Reconsidering the Indo-European centum–satəm isogloss

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RIKSBANKENS JUBILEUMSFOND
FOR THE ADVANCEMENT OF THE HUMANITIES AND SOCIAL SCIENCES

DANMARKS FRIE FORSKNINGSFOND

The Speakers of Indo-European and their World
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2 Justification

- how is the centum–satəm isogloss relevant for “the speakers of Indo-European and their world”?

1. an important prerequisite for correlating prehistoric stages of a language family and material culture is having an idea about the linguistic family tree
   - the centum–satəm isogloss is potentially decisive for the IE family tree
2. call for papers: “we also welcome papers on purely historical-linguistic subjects”

3 Centum and satəm branches

$\hat{K} = \hat{k}\ \hat{g}\ \hat{g}^{h}$

$K = k\ g\ g^{h}$

$K^{w} = k^{w}\ g^{w}\ g^{wh}$

- centum branches point to $*K$ and $*K^{w}$ (but not $*\hat{K}$)
  - Anatolian,[1] Tocharian, Italic, Celtic, Germanic, Greek, Phrygian
- satəm branches point to $*K$ and $*\hat{K}$ (and possibly also $*K^{w}$)
  - Armenian, Albanian, Messapic(?), Thracian(?), Indic, Iranian, Baltic, Slavic
- at face value, the material demands a PIE three-way distinction: $*\hat{K} : *K : *K^{w}$
- this is the *communis opinio*
- but cf. Miller (1976: 47): "It is widely agreed that IE had two series of dorsal stops, labialized velars ('labiovelars') and velars. [...] [F]ew scholars would today maintain Brugmann's system of three dorsal series in IE"

1 wait for it – slide 12 will surprise you 😮

4 How many dorsal rows did PIE have?

view	PIE	centum	satəm
standard three-dorsal hypothesis	$\hat{K}$ K K^w	$\hat{K} > K$	$K^w > K$
uvular three-dorsal hypothesis (Kümmel)	K Q K^w	Q > K	K > $\hat{K}$ Q, K^w > K
hybrid two-dorsal hypothesis (Kortlandt)	$\hat{K}$ K^w	$\hat{K} > K$	$K^w > K$ $\hat{K}$ > K under certain circ.
satəm-style two-dorsal hyp. (Kuryłowicz)	$\hat{K}$ K	$\hat{K} > K$ K > K^w /_[front]	–
centum-style two-dorsal hypothesis 1	K K^w	–	K > $\hat{K}$ /_[front] $K^w > K$
centum-style two-dorsal hypothesis 2	K K^w	–	K > $\hat{K}$ except when not $K^w > K$

5 The defronting problem: typology

- a GENERAL change /K̂/ ([c ɟ] or [k̟ ɡ̟] or [kʲ gʲ]) > /K/ ([k g]) is hardly documented
  - but 17–18th-c. Copenhagen Danish? ☝
    1. the contrast [k g] : [k̟ ɡ̟] was only marginally phonological
       - there was no [k̟ ɡ̟] before a back vowel
       - [k g] plus front vowel existed only in loanwords
    2. defronting to [k g] only took place before front vowels

    → not a useful typological parallel (Kümmel 2007: 318)
- yet the communis opinio in IE studies assumes *$\hat{K}$ > *K in (almost) ALL centum branches INDEPENDENTLY
  - "$\hat{K}$ > K must be trivial since it happens in all centum branches" 🔄

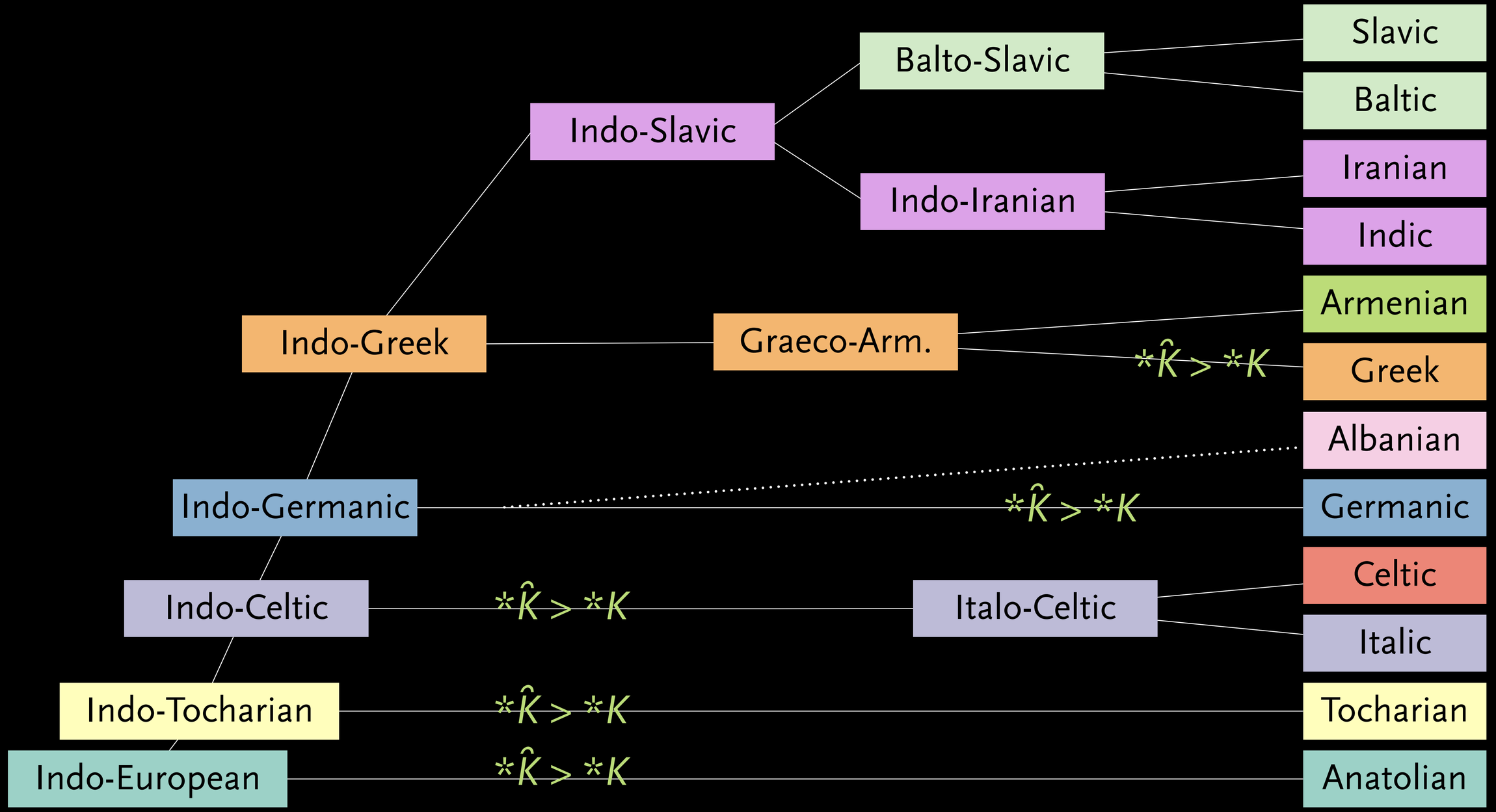
6 The defronting problem: phylogenetics

- reconstructing *$\hat{K}$ for PIE requires *$\hat{K}$ > *K (“centumisation”) to have happened at least
  - 3 times (Heggarty et al. 2023): Anatolo-Tocharian, Greek, Italic–Celto-Germanic
  - 4 times (Ringe in Canby et al. 2024): Hittite, Tocharian–Italo-Celtic, Germanic, Greek
  - 4 times (my group’s best tree): Anatolian, Tocharian, Italo-Celtic–Germanic, Greek
  - 5 times (Ringe et al. 2002; Ringe in Nakhleh et al. 2005): Hittite, Tocharian, Italo-Celtic, Germanic, Greek

→ the traditional PIE three-dorsal system *$\hat{K}$ K K^{w} is not viable

- nor is any other hypothesis assuming *$\hat{K}$ > *K (including Kortlandt’s)

7 “Classical” Ringe tree (2002)



8 Database: raw numbers

	unknown	known	K̂	K	Kʷ	total
LIV³ roots (total: 1,227)	151	503	194	220	89	654
NIL roots (total: 207)	5	83	42	22	19	88
LIV³ ∪ NIL roots	153	536	211	229	96	689
other items	1	42	23	15	4	43
total	154	578	234	244	100	732

LIV³ = LIV² + Kümmel 2024
items with two dorsals are counted twice

no suffixes are included

9 Distribution of known dorsals

	K̂	K	Kʷ	total
total	234 (40%)	244 (42%)	100 (17%)	578
near *u u̯	21 (33%)	42 (67%)	0 (0%)	63
before *r r̥	15 (36%)	22 (52%)	5 (12%)	42
after *s	8 (18%)	34 (76%)	3 (7%)	45
after *n n̥	6 (17%)	20 (56%)	10 (28%)	36
elsewhere	185 (47%)	130 (33%)	82 (21%)	397

10 Hypothesis

- PIE had two dorsal rows: **K *Kʷ*
- **Kʷ* > **K* in all centum branches
  - near **u *u̯*

    → PIE **K* near *u/u̯* should be recontructed as **Kʷ*
- **K* > **K̂* at a pre-stage of all satəm branches, except
  - before **r *r̥* (Weise's Law)
  - after **s*
  - after **n *n̥*
  - before **l m n u̯* + back vowel (?)
- **K* > **K̂* in Indo-Iranian
  - before **l m n u̯* + back vowel (?)

} henceforth ignored

building on, but different from

- Meillet 1894
- Kortlandt 1978
- Sihler 1995: 151–156
- Steensland 1973

11 General objections

- but a general fronting of *K* is weird ☝
  1. yes, but not weirder than a defronting in the centum branches
  2. and it may only have taken place once (in pre-Proto-Satəm)
  3. and we do have parallels: the Cholan and Greater Tzeltalan subgroups of Mayan (Kaufman & Norman 1984: 83–84); the Sagz-abadi dialect of Tati (Western Iranian) (Kümmel 2007: 215)
- but Armenien and/or Albanian have distinct reflexes of **K* and **K*^{w} ☝
  1. well, only maybe
  2. and even if they do, this is still compatible with PIE **K* (> **K̂ K*) and **K*^{w}
- but in Luvo-Lycian, **K̂* is palatalised, but **K* is not ☝
  - any non-labiovelar dorsal is probably palatalised before front vowel or glide; CLuv. *kiš-* ‘to comb’ goes back to zero-grade **ks-* (Kloekhorst 2008: 482)

12 Narrowing down

	K̂	K	Kʷ	all dorsals
all positions	234 > 173	244 > 140	100 > 83	578 > 396
near *u u̯	21 > 15	42 > 26	→ 0 > 0	63 > 41
before *r r̥	15 > 11 > 3	22 > 14	5 > 3	42 > 28
after *s	8 > 4 > 0	34 > 24	3 > 2	45 > 30
after *n n̥	6 > 2 > 1	20 > 10	10 > 8	36 > 21
elsewhere	185 > 145	130 > 69 > 51	82 > 70	397 > 284

total certain (not marked with “?”) problematic (not explainable through analogy)

13 Remaining problems: material

		An	To	It	Ce	Ge	Gr	Ar	Al	In	Ir	Ba	Sl
K̂r	*k̂reiH-	o	o	o	o	o	1	o	o	1	1	o	o
	*k̂remh₂-	o	o	o	o	o	1	o	o	1	o	o	o
	*k̂ruh-	o	o	1	o	o	o	1	o	o	o	o	o
nK̂	*bʰenĝʰ-	1	o	o	o	1	1	o	o	1	1	?	o
K	*bʰag-	?	?	o	o	o	1	o	o	1	1	o	1
	*delgʰ-	o	o	o	1	1	o	o	o	o	o	1	o
	*dl̥h₁gʰó-	1	o	?	o	?	1	o	1	1	1	1	1
	*dʰreh₂gʰ-	o	o	o	o	o	1	o	o	o	o	1	1
	*gelH-	o	o	o	1	o	o	1	o	o	o	1	?
	*gem-	o	?	?	o	o	?	o	o	o	1	1	1
	*gleiH-	o	o	o	1	1	o	o	o	o	o	1	1
	*gʰebʰ-	o	o	o	o	1	o	o	o	1	1	1	1
	*gʰed-	o	o	?	1	?	1	o	1	o	o	o	1
	*gʰeh₁-	o	o	o	o	1	1	1	o	o	o	o	o
	*gʰlendʰ-	o	o	o	1	1	o	o	?	o	o	o	1
	*gʰost(h₂)i-	o	o	1	?	1	o	o	o	o	o	o	1
	*h₂egʰ-	o	o	o	1	1	?	o	o	1	1	o	o
	*h₂u̯erg-	1	1	1	o	o	1	o	o	1	o	o	o
	*h₃erg-	1	o	o	?	o	o	1	o	o	o	o	o

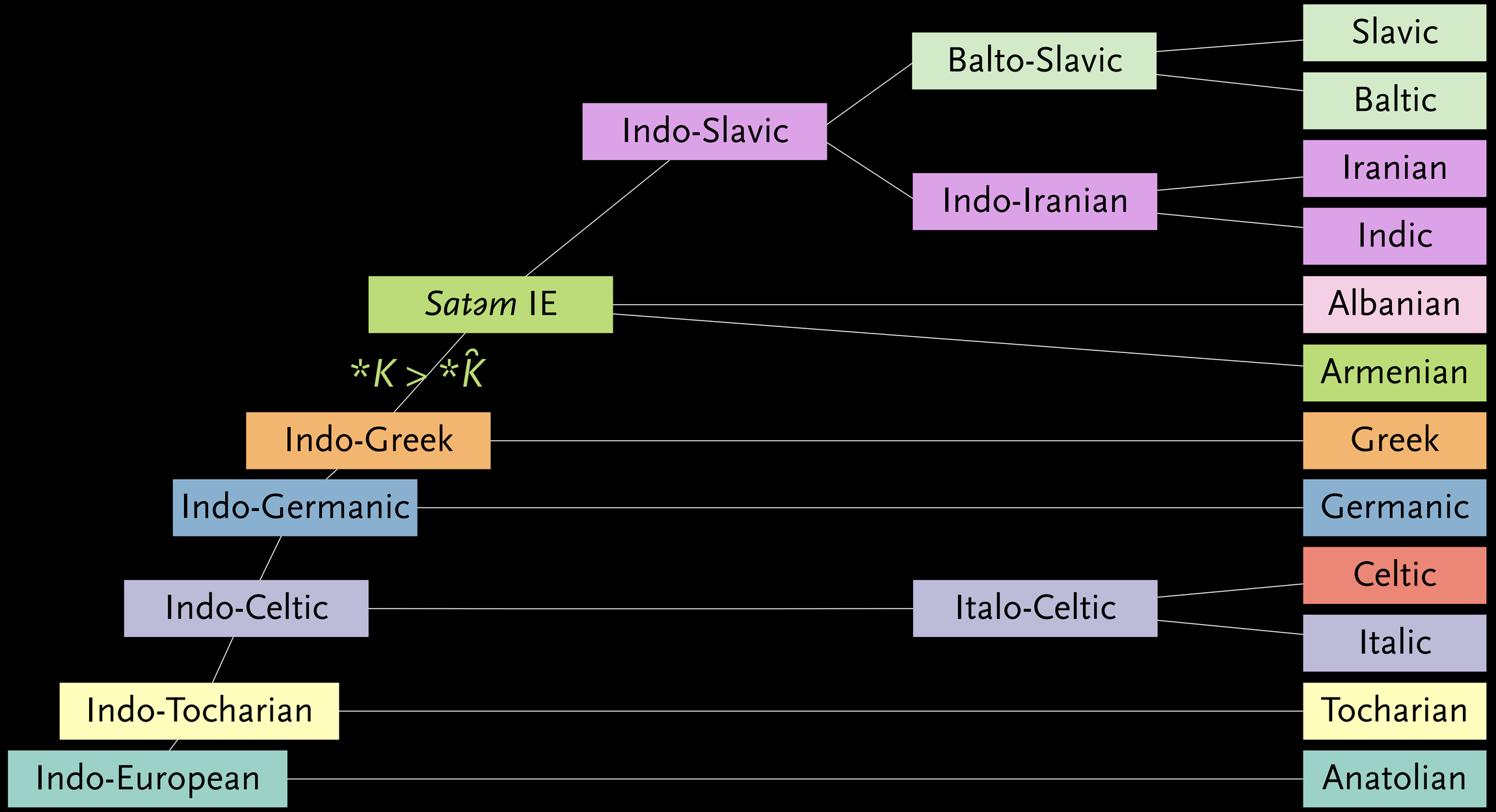
	An	To	It	Ce	Ge	Gr	Ar	Al	In	Ir	Ba	Sl
*h₃meiĝʰ-	o	o	o	o	o	1	1	?	?	?	1	1
*k̂eh₂k-#2	o	o	o	o	1	?	o	o	o	o	1	o
*kamp-	o	o	?	o	?	1	o	o	o	?	1	o
1.*keh₂-	o	o	1	o	1	1	o	o	1	1	o	o
*keh₂u̯-	o	1	1	o	1	?	o	o	o	o	1	1
*kelh₃-	o	?	1	o	1	o	o	o	o	o	1	1
*kem-	o	o	o	o	1	o	1	o	o	o	o	o
*ken-	o	o	o	1	o	1	o	o	1	1	o	1
*kenh₁-	o	o	1	?	o	1	o	o	o	o	o	1
*kes-	1	o	o	1	?	?	o	o	o	o	1	1
*kleu̯b-	o	o	o	o	1	o	o	o	o	o	1	1
*kneh₂-	o	o	o	o	1	1	o	o	o	o	1	o
*koi̯lo-	o	o	o	o	1	?	o	o	o	o	1	1
*koro-	o	o	1	1	1	1	o	o	o	1	1	o
2.*legʰ-	1	1	1	1	1	?	o	o	o	?	o	1
*magʰ-	o	o	o	?	1	1	o	o	1	o	?	1
*perk-	o	o	1	1	o	o	o	o	1	o	o	o
*regʰ-	o	o	o	o	1	?	o	o	o	o	1	1

	An	To	It	Ce	Ge	Gr	Ar	Al	In	Ir	Ba	Sl
*rek-	o	1	o	1	1	o	o	o	1	o	?	1
1.*seg-	o	o	?	1	o	o	o	o	1	1	1	1
*sei̯k-	o	?	1	o	o	1	o	o	o	o	1	o
*selk-	?	?	o	o	1	?	o	?	o	?	o	o
*skek-#2	o	o	o	1	1	o	o	o	o	o	o	1
*spʰerh₂g-	o	o	?	o	o	1	o	o	1	o	?	o
*(s)teg-	1	o	1	1	1	1	1	o	1	o	1	1
*(s)tei̯g-	o	o	1	1	?	1	o	o	?	1	o	o
*(s)tei̯gʰ-	o	o	o	1	1	1	o	1	1	o	1	1
*stelg-	o	o	o	1	1	o	o	o	o	o	1	o
*sterg-	o	o	o	o	o	1	o	o	o	o	o	1
1.*strei̯g-	o	o	1	o	1	o	o	o	o	o	o	1
*teh₂k-	o	o	1	o	1	o	1	o	o	o	o	o
*temk-	1	o	o	1	1	o	o	1	1	1	1	1
*u̯ei̯g-	o	?	o	o	1	1	o	o	1	1	o	o
2.*u̯ei̯k-	o	o	1	1	1	o	o	o	o	o	1	o
1.*u̯elg-	1	o	o	o	1	o	o	o	1	o	o	o
*u̯reg-	1	o	1	o	1	o	o	o	?	1	o	o

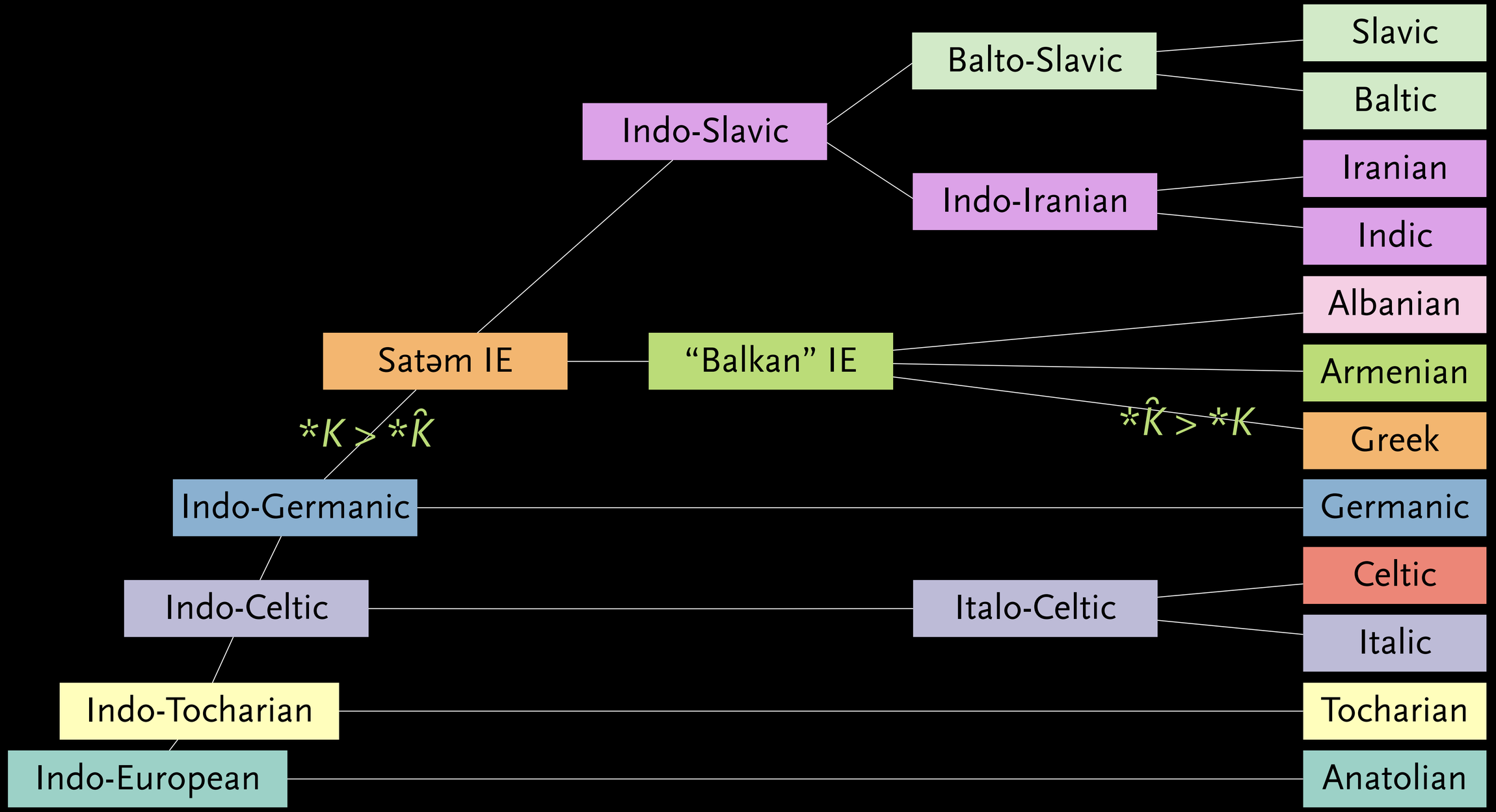
14 Phylogenetic implications

- the satəm change (*$\hat{K}$ > *K) is highly non-trivial
  - → the satəm branches form a subgroup
  - → Greek probably does not form a “Balkan” subgroup with the satəm branches Armenian and/or Albanian
    - if it does, Greek is a desatəmised satəm branch – and we would have to accept a Greek defronting event (still better than 4+ defronting events)

15 Suggested phylogeny



16 Alternative phylogeny



17 Conclusion: balance

- drawbacks
  - the conditioning of the satəm change is non-trivial
  - around 51 items (out of 396 items, i.e. 13%) are difficult to explain
- advantages
  - we reconstruct three fewer phonemes for PIE
  - we provide an explanation for distributional peculiarities of the dorsals
  - we avoid the assumption of an undocumented sound change [cɟʝʰ] or [k̟₊ g̟ g̟ʰ] or [k̟₊ g̟ g̟ʰ] > [k g gʰ] taking place several times independently

18 Finis

- slides
- explanations
- link to database

sproghistorie.dk/temp/fachtagung-basel-2024/

19 References (1)

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