

ON THE ORIGIN OF THE LATIN DECAD-MORPHEME *-gint-*

In this brief article it is proposed that the problematic *-g-* of the Latin decad morpheme *-gint-* derives from a specifically Latin manifestation of the voiced *sandhi* variant of the Indo-European non-singular marker in **-k*. This theory is based on some recent research concerning the evolution of the category of number and the system of numerals in Indo-European.

It is well-known that Latin shows a morpheme *-gint-* which is used to derive decads from 20 to 90 (*vīgintī* '20', *trīgintā* '30', *quadrāgintā* '40', *quīnquāgintā* '50', *sexāgintā* '60', *septuāgintā* '70', *octōgintā* '80', *nōnagintā* '90') and (with a vocalic alternate) certain hundreds (*quadrīngentī* '400', *quīngentī* '500', *septīngentī* '700', *octīngentī* '800', *nōngentī* '900')¹. According to Szemerényi (1960, p. 165), «Among the many problems presented by the Latin system of numerals not the least difficult is the unexpected appearance of *-g-* in place of IE *k* in the decad-morpheme *-gintā...*». In contrast to the Latin form, other dialectal reflexes of this Indo-European etymon clearly reflect a **-k-*: Gk. *-κοντα*, Skt. *-śati-*, Avest. *-saiti*, Armen. *-sun*. Buck (1933, p. 231) simply acknowledges that «there is no adequate explanation of the voiced in place of the voiceless stop in several of the [Latin] numeral forms», but other scholars have attempted diachronic analyses of this matter. Essentially, two positions have emerged in the ensuing debate — the voicing is a specifically Latin development and the voicing has its origin in Indo-European. The first, more recent view has gained widespread acceptance, especially by way of Szemerényi (1960, pp. 165-169). Building on the work of Thurneysen, Szemerényi (1960, pp. 168-169) ultimately derives the Latin suffix from IE **-kmt* (> **-knt*) and then maintains that «in the hundreds at any rate, *-g-* appears only in those forms where there

¹ According to Buck (1933, p. 231), «The L. *int* for *ent* is perhaps due to vowel assimilation in *uīgintī*, whence by analogy also *quadrāgintā*, etc. (in contrast to *quadrīngentī*, etc.)», cf. Leumann 1963, p. 293.

is a complete nasal environment, especially clear at the stage *-ṅkṇ-*... [W]e cannot but conclude that the voicing of *k* must be due to the surrounding sonants». He ascribes to long sonants «greater voicing force» and thereby concludes that «only this can account for the fact that in **kṇetṇ-* even the preceding voiceless stop became voiced [cf. *quadrāgint-*], just as in Greek the form **septṇ-* resulted in *ἑβδομή-* while **septṇ* gave *ἑπτά*. It is possible that in gaining ground the new ending *-gint-* was helped by the number of voiceless stops with which other decads were endowed. Thus **oktōkint-*, placed between *septuāgint-* and *nōnāgint-*, may have 'welcomed' the change to *octōgint-*, and likewise **quinqūākint-*, under the welcome pressure of *quadrāgint-*».

The second position ascribes the attested dialectal variation to Indo-European. Kent (1946, p. 79) asserts that «the *-g-* seems to be an IE variant», maintaining that «in PIE, doublet forms of roots developed, with variations... between voiceless and voiced stops..., cf. [also] *pācis* and *pangō*» (1932, pp. 108-109). Meillet and Vendryes (1953, p. 69) «also point to [Gk.] *ἑβδομος* and *ὄγδοος*, implying an IE date» (Sze-merényi 1960, p. 166, n. 33).

In light of some recent proposals of mine regarding the etymology of Indo-European numerals (Shields 1984, 1985, Forthcoming a, Forthcoming c), I want to present a compromise position — that the appearance of *-g-* in *-gint-* is a specifically Latin manifestation of an Indo-European phonological process.

My theory of the origin of the voiced initial of Latin *-gint-* is based on two hypotheses. First, from an early period Indo-European showed phonological variation involving external *sandhi*. Among the *sandhi* rules of early Indo-European was the process by which «voiceless stops and spirants became voiced before voiced consonants... [although] it is by no means certain that they did so before vowels as well» (Ward 1946, p. 102). In support of this claim, Brugmann (1930, pp. 883-884) cites «**edōd bhrātrai* 'er gab dem Bruder' = ai. *ádād bhrātre*; **tāz dhughāteres* (*dhugdheres*) 'diese Tochter' = ai. *tā duhitāras...*, ai. *sūre duhitā* 'Töchter der Sonne' aus **sūraz d-*...; gr. *Ἀθήναζε* = *Ἀθήναζε δε*, Gortyn. *υιέεδ δέ* 'filii autem' aus **uiéez dé*; aksl. *poz-dz poz-dě* 'spät' zu avest. *pas-ča* lat. *pos-t.*» Of course, *sandhi* variants are subject to generalization and/or specialization, especially if the factors which originally conditioned the alternation have become obscured. Shevelov (1965, p. 366) thus notes that after final consonants were lost in all words except prepositions in early Slavic, «with the rules of the outdated IE 'voicing type' of *sandhi* gradually forgotten, the 'voiced form' of a great many prepositions... was perceived as the basic, normal form... This form of

preposition in many Sl languages was generalized. This explains why Sl has *iz* 'from' as a counterpart of Li *iš*, OPr *is-*, Gr *ἐξ*, La *ex*, Ir *ess*, all with a voiceless final consonant.»

The second hypothesis is that the inflectional category *non-singular* was a late development in the proto-language. In this regard, Lehmann (1974, pp. 201-202) argues: «The system of verb endings clearly points to an earlier period in which there was no verbal inflection for number... For the dual and plural endings are obviously defective. We cannot reconstruct endings in these two numbers which are as well supported as are those of the singular, except for the third plural... The number system is defective in substantival as well as in verbal inflection, as suppletive paradigms indicate, e.g., Hitt. *uk* 'I', *uēš* 'we', etc., in contrast with demonstratives, e.g., *kāš*, *kē* 'this, these', and nouns, e.g., *antuhšaš*, *antuhšeš* 'man, men'... Number accordingly was not consistently applied in late PIE and the early dialects in accordance with natural reference. Subsequently application became more regular, and number congruence was carried out for both substantives and verbs.» The bifurcation of the *non-singular* category into *dual* and *plural* was later still (cf. Adrados 1987, p. 7), as the primitive development of the dual number in Hittite demonstrates (Ivanov 1958, p. 250). The non-singular (dual/plural) markers of Indo-European, probably originating as enclitic quantitative adverbs (cf. Schmalstieg 1974a, p. 1) or as enclitic deictic particles (cf. Shields Forthcoming b), included such commonly reconstructed elements as **(e/o)s* (nom. pl. Skt. *devās* 'gods', Go. *dagōs* 'days'; acc. pl. Lat. *lupōs*, Lith. *vilkūs* 'wolves') and **-i* (nom. pl. Gk. *χῶραι* 'lands', Lat. *portae* 'doors'; nom.-acc. du. Skt. *bāle* 'two maidens', Lith. *ranki* 'two hands'; nom.-acc. pl. Hitt. *kururi* 'hostilities'). Moreover, a non-singular suffix **-n* can also be reconstructed on the basis of such Tocharian nominative plurals as AB *riñ* 'cities' and *käntwāñ* 'tongues' (cf. Schmalstieg 1980, p. 74), as well as the *o-*, *i-*, and *u-*stem nominative-accusative dual endings traditionally reconstructed as **-ō* (Skt. *vṛkā*, Gk. *λύκω* 'two wolves'), **-ī* (Skt. *āvī* 'two sheep', Lith. *nakti* 'two nights'), and **-ū* (Skt. *sūnū*, Lith. *sūnu* 'two sons'), which derive from **-ǝ̃* (short vowel) plus **-n* according to Schmalstieg 1973, pp. 147-151; 1974b). The non-singular desinence «**-n* is found dialectally in contamination with the non-singular ending **-t* in the plural suffix **-nt*: Toch. A *-nt*, *-ntu*, Toch. B. *-nta*, Luwian *-nzi* (nom.), *-nza* (acc.-dat.). Since the *collective* is a secondary function of the non-singular (cf. Shields 1982, pp. 63-64), it is significant that "in Hittite, Indo-Iranian, Slavic and perhaps in Greek we find *-nt* more or less clearly as a collective suffix according to Erhart (1970, p. 79). Sturte-

vant (1951, p. 79) cites such forms as *an-tu-uh-ša-an-na-an-za* 'people' as opposed to *an-tu-uh-ša-aš* 'man'; *ud-ne-ya-an-za*, *ud-ni-ya-an-za*, *ud-ne-e-an-za*, acc. *ud-ni-an-da-an* 'population' as opposed to *ud-ne(-e)*, *ud-ni-e*, *ud-ni(-i)* 'country' (Schmalstieg 1980, p. 75)» (Shields 1985, pp. 190-191). I believe that **-t*, in uncontaminated form, is seen, for example, «in the nominative dual of the personal pronouns of Germanic (OE *wit* 'we two', OE *3it*, Go. **jut* 'you two') and possibly Baltic (Lith. [dial.] *vėdu*, *mūdu* 'we two', *jūdu* 'you two')» (Shields 1981, pp. 42-43). The desinence **-u* is evident in nominative-accusative dual forms like Skt. *vṛkau* 'two wolves', OIr. *dau* 'two', Go. *ahtau* 'eight'. Even less productive non-singular morphemes were **(e/o)r*, about which Erhart (1970, p. 80) says: «Eine andere Pluralendung... liegt vielleicht in den armenischen Formen auf *-er*, *-ear*, und in den keltischen (mittelirischen, mittelkornischen) Formen auf *-ar* vor; alle diese Formen gehen wohl auf ein i.e. *r*-Kollektivum zurück», and **-k*, a collective suffix about which Kronasser (1956, p. 126) remarks: «... dachte man sich... [Gk.] *γυῖαί-κ-ες* mit kollektivem *-k*... Ähnlich gebildet ist auch got. *brōprahans* 'Gebrüder' (mit **-ko-*) neben dem gewöhnlichen Plural *brōprjus* von *brōpar* (vgl. auch an. *fedgar* 'Vater und Sohn' neben *fedir* 'Vater' u.a. im Germ.).» «He suggests that 'vielleicht' the Armenian plural marker *-k^c* (e.g. *kanay-k^c* 'women') shows this same element (1956, p. 126), but Godel (1975, pp. 102-103) argues strongly against this view, demonstrating that *-k^c* derives from **-Vs*. More likely cases of dialectal attestation of **-k* include "messap. *gunakhai*, *gunaiki* [?] et... v.phryg. *bonok*..." (Perrot 1961, p. 315)» (Shields 1984, p. 77).

In my opinion, the cardinals of Indo-European represent composite forms containing a root to which was subsequently attached, after the emergence of the *non-singular* category, various non-singular markers as a means of hypercharacterizing their inherent non-singularity. Because of the late appearance of certain of these markers, dialectal variation in the shapes of the cardinals is common. For example, in Shields 1985, p. 196, I write: «The traditional reconstruction of '7' is **septm̥* (Skt. *saptá*, Gk. *ἑπτὰ*, Lat. *septem*), although Germanic attests **sep̥m̥* (Go. *sibun*, OE *seofon*, OHG *sibun*), supposedly derived from **septm̥* through dissimilation (cf. Brugmann 1911, p. 18 and Krahe 1969, p. 89). I believe, however, that the original root for '7' was **sep-* and that this root was extended by the non-singular markers **-t* and **-n*, resulting in the creation of the doublets **sep-t* and **sep-ŋ*. **sep-ŋ* early became **sep̥m̥* as a result of assimilation, and this alternate was eventually contaminated with **sept*, yielding **septm̥*. Although both **sep̥m̥* and **septm̥* are attested, **sept* has apparently been replaced entirely by these other

forms.» Likewise, in Shields Forthcoming c, I propose that IE **k_ue-tuor-* ‘4’ (Skt. *catvār-as*, Dor. *τέτορ-ες*, Lat. *quattuor*, OHG *fior*, Lith. *ketur-i*) «can be derived from **k_ue-* ‘that one’ + **-t* (a non-singular marker), hypercharacterizing the non-singularity of ‘4’, + **-u* (a non-singular [$>$ dual] marker), perhaps emphasizing the paral nature of ‘4’, + **-or* (a non-singular [$>$ collective] marker), perhaps emphasizing that ‘4’ constitutes a collection of pairs². IE **k_uetuor-* can thus be assigned the etymological meaning ‘those ones in pairs together’.» Similarly, in Shields 1984, I follow Peeters (1978) in reconstructing the original Indo-European etymon for ‘10’ as **dek_u(t)* (Skt. *dāśa*, Gk. *δέκα*, Lat. *decem*, Go. *taihun*, Lith. *dešimt*, OCS *desętъ*) and then propose that, etymologically, it «represents **de* ‘2’ + **-k* (a collective suffix...) + [the non-singular suffix] **-n* + [the non-singular marker] **-t*» (Shields 1985, p. 197), «yielding still another occurrence of the non-singular ending **-nt*» at least in some dialects (Shields 1985, p. 193).

I want to emphasize that the item **dek_u(t)* is to be connected etymologically with **k_untom* (or **k_untom*) ‘100’, cf. Brugmann 1911, p. 29, Meillet 1964, pp. 413-414, Szemerényi 1960, p. 139, Justus 1988, p. 522, even though the nature of the relationship is not clear. Traditional historical Indo-European theory posits that the two items are ablaut variants of **(d)k_unt*, with loss of *d* in initial consonant cluster; but this is not a necessary assumption. I would rather explain **k_unt-om* as the result of a morphological resegmentation of **dek_u(t)*, similar to the process through which was derived ModE. *burger* from *hamburg-er* ($>$ *ham-burger*), cf. Lehmann 1973, pp. 193-194 (see Shields 1984 for further details). I also want to emphasize that **dek_u(t)* did not originally possess the meaning ‘10’ and that **k_unt-om* did not originally have the signification ‘100’; instead, both constituted what Menninger (1969, p. 15) calls «the limit of counting», the upper bound of a numerical system to which can be loosely ascribed the meaning ‘many’. Only later were these items assigned more specific numerical values as a result of semantic reinterpretation motivated by «changes which successively increased the limit number» (Justus 1988, p. 527). I support this conclusion in Shields 1984 by citing typological evidence, while Justus (1988) independently reaches the same conclusion in light of the range of meanings attested by the dialectal reflexes of the forms, cf. from PIE **k_untom* «preliterate Greek (ἐ)κατόμβη ‘sacrifice; large unit, many’... PAnat *kon-to* ‘unit of measurement’: Lycian *sñta* ‘unit’. PAnat *kom-jo* ‘all, whole’: Lycian *cñme* ‘five’, Hittite *humant* ‘all’» (1988, p. 526).

² Beekes (1987), too, argues that the element **-e/or-* of this numeral is an occurrence of the collective marker in **-r*.

Now Latin *-gint-* and other related dialectal forms derive ultimately from **(de)knt*, cf. Buck 1933, p. 231, Burrow 1973, p. 262, Szemerényi 1980, pp. 206-207. If it is true that **dekñ(t)* itself is a composite form which, at one point in time, appeared simply as **de-k*, then it is reasonable to assume the existence of a *sandhi* variant in **de-g*. To both forms was added the non-singular marker **-n*, yielding **dekñ* and **degñ*. Latin *-gint-* may very well show the generalization of the morphological alternate resulting from the resegmentation of the voiced doublet (i.e. **gñ[t]*), demonstrating a peculiar dialectal development of the results of a regular Indo-European phonological process and a subsequent Indo-European irregular (non-proportional) analogical change. It is interesting that «while the cardinal decads all have *-gintā*, among the ordinals and their associates (multiplicatives and distributives) we have *uīcēsīmus*, *trīcēsīmus* etc.» (Szemerényi 1960, p. 166). Thus, even Latin attests reflexes of both inherited doublets, despite its tendency to specialize the voiceless variant in secondary formations. Since Latin does attest both inherited *sandhi* variants, which only gradually underwent analogical extension and functional specialization, it is difficult to discern any validity in Szemerényi's argument that the existence of ordinals in *-k* precludes the voicing of *-k* «in IE times since the ordinals etc., as derivative forms would in that case likewise show the voicing» (1960, p. 166). Early Latin apparently inherited both **kñ(t)* and **gñ(t)*, with the former coming to serve as the basis for the ordinals. The fact that the attested distribution of doublet forms results from still further analogical reformulation of items ultimately derived from a basically phonological process explains the irregular pattern of occurrence.

Such a specialization of voiced doublet forms as primary morphological exponents is not an isolated phenomenon in Latin. After noting the existence of many other voiced/voiceless doublets in Indo-European (e.g., Lat. *sub*, Go. *uf*), Szemerényi (1973) emphasizes the Latin (and, less frequently, the Celtic and Germanic) preference for the voiced variant as the unmarked member of the pair (e.g., OLat. 3rd sg. sec. *-d* vs. Skt. 3rd sg. sec. *-t* [with a *sandhi* variant *-d*], cf. Szemerényi 1973, p. 61). It is interesting that Greek, too, attests a similar voicing alternation in numeral formations, like that involving the cardinal *ἑπτά* '7' and the ordinal *ἑβδόμος* '7th', which probably derive from the *sandhi* variants **sep* and **seb*, respectively. Indeed, the Latin voicing of *-t* in *quad-rā-* (*gintā*) '40', *quad-rin-(gentī)* '400' may also be explained as resulting from an original *sandhi* variation between **kwe-t* and **kwe-d*³.

³ The unexpected voiced consonants in Gk. *ὀγδοός* '8th' (cf. *ὀκτώ* '8') can be explained in the same manner. The voiced *sandhi* variant of the root **ok-* has been ex-

Of course, it is impossible to prove the absolute validity of any of the theories about the etymology of *-gint-*. However, I believe that the proposal made here is as reasonable as any previously articulated and, as such, should be given serious consideration as an etymological explanation.

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tended by the voiced *sandhi* variant of the non-singular suffix **-t*, i.e. **og-d*. In regard to this ordinal, Buck (1933, p. 233) merely observes: «... the precise phonetic development is obscure.»

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