

Law was among the earliest Germanic sound changes, and since the other early changes that involved single non-laryngeal obstruents affected only the place of articulation and rounding of dorsals (see 3.2.3 (ii)), that could be an accident. In any case, Grimm's Law is most naturally presented as a sequence of changes that counterfed each other.

① PIE voiceless stops became PGmc fricatives, provided that they were not immediately preceded by another obstruent (usually \*s, but sometimes another stop). It seems overwhelmingly likely that the fricatives originally exhibited the same place of articulation as the stops from which they developed; in other words, there is no reason to believe that this sound change was automatically accompanied by any change in place of articulation. Thus the original changes will have been \*[p] > \*[f], (\*[t] =) \*[t] > \*[θ], and so on; if it is true that PIE 'palatals' were really velars, while PIE 'velars' were really postvelars (see 2.2.1), it is even possible that this part of Grimm's Law preceded the merger of those PIE sounds, so that (\*[k] =) \*[k] > \*[x], (\*[k] =) \*[q] > \*[χ], (\*[k<sup>w</sup>] =) \*[q<sup>w</sup>] > \*[χ<sup>w</sup>]. In all the attested Germanic languages, however, further phonetic changes have occurred. The dorsal fricatives have everywhere become \*[h] and \*[h<sup>w</sup>] in word-initial position, and that change can have occurred already in PGmc. Eventually they gave the same outcomes whenever they were not immediately followed by an obstruent or a word boundary; but that must be a post-PGmc development, because intervocalic examples that became word-final in PWGmc were still pronounced as velars in OE. The labial fricative tended to become labiodental, but that too must be a post-PGmc development, at least in part: it is fairly likely that Gothic *f* was still bilabial (to judge from the fact that word-final devoicing of bilabial fricative *b* yielded *f*), and in ON this fricative remained bilabial when immediately followed by *t* (and is therefore written < p > in that position in our standardized orthography). The traditional spellings for the PGmc outcomes of this part of Grimm's Law are \*f, \*þ, \*h, \*h<sup>w</sup>, and I will continue to use them throughout this book; but the reader should remember that they are not intended to be representations of the actual phonetics of the PGmc phonemes.

Examples of this change are very numerous. I begin with the PIE voiceless stops; the following word-initial examples are typical:

- PIE \*póds 'foot (nom. sg.)' (cf. Skt *pāt*, Doric Gk *πῶς* /pōs/) > PGmc \*fōt- (cf. Goth. *fotus*, OE *fōt*);  
 PIE \*pélh<sub>1</sub>u 'much (neut.)' (cf. OIr. *il*; Skt *purú* with remodeled ablaut) > PGmc \*felu (cf. Goth., OHG *filu*, ON *fjöl*);  
 PIE \*p<sub>h</sub>l<sub>1</sub>nós 'full' (cf. Skt *pūrṇás*, Lith. *pilnas*) > PGmc \*fullaz (cf. Goth. *fulls*, OE *full*);

- PIE \*pr̥Hmós 'first' (cf. Lith. *pirmas*; parallel \*pr̥Hwós in e.g. Skt *pūrvas*, Toch. B *pärweṣṣe*) > PGmc \*fruma-n- (cf. Goth. *fruma*, OE *forma*);  
 PIE \*pórkos 'pig' (cf. Lat. *porcus*; Lith. *pařsas* 'barrow') > PGmc \*farhaz 'piglet' (cf. OE *fearh*, OHG *farah*);  
 PIE \*pénk<sup>w</sup>e 'five' (cf. Skt *pāñca*, Gk *πέντε* /pénte/) > PGmc \*fimf (cf. Goth. *fimf*, OE *fif*; the word-final labial is puzzling);  
 PIE \*pró 'in front, forward' (cf. Skt *prá*, Gk *πρό* /pró/) > PGmc \*fra- (cf. Goth. *fra-*, OE *for-*);  
 PIE \*tóm 'that' (acc. sg. masc.) > PGmc \*þanō (cf. Goth. *þana*, OE *þone*);  
 PIE \*tórmos 'borehole' (cf. Greek *τόρμος* /tórmos/ 'socket') > PGmc \*þarmaz 'intestine' (cf. ON *þarmr*, OE *þearm*);  
 PIE \*tríns 'three (acc. masc.)' (cf. Skt *trín*, Lat. *trīs*) > PGmc \*þrinz (cf. Goth. *þrins*);  
 PIE \*teg- 'to cover' (cf. Lat. *tegere*) in (post-)PIE \*togom 'roof' > PGmc \*þaką (cf. ON *þak*, OE *þæc*; similar semantic development in Lat. *tectum*, OIr. *tugae*);  
 PIE \*kím 'this' (acc. sg. masc.; cf. Lith. *ši*) > PGmc \*hinō (cf. OE *hine* 'him', Goth. *und hina dag* 'until this day');  
 PIE \*kérđ- ~ \*k̑đ- 'heart' (cf. Lat. *cord-*, Lith. *širdis*) > PGmc \*hertan- (cf. Goth. *hairto*, OE *heorte*);  
 PIE \*key- 'to be lying down' (cf. pres. 3sg. Skt *śete*, Gk *κεῖται* /kêitai/) in \*kóymos 'resting place' > PGmc \*haimaz 'settlement' (cf. ON *heimr* 'world', OE *hām* 'home'; Goth. *haims* 'village' has been remodeled as an i-stem, but note a-stem pl. *haimos* 'countryside');  
 (post-)PIE \*k̑r̥n- 'horn' (cf. Skt *śṛṅgam*, Lat. *cornū*; see Nussbaum 1986: 11–14) > PGmc \*hurną (cf. Goth. *haurn*, OE *horn*);  
 PIE \*kátus 'fight' (cf. OIr. *cath* 'battle'; Luvian *kattawatnallis* 'plaintiff') > PGmc \*haþuz 'battle' (cf. OE *heapu-*, OHG *hadu-*; ON *Hqðr*, name of the god of battle);  
 PIE \*kud<sup>h</sup>o- 'treasure' (cf. Lat. *custōs* 'guardian', Gk *κύσθος* /kúst<sup>h</sup>os/ 'vulva') > PGmc \*huzdą (cf. Goth. *huzd*, OE *hord*);  
 PIE \*kóryos 'detachment' (OIr. *cuire* 'company'; Lith. *kārias* 'army') > PGmc \*harjaz 'army' (cf. Goth. *harjis*, OE *here*);  
 (post-)PIE \*kólso- 'neck' (cf. Lat. *collum*) > PGmc \*halsaz (cf. Goth. *hals*, OE *heals*);  
 PIE \*k<sup>w</sup>óm 'which? (acc. sg. masc.; cf. Skt *kám* 'which?, whom?')' > \*k<sup>w</sup>ón 'whom?' > PGmc \*h<sup>w</sup>anō (cf. Goth. *hwana*, OE *hwone*);  
 PIE \*k<sup>w</sup>óteros 'which (of two)?' (cf. Gk *πότερος* /póteros/; Skt *katarás*) > PGmc \*h<sup>w</sup>aþeraz (cf. Goth. *hwapar*, OE *hwæper*);



PIE \*k<sup>w</sup>yeh<sub>1</sub>- 'to rest', derived noun \*k<sup>w</sup>yéh<sub>1</sub>tis (cf. Lat. *quiēs*; Old Persian *šiyātiš* 'peace'), zero grade \*k<sup>w</sup>ih<sub>1</sub>- in PGmc \*h<sup>w</sup>ilō 'time' (cf. Goth. *hweila*, OE *hwil*).

Word-medial examples not adjacent to another obstruent are also easy to find. In addition to \*kátus, \*k<sup>w</sup>óteros, and \*pórkos, cited above, note the following:

PIE \*swépnos 'sleep' (cf. Skt *svápnas*) > PGmc \*swefnaz 'sleep, dream' (cf. ON *svefn*, OE *swefn*);

PIE \*népōts 'grandson' (cf. Lat. *nepōs*, Skt *nápāt*) > PGmc \*nefō 'grandson, nephew' (remodeled as an n-stem; cf. OE *nefa*, OHG *nefo*);

PIE \*b<sup>h</sup>réh<sub>2</sub>tēr 'brother' (cf. Skt *b<sup>h</sup>rātā*, Lat. *frāter*) > PGmc \*brōþēr (cf. ON *bróðir*, OE *brōþor*);

PIE \*nityos '(one's) own' (cf. Skt *nityas*) > PGmc \*niþjaz 'relative, kinsman' (cf. Goth. *niþjis*, ON *niðr*);

PIE \*ánteros 'other (of two)' (apparently a derivative of \*ályos 'other' with an archaic \*l ~ \*n alternation) > PGmc \*anþeraz (cf. Goth. *anþar*, OE *ōþer*);

PIE \*péku 'cattle, property' (cf. Skt *pásu*, Lat. *pecū*) > PGmc \*fehu (cf. Goth. *faíhu*, OE *feoh*);

PIE \*dékm̥d 'ten' (cf. Skt *dása*, Lat. *decem*, Lith. *dėšimt*) > PGmc \*tehun (cf. Goth. *taíhun*);

PIE \*swékueros 'father-in-law' (cf. Skt *śváśuras*, Lat. *socer*) > PGmc \*swehuraz (cf. OE *swēor*, OHG *swehur*);

PIE \*ékwos 'horse' (cf. Skt *áśvas*, Lat. *equos*) > \*ékwos > PGmc \*eh<sup>w</sup>az (cf. OE *eoh*; Goth. *aíhwatundi* 'thornbush', lit. \*'horse-tooth');

PIE \*lówkos 'clearing' (cf. Lith. *laūkas* 'field', Lat. *lūcus* 'grove') > PGmc \*lauhaz (cf. OE *lēah* 'meadow', OHG *lōh* 'copse, grove');

post-PIE \*márkos 'horse' (cf. Welsh *march*) > PGmc \*marhaz (cf. OE *mearh*, OHG *marah*);

post-PIE \*ák<sup>w</sup>eh<sub>2</sub> 'running water' (cf. Lat. *aqua* 'water') > PGmc \*ah<sup>w</sup>ō 'river' (cf. Goth. *ahva*, OE *ēa*, OHG *aha*).

There are also a number of examples of labials and dorsals immediately preceding obstruents:

PIE \*kh<sub>2</sub>ptós 'grabbed' (cf. Lat. *captus* 'taken, caught') > PGmc \*haftaz 'captive' (cf. OE *hæft*, OHG *haft*);

PIE \*oktōw 'eight' (cf. Skt *aṣṭáu*, Lat. *octō*) > PGmc \*ahtōu (cf. Goth. *ahtau*, OE *eahta*);

PIE \*swéks 'six' (cf. Av. *xšuuas*, Gk *ἕξ* /héks/, Boiotian *Ῥέξ* /((h)wéks/) → \*séks (by lexical analogy with 'seven'; cf. Skt *ṣát*, Lat. *sex*) > PGmc \*sehs (cf. Goth. *saihs*, OE *siex*);

PIE \*dek<sub>3</sub>s- 'right(-hand)' (cf. Gk *δεξιός* /deksiós/, Av. *dašinō*) > PGmc \*tehswaz (cf. Goth. *taíhswa*, OHG *zeso*, *zesawēr*);

PIE \*uksén 'bull, ox' (cf. Av. *uxša*) > PGmc \*uhsō (ending remodeled; cf. OE *oxa*, Goth. gen. pl. *aúhsne*).

Note also, with delabialization (see 3.2.3 (ii)):

PIE \*nók<sup>w</sup>t- ~ \*nék<sup>w</sup>t- 'night' (cf. Gk *νύξ* /núks/, *νυκτ-* /nukt-/; Hitt. *nekuz mēhur* 'evening time') > \*nókt- > PGmc \*naht- (cf. Goth. *nahts*, OHG *naht*).

If PIE \*tst and/or \*ts survived when Grimm's Law occurred, their initial \*t's would presumably have been shifted to \*þ; since the eventual outcome would almost certainly have been PGmc \*ss in any case, we cannot date, relative to Grimm's Law, any of the changes that affected those clusters.

However, a PIE voiceless stop immediately following another obstruent was not affected by Grimm's Law. Most of the examples involve clusters of PIE \*s and a stop; note the following:

PIE \*sprd<sup>h</sup>- 'contest' (cf. Skt *sprdh-*) > PGmc \*spurd- 'racecourse' (cf. Goth. *spaurds*);

PIE \*spr<sub>3</sub>-n-h<sub>1</sub>- 'to kick' (cf. Lat. *spernere* 'to despise, to reject', pf. *sprēvisse*) > PGmc \*spurnanā 'to kick, to trample' (cf. OE *spurnan*);

PIE \*h<sub>2</sub>stér- 'star' (cf. Hitt. *hasterz*, Gk *ἀστέρ-* /astér-/ ) > PGmc \*sternan- (cf. Goth. *stairno*, OE *steorra*);

PIE \*sth<sub>2</sub>ti- ~ \*sth<sub>2</sub>téy- 'act of standing, place to stand' → \*sth<sub>2</sub>tis (cf. Skt *st<sup>h</sup>itís*) > PGmc \*stadiz 'place' (cf. Goth. *staps*, OE *stede*);

PIE \*stéyg<sup>h</sup>eti '(s)he's walking' (cf. Gk *στείχει* /stéik<sup>h</sup>ei/; Skt *stigh-*, pres. 3sg. *stigh<sup>h</sup>nóti*) > PGmc \*stīgidi '(s)he climbs' (cf. Goth. *steigip*, OE *stīgh*);

PIE \*h<sub>1</sub>esti '(s)he is' (cf. Gk *ἐστι* /esti/, Lat. *est*) > PGmc \*isti (cf. Goth., OHG *ist*);

PIE \*g<sup>h</sup>óstis 'stranger' (cf. Lat. *hostis* 'enemy', OCS *gostī* 'guest') > PGmc \*gastiz 'guest' (cf. Goth. *gasts*, OE *giest*);

PIE \*skéydeti '(s)he will cut (it) off' (cf. Rigvedic Skt aor. injunctive *mā<sup>h</sup>edma* 'may we not break') > PGmc \*skītidi '(s)he defecates' (cf. ModHG *scheißt*; ON *skítr* with ending replaced; seldom attested in the older Gmc. documents);

PIE \*skab<sup>h</sup>eti '(s)he's scratching' (cf. Lat. *scabit*) > PGmc \*skabidi '(s)he shaves' (cf. Goth. *skabip*, OE *scæfþ*);

(post-)PIE \*pisk- 'fish' (cf. Lat. *piscis*) > PGmc \*fiskaz (cf. Goth. *fisks*, OE *fisc*).

There are also some examples of PIE \*t preceded by a labial or dorsal stop; cf. especially \*kh<sub>2</sub>ptós, \*oktōw, and \*nók<sup>w</sup>t-, cited above (and 3.2.4 (iv) below).



The examples 'brother' and 'taken/caught' show that  $*h_2$  was no longer an obstruent in contact with following  $*t$  when Grimm's Law affected the latter. PGmc  $*attō$  'dad' (see 3.2.3 (i)) presumably escaped Grimm's Law because of the Obligatory Contour Principle (since the second  $*t$  could not undergo the change).

2) PIE voiced stops became PGmc voiceless stops by Grimm's Law. Since this change and the one just described are in counterfeeding order, they must have occurred either simultaneously or in the chronological order implied by the order of presentation here. Since there seem to have been no restrictions on this stage of Grimm's Law, I give examples in various phonotactic positions together (though see also 3.2.4 (iv)). Examples involving PIE  $*b$  are rare both because it was the rarest PIE consonant and because two basic examples,  $*h_2ébō$  'river' and  $*píbeti$  '(s)he's drinking', happen not to survive in Germanic. In addition to  $*dékmd$ ,  $*deks-$ ,  $*póds$ ,  $*kérđ-$ , and  $*teg-$ , cited above, note:

- PIE  $*d^hébū-$  ~  $*d^hubéw-$  'deep' (cf. Lith. *dubūs* 'hollow';  $*d^hubrós$  in Toch. B *tapre* 'high')  $\rightarrow$  PGmc  $*deupaz$  (cf. Goth. *diups*, OE *dēop*);
- PIE  $*leb-$  'lip' (cf. Lat. *labrum*; Hitt. *lilipai* '(s)he licks')  $\rightarrow$  PGmc  $*lep-$  ~  $*lip-$  (cf. OE *lipa*);
- PIE  $*treb-$  ~  $*tr̥b-$  'building' (cf. OIr. *atreba* '(s)he dwells'; secondary zero grade in Lat. *trabs* 'beam') in PGmc  $*purpa$  'farmstead, village' (cf. ON *þorp*; Goth. *þaurp* 'field');
- (post-)PIE  $*g^hreyb-$  'to grab, to grasp' (cf. Lith. *griēbti* 'to grasp at, make a grab for')  $\rightarrow$  PGmc  $*grīpanā$  (cf. Goth. *greipan*, OE *grīpan*);
- PIE  $*dn̥g^hwéh_2-$  'tongue' (cf. Old Lat. *dingua*)  $\rightarrow$  PGmc  $*tungōn-$  (cf. Goth. *tuggo*, OE *tunge*; the Gmc. form has been remodeled as an n-stem);
- PIE  $*h_1dónt-$  ~  $*h_1dn̥t-$  'tooth' (cf. Skt *dánt-* ~ *dat-*)  $\rightarrow$  PGmc  $*tan̥p-$  ~  $*tund-$  (cf. ON *tōnn*, OE *tōþ*; Goth. *tunþus* 'tooth', *aíhwatundi* 'thornbush', lit. *\*'horse-tooth'*);
- PIE  $*dóru$  ~  $*dréw-$  'tree, wood' (cf. Skt *dāru*, gen. sg. *drós*)  $\rightarrow$  PGmc  $*trewā$  (cf. OE *trēo*; Goth. dat. pl. *triwam* 'with clubs');
- PIE  $*dwóh_1$  'two' (masc. nom.-acc.; cf. Skt *dvā*, Homeric Gk *δύω* /*dúō*/)  $\rightarrow$  PGmc  $*twō$ , possibly in OE *twægen*  $\rightarrow$  *twēgen* ( $*twō$  inō??; cf. van Helten 1906: 91–3, Ross and Berns 1992: 568–9, but see also 3.4.5 (ii)); or  $\rightarrow$  PGmc  $*twai$  (with plural inflection, cf. Goth *twai*);
- PIE  $*ád$  'at' (cf. Lat. *ad*)  $\rightarrow$  PGmc  $*at$  (cf. Goth. *at*, OE *æt*);
- PIE  $*k^wód$  'which?' (neut.) (cf. Lat. *quod*; Vedic Skt *kád* 'what?')  $\rightarrow$  PGmc  $*h^wat$  'what?' (cf. ON *hvat*, OE *hwæt*);
- PIE  $*h_1ed-$  'to eat' (cf. Homeric Gk *ἔδειν* /*édēin*/, Lat. *edere*)  $\rightarrow$  PGmc  $*etanā$  (cf. Goth. *itan*, OE *etan*);

- PIE  $*wréh_2d-$  ~  $*w̥rh_2d-$  'root' (cf. Lat. *rādix*)  $\rightarrow$   $*wrād-$  ~  $*wurd-$   $\rightarrow$  PGmc  $*wrōt-$  ~  $*wurt-$  (cf. Goth. *waúrts*, ON *rót*; OE *wyrt* 'plant');
- PIE  $*swā́dus$  'pleasant, sweet' ( $*swéh_2dus$ ?; cf. Skt *svādús*, Gk *ῥόδός* /*hēdús*/)  $\rightarrow$  PGmc  $*swōtuz$   $\rightarrow$  PNWGMc  $*swōtiz$  (cf. ON *sætr*, OE *swēte*);
- PIE  $*wóyde$  '(s)he knows' (cf. Skt *vēda*, Gk *οἶδε* /*ôide*/)  $\rightarrow$  PGmc  $*wait$  (cf. Goth. *wait*, OE *wāt*);
- PIE  $*g̥nh_1tós$  'born' (cf. Skt *jātás*, Lat. *nātus*, Homeric Gk *κασίγνητος* /*kasígnētos*/ 'brother', lit. 'co-gnātus')  $\rightarrow$  PGmc  $*kundaz$  (cf. Goth. *airpakunds* 'of earthly origin', OE *godcund* 'divine');
- PIE  $*g̥rh_2nóm$  'crushed, ground' (neut.; cf. Skt *jīrṇám* 'worn out', Lat. *grānum* 'grain')  $\rightarrow$  PGmc  $*kurnā$  'grain' (cf. Goth. *kaurn*, OE *corn*);
- PIE  $*góm̥^hos$  'row of teeth' (cf. Skt pl. *jāmb^hāsas*; Gk *γόμφοι* /*gómph^hos*/ 'peg')  $\rightarrow$  PGmc  $*kambaz$  'comb' (cf. ON *kambr*, OE *camb*);
- PIE  $*gónu$  ~  $*gnéw-$  'knee' (cf. Skt *jānu*, Gk *γόνυ* /*gónu*/)  $\rightarrow$  PGmc  $*knewā$  (cf. Goth. *kniu*, OE *cnēo*);
- PIE  $*h_2égeti$  '(s)he is driving' (cf. Skt *ájati*, Lat. *agit*)  $\rightarrow$  PGmc  $*akidi$  '(s)he goes in a vehicle' (cf. ON inf. *aka*; ?also OE *acan* 'to ache', Seebold 1970: 75);
- PIE  $*h_2égros$  'pasture'  $\rightarrow$  'field' (cf. Skt *ájas*, Lat. *ager*)  $\rightarrow$  PGmc  $*akraz$  (cf. Goth. *akrs*, OE *æcer*);
- PIE  $*wér̥gom$  'work' (cf. Gk *ἔργον* /*érgon*/; for the palatal cf. the related verb in Av. *vərəziieiti*)  $\rightarrow$  PGmc  $*werkā$  (cf. ON *verk*, OE *weorc*);
- PIE  $*égh_2$  'I' (cf. Skt *ahám*, Lat. *ego*, both with innovative second syllables)  $\rightarrow$  PGmc  $*ek$ , unstressed  $*ik$  (cf. ON *ek*, OE *ic*);
- PIE  $*gol-$  'cold' (o-grade; cf. Lat. *gelū*, Lith. *gelumà* 'frost') in PGmc  $*kalana$  'to be cold, to freeze' (cf. ON *kala*, OE *calan*) and  $*kaldaz$  'cold' (cf. Goth. *kalds*, ON *kaldr*, OE *ceald*);
- PIE  $*glewb^h-$  'to split' (cf. Lat. *glūbere* 'to peel')  $\rightarrow$  PGmc  $*kleubana$  (cf. ON *kljúfa*, OE *clēofan*, OHG *klioban*);
- PIE  $*yugóm$  'yoke' (cf. Skt *yugám*, Lat. *iugum*)  $\rightarrow$  PGmc  $*jukā$  (cf. OE *geoc*; Goth. *juk* 'yoke (of oxen), pair');
- (post-)PIE  $*tong-$  'to percieve, to think' (cf. dialectal Lat. *tongitiō* 'nōtiō, idea', OIr. *tongid* '(s)he swears')  $\rightarrow$  PGmc  $*þank-$  in  $*þankjana$  'to think' (cf. Goth. *þagkjan*, OE *þenċan*),  $*þankō$  'thanks' (cf. ON *þokk*, OE *þanc*);
- PIE subjunctive  $*g^wémeti$  '(s)he will step' (cf. Skt *gámat*, Hoffmann 1955b)  $\rightarrow$  PGmc  $*k^wimidi$  '(s)he comes' (cf. Goth. *qimip*, OHG *quimit*; on the shift in function see 3.3.1 (ii));
- PIE  $*g^wēn$  'woman (nom. sg.)' (OIr. *bé*; cf. Jasanoff 1989)  $\rightarrow$  PGmc  $*k^wēniz$  'wife' (cf. Goth. *qens*, OE *cwēn* 'queen');
- PIE  $*g^wh_3wós$  'alive' (cf. Skt *jīvás*, Lat. *vīvos*, and with analogical full-grade root Gk *ζωός* /*sdqíós*/)  $\rightarrow$   $*k^wikwós$   $\rightarrow$  PGmc  $*k^wik^waz$  (cf. ON *kvikr*, OE *cwic*);



PIE \*g<sup>w</sup>reh<sub>2</sub>u- ~ \*g<sup>w</sup>rh<sub>2</sub>ew- 'heavy' (cf. Lat. *gravis*) → \*g<sup>w</sup>rh<sub>2</sub>ús (cf. Skt *gurús*, Gk *βαρύς* /barús/) > PGmc \*kuruz (cf. Goth. *kaúrus*);  
 PIE \*h<sub>1</sub>reg<sup>w</sup>os ~ \*h<sub>1</sub>reg<sup>w</sup>es- 'darkness' (cf. Skt *rájas* 'empty space', Gk *ἔρεβος* /érebos/ 'hell'; for the meaning cf. the related formation \*h<sub>1</sub>reg<sup>w</sup>ónt- in Toch. B *erkeṃt* 'black (obl. sg. masc.)') > PGmc \*rek<sup>w</sup>az ~ \*rik<sup>w</sup>iz- (cf. Goth. *riqis*);  
 PIE \*h<sub>3</sub>eng<sup>w</sup>ŋ 'ointment' (cf. Lat. *unguen*), collective \*h<sub>3</sub>eng<sup>w</sup>ō > PGmc \*ank<sup>w</sup>ō (Jasanoff 2002: 35; cf. OHG *ancho* 'butter').

It seems clear that an \*s immediately preceding any of these stops adjusted in voicing as this change occurred, to judge from two clear examples of PIE \*sd:

PIE \*h<sub>3</sub>ósdos 'branch' (cf. Gk *ὄσος* /ósdos/; Hitt. *hasduēr* 'twigs, brush') > \*ósdos > PGmc \*astaz (cf. Goth. *asts*, OHG *ast*);  
 PIE \*nisdós 'seat' (\*ni-sd- 'down-sit-', cf. Arm. *nist*, Skt *nīdás*), 'nest' (cf. Lat. *nīdus*, OIr. *net*, Welsh *nyth*) > PGmc \*nistaz 'nest' (\*nestaz??; that is the form reconstructable from OE, OS, OHG *nest*—the word does not occur in North or East Germanic—but the lowering of the vowel in OE is puzzling).

- ③ Finally, the breathy-voiced stops of PIE became PGmc voiced obstruents, conventionally written \*b, \*d, \*g, \*g<sup>w</sup>, which were stops in some environments and fricatives in others. The pattern of allophony is not clear in every detail, because it was noncontrastive and has to be deduced from the corresponding patterns in the attested daughters. (The comparative method gives mathematically certain results only for contrasts.) So far as we can tell, the PGmc allophony was the following. All these phonemes were stops immediately after homorganic nasal consonants; \*b and \*d, but not \*g, were also stops word-initially (see below on \*g<sup>w</sup>); \*d was also a stop immediately after \*l and \*z. The allophony of \*d after \*r is unclear; in Gothic it behaves like a stop (e.g. not devoicing word-finally, so that the nom.-acc. sg. of 'word' is *waúrd*, not *waúrþ*), but in Old Norse it is a fricative (so that 'word', for example, is *orð*). (WGmc is no help on this point, since PGmc \*d became a stop in all positions in that subgroup.) Since the outcomes of Verner's Law, which should have been fricatives (see 3.2.4 (ii)), merged with these preexisting obstruents, it was long believed that Grimm's Law must have changed PIE \*b<sup>h</sup>, etc., into fricatives in every position, and that these phonemes acquired stop allophones only after Verner's Law had occurred. But it seems clear from more modern work in phonology that the rules governing these allophones could have operated as surface filters, and thus could have preexisted Verner's Law. In what follows I shall use the traditional spellings; once again, the reader must remember that they do not reflect the phonetics of the sounds precisely.

I here give examples only for the PIE labial, coronal, palatal, and velar stops; discussion of the labiovelar is postponed till section 3.2.4 (iii), since in most positions it underwent further changes before the PGmc period. In addition to \*b<sup>h</sup>reh<sub>2</sub>tēr, \*skab<sup>h</sup>eti, \*glewb<sup>h</sup>-, \*gómb<sup>h</sup>os, \*d<sup>h</sup>éwbu-, \*sprd<sup>h</sup>-, \*g<sup>h</sup>óstis, and \*stéyg<sup>h</sup>eti, cited above, note:

PIE \*b<sup>h</sup>éreti '(s)he's carrying' (cf. Skt *b<sup>h</sup>áratī*, Lat. *fert*) > PGmc \*biridi (cf. Goth. *baírīþ*, OE *birp*);  
 PIE subjunctive \*b<sup>h</sup>éydeti '(s)he will split' (cf. Skt *b<sup>h</sup>édati*) > PGmc \*bitidi '(s)he bites' (cf. Goth. *beitīþ*, OE *bitt*);  
 PIE \*b<sup>h</sup>uh<sub>2</sub>- 'to become' (cf. aorist 3sg. Skt *áb<sup>h</sup>ūt*, Gk *ἐφῦ* /ép<sup>h</sup>u:/) → pres. \*b<sup>h</sup>uh<sub>2</sub>-ye/o- (cf. Þórhallsdóttir 1993: 152–63 with references) > PGmc \*būana 'to dwell' (cf. ON *búa*, OE *būan*);  
 PIE \*h<sub>3</sub>b<sup>h</sup>ruh<sub>2</sub>s 'eyebrow' (cf. Gk *ὀφρύς* /op<sup>h</sup>rus/, Skt *b<sup>h</sup>rás*) > \*brüz → PGmc \*brūwō (cf. OE *brū*);  
 (post-)PIE \*b<sup>h</sup>rg<sup>h</sup>- 'hill' (cf. OIr. *brí*, *brig*–; the root is PIE 'high') > PGmc \*burg- 'hill- fort' (cf. Goth. *baúrgs*, OE *burg*, both 'town');  
 PIE \*web<sup>h</sup>(H)- 'to weave' (cf. Skt *vab<sup>h</sup>(i)*–, Toch. B /wəpa-/ > PGmc \*webana (cf. OE *wefan*, OHG *weban*);  
 PIE \*d<sup>h</sup>éh<sub>1</sub>ti- ~ \*d<sup>h</sup>h<sub>1</sub>téy- 'act of putting' (cf. Gk *θέσις* /t<sup>h</sup>ésis/; Av. *zraz-dāti* 'belief' (lit. 'putting faith'), Skt *vāsu-d<sup>h</sup>iti* 'bestowal of goods') > \*d<sup>h</sup>ētis > PGmc \*dēdiz 'deed' (cf. OE *dæd*; Goth. *missadeþs* 'misdeed, sin');  
 PIE \*d<sup>h</sup>óh<sub>1</sub>mos 'thing put' (cf. Greek *θωμός* /t<sup>h</sup>omós/ 'heap') > PGmc \*dōmaz 'judgment' (cf. Goth. *doms*, OE *dōm*);  
 PIE \*d<sup>h</sup>ugh<sub>2</sub>tēr 'daughter' (cf. Skt *duhitā*, Gk *θυγάτηρ* /t<sup>h</sup>ugátē:r/) > PGmc \*duhtēr (cf. ON *dóttir*, OE *dohtor*);  
 PIE \*d<sup>h</sup>wór- ~ \*d<sup>h</sup>ur- 'door' (cf. Gk *θύρα* /t<sup>h</sup>úra:/, Lat. pl. *forēs*) > PGmc \*dur- (cf. OE *duru*; Goth. *daúr*, OE *dor* 'gate');  
 PIE \*h<sub>1</sub>wid<sup>h</sup>éwh<sub>2</sub> ~ \*h<sub>1</sub>wid<sup>h</sup>wéh<sub>2</sub>- 'widow' (cf. Skt *vid<sup>h</sup>ávā*, Lat. *vidua*) > PGmc \*widuwōn- (cf. Goth. *widuwo*, OE *widuwe*);  
 PIE \*méd<sup>h</sup>yos 'middle' (cf. Skt *mád<sup>h</sup>yas*, Lat. *medius*) > PGmc \*midjaz (cf. Goth. *midjis*, OE *midd*);  
 PIE \*sámh<sub>2</sub>d<sup>h</sup>os 'sand' (cf. Gk *ἄμαθος* /ámat<sup>h</sup>os/) > \*sáməd<sup>h</sup>os > \*sáməd<sup>h</sup>os > PGmc \*samdaz (sic; cf. MHG *sam(b)t* beside ON *sandr*, OE *sand*, OHG *sant*, and see 3.2.6 (ii));  
 PIE \*misd<sup>h</sup>ó- 'reward' (cf. Gk *μισθός* /mist<sup>h</sup>ós/; Skt *mīd<sup>h</sup>ám* 'prize') > PGmc \*mizdō (cf. OE *mēd*, *meord*; Goth. *mizdo* has been remodeled as an n-stem);  
 PIE \*g<sup>h</sup>áns 'goose' (cf. Gk *χήν* /k<sup>h</sup>én/, Lith. *žąsis*) > PGmc \*gans (cf. OE *gōs*, OHG *gans*);



PIE \*<sup>h</sup>elHwos 'yellow' (cf. Lat. *helvos* 'bay (horse)'; for the palatal cf. OCS *zelenŭ* 'green') > PGmc \*gelwaz (cf. OE *geolu*, OHG *gelo*);  
 PIE \*wēg<sup>h</sup>eti '(s)he's transporting (it)' (cf. Skt *vāhati* (aor. *āvāt* with reflex of palatal cluster), Lat. *vehit*) > PGmc \*wigidi '(s)he moves' (cf. OE *wigh*, OHG *wigit*);  
 PIE \*h<sub>3</sub>még<sup>h</sup>eti '(s)he's urinating' (cf. Skt *mēhati* (past ptc. *mīdhās* with reflex of palatal cluster), Gk *ομέιχει* /*oméik<sup>h</sup>ei*/) > PGmc \*mīgidi (cf. OE *mīgh*);  
 (post-)PIE \*g<sup>h</sup>ayd- 'goat' (cf. Lat. *haedus* 'kid') > PGmc \*gait- (cf. Goth. *gaits*, OE *gāt*);  
 PIE \*d<sup>h</sup>g<sup>h</sup>ós 'long' (cf. Skt *dīrg<sup>h</sup>ās*, OCS *dlŭgŭ*) > PGmc \*tulgaz 'firm' (cf. Goth. *tulgus* 'firm, steadfast' (\*'long-lasting'), transferred into the u-stems; OE adv. *tulge* 'firmly');  
 PIE \*lég<sup>h</sup>eti '(s)he's lying down [eventive]' (cf. OCS *ležetŭ* [stative], Homeric Gk aor. *λέκτο* /*lékto*/ '(s)he lay down') > PGmc \*ligiþi (stative; cf. OE *ligþ*, OHG *ligit*);  
 PIE \*h<sub>3</sub>nog<sup>h</sup>(w)- 'claw, nail' (cf. Gk *ὄνυχ-* /*ónuk<sup>h</sup>-*/, Lith. *nāgas*) > PGmc \*naglaz (cf. ON *nagl*, OE *nægl*).

3.2.4 (ii) *Verner's Law and the elimination of contrastive accent* After the PIE voiceless stops had become voiceless fricatives by Grimm's Law, they became  
 \* voiced by Verner's Law if they were not word-initial and not adjacent to a voiceless sound and the last preceding syllable nucleus was unaccented; \*s was also affected, and became voiced \*z under the same conditions (cf. Schaffner 2001: 57–60). I postpone discussion of the labiovelar to section 3.2.4 (iii). Note especially these synchronically underived examples:

PIE \*upér(i) 'over, above' (cf. Skt *upári*, Gk *ὕπερ* /*hupér*/) > \*ufér, \*uféri > PGmc \*uber, \*ubiri (cf. OHG *obar*, *ubiri*; OE *ofer* but ON *yfir*);  
 PIE \*h<sub>2</sub>wap- 'evil' (cf. Hitt. *huwappas*, Melchert 1994: 147) suffixed in \*h<sub>2</sub>upélos > \*ufélos > PGmc \*ubilaz 'evil, bad' (Watkins 1969: 30; cf. Goth. *ubils*, OE *yfel*);  
 PIE \*selp- 'to anoint', attested mostly in derived nouns (cf. Skt *sarpís* 'ghee', Toch. B *šalype* 'oil, fat'); \*sólpos 'ointment', collective \*solpéh<sub>2</sub> > \*solfā > PGmc \*salbō (cf. OE *sealf*, OHG *salba*), derived verb \*salbōnā 'to anoint' (cf. Goth. *salbon*);  
 PIE \*septm̥ 'seven' (cf. Skt *saptá*, Lat. *septem*) > \*seftún → \*seftúnt > \*sefúnt > PGmc \*sebun (see Stiles 1985–6, part 3, pp. 6–7; cf. Goth. *sibun*, OE *seofon*);  
 PIE \*ph<sub>2</sub>tér 'father' (cf. Skt *pitá*, Lat. *pater*) > \*fapér > PGmc \*fadēr (cf. ON *faðir*, OE *fæder*);  
 PIE \*meh<sub>2</sub>tér 'mother' (cf. Skt *mātá*, Lat. *māter*) > \*māpér > PGmc \*mōdēr (cf. ON *móðir*, OE *mōdor*);

PIE \*k<sup>w</sup>etwōr 'four (neut.)' (cf. Skt *catvāri*, Lat. *quattuor*) > \*fēpwōr (initial labial probably by lexical analogy with 'five') > PGmc \*fedwōr (cf. Goth. *fidwor*, OE *fēower*);  
 PIE \*k<sup>h</sup>m̥tóm 'hundred' (cf. Skt *śatám*, Lat. *centum*, Lith. *šimtas*) > \*hunpón > PGmc \*hundā (cf. Goth. pl. *hunda*, OE *hundred*);  
 PIE \*h<sub>2</sub>énh<sub>2</sub>- 'duck' (cf. Lat. *anat-*, Lith. *ántis*) > \*ánup- > PGmc \*anud- (cf. OHG *anut*, OE i-stem *ened*);  
 PIE \*w<sup>h</sup>h<sub>1</sub>tóm 'said' (neut.; see 3.2.2 (i)) > \*wurpón > PGmc \*wurdā 'word' (cf. Goth. *waúrd*, OE *word*);  
 PIE \*tewtéh<sub>2</sub> 'tribe, people' (cf. Oscan *touto*, OIr. *túath*, Lith. *tautà*) > \*þeupā > PGmc \*þeudō (cf. Goth. *þiuda*, OE *þēod*);  
 PIE \*swekrúh<sub>2</sub> 'mother-in-law' (cf. Skt *śvaśrús*) > \*swehrú > PGmc \*swegrū? or > \*swegrō?; in either case, > PWGmc \*swegru (cf. OE *sweġer*, OHG *swigar*);  
 PIE \*h<sub>2</sub>yuH<sup>h</sup>nkós 'young' (cf. Skt *yuvaśás*, Lat. *iuvencus* 'steer', i.e. 'young bull') > \*yunhós > PGmc \*jungaz (cf. Goth. *juggs*, OE *iung*, *geong*);  
 post-PIE pres. \*wiké/ó- 'to fight' (cf. OIr. 3sg. *fichid*) > \*wihé/ó- > PGmc \*wiganā 'to fight' (cf. Goth. *du wigana* 'to battle'; ON *vega*, influenced by lexical analogy with *vega* 'to move');  
 PIE \*snusós 'daughter-in-law' (cf. Gk *νύος* /*nuós*/) → \*snuséh<sub>2</sub> (cf. Skt *snuśā*) > PGmc \*snuzō (cf. OE *snoru*, OHG *snura*);  
 PIE \*h<sub>2</sub>k<sup>h</sup>-h<sub>2</sub>ows-iéti '(s)he is sharp-eared' (cf. Gk *ἀκούειν* /*akóuen*/ 'to hear') > PGmc \*hauziþi '(s)he hears' (cf. OE *hīerþ*, OHG *hōrit*);  
 PIE \*mém̥s ~ \*mém̥s- (cf. Skt *mās*, Toch. B pl. *misa*) → \*mēm̥sóm (cf. Skt *māmsám*) or \*memsóm (see 3.2.1 (iii)) > PGmc \*mimzā (cf. Goth. *mimz*);  
 PIE \*h<sub>1</sub>rég<sup>w</sup>os ~ \*h<sub>1</sub>rég<sup>w</sup>es- 'darkness' (cf. Skt *rājas* 'empty space', Gk *ἐρεβος* /*érebos*/ 'hell'; for the meaning cf. the related formation \*h<sub>1</sub>rg<sup>w</sup>ónt- in Toch. B *erkemt* 'black (obl. sg. masc.)') > PGmc \*rek<sup>w</sup>az ~ \*rik<sup>w</sup>iz- (cf. Goth. *riqis*, gen. *riqizis*, ON *røkkr*);  
 PIE \*dus- 'bad' (cf. Skt *duṣ-*, Gk *δυσ-* /*dus-*/) > PGmc \*tuz- (cf. Goth. *tuzwerjan* 'to doubt', OE *torbeġiete* 'hard to get').

Since Grimm's Law followed the loss of laryngeals, so did Verner's Law; cf. also 'father', 'mother', and 'duck' in the above list. Determining whether Verner's Law followed the contraction of vowels in hiatus depends on finding a clear example of the purely phonological development of a PIE sequence \*V'(H)VC, where \*C is a consonant that could have undergone Verner's Law. The examples adduced in Schaffner 2001: 59–60 do not seem to me compelling enough to decide the question beyond a reasonable doubt, and I can adduce no others. (The example PIE \*-oes, including \*-óes, > PGmc