

The last two teens are actually attested as *octodecim* (? -ō-) and *novendecim*, but the usual forms are subtractive: *duodēvīgintī*, *undēvīgintī* (ūn-, rather than ūn-, perh. from *ūndecim*, 82b). These are similar to the G δέοντα εἴκοσι phrases mentioned above, and are sometimes traced to the G model specifically; but differences in detail make it unlikely that the G phrases were the inspiration for the L ones, or even very important.

Syndetic phrases are occasionally met with instead, as epigraphic DECEM ET VNA, DECEM ET TRIBVS, DECEM ET SEPTEM; but DVODECIM occurs beside these in the same inscription. The inverted form for '12' is usually *decem duo* rather than *decem et duo*; cf. U *desenduf* acc. (**dekkem-duōns*).

391. THE DECADS. Historically the decades were compounds made up of the units plus an element which is superficially *-kōmt. If the denominator ended in a syllabic, as most do, it is lengthened: so **trīkōmt*, **kʷetw̄kōmt*, **penkʷēkōmt*, **sept̄m̄kōmt*. It is obvious that some consonant preceding the *-k- had been lost, with compensatory lengthening of the preceding syllabic. (In **swekskōmt* '60' the consonant was lost without effect.) The consonant in question must be *-d-, since the second element of the compound is transparently 'ten'. Transparent are ***tri-dkōmt*, ***kʷetw̄r-dkōmt*, ***penkʷe-dkōmt*, **(s)*weks-dkōmt*, ***sept̄m-dkōmt*, ***okto(w)-dkōmt*, and **(*H*)*newŋ-dkōmt*. On the basis of these, the less transparent **wīk̄mt-* '20' may confidently be traced to an earlier ***wi-dkōmt*. (The inconsistent ablaut grades of the denominator cannot be original. Probably they were originally all zero grade, but with the exception of '30' and perhaps '20' they were remodeled after the units.)

Already in PIE there were some analogical disturbances as well as some morphological retouching. The expected form for '20', **wīk̄mt-*, is nowhere attested, having been replaced by **wīk̄mt-* under the influence of **dek̄mt*. (This is another datum in favor of **dek̄mt*, as an original **dek̄m* without the final *-t would have been unlikely to interact with ***wīk̄mt-*.) This zero-grade shape spread further in InIr., whence Ved. *trīmsāt-*, *catvār-imśāt-* (with details imported from *vīmśati-* '20', itself secondary for **vīśati*, cf. Av. *vīsaiti*), and *pañcasāt-*. (Skt. *saptati-* and *navati-* show the same, with however the addition of -i.) In Gmc. also the zero grade vocalism of '10' and '20' spread, hence forms like Go. *sibuntehund* '70' for *×**sibuntehund*.

As late as PGmc., the formation of decades was in flux. The last phase was a program of replacing words for the decades with phrases, 'four tens' and the like, as Go. *fidwor tigjus*¹ '40'. But this is actually a second round of innovation: in the earliest texts the higher decades are formed in a more conservative—but nevertheless distinctively Germanic—manner. The details of the forms disagree from branch to branch, which indicates independent development. So in the recent prehistory of Gothic a form **fimfēhund* must be assumed for '50' (though it is everywhere already replaced by a phrase in the attested

¹ The source of NE *-ty*, NHG *-zig*—Go. *tigjus* is the nom.pl. of a *u*-stem, *tigu-* (a Gmc. or Go. creation, though a fanciful PIE **dekū-* is often mentioned in the literature).

languages), whence on the proportion $*fimf : *fimfēbund :: *sebs : X$, the form $*sebsēbund$ '60' was created, and in this turn led to the touching-up of $*seftunbund$ as $*seftunēbund$ '70'. Under the combined influence of *taibun* '10' and cardinal *sibun* '7', the last was remodeled as *sibuntebund*, which is the form actually occurring in Go., and on the proportion *sibun* : *sibuntebund* :: *ahtau* : *X* provided the pattern for Go. *ahtautebund* '80' in place of expected $*ahtauhbund$. In WGmc. the pivotal form was not '50' but $*ahtōbund$ '80', whence $*sebuntōbund$ '70'; these are represented in earliest OHG by the truncated set *sibunzo*, *ahtozo*; and in OE, with wholesale metanalysis of the counting-series, as *hundsefontig*, *hundeahatig* (that is, each *bund-* belongs etymologically to the PRECEDING decad. The same phenomenon underlies the early OHG forms). The OE forms additionally have the usual decad marker *-tig*, imported from the lower numbers.

A source of discussion over the years has been the termination of the decades. L. *vīgintī* looks like a nom./acc.neut.du. in $*-iH_1$, but G. *ēikost* and Ved. *viṁśati-* (a SINGULAR fem. *i*-stem noun) do not agree. OIr. *fiche* /*fix'e*/ and its Celtic cognates are ambiguous. The G and InIr. forms can be imagined to show the loss of a word-final laryngeal without other effect, as in the voc.sg. of G *ā*-stems (263.2), though the failure of $*-iH_1$ to become $*-ye$ (49.2), as in *ōσσε* nom.du.n. 'eyes' < $*H_1ek^w iH_1$, is a serious problem.

Similarly obscure is the termination of L *-gintā* of *triāgintā*, *quattuor-gintā*, and the rest (where the preservation of *-ā* in final syllable would be a puzzle per se, 83.2), next to the *-ă* of G *-kovră*, and assorted InIr. decades in *-i* (*saptati-* for example), which are fem. *i*-stems.

Despite the great differences in detail, Go. and OE confirm that the PGmc. form ended in an obstruent, $*-d$, which must have been followed by a short vowel in PIE.

The most economical explanation of all these facts is PIE $*-kōmtH_2$ ($*-k̑m̑tH_2$). The $*-H_2$ gives Skt. *-i* and G *-ă* automatically, and likewise the Gmc. forms, and is consistent with OIr. *tricho*, *cethorcho*, and the rest (post-consonantal word-final laryngeals dropped without a trace in PCelt.). The only surprise is L *-ā*. The replacement of expected *-ă* < $*-ā$ started in forms like *septuāgintā* and *nōnāgintā*, that is, with *-ā-* at the end of the denominator; *-gintā* is in effect brought into 'agreement' with the denominator. Perhaps the similar pattern in *vīgintī* was a factor, but that form is rather too remote in the series to have exerted strong influence.

a. The PIE element $*-H_2$ on the decades 30-90 looks like and is usually taken to be the marker of the nom./acc.n.pl., perhaps inspired by the nom./acc.du.neut. ending $*-iH_1$ on '20': if '20' is overtly marked (or seems to be overtly marked) as a neut. dual, marking the higher decades with the corresponding neut.pl. marker seems like a simple innovation. The feminine gender of the InIr. decades, however, might suggest instead that $*-H_2$ is here the same as the fem. element in $*-eH_2-$ (262) and $*-iH_2-$ (268), and that the termination of '20' is not $*-iH_1$, the marker of the neuter du., but $*-i(H)$ the marker of the FEMININE du. (as in Ved. *sípre* nom./acc.f.du. 'both cheeks', stem *síprā-*).

According to one opinion, however, this $*-H_2$ on the decades is a phantom, and the real explanation for the G *-ă*, InIr. *-i*, the unknown (but necessary) short vowel at the end of the Gmc. forms, and perh. for (presumed) Ital. $*-ă$, is that they are prop-vowels

after the consonant cluster *-mt. There are several problems with this view. First, *-mt seems to have been a permitted final in PIE (as in aor. *e-gʷemt 3sg.); that is, it did not require propping. Second, a final vowel is necessary in these forms in at least four branches, whereas InIt. is the only IE group in which prop-vowels are certainly attested. Last, and weightiest, when sound laws knap consonants off the ends of words, speakers are rarely if ever aware of the process UNLESS ALTERNATION RESULTS. This latter is seen in the case of early PIE **k̥erd 'heart' **k̥y̥dos gen.: when regular phonological developments produced nom. *k̥er, the oblique forms provided grounds for reinstalling the *-d of the nom.sg. Whether such a reinstatement took place in G cannot be told, as *k̥er and *k̥erd would develop identically. In Ved. hārdi, however, we have a genuine instance of a restored final cons. with a prop-vowel of the sort proposed for *trikomt̥a. But the situations are completely different. In the case of decad *-komt̥, similarities with *dekm̥t were slight enough to begin with, and in the developments of the various branches, reflexes of *dekm̥t as well would have been losing their final obstruents. In other words, any tendency for the final *-t̥ of the decades to drop, in PIE or at any point along the development of the branches, must have proceeded undisturbed by any analogical influence.

b. Note the semantics of the decades: *trikomt̥ for example is the number which marks the END of the third decad, or a tally of three tens. Most number systems work this way. However, it is arguable that we have come to think of *thirty*, say, as the FIRST of a group of ten numbers called collectively *the thirties*.¹ Some numbering systems actually work the way the modern (mis)perception seems to—that is, the name of the decad refers to the beginning rather than the end of the set of ten: in such a terminology, the lexical equivalent to our *thirty-four* would stand for the number '24' lit. 'four in the third decad'. This kind of thing is called *Oberstufenzählung*.

392. GREEK. PIE *wīk̥m̥tiH₁ '20'. Dor. (also Boeot., Thess.) *ϝικατί* (*fi-*) '20' is the most conservative G reflex, directly continuing *wīk̥m̥tiH₁ except for the detail of the final *-iH₁ mentioned above (though of course for some of the dial. forms the length of the final -i is not known). Att.-Ion. (also Hom.) *εἴκοσι* shows the influence of the decades in -kovta (an ancient influence: once *-ti had become -σι per 148, *ewikasi would have been too different from *-konta to be affected by it). The initial εī- < *ewī- includes a prothetic vowel. Hom. ἑείκοσι is a redactional fantasy for tetrasyllabic ἑ(F)ίκοσι.

**Trikonta* '30' was replaced by *τριάκοντα* (Ion. *τριή-*) after *kʷetw̥rākonta '40' < *kʷetw̥r̥komt̥H₂, which itself was subsequently influenced by the simplex *τέτταρες*, whence *τετταράκοντα*. Some try to trace Dor. *τετρώκοντα* to *kʷetw̥r̥komt̥H₂ directly; but some think instead of Ved. *catvārimśat-*, and hold that the Dor. form is a metathesis of *kʷet(w)ōrkonta. The latter explanation, while appealing, suffers from the weakness that ^xτετ(F)ωρ- 'four' is not actually attested anywhere in G.

¹ At intervals, newspapers print attempts by the tidy-minded to point out that midnight of December 31 of the year 1999 is NOT the expiring moment of the millennium, as the year 2000 is not the first year of the 21st century, but the last year of the 20th. It is nevertheless safe to predict that the major focus of philosophical and spiritual interest will be on the last days of the year 1999.

G πεντήκοντα (Dor. -η-) '50' is regular from **penkʷēkomtH₂*. G ἑξήκοντα '60' replaced original **b(f)εσκοντα* < **sweskōmtH₂* (230.3). Restoration of canonic ἑξ- by itself (say, *⁽⁽⁾εξκοντα*) was scarcely possible for G phonotactics; the rescuing -η- comes from the flanking decades, πεντήκοντα and (Att.-Ion.) ἑβδομήκοντα < **hebdmākonta* < **septm̥kōntH₂*.

The voicing of **-pt-* > *-βδ-* in G ἑβδομήκοντα is probably from the sequence **heptmā-* < **septm̥-*, at least in part (see also 398.7). Nevertheless, in most instances of apical stop + nasal in G, nothing of the sort happens: πότνια 'mistress', πότμος 'destiny'. The *-o-* of this form and the ordinal (q.v.) is either epenthetic or else original in the ordinal and imported from there. Epigraphic *hebdeμηκοντα* (Heracl.; attested more than once) and ordinal *εβδεμαιον* (Epidaurus) favor a third scenario: original *-e-* by epenthesis, converted to *-o-* (influenced by 'eighth', 398.8) in the ordinal and then imported into ἑβδομήκοντα.

G ὄγδοήκοντα replaces expected ὄγδώκοντα, which is attested in Dor. and Ion. The *-oη-* for *-ωη-* could be a purely phonological development of *-ωη-* per 79.3, or it could be a result of two analogical influences: ἑβδομήκοντα on the one hand and ordinal *ογδοοφος* on the other (398.8).

Hom. ἐννήκοντα and Att. ἐνενήκοντα have both been traced to **enewnā-* < **newn̥-*, the former with syncope. It has also—more plausibly—been taken at face value to reflect **enwnā-* < either *(H₁)enwñ-* or **H₁ηwñ-*.

a. Aeolic and Doric forms attest *-η-* even in ἑβδομήκοντα and ἐνενήκοντα where the inherited vowel was certainly *-ā-* to begin with. The source of this *-η-* is '50', PG **penkʷēkonta* < PIE **penkʷēkomtH₂*.

393. LATIN. The L forms taken as a whole present three special developments. One, the *-ā* of the decades from '30' up, has been discussed above (391).

The easier to explain of the remaining two (but none too easy) is the vowel *-i-* in *-gintī* '20' for *-en-* from **-m̥-* (*-kmtH*), and, in the *-ginta* of '30-90', for expected *-u-* from **-o-* before a nasal in medial syllable (**-komtH*). It is the result of assimilation to the preceding vowel in the first two decades, *vīgintī* and *trīgintā*, whence it spread to the higher decades. (This explanation is plausible but not compelling.)

The voicing of expected *-c-* to *-g-* is even less confidently explicable. One theory traces it to the clusters **-ṛk-* ('40'), **-ṛk̥-* ('70') and **-ṛk̥-* ('90'), on the assumption that a long syllabic resonant might be reasonably expected to voice a following voiceless stop. There is no confirming evidence of such a thing, in L or any other IE language; but if that is actually the explanation, then from the three forms where the *-g-* is regular it ousted **vīcintī* and the others. Indeed, such a development might have been pan-IE, but everywhere was levelled in favor of the voiceless version, but except in L in favor of the voiced stop. (Leveling seems definitely to be an agent in the L details; as remarked below, in the discussion of ordinals

(399a) and hundreds (395), the distribution of -g- is different from the cardinals.)

Vigintī '20' is from **wikmt*(-iH) per the phonological and analogical developments discussed above. The persistence of earlier **wikentī* is indicated by the forms of the distributive (*vicēnī*, not ^x*vigīnī*) and the ordinal (*vicē(n)-simus*, not ^x*vīgē(n)simus* or ^x*vīgī(n)simus*).

Trīgintā '30' and *octōgintā* '80' are (or appear to be; see '70', below) purely phonological reflexes of their etyma, apart from the -g- and -ā (discussed above).¹ In addition, *nōnāgintā* '90' for **nūnāgintā* < **nōwnā-* < **newñ-* shows only the minor disturbance of -ō- in place of -ū-, imported from the ordinal *nōnus*, where it is regular (61.2a, 398.9), perhaps with some help from cardinal *novem*.

Septuāgintā '70' reflects **septmāginta* < **septm̄-*. The likeliest source for the remodeling of this form is '80', which may therefore be less conservative in fact than it appears to be: once **septmāginta* developed an anaptyctic vowel between the -pt- and the -m-, it would have closely resembled **ok-towāginta*, if that was in fact the form (-ā- from **sept(o)māginta*); whence **sep-towāginta* by contamination. This develops undisturbed to attested *septuāgintā*, but the simplex *octō* derailed the development of '80' to *octōgintā* in place of **octuāgintā*.

Quadrāgintā continues **kʷetw̄kōmtH₂* in accord with the usual developments, but with the enigmatic -a- characteristic of all 'four'-words in L, and the voicing of expected -tr- to -dr- (also seen in *quadrīgæ* 'a harness of four horses', *quadrāre* 'to make square', combining form *quadrū-*, 223.5a).

The next two decades, *quinquāgintā* and *sexāgintā*, have imported the -ā- from other forms (it is not known which of the two was created first).

394. HUNDRED AND THE HUNDREDS. PIE **kmtóm* '100' is obviously related to PIE **dekmt* '10' and therefore to the terms for the decad series discussed in 391-3, but the exact nature of the relationship is disputed. According to one view, the word should be understood in terms of the decades, the tenth of which would have been ***dékmt(d)komtH₂*, or even ***dékmtkomtH₂*. (Just such a construct, 'tenth decad', is actually seen in Go. *taihuntebund* and OE *bundtéontig*, but however interesting these are as parallels, they are neologisms based on the decades and nothing ancient.) In any case, while getting from the presumed compound to **kmtóm* may not be phonologically impossible, it involves much fiddling with the form via dissimilations and other ad hoc appeals, and at a very early date—the IE reflexes point to a uniform **kmtóm*.² On the other hand, perhaps the proper reconstruction is

¹ Original **trīk-* is conserved in *trīcēsimus* '30th' and *trīcēnī* '30 each'.

² In fact the etymon must have been something like **dekm̄tikóm(H)* per 212, from which the emergence of **kmtóm* would be even more of a feat.

**dk̄m̄tóm*, namely the expected form for the ordinal of **dekm̄t* (zero grade of all syllables and the thematic suffix *-ó-, 397). If that is so, it would be a clipped phrase (rather than a clipped compound), whose elided noun head can only be surmised.

A third possibility: some think that the formation is a gen.pl. in *-om. Fourthly, it might be a nominalized adjective, presumably the ordinal mentioned above, of a type commonplace in IE languages. (This pregnant use of an ordinal would be similar to the use of ordinals in NE and many other languages to refer to fractions: if *tenth* can conventionally mean ‘one (or more) of ten equal parts’, it just as easily can mean ‘the decad after the ninth’.)

Whatever the prior history of the form, PIE *(d)k̄m̄tóm directly yields L *centum*, Ved. *śaiám*, Av. *satəm*, Lith. *šim̄tas* (remodeled as a masc. o-stem), OCS *súto* (an ordinary neut. o-stem), OIr. *cét /k'ēd/*, Toch. A *känt*, OE, OHG *bund* and, pl.tant., Go. *bunda*.

In Germanic, the term seems to have acquired the meaning of ‘120’ (‘long hundred’), such that an unambiguous term for ordinary ‘100’ had to be manufactured. In Go., the original form occurs only in phrases like *twaim hundam* dat.pl. ‘200’, and in compounds like *hundafaps* transl. *κεντυρίων* (lw. from L *centuriō*). Similarly OHG *zwei hund*, OE *twá hund*. Even in these expressions there was evidently the possibility of confusion: a Gothic glossator added the word *taibuntewjam* ‘tens-wise’ to the expression *fimf hundam* dat.pl. (I Cor. 15.6), apparently feeling that it was unclear that *hund** here was to be understood as 100 rather than 120. Seemingly always unambiguous were Go. *taibuntehund* lit. ‘tenty’ (like *abtautehund*, *niuntehund*);¹ and the analogous OE *hundteontig* (like *hundeahlig* ‘80’ and *hundnigontig* ‘90’).

G ἑκατόν presents a special problem. It has long been understood as a contamination, by ἕν- ‘one’, of *ἀ-κατόν < *sm̄-k̄m̄tóm ‘one-hundred’, formed like Ved. *sahásra-* ‘one-thousand’ (396). All of the (slightly different) versions of this explanation suffer from two rarely-mentioned weaknesses. First, if the form has any antiquity at all it should have been *sñk̄m̄tóm < **sñdk̄m̄tóm, with a very different outcome in G (^χ*μάκατόν* or ^χ*μηκατόν*). Second, if ἀ- were to be modified by the influence of ἕν-, the likely result would have been ^χ*έγκατόν*, not ἑκατόν. (The usual explanation is like imagining that *tithe* ‘tenth’ could be replaced by NE /teð/, that is, with the vowel, and only the vowel, imported from *ten*.) On the other hand, G ἑτερος ‘one of two’, necessarily a late form, indicates that somehow a nasalless ἐ- could be an allomorph of ἕν-.

395. HUNDREDS. It does not appear that the expressions for ‘200’, ‘300’, and the rest, were fixed in PIE, certainly not as fixed as the decades or even the teens. Among the options was a kind of *bahuṛīhi* (‘four-hundreded’, like ‘four-footed’) with stems variously formed according to morphological types productive in late PIE. These underlie the G and L formations.

¹ Go. *taibuntaibund*, though occurring three times to once for *taibuntehund*, is thought to be a folk-etymological distortion of the latter.

The hundreds in Att.-Ion. are adjectives formed with an element *-κόσιοι*, more conservatively *-κάσιοι* and, a still more conservative version, Dor. *-κάτιοι*, all ultimately from *-k_mtiyo-.¹ The change of *-τ-* to *-σ-* is regular (148); *-ο-* for expected *-α-* is usually traced to the decades in *-κοντα*, which is plausible since the decades are obviously the source for some of the denominators: *τριά-* (Ion. *τριη-*). Although the element *k_mtiyo- must ultimately reflect **d_kmt-, there is little evidence for the kind of vowel lengthening seen in the decades (391), which is consistent with the idea that the hundreds are a later formation entirely. Given *τριάκοσιοι*, it is safe to assume that *πεντηκόσιοι* is likewise imported from the decades. Otherwise the usual combining forms are used, *τετρα-*, *έξα-*, *έπτα-*, *έν(f)α-*, though with hesitation in some forms (*όκτω-* next to *όκτα-*, *πεντα-* next to *πεντη-*; but no **πεντε-*). The most distinctive form, *διάκοσιοι* '200' (Ion. *διηκόσιοι*), in place of expected **δικόσιοι* or **δυοκόσιοι*, continues no ancient etymon: it was modeled on adjacent *τριάκοσιοι*.

The formation in L is similar as far as the termination, but with a different stem: *-centī*, *-ae*, *-a* < *-k_mto-. These are usually adjectives; rarely, instead, they are neut. sg. nouns (as in *ducentum*) in genitival construction with another noun. In those forms where the first part of the compound ended in a nasal, the form is *-gentī*: *quīngentī*, *septingentī*, *nōngentī*. As this cannot well be phonological, the influence of the decades must somehow be the source, which may be taken as evidence in favor of the view hesitantly urged above (391, end) to the effect that the decad forms in *-gintā* started in just such formations and spread throughout the decades. The distribution of *-g-* in the hundreds, in this view, is therefore closer to the original, except that *quīngentī* is secondary for **quīnquecentī* or **quīn(c)centī*, but early enough to provide the model for *quadringentī* with its intrusive *-n-*; likewise *octingentī* from *septingentī*, in place of **octōcentī*.

Some details of the denominators are of uncertain explanation. The mere fact that *du-* rather than *duo-* is attested in some other formations (*duplex* 'twofold' and *dubius* 'of two minds', for example) does not make *ducentī* any easier to explain. *Tre-* in *trecentī* has been mentioned above (389.3a). *Sescentī* is straightforward from **sexcentī* per 231.1. *Quīngentī*, *septingentī*, and *octingentī* are discussed above. *Nōngentī* is straightforwardly from **nowen-* < **newn-* via 61.2a.

396. THOUSAND. PIE **ǵ̥heslo-* is attested in Ved. *sabásra-*, Av. *hazanγrəm* < **sŋ-ǵ̥heslo-* lit. 'one thousand' (a neut. noun) but used in InIr. for higher thousands as well. This element, with a different stem, is reflected in a number of G dial. forms: Lesb., Thess. *χελλιοι*, Lac. *χηλιοι*, Ion., Boeot.

¹ Or perhaps better *-k_mtiHo-, as *-k_mtiyo- has the wrong Sievers alternant for the suffix; 178).