



Laryngeal colouring in Indo-European

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Archaisms vs. innovations: topics in relative chronology

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Outline

- terminology
- current usage
- hypotheses
 - 1 laryngeal colouring is a post-Proto-Indo-European event
 - 2 laryngeal colouring is a pre-Proto-Indo-European event
- summary of the evidence
- conclusion

Terminology: laryngeal colouring

- $*e$ merges with $*a$ next to $*h_2$, and with $*o$ next to $*h_3$

$$e > V_\alpha / \left\{ \begin{array}{l} h_{\alpha-} \\ -h_\alpha \end{array} \right\}, \text{ where } V_1 = e; V_2 = a; V_3 = o$$

- a change of $*e$ to $*a$ next to $*h_2 \rightarrow$ merger with $*/a/$ (if it existed)
 - $*h_2e\hat{g}r\acute{o}- > *h_2a\hat{g}r\acute{o}-$ masc. 'field' (> Gk $\acute{\alpha}\gamma\rho\acute{o}\varsigma$)
 - $*n\acute{e}yeh_2 > *n\acute{e}yah_2$ fem. nom. sg. 'new' (> Gk $v\acute{e}\bar{\alpha}$)
- b change of $*e$ to $*o$ next to $*h_3 \rightarrow$ merger with $*/o/$
 - $*h_3\acute{e}k^w m\eta > *h_3\acute{o}k^w m\eta$ neut. 'eye' (> Gk $\acute{\omicron}\mu\mu\alpha$)
 - $*did\acute{e}h_3ti >$ impfv. act. 3sg. $*did\acute{o}h_3ti$ 'gives' (> Gk $\delta\acute{\iota}\delta\omega\sigma\iota$)

Not today

- 1 colouring hierarchy (the “ $*h_3eh_2$ problem”)
 - “Belege für den Konfliktfall (Typ: H_1eH_2 , H_2eH_3) sind spärlich und schwer zu beurteilen.” (Eichner 1988: 131)
- 2 colouring of $*o$ (the “ $*h_2o$ problem”)
 - see discussion in Mayrhofer 1986: 135
- 3 colouring of $*\bar{e}$ (Eichner’s Law, or the “ $*h_2\bar{e}$ problem”)
 - cf. Pronk 2019 with Martzloff & Machajdíková 2023

Current usage

- data: five most recent volumes of *Historische Sprachforschung* (vols. 132–136, 2019–2023)
- no colouring ($*h_2e\hat{g}ro-$, $*h_3ék^w m\eta$) 29
- colouring ($*h_2a\hat{g}ro-$, $*h_3ók^w m\eta$) 2
- non-colouring vs. colouring 15 : 1

“Für die Darstellung der morphonematischen Struktur grundsprachlicher Wortformen empfiehlt es sich, die »Umfärbung« zu ignorieren und den Vollstufenvokal auch neben $/\underset{\sim}{e}_2/$ und $/\underset{\sim}{e}_3/$ als $/e/$ anzusetzen ($*\underset{\sim}{e}_2e\hat{g}ros$ § 52 etc.).” (Rix 1992: 37)

Hypotheses

1 laryngeal colouring took place AFTER the dissolution of Proto-Indo-European

a Brugmann's Law (Indo-Iranian)

b initial **h₃e-* vs. **h₃o-* (Anatolian, Albanian, Armenian)

c Thurneysen–Havet's Law (Italic)

• e.g. Beekes 1988: 61; Kloekhorst 2006; Kortlandt 2004; Lubotsky 1990; Strunk 2006: 79

2 laryngeal colouring took place BEFORE the dissolution of Proto-Indo-European

a PIE *ah₂*-stem voc. sg.

b extended Stang's Law

c economy

• e.g. Rasmussen 1993: 200; Zehnder 1994: 180; Hajnal 1995: 308–309; Watkins 2006: 53; Fortson 2010: 63; Grestenberger 2023: 89 n. 10

Hypothesis 1: (a) Brugmann's Law

- Indo-Iranian distinguishes **h₃e* from **h₃o* with regard to Brugmann's Law (Beekes 1988: 61; 1999: 64; Lubotsky 1990; 2018: 1877; Strunk 2006: 78–79; Brosch 2014: 329 n. 20)
- “au moins trois exemples sûrs” (Lubotsky 1990: 134)
 - Ved. *ápas-* neut. ‘work; action’ < PIE **h₃epes-*, cf. La. *opus* neut. ‘work; action’
 - Ved. *aratní-* masc. ‘elbow’ < PIE **hh₃elV-* ??, cf. Gk *ὠλένη* fem. ‘elbow’
 - Ved. *gáv-* masc./fem. ‘bull, cow’ (weak case forms) < PIE dat. sg. **g^wh₃euei*, loc. sg. **g^wh₃eui*
- but cf. Lubotsky 2018: 1877
 - Ved. *ápas-* neut. ‘work’ (see above)
 - Ved. *ávi-* masc./fem. ‘sheep’ < PIE **h₃éui-*, cf. La. *ovis* ‘sheep’
 - Ved. *ánas-* neut. ‘cart’ < PIE **h₃énes-*, cf. La. *onus* ‘burden’

Hypothesis 1: (a) Brugmann's Law – criticism (1)

- Ved. *ápas-*
 - from **h₁ép-es-*, with analogical *o* in La. *opus* (Balles 1997: 228)
 - from **h₂áp-es-*, with analogical *o* in La. *opus* (Zehnder 1994: 180 n. 15)
 - cf. La. *modus* with analogical *o* vs. Umbr. nom.–acc. sg. *meřs* neut. C-stem ‘right’ (Walde & Hofmann 1938, 2: 100)
- Ved. *aratní-*: proto-form highly uncertain (Zair 2012: 23)
- Ved. *gáv-* (weak case forms)
 - dat. sg. *gáve*, instr. sg. *gáve*, loc. sg. *gávi*, gen. pl. *gávām* < **g^wéu-* (NIL: 190–191 n. 1 with refs)
 - what about the long vowels of nom. du. Ved. *gāvā(u)*, OAv. *gāuuā*, nom. pl. Ved. *gāvah*? (De Decker 2011: 49)?



Hypothesis 1: (a) Brugmann's Law – criticism (2)

- Ved. *ávi-*
 - absence of Brugmann's Law in gen. sg. *ávyaḥ* (19 of 27 instances of *ávi-* in the *R̥gveda*) is regular
 - cf. Ved. *páti-* masc. 'master' < PIE **póti-*, **pótī-* (Lubotsky 1990: 133)
 - (why not **ph₃éti-*?)
- Ved. *ánas-*
 - from PIE **h₃onh₂os-* (Olsen 2010) – or anything with **nh*
- possible counterexample: Brugmann's Law with **h₃e*
 - Ved. *styāya-* 'stiffen' < PIE **stih₃-óje-* < pre-PIE **stih₃-éje-* (Rasmussen 1989: 167)
 - but LIV²: 603: ?**stīéh-je-*; Lubotsky 1997: 57–58: **(s)th₂-i-*(?); Poulsen 2025: 54

Hypothesis 1: (b) initial $*h_3e$ vs. $*h_3o$

- Anatolian, Armenian, Albanian distinguish initial $*h_3e$ and $*h_3o$ (Kortlandt 1980/2010: 52; 1983: 42; 1986/2003: 73–74; 2004/2010; Beekes 1988: 76, 80, 101–102; Kloekhorst 2006: 85–95)

Hittite	$*h_3-$ >	$ḫ / _e$	<i>ḫāppar-</i> neut. ‘business; price’	< PIE $*h_3ep-r-$
			<i>ḫarp-</i> ‘join’	< PIE $*h_3erb^h-$
			<i>ḫastai-</i> neut. ‘bone’	< PIE $*h_3est-$
		$\emptyset / _o$	<i>ārki-</i> ‘mount sexually’	< PIE $*h_3orḡ^h-$
Albanian	$*h_3-$ >	$h / _e$	<i>herdhe</i> pl. ‘testicles’	< PIE $*h_3erḡ^h-$
		$\emptyset / _o$	<i>asht</i> masc. ‘bone’	< PIE $*h_3ost-$
Armenian	$*h_3-$ >	$h / _e$	<i>hot</i> ‘smell’	< PIE $*h_3ed-$
		$\emptyset / _o$	<i>orb</i> ‘orfan’	< PIE $*h_3orb^h-$
			<i>orjik</i> pl. ‘testicles’	< PIE $*h_3orḡ^h-$ / $*h_3rḡ^h-$
			<i>oskr</i> ‘bone’	< PIE $*h_3ost-$

Hypothesis 1: (b) initial $*h_3e$ vs. $*h_3o$ – criticism

- some reconstructions seem *ad hoc*
 - PIE $*h_3erĝ^h-$ in Alb. *herdhe* – but PIE $*h_3orĝ^h-$ / $*h_3rĝ^h$ in Arm. *orjik*
 - PIE $*h_3est-$ in Hi. *ḡastai-* – but PIE $*h_3ost-$ in Alb. *asht* and Arm. *oskr*
 - doublets like *hogi* ‘spirit’ og *ogi* ‘breath’ show that *h-* was an unstable sound in Armenian (Lindeman 1982: 18; see also Olsen 1999: 47 n. 95)
 - if the interpretation of the material is correct, it is more economical to assume that the loss of $*h_3$ before $*o$ took place in pre-PIE (Tobias Mosbæk Søborg, pers. comm., 15 may 2020)
- no argument for preservation of $*h_3e$ vs. $*h_3o$ in PIE

Hypothesis 1: (c) Thurneysen–Havet’s Law

- Thurneysen–Havet’s Law: PIE **ou* > La. *au*
- Italic distinguishes **h₃e* from **h₃o* thanks to Thurneysen–Havet’s Law (Schrijver 1991: 436–454)
 - PIE **(s)kouh₁-éje-* > La. *caueō* ‘take care’ (cf. Gr. *κοέω* ‘understand’)
 - PIE **h₃éyi-* ‘sheep’ > La. *ouis*

Hypothesis 1: (c) Thurneysen–Havet’s Law: criticism

- ‘sheep’ is usually reconstructed as **h₂óui-* (e.g. Vine 2006: 224; NIL 336 n. 1) because of Lycian acc. sg. *χawa* (e.g. Vine 2006: 224) or ToB *āuw* (NIL 336 n. 1)
- Thurneysen–Havet’s Law may depend on the position of the accent (Vine 2006)
 - PIE **(s)kouh₁-éje-* > La. *caveō* ‘take care’
 - PIE **h₂óui-* ‘sheep’ > La. *ouis*

Hypothesis 2: (a) ah_2 -stem voc. sg.

Baltic Lithuanian *rañk-a*, Latvian *siev-∅*

Slavic OCS *žen-o*, *duš-e*

Greek Hom. *νύμφ-α* ‘young wife’; *πολιτ-α*; Sappho *Δίκ-α* ‘O Dikē’

Italic Umbrian *Turs-a* (name of a goddess)

PIE a $*-a < *-ah_2$ via Kuiper’s Law

or b $*-h_2$

or c $*-h_2e$ (“The earlier explanation was loss of the laryngeal due to a pause, $*-eh_2 > -a$ ”, Beekes 2011: 200)

- most straightforward explanation: PIE $*-a < \text{pre-PIE } *-ah_2$

Hypothesis 2: (b) extended Stang's Law

- Stang's Law (Stang 1965)
 - pre-PIE $*-V_{\underline{u}}m > \text{PIE } *-V̄m$: pre-PIE $*g^w\acute{o}_{\underline{u}}m, *d\acute{i}\acute{e}_{\underline{u}}m > \text{PIE } *g^w\acute{o}m, *d\acute{i}\acute{e}m$
 - pre-PIE $*-V_{\underline{u}}ms > \text{PIE } *-V̄s$: pre-PIE $*g^w\acute{o}_{\underline{u}}ms > \text{PIE } *g^w\acute{o}s$
- extended Stang's Law (e.g. Eichner 1980: 129 n. 41; Mayrhofer 1986: 163–164)
 - pre-PIE $*-Vh_2m > \text{PIE } *-V̄m$: pre-PIE $*-eh_2m > *-ah_2m > \text{PIE } *-ām$
 - pre-PIE $*-Vh_2ms > \text{PIE } *-V̄s$: pre-PIE $*-eh_2ms > *-ah_2ms > \text{PIE } *-ās$ (or $*-ah_2s$)
 - presupposes that laryngeal colouring took place in pre-PIE
- criticism
 - the extended Stang's Law seems unnecessary (Kuryłowicz 1927: 222–223; Rasmussen 1992/1999: 507 n. 2; Olander 2009: 184 with refs; Pronk 2016)

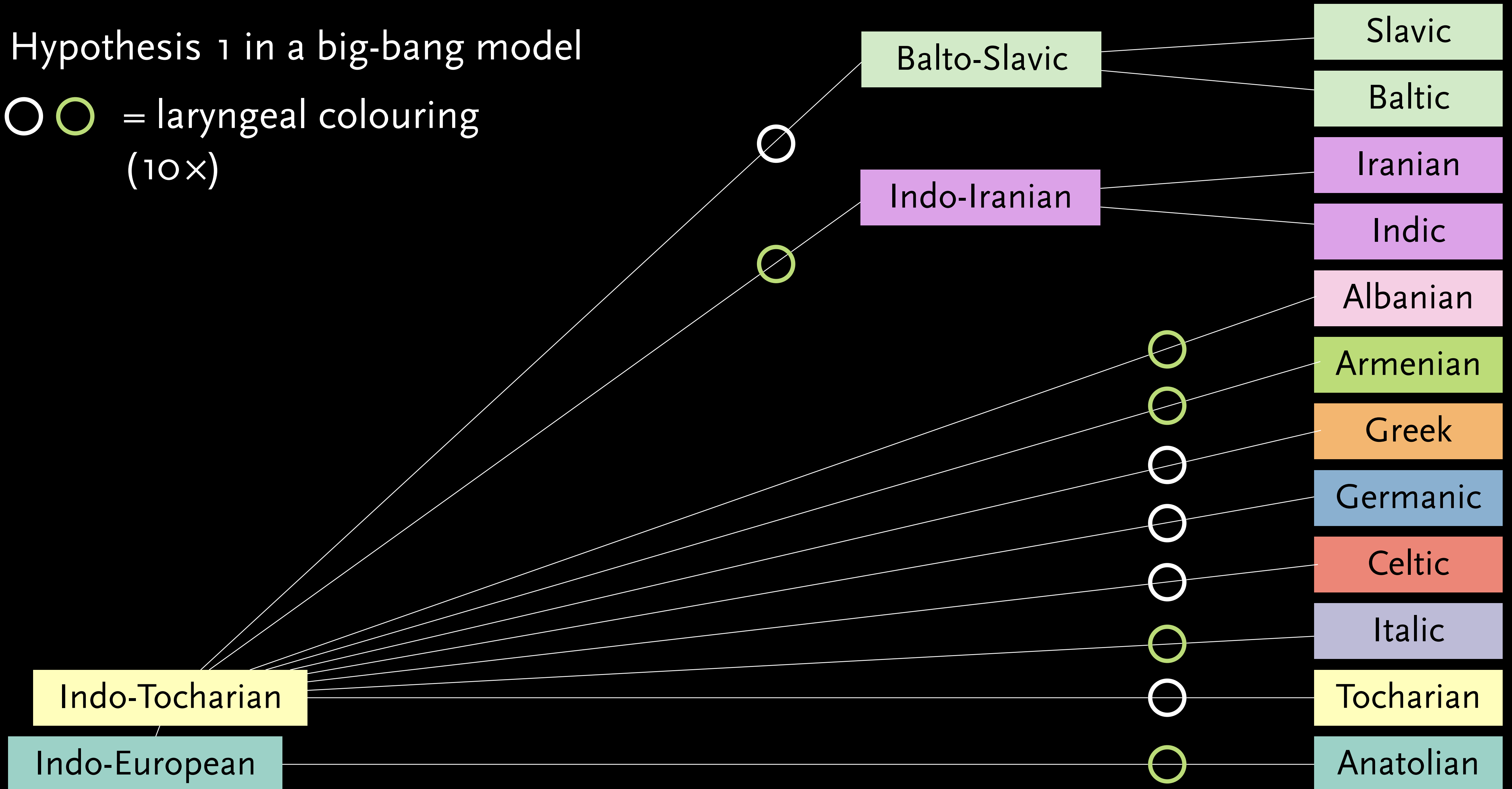
Hypothesis 2: (c) economy (1)

- all IE branches show merger of $*e$ and $*a$ near $*h_2$, and of $*e$ and $*o$ near $*h_3$
 - uneconomical to assume the exact same process took place independently several times
- “[Schrijver’s] solution, which is THEORETICALLY possible, is hardly credible since it would make the rounding of $*e$ to $*o$ when contiguous with $*h_3$ a separate event which just happened to occur in all Indo-European languages we have come to know about” (Rasmussen 1993: 200, emph. as in orig.)
- but cf. independent loss of PIE laryngeals in all non-Anatolian branches
 - yes, but the economical argument places the burden of proof on Hypothesis 1

Hypothesis 2: (c) economy (2)

Hypothesis 1 in a big-bang model

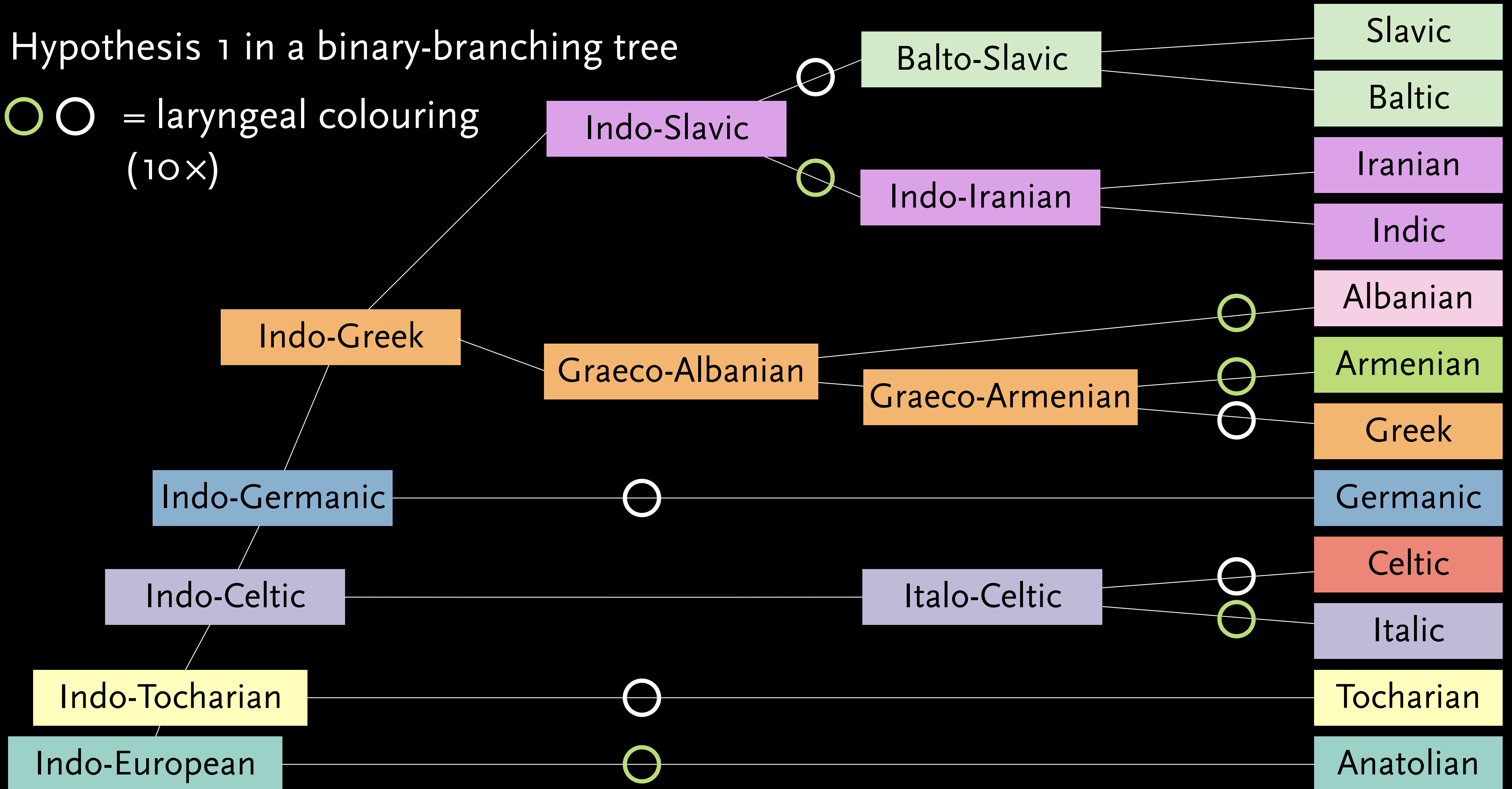
○ ○ = laryngeal colouring
(10x)



Hypothesis 2: (c) economy (3)

Hypothesis 1 in a binary-branching tree

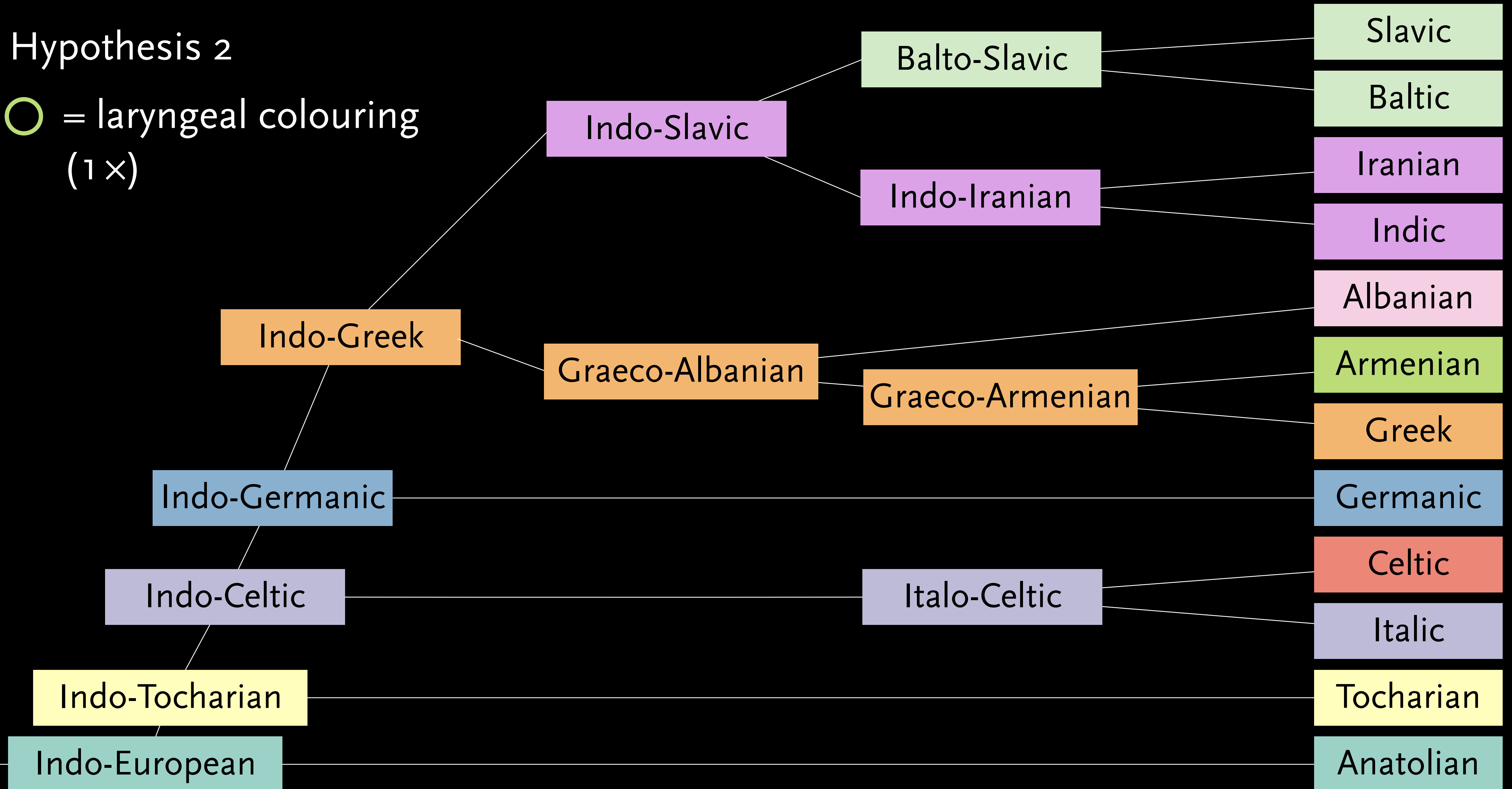
○ ○ = laryngeal colouring (10x)



Hypothesis 2: (c) economy (4)

Hypothesis 2

○ = laryngeal colouring
(1 ×)



Summary of the evidence

Hypothesis 1 (post-PIE colouring)

- | | |
|---------------------------------------|-------|
| a Brugmann's Law | 3 pts |
| b the A- branches (Alb., Anat., Arm.) | 0 pts |
| c Thurneysen–Havet's Law | 1 pt |
| total | 4 pts |

Hypothesis 2 (pre-PIE colouring)

- | | |
|--|-------|
| a <i>ah</i> ₂ -stem voc. sg. in *- <i>a</i> | 3 pts |
| b extended Stang's Law | 1 pt |
| c economy | 5 pts |
| total | 9 pts |

Conclusion

It is most likely that laryngeal colouring happened

BEFORE

the dissolution of PIE.

Bonus slide

Synaesthetic considerations



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