Understanding Language Evolution Using an Event-Based Model

All words
100,000 generations

```
                                    •Romanian
                                                              •French
                                                              •Walloon
                                          •Catalan
                                       •Friulian
                              •Spanish
                                    •Portuguese
                                      •PortugueseBrazil
              •Italian
            •Latin
```

2.0   1.0   0.0
Branches
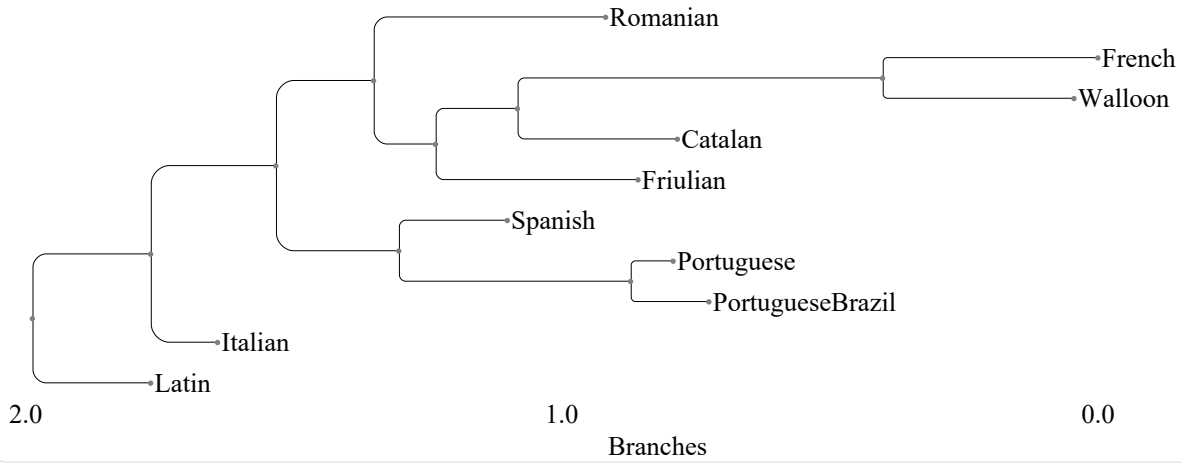
All words
300,000 generations

```
        •Italian
                              •PortugueseBrazil
                              •Portuguese
                        •Spanish
                                          •Walloon
                                          •French
                              •Catalan
                          •Romanian
                          •Friulian
      •Latin
```

2.0   1.0   0.0
Branches
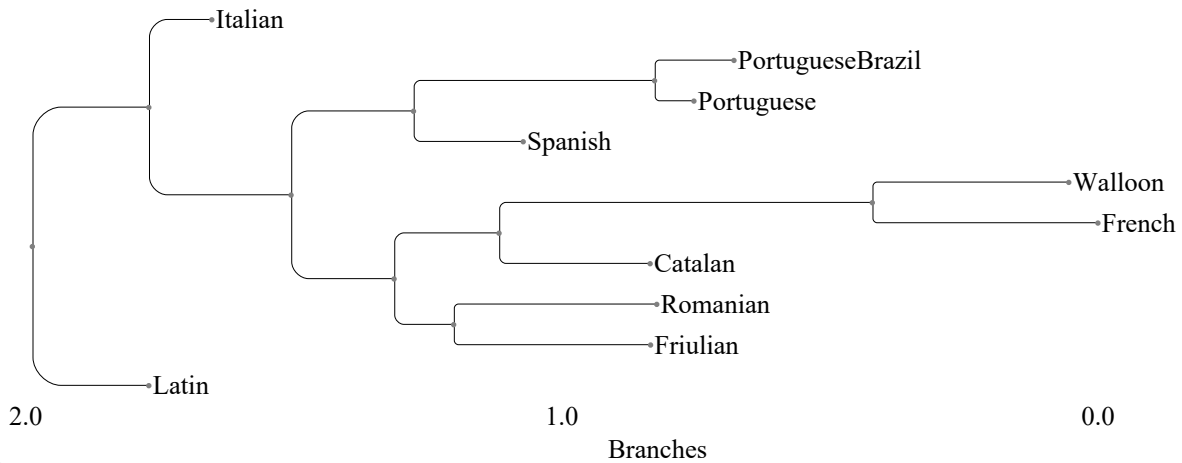
No verts

No verbs

300,000 generations

| 2.0 | 1.0 | 0.0 |

Branches

Prior

7   6   5   4   3   2   1   0

Branches

Commonly Accepted Romance Tree

Latin

Nuorese
Cagliari
Romanian
Arumanian
Walloon
French
Provencal
Portuguese
Spanish
Catalan
Ladin
Friulian
Romansh
Italian

2000   1000   0
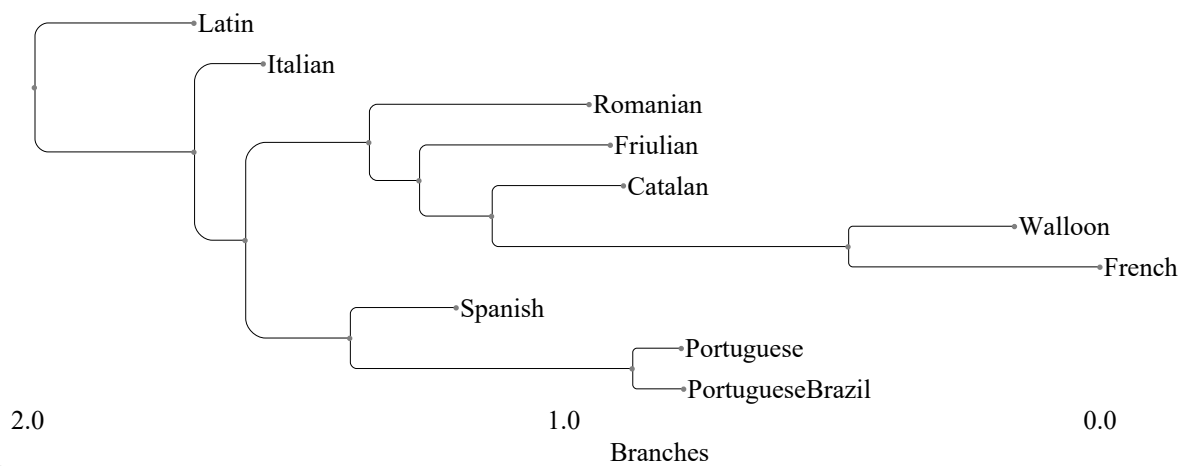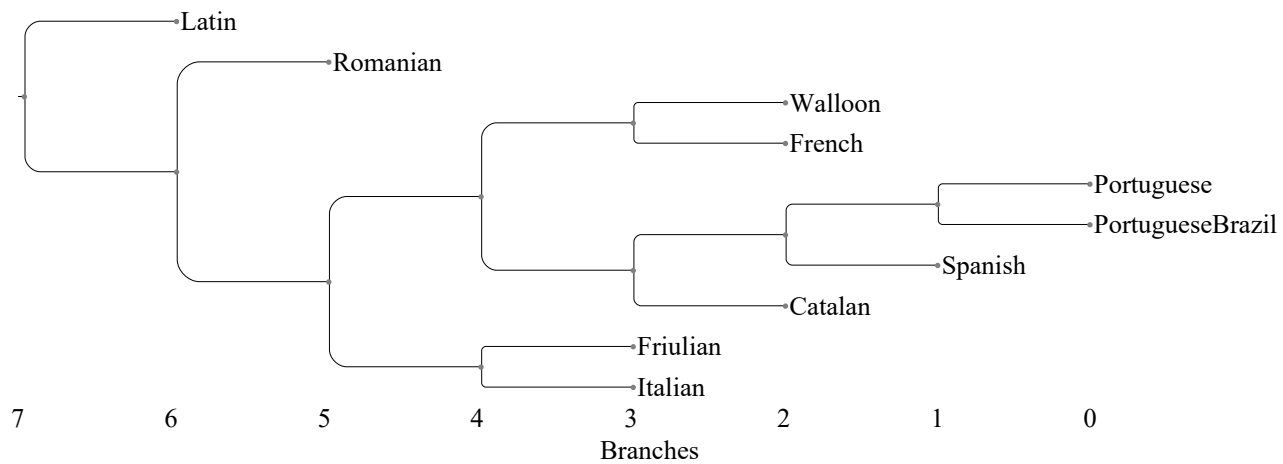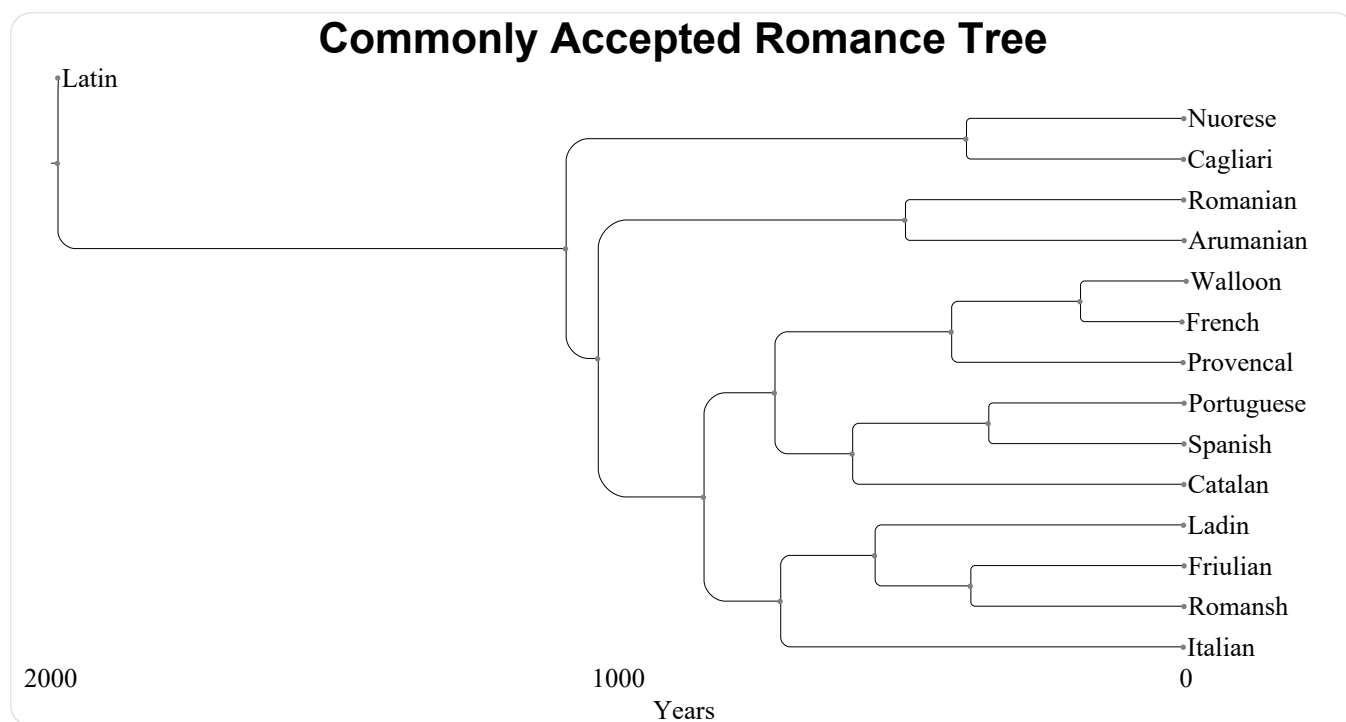
Years

Each segment gets a different number

1 i	2 n	3 f	4 a	5 t	6 e	7 m	8 ã	9 ĩ	10 ẽ̞	11 ʧ	12 ɨ	13 ɛ	14 ɲ

15 o	16 ẽj̃	17 p	18 s	19 k	20 θ	21 ʃ	22 ej	23 ɐj	24 w	25 ɔ̃	26 h	27 õ

28 b	29 v	30 au̯	31 l	32 u	33 z	34 ʎ	35 j	36 r	37 x	38 ɾ	39 ɐ	40 ə

41 ɛ̃	42 ẽw̃	43 c	44 ɨj	45 eː	46 d	47 ɔ	48 oː	49 œ	50 ɔj	51 o̞a	52 dz

53 aː	54 iː	55 ʁ	56 uː	57 ʤ	58 oj	59 ɑ	60 gʷ	61 g	62 ŋ	63 ø	64 ʝ

65 β	66 ʀ	67 ɛj	68 kʲ	69 ɪ	70 ẽ	71 ʒ	72 ɟ	73 ɣ	74 ð	75 e̞a	76 kʷ

77 aj	78 ɥ	79 y	80 ts	81 ɫ	82 ʊ	83 œ̃	84 ũ	85 ẽj̃

Model: "Linguistically Informed"

1) e   e eː

2) i   i iː

3) a   a aː

4) u   u uː

5) o   o oː

6) ɛ   ɛ

7) ø   ø

8) Nasal Vowel   ɑ̃ ĩ ɐ̃ ɐ̃j̃ ɔ̃ õ ɛ̃ ɐ̃w̃ ẽ œ̃ ũ ɐ̃j̃

9) Vowel   ɨ ej ɐj au̯ ɐ ə ɨj ɔ œ ɔj o̯a oj ɑ ɛj ɪ e̯a aj y ʊ

10) Nasal Consonant   n m ɲ ŋ

11) Non Sylabic Sonorant   w l j r

12) Consonant   f t tʃ p s k θ ʃ h b v z ʎ x ɾ c d dz ʁ ʤ gʷ ɟ β ʀ kʲ ʒ
ɟ ɣ ð kʷ ɥ ts ɬ