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LACHMANN'S LAW (PART 2)

Abstract
*According to the Bifurcation hypothesis, the glottal stop developed into glottalization in Balto-Slavic and lengthened the vowel nucleus in Latin. This idea has already been proposed by Kortlandt, but my explanation tries to show how and why it works. In the same syllabic structures where the both laws can be observed, the different development is due to the differently ranked *V$^{\eta}$ constraint. Apart from this, Latin also faces closed syllable effect caused by moraic coda which apparently causes no lengthening. But the total weight in the bisyllabic structures remains the same and in the "ēsus" example the whole syllabic structure is also resyllabified. Lachmann's and Winter's laws are examples of how a common syllable structure develops differently in separate languages.*[1]

Key Words
Lachmann's law; Latin; Neogrammarian; generative grammar; glottalic theory.

1. Introduction

The following paper continues from the *Lachmann's Law (Part 1)* published in *Linguistica Brunensia,* 60, 2012 (1–2), p. 13–36.

2. Review of data

In this section I would like to show the examples of presence and absence of LL in Latin in the light of recent discussions. Also, the examples of **CVD*- which correspond to LL in Latin and Winter's law in Balto-Slavic are adduced here (those facts are known from the works of Kortlandt, de Vaan and Derksen but I complete them here). The absence of Winter's law in Balto-Slavic due to the

[1] Concerning my approach to Bifurcation theory, see my paper: A note on the bifurcation of *VHD structure in Balto-Slavic and Latin. *The Sound of Indo-European 2. Papers on Indo-European phonetics, phonemics and morpho-phonemics.* (eds. Roman Sukač, Ondřej Šefčík), LINCOM 2012.

**CVT/CVD^h* corresponds to the absence of Lachmann's law in Latin - a fact that is often not taken into account by various authors apart from the Leiden circle. If there is a same syllable structure which causes lengthening in Latin on one hand and acute intonation in Balto-Slavic on the other hand, we can speak about different result of the originally same conditions.

1*) agō* „drive", *ēgī, āctus*, Gr. *ágō,* OInd. *ájati*, Av. *az-* „to lead", PIIr **Haz-* (Cheung 2007: 171–172), TochB *āk-,* ON *aka*, PIE **ag'-ō-* (IEW:4), **$h_2$eg'-* (LIV:255), perfect form *ēgī* is normally considered as a replacement of the original form, for discussions see de Vaan (2008: 31); NIL accepts Lachmann's Law for past participle, reconstructs *h_2g'tó-* (NIL 2008: 277); Schrijver (1991: 27–28, 31) dealt on the **h_2g'-to/$h_2$eg'-* problem. He posits change from the structure *HC > *aC /__#, i.e. vocalization of the laryngeal before morpheme boundary. Participle form āctus was then remodeled according to *agō* < **$h_2$eg'-* which does not seem probable.
Status: positive example of LL.
Further references: DELL (27–32), Chantraine (17–18), Frisk (I: 18), EWAi (1: 50–51).

2) *cadō* „fall", *cecidī, cāsus*, OInd. *śad-*, Arm. *cacnum*, OIr *casar* „hail" **kad-t-arā*), PIE **k'ad-* (IEW: 516, LIV: 318). Proto Indo-Iranic form reconstructed as **śad-* (EWAi: 607). Glottalic hypothesis supported by OInd. form *śad-* which reflects Lubotsky's law (*C(V)R??D- >C(V)R?D*). De Vaan posits PIE **(k'e) k'h_2d-*, reduplicated form gives perfect form *cecidī*, ablauted zero form leads to *cad- in cadō, cadere*; this solution already suggested by Schrijver (1991: 100, 136–138) who also accepts Lachmann's Law in *cāsus*.
Status: positive example of LL.
Further references: DELL (145–147).

3) *edō* „eat*", ēdī, ēsus*, Gr. *édomai*, OInd. *ádmi*, Av. *aδāiti,* OIr. *eini, esse,* Hitt. *ēd-*, Lit. *édu*, *ésti,* OCS *jasti*, Rus. jesť, Cz. *jíst*, SCr. *jȅsti-jȅdēm,* Goth. *itan*; PIE **ed-* (IEW:287–289), **$h_1$ed-* (LIV: 230–231). Balto-Slavic forms with acute reflect Winter's Law, those forms belong to the canonic corpus of positive examples of Winter's Law with reconstructed Balto-Slavic form **e?sti* (see also Derksen 2008:154). Before the acceptance of Lachmann's and Winter's Laws the long „*ē*" in Latin and Balto-Slavic lead to reconstruction backed on Narten present **h_1ēd-/$h_1$ed-* now considered unnecessary. Hittite forms would support the original long „*ē*" - *ētmi, ēzši, ēzzazi, adueni, azzašteni, adanzi*[2]. Kloekhorst (2008: 261–263) discusses this problem and posits present forms as ablauted **$h_1$éd-ti/h_1d-énti*.[3] Long „*ē*" in Latin *ēsus* is of course due to the Lachmann's

2 For complete paradigm with variants see Hoffner & Melchert (2008: 188).

3 **ēd* for Hittite refused by Puhvel (2 1984: 320) for graphic reasons. For a history of opinions about Hittite forms and their interpretations see Tischler (1983: 117–118).

Law **edt- > ēss-* (de Vaan 2008: 185), long „*ē*" in perfect form „*ēdī*" explained by Schrijver (1991:54) as the development from reduplicated **h$_1$e-h$_1$d-*. As seen, the verb „eat" correspond perfectly to both laws, Latin „*ē*" in past participle is due to the Lachmann's Law, Balto-Slavic acute forms are due to the Winter's Law and Hittite forms are reflections of normal ablaut. Both laws are also accepted by LIV (230–231) and NIL (208–220), although LIV still posits acrostatic Narten paradigm **h$_1$ḗd-/h$_1$éd-*.
Status: positive example of LL and WL.
Further references: EWAi (1: 61–62), Cheung (2007: 148), Chantraine: 312, Lehmann (1986:208), Fraenkel (I: 124–125).

4) *findō* „split*", fīdī, fissus*, cognate with OInd. *bhinátti* „split, Gr. *feídomai* „spare", Goth. beitan, OE *bītan „*bite", Celtiber. *biđetuđ* „split". PIE **b^{h}ei̯d-* „split" (IEW:116, LIV:70–71), PIt. form **find-e* reconstructed by de Vaan (2008: 221), reconstructed form of pp. would be **fidt-o.*
Status: LL is expected, the short vowel is due to the closed syllable effect.
Further references: DELL (418–419), Chantraine 1185, Frisk (II: 999–1000), Lehmann (1986: 66), KEWA (2:500–501), Schrijver (1991: 500).

5) *fingō* „shape*", fīnxī, fictus*, cognate with OIr. *dingid* „opress", Arm. *dizanem*, Gr. *teĩchos* „wall", Goth. *digan* „form out of clay", Lith. *žiẽsti* „form", Latv. *zìest* „coat with clay", PSl **zъdăti* „build". PIE **dheigh-* (IEW: 244), **d^{h}ei̯g^h-* „spread, model" (LIV: 140–141), PIt. form **fing-e/o* reconstructed by de Vaan 2008: 221. Latin form is *n*-infixed. Further Slavic forms are OCS *zъdati*, S-Cr. *zídati-zîdām* „build", Sln. *zídati-zídam*, BS form **z(e)id-* reconstructed by Derksen 2008: 551–552, the original form would be **g^{h}id^h-* resulting from metathesis of **d^{h}ei̯g^h* (thus already Fraenkel II: 1307).
Status: no LL is supposed in pp. because of the original voiced aspirate in coda. Absence of acute from WL is supported by mobility of Slavic verbs and Lithuanian circumflex.
Further references: DELL (419–420), Lehmann (1986: 90), Snoj (2003: 853), Smoczyński (2007: 783).

6) *fluō,* „flow, run", *flūxī, flūctus,* cognate with Gr. *fléō* „abound", *flúō* „boil over", Lith. *bliáuti* „bleet", Latv. *blaût*, OCS *blъvati-bljuję* „vomit", Rus. *blvať-bljujú,* Cz. *blít,* S-Cr. *bljùvati*, Sln. *blúvati,* PIE **b^{h}leu̯H-* „overflow" (LIV: 90); BS form **bljou?-* reconstructed by Derksen (2008: 46), PSl. **blъvăti* (is probably APa[4] because of the ORus. form, see Zaliznjak (1985: 133), so acute is the common

4 Modern post-Stang Balto-Slavic accentology works with accentual paradigms. All Proto-Slavic non-derivates and derivates are distributed into three accentual paradigms: APa with a constant root stress and acute intonation, APb with columnal accent on the ending (originally root stressed but shifted due to the Dybo's law). APc is a mobile paradigm with anlauted circumflex intonation in some forms and stress on the ending in other forms. See the chapter on PSl accentology.

reflex of the glottal stop from laryngeal origin, the same counts for Baltic. Latin cognate *conflūgēs* with *-g-* is explained as analogy by LIV. Forms *flūxī, flūctus* require an obstruent, so Meiser (1998: 194, 208) reconstructs **b^hleu̯g^w-e > *flūu̯e > fluere* (obstruent weakening*), *b^hlou̯g^w-s- > flūxī.* This explanation is refused by de Vaan (2008: 228) who sticks to proportional analogy *struō : strūxī > fluō : flūxī.* I do not accept such proposal because it is too artificial (using proportional analogy we can choose and compare any forms which are morphologically/ phonologically similar) and I would point to the traditional explanation of **-H-* and **g^w-* as regular „Erweiterungs", see IEW (158–159). In such case, there is no problem to accept LL in Latin pp.
Further references: DELL: 430, Chantraine: 1212, Frisk (II:1025–1026), ESJS (2: 69–70), Fraenkel (I: 49–50), Smozcyński (2007:65), Bezlaj (1: 28), Snoj (2003: 47), Vasmer (1: 173).

7) *fodiō* „dig", *fōdī, fossus*, cognate with OCS *bodǫ, bosti* „poke, stab", Lith. *bèsti* „stick"; PIE **bhedh-* (IEW: 113–114), **b^hed^{h}h$_2$-* (LIV: 66), PIt. form **foβi-* reconstructed by de Vaan (2008:229). The reconstructed coda obstruent is aspirate so no LL is expected in Latin pp. Slavic data support the claim as they are mobile, S-Cr. *bósti-bòdēm*, Sln. *bósti-bódem*, Rus. *bosť/bostí-bodú*, „butt", OCz. *bodu-bósti*, PSl. **bostь (*APc), BS form **bed-/bod-* (Derksen 2008: 59, de Vaan 2008: 229).
Further references: Vasmer (1:183), ESJS (2: 74), Snoj (2003: 51), DELL: 433, Fraenkel (II: 41), Smoczyński (2007: 57).

8) *frangō* „break*", frēgī, frāctus*, cognate with Goth. *ufbrikan* „break", *OHG brehhan*; PIE **b^hreg'-* (IEW:165, LIV: 91) variant with **-g* proposed by de Vaan (2008: 239). Latin form from **b^hrn̥g'-*, PIt. forms **frang-*, pp. **fragto-*.
Status: positive evidence for LL.
Further references: DELL: 446, Lehmann (1986: 80), Schrijver (1991: 478).

9*) frendō* „grind one's teeth", *frēsus,* cognate with OE *grindan* „grind", OHG *grint*, ON *grandi* and Lith. *gr̥ėsti* „scrape", cognate with OE *grindan* „rine", OHG *grint*, ON *grandi*, Lat. *frendō, frendere* „grind one's teeth"; PIE **g^{h}rend^h-* (IEW: 459), **g$^{(w)h}$rend-* „crush" (LIV: 204), **g^{h}rend-* (Smoczyński 2007: 197), **g$^{(w)h}$rend$^{(h)}$-* (de Vaan 2008: 241). As proposed by de Vaan, we observe here two allomorphs: a form with **d* giving Winter's law in Baltic, and a form with **d^h* giving Germanic reflexes. Latin pp. has long root vowel which would point to LL due to the presence of glottal stop.
Further references: de Vaan (2008: 241), DELL: 449–450, Lehmann (1986: 161).

10) *fruor* „enjoy*", fruī, frūctus*, cognate with Goth. *brukjan* „use", OE *brūcan*, OHG *brūhkan*; PIE **b^hrūg-* (IEW: 173), **b^hreu̯Hg(')-* „enjoy" (LIV: 96), PIt. form **frūg-* reconstructed by de Vaan (2008: 244–245).
Status: the reconstructed laryngeal can be phonetically glottal stop so in that case the LL in pp. is attested.

Further references: Lehmann (1986: 81), DELL: 455–456, Schrijver (1991: 232–233).

11*) fundō* „pour, emit", *fūdī, fūsus*, cognate with Hitt. *kūtt-* „wall", OInd. *juhóti* „pours", Gr. *chéō* „pour" Goth. *giutan* „pour", Toch B. *ku-* „pour, offer a libation"; PIE **g'ʰeu̯d-* (IEW: 448, LIV: 179), Latin from from **g'ʰund-*, Greek **g'ʰéu̯e-* (de Vaan 2008: 249–250), Old Indic form is reduplicated.
Status: positive evidence for LL in pp.
Further references: DELL: 463–464, Frisk (II:1090–1093), Chantraine: 1255–1256, Lehmann (1986: 156–157), KEWA (1: 442), Adams (1999: 179–180), Kloekhorst (2009: 498–499), Puhvel (4: 296–298).

12) *iubeō* „order", *iussī, iussus*, OInd. *yúdhati* „fights", Lith. *jundù, jùsti* „in Bewegung geraten"; PIE **i̯eudh-* (IEW: 511), **Hi̯eu̯dʰ-* (LIV:225–226), PIt. form **jouþ-eje/o* reconstructed by de Vaan 2008:312. The reconstructed aspirate coda excludes LL, therefore no length in pp. is expected. Absence of WL in Lithuanian only support the claim.
Further references: Fraenkel (I: 195–196), Smoczyński (2007: 240), KEWA (3: 19–20), DELL: 580–581).

13) *iungō* „joint*", iūnxī, iūnctus*, cognate with OInd. *yúj-* „yoke, associate", Lith. *jùngti* „join", yoke", Latv. *jûgt.* PIE **i̯eu̯g-* (IEW: 508, LIV: 316), PIt. form **jung-e/o* by de Vaan (2008: 314), so pp. would be **jug-to.* As the same root is in the noun forms Lith. *jùngas* which is positive to Winter's law, LL would be expected here. In fact, ppp is long and the nasal is infixed secondarily.
Further references: DELL: 582–586, Schrijver (1991: 406).

14) *legō* „read*", lēgī, lēctus*, cognate with Gr. *légō* „collect, speak", Alb. *mbledh „*collects"; PIE **leg'-* (IEW: 658, LIV: 397), PIt. form **leg-e-*, pp. **leg-to-* reconstructed by de Vaan (2008:332).
Status: positive evidence for LL.
Further references: DELL: 623, Chantraine: 625–626, Frisk (II: 94–95), Schrijver (1991: 22).

15) *mingō* „urinate", *mīnxī, mictus*, cognate with Lith. *mỹžti* „piss", Latv. *mìzt*; PIE **mei̯gh-* (IEW: 713), LIV: 301–301 derives the forms from **h₃mei̯g'ʰ-*. Baltic forms are zero grade.
Status: reconstructed aspirate in the root coda excludes the LL. The absence of WL is supported by the Lith. circumflex.
Further references: DELL: 718, Schrijver (1991: 24).

16) *ōdī* „hated", *ōsus*, cognate with Gr. aor. *odus(s)asthai* „be angry", Arm. *ateam* „hate, ON. *etja* „hunt"; PIE **od-* „hate" (IEW: 773), **h₃ed-* „begin to hate" (LIV: 296), pf. **h₃e-h₃(o)d-*, *h₃e-/od-io-* „hatred" (de Vaan 2008: 425).

Status: Latin ppp word is positive for LL.
Further references: DELL: 813–814, Frisk (II: 351), Schrijver (1991: 49–50).

17) *pangō* „fix*“, pepigī, pāctus,* cognate with OInd. *pajrá-* „firm“, Gr. *pḗgnūmi* „make fast“; PIE **pak'/pāk'-,pag'-/pāg'* „fix“ (IEW: 787), **peh$_2$g'-* (LIV: 461), Latin form from **ph$_2$n-g'-* (LIV, de Vaan 2008: 442–443), PIt. form reconstructed as **pang-,* pp. **pagto-* by de Vaan (ibid). LIV considers Old Indic *paj-* as a „Neowurzel“, IIr. **paj < *p^{h}aj- < *ph$_2$n̥g'-*, with **p°* for **p^h°* according to **pináj- <*ph$_2$-né-g'* and **pāj- < *peh$_2$g'-*. The same new root should be visible in OInd. *pajrá*. OInd. *paj-* is therefore reconstructed as primary *n*-infixed **ph$_2$-né-g'* and the Greek form is taken as questionable. Anyway, the above-mentioned complicated solution is much more simple although not mentioned by LIV. Both Greek and Old Indic forms belong to Lubotsky's law (Lubotsky 1981) where the loss of laryngeal before the original voiced unaspirated obstruent (which is in fact preglottalized) caused the Indo-Iranian short vowel, so **peh$_2$g' = *pe?$^?$g'- > paj-*. Because the Latin pp. is positive for Lachmann's law and Old Indic form reflects Lubotsky's law (which would otherwise be explained by complicated analogy, as in LIV), we have another proof of the existence of glottal stop here.
Further references: DELL: 848–849, Frisk II: (525–526), Chantraine: (894–895), Schrijver (1991: 97).

18*) pungō* „sting, pierce“, *pupugī, pūnctus*, cognate with Gr. *púks* „with the fist“, *púgmē* „fist“; PIE **peuk'-, peug'-* (IEW:828), **peu̯g(')* LIV: 480, PIt. form **pung-* reconstructed by de Vaan (2008: 499), pp. therefore **pug-to-*. Latin form is nasal present and the status of coda consonant is unclear. If the voiced obstruent is expected, Lachmann's law would appear and the *n*-infix in pp. would be secondary.
Further references: DELL: 965, Frisk (2: 619–620).

19) *regō* „direct, guide*“, rēxī, rēctus*, cognate with OInd. *rā́jati* „rules“, zero grade *rṇjati* „marches forward in the line“, Gr. *orégō* „stretch“, Goth. *raihts* „right“, Toch B conj. *rāśäm* „should stretch, OIr. *atraig* „stand up“, MW *re* „rise“ < PCelt. **rege-o (*Matasović 2009: 308); PIE **reg'-* „go right, stretch“ (IEW: 854–857), **h$_3$reg'-* (LIV: 305–305, de Vaan 2008: 517), PIt. form **reg-e/o* reconstructed by de Vaan (ibid.), so pp. form can also be reconstructed aas **regto-*. Zero grade of the root is in Lith. *réžtis* which is positive to WL.
Status: evidence for Winter's and Lachmann's laws.
Further references: Lehmann (1986:280–181), DELL: 1002–1004, Chantraine 817, Frisk (II: 412–413) , EWAi 2:425, Schrijver (1991: 24, 121, 135).

20) *tangō* „touch*“, tetigī, tāctus*, Gr. *tetagṓn* „having seized“ , Goth. *tekan* „touch“, Toch.B *ceśäm* „touch“; PIE **tag-* „touch“ (IEW:1054), **teh$_2$g(')* „touch“, PIt. form **tange-*, ppt. **tagto-* reconstructed by de Vaan (2008: 606); PIE form continuing to Latin is zero grade with nasal infix. Greek form is reduplicated.

Status: positive example of LL.
Further references: Frisk (II: 884), Chantraine: 1109, DELL:1193–1194, Lehmann (1986: 342–343), Schrijver (1991: 98, 136).

21) *tegō* „cover" *tēxī, tēctus*, cognate with Gr. *stégō* „keep off", OIr. *tech* „house", OW *tig* < PCelt. **tegos* (Matasović 2009: 376), Lith. *stógas*. PIE **(s)teg-e/o* (IEW 1013–1014, LIV: 589), PIt. form **teg-*, pp. **tekto-* reconstructed by de Vaan (2008:608).
Status: positive examples of LL and WL in Balto-Slavic.
Further references: DELL:1197–1198, Chantraine: 1046, Frisk (II:781–782), Schrijver (1991:127).

22) *tundō* „beat*", tutudī, tūsus/tunsus*, cognate with OIr. *dotuit* „crumble, fall" <PCelt. **tudo-* „fall" (Matasović 2009: 393), OInd. *tudáti* „beat". PIE **steu̯-d* „punch, beat" (IEW 1032–1034, LIV: 601), PIt. nasalised form reconstructed as **(s)tund-(e/o)* by de Vaan (2008: 633).
Status: positive evidence for LL.
Further references: DELL:1249–1250, KEWA (1: 5111), EWAi (1: 671).

23) *unguō* „smear", *ūnxī, ūnctus*, cognate with OIr. *imb* „butter, OInd. *anákti, aňjanti* „anoint", Arm. *awecanem* „anoint". PIE **ong*^{w}- (IEW:779), **h*$_2$*eng*^{w}- „anoint" (LIV:267, second edition replaced **h*$_2$ instead of **h*$_3$), **h*$_3$*eng*^{w}- (EWAi 1: 54, de Vaan 2008: 642), PIt. **ong*^{w}*-e* (de Vaan 2008: 642) which means that the original pp. would be reconstructed as **ŋg*^{w}*-tu-*. Old Indic form is zero grade.
Status: LL is expected but the effect of glottal stop loss is blocked by the *-nʔD-* cluster. Long *ūnctus* is due to the secondary lengthening when the disyllabic three-moraic domain arose.
Further references: DELL: 1321–1322, Schrijver (1991: 50, 62).

24) *pandō* „stretch", *pandī, passus*, cognate with Gr. *pítnēmi* „spread, open"; PIE **pet-* „spread" (IEW: 824), **peth*$_2$- (LIV: 478–479), Latin form as a zero grade **pt-né/ṇ-h*$_2$, PIt. form reconstructed as **pand-n-* < **pṇdn-* by de Vaan 2008: 442. PPP form would therefore be **padto-* with secondarily introduced „*a"*. The apparent absence of LL can be due to the closed syllable effect.
Further references: Frisk (II: 521), DELL: 847–848, Schrijver (1991:332, 498–499).

25) *pingō* „paint*", pīnxī, pictus*, OInd. *piṃśati* „paints", Gr. *poikilos* „many-coloured", Lith. *piẽšti* „paint, write" (*į̃e*-present), OCS *pьsati* „write"; PIE **peį̃g-/peį̃k'*- (IEW 794, LIV: 464, 466), PIt. forms reconstructed as **ping-e/o, *pikto-* by de Vaan (2008: 466). LIV proposes **peį̃g-* for Latin and **peį̃k'-* for Old Indic, Lithuanian and Slavic forms. But as de Vaan remarks, the separate need for the zero form **pig'* - for Latin might be superfluous because Latin form can be explained by the nasal present **pink'n-*. Proto-Slavic **pьsáti* has APc (Derksen 2008: 430).

Status: with the reconstruction of the original **k'-* in first syllable coda, no LL is expected. Slavic mobile forms support the fact that neither WL nor LL occurred here.
Further references: DELL: 899 and the previous chapter under S-Cr. *pjȅga* discussion; Schrijver (1991: 499–500).

26) *sedeō/sīdō* „sit*", sēdī, -sessus*, (in compouds) *sessum*, cognate with Lit. *sė́sti* „sit down", Latv. *sêdu* (see the previous chapter for cognates). PIt. form **sed-ē* reconstructed by de Vaan (2008: 551–552).
Status: as the Baltic forms are positive for WL, Latin pp. should have had LL. Its absence is due to the closed syllable effect.
Further references: DELL 1062–1063, Schrijver (1991: 376).

27*) scindō* „tear apart", *scicidī, scissus*, cognate with Lith. *skíedžiu, skíesti* „dilute", Latv. *škíe͡žu, škie͡st* „scatter", Rus. *cedít* „strain, filter", Cz. *cedit,* Slk. *cediť*, Pl. *cedzić,* USorb *cycźić,* S-Cr. *cijèditi-cìjedīm*, Čak. *cīdȉti-cīdīm,* Sln. *cedíti*, PSl. **cědìti* (APc), cognates with OIc. *skíta* „shit"; PIE **skei-d/t-* (IEW 920–930), **sk'ʰeid-* „split, tear" (LIV: 547–548), **(s)koid-* (Derksen 2008: 74, BIL); BS form reconstructed by Derksen **(s)koiʔd-*; zero grade **(s)kid-* is in Lith. *skýtas* (AP3–4), Latv. *škîsts*, OCS *čistъ, čistiti*, Cz. *čistý*, S-Cr. *čȉst*, Čak. *čȉst*, Sln. *čìst*, PSl **čĭ́st* (APa), BSl. **(s)kiʔsto-,* Skt. *činádmi* „separate", OHG *scīzan* „shit". PIt. form **skinde/o-* reconstructed by de Vaan (2008: 544). As the Balto-Slavic is positive for Winter's Law appearance, Latin pp. should have had LL law. Kortlandt (1999) explains its absence due to the loss of glottal stop in present forms where the blocking cluster **-nd-* would cause the glottal stop loss. Short „i" would spread into other forms. Sihler's proposal (Sihler 1995:76) that the short pp. is due to the influence of perfect form should be taken as improbable.
Status: Short form scissus is due to the closed syllable effect.
Further references: DELL: 1062–1063.

28) *stringō* „tighten, strip off"", *strīnxī, strictus,* Lith. *stríegti* „cower with hay". According to LIV:608 the original root is **streig-* „get stuck", s*tríegti* as a *i̯e-* present, nasal present **stri-né/n-g* in Lith. *strígti* „get stuck", Pol. *(za)strząc* „be stuck". The homonymous root **streu̯g-* „stroke" in PSl. **strigti* (APc), OCS *strišti*, OCz. *stříci*, S-Cr. *strȉći-strîžēm* „cut", Sln. *stríči-strížem*. Balto-Slavic forms are probable evidence for WL. PIt. form reconstructed as **string-* by de Vaan (2008: 591–592).
Status: If the Latin form is a result of contamination of two PIE roots, the result would be twofold. In case of the original **CVDTV-* structure, Lachmann's law should appear, but the resulting short „i" in *strictus* would be due to the „closed syllable effect". Should the original structure be derived from **CVD^{H}-*, there would not be any glottal stop and therefore no trace of LL.
Further references: DELL: 1159–1160.

29) *trahō* „drag", *trāxī*, past participle *tractus,* cognate with Gr. *tréchō* „run", Goth. *dragan* „carry"; PIE **dherāgh-* (IEW: 257), **d^{h}reg(')^{h}-* „carry, draw" (LIV: 154), PIt. form **traXe/o* reconstucted by de Vaan (2008: 626–627), which means that pp. would be reconstructed as **traXto*. De Vaan connects Latin form with OIr. *tethraig* „ran away*", tráig* „ebb, beach", both probably from PCelt. **trāgi* „beach, lowtide" (Matasović 2009: 387). De Vaan also refuses the connection with Gothic *dragan*. Latin form explained by LIV as „Hauchdissimilation" **d^{h}-g^{h}* > **d-g^{h}*.
Status: no LL because the first syllable coda is PIE aspirate.
Further references: DELL: 1233–1234, Frisk (II:927–929), Chantraine 1135–1136, Schrijver (1991: 188–189).

30) *vehō* „carry", *vēxī, vectus,* cognate with OInd. *váhati*, Lith. vèžti, OCS *vesti,* „carry", Goth. *gawigan*; PIE **u̯eg'^{h}-* (IEW:1118–1120, LIV:661), PIt. form **weX-e/o* reconstructed by de Vaan 2008:658, pp. would have been **wekto-*. Other Slavic forms are Rus. *veztí*, Cz. *vézt*, S-Cr. *vésti*, Sln.*vésti*, PSl. **vezti* (APc), BS form **veź-* (Derksen 2008: 518).
Status: no LL can be observed because the original root contains aspirate obstruent in coda. The absence of glottal stop is also supported by Slavic mobile paradigm.
Further references: Fraenkel (II:1236), Smoczyński (2007: 746), DELL: 1267, Lehmann (1986: 154), KEWA (3: 177–179), EWAi (2: 535–537), Snoj (2003: 816), Schrijver (1991: 121).

31) *videō* „see", *vīdī*, *vīsus*, PSl. **vi̋děti* „see" (APa), OCS *viděti*, Rus. *vídeť*, Cz. vidět, S-Cr- *vȉdjeti*, Sln *vídeti*, Lith. *veizdė́ti* (Žem.) „look for" other cognates Gr. *éidomai* „appear", Lat. *videō-vidēre-vīsum*,"see", Goth. *witan* „observe"; PIE **u̯(e)di-/u̯(e)idi-* (IEW: 1125)*, *u̯eid-* (LIV 665–667).WL accepted by Bezlaj (4: 312) and LIV. PIt. form reconstructed as **widē-* by de Vaan (2008: 676), reconstructed pp. would be **widto-*.
Status: positive evidence for both Lachmann's and Winter's laws.
Further references: DELL: 1296–1298, Frisk (1:451), Chantraine:316–317, Fraenkel (II: 1212), Vasmer 1: 312, Gluhak (1993: 667), Snoj (2003: 819).

3. Proposed solution

Following Kortlandt's steps that preglottalization still existed in Italic branch at the time of the existence of Lachmann's law, it is obvious that the mechanism of the law is similar to the one of Winter's law because the same preglottalized obstruents are present both in Italic branch and Balto-Slavic. The difference between Balto-Slavic and Latin is in the development of the cluster glottal stop+obstruent. Because such a cluster is generally unstable, the glottal stop tends to be lost and affects the preceding vowel. Either the vowel obtains glottalization (in which case we can doubt if the glottal stop is really lost - I claim here that it

is not) or the preceding vowel can be lengthened. Balto-Slavic had the tendency to develop glottalized vowels which is due to the lowly ranked *V^{η} constraint:

*V^{η} – no glottalized vowel.

In Latin, on the other hand, the vowel before the glottal stop was prolonged. I argue that this is because the disyllabic domain with three-moraic structure has been developed. Heads of the domain (the first syllable) is bimoraic, therefore the first syllable must contain either the long nucleus (a vowel) or a short nucleus and a moraic coda: [$CV_{\mu\mu}$C-tu_{μ}.s], [$CV_{\mu}C_{\mu}$-tu_{μ}.s]. The domain where Lachmann's law can be morphologically limited - mostly only in past participles. It strongly reminds the situation in Czech where the disyllabic domain is also visible only in certain morphological categories, e.g., in hypocoristics: [$Ka_{\mu\mu}$.ťa$_{\mu}$] versus [$Ka_{\mu}t_{\mu}$.ka_{μ}]. Only here we can observe the domain with constrained quantity as well as the moraic consonants which are otherwise anomalous in Czech.[5]

The syllabic structure which contains the sequence *CV?D(C)*- develops in two ways: either in favour of the Balto-Slavic glottalization (BS acute) or in favour of length (Latin) e.g., Lith. *ésti* x Latin *ēsus*. It looks like the common syllabic structure was bifurcated in the development. I would therefore call such change a Bifurcation hypothesis. Bifurcation occurred due to the low/high ranking of *V^{η} constraint (in Optimality Theory approach) and the presence or absence of bisyllabic three-moraic domain.

Lachmann's law observed in *ēsus* is a more complicated. It is obvious that should we start from *(e?d.tos) apart from the Lachmann's law itself the obstruents and coda must first be spirantized, then merged and the final structure must be resyllabified so that that we should obtain *ē.sus*. The spirantized variant **es.sos/us* could exist in the language system. The support for it is the existing forms *sessus* where the Lachmann's law is not visible due to the moraic *-s-* in the first syllable. It might be argued if the forms developed from the structures with the original voiced aspirate in coda (*gressus*) also contain moraic *-s-*. As the combination *-ēssus* does not exist, it is very probable that the disyllabic threemoraic domain exists crosswise the original structures. Anyway the phenomenon observed here is again the equivalent of the Czech situation described by Bethin (2003) as a closed syllable effect where the coda is moraic. Due to the closed syllable effect we might wrongly suppose that no quantitative change occurred during the derivation.

One must say that *ēsus* is just a variant of *-sessus*. The former is the result of the further development of **essus*: structures *-Vdtus* > *Vssus* > *-sessus/-Vssus* > *V̄sus* > *ēsus* (alternative quantity).

5 See Bethin (2003).

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