *deh- > Sanskrit dehī

As is evident from (3), for the 'glottalic theory' the additional claim is needed that some individual language sound changes operated on the unaspirated allophone of series II, treating it differently from the aspirated allophone; while for some languages the unaspirated allo-

⁷⁾ In the view of Gamkrelidze & Ivanov (1984:21) this distributional rule also governs the appearance of the plain voiceless and voiceless aspirated allophones of the series III stops.

⁸⁾ See Gamkrelidze (1981:607) and Gamkrelidze & Ivanov (1984:21-22).

⁹⁾ The unaspirated allophone appears in the environment after a nasal, in word-final position, and in the environment before an obstruent. For diaspirate roots it seems that both *DeDh-V- and *DheD-V- were possible outcomes in the environment before vowels since one allomorph is found in Greek and Sanskrit and the other is found in Latin, but Gamkrelidze & Ivanov do not clearly specify the phonetic conditions that govern this allomorphy. For similar criticism see Hayward (1989:50) and Miller (1977b:383).

phone is claimed to have merged with the outcome of the stops of series I, the glottalized stops, e.g. in Sanskrit, where *[d] (the unaspirated allophone of */d^[h]/) merges with *t', in others it shows a different development, e.g. in Greek, where it devoices and merges with the unaspirated realizations of the voiceless stops of series III, thus giving the plain voiceless stop in initial position in Greek diaspirates via a devoicing that affected the aspirated allophone too, as seen in Greek τείχος (above (3) a).

What finally brings us to Italic as a testing ground concerning the diaspirate roots is the fact that in many of the IE languages, the series II consonants merged with the outcome of series I, so it is in fact impossible to distinguish the outcome of diaspirate roots from the outcome of roots with series I consonants.¹⁰⁾ Italic, however, keeps them distinct, at least in some positions and in some dialects, yet does not show any Grassmann's Law-like effects, in the traditional account at least, so it offers virtually a unique possibility within IE to evaluate how the two theories deal with the voiced aspirates and related deaspiration phenomena. More importantly, the two theories make quite different predictions concerning the Italic outcome of PIE diaspirate roots (e.g. *dheyǵh- 'to form, fashion'). With its PIE aspiration constraints, the 'glottalic theory' predicts reflexes of just one aspirate in such roots, while the traditional theory, which posits no Grassmann's Law effect for Italic, predicts reflexes of two aspirates. In the following section, we develop the basis for this prediction more fully and then examine the relevant evidence bearing on it.

¹⁰⁾ Although Armenian and Germanic maintain a distinction between series I and series II consonants, they do not provide a suitable testing ground for the treatment of Grassmann's Law effects because the outcome of series II consonants is the same regardless of phonetic environment, namely plain voiced stops. As a result, both the traditional theory and the 'glottalic theory' predict the same outcome for series II stops, although by somewhat different means:

a) 'glottalic theory':

PIE */b^[h]āǵ^[h]u-/ 'arm' → *[b^hāgu-] > Proto-Germanic *bāgu- (deaspiration of aspirated stop) > OE bog 'bough'

b) traditional theory:

PIE *bhāǵhu- 'arm' > Proto-Germanic *bāgu- (Grimm's Law) > OE bog 'bough'.

II. The Italic Evidence

Despite the difference in the treatment of the diaspirate roots in the two theories, the way the two treat PIE roots with just a single aspirate is really quite similar; thus we will first examine these "mono-aspirate" roots, those with just a single consonant from series II, and then turn our attention to the diaspirates.

As is shown in (4a), series II consonants develop into fricatives in all Italic languages in initial position; medially, however, the outcome is a fricative in most of the Italic languages, e.g. in Oscan, Umbrian, South Picene, and Faliscan¹¹) (Latin's closest sibling within Italic), and even in many—perhaps most—dialects of Latin,¹²) as examples in (4b) show. A few Latin dialects, however, including the dialect of Rome, which is sometimes referred to as "urban" Latin¹³) (though it may have been a sociolect and not strictly speaking a geographically defined dialect), show not a fricative but rather a stop.¹⁴) It is important to note that the Latin dialects with fricative reflexes really do seem in all respects to be Latin, and not Sabellian (Oscan, Umbrian, etc.)—similarly, there is no doubt that Faliscan is to be grouped with Latin against Oscan and Umbrian, within Italic.¹⁵)

(4) Series II stops in MONOASPIRATE roots in Italic

a. Initial position:

i) PIE *bher- 'carry' > Proto-Italic *fer- >

Roman Latin *fert* 3 SG PRES

Umbrian *ferest* 3 SG FUT (II a 26)

¹¹) In medial position in Faliscan the PIE palatal and velar aspirates develop to velar stops, e.g. Faliscan *lece* 'lies, is buried' 3 SG PRES (GG 85) < PIE *legh-, as described in Joseph & Wallace (1991:177–181) and Wallace & Joseph (1993).

¹²) The stop outcome in some varieties of Latin, in particular Roman Latin, is a relatively late development. Compare the forms with medial stops vs. medial fricatives, e.g. dialectal Latin *rufus* 'reddish' < *h₁roudho- vs. Roman Latin *ruber* < *h₁rudhro-; dialectal Latin *mufrius* 'blockhead, fool' vs. Roman Latin (?) *muger* 'one who cheats at dice' < *mug^whro-; dialectal Latin (Praeneste) *nefrones* 'testicles', dialectal Latin (attributed by Festus to the "antiqui") *nefrundines* vs. dialectal Latin (Lanuvium) *nebrundines* < *neg^whro- 'kidney'.

¹³) For discussion of the term "urban" Latin see Joseph & Wallace (1991:161–162). See Coleman (1990:1–2) for comments on the distinction between „*urbinitas*” and „*rusticitas*” as applied to Latin.

¹⁴) In medial position in Latin the PIE palatal and velar aspirates develop to *h*, e.g. PIE *weǵh- 'transport' > Roman Latin *uehit* 'carries' 3 SG PRES.

¹⁵) The position of Faliscan within Italic is treated in detail in Joseph & Wallace (1991).

Marrucinian *feret* 3 PL PRES (Ve 218)

Volscian *ferom* PRES INF (Ve 222)

cf. Sanskrit *bhāratī* 3 SG PRES and Greek *φέρει* 3 SG PRES

ii) PIE **bhrāter-* 'brother' > Proto-Italic **frāter-* >

Roman Latin *frater* NOM SG

Oscan *fratrúm* GEN PL (Ve 84)

Umbrian *frater* NOM PL (III 5)

cf. Sanskrit *bhrātā* NOM SG, Greek *φράτης* 'member of a clan' NOM SG

b. Medial position:

i) PIE **h₁rudhro-* 'red' > Proto-Italic **ruθro-*

Roman Latin *ruber* NOM SG

Oscan *Rufriis* NOM SG MASC GENT (Ve 5)

Paelignian *Rufries* NOM SG MASC GENT (Ve 215 m)

Umbrian *rufu* ACC PL (Ib 24)

Faliscan *Rufia* VOC SG FEM PRAE (GG 3)

cf. Sanskrit *rudhirás* NOM SG, Greek *ἐρυθρός* NOM SG

ii) PIE **medhyo-* 'middle' > Proto-Italic **medyo-* >

Roman Latin *medius* NOM SG

Oscan *mefiaí* LOC SG (Ve 1)

South Picene *mefiín* LOC SG (Ma 1)

cf. Sanskrit *mádhyas* NOM SG, Greek *μέσ(σ)ος* NOM SG

The traditional theory and the 'glottalic theory' treat the development of series II stops in monoaspirate roots in Italic in very much the same way. Both theories posit a development to Proto-Italic fricatives, presumably via voiceless aspirated stops,¹⁶⁾ with further developments in Roman Latin to voiced stops (for **bh* and **dh*), but with fricatives being maintained in Sabellian, dialectal Latin, and Faliscan (for **bh* and **dh*). At this point, it may be useful to emphasize the similarities in the way the two theories treat series II stops in monoaspirate roots by charting the developments for several Italic languages beginning with the PIE form as reconstructed in each theory:

(5 a) trad. PIE **albho-* 'white'/G&I **alb^[h]o-* > Pre-Italic **alp^ho-* > Proto-Italic **alfo-* >

Roman Latin *albus* NOM SG

Umbrian *alfu* ACC PL (Ib 29)

Oscan *Alafaternum* (name of settlement/city) GEN PL (Ve 200 9 a)

cf. Greek *ἀλφός* 'whiteness, white leprosy' NOM SG

¹⁶⁾ We follow the traditional account here; for an alternative account whereby the PIE aspirates develop via voiced fricatives see Meiser (1986:73–78). Meiser's account is based ultimately on Rix (1957).

- (5b) trad. PIE *aidh- 'heat up' /G&I *aid^[h]- > Pre-Italic *ait^h- > Proto-Italic *aiθ- >

Roman Latin *aedes* 'house, sanctuary' NOM SG

Faliscan *efiles* 'magistrates overseeing public works' NOM PL (GG15)

cf. Greek αἶθει 'heat up' 3 SG PRES, Sanskrit *édhas* 'fuel' NOM SG

In (6), we give a theory-neutral presentation of the developments of series II stops in diaspirate roots in Italic, with our attention being focused on Roman Latin for the moment; as examples such as *fidit* 'trust' 3 SG PRES indicate, Roman Latin in general shows a fricative in initial position and a stop medially:

- (6) trad. PIE *bheydh- /G&I *b^[h]eyd^[h]- > Roman Latin *fidit* 'trust' 3 SG PRES

What makes the diaspirate roots and their outcome in Roman Latin interesting from the point of view of comparing the two theories is that Gamkrelidze & Ivanov claim that the fricative-vowel-stop pattern seen in Roman Latin – which, crucially, they take as representative of Italic in general – shows the medial stop, i.e. the *d*- in *fidit*, as a result of the PIE allophony (noted in § I and in § II (3) above) that gave rise to a voiced unaspirated stop realization of a series II consonant; this was triggered, they say, by the constraint allowing only one aspirated realization in an underlyingly diaspirate root and in particular by an Italic generalization (possibly found in Germanic as well) of a root form with an initial aspirated and a medial unaspirated realization¹⁷⁾ (generalized, perhaps, from a context with a nasal triggering deaspiration).¹⁸⁾ Whatever the exact conditions for the unaspirated realization are, this scenario means that the medial stop in *fidit* does not derive via the same developments, as outlined in (4b) above, for stop realizations in medial position in monoaspirate roots. The Gamkrelidze & Ivanov treatment of PIE diaspirate roots in Italic is illustrated in (7):¹⁹⁾

¹⁷⁾ See Gamkrelidze & Ivanov (1984:25–26). It is worth noting once again that Gamkrelidze & Ivanov do not give an account of how the Italic branch comes to select the *[D^{he}D-] allomorph for diaspirate roots rather than the *[DeD^h-] allomorph, which is selected by Greek and Sanskrit.

¹⁸⁾ Relevant forms showing deaspiration around a nasal, posited for series II by Gamkrelidze & Ivanov, are Latin *figit* 'fashion' 3 SG PRES *d^[h]ing- < *d^[h]ing^[h]-; Latin *fundus* 'bottom' NOM SG < *b^[h]und- < *b^[h]und^[h]-; and Latin *frendit* 'gnash' 3 SG PRES < *g^w^[h]rend- < *g^w^[h]rend^[h]-.

¹⁹⁾ In their presentation of the putative Italic generalization of a *[D^{he}D] allomorph, Gamkrelidze & Ivanov (1984:26) discuss Latin *hordeum* 'barley' in

- (7) PIE $*b^{[h]}eyd^{[h]}$ → $*[b^{h}eyd-]$ > Pre-Italic $*p^{h}eyd-$ > Proto-Italic $feyd-$ > Roman Latin *fidit* 'trust'

The traditional theory, on the other hand, accounts for the fricative-vowel-stop realizations in Roman Latin from a PIE starting point with both aspirates intact, via a series of sound changes that characterize Italic and ultimately Roman Latin, as given in (8):

- (8) PIE $*bheydh-$ 'trust' > Pre-Italic $*p^{h}eyt^{h}-$ > Proto-Italic $*feyð-$ > Pre-historic Roman Latin $*fið-$ > Roman Latin *fidit*

Importantly, these changes are exactly the same as those described in (4) for the outcome of series II stops in monoaspirate roots.²⁰⁾

What emerges from the treatment of diaspirate roots according to

some detail. They derive it from a preform $*[gh̥rd-]$ (from underlying $*[g[h]rd[h]-/]$), and claim an advantage over the traditional account, which derives it from $*gh̥rd-$ vel sim., because they are able also to derive the Greek nominal stem $\kappa\tilde{\rho}\tilde{\iota}\theta-$ 'barley' from the same preform. But the connection between *hordeum* and $\kappa\tilde{\rho}\tilde{\iota}\theta-$ is not as clean as Gamkrelidze & Ivanov would like. For instance, Latin *-or-* and Greek $\kappa\tilde{\iota}-$ do not form a regular correspondence set, and Gamkrelidze & Ivanov admit as much when they posit an "archetype" $*gr̥dh-$ for the Greek noun, with no direct connection to their $*[gh̥rd-]$ preform for *hordeum*. Moreover, the apparently related Germanic forms, e.g. OHG *gersta* 'barley', suggest $*-d-$ (or $*-t-$) as the final stop, rather than $*-dh-$, and a preform more like $*ghers-d(h)-$, the zero-grade of which would have a better chance of giving the Greek $\kappa\tilde{\iota}-$ regularly; admittedly, if $\kappa\tilde{\rho}\tilde{\iota}\theta-$ belongs here, the root-final variation between $*-d-$ and $*-dh-$ has no explanation in the traditional account, but neither does it in Gamkrelidze & Ivanov's account (and note that while Gamkrelidze & Ivanov take the traditional account to task for positing two different root-final elements for *hordeum* and for $\kappa\tilde{\rho}\tilde{\iota}\theta-$, they make no mention of the need to accommodate the Germanic forms). Thus, Latin *hordeum* could just as well go with *gersta* and derive from root-final $*-d-$ as go with $\kappa\tilde{\rho}\tilde{\iota}\theta-$ and derive from root-final $*-dh-$. The most important point here is that support for the putative allophonic distribution of $*[DheD-]$ in Italic versus $*[DeDh-]$ in Greek and Sanskrit cannot be derived from forms with problematic etymologies, such as *hordeum*, but rather can only come from words with more secure etymological pedigrees. For similar criticism, see Hock (1993:3, 8) on the etymologies of Germanic "Restwörter".

²⁰⁾ Other forms that show the fricative-vowel-stop development expected for Roman Latin are: Latin *faba* 'bean' NOM SG < $*bhabh-$; Latin *faber* 'workman' if < $*dhabhro-$; Latin *febris* 'fever' NOM SG < $*dheg^{h}h-ri-$; Latin *fiber* 'beaver' NOM SG < $*bhebhru-$; Latin *fodit* 'dig' 3 SG PRES < $*bhodh-$; Latin *habet* 'have' 3 SG PRES if < $*ghabh-$ and not simply $*ghab-$, as needed for Umbrian *hab-* (and see below § II). One further form relevant here is Latin *barba* 'beard' NOM SG < $*bhardh-$, which shows a (perfectly regular) voiced medial stop but has an unexpected initial stop (expected [Roman] Latin form: $*farba$); presumably, the initial *b-* in this word results from a distant assimilation or the like (needed in any account).

the 'glottalic theory' is the following prediction: Since the $*D^h/D$ alternation is a matter of PIE allophonic variation, and since Italic is said to have selected/generalized the $[D^heD-]$ allomorph in diaspirate roots, there should not be any medial fricatives from diaspirate roots in Italic.

On the other hand, as we have seen in (4 b), the traditional account predicts that within Italic, just as there are medial fricatives in dialectal Latin and the Sabellian languages in monoaspirate roots, so too should there be medial fricatives in diaspirate roots. We turn now to the evidence from Italic bearing on these predictions and thus on the relative merits of the two theories for dealing with the Italic outcome of diaspirate roots.

Table (9) lists several forms from Sabellian (Oscan and Umbrian) and from dialectal Latin (i.e., non-Roman Latin) which plausibly derive from diaspirate roots with two series II consonants and which show reflexes of either two aspirates (giving fricatives) or of a fricative in medial position.²¹) Of course not all of these forms are equally secure – Latin *forfex* in (9 g), for instance, is believed by some to be an alteration of *forpex*, a variant form of *forceps*, a word with a meaning similar to *forfex*. Similarly, **fāfilla* in (9 h) is based on an obscure derivative in Latin with a somewhat difficult textual tradition. Umbrian *sufafias/sufafiaf* is of doubtful meaning, and **farfa* for 'beard' is based on an apparent survival in Romance, not on anything directly attested in ancient Italic. Still, some of the forms are quite secure, such as Oscan *feihúss* in (9 a) and Umbrian *fahe*, *furfant*, and

²¹) In addition to the words listed in (9) the Oscan f-perfects *aamanaffed* 'ordered' 3 SG PERF, *prúffed* 'dedicated' 3 SG PERF, etc. are relevant here even though the medial *ff*- cluster is the result of the reduplication of the initial aspirate of PIE $*dheh_1$ - 'put, place'. According to the 'traditional' theory this *ff*-cluster is derived ultimately from a reduplicated form $*-dhedhh_1-$ (zero-grade of the root $*dheh_1-$) by the same sound changes that are posited to account for developments in monoaspirate and diaspirate roots, i.e. $*-dhedhh_1- > *ðeð- > *-fef- > ff-$ (by syncope). Gamkrelidze & Ivanov, on the other hand, since they treat sequences of aspirated consonants that arise by reduplication in the same manner as aspirate sequences in diaspirate roots (e.g. Latin *fiber* 'beaver' < $[*bhi-ber-]$ < $/*bhi-bher-/$ Gamkrelidze & Ivanov (1984:25, 68)), would seem to be compelled to account for *ff*- in these forms either by positing an assimilation according to which a prehistoric $*-fed-$ allomorph (or post-syncope $*-fd-$?) developed to $*-f(e)f-$ or by appealing to some form of analogical remodelling based on unreduplicated forms, a remodelling which would have to have occurred before $*-f(e)f-$ was reanalyzed as a suffix and thus ceased to be connected synchronically with the simplex forms of the root.

combifiatu in (9c), (9d), and (9e) respectively. At the very least, the existence of these forms appears to place the burden of proof on the proponents of the 'glottalic theory'.

- (9) Evidence from dialectal Latin (= non-Roman Latin) and from Sabellian (Oscan and Umbrian)
- a. Oscan *feihúss* 'walls' ACC PL (Ve 1b) < *dheyǵh-, cf. Roman Latin *figit*
 - b. Oscan *hafie(i)st* 'will have' 3 SG FUT (Ve 2), *haf[iar]* 3 SG SUBJ PASS (Ve 28) < *ghabh-, cf. Roman Latin *habet*
 - c. Umbrian *fahe* 'shoulder, flank' GEN SG (Vb 13) < *bhāǵh(u-) 'arm' (Rix (1986))
 - d. Umbrian *furfant* 'they shear' 3 PL PRES (Vib 43) / *efurfatu* 'let him shear off' 3 SG IMPV (VII a 38) (< *bhr̥dh- 'cut' (cf. English *board*)) (Prosdocimi (1985))
 - e. Umbrian *combifiatu* 'one should notify' 3 SG IMPV (VIa 17) < *kom-bhidh-, cf. Roman Latin *fidit* above in (6) and (8)
 - f. Umbrian *sufafias* 'parts taken from a sacrificial animal(?)' GEN SG (IIa 22)/*sufafiaf* ACC PL (IIa 22), if < *dhabh-, cf. Roman Latin *faber* 'workman'
 - g. (dialectal) Latin *forfex* 'scissors' NOM SG < *bh(o)rdh- 'cut' (if a dialectal form (as suggested by Ernout-Meillet 1959:247) and not some sort of alteration of *forpex*, itself possibly a metathesis of *for-ceps*)
 - h. (dialectal) Latin **fāfilla* (based on *exfāfillatus*) 'exposed, uncovered(?)' (Plautus *Miles Gloriosus* 1180, though meaning and derivation are uncertain),²² if < *dhabh-, cf. Roman Latin *faber* 'workman'
 - i. Italic **farfa* 'beard' < *bhardh- (based on Italian *farfecchia*) 'moustache', cf. Latin *barba* 'beard' (see also footnote 20)

Gamkrelidze & Ivanov have addressed some of this counter-evidence to their account of diaspirates in Italic, and here we sketch out what they have said about these forms or what we surmise they would have to say (for they seem not to have been aware of all of them) and then state what the problems are with these accounts. For example, they attribute (Gamkrelidze & Ivanov (1984:68, fn.2)) the medial *h* in *feihúss* (and presumably also in *fahe* (9c), which would be from expected ***fāg*-, although they do not discuss this form) to a distant manner assimilation by which the expected ***feig*- turned into *feih*-,²³) but manner assimilations for consonants (other than those

²²) The word is glossed as 'uncovered' by Festus (73, 17). In later glosses the word is spelled with a medial *b*-, e.g. *exfabillauero*, *exfabillabit*, which may point to an alternation *f*- vs. *b*- that is typical of dialectal vs. Roman Latin.

²³) The forms cited by Gamkrelidze & Ivanov (1984:69, fn.2) as showing examples of a stop in medial position are not supportive of their claim. Oscan *fifikus* 3 SG FUT PERF (Ve 6) is probably not from the root *dheyǵh- at all (see Lejeune

involving nasality) are rare for contact assimilations and unheard of, or practically so, for distant assimilations.²⁴ As for Oscan *haf-* (9e), they treat it as a misspelling (Gamkrelidze & Ivanov (1984:68, fn. 2), following Kent (1926:23)), for their expected ***hab-*, but this form is attested in two different inscriptions (*hafie(i)st* (Ve 2) and *haf[iar]* (Ve 28)) and so must be taken as a legitimate form;²⁵ positing a distant assimilation for it would then seem to be their likely account, but that runs into the same problem as described above for *feihúss*, but in this case with a weak consonant [h] as the assimilation trigger. **farfa* in (9f), for expected **farba*, in their account is considered to result from a reanalysis of **bhardha-* as a compound (expanding on Specht (1944:87)), even though there seems to be no semantic or morphological basis for the reanalysis. Treating it, and the other "double-f" forms – *furf-/forf-*, **fāfilla*, and *fafia* – as distant total assimilations is not unreasonable in and of itself, since the ultimate Latin outcome of 'beard', *barba*, indeed shows such a distant assimilation from expected **farba* (most likely **farda* at the time of the assimilation, in the glottalic account), but is it reasonable to posit such a sporadic and irregular sound change four times? Moreover, it would have to have applied to different input sequences, **fab-* in the case of **fāfilla/-fafia*, but **fVrd-* in the case of *furf-/forf-*, and so could not have been a unified sound change but rather must be at least a couple of different changes that are not insightfully collapsible.

Finally, the form in (9e), Umbrian *combifiatu*, with a single fricative, is a problem for the 'glottalic' account since the fricative is in

(1955:150–51)) and Faliscan *f[i]f[i]qod* 3 PL PERF (GG 1) can be viewed as having a stop from an earlier Latino-Faliscan fricative by a sound change that is peculiar to Faliscan (see fn. 11 for references).

²⁴) On 12/17/93 we posted a request on the LINGUIST electronic network asking for examples of distant manner assimilations of the sort required by Gamkrelidze & Ivanov to account for forms like Oscan *feihúss* and Umbrian *fahe* from their expected Proto-Italic **feyg-* and **fāg-*. The responses we received (summarized and posted by BDJ 1/20/94) confirmed our suspicions that such assimilations were in fact rare to non-existent except where complete assimilation is involved (as is needed for *barba* < **farba*); distant partial assimilation in manner only for consonants seems to be unattested.

²⁵) Meiser (1986:125, fn 4) reports that Rix has considered the possibility of explaining the root-final *f* in *hafie(i)st* and *haf[iar]* by means of analogy to forms such as the 3 SG PRES PASS and the 2 PL IMPV where *f-* is the regular outcome of *b-* preconsonantly by a regular sound change. At most, such an account would remove this form from the set of counter-examples to Gamkrelidze & Ivanov's claims, but the general thrust of the forms in (9) would be unaffected.

medial position; it would have to be supposed that the occurrence of the PIE *unaspirated-vowel-aspirated allomorph (like the one that occurs in Greek and Sanskrit) is a consequence of the deaspirating effect of the nasal of the preverb that occurs before the root-initial series II stop ($*/kom-b^{[h]}id^{[h]}-/ \rightarrow *[kombid^{h}-]$ [via deaspiration in the environment of a nasal] > Umbrian *combif-*), thus allowing the PIE aspirated allophone to occur medially and yield the Italic fricative. But such an account runs afoul of the evidence that a sequence of *m-b in prehistoric Umbrian yields *m-* (probably [-mm-] phonetically), not *mb-*. The relevant form is *umen* 'salve' ACC SG (IIa 19), which is presumed to be from pre-Umbrian *omben and ultimately from PIE *h₃eng^wn;²⁶) admittedly, the *mb here is secondary (*g^w regularly yields [b] in Umbrian) but an original sequence of *mb when preserved would be expected to undergo the same treatment as the same sequence of secondary origin.

III. Summation

The conclusion is clear: the 'glottalic' account of diaspirate roots in Italic posited by Gamkrelidze & Ivanov is considerably less satisfactory than the traditional account; it requires extra machinery that compels it to separate the development of series II consonants medially in monoaspirate roots from those in diaspirate roots;²⁷) it makes false predictions about the outcomes of series II stops in diaspirates; and it proposes severely inadequate accounts for the counter-evidence.

Most important, though, is the fact that Gamkrelidze & Ivanov take the evidence of a relatively restricted dialect, that of Roman Latin, as being representative of Italic in general, even though there is every reason to believe that the stops here are actually rather late developments within Italic. In effect, Gamkrelidze & Ivanov are ignoring basic principles of subgrouping and comparative analysis, for the Faliscan and non-Roman Latin forms with fricatives would suggest that Proto-Latino-Faliscan and even Proto-Latin had fricatives which developed into stops medially in Roman Latin, rather than the

²⁶) For discussion of the chronology of the sound changes in Umbrian see Meiser (1986:77).

²⁷) This is a point that is emphasized also in Hayward (1989:50).

other way around, with the fricative realizations as the secondary developments.

One might say, of course, that what matters in the evaluation of the two theories is not how they handle a relatively small detail like the Italic outcome of diaspirate roots but rather what the 'glottalic theory' offers overall once one views the big picture, as it were. We grant that one accurate or inaccurate prediction should not necessarily make or break the theory, but we see the failure of the 'glottalic theory' to adequately account for these Italic facts as indicative of a general inability to deal with the details of the development of all the aspirates posited for PIE, series II as well as series III. Much is made of the fact that the 'glottalic theory' does away with the Grimm's Law sound changes for Germanic, but few linguists worry, it seems, that in its place is a set of claims that parallel the ones we have seen here concerning aspiration in the series II consonants and the invocation of sound changes such as $*f...k \rightarrow f...h$ to account for forms such as Gothic *faihu* 'cattle' from PIE $*p^{[h]}ek^{[h]}u$, with two voiceless aspirates from series III underlyingly, the same sort of sound change that seems so difficult to have to assume for some of the Italic forms.²⁸) In short, we would argue that the success of a theory in accounting for the details of development of the proto-language sounds in the individual languages is exactly the right type of test, and that all the relevant evidence needs to be taken into account, not just the convenient forms from one dialect.

IV. An Alternative Proposal

Although we have focused here on the Gamkrelidze & Ivanov version of the 'glottalic theory' and their treatment of diaspirate roots in Italic, we acknowledge the existence of some variant treatments of series II stops within the framework of the 'glottalic theory'.²⁹) We

²⁸) See Hock (1993:3,8) and Hayward (1989:50) for problems and inconsistencies with Gamkrelidze & Ivanov's reformulated Grassmann's Law treatments of series III stops.

²⁹) Iverson's account (1985:203-213) of the "reformulated" Grassmann's Law seems to be the same as Gamkrelidze & Ivanov's inasmuch as it is viewed as a rule for the distribution of unaspirated vs. aspirated allophones in PIE. However, for Iverson Grassmann's Law mirrors more closely the traditional interpretation in that it is the first aspirate in the series that is deaspirated. In other words, whereas Gamkrelidze & Ivanov set up two allomorphs for diaspirate roots (of both series

close with a brief consideration of a proposal published in 1989 by Baldi & Johnston-Staver, who specifically address the development in Italic of the segments posited by the 'glottalic theory', and address as well the question of the conditioning environment for the Italic outcome of the PIE allophony involving the aspirates.

For Italic Baldi & Johnston-Staver take the position that Proto-Italic syllable-initial stress³⁰) is the determining factor in the appearance of the aspirated allophone of the series II stops, with "the aspirated allophone [being] generalized in Proto-Italic according to the following rule: /b/ → [bh]/#[+stress]" (Baldi & Johnston-Staver 1989:95). In addition, they posit that for "the dialect of Proto-Italic from which Oscan-Umbrian developed, the aspirated allophones of series II were generalized in all positions" (Baldi & Johnston-Staver 1989:97).

While this is an interesting proposal, it too runs into difficulties. First of all, it is not clear how it could account in any natural way for appearance of two fricatives in the dialectal Latin outcome of dispirate roots (like *forfex*, for instance) or the appearance of fricatives in medial position in monoaspirate roots in non-Roman Latin (*rufus*) and Faliscan (*efiles*, *Rufia*), where, by the rule given in the preceding paragraph, one would expect voiced stops to be the regular outcome. Nor does this proposal offer any plausible account of the means by which the aspirated allophones come to be generalized to all environments in the Sabellian languages (Oscan, Umbrian, etc.). This account also runs into a problem with the outcome of the dental series II stop *dh in its special development next to *r. PIE *dh when adjacent to *r yields a labial stop *b* in Roman Latin, even in monoaspirate roots, as in *verbum* 'word' NOM SG from *werdho- (and see [4bi] for another example in Roman Latin). In the Baldi & Johnston-Staver

II and III), *[DeDh-] and *[DheD-], Iverson posits only *[DeDh-]. It is unfortunate that Iverson does not address the implications of his proposal for Italic (aside from noting that both the voiced and voiced aspirated reflexes of *Dh appear as fricatives in word-initial position) or for the other branches of IE, particularly Greek, Indic, and Tocharian, in greater detail. Nevertheless, it is worth pointing out here that his view of "reformulated" Grassmann's Law is subject to many of the same complaints that have been aimed at Gamkrelidze & Ivanov (see fn.5 for references and add Schindler (1976:626) for discussion of Grassmann's Law as an Indic innovation).

³⁰) Baldi & Johnston-Staver (1989:95) actually refer to the syllable-initial stress rule as a rule relevant for Proto-Latin, but later in the same paragraph they propose a stress rule for Proto-Italic.

account, in a position away from stress, this *d^[h] would yield its unaspirated allophone, and thus would give an intermediate stage with *-rd-. However, as indicated in (1), the series I glottalic stop *t' yields a [d] in Latin also, and Latin shows [rd] from presumed PIE *rt'. Since all of the Italic languages show the change from a glottalic stop to a voiced stop, presumably this change is of Proto-Italic age.³¹⁾ How then would the resulting *-rd- in a word like *mordeo* 'bite' from *mord- < *mort'- not be subject to whatever set of changes turns *-rd- from the series II stop (PIE *rd^[h]) into [rb] ultimately in Roman Latin? The distinction between *mordeo* on the one hand from *mord- < *mort'- and *verbum* from *werdo- < *werd^[h]o- is hard to account for in any non-*ad hoc* way, it would seem.

Our conclusion is that even a repaired version of Gamkrelidze & Ivanov's view of Grassmann's Law as a PIE rule governing the distribution of the plain and aspirated allophones of series II stops runs into difficulty with the development of aspirates in Italic. We thus feel that the traditional theory of PIE consonantism has not yet been supplanted, at least as far as accounting for these Italic facts is concerned.³²⁾

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³¹⁾ This claim is based on the assumption that the passage from glottalic [t'] to voiced [d] is not so common and natural as to be "cost-free" to posit independently in several related languages. It should be noted that Gamkrelidze & Ivanov take the opposite view regarding the naturalness of this change, and in general, their account requires it independently in Italic, Celtic, Germanic, Balto-Slavic, Greek, Indo-Iranian, etc. If they are right, then it might not be difficult to assume that *t' → [d] in each Italic language independently. Still, even common changes can be shared innovations, and it would seem that the burden of proof is on those who claim that a change found uniformly throughout all members of a language group is not a shared innovation.

³²⁾ Philip Baldi (p.c.) suggests that the 'glottalic theory' could just give up the idea of allophonic variation for series II (and possibly also therefore for series III) stops, put the voiced aspirated stops back into PIE, and acknowledge Grassmann's Law as operating independently in Indic, Tocharian, and Greek. This is, of course, precisely the traditional view of Grassmann's Law.

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