

Simulated Segment Evolution using the TKF91 Model

APPENDICES

1. Character Assignments
2. Partition Assignments
3. Concepts Used
4. Results

Appendix 1 - Character Assignments

Each segment gets a different number

0	e	1	g	2	o:	3	ʒ	4	ə	5	j	6	o	7	i	8	w	9	ɔ
10	dʒ	11	ɪ	12	j	13	n	14	s	15	u	16	ʃ	17	oj	18	v		
19	b	20	k	21	m	22	h	23	i:	24	a	25	ɐ	26	l	27	a:		
28	ʌ	29	k ^w	30	ẽj	31	ẽj	32	ʈʃ	33	d	34	i	35	ɛ				
36	ɛ:	37	ʈʃ	38	ã	39	ẽ	40	t	41	ẽ	42	u:	43	œ	44	ũ		
45	õ	46	ɳ	47	ø	48	ø:	49	aj	50	r	51	e:	52	ɤ	53	ɑ		
54	ɾ	55	ej	56	ẽ	57	θ	58	ĩ	59	g	60	ɲ	61	õ	62	ɣ		
63	p	64	ã	65	ɐj	66	z	67	x	68	β	69	ɕa	70	ʃ	71	ð		
72	y	73	ɹ	74	ɔa	75	ɥ	76	c	77	ts	78	ɭ	79	ɛj				
80	f	81	g ^w	82	ẽɥ														

Appendix 2 - Partition Assignments

David's basic rules

1 Nasal Vowel

ẽ ĩ ẽĩ ã ẽ ã œ ã õ ẽ ĩ ã ã

2 Vowel

e o: ə o i ɔ ɪ u oɪ i: a ɐ a: i ɛ ɛ: u: ø ø: aɪ e: ɑ ej vj ɛa y ɔa ej ẽu

3 Nasal Consonant

n m ŋ ɲ

4 Non Sylabic Sonorants

w j l r

5 Consonants

g ʒ j dʒ s ʃ v b k h ʌ k^w tʃ d ʈ t ɸ ɾ θ g ɣ p z x β ʃ ð ɾ ɥ c ts ɭ f
g^w

Appendix 3 - Concepts Used

	I	We	YouPlural	Here
Latin	- e g o:	n o: - s	w o: - s	- e k k u m h i: k
French	- ʒ - ə	n u - -	v u - -	i - - s - - i -
Spanish	- j - o	n o - s	b o - s	- a - k - - i -
Italian	- i - o	n o: i -	v o: i -	- - k w - - i -
Brazilian	- e - w	n ɔ j - s	v ɔ j s	- a - k - - i -
Portuguese				
Portuguese	- e - w	n ɔ - ʃ	v o - ʃ	- ɐ - k - - i -
Catalan	- ʒ - ɔ		b u - s	- a - k - - i -
Walloon	- ɖʒ - ɪ	n o - -	v o - s	
Friulian	- j - o	n o: - -	v o: - -	- a - k - - i -
Romanian	j e - w	n oj -	v oj -	
	There	There-Ibi	There-Adlbi	Who-Qui
Latin	i l l a: k	i b i:		k ^w - i s
French	- - l a -			k - i -
Spanish	a - j a -		a i	
Italian	- - l a -	- v i		k - i -
Brazilian	- - l a -		a i	
Portuguese				
Portuguese	- - l a -		ɐ i	
Catalan	ə - ʎ a -			k - i -
Walloon	- - l a -			k - i: -
Friulian				k w i -
Romanian	- - l a -			
	Who-Quem	What	When-Quando	How-Quomodo
Latin	k ^w - e m -	k ^w - i d	k ^w - a n d o:	k ^w o: m o d o
French		k w a -	k - ɑ̃ - -	k ɔ m - -
Spanish	k j e n -	k - e -	k w a n d o	k o m o - -
Italian		k - e -	k w a n d o	k o m e - -
Brazilian	k - ẽj - -	k - i -	k w ẽ - d u	k o m u - -
Portuguese				
Portuguese	k - ẽj - -	k - i -	k w ẽ - d u	k o m u - -
Catalan		k - ɛ -	k w a n	k ɔ m - -
Walloon		k w ɛ: -	k w a n d	k ɔ m ẽ - -
Friulian		ʃ - e -	k w a n t	ʃ - e m u: t -
Romanian	ʃ - i n e	ʃ - e -	k - i n d	k u m - - -
	One	Two-Duos	Two-Duae	Two-Duas
Latin	u: n u m	d u o: s	d u - aj	d u a s
French	œ - - -	d - ø -		
Spanish	u n o -	d - o s		
Italian	u n o -		d u - e	
Brazilian	ũ - - -	d - oj s		d u ɐ s
Portuguese				
Portuguese	ũ - - -	d - oj ʃ		d u ɐ ʃ
Catalan	u n - -	d - o s		
Walloon	œ - - -	d - ø: -		
Friulian	u ŋ - -	d - oj -		
Romanian	u n u -	d - oj -	d o w ə	

Appendix 3 - Concepts Used

	Three	Five	Big	Big-Grandem
Latin	t r - e: s	k ^w i: n k ^w - e	m a g n u m	g r a n d e m
French	t ʁ w a -	s ẽ - k - -		g ʁ ă - - -
Spanish	t r - e s	θ i n k - o	m a - ɲ o -	g r a n d e -
Italian	t r - e -	ʧ i ŋ k w e	m a ɲ ɲ o -	g r a n d e -
Brazilian	t r - e s	s ã - k - u		g r ẽ - ɕ i -
Portuguese				
Portuguese	t r - e ʃ	s ã - k - u		g r ẽ - d i -
Catalan	t r - ε s	s i ŋ k - -		g r a n - - -
Walloon	t r - ø: -	s ẽ - k - -		g ʁ ă - - -
Friulian	t r - e: -	ʧ i ŋ k - -		g r a n t - -
Romanian	t r - ej -	ʧ i n ʧ - -		
	Big-Majjorem	Long-Longum	Long-Largum	Wide
Latin	m a j j o r e m	l o - n g u m	l a r g u m	l a: t u m
French		l ɔ̃ - - - -	l a ʁ ʒ - -	l e - - -
Spanish		l o - n g o -	l a r ɣ o -	l a t o -
Italian		l u - n g o -	l a r g o -	l a t o -
Brazilian		l õ - g u -	l a ʁ g u -	l a t u -
Portuguese				
Portuguese		l õ - g u -	l a r g u -	l a t u -
Catalan		ʎ o - ŋ - - -	ʎ a r k - -	
Walloon		l ɔ̃ - - - -		
Friulian		l u n k - -	l a r k - -	
Romanian	m a - - - r e -	l u n g - -	l a r g - -	l a t - -
	Wide-Amplum	Fish-Piskem	Fish-Pescion	Bird-Avem
Latin	a m p l u m	p i s k e m		a w e m
French	ã - p l - -		p w a s ɔ̃	
Spanish	a n ʧ - o -	p e θ - - -		a b e -
Italian	a m p j o -	p e ʃ ʃ e -		
Brazilian	ẽ - ʃ - u -	p e j ʃ - i -		a v i -
Portuguese				
Portuguese	ẽ - ʃ - u -	p e j ʃ - i -		a v i -
Catalan	a m p l ə -	p e ʃ - - -		a w - -
Walloon			p - ε h ɔ̃	
Friulian		p ε s - - -		
Romanian		p e ʃ t e -		
	Bird-Avicellum	Bird-Passerem	ToDrink	ToEat
Latin	- a w i - k - e l l u m	p a s s e r e m	b i b - e r e	k o m e d e r e
French	w a - - - z - o - - -		b - - w a ʁ -	
Spanish		p a - x a r o -	b e b - e r -	k o m e - - - r -
Italian	- - u - t ʧ - ε l l o	p a s s e r o -	b e - - - r e	
Brazilian		p a - s ɐ r u -	b e b - e ʁ -	k o m e - - -
Portuguese				
Portuguese		p a - s ɐ r u -	b i β - e r -	k u m - - e r -
Catalan	- - u - - s - e - ʎ - -		b ε w - - r ə	
Walloon	- - u: - - h - ε: - - -		b - - - ø: ʁ -	
Friulian	- - u - - ʧ j ε - l - -		b e v i - -	
Romanian		p a - s ə r e -	b - - - ɛ a - -	

Appendix 3 - Concepts Used

	ToEat-Manducare	ToBite	ToBite-Morsicare	ToSuck
Latin	m a n d u k a : r e	m o r d e : r e	m o r s i k a : r e	s u : g e r e
French	m ā - ʒ - - e - -	m o ʁ d - ʁ -		s y s e - -
Spanish	m a n d u k a r -	m o r ð e r -	m o - s - k a r -	
Italian	m a n dʒ - - a : r e	m ɔ r d e r e	m o r s i k a r e	
Brazilian	m ê - ʒ - - a ʁ -	m o ʁ d e ʁ -	m u - s ə g a - -	s u g a ʁ -
Portuguese				
Portuguese	m ê - ʒ - - a r -	m u r ð e r -	m u - s ə g a r -	s u g a r -
Catalan	m ə ɲ ʒ - - a - -		m u - s ə γ a - -	
Walloon	m a ɲ - - i : - -			s y s i : - -
Friulian	m a ɲ ʃ - - a - -			
Romanian	m i n - - k a - -		m u r s e k a - -	s u dʒ e - -
	ToSpit	ToSpit-Exconspuere	ToSpit-Sputare	ToKnow
Latin	k o n s p u e r e		- s p u t e r e	s k i : r e
French	k ɔ̃ - s p y e - -			
Spanish		e s k u - p i r	e s p u t a r -	
Italian			- s p u t a : r e	
Brazilian	k u - s p i ʁ -			
Portuguese				
Portuguese	k u - ʃ p i r -			
Catalan		ə s k u - p i - -		
Walloon				
Friulian				
Romanian		- s k u j p a		ʃ t i - -
	ToKnow-Sapere	ToKnow-Cognoscere	ToThink	ToThink-Pensare
Latin	s a p - e r e	k o g n o : s k e r e	k - o : g i t a : r e	p e n s a : r e
French	s a v w a ʁ -	k ɔ̃ - n ɛ - t ʁ -	k ɥ - - i d e - -	p ā - s e - -
Spanish	s a b - e r -	k o - n o θ e r -	k w - - i d a r -	p e n s a r -
Italian	s a p - e : r e	k o - n o ʃ f e r e	k - o dʒ i t a : r e	p e n s a : r e
Brazilian	s a b - e ʁ -	k o - ɲ e s - e ʁ -	k - u ʒ i t a ʁ -	p ĩ - s a ʁ -
Portuguese				
Portuguese	s ɐ b - e r -	k u - ɲ i s - e r -	k - u ʒ i t a r -	p ĩ - s a r -
Catalan	s ə β - ɛ - -	k u - n ɛ ʃ - ə - -	k - u - j d a - -	p ə n s a - -
Walloon	s a v - ø : ʁ -	k i - n ɔ h - - -		p ĩ - s e - -
Friulian	s a v - e : - -	k o - ɲ o s - i - -		p e ɲ s a : - -
Romanian		k u - n ɔ a ʃ t e - -	k - u dʒ e t a - -	p ə - s a - -
	ToFear	ToFear-Tremere	ToSleep	ToLive
Latin	t i m e : r e	t r e m - e r e	d - o r m i : r e	w i : w e r e
French		k ʁ ě - d - ʁ -	d - ɔ ʁ m i ʁ -	v i v - ʁ -
Spanish	t e m e r -	t r e m - e r -	d - o r m i r -	b i b i r -
Italian	t e m e : r e	t r e m - a : r e	d - o r m i : r e	v i : v e r e
Brazilian	t e m e ʁ -	t r e m - e ʁ -	d - o ʁ m i ʁ -	v i v e ʁ -
Portuguese				
Portuguese	t i m e r -	t r i m - e r -	d - u r m i r -	v i v e r -
Catalan	t e m ə - -		d - u r m i - -	b i w - r ə
Walloon			d w a ʁ m i - -	
Friulian	t e m i - -	t r i m - a : - -	d - u r m i : - -	v i v i - -
Romanian	t e m e - -		d - o r m i - -	v i - a - -

Appendix 3 - Concepts Used

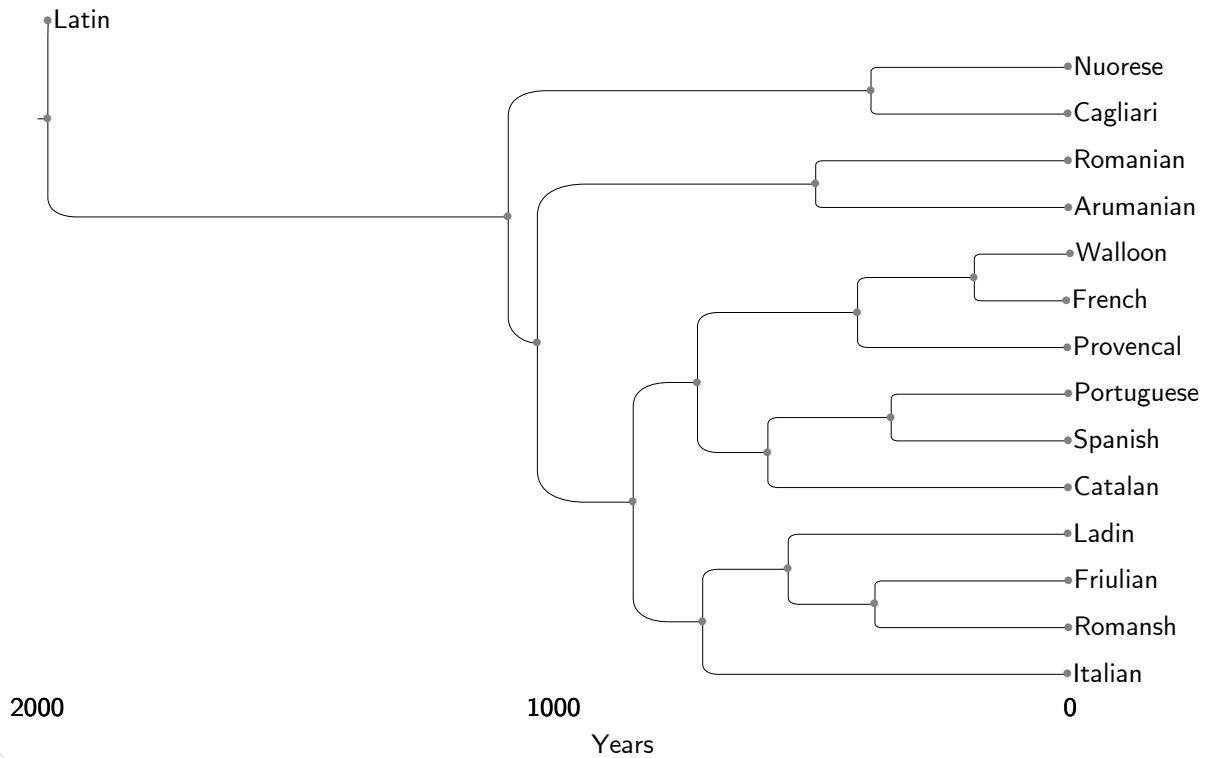
	ToDie	ToSwim	ToSwim-Navigare	ToFly
Latin	m o r i: - -	n - a t a: r e	n a v i g a: r e	w o l a: r e
French	m u ʁ i ʁ -		n a - - ʒ e - -	v o l e - -
Spanish	m o r i r -	n - a d a r -	n a b e g a r -	b o l a r -
Italian	m o r i: r e	n w o t a: r e	n a v i g a r e	v o l a: r e
Brazilian	m o ʁ e ʁ -	n - a d a ʁ -	n a v i ɣ a ʁ -	v o - a ʁ -
Portuguese				
Portuguese	m u ʁ e r -	n - ɐ ð a r -	n ɐ v i ɣ a r -	v w - a r -
Catalan	m u r i - -	n - ə d a - -	n ə b ə g a - -	b u l a - -
Walloon	m ɔ r i - -		n ɛ - - ɕ i: - -	v ɔ l e - -
Friulian	m u r i: - -	n - a d a - -	n a v i g a - -	- - - - - -
Romanian	m u r i - -		n a v i g a - -	- - - - - -
	ToFly-Exvolare	ToCome	ToFall	ToFall-Tumbare
Latin		w e n i: r e	k - a d e r e	
French		v ə n i ʁ -	ʃ w a - - ʁ -	t ɔ - b e -
Spanish		b e n i r -	k - a - e r -	t u m b a r
Italian	z v o l a: r e	v e n i: r e	k - a d e: r e	
Brazilian		v - - i ʁ -	k - ɐ - i r -	t ɔ - b a ʁ
Portuguese				
Portuguese		v - - i r -	k - ɐ - i r -	t ɔ - b a r
Catalan		b ə n i - -	k - a w - r ə	t u m b a -
Walloon		v i n i - -	ʃ - ɛ: - - ʁ -	t u m - e -
Friulian	z v o l a - -	v i ɲ i: -	ʃ j a d e - -	
Romanian	z b u r a - -	v e n i - -	k ə d ɛ a - -	t u m b a -
	ToSing-AncestralClass	ToPlay-Ludere	ToPlay-Jiocare	ToFreeze
Latin	k a n t a: r e	l u: d e r e	j o - k a: r e	g e l a: r e
French	ʃ ã - t e - -		ʒ - w - e - -	ʒ ə l e - -
Spanish	k a n t a r -	l u d i r -	x u - g a r -	- e l a r - -
Italian	k a n t a: r e		ɕ o - k a: r e	ɕ e l a r e
Brazilian	k ẽ - t a r -		ʒ o - g a ʁ -	ʒ i l a r -
Portuguese				
Portuguese	k ẽ - t a r -		ʒ u - ɣ a r -	ʒ i l a r -
Catalan	k ə n t a - -		ʒ u - g a - -	ʒ ə l a - -
Walloon	ʃ ã - t e - -		ɕ u w - e - -	ɕ a l e - -
Friulian	c a n t a: - -		ɕ u j - a - -	
Romanian	k i n t a - -		ʒ u - k a - -	
	ToFreeze-Glaciare	ToFreeze-Inglaciare	Sun	Sun-Soliculus
Latin	g l a - k i a: r e	i n g l a k i a: r e	s o: l e m	s o l i c u l u s
French	g l a - s - e - -			s ɔ l ɛ j - - - -
Spanish			s o l - -	
Italian	g j a t ʃ j a r e		s o l e -	
Brazilian			s ɔ w - -	
Portuguese				
Portuguese			s ɔ ʔ - -	
Catalan	g l ə - s - a - -		s ɔ l - -	
Walloon			s ɔ l ɔ -	
Friulian	g l a - ʃ - a - -			s o r e - - l i -
Romanian		i n g - e t s - a - -	s ɔ a r e -	

Appendix 3 - Concepts Used

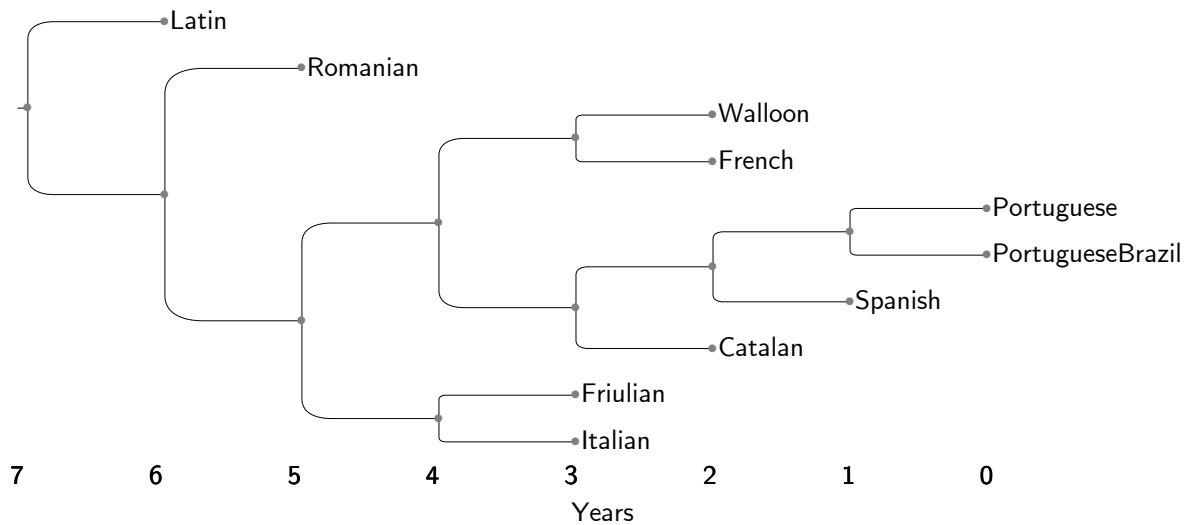
	Moon	Star	Water	Rain
Latin	l u : n a	- s t - e : l l a	a - k ^w - a	p l u - w i a
French	l y n -	e - t w a - l -	o - - -	p l ʁ - - i -
Spanish	l u n a	e s t r e - j a	a - ɣ w a	j - u - b j a
Italian	l u n a	- s t - e l l a	a k k w a	p j o d dʒ - a
Brazilian	l u - ɐ	i s t r e - l ɐ	a - g w ɐ	ʃ - u - v - ɐ
Portuguese				
Portuguese	l u - ɐ	i ʃ t r e - l ɐ	a - g w ɐ	ʃ - u - v - ɐ
Catalan	ʎ u n ə	ə s t - ε - l -	aj - ɣ w ə	p l u - ʒ - ə
Walloon	l ø n -	- s t - ø : - l -	ɛ : - - w -	p l u : - ɸ - -
Friulian	l u n e	- s t - ε - l e	a - g - e	p l o - - j e
Romanian	l u n ə	- s t - ɕa - -	a - p - ə	p l ɔa - - j e
	Lake	Sea	Salt	Earth
Latin	l a k u m	m a r e	s a : l e m	t - e r r a
French	l a k - -	m ɛ ɸ -	s ɛ l - -	t - e - ɸ -
Spanish	l a g o -	m a r -	s a l - -	t j e - r a
Italian	l a g o -	m a r e	s a l e -	t - ε r r a
Brazilian	l a g u -	m a ɸ -	s a w - -	t - e - ɸ ɐ
Portuguese				
Portuguese	l a ɣ u -	m a r -	s a l - -	t - ε - ɸ ɐ
Catalan	ʎ a k - -	m a r -	s a l - -	t - ε - r ə
Walloon	l a k - -	m e ɸ -	s e - - -	t - ɛ : - ɸ -
Friulian	l a : t - -	m a : r -	s a : l - -	t j ε - r e
Romanian	l a k - -	m a r e	s a r e -	ts - a - r ə
	Sky	Wind	Fire-Focus	Green
Latin	k - aj l u m	w - e n t u m	f - o k u m	w i r i d e m
French	s j ɛ l - -	v - ã - - -	f - ø - - -	v e ɸ - - -
Spanish	θ j e l o	b j e n t o -	f w e g o -	b e r - d e -
Italian	ʧ - ε l o -	v - ε n t o -	f w ɔ k o -	v e r - d e -
Brazilian	s - ε w - -	v - ě - t u -	f - o g u -	v e r - d i -
Portuguese				
Portuguese	s - ε w - -	v - ě - t u -	f - o ɣ u -	v e r - d i -
Catalan	s - ε l - -	b - e n - - -	f - ɔ k - -	v ɛ r - t - -
Walloon	s - i : ɸ - -	v - ě - - - -	f - ø : - - -	v ɛ ɸ - - -
Friulian	ʧ - i : l - -	v - i n t - -	f - u : k - -	v ɛ r - t - -
Romanian	ʧ - e r - -	v - i n t - -	f - o k - -	v e r - d e -
	Year	Name-Nomen	Name-Nominem	Tongue
Latin	a n n u m	n o : m e n	n o : m i n - e m	l i n g ^w - a
French	ã - - -	n ɔ̃ - - -		l ã - g - -
Spanish	a - ɲ o -		n o m - b r e -	l e ɲ g w a
Italian	a n n o -	n o : m e -		l i n g w a
Brazilian	e - n u -	n o m i -		l ĩ - g w ɐ
Portuguese				
Portuguese	e - n u -	n o m i -		l ĩ - g w ɐ
Catalan	a - ɲ - -	n ɔ m - -		
Walloon	ã - - - -	n ɔ̃ - - -		l ẽɥ - - - -
Friulian	a - ɲ - -	n ɔ ɲ - -		l ε n g - ε
Romanian	a n - - -	n u m e -		l i m b - ə

Appendix 4 - Results

Commonly Accepted Romance Tree

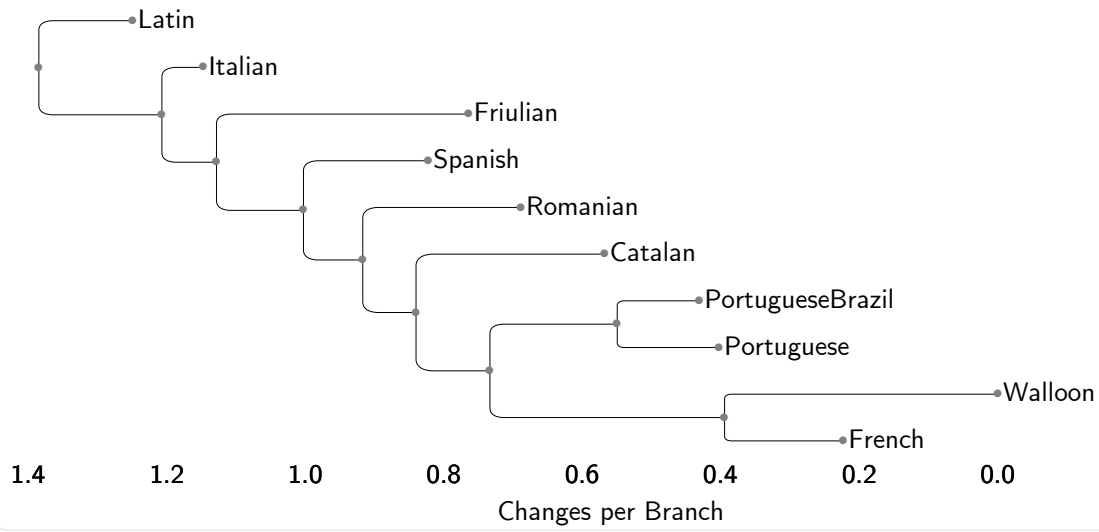


Priors

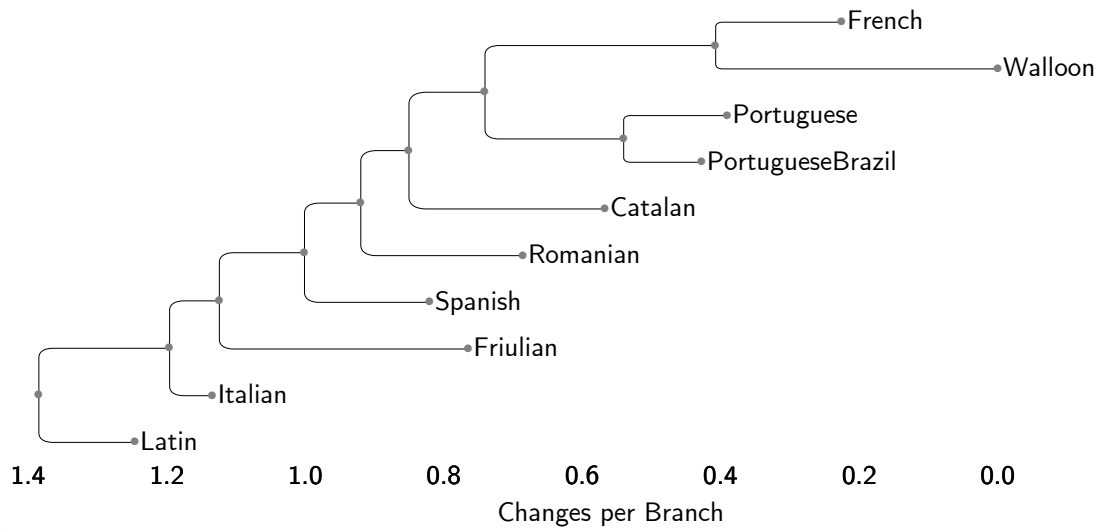


Appendix 4 - Results

Consensus



MAP



Appendix 4 - Results

