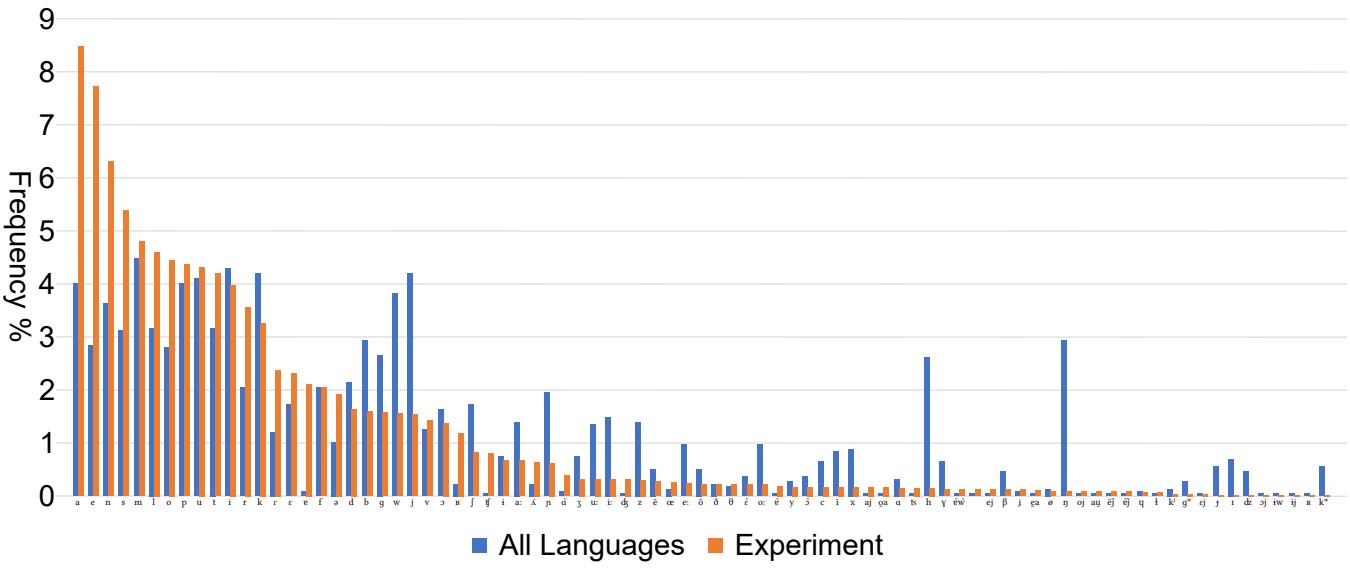


## Appendix 1 - Prior Segment Frequencies



## Appendix 2 - Prior Frequencies

## Appendix 2 - Prior Frequencies

---

$\xi a \rightarrow \oe$

Star.Primary						
-	s	t	-	$\xi a$	-	-
-	s	t	-	$\oe$	l	-

$d \rightarrow i$

Skin.Primary						
k	-	o	d	i	-	$\epsilon$
k	-	oj	i	-	n	-

$f \rightarrow \dʒ$

Rain.Primary						
p	l	$\epsilon$	-	$f$	-	-
p	j	o	d	$\dʒ$	-	a

$f \rightarrow \mathfrak{z}$

Rain.Primary						
p	l	$\epsilon$	-	$f$	-	-
p	l	u	-	$\mathfrak{z}$	-	$\mathfrak{a}$

$r \rightarrow \mathfrak{k}$

Sun.Primary						
s	qa	r	e	-	-	-
s	$\mathfrak{o}$	$\mathfrak{k}$	-	-	-	-

$r \rightarrow j$

Mouth.Gula						
g	u	$r$	$\mathfrak{o}$	-	-	-
g	$\oe$	j	-	-	-	-

$\mathfrak{o} \rightarrow ej$

Sun.Soliculus						
s	$\mathfrak{o}$	l	$\mathfrak{o}$	-	-	-
s	$\mathfrak{o}$	l	$\mathfrak{ej}$	-	-	-

$\mathfrak{o} \rightarrow \mathfrak{oj}$

Leaf.Primary						
f	-	$\mathfrak{o}$	$\Lambda$	$\Lambda$	a	-
f	-	$\mathfrak{oj}$	-	-	-	-

$i \rightarrow e:$

Hair.Primary						
p	-	$i$	l	u	-	-
p	-	e:	l	-	-	-

$i \rightarrow i:$

River.Rivus						
r	$i$	-	w	-	-	-
r	i:	w	u	s	-	-

$i \rightarrow a:$

Hand.Primary						
m	$i$	n	$\mathfrak{o}$	-	-	-
m	a:	n	o	-	-	-

## Appendix 2 - Prior Frequencies

---

*i* → o

Tree.Primary						
a	r	v	u	r	i	-
a	l	b	e	r	o	-

k → k<sup>w</sup>

Water.Primary						
a	k	k	w	a		
a	-	k <sup>w</sup>	-	a		

k → ʃ

Leg.Gamba						
k	a	m	b	ə		
j	a	m	b	e		

i → ɔ̃

Blood.Primary						
s	i	n	dʒ	-	e	-
s	ɔ̃	-	g	-	-	-

k → g<sup>w</sup>

Blood.Primary						
s	a	n	k	-	-	-
s	a	n	g <sup>w</sup>	-	i	n

i → aj

Snow.Primary						
n	-	ɛ	v	i	-	-
n	-	i	v	aj	-	-

i → y

River.Rivus						
r	i	-	w	-		
ṛ	y	-	-	-		

i → m

Rope.Restis						
ṛ	-	e	f	t	i	-
r	e	s	t	e	m	

k → ts

Husband.Socius						
s	o	k	i	u	s	
s	o	ts	-	-	-	-

œ → i:

Liver.Primary						
f	-	œ	-	-	t	-
f	-	i:	k	a:	t	u

k → h

Bird.Aucellum						
-	au	k	-	e	l	l
-	u	h	-	ɛ	-	-

## Appendix 2 - Prior Frequencies

---

$k \rightarrow z$

Bird.Aucellum							
-	au	k	-	e	l	l	u s
w	a	z	-	o	-	-	-

$k \rightarrow ʒ$

Leg.Gamba				
k	a	m	b	ə
ʒ	ã	-	b	-

$œ \rightarrow \emptyset$

Fire.Focus					
f	-	œ	-	-	-
f	-	ø	-	-	-

$œ \rightarrow a$

Liver.Primary						
f	-	œ	-	-	t	-
f	w	a	-	-	-	-

$œ \rightarrow ɛa$

Star.Primary						
-	s	t	-	œ	-	l
-	s	t	-	ɛa	-	-

$œ \rightarrow ɔj$

Leaf.Primary					
f	-	œ	j	-	-
f	-	ɔj	-	-	-

$ə \rightarrow ɪ$

Guts.Primary							
ə	n	t	-	r	a	n	-
ɪ	-	t	-	r	ɛ	n	-

$k \rightarrow n$

Knee.Genuculum							
dʒ	-	i	n	ɔ	k	k	-
dʒ	-	e	n	u	n	kj	-

$ə \rightarrow ɛ$

Guts.Primary							
ə	n	t	-	r	a	n	-
ɛ	-	t	-	r	v	n	-

$ə \rightarrow i:$

Root.Radicina							
r	ə	d	ə	f	i	n	ə
r	a:	d	i:	k	i:	n	a

$ʒ \rightarrow b$

Rain.Primary						
p	l	u	-	ʒ	-	ə
j	-	u	-	b	j	a

## Appendix 2 - Prior Frequencies

---

$\mathfrak{z} \rightarrow f$

Rain.Primary							
p	l	u	-	$\mathfrak{z}$	-	ə	
p	l	ɛ	-	f	-		

$\mathfrak{z} \rightarrow k$

Leg.Gamba							
$\mathfrak{z}$	ã	-	b	-			
k	a	m	b	ə			

$\mathfrak{z} \rightarrow w$

Rain.Primary							
p	l	u	-	$\mathfrak{z}$	-	ə	
p	l	u	-	w	i	a	

$\mathfrak{i} \rightarrow i:$

Road.Camminus							
k	a	-	m	$\mathfrak{i}$	j	u	-
k	a	m	m	i:	n	u	m

$\mathfrak{i} \rightarrow \tilde{e}$

Guts.Primary							
$\mathfrak{i}$	-	t	-	r	$\tilde{e}$	j	-
ẽ	-	t	-	r	e	j	-

$\mathfrak{i} \rightarrow \mathfrak{o}$

Guts.Primary							
$\mathfrak{i}$	-	t	-	r	$\tilde{e}$	j	-
ə	n	t	-	r	a	j	-

$\mathfrak{i} \rightarrow n$

Road.Camminus							
k	a	-	m	$\mathfrak{i}$	j	u	-
c	a	m	i	n	-	-	-

$\mathfrak{f} \rightarrow h$

Bird.Aucellum							
-	u	$\mathfrak{f}$	j	ɛ	-	l	-
-	u	h	-	ɛ	-	-	-

$\mathfrak{s} \rightarrow i$

Blood.Primary							
s	$\mathfrak{s}$	-	g	-	-	-	-
s	i	n	dʒ	-	e	-	-

$\mathfrak{f} \rightarrow z$

Bird.Aucellum							
-	u	$\mathfrak{f}$	j	ɛ	-	l	-
w	a	z	-	o	-	-	-

$\mathfrak{f} \rightarrow j$

Bird.Aucellum							
-	u	t	$\mathfrak{f}$	ɛ	l	l	o
-	u	f	j	ɛ	-	l	-

## Appendix 2 - Prior Frequencies

---

$\emptyset \rightarrow e$

**Rope.Restis**

ø	-	ɛ	ʃ	ɸ	i
r	e	s	t	ɛ	m

$f \rightarrow ts$

**Belly.Pantex**

p	a	j	f	-	-	ə	-
p	a	n	ts	-	-	e	-

$f \rightarrow dʒ$

**Hair.Capillus**

ʃ	ə	v	ø	-	-	-	-
dʒ	-	v	ɛ	-	-	-	-

$ɛj \rightarrow e:$

**Cloud.Primary**

n	u	v	ɛj	-
n	u:	b	e:	s

$ɛj \rightarrow i$

**Fog.Primary**

k	e	l	i	z	ɛj	-	-	-
k	a:	l	i:	g	i	n	e	m

$ø \rightarrow R$

**Ear.Primary**

o	ø	ej	-	-	-	-
ɔ	R	ej	-	-	-	-

$ɛj \rightarrow e:$

**Cloud.Primary**

n	u	v	ɛj	-
n	u:	b	e:	s

$g \rightarrow j$

**Ice.Primary**

g	e	l	u:
j	e	l	o

$g \rightarrow p$

**Knee.Genuculum**

g	-	e	n	i	-	k	u	l	u	m
jn	-	-	jn	ɔ	-	-	-	-	-	-

$b \rightarrow g^w$

**Tongue.Primary**

l	i	m	b	-	ə
l	i	n	g <sup>w</sup>	-	a

$b \rightarrow dʒ$

**Rain.Primary**

j	-	u	-	b	dʒ	j	a
p	j	o	d	dʒ	-	-	a

## Appendix 2 - Prior Frequencies

---

b → ʒ

Rain.Primary									
j	-	u	-	ʒ	b	j	a		
p	l	u	-	ʒ	-	ə			

b → n

Name.Nominem									
n	o	m	-	ʒ	b	r	e	-	
n	o:	m	i	ʒ	n	-	e	m	

d → dz

Leaf.Frondea									
f	r	o	n	ʒ	d	e	a		
f	r	o	n	ʒ	dz	-	a		

d → x

Day.Diurnata									
d	i	u	r	n	a:	t	a		
x	-	o	r	n	a	d	a		

ə → ə̃

Guts.Primary									
ə	n	t	-	r	a	jn	-	ə	
ə̃	-	t	-	ɹ	a	-	j	-	

aj → i:

Sky.Primary									
k	-	aj	l	u	m				
ɸ	-	i:	l	-	-				

t → y

Lake.Primary									
l	a:	t	-	-	-				
l	a	y	u	-	-				

aj → i

Snow.Primary									
n	-	i	v	aj	-				
n	-	ɛ	v	ɪ	-				

oj → a

Skin.Primary									
k	-	oj	i	-	n	-	-	-	-
k	w	a	-	-	-	-	n	-	-

j → i:

River.Riparia									
z	i	v	ʒ	j	e	z	-	-	-
r	i	v	ɪ:	-	r	-	-	-	-

w → dʒ

Rain.Primary									
p	l	u	-	w	i	a			
p	j	o	d	dʒ	-	a			

## Appendix 2 - Prior Frequencies

---

$\varepsilon j \rightarrow e$ :

Ear.Primary									
ɔ	r	<b>ɛj</b>	-	-	-	-	-	-	-
o	r	<b>ɛ:</b>	-	-	-	l	e		

$w \rightarrow ʒ$

Rain.Primary									
p	l	u	-	<b>w</b>	i	a			
p	l	u	-	<b>ʒ</b>	-	ə			

$\varepsilon j \rightarrow \varepsilon$

Ear.Primary									
ɔ	r	<b>ɛj</b>	-	-	-	-	-	-	-
u	r	<b>ɛ</b>	-	-	-	ʌ	ə		

$\varepsilon j \rightarrow ɔ$

Sun.Soliculus									
s	ɔ	l	<b>ɛj</b>	-	-	-	-	-	-
s	ɔ	l	<b>ɔ</b>	-	-	-	-	-	-

$\varepsilon j \rightarrow ej$

Ear.Primary									
ɔ	r	<b>ɛj</b>	-	-	-	-	-	-	-
o	r	<b>ɛj</b>	-	-	-	ʌ	e		

$\varepsilon j \rightarrow ej$

Ear.Primary									
ɔ	r	<b>ɛj</b>	-	-	-	-	-	-	-
o	r	<b>ɛj</b>	-	-	-	-	-	-	-

$r \rightarrow ɿ$

Ice.Primary									
dʒ	e	<b>r</b>	-	-	-	-	-	-	-
ʒ	ɛ	<b>ɿ</b>	-	-	-	-	-	-	-

$r \rightarrow s$

Back.Primary									
d	-	o	<b>r</b>	s	u	m			
d	-	ɔ	<b>s</b>	s	o	-			

$ɔj \rightarrow e$

Leaf.Primary									
f	-	<b>ɔj</b>	-	-	-	-	-	-	-
f	w	<b>e</b>	-	-	-	-	e		

$ɔj \rightarrow u$

Leaf.Primary									
f	-	<b>ɔj</b>	-	-	-	-	-	-	-
f	-	<b>u</b>	ʌ	ʌ	-	ə			

$r \rightarrow j$

Fog.Nebula									
n	-	e	-	g	u	<b>r</b>	ə		
n	-	e	b	b	-	j	a		

## Appendix 2 - Prior Frequencies

---

$\circ j \rightarrow \circ$

Leaf.Primary						
f	-	$\circ j$	-	-	-	-
f	-	$\circ$	k	k	a	

$\circ j \rightarrow \infty$

Leaf.Primary						
f	-	$\circ j$	-	-	-	-
f	-	$\infty$	j	-	-	

$\circ j \rightarrow \circ a$

Leaf.Primary						
f	-	$\circ j$	-	-	-	-
f	-	$\circ a$	-	j	e	

$\circ w \rightarrow i$

Seed.Granum						
g	r	$\circ w$	-	-	-	-
g	r	i	n	-	-	

$\circ w \rightarrow a:$

Seed.Granum						
g	r	$\circ w$	-	-	-	-
g	r	a:	n	u	m	

$\circ w \rightarrow \epsilon$

Seed.Granum						
g	r	$\circ w$	-	-	-	-
g	v	$\epsilon$	n	-	-	

l → o

Eye.Primary						
-	o	-	k	u	l	u
-	o	-	x	-	o	-

n → i:

Road.Camminus						
c	a	m	i	n	-	-
k	a	m	m	i:	n	u

n → ī

Road.Camminus						
c	a	m	i	n	-	-
k	a	-	m	ī	p	u

p → g

Knee.Genuculum						
p	-	-	p	ɔ	-	-
g	-	e	n	i	-	k

n → k

Knee.Genuculum						
dʒ	-	e	n	u	n	k <sup>j</sup>
dʒ	-	i	n	ɔ	k	k

## Appendix 2 - Prior Frequencies

---

$n \rightarrow b$

Name.Nominem								
n	o:	m	i	n	-	e	m	
n	o	m	-	b	t	e	-	

$m \rightarrow e$

Rope.Restis								
r	e	s	t	e	m			
r	j	e	s	t	e			

$j \rightarrow o$

Eye.Primary								
-	ɔ	k	k	-	j	o	-	-
-	o	-	x	-	o	-	-	-

$j \rightarrow r$

Fog.Nebula								
n	-	e	b	b	-	j	a	
n	-	e	-	g	u	r	ə	

$au \rightarrow a$

Bird.Aucellum								
-	au	k	-	e	l	l	u	s
w	a	z	-	o	-	-	-	-

$\hat{e}a \rightarrow aj$

Fog.Caecia								
f	ea	f	-	ə				
k	aj	k	i	a				

$aj \rightarrow \hat{e}a$

Fog.Caecia								
k	aj	k	i	a				
f	ea	f	-	ə				

$y \rightarrow i:$

River.Rivus								
β	y	-	-	-				
r	i:	w	u	s				

$t \rightarrow h$

Bird.Aucellum								
-	u	t	ɸ	ɛ	l	l	o	-
-	u	h	-	ɛ	-	-	-	-

$t \rightarrow c$

Night.Primary								
n	-	ɔ	t	t	e	-		
n	-	o	c	t	e	m		

$y \rightarrow \emptyset$

Moon.Primary								
l	y	n	-					
l	ø	n	-					

## Appendix 2 - Prior Frequencies

---

$y \rightarrow i$

River.Rivus					
b	y	-	-	-	-
r	i	-	w	-	-

$y \rightarrow \emptyset$

Night.Primary					
n	-	y	-	t	-
n	-	qa	p	t	e

$t \rightarrow \emptyset$

Skin.Primary					
k	-	o	t	e	n
k	-	o	dʒ	i	-

$y \rightarrow \emptyset$

Fruit.Primary					
f	r	y	-	-	t
f	b	q	i	-	-

$\emptyset \rightarrow e$

Leaf.Primary					
f	-	qa	-	j	e
f	w	e	-	-	e

$t \rightarrow i$

Skin.Primary					
k	-	o	t	e	n
k	-	oj	i	-	n

$p \rightarrow k^w$

Water.Primary					
a	-	p	-	ə	
a	-	k <sup>w</sup>	-	a	

$\emptyset \rightarrow \emptyset$

Tail.Primary					
c	qa	d	ə		
k	ø	-	-		

$z \rightarrow x$

Day.Diurnata					
z	-	u	ɔ	n	e
x	-	o	r	n	a

$\emptyset \rightarrow y$

Night.Primary					
n	-	qa	p	t	e
n	-	y	-	t	-

$\emptyset \rightarrow ɔj$

Leaf.Primary					
f	-	qa	-	j	e
f	-	ɔj	-	-	-

## Appendix 2 - Prior Frequencies

---

øa → ɥ

Rain.Primary									
p	l	øa	-	-	j	e	-	-	-
p	l	ɥ	-	-	i	-	-	-	-

a → i:

Liver.Primary									
f	w	a	-	-	-	-	-	-	-
f	-	i:	k	a:	t	u	m	-	-

p → u

Stone.Lapidem									
l	a	p	i	d	e	m	-	-	-
l	a	u	-	d	e	-	-	-	-

a → ε

Meat.Primary									
ʃ	a	r	-	-	-	-	-	-	-
ʃ	ɛ	z	-	-	-	-	-	-	-

a → œ

Liver.Primary									
f	w	a	-	-	-	-	-	-	-
f	-	œ	-	-	-	t	-	-	-

s → r

Back.Primary									
d	-	ɔ	s	s	s	o	-	-	-
d	-	o	r	s	u	m	-	-	-

ej → ẽ

Breast.Primary									
s	ej	-	u	-	-	-	-	-	-
s	ẽ	-	-	-	-	-	-	-	-

ej → εj

Ear.Primary									
o	r	ej	-	-	-	-	Y	a	-
ɔ	R	ɛj	-	-	-	-	-	-	-

ej → ẽ

Breast.Primary									
s	ej	-	u	-	-	-	-	-	-
s	ẽ	-	-	-	-	-	-	-	-

ej → εj

Ear.Primary									
o	z	ej	-	-	-	-	-	-	-
ɔ	R	ɛj	-	-	-	-	-	-	-

j → ʃ

Bird.Aucellum									
-	u	ʃ	j	ɛ	-	l	-	-	-
-	u	t	ʃ	ɛ	l	l	o	-	-

## Appendix 2 - Prior Frequencies

j → f

<b>Mouth.Gula</b>
g œ j — g u f ə

$$p \rightarrow c$$

Night.Primary						
n	-	oa	p	t	e	-
n	-	o	c	t	e	m

$$\tilde{\epsilon} \rightarrow a$$

Hand.Primary				
m	$\tilde{\varepsilon}$	-	-	-
m	a:	n	o	-

$\tilde{c} \rightarrow \tilde{d}$

## Blood.Primary

$d_3 \rightarrow i$

Skin.Primary							a
k	-	o	dʒ	i	-	-	a
k	-	oj	i	-	n	-	-

i → d<sub>j</sub>

Skin.Primary							
k	-	oj	i	-	n	-	-
k	-	o	dʒ	i	-	-	a

$\dot{\mathbf{i}} \rightarrow \tilde{\mathbf{i}}$

**Road.Camminus**

k	a	m	m	i:	n	u	m
k	a	-	m	ĩ	n	u	-

i: → e

## Root.Radicina

$\dot{\mathbf{i}} \rightarrow \dot{\mathbf{i}}$

River.Rivus
r i: w u s
r ɪ - w -

i → oe

<b>Liver.Primary</b>
f - i: k a: t u m
f - œ - - t - -

j → aj

## Sky.Primary

## Appendix 2 - Prior Frequencies

---

i: → y

River.Rivus					
r	i:	w	u	s	
ꝝ	y	-	-	-	

i: → a

Liver.Primary					
f	-	i:	k	a:	t
f	w	a	-	-	-

i: → n

Road.Camminus					
k	a	m	m	i:	n
c	a	m	i	n	-

i: → j

River.Riparia					
r	i	v	i:	-	r
ꝝ	i	v	j	e	ꝝ

j → g

Ice.Primary					
j	e	l	o		
g	e	l	u:		

y → t

Lake.Primary					
l	a	y	u	-	
l	a:	t	-	-	

a → au̇

Bird.Aucellum					
w	a	z	-	o	-
-	au̇	k	-	e	l
				l	u
				s	

a → oj

Skin.Primary					
k	w	a	-	-	n
k	-	oj	i	-	n

ts → θ

Belly.Pantex					
p	a	n	ts	-	e
p	a	n	θ	-	a

ȝ → j

Leg.Gamba					
ȝ	ā	-	b	-	
j	a	m	b	e	

a: → i

Seed.Granum					
g	r	a:	n	u	m
g	r	i	n	-	-

## Appendix 2 - Prior Frequencies

---

a: → ē

Hand.Primary					
m	a:	n	o	-	
m	ē	-	-	-	

a: → ɛ

Hand.Primary					
m	a:	n	o	-	
m	ɛ	-	-	-	

ts → k

**Husband.Socius**

s	o	ts	-	-	-
s	o	k	i	u	s

h → z

**Bird.Aucellum**

-	u	h	-	ɛ	-	-	-	-	-
w	a	z	-	o	-	-	-	-	-

h → tʃ

**Bird.Aucellum**

-	u	h	-	ɛ	-	-	-	-	-
-	u	tʃ	j	ɛ	-	l	-	-	-

h → k

**Bird.Aucellum**

-	u	h	-	ɛ	-	-	-	-	-
-	au	k	-	e	l	l	u	s	

a: → i

**Hand.Primary**

m	a:	n	o	-
m	i	n	ə	-

h → t

**Bird.Aucellum**

-	u	h	-	ɛ	-	-	-	-	-
-	u	t	tʃ	ɛ	l	l	o	-	-
-	-	-	-	-	-	-	-	-	-

a: → iw

**Seed.Granum**

g	r	a:	n	u	m
g	r	iw	-	-	-

c → dʒ

**Hair.Capillus**

c	a	v	e	l	-	-	-	-	-
dʒ	-	v	ɛ	-	-	-	-	-	-

i → d

**Skin.Primary**

k	-	oj	i	-	n	-	-	-	-
k	-	o	d	i	-	-	-	-	a

## Appendix 2 - Prior Frequencies

---

i → t

Skin.Primary							
k	-	oj	i	-	n	-	-
k	-	o	t	e	n	n	a

t → r

Ice.Primary				
z	ɛ	t	-	-
dʒ	e	r	-	-

i → iw

Seed.Granum					
g	r	i	n	-	-
g	r	iw	-	-	-

e → o:

Egg.Primary				
w	e	b	o	-
-	o:	w	u	m

k<sup>w</sup> → k

Water.Primary				
a	-	k <sup>w</sup>	-	a
a	k	k	w	a

e → əa

Leaf.Primary				
f	w	e	-	e
f	-	əa	-	e

k<sup>w</sup> → p

Water.Primary				
a	-	k <sup>w</sup>	-	a
a	-	p	-	ə

e → ɔj

Leaf.Primary				
f	w	e	-	e
f	-	ɔj	-	-

e → m

Rope.Restis						
r	j	e	s	t	e	
r	e	s	t	e	m	

f → dʒ

Leg.Gamba				
f	a	m	b	e
dʒ	ã	-	p	-

f → ʒ

Leg.Gamba				
f	a	m	b	e
ʒ	ã	-	b	-

## Appendix 2 - Prior Frequencies

---

$\text{ʃ} \rightarrow \text{k}$

Leg.Gamba					
$\text{ʃ}$	a	m	b	e	
k	a	m	b	$\vartheta$	

$\text{e} \rightarrow \text{ɛf}$

Rope.Restis					
r	e	s	t	$\text{ɛf}$	m
$\text{v}$	-	$\varepsilon$	$\text{f}$	$\text{f}$	i

$\text{dʒ} \rightarrow \text{z}$

Leaf.Frondea					
f	r	o	n	$\text{dʒ}$	-
f	r	u	n	$\text{z}$	$\vartheta$

$\text{e:} \rightarrow \tilde{\text{e}}$

Cloud.Primary					
n	u:	b	$\text{e:}$	s	
n	u	v	$\tilde{\text{e}}$	-	

$\text{e:} \rightarrow \tilde{\text{e}}$

Cloud.Primary					
n	u:	b	$\text{e:}$	s	
n	u	v	$\tilde{\text{e}}$	-	

$\text{u} \rightarrow \text{oj}$

Leaf.Primary					
f	-	u	$\text{ʌ}$	-	$\vartheta$
f	-	$\text{ɔj}$	-	-	-

$\text{dʒ} \rightarrow \text{d}$

Leaf.Frondea					
f	r	o	n	$\text{dʒ}$	-
f	r	o	n	d	e

$\text{R} \rightarrow \text{v}$

Ear.Primary					
$\text{o}$	R	$\text{ɛj}$	-	-	-
$\text{o}$	v	$\text{ɛj}$	-	-	-

$\text{g}^w \rightarrow \text{dʒ}$

Blood.Primary					
s	a	n	$\text{g}^w$	-	i
s	i	n	$\text{dʒ}$	e	-

$\text{e:} \rightarrow \text{ɛj}$

Ear.Primary					
$\text{o}$	r	$\text{ɛ:}$	-	-	l
$\text{o}$	R	$\text{ɛj}$	-	-	e

$\text{i} \rightarrow \text{a:}$

Seed.Granum					
g	r	i	n	-	-
g	r	a:	n	u	m

## Appendix 2 - Prior Frequencies

---

i → ø

Hair.Capillus									
k	a	p	i	l	l	u	s		
ʃ	ə	v	ø	-	-	-	-		

gʷ → b

Tongue.Primary									
l	i	n	gʷ	-	a				
l	i	m	b	-	ə				

i → ẽ

Fog.Primary									
k	a:	l	i:	g	i	n	e	m	
k	ɛ	l	i	z	ẽ	-	-	-	

gʷ → k

Blood.Primary									
s	a	n	gʷ	-	i	n	e	m	
s	a	n	k	-	-	-	-	-	

q → qa

Rain.Primary									
p	l	q	-	-	i	-			
p	l	qa	-	-	j	e			

q → y

Fruit.Primary									
f	z	q	i	-	-	-	-	-	
f	r	y	-	-	t	-	-	-	

q → ε

Rain.Primary									
p	l	q	-	-	i	-			
p	l	ε	-	-	f	-	-	-	

q → u:

Fruit.Primary									
f	z	q	i	-	-	-	-	-	
f	r	u:	-	k	t	u	s		

ɿ → r

Sun.Primary									
s	ɔ	ɿ	-	-	-	-	-	-	
s	qa	r	e	-					

e: → i

Hair.Primary									
p	-	e:	l	-	-	-	-	-	
p	-	i	l	u	-				

c → t

Night.Primary									
n	-	o	c	t	e	m			
n	-	ɔ	t	t	e	-			

## Appendix 2 - Prior Frequencies

---

$ts \rightarrow \int$

Belly.Pantex									
p	a	n	ts	-	-	e	-		
p	a	n	f	-	-	ə	-		

$u \rightarrow p$

Stone.Lapidem									
l	a	u	u	-	d	e	-		
l	a	p	i	d	e	m			

$dʒ \rightarrow g^w$

Blood.Primary									
s	i	n	dʒ	-	e	-	-	-	-
s	a	n	g <sup>w</sup>	-	i	n	e	m	

$\varepsilon \rightarrow a$

Meat.Primary									
ʃ	ɛ	v	-	-	-	-	-	-	-
tʃ	a	r	-	-	-	-	-	-	-

$\varepsilon \rightarrow \varepsilon̄$

Ear.Primary									
u	r	ɛ	-	-	-	λ	ə	-	-
ɔ	R	ɛj	-	-	-	-	-	-	-

$\varepsilon \rightarrow i_w$

Seed.Granum									
g	v	ɛ	n	-	-	-	-	-	-
g	r	i_w	-	-	-	-	-	-	-

$c \rightarrow p$

Night.Primary									
n	-	o	c	t	e	m	-	-	-
n	-	qa	p	t	e	-	-	-	-

$dʒ \rightarrow c$

Hair.Capillus									
dʒ	-	v	ɛ	-	-	-	-	-	-
c	a	v	e	l	-	-	-	-	-

$\varepsilon \rightarrow ɿ$

Rain.Primary									
p	l	ɛ	-	f	-	-	-	-	-
p	l	ɿ	-	-	-	i	-	-	-

$\emptyset \rightarrow i$

Hair.Capillus									
ʃ	ə	v	ø	-	-	-	-	-	-
k	a	p	i	l	l	u	s	-	-

$dʒ \rightarrow \int$

Hair.Capillus									
dʒ	-	v	ɛ	-	-	-	-	-	-
ʃ	ə	v	ø	-	-	-	-	-	-

## Appendix 2 - Prior Frequencies

---

$\emptyset \rightarrow \infty$

**Fire.Focus**

f	-	<b>ø</b>	-	-	-
f	-	<b>œ</b>	-	-	-

$\emptyset \rightarrow y$

**Moon.Primary**

l	<b>ø</b>	n	-
l	y	n	-

$\emptyset \rightarrow \varrho a$

**Tail.Primary**

k	<b>ø</b>	-	-
c	ø	a	d

$dʒ \rightarrow b$

**Rain.Primary**

p	j	o	d	<b>dʒ</b>	-	a
j	-	u	-	b	j	a

$\tilde{a} \rightarrow \tilde{s}$

**Blood.Primary**

s	<b>ã</b>	-	-	-	-	-	-
s	<b>ɔ̃</b>	-	g	-	-	-	-

$dʒ \rightarrow f$

**Rain.Primary**

p	j	o	d	<b>dʒ</b>	-	a
p	l	ɛ	-	f	-	-

$\tilde{a} \rightarrow \varrho$

**Guts.Primary**

ã	-	t	-	ø	a	-	j	-
ə	n	t	-	r	a	j	-	ə

$dʒ \rightarrow t$

**Skin.Primary**

k	-	o	<b>dʒ</b>	i	-	-	ɛ
k	-	o	<b>t</b>	e	n	n	a

$\tilde{e} \rightarrow a:$

**Hand.Primary**

m	<b>ẽ</b>	-	-	-
m	a:	n	o	-

$\tilde{e} \rightarrow \tilde{i}$

**Guts.Primary**

ẽ	-	t	-	f	ɛ	p	ŋ	-	ɛ
ĩ	-	t	-	f	ɛ	p	ŋ	-	ɛ

$dʒ \rightarrow w$

**Rain.Primary**

p	j	o	d	<b>dʒ</b>	-	a
p	l	u	-	w	i	a

## Appendix 2 - Prior Frequencies

---

$\tilde{e} \rightarrow e$

Guts.Primary									
$\tilde{e}$	-	t	-	r	e	j	-	a	
ə	n	t	-	r	a	j	-	ə	

$\tilde{e} \rightarrow ej$

Breast.Primary				
s	$\tilde{e}$	-	-	-
s	ej	-	u	-

$\tilde{e} \rightarrow ej$

Breast.Primary				
s	$\tilde{e}$	-	-	-
s	ej	-	u	-

$dʒ \rightarrow f$

Leg.Gamba				
dʒ	ã	-	p	-
f	a	m	b	e

$z \rightarrow k$

Bird.Aucellum							
w	a	z	-	o	-	-	-
-	au	k	-	e	l	l	u

$m \rightarrow i$

Rope.Restis					
r	e	s	t	e	m
z	-	e	ʃ	t	i

$\theta \rightarrow ts$

Belly.Pantex					
p	a	n	$\theta$	-	-
p	a	n	ts	-	e

$o \rightarrow i$

Tree.Primary					
a	l	b	e	r	o
a	r	v	u	r	i

$x \rightarrow d$

Day.Diurnata						
x	-	o	r	n	a	d
d	i	u	r	n	a:	t

$z \rightarrow dz$

Leaf.Frondea					
f	r	u	n	$z$	-
f	r	o	n	$dz$	-

$o \rightarrow l$

Eye.Primary						
-	o	-	x	-	o	-
-	o	-	k	u	l	u

## Appendix 2 - Prior Frequencies

---

$x \rightarrow \chi$

Day.Diurnata							
x	-	o	r	n	a	d	a
χ	-	u	υ	n	e	-	-

$u: \rightarrow \psi$

Fruit.Primary							
f	r	u:	-	k	t	u	s
f	υ	ψ	i	-	-	-	-
f	u:	ψ	i	-	-	-	-

$o: \rightarrow u:$

Egg.Primary							
-	o:	w	u	m	-	-	-
-	u:	f	-	-	-	-	-

$u: \rightarrow o:$

Egg.Primary							
-	u:	f	-	-	-	-	-
-	o:	w	u	m	-	-	-

$z \rightarrow h$

Bird.Aucellum							
w	a	z	-	o	-	-	-
w	u	h	-	ɛ	-	-	-

$o: \rightarrow e$

Egg.Primary							
-	o:	w	u	m	-	-	-
w	e	b	o	-	-	-	-

$o \rightarrow j$

Eye.Primary							
-	o	-	x	-	o	-	-
-	ɔ	k	k	-	j	o	-
-	ɔ	k	k	-	j	o	-

$z \rightarrow \chi$

Bird.Aucellum							
w	a	z	-	o	-	-	-
w	u	χ	j	ɛ	-	l	-

$p \rightarrow l$

Animal.Primary				Animal.Primary			
a	l	i	m	a	χ	-	a
a	n	i	m	a	l	i	a

$k^j \rightarrow j$

Eye.Primary				Eye.Primary			
-	o	-	k <sup>j</sup>	-	-	-	-
-	œ	-	j	-	-	-	-

$w \rightarrow n$

Heart.Anima				Heart.Anima			
a	w	-	m	ɛ	a	w	-
a	n	i	m	a	i	n	i

## Appendix 2 - Prior Frequencies

---

$k^j \rightarrow x$

<b>Eye.Primary</b>		<b>Knee.Genuculum</b>	
- o -	$k^j$ -	-	-
- o -	x -	o -	-

$\int \rightarrow j$

<b>Rain.Primary</b>		<b>Rain.Primary</b>	
$\int$ - u - v - e	$\int$ - u - v - e	j - u - b j a	j - u - b j a
j - u - b j a	j - u - b j a		

$\theta \rightarrow z$

<b>Ash.Cinisia</b>		<b>Ash.Cinisia</b>	
$\theta$ e n i $\theta$ a	$\theta$ e n i $\theta$ a	s ī - - z e	s ī - - z e
s ī - - z e	s ī - - z e		

$t \rightarrow p$

<b>Breast.Pectus</b>		<b>Night.Primary</b>	
p - ε $t$ t o -	n - ɔ $t$ t e -	p j e p t - -	n - ɔ a p t e -
p j e p t - -	n - ɔ a p t e -		

$\Lambda \rightarrow o$

<b>Eye.Primary</b>		<b>Eye.Primary</b>	
- o - - - $\Lambda$ u -	- o - - - $\Lambda$ u -	- o - x - o -	- o - x - o -
- o - x - o -	- o - x - o -		

$dʒ \rightarrow v$

<b>Rain.Primary</b>		<b>Rain.Primary</b>	
p j o d $dʒ$ - a	p j o d $dʒ$ - a	ʃ - u - v - e	ʃ - u - v - e
ʃ - u - v - e	ʃ - u - v - e		

$\Lambda \rightarrow t$

<b>Back.Spatula</b>		<b>Back.Spatula</b>	
ə s p a $\Lambda$ - $\Lambda$ ə	ə s p a $\Lambda$ - $\Lambda$ ə	- s p a t u l a	- s p a t - - e
- s p a t u l a	- s p a t - - e		

$k \rightarrow p$

<b>Breast.Pectus</b>		<b>Water.Primary</b>	
p - e k t u s	a k k w a	p j e p t - -	a - p - ə
p j e p t - -	a - p - ə		

$l \rightarrow n$

<b>Animal.Primary</b>		<b>Animal.Primary</b>	
a n i m a l i a	- n e m a: l - -	a l i m a j a	a l i m a j a
a l i m a j a	a l i m a j a		

$\Lambda \rightarrow j$

<b>Hair.Capillus</b>		<b>Neck.Primary</b>	
k ə b ε - $\Lambda$ - -	k - ɔ - $\Lambda$ - -	k a b e - j o -	k w e - j o -
k a b e - j o -	k w e - j o -		

$l \rightarrow i$

<b>Louse.Primary</b>		<b>Eye.Primary</b>	
p - e d u - k l u s	- o - k u l u s	p - e d o: - l i -	v o - - l i -
p - e d o: - l i -	v o - - l i -		

## Appendix 2 - Prior Frequencies

---

$\eta \rightarrow m$

Tongue.Primary	
l e <b>η</b> g w a	λ ε <b>η</b> g w ə
l i m b - ə	l i m b - ə

$x \rightarrow dʒ$

Day.Diurnata	
x - o r n a d a	x - o r n a d a
dʒ - o r n a t a	dʒ - o r n a d e

$ʒ \rightarrow v$

Rain.Primary	
p l u - ʒ - ə	p l u - ʒ - ə
ʃ - u - v - ə	ʃ - u - v - ə

$x \rightarrow k^j$

Eye.Primary	
- o - x - o - -	- i n o - x o - - -
- o - k <sup>j</sup> - - - -	dʒ - e n u n k <sup>j</sup> - - - -

$ʒ \rightarrow j$

Ice.Primary	
ʒ ε 1 -	ʒ ε ɿ -
j e 1 o	j e 1 o

$dz \rightarrow s$

Leaf.Frondea	
f r o n dz - a	f r o n dz - a
f r ð - s - ə	f r ð - s - ə

$w \rightarrow ɿ$

Forest.Primary	
s ε w v a	s ɔ w - -
s ε ɿ v ə	s ɔ ɿ - -

$z \rightarrow θ$

Ash.Cinisia	
s ī - - z a	s ī - - z a
θ e n i θ a	θ e n i θ a

$t \rightarrow λ$

Back.Spatula	
- s p a t u l a	- s p a t - - e
ə s p a λ - λ ə	ə s p a λ - λ ə

$d \rightarrow s$

Leaf.Frondea	
f r o n d e a	f r o n d e a
f r ð - s - a	f r ð - s - a

$z \rightarrow t$

Bird.Aucellum	
w a z - o - - -	p i e - z - -
- u t f ε 1 1 o -	p - i: - t - -

## Appendix 2 - Prior Frequencies

---

$j \rightarrow \int$

Rain.Primary					Rain.Primary				
j	-	u	-	b	j	a	j	-	u
ʃ	-	u	-	v	-	e	ʃ	-	u

$p \rightarrow \gamma$

Water.Primary					Water.Primary				
a	-	p	-	ə	a	-	p	-	ə
a	-	γ	w	a	aj	-	γ	w	ə

$z \rightarrow \int$

Ash.Cinisia					Ash.Cinisia				
s	ĩ	-	-	z	ə	s	ĩ	-	z
tʃ	e	n	u	ʃ	ə	tʃ	e	n	u

$dʒ \rightarrow j$

Ice.Primary					Ice.Primary				
dʒ	ɛ	l	o		dʒ	e	r	-	
j	e	l	o		j	e	l	o	

$p \rightarrow k$

Breast.Pectus					Water.Primary				
p	j	e	p	t	-	-	a	-	p
p	-	e	k	t	u	s	a	k	k

$γ \rightarrow k^w$

Water.Primary					Water.Primary				
a	-	γ	w	a	aj	-	γ	w	ə
a	-	k <sup>w</sup>	-	a	a	-	k <sup>w</sup>	-	a

$γ \rightarrow dʒ$

Liver.Primary					Liver.Primary				
-	-	i	γ	a	ð	o	-	f	-
f	-	e	dʒ	ə	-	-	-	f	-

$p \rightarrow t$

Breast.Pectus					Night.Primary				
p	j	e	p	t	-	-	n	-	ə
p	-	ɛ	t	t	o	-	n	-	ɔ

$t \rightarrow z$

Bird.Aucellum					Foot.Primary				
-	u	t	tʃ	ɛ	l	l	o	-	-
w	a	z	-	o	-	-	-	p	-

$j \rightarrow ʌ$

Hair.Capillus					Neck.Primary				
k	a	b	e	-	j	o	-	k	w
k	ə	b	ɛ	-	ʌ	-	-	k	ɔ

$g \rightarrow v$

Fog.Nebula					Fog.Nebula				
n	-	e	-	g	u	r	ə	n	-
n	-	ɛ	-	v	w	-	e	n	-

## Appendix 2 - Prior Frequencies

---

$\int \rightarrow z$

Ash.Cinisia	
f e n u $\int$ ə	$\int$ e n u $\int$ ə
s ī - - z v	s ī - - z v

$s \rightarrow dz$

Leaf.Frondea	
f r õ - s - v	f r õ - s - v
f r o n dz - a	f r o n dz - a

$j \rightarrow ʒ$

Ice.Primary	
j e l o	j e l o
ʒ ε l -	ʒ ε ɿ -

$dʒ \rightarrow v$

Liver.Primary	
f - e dʒ ə - - -	f - e dʒ ə - - -
- - i y a ð o -	f - i y a ð u -

$s \rightarrow ε$

Rope.Restis	
r e s t e m	r e s t e m
r - ε s t a	ʁ - ε ſ t i

$j \rightarrow dʒ$

Ice.Primary	
j e l o	j e l o
dʒ ε l o	dʒ e r -

$s \rightarrow i$

Rope.Restis	
r e s t e m	k a v e t t s a
r - i s t a	k a p i - t i a

$s \rightarrow e$

Rope.Restis	
r e s t e m	r e s t e m
ʁ - e ſ t i	r j e s t e

$y \rightarrow p$

Water.Primary	
a - y w a	aj - y w ə
a - p - ə	a - p - ə

$ɿ \rightarrow w$

Forest.Primary	
s ε ɿ v e	s o ɿ - -
s ε w v a	s o w - -

$j \rightarrow k^j$

Eye.Primary	
- œ - j - - - -	- u - j - - - -
- o - k <sup>j</sup> - - - -	- o - k <sup>j</sup> - - - -

## Appendix 2 - Prior Frequencies

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v → ʒ

Rain.Primary				Rain.Primary			
ʃ	-	u	-	v	-	-	a
p	l	u	-	ʒ	-	-	ə

v → dʒ

Rain.Primary				Rain.Primary			
ʃ	-	u	-	v	-	-	a
p	j	o	d	dʒ	-	-	a

ɥ → o

Rain.Primary				Rain.Primary			
p	l	ɥ	-	-	i	-	-
p	j	o	d	dʒ	-	-	e

dʒ → x

Day.Diurnata				Day.Diurnata			
dʒ	-	o	r	n	a	t	a
x	-	o	r	n	a	d	a

s → d

Leaf.Frondea				Leaf.Frondea			
f	r	ð	-	s	-	v	a
f	r	o	n	d	e	a	a

v → g

Fog.Nebula				Fog.Nebula			
n	-	ɛ	-	v	w	-	ə
n	-	e	-	g	u	r	ə

e → u:

Egg.Primary				Fire.Focus			
w	e	b	o	-	f	w	ɛ
-	u:	f	-	-	f	-	u:

m → a

Rope.Restis				Rope.Restis			
r	e	s	t	e	m	r	e
r	-	i	s	t	a	r	-

ẽ → ẽw̐

Hand.Primary				Hand.Primary			
m	ẽ	-	-	m	ẽ	-	-
m	ẽw̐	-	-	m	ẽw̐	-	-

ɛ → i:

Road.Camminus				Road.Camminus			
ʃ	ə	-	m	ɛ̄	-	-	-
k	a	m	m	i:	n	u	m

ẽ → i

Hand.Primary				Wind.Primary			
m	ɛ̄	-	-	v	-	ɛ̄	-
m	i	n	ə	v	-	i	n

## Appendix 2 - Prior Frequencies

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$\tilde{\epsilon} \rightarrow ij$

Dog.Primary				Dog.Primary			
f	j	$\tilde{\epsilon}$	-	-	-	-	-
k	-	ij	n	e	-	-	-

$\tilde{\epsilon} \rightarrow n$

Road.Camminus				Road.Camminus			
f	ə	-	m	$\tilde{\epsilon}$	-	-	-
c	a	m	i	n	-	-	-

$\tilde{e} \rightarrow \tilde{o}$

Blood.Primary				Blood.Primary			
s	$\tilde{e}$	-	g	-	i	-	-
s	$\tilde{o}$	-	g	-	-	-	-

$\tilde{o} \rightarrow \tilde{e}$

Blood.Primary				Blood.Primary			
s	$\tilde{o}$	-	g	-	-	-	-
s	$\tilde{e}$	-	g	-	i	-	-

$\tilde{ew} \rightarrow i$

Seed.Granum				Seed.Granum			
g	r	$\tilde{ew}$	-	-	-	-	-
g	r	i	n	-	-	-	-

$\tilde{ew} \rightarrow \varepsilon$

Seed.Granum				Seed.Granum			
g	r	$\tilde{ew}$	-	-	-	-	-
g	✉	$\varepsilon$	n	-	-	-	-

$\tilde{ew} \rightarrow \tilde{e}$

Hand.Primary				Hand.Primary			
m	$\tilde{ew}$	-	-	-	-	-	-
m	ẽ	-	-	-	-	-	-

$\tilde{ew} \rightarrow i$

Hand.Primary				Hand.Primary			
m	$\tilde{ew}$	-	-	-	-	-	-
m	i	n	ə	-	m	i	n

$m \rightarrow \eta$

Tongue.Primary				Tongue.Primary			
l	i	m	b	-	ə	l	i
l	e	ŋ	g	w	a	ʌ	ɛ

$\tilde{ew} \rightarrow iw$

Seed.Granum				Seed.Granum			
g	r	$\tilde{ew}$	-	-	-	-	-
g	r	iw	-	-	-	-	-

## Appendix 2 - Prior Frequencies

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$\tilde{e}j \rightarrow a:$

<b>Mother.Primary</b>		<b>Mother.Primary</b>	
m	<b>ej</b>	-	-
m	a:	t	e
m	r	r	m

$\tilde{e}j \rightarrow \tilde{e}j$

<b>Cloud.Primary</b>		<b>Fog.Primary</b>	
n	u	v	<b>ej</b>
n	u	v	<b>ej</b>
k	a	l	i
z	ej	-	-
3	ej	-	-

$\tilde{e}j \rightarrow e$

<b>Cloud.Primary</b>		<b>Cloud.Primary</b>	
n	u	v	<b>ej</b>
n	u	b	e
n	u	b	e
k	a	l	i
z	ej	-	-

$\tilde{e}j \rightarrow \tilde{e}j$

<b>Cloud.Primary</b>		<b>Fog.Primary</b>	
n	u	v	<b>ej</b>
n	u	v	<b>ej</b>
k	a	l	i
z	ej	-	-
3	ej	-	-
k	a	l	i
z	ej	-	-

$a \rightarrow e:$

<b>Day.Primary</b>		<b>Day.Primary</b>	
d	i	<b>a</b>	-
d	i	e:	s
d	i	<b>a</b>	-
d	i	e:	s

$a \rightarrow u$

<b>Fruit.Primary</b>		<b>Fruit.Primary</b>	
f	r	u	-
f	r	u:	-
t	<b>a</b>	-	-
t	k	t	u
s	u	s	s

$a \rightarrow a$

<b>Sand.Primary</b>		<b>Sand.Primary</b>	
-	a	r	-
a	r	e:	n
e:	n	a	a
-	a	r	-
a	r	e:	n
e:	n	a	a

$\theta \rightarrow e:$

<b>Hair.Primary</b>		<b>Day.Primary</b>	
p	-	<b>θ</b>	r
p	-	e:	l
d	i	<b>θ</b>	-
d	i	e:	s

$\theta \rightarrow a$

<b>Sand.Primary</b>		<b>Sand.Primary</b>	
-	ə	r	e:n
ə	r	e:	n
-	a	r	i:n
ə	a	r	e:n

$i \rightarrow \tilde{e}$

<b>Hand.Primary</b>		<b>Wind.Primary</b>	
m	<b>i</b>	n	ə
m	<b>ɛ</b>	-	-
v	-	<b>i</b>	n
v	-	<b>ɛ</b>	-
t	-	-	-

$i \rightarrow \tilde{e}w$

<b>Hand.Primary</b>		<b>Hand.Primary</b>	
m	<b>i</b>	n	ə
m	<b>ɛw</b>	-	-
m	<b>ɛw</b>	-	-

## Appendix 2 - Prior Frequencies

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$\text{œ} \rightarrow \text{e:}$

Woman.Primary	Star.Primary
f   œ   -   m   i   -   n   -   -   -   -	-   s   t   -   œ   -   l   1   -
f   e:   -   m   i   -   n   -   a   -   -   a	-   s   t   -   e:   1   1   a

$\emptyset \rightarrow \varepsilon$

Hair.Capillus	Hair.Capillus
f   θ   v   Ø   -   -   -   -   -   -   -	f   θ   v   Ø   -   -   -   -   -   -   -
k   ə   b   ε   -   λ   -   -   -   -   -   -	dʒ   -   v   ε   -   -   -   -   -   -   -

$\emptyset \rightarrow \text{u:}$

Moon.Primary	Fire.Focus
l   Ø   n   -	f   -   Ø   -   -   -   -
l   u:   n   a	f   -   u:   k   -   -

$\varepsilon \rightarrow \text{s}$

Rope.Restis	Rope.Restis
r   -   ε   s   t   a	ɹ   -   ε   ſ   tʃ   i
r   e   s   t   e   m	r   e   s   t   e   m

$\varepsilon \rightarrow \text{qa}$

BarkOfATree.Skortea	Rain.Primary
-   h   -   w   ε   -   s   -   -	p   l   ε   -   f   -   -
-   s   k   -   qɑ   r   ts   -   ə	p   l   qɑ   -   -   j   e

$\text{e} \rightarrow \tilde{\text{e}}$

Cloud.Primary	Cloud.Primary
n   u   b   e   -	n   u   b   e   -
n   u   v   ē̃   -	n   u   v   ē̃   -

$\text{e} \rightarrow \text{s}$

Rope.Restis	Rope.Restis
ɹ   -   e   ſ   t   i	r   j   e   s   t   e
r   e   s   t   e   m	r   e   s   t   e   m

$\text{e:} \rightarrow \text{a}$

Day.Primary	Day.Primary
d   i   e:   s	d   i   e:   s
d   i   e   -	d   i   e   -

$\text{e:} \rightarrow \text{o}$

Hair.Primary	Day.Primary
p   -   e:   l   -   -	d   i   e:   s
p   -   ə   r   -   -	d   i   ə   -

$\text{e:} \rightarrow \text{œ}$

Woman.Primary	Star.Primary
f   e:   -   m   i   -   n   -   a	-   s   t   -   e:   l   1   a
f   œ   -   m   -   -   -   -   -	-   s   t   -   œ   -   l   -

$\text{e:} \rightarrow \text{ej}$

Ear.Primary	Sand.Primary
o   r   e:   -   -   l   e	h   a   r   e:   n   a
o   r   ẽ   -   -   λ   e	-   e   r   ẽ   -   a

## Appendix 2 - Prior Frequencies

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e: → ej

Ear.Primary				Sand.Primary			
o	r	e:	-	-	l	e	h
o	z	ej	-	-	-	-	a

e: → ęa

Star.Primary				Snow.Primary			
-	s	t	-	e:	l	l	a
-	s	t	-	ęa	-	-	-

i → ẽw̐

Seed.Granum				Seed.Granum			
g	r	i	n	-	-	-	-
g	r	ẽw̐	-	-	-	-	-

i → aj

Sky.Primary				Snow.Primary			
s	-	i	r	-	-	n	-
k	-	aj	l	u	m	n	-

i → ęa

Night.Primary				Night.Primary			
n	q	i	-	-	-	n	-
n	-	ęa	p	t	e	n	-

i → ea

Snow.Primary				Snow.Primary			
n	-	i	w	e	m	n	-
n	-	ęa	-	-	-	n	-

œ → a

Woman.Primary				Star.Primary			
f	œ	-	m	-	-	-	-
f	a	-	m	-	-	-	-

i → εj

Ear.Primary				Sun.Soliculus			
o:	r	i	-	k	l	a	s
ɔ	r	εj	-	-	-	-	o

i → s

Rope.Restis				Head.Primary			
r	-	i	s	t	a	k	a
r	e	s	t	e	m	v	e

i: → ẽ

Road.Camminus				Road.Camminus			
k	a	m	m	i:	n	u	m
ʃ	ə	-	m	ẽ	-	-	-

a → œ

Woman.Primary				Star.Primary			
f	a	-	m	-	-	l	-
f	œ	-	m	-	-	œ	-

## Appendix 2 - Prior Frequencies

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a → m

Rope.Restis					Rope.Restis				
f	-	i	s	t	a	r	-	ɛ	s
r	e	s	t	e	m	r	e	s	t

a: → ə̃j

Mother.Primary					Mother.Primary				
m	a:	t	r	e	m	m	a:	t	r
m	ə̃j	-	-	-	-	m	ə̃j	-	-

u → a

Fruit.Primary					Fruit.Primary				
f	r	u:	-	k	t	u	s	f	r
f	r	u	-	-	t	ə	-	f	r

u: → e

Egg.Primary					Fire.Focus				
-	u:	f	-	-	f	-	u:	k	-
w	e	b	o	-	f	w	e	g	o

u: → ø

Moon.Primary					Fire.Focus				
l	u:	n	a	-	f	-	u:	k	-
l	ø	n	-	-	f	-	ø	-	-

o → ʌ

Eye.Primary					Eye.Primary				
-	o	-	x	-	o	-	-	-	-
-	o	-	-	-	ʌ	u	-	-	-

o → ɥ

Rain.Primary					Rain.Primary				
p	j	o	d	dʒ	-	a	p	l	o
p	l	ɥ	-	-	i	-	p	l	ɥ

ɛ → ø

Hair.Capillus					Hair.Capillus				
k	ə	b	ɛ	-	ʌ	-	-	dʒ	-
ʃ	ə	v	ø	-	-	-	-	ʃ	-

ɛ → ə̃w̐

Seed.Granum					Seed.Granum				
g	ɪ	ɛ	n	-	-	g	ɪ	ɛ	n
g	r	ə̃w̐	-	-	-	g	r	ə̃w̐	-

i → ɪ

Louse.Primary					Eye.Primary				
p	-	e	d	o:	-	l	i	-	-
p	-	e	d	u	-	k	l	u	s

aj → i

Sky.Primary					Snow.Primary				
k	-	aj	l	u	m	n	-	i	v
s	-	i	r	-	-	n	-	ɛ	v

## Appendix 2 - Prior Frequencies

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$\tilde{e}w \rightarrow ij$

Dog.Primary					Dog.Primary						
k	-	$\tilde{e}w$	-	-	-	k	-	$\tilde{e}w$	-		
k	-	ij	n	e	-	k	-	ij	n	e	-

$k^w \rightarrow y$

Water.Primary					Water.Primary				
a	-	$k^w$	-	a	a	-	$k^w$	-	a
a	-	y	w	a	aj	-	y	w	ə

$ej \rightarrow e:$

Ear.Primary					Sand.Primary							
o	r	ɛj	-	-	-	a	r	ɛj	-	ə		
o	r	e:	-	-	l	e	h	a	r	e:	n	ə

$oj \rightarrow y$

Night.Primary					Night.Primary								
n	-	oj	-	t	i	-	n	-	oj	-	t	i	-
n	-	y	-	t	-	-	n	-	y	-	t	-	-

$oq \rightarrow qa$

Night.Primary					Night.Primary								
n	-	oj	-	t	i	-	n	-	oj	-	t	i	-
n	-	qa	p	t	e	-	n	-	qa	p	t	e	-

$ɛj \rightarrow i$

Ear.Primary					Sun.Soliculus										
ɔ	r	ɛj	-	-	-	s	ɔ	l	ɛj	-	-	-	-		
o:	r	i	-	k	l	a	s	o	l	i	k	u	l	u	s

$qa \rightarrow oj$

Night.Primary					Night.Primary								
n	-	qa	p	t	e	-	n	-	qa	p	t	e	-
n	-	oj	-	t	i	-	n	-	oj	-	t	i	-

$ea \rightarrow i$

Snow.Primary					Snow.Primary						
n	-	ea	-	-	-	n	-	ea	-	-	-
n	-	i	w	e	m	n	-	i	v	aj	-

$ij \rightarrow \tilde{\epsilon}$

Dog.Primary					Dog.Primary						
k	-	ij	n	e	-	k	-	ij	n	e	-
ʃ	j	ɛ	-	-	-	ʃ	-	ɛ	-	-	

$ij \rightarrow \tilde{e}w$

Dog.Primary					Dog.Primary						
k	-	ij	n	e	-	k	-	ij	n	e	-
k	-	ɛw	-	-	-	k	-	ɛw	-	-	

## Appendix 2 - Prior Frequencies

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a → e

Sand.Primary	Sand.Primary
h a r e: n a - a r ej - e	h a r e: n a - e r ej - e

øa → i

Night.Primary	Night.Primary
n - øa p t e - n q i - - - -	n - øa p t e - n i - t - - -

øa → ε

BarkOfATree.Skortea	Rain.Primary
- s k - øa r ts - ə - h - w ε - s - -	p l øa - - j e p l ε - f - - -

n → ɛ

Road.Camminus	Road.Camminus
c a m i n - - - ʃ ə - m ɛ - - -	c a m i n - - - ʃ i - m ɛ - - -

y → oj

Night.Primary	Night.Primary
n - y - t - - n - oj - t i -	n - y - t - - n - oj - t i -

ej → e:

Ear.Primary	Sand.Primary
o r ej - - - ʌ e o r e: - - l e	- e r ej - e h a r e: n a

iw → ẽw̐

Seed.Granum	Seed.Granum
g r iw - - - g r ẽw̐ - - -	g r iw - - - g r ẽw̐ - - -

n → w

Heart.Anima	Heart.Anima
a n i m a a w - m a	i n i m ə a w - m a

ea → e:

Star.Primary	Snow.Primary
- s t - ea - - - - s t - e: l l a	n - ea - - - n - e: f - - -

a → ə

Sand.Primary	Sand.Primary
h a r e: n a - ə r e n ə	h a r e: n a - a r i n ə

au → øa

Tail.Primary	Tail.Primary	Tail.Primary
k au d a c øa d ə	k au d ə c øa d ə	k au d ə c øa d ə

## Appendix 2 - Prior Frequencies

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$\varepsilon \rightarrow \infty$

Woman.Primary	Star.Primary	Star.Primary
f   ε   -   m   i   -   n   -   e	ə   s   t   -   ε   -   l   -	-   s   t   -   ε   -   l   e
f   œ   -   m   -   -   -   -   -	s   t   -   œ   -   l   -	s   t   -   œ   -   l   -

$\varepsilon \rightarrow y$

River.Rivus	Fog.Nebula	Fog.Nebula
r   ε   -   -   -	n   -   ε   -   v   w   -   ə	n   -   ε   -   v   w   -   ə
ꝝ   y   -   -   -	n   j   y   -   -   l   -	n   j   y   -   -   l   -

$\tilde{e} \rightarrow a:$

Grass.Gramen	Guts.Primary	Mountain.Montanea
g   ŋ   ẽ   m   ə   -	i   -   t   -   ŋ   n   -   ə	m   ð   -   t   ẽ   -   n   -   ə
g   r   a:   m   e   n	i   n   t   e   r   a:   n   e   a	m   o   n   t   a:   -   n   e   a

$j \rightarrow \varepsilon$

Skin.Pellis	Skin.Pellis	Skin.Pellis
p   j   e   -   l   -   -	p   j   ε   -   l   -   -	p   j   e   -   l   e   -
p   ε   -   -   -   -   -	p   ε   -   -   -   -   -	p   ε   -   -   -   -   -

$\tilde{o} \rightarrow \circ$

Fingernail.Primary	Mountain.Primary	Mountain.Primary
õ   -   g   -   -   l   -	m   õ   -   ſ   i   -	m   õ   -   t   i   -
ɔ   n   g   -   u   l   e	m   ɔ   n   t   -   -	m   ɔ   n   t   -   -

$\text{au} \rightarrow \emptyset$

Tail.Primary	Tail.Primary	Tail.Primary
k   au   d   a	k   au   d   ə	k   au   d   ə
k   ø   -   -	k   ø   -   -	k   ø   -   -

$aj \rightarrow o$

Water.Primary	Sand.Sabulum	Sand.Sabulum
aj   -   y   w   ə	s   aj   β   -   ſ   u   -	s   aj   β   -   ſ   u   -
o   -   -   -   -	s   o   -   -   r   ə   -	s   o   -   -   r   ə   -

$j \rightarrow j$

Grass.Primary	Grass.Primary	Grass.Primary
j   -   ε   -   p   -	j   -   e   r   b   e	j   -   a   ſ   b   ə
j   -   e   r   b   a	j   -   e   r   b   a	j   -   e   r   b   a

$\emptyset \rightarrow \text{au}$

Tail.Primary	Tail.Primary	Tail.Primary
k   ø   -   -	k   ø   -   -	k   ø   -   -
k   au   d   a	k   au   d   a	k   au   d   a

$o: \rightarrow \text{qa}$

Flower.Primary	Flower.Primary	Sun.Primary
f   l   o:   r   e   m	f   l   o:   r   -   -	s   o:   l   e   m
f   l   q   a   r   e   -	f   l   q   a   r   e   -	s   q   a   r   e   -

$j \rightarrow x$

Leaf.Primary	Eye.Primary	Eye.Primary
f   -   œ   j   -   -	-   œ   -   j   -   -   -	-   u   -   j   -   -   -
-   -   o   x   -   a	-   o   -   x   -   o   -   -	-   o   -   x   -   o   -   -

## Appendix 2 - Prior Frequencies

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$\varepsilon \rightarrow j$

Skin.Pellis		Skin.Pellis		Skin.Pellis	
p	$\varepsilon$	-	-	-	-
p	j	e	-	l	-

$dʒ \rightarrow n$

Knee.Geneculum		Knee.Geneculum		Knee.Geneculum	
dʒ	-	i	n	o	k
p	-	n	o	-	j

u:  $\rightarrow \alpha e$

Egg.Primary	Heart.Primary	Fire.Focus
-	u:	f
-	œ	f

o  $\rightarrow a j$

Water.Primary	Sand.Sabulum	Sand.Sabulum
o	s	r
aj	aj	aj

e  $\rightarrow \alpha$

Liver.Primary	Liver.Primary	Sand.Primary
f	e	g
f	w	a

j  $\rightarrow dʒ$

Knee.Geneculum	Knee.Geneculum	Knee.Geneculum
j	-	j
dʒ	-	e

l  $\rightarrow u$

Louse.Primary	Louse.Primary	Eye.Primary
p	e	d
p	i	u

i  $\rightarrow \tilde{ej}$

Child.Ninnus	Child.Ninnus	Fog.Primary
n	i	n
n	e	n

i  $\rightarrow \alpha$

Knee.Geneculum	Knee.Geneculum	Road.Camminus
-	i	n
ʒ	w	ɛ

l  $\rightarrow k$

Louse.Primary	Louse.Primary	Louse.Primary
p	e	d
p	i	d

l  $\rightarrow x$

Woman.Mulier	Louse.Primary	Leaf.Primary
m	p	f
u	j	o

## Appendix 2 - Prior Frequencies

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r → w

Salt.Primary	Sky.Primary	Sky.Primary
s a r e -	s - i r - -	s - i r - -
s a w - -	s - ε w - -	s - ε w - -

o → y

Feather.Primary	Night.Primary	Night.Primary
p l o m ə	n - o c t e m	n - o - ʃ e -
p l y m -	n - y - t - -	n - y - t - -

j → j

Grass.Primary	Grass.Primary	Grass.Primary
j - e r b a	j - e r b a	j - e r b a
j - ε - p -	j - e r b e	j - a r b ə

a: → ə̃

Grass.Gramen	Guts.Primary	Mountain.Montanea
g r a: m e n g r ē m e -	i n t e r a: n e a ī - t - f ē n - a	m o n t a: - n e a m ð - t ē - n p - a

w → r

Salt.Primary	Sky.Primary	Sky.Primary
s a w - -	s - ε w - -	s - ε w - -
s a r e -	s - i r - -	s - i r - -

h → ʃ

FatNoun.Crassia	FatNoun.Crassia	FatNoun.Crassia
k r ɔ h - g r a ſ a	k r ɔ h - g r a ſ a	k r ɔ h - g r e ſ -

a: → ə

Stick.Primary	Stick.Primary	Meat.Primary
p a: l u s p a - - -	p a: l - - - p a - - -	c a: r - - - ʃ a: r - - -

c → ʃ

Dog.Primary	Meat.Primary	Road.Camminus
c - a n - - ʃ - ē - - -	c a: r - - - ʃ a: r - - -	c a m i n - - - ʃ i - m ē - - -

u → ɪ

Louse.Primary	Louse.Primary	Eye.Primary
p - i - o - ʌ u - - p - e d u - k l u s	p - i - o - ʌ u - - p - e d u - k l u s	- o - k u l u s v o - - l i - -

x → j

Leaf.Primary	Eye.Primary	Eye.Primary
- - o x - a f - œ j - -	- o - x - o - - - œ - j - - -	- o - x - o - - - u - j - - -

x → ɪ

Woman.Mulier	Louse.Primary	Leaf.Primary
m u x - e r - - m u l i e r e m	p j o - - - x - o - p - e d o: - l i - -	- - o x - a f - o l i a

## Appendix 2 - Prior Frequencies

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a → əa

Woman.Domina	Woman.Domina	BarkOfATree.Skortea
d a m - - -	d a m - - -	- s k w a r t - e
d əa m - n ə	d əa m - n ə	- s k - əa r ts - ə

ə → a

Grass.Gramen	Guts.Primary	Mountain.Montanea
g r ə m a -	ɪ - t - r ə u - a	m ð - t ə - -
g r ə a m a -	ə - t - r u - a	m ð - t a -

kʷ → g

Water.Primary	Water.Primary	Water.Primary
a - kʷ - a	a - kʷ - a	a - kʷ - a
a - g w a	a - g w a	a - g - e

y → o

Feather.Primary	Night.Primary	Night.Primary
p l y m -	n - y - t -	n - y - t -
p l o m ə	n - o c t e m	n - o - f e -

əj → i

Child.Ninnus	Child.Ninnus	Fog.Primary
n e n əj	n e n əj	k a l i ʒ əj - - -
n i n i	n i n i	k a: l i: g i n e m

g → kʷ

Water.Primary	Water.Primary	Water.Primary
a - g w a	a - g w a	a - g - e
a - kʷ - a	a - kʷ - a	a - kʷ - a

œ → u:

Egg.Primary	Heart.Primary	Fire.Focus
- œ f - -	k - œ ə -	f - œ - - -
- u: f - -	k - u: r -	f - u: k - -

y → ε

River.Rivus	Fog.Nebula	Fog.Nebula
β y - - -	n j y - - - l -	n j y - - - l -
r ε - - -	n ε - v w - ə	n ε - v w - ə

y → ɔ

Feather.Primary	Night.Primary	Night.Primary
p l y m -	n - y - t -	n - y - t -
p l ɔ m -	n - ɔ t t e -	n - ɔ - t -

g → t

Lake.Primary	Lake.Primary	Lake.Primary
l a g o -	l a g o -	l a g u -
l a: t - -	l a: t - -	l a: t - -

əa → œ

Leaf.Primary	Flower.Primary	Flower.Primary
f - əa - j e	f l əa r e -	f l əa r e -
f - œ j - -	f l œ ə -	f l œ r - -

## Appendix 2 - Prior Frequencies

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$g \rightarrow p$

Water.Primary	Water.Primary	Water.Primary
a - g w e	a - g w e	a - g - e
a - p - ə	a - p - ə	a - p - ə

$qa \rightarrow o:$

Flower.Primary	Flower.Primary	Sun.Primary
f l q a r e -	f l q a r e -	s q a r e -
f l o: r e m	f l o: r - -	s o: l e m

$e \rightarrow \tilde{e}$

Grass.Gramen	Guts.Primary	Mountain.Montanea
g r a m a m -	ẽ - t - r a n - a	m õ - t a - u -
g r ẽ m a m -	ĩ - t - r ẽ n - a	m õ - t ẽ - u -

$qa \rightarrow a$

Woman.Domina	Woman.Domina	BarkOfATree.Skortea
d q a m - n ə	d q a m - n ə	- s k - q a r t s - ə
d a m - - -	d a m - - -	- s k w a r t - e

$d \rightarrow \lambda$

Back.Spatula	Back.Spatula	Back.Spatula
e s p a 1 - d a	i ſ p a d w - e	i ſ p a d w - a
ə s p a λ - λ ə	ə s p a λ - λ ə	ə s p a λ - λ ə

$ɔ \rightarrow y$

Feather.Primary	Night.Primary	Night.Primary
p l ɔ m -	n - ɔ t t e -	n - ɔ - t - -
p l y m -	n - y - t - -	n - y - t - -

$t \rightarrow g$

Lake.Primary	Lake.Primary	Lake.Primary
l a: t - -	l a: t - -	l a: t - -
l a g o -	l a g o -	l a g u -

$ə \rightarrow i$

Knee.Geneculum	Knee.Geneculum	Road.Camminus
z w ə - - - - - λ u -	z w ə - - - - - λ u -	k ə - m i p u -
- - i n o - x o - - -	dʒ - i n ɔ k k - j o -	f i - m ɛ - - -

$qa \rightarrow au$

Tail.Primary	Tail.Primary	Tail.Primary
c q a d ə	c q a d ə	c q a d ə
k a u d a	k a u d a	k a u d a

$ɔ \rightarrow ɔ̃$

Fingernail.Primary	Mountain.Primary	Mountain.Primary
ɔ n g - u l e	m ɔ n t - -	m ɔ n t - -
ɔ - g - - l -	m ɔ - t ʃ i -	m ɔ - t i -

$λ \rightarrow d$

Back.Spatula	Back.Spatula	Back.Spatula
ə s p a λ - λ ə	ə s p a λ - λ ə	ə s p a λ - λ ə
ə s p a 1 - d a	i ſ p a d w - e	i ſ p a d w - a

## Appendix 2 - Prior Frequencies

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$p \rightarrow g$

Water.Primary	Water.Primary	Water.Primary
a   -   p   -   ə	a   -   p   -   ə	a   -   p   -   ə
a   -   g   w   e	a   -   g   w   e	a   -   g   -   e

$a \rightarrow e$

Liver.Primary	Liver.Primary	Sand.Primary
f   w   a   -   -   -   -	f   w   a   -   -   -   -	h   a   r   e:   n   a
f   -   e   g   a   t   o   -	f   -   e   dʒ   ə   -   -	-   -   r   ε   n   e

$əe \rightarrow ε$

Woman.Primary	Star.Primary	Star.Primary
f   əe   -   m   -   -   -	-   s   t   -   əe   -   1   -	-   s   t   -   əe   -   1   -
f   ε   -   m   i   -   n   -   e	ə   s   t   -   ε   -   1   -	-   s   t   -   ε   -   1   e

$əe \rightarrow əa$

Leaf.Primary	Flower.Primary	Flower.Primary
f   -   əe   j   -   -	f   l   əe   ə   -   -	f   l   əe   r   -   -
f   -   əa   -   j   e	f   l   əa   f   e   -	f   l   əa   r   e   -

$ʃ \rightarrow c$

Dog.Primary	Meat.Primary	Road.Camminus
f   -   ʃ   -   -   -	f   ʃ   a   r   -   -	f   ʃ   i   -   m   ʃ   -   -
c   -   a   n   -   -	c   a:   r   -   -   -	c   a   m   i   n   -   -

$k \rightarrow l$

Louse.Primary	Louse.Primary	Louse.Primary
p   -   e   d   u   -   k   l   u   s	p   -   i   d   ə   k   k   j   o   -	p   -   ə   d   u   -   k   j   e   -
p   -   e   d   o:   -   l   i   -   -	p   -   e   d   o:   -   l   i   -   -	p   -   e   d   o:   -   l   i   -   -

$f \rightarrow h$

FatNoun.Crassia	FatNoun.Crassia	FatNoun.Crassia
g   r   a   ʃ   ə	g   r   a   ʃ   ə	g   r   e   ʃ   -
k   r   ə   h   -	k   r   ə   h   -	k   r   ə   h   -

$a \rightarrow a:$

Stick.Primary	Stick.Primary	Meat.Primary
p   a   -   -   -	p   a   -   -   -	f   a   r   -   -   -
p   a:   l   u   s	p   a:   l   -   -	c   a:   r   -   -   -

$əj \rightarrow o$

Leaf.Primary	Leaf.Primary	Leaf.Primary	Leaf.Primary
f   -   əj   -   -	f   -   əj   -   -	f   -   əj   -   -	f   -   əj   -   -
f   -   o   l   i   a	-   o   x   -   a	f   -   o   ʌ   -   a	f   -   o   ʌ   -   a

$e \rightarrow j$

Woman.Primary	Woman.Primary	Rope.Restis	Guts.Primary
f   e   -   m   e   -   -   ə	f   e   -   m   e   -   -   ə	r   e   s   t   e   m   -	i   n   t   e   r   a:   n   ə   a
f   e   -   m   j   -   -   ə	f   e   -   m   j   -   -   ə	r   j   e   s   t   e   -	ə   -   t   -   ə   a   -   j   -

$k \rightarrow j$

Eye.Primary	Eye.Primary	Eye.Primary	Eye.Primary
-   o   -   k   u   l   u   s	-   o   -   k   u   l   u   s	-   ɔ   k   k   -   j   o   -	-   ɔ   k   k   -   j   o   -
-   əe   -   j   -   -   -   -	-   u   -   j   -   -   -   -	-   əe   -   j   -   -   -   -	-   u   -   j   -   -   -   -

## Appendix 2 - Prior Frequencies

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r → r

Ear.Primary	Ear.Primary	Ear.Primary	Ear.Primary
ɔ R ej - - - - o: r i - k l a	ɔ R ej - - - - o r e k k j a	ɔ R ej - - - - o r e: - - l e	ɔ R ej - - - - u r e - k - e

j → ʒ

Knee.Genuculum	Knee.Genuculum	Knee.Genuculum	Knee.Genuculum
p - - p o - - - - ʒ - ə n u - - - -	p - - p o - - - - ʒ u e - - - - ʌ u -	p - - p o - - - - ʒ w e - - - - ʌ u -	p - - p o - - - - ʒ ə n o - - - - ʌ -

f → R

Ear.Primary	Ear.Primary	Ear.Primary	Ear.Primary
o ʃ e - x - a ɔ R ej - - - -	o ʃ e - - - - a ɔ R ej - - - -	o ʃ a j - - ʌ a ɔ R ej - - - -	u ʃ e - - - - ʌ ə ɔ R ej - - - -

a → e:

Woman.Primary	Hair.Primary	Star.Primary	Day.Primary
f a - m - - - - f e: - m i - n - a	p w a l - - - p e: l - - -	e - t w a - l - s t - e: l l a	d i a - d i e: s

a → ẽ

Hand.Primary	Hand.Primary	Hand.Primary	Breast.Primary
m a n u m m ē - - -	m a n o - m ē - - -	m a n - - m ē - - -	s a n - - s ē - - -

f → b

Egg.Primary	Egg.Primary	Rain.Primary	Snow.Primary
- œ f - - w e b o -	- u: f - - w e b o -	p l ε - f - - j - u - b j a	n - e: f - - n j e b e -

i → ʌ

Woman.Mulier	Leaf.Primary	Eye.Primary	Eye.Primary
m u l i e r e m m o ʌ ʌ e - - -	f - o l i a f - o ʌ ʌ a	v o - - l i - - o - - ʌ u -	v o - - l i - - o - - ʌ u -

i → n

Road.Camminus	Road.Camminus	Road.Camminus	Road.Camminus
k a - m i n o - c a m i n - - -	k a m m i n o - c a m i n - - -	k ə - m i p u - c a m i n - - -	k ə - m i - - - c a m i n - - -

i → ɛ̄

Blood.Primary	Blood.Primary	Belly.Pantex	Belly.Pantex
s i n dʒ - e - - - s ɛ̄ - g - i - - -	s i n dʒ - e - - - s ɛ̄ - g - i - - -	p i n t e ſ e - p ɛ̄ - s - - -	p i n t e ſ e - p ɛ̄ - s - - -

ɔ → oj

Night.Primary	Night.Primary	Night.Primary	Night.Primary
n - ɔ t t e - n - oj - t i -	n - ɔ t t e - n - oj - t i -	ŋ - ɔ - t - - n - oj - t i -	n - ɔ - t - - n - oj - t i -

ʃ → g

Leg.Gamba	Leg.Gamba	Leg.Gamba	Leg.Gamba
ʃ a m b e g a m b a	ʃ a m b e g a m b a	ʃ a m b e g a m b a	ʃ a m b e g a m b ə

## Appendix 2 - Prior Frequencies

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$R \rightarrow r$

Ear.Primary	Ear.Primary	Ear.Primary	Ear.Primary
ɔ R ej - - - -			
o r e - x - a	o r e - - y a	o r ej - - y a	u r ε - - y ə

$e \rightarrow t$

Rope.Restis	Rope.Restis	Rope.Restis	Rope.Restis
r e s t e m	r e s t e m	r e s t e m	r e s t e m
r - i s t a	r - ε s t a	β - e ſ t i	r j e s t e

$l \rightarrow ɿ$

Tree.Primary	Tree.Primary	Tree.Primary	Tree.Primary
a r β o l - -	a l b e r o -	a l b e r o -	a r b u l - -
a ɿ b - ɿ - -	a ɿ b - ɿ - -	a ɿ v o r i -	a ɿ b - ɿ - -

$e: \rightarrow a$

Woman.Primary	Hair.Primary	Star.Primary	Day.Primary
f e: - m i - n - a	p e: l - -	s t - e: l l a	d i e: s
f a - m - - - -	p w a l - -	e t w a - l -	d i a -

$k \rightarrow k^j$

Eye.Primary	Eye.Primary	Knee.Genuculum	Knee.Genuculum
- o - k u l u s	- ɔ k k - j o -	g - e n i - k u l u m	dʒ - i n ɔ k k - j o -
- o - k <sup>j</sup> - - - -	- o k <sup>j</sup> - - - -	dʒ - e n u n k <sup>j</sup> - - -	dʒ - e n u n k <sup>j</sup> - - -

$l \rightarrow t$

Back.Spatula	Back.Spatula	Back.Spatula	Back.Spatula
e s p a l - d a	e s p a l - d a	- s p a l - l a	- s p a l - l a
- s p a t u l a	- s p a t - - e	- s p a t u l a	- s p a t - - e

$r \rightarrow R$

Ear.Primary	Ear.Primary	Ear.Primary	Ear.Primary
o: r i - k l a	o r e k k j a	o r e: - l e	u r e - k - e
ɔ R ej - - - -			

$k \rightarrow θ$

Root.Primary	BarkOfATree.Corticea	Leg.Petiolus	Sky.Primary
- r a: d - i: k e m	k o r t i - k e a	p ε - k - ɔ l -	k - aj l u m
- r a - - i θ - -	k o r t e - θ - a	p e - θ i o l o -	θ j e l o -

$k^j \rightarrow k$

Eye.Primary	Eye.Primary	Knee.Genuculum	Knee.Genuculum
- o - k <sup>j</sup> - - - -	- o - k <sup>j</sup> - - - -	dʒ - e n u n k <sup>j</sup> - - -	dʒ - e n u n k <sup>j</sup> - - -
- o - k u l u s	- ɔ k k - j o -	g - e n i - k u l u m	dʒ - i n ɔ k k - j o -

$n \rightarrow i$

Road.Camminus	Road.Camminus	Road.Camminus	Road.Camminus
c a m i n - - -	c a m i n - - -	c a m i n - - -	c a m i n - - -
k a - m i n o -	k a m m i n o -	k e - m i n u -	k ə - m i - -

$i \rightarrow I$

Nose.Nares	Nose.Nares	Nose.Nares	Nose.Nares
n a r i θ -	n a r i f e	n a r i s -	n a r i f -
n a: r i s -			

## Appendix 2 - Prior Frequencies

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iw → a

Seed.Granum	Seed.Granum	Seed.Granum	Seed.Granum
g   r   iw   -   -   -			
g   r   a   n   o   -	g   r   a   n   o   -	g   r   a   -   -   -	g   r   a   n   -   -

a: → ə

Root.Radicina	Liver.Primary	Liver.Primary	Fog.Tenebras
r   a:   d   i:   k   i:   n   a	f   -   i:   k   a:   t   u   m	f   -   i   -   a:   t   -   -	t   -   e   n   -   e:   b   r   a:   s
r   ə   d   ə   ſ   i   n   ə	f   -   e   dʒ   ə   -   -   -	f   -   e   dʒ   ə   -   -   -	t   -   ə   n   -   e   b   r   ə   s

a → ej

Breast.Primary	Stone.Primary	Stone.Primary	Stone.Primary
s   a   n   -   -   -	s   a   k   s   u   m	s   a   s   s   s   o   -	s   a   -   s   -   -
s   ej   -   u   -   -	s   ej   -   ſ   u   -	s   ej   -   ſ   u   -	s   ej   -   ſ   u   -

j → u

Louse.Primary	Louse.Primary	Louse.Primary	Louse.Primary
p   -   i   d   ɔ   k   k   j   o   -	p   -   i   d   ɔ   k   k   j   o   -	p   -   ə   d   u   -   k   j   e   -	p   -   ə   d   u   -   k   j   e   -
p   -   i   -   o   -   ʌ   u   -   -	p   -   i   -   o   -   ʌ   u   -   -	p   -   i   -   o   -   ʌ   u   -   -	p   -   i   -   o   -   ʌ   u   -   -

g → ſ

Leg.Gamba	Leg.Gamba	Leg.Gamba	Leg.Gamba
g   a   m   b   a	g   a   m   b   a	g   a   m   b   a	g   a   m   b   ə
ʃ   a   m   b   e	ʃ   a   m   b   e	ʃ   a   m   b   e	ʃ   a   m   b   e

β → l

Tree.Primary	Tree.Primary	Tree.Primary	Tree.Primary
a   ʌ   b   -   ʌ   -   -	a   ʌ   b   -   ʌ   -   -	a   ʌ   b   -   ʌ   -   -	a   ʌ   v   o   r   i   -
a   ʌ   β   o   l   -   -	a   l   b   e   r   o   -	a   r   b   u   l   -   -	a   l   b   e   r   o   -

j → k

Eye.Primary	Eye.Primary	Eye.Primary	Eye.Primary
-   œ   -   j   -   -   -	-   œ   -   j   -   -   -	-   u   -   j   -   -   -	-   u   -   j   -   -   -
-   o   -   k   u   l   u   s	-   o   k   k   -   j   o   -	-   o   -   k   u   l   u   s	-   o   k   k   -   j   o   -

ø → ɔ

Tail.Primary	Tail.Primary	Fire.Focus	Fire.Focus
k   ø   -   -	k   ø   -   -	f   -   ø   -   -   -	f   -   ø   -   -   -
k   ɔ   w   -	k   ɔ   d   ε	f   w   ɔ   k   o   -	f   -   ɔ   k   -   -

ã → a

Year.Primary	Year.Primary	Year.Primary	Year.Primary
ã   -   -   -   -	ã   -   -   -   -	ã   -   -   -   -	ã   -   -   -   -
a   -   n   u   -	a   -   n   u   -	a   -   n   u   -	a   -   n   u   -

ẽj → o

Child.Ninnus	Child.Ninnus	Child.Ninnus	Child.Ninnus
n   e   n   ēj			
n   i   n   o	n   i   n   o	n   i   n   o	n   i   n   o

ẽ → a

Hand.Primary	Hand.Primary	Hand.Primary	Breast.Primary
m   ẽ   -   -   -	m   ẽ   -   -   -	m   ẽ   -   -   -	s   ẽ   -   -   -
m   a   n   u   m	m   a   n   o   -	m   a   n   -   -	s   a   n   -   -

## Appendix 2 - Prior Frequencies

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$\tilde{\varepsilon} \rightarrow \tilde{i}$

Road.Camminus	Road.Camminus	Tongue.Primary	Tongue.Primary
f   ə   -   m   $\tilde{\varepsilon}$   -   -   -	f   i   -   m   $\tilde{\varepsilon}$   -   -   -	l   $\tilde{\varepsilon}$   -   -   v   -	l   $\tilde{\varepsilon}$   -   -   v   -
k   a   -   m   $\tilde{i}$   p   u   -	k   a   -   m   $\tilde{i}$   n   u   -	l   $\tilde{i}$   -   g   w   a	l   $\tilde{i}$   -   g   w   a

$\text{ej} \rightarrow a$

Breast.Primary	Stone.Primary	Stone.Primary	Stone.Primary
s   ej   -   u   -	s   ej   -   f   u   -	s   ej   -   f   u   -	s   ej   -   f   u   -
s   a   n   -   -	s   a   k   s   u   m	s   a   s   s   o   -	s   a   -   s   -   -

$\lambda \rightarrow i$

Woman.Mulier	Leaf.Primary	Eye.Primary	Eye.Primary
m   o   $\lambda$   $\lambda$   e   -   -   -	f   -   $\sigma$   $\lambda$   $\lambda$   a   -   -	-   o   -   -   -   $\lambda$   u   -	-   o   -   -   -   $\lambda$   u   -
m   u   l   i   e   r   e   m	f   -   o   l   i   a	v   o   -   -   1   $\tilde{i}$   -   -	v   o   -   -   1   $\tilde{i}$   -   -

$\text{ej} \rightarrow a$

Breast.Primary	Stone.Primary	Stone.Primary	Stone.Primary
s   ej   -   u   -	s   ej   -   f   u   -	s   ej   -   f   u   -	s   ej   -   f   u   -
s   a   n   -   -	s   a   k   s   u   m	s   a   s   s   o   -	s   a   -   s   -   -

$\tilde{o} \rightarrow o:$

Name.Nomen	Name.Nomen	Name.Nomen	Name.Nomen
n   $\tilde{o}$   -   -   -			
n   o:   m   e   n	n   o:   m   e   -	n   o:   m   e   n	n   o:   m   e   -

$\tilde{i} \rightarrow \tilde{\varepsilon}$

Road.Camminus	Road.Camminus	Tongue.Primary	Tongue.Primary
k   a   -   m   $\tilde{i}$   p   u   -	k   a   -   m   $\tilde{i}$   n   u   -	l   $\tilde{i}$   -   g   w   a	l   $\tilde{i}$   -   g   w   a
f   ə   -   m   $\tilde{\varepsilon}$   -   -   -	f   i   -   m   $\tilde{\varepsilon}$   -   -   -	l   $\tilde{\varepsilon}$   -   v   -	l   $\tilde{\varepsilon}$   -   v   -

$\tilde{e}\tilde{w} \rightarrow a:$

Seed.Granum	Seed.Granum	Hand.Primary	Hand.Primary
g   r   $\tilde{e}\tilde{w}$   -   -   -	g   r   $\tilde{e}\tilde{w}$   -   -   -	m   $\tilde{e}\tilde{w}$   -   -   -	m   $\tilde{e}\tilde{w}$   -   -   -
g   r   a:   n   u   m	g   r   a:   n   u   m	m   a:   n   o   -	m   a:   n   o   -

$a \rightarrow ej$

Breast.Primary	Stone.Primary	Stone.Primary	Stone.Primary
s   a   n   -   -	s   a   k   s   u   m	s   a   s   s   o   -	s   a   -   s   -   -
s   ej   -   u   -	s   ej   -   f   u   -	s   ej   -   f   u   -	s   ej   -   f   u   -

$o: \rightarrow \tilde{o}$

Name.Nomen	Name.Nomen	Name.Nomen	Name.Nomen
n   o:   m   e   n	n   o:   m   e   n	n   o:   m   e   -	n   o:   m   e   -
n   $\tilde{o}$   -   -   -			

$j \rightarrow e$

Woman.Primary	Woman.Primary	Rope.Restis	Guts.Primary
f   e   -   m   j   -   -   -   e	f   e   -   m   j   -   -   -   e	r   j   e   s   t   e	$\tilde{a}$   -   t   -   $\tilde{s}$   a   -   j   -
f   e   -   m   e   -   -   -   e	f   e   -   m   e   -   -   -   e	r   e   s   t   e   m	i   n   t   e   r   a:   n   e   a

$a \rightarrow iw$

Seed.Granum	Seed.Granum	Seed.Granum	Seed.Granum
g   r   a   n   o   -	g   r   a   n   o   -	g   r   a   -   -   -	g   r   a   n   -   -
g   r   $\tilde{i}w$   -   -   -			

## Appendix 2 - Prior Frequencies

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i → i

Nose.Nares	Nose.Nares	Nose.Nares	Nose.Nares
n a: r i s -			
n a r i θ -	n a r i ſ e	n a r i ſ e	n e r i ſ -

ɔ → ø

Tail.Primary	Tail.Primary	Fire.Focus	Fire.Focus
k ɔ w -	k ɔ d ε	f w ɔ k o -	f - ɔ k - -
k ø - -	k ø - -	f - ø - -	f - ø - -

a: → ēw̐

Seed.Granum	Seed.Granum	Hand.Primary	Hand.Primary
g r a: n u m	g r a: n u m	m a: n o -	m a: n o -
g r ēw̐ - - -	g r ēw̐ - - -	m ēw̐ - - -	m ēw̐ - - -

ə → a:

Root.Radicina	Liver.Primary	Liver.Primary	Fog.Tenebras
r ə d ə f i n ə	f - e dg ə - - -	f - e dg ə - - -	t - ə n - e b r ə s
r a: d i k i: n a	f - i: k a: t u m	f - i - a: t - -	t - e n - e: b r a: s

ē → i

Blood.Primary	Blood.Primary	Belly.Pantex	Belly.Pantex
s ē - g - i - - -	s ē - g - i - - -	p ē - s - - e -	p ē - s - - e -
s i n dg - e - - -	s i n dg - e - - -	p i n t e ſ e -	p i n t e ſ e -

oj → ɔ

Night.Primary	Night.Primary	Night.Primary	Night.Primary
n - oj - t i -			
n - ɔ t t e -	n - ɔ t t e -	n - ɔ t t e -	n - ɔ t t e -

t → l

Back.Spatula	Back.Spatula	Back.Spatula	Back.Spatula
- s p a t u l a	- s p a t u l a	- s p a t u l a	- s p a t u l a
e s p a l - d a	- s p a l - l a	e s p a l - d a	- s p a l - l a

b → f

Egg.Primary	Egg.Primary	Rain.Primary	Snow.Primary
w e b o -	w e b o -	j - u - b j a	n j e b e -
- œ f - -	- u: f - -	p l ε - f - -	n - e: f - -

ə → ā

Year.Primary	Year.Primary	Year.Primary	Year.Primary
ə - n u -	ə - n u -	ə - n u -	ə - n u -
ā - - -	ā - - -	ā - - -	ā - - -

o → ēj

Child.Ninnus	Child.Ninnus	Child.Ninnus	Child.Ninnus
n i n o	n i n o	n i n o	n i n o
n e n ēj			

t → e

Rope.Restis	Rope.Restis	Rope.Restis	Rope.Restis
r - i s t a	r - ε s t a	z - e ſ t i	r j e s t e
r e s t e m	r e s t e m	r e s t e m	r e s t e m

## Appendix 2 - Prior Frequencies

---

$\theta \rightarrow k$

Root.Primary	BarkOfATree.Corticea	Leg.Petiolus	Sky.Primary
- r a - - i θ - - -	k o r t e - θ - a	p e - θ i o l o -	θ j e l o -
- r a: d - i: k e m	k o r t i - k e a	p ε - k - o l -	k - aj l u m

$o \rightarrow ɔj$

Leaf.Primary	Leaf.Primary	Leaf.Primary	Leaf.Primary
f - o 1 i a	- - o x - a	f - o ʌ - e	f - o ʌ - e
f - ɔj - - -			

$u \rightarrow j$

Louse.Primary	Louse.Primary	Louse.Primary	Louse.Primary
p - i - o - ʌ u - -	p - i - o - ʌ u - -	p - i - o - ʌ u - -	p - i - o - ʌ u - -
p - i d ɔ k k j o -	p - ə d u - k j e -	p - i d ɔ k k j o -	p - ə d u - k j e -

$ʒ \rightarrow ɲ$

Knee.Genuculum	Knee.Genuculum	Knee.Genuculum	Knee.Genuculum
ʒ - ə n u - - - - -	ʒ u e - - - - -	ʒ w e - - - - -	ʒ - ə n o - - - - -
jn - - n ɔ - - - - -	jn - - n ɔ - - - -	jn - - n ɔ - - - -	jn - - n ɔ - - - -

---

## Appendix 3 - Symbols

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 **$\Psi$  Phylogeny**

The (possibly unknown) relationship between entities resulting from an evolutionary tree

 **$\tau$  Tree topology**

Information on the relationships of the languages

 **$\mu$  Substitution rate**

the rate at which the language changes

 **$N$  Sampled languages**

The number of languages in a sample

 **$v$  Expected events**

The expected number of evolutionary events that occurred between two languages

 **$t$  Past times**

Times of branch events

 **$A$  Segmental alignment**

Constructed by combining the word segment information for the languages of interest with information on the homology of the segments

 **$S$  Segmental information**

Information on the homology of the segments

 **$s$  Segment**

Linguistic segment

 **$s_i$  ith segment** **$H$  Homology map**

The map describing the alignment of the segments

 **$Q$  Rate Matrix** **$\beta$  Rate matrix scaling factor**

Scales the rate matrix such that the average rate of segmental substitution is one

 **$P$  Probability**

The probability the process ends in certain state

 **$P$  Marginal Likelihood**

The probability of an event occurring

 **$\pi$  Equilibrium distribution** **$\lambda$  Rate of segment insertion** **$\mu$  Rate of segment deletion** **$n$  Word length**

Number of segments in a word

---

## Appendix 3 - Symbols

$r$	Rate parameter
$\theta$	Rate parameters Parameters associated with the rate matrix
$\theta'$	Proposal New value proposal
$q$	Proposal probability Probability of new proposal
$u$	Random number
$R$	Acceptance probability Probability of accepting a proposed value
$\mathcal{M}$	Model Mathematical model for linguistic parameters
$BF$	Bayes Factor A numerical factor related to the quality of the model fit
$X$	Unknown
$\mathcal{B}$	Possible rooted trees
$\mathcal{B}(N)$	Possible rooted trees as a function of the number of languages
$f$	Function

## Appendix 4 - Words containing each segment

---

<b>ɛj</b>	0250, 0303, 006A, 0303 měj měj nuvěj keližěj	42
<b>ɛw̚</b>	0250, 0303, 0077, 0303 kěw kěw grěw grěw měw měw	53
<b>au</b>	0061, 0075, 032F aukellus kauda kaudē kaudē	51
<b>ea</b>	0065, 032F, 0061 tšěastə stea ſčeafſə nea geatsə	74
<b>oɑ</b>	006F, 032F, 0061 dōamnə foaje skoartsə floare cōadə sōare ploaje noapte	25
<b>ẽj</b>	1EBD, 006A, 0303 neněj neněj nuvěj kalizěj	32
<b>aj</b>	0061, 006A paj paj ajywə sajβru sajβru kajkia kajlum nivaj	43
<b>a:</b>	0061, 02D0 ma:trem nema:l vja:r pa:l gra:nūm ra:di:kem ra:di:ki:na gra:men ca:r na:sus na:so na:s na:ris ma:no a:la intera:nea fi:ka:tum fia:t ri:pa:ria la:t ma:r sa:lem sa:l ka:li:ginem tene:bra:s fu:ma:ta fuma:ta stra:ta monta:nea diurna:ta	41
<b>ej</b>	0065, 006A pejſi ořej seju pejtu sejſu areje	45
<b>e:</b>	0065, 02D0 femina be:stia se:men pe:l ore:le ste:lla hare:na nu:be:s tene:bra:s ne:f die:s	1
<b>i:</b>	0069, 02D0 mui:r mari:tus mari:t ra:di:kem radri:s ra:di:ki:na pi:t fi:ka:tum ri:wus ri:pa:ria rivi:r ka:li:ginem ſi:l kammi:num	20
<b>k<sup>j</sup></b>	006B, 02B2 ok <sup>j</sup> dženunk <sup>j</sup>	77
<b>k<sup>w</sup></b>	006B, 02B7 ak <sup>w</sup> a	82
<b>oј</b>	006F, 006A kojin voj nojti nojti	69
<b>o:</b>	006F, 02D0 spo:s pedo:li flo:rem flo:r o:wum o:rikla so:lem no:men no:me no:minem	38

## Appendix 4 - Words containing each segment

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<b>u:</b>	0075, 0200	<b>60</b>
fru:ktus	fu:nem u:f kornu: plu:ma ku:r lu:na flu:men nu:be:s nu:bilus nu:l fu:ma:ta gelu: fu:mus fu:k	
<b>ej</b>	0250, 006A	<b>46</b>
pejfi	otejyä seju pejtu sejju ereje	
<b>ɛ</b>	0250, 0303	<b>29</b>
ifefi	ifeti grëme sëgi sëgi pëse pëse itëne mëtëne	
<b>ã</b>	0251, 0303	<b>27</b>
ãfã	efã sekpã sëmãs sã dã zãb ðzãp vâts pãs pãs ãtsaj vã sãdã ã ã lãg	
<b>ɔj</b>	0254, 006A	<b>65</b>
fɔj		
<b>ɔ</b>	0254, 0303	<b>72</b>
sõg	õg savjõ mõ mõ mõtaj nõ nõ	
<b>ɛj</b>	025B, 006A	<b>76</b>
ɔrej	sõlej	
<b>ɛ</b>	025B, 0303	<b>52</b>
ſjɛ	ſjɛ dɛ mɛ vɛ sɛt ſəmɛ ſimɛ lɛv	
<b>g<sup>w</sup></b>	0261, 02B7	<b>70</b>
sang <sup>w</sup> inem	ling <sup>w</sup> a	
<b>ɛj</b>	0268, 006A	<b>55</b>
kijne		
<b>ɛw</b>	0268, 0077	<b>64</b>
griw		
<b>a</b>	0061	<b>5</b>
fe:mina fam embra femmina fembra domina dam doja donna dam infantem infante fante sponsa sposa ispoza mari:tus ma:zi mari:ðo marito maridu marit marit ma:ðre madre mara: mari patre pa:ðre padre par: pari tata tata tata tate tate animalia omaj alimaja n:emaje be:stia biffa pwasõ awem abe avi aw wazo passerem paxaro passero paseru paseru pasere kanem kan kane ka can sarpint farpe arborem a:z:z albero arvori arvuri abr: arbul arbore silwa selva selva selba pal palo paw paw pal par grano grano gra gran folia oxa fôlla frondea fronda rai:θ rai:θ radri:θ ra:di:ki:na rasiñ kortikea korteña kortet:ja skortea skortsa skwartje herba jerba erba jarb: gramen grama gram grame rista resta kwan kotenna karnem karne ka:zni karni karni karne sang <sup>w</sup> inem sangre sangwe sañ sank adepem adipe grasa grasa grasa gras kwar kauda kola koda kua plu:ma pluma pjuma penna pena pan: pwal kapillus kabejo kapello kabelu cavel kapitia ka:þe:ta kabes: kap cavef kap testa testa orikla orexa orekkja naso nas nas nari:θ nari:fe naris bukka boka gula gola ungula upa ungja gamba gamba kamb: jambe gamb: perna pjerna manum mano man a:la ala a a ale ale pantikem pan:θa pan:ʃa pa:ʃa pantse intera:nea ãtsaj entrapa ãtrap: spatula espalda spalla ifpadwe ifpadwe əspal:λ: spal spale spate san pwat:rin anima alma alma awme alme iyado fegato fikat lu:na luna luna ste:lla etwal estreja stella ak:w a:ya akkwa agw: age ap: pluwia jubja pjoddga ri:paxia lakum lak lago lago lagu laku lak lak mare mar mare mar sal sale saw sal sal sare saksom sasso sas petra pjeðra pjetra pjatr: lapidem laude hare:na arena re:na arej: aren arin: sabulum sabl sabulonem saval:on polvar terra		

## Appendix 4 - Words containing each segment

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tjera terra tsarə nuvola kalizēj nebula njebla nebbja tinjeblas fu:ma:ta fumata fuma:ta fumase fumate kajkia glas gjattʃa glas glatʃe θeniθa wia vwa bia via stra:ta estrada strada istrade iʃtraðe strade kammi:num kamino kammino kamju:n camin monta:nea mōtaj montaja montajna muntajnə mōtaj montaje dia ʒɔ:nə ʒɔ:nə diurna:ta xornada ʃɔrnata ʃɔrnade annum ajo anno aŋ an an lingʷa lengwa lingwa

**b** 0062 7  
embra fembra bestia biʃʃa biʃe biʃe bies bis abe berme arborem aɪbɪs albero abrə arbore selba selba herba eɪb̥ jerba erba erbə jerbe jarbə webo kabejo kabelu kəbəl kabesə buʃ boka bokka boke boke bok bɔ:ce bukə gamba ʒab̥ gamba gamba kambə jambe gambə bjentre bentrə jubja sabulum sabl sabulonem pulbere polbo nu:b̥es nube nube nu:bilus nublo nebula njebla nebbja tene:bra:s tinjeblas tənebrəs bjento ben njebe bia biə nombre limbə

**c** 0063 54  
can ca:r coadə cavel cavetʃ bɔ:ce camin noctem

**d** 0064 21  
domina dam doja dɔ:na done donə dɔ:nə dam dɔ:ne dɔ:gnə maridu madre padre peduklus pidɔkkjo pedo:li pədu:kje frondea ra:di:kem radri:s ra:di:k:i na rədəʃfinə kodie adepem adipe kauḍa koda kauḍe kauḍe kɔ:də dentem dā djente dente dēʃi dēti dē dint dinte pedem pjede dorsum do dɔ:so dos do dwes do espalda iʃpadwə iʃpadwə figedu pjoddža pedrə lapidem laude pudz sādə sendrə estrada strada istrade strade die:s dia di die di die di di diurnum djurno diurna:ta xornada ʃɔrnade

**e** 0065 6  
embra femmina femeʃ fembra femine femeje mulierem muxer mo:λλe mu:λer mu:λe mujere dəne infantem infante fante nenēj nenēj nen epuz sposa spouse epu esposo ma:trem meɪ madre mer patre peɪ pa:ðre padre tate nema:l nəmaje piskem peθ pesse pesse awem abe aukellus useλ passerem passero pasəre kanem kane kijne peduklus pedo:li pədu:kje serpentem seɪp̥a serpjente serpente seɪp̥eʃi sərp̥en ſarpe wermem veɪ berme verme veɪmi vermi vjer vjerme arborem albero arbore selba selva selba selve se:men seme sementis simjente semente semēʃi səmen sementʃe fwee foaje frondea ra:di:kem kortikem kortikea korteθa kortetʃa skortea eko:s skwarcʃe flo:rem fjore flɔ:are herba jerba eɪvə erbə jerbe gra:men grame fu:nem fune funje restem ʃeʃti rjeste kotenna pellem pjel pelle peli peλ pjele karnem karne karne sangʷinem sangre sangwe sindže weso adepem adipe gref webo kwerno penna pena pena penə penə penə pelo pelo pelu kabejo kapello kabelu kəbələ cavel ka:bəθə kavettsa kabesə kəbəsə testa testə teste orexa orekka oreλə ore:le ureke ne ne nariʃe gole dentem djente dente dinte ɔ:ngule ungje pedem pje pje pjede piez jambe perna pjerna petiolus peθiololo genikulum zueλu dgenoli dgenunki el el ale wentrem bjentre bentrə vintre pantikem pantse pintefʃe intera:nea entraja kwejo epol espalda spale seno seno pektus peʃo pjepf kwore fegato fedʒə sole ſquare soreli lune etwal estreja stella istrələ iʃtrelə stəle age ploje plɔ:je flumen fjume ʃɪvjeʃ mare mare mer sa:lem sale se sare petra pjəz pjeðra pjetra pedrə peðrə pjere lapidem laude arena ərenə rene sabulonem pulwerem polvere pulbere terra teɪ tjerə teɪ ter tjere nube nube ka:liginem nebula njebla nebbja newlə negurə tene:bra:s tinjeblas tənebrəs fyme fumate ʃjelo ʃer wentum bjento ben niwem njebe neve new gelu: jelo dʒer glatʃe fwego kinerem ʃenere θeniθa ʃenuʃə vie estrada strade montem monte monte monta:nea montaje noctem noʃe noʃte noʃte ʃɔrnade no:men no:me nume no:minem nombre lengwa 'lenge

**f** 0066 0  
fe:mina fam femmina femeʃ fembra foem femine femeje infantem ʃfā infante fante iʃf̥iʃi iʃf̥eti ʃfā fru:kutus fʃu:qi fruto frutto frute frute frukt frut frukt folia foj fɔ:lə fołə fułə foj fwee foaje frondea frondza frōse frōse frunzə flo:rem floeʃ flor floz flor flɔ: flor flo:rem fune funje oef u:f fi:kə:tum fwa fegato figedu fɪyed̥u fedʒə foet fia:t fikat plf flumen fjume flumi flumi fu:mata fyme fumata fumata fumase fumate ne:f fu:mus fumo fumu fum fum fum fokum fo fwego fwəko fogu foŋ fo ſuk ſok

**h** 0068 49  
pəhō uhe hwes herba ɔ:he krəh hare:na

**i** 0069 3  
fe:mina femmina femeʃ mulierem domina infantem infante if̥eti nipo nino nini ispoza ma:zi mariðo marito maridu meriðu marit mərit ispozu sokius mari pari animalia alimaja be:stia biʃʃa biʃe bies bis piskem peʃi avi pidɔkkjo pioλu pioλu pedo:li seɪp̥eʃi sarpint veɪmi aɪvori silwa fʃu:qi sementis simjente semēʃi simēs grin folia raiθ ʃais ʃais ʃas in rədəʃfinə

## Appendix 4 - Words containing each segment

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kortikem kɔrt̩isi kɔrt̩isi kortikea kɔrt̩isə kurtisə rista ɻɛʃʃi kodžie kodie kojin peli kažni sangʷin̩em s̩eŋgi adipe pilus kapillus kapitia o:rikla voli nariθ nariſe naris neris d̩eʃʃi dint dinte pi piez petiolus peθiolo pitʃʃo lo pifjor genikulum inoxo dʒinɔkkjo dʒenoli vintri vintre pantikem intera:nea ifpadwə ifpadwə sinus si pi pit pwatšin pwetřin anima inimə iyaðo figedu fiyeðu fiat fikat solikulus soreli istrel pluwig plqi flumi rio rio ɻiwi ɻiu riw riu ri:p:ria ɻivje:r pir lapidem arinə nu:bilus ka:li:ginem kaliz̩ej keliz̩ej tinjeblas kajkia sir 'vint niwem nevi nivaj kinerem ðeniθa tʃinise wia bia via vie biə vie istrad̩e iftraðe kamino kammino kemiju kəmi ʃim̩e camin mōʃsi nqi nit die:s dia di die die diə di zi diurnum diurnata nomi no:minem lingʷa lingwa limbə

**j** 006A 10

femj̩e femeje mujere omaj nəmaje utʃʃel sj̩e pjoxo pidɔkkjo pju pədukje serpjente sj̩erpē vjer vja:r vjerme frujt simjente fœj foaje fjore jep jerbe jarbə funje rreste pjel pjel pjele pjuma orekkja œj ɔkkjo uj gœj djente ungja ungje pje pje pjede pjerna pifjor dʒinɔkkjo bjentre ȳt̩aj pjupt jubja pjoddža ploje ploaje fjume ɻivje:r pje:r pjeðra pjetra pjatra savj̩o tjera tjere njebja njyl tinjeblas sjel ȳjelo bjento njebje gjatt̩a djurno

**k** 006B 39

sokius piskem aukellus kanem kan kane k̩ew k̩ew ka kijne peduklus pidɔkkjo pədukje fruktus frukt ra:di:kem ra:di:kina kortikem kɔrt̩isi kɔrt̩isi kortikea korteθa kɔrt̩isə kurtisə skortea ekɔks skortsə əskɔrsa skwarz̩e skoartsə kwan kotenna kodžie kodie konna kojin karnem karne kažni karni karn karne sank kr̩oh kornu: kɔkn kwerno kɔrno kɔnun kornu korn kwen kwar korn kauda k̩e kola koda kauda kauda kua kɔw kde kapillus kabejo kapello kabelu k̩eþelu k̩eþel kapitia k̩aþeθa kavettsa kabesə k̩eþese kap kap o:rikla orekkja ureke okulus ɔkkjo bukka boka boke boke boke buk bukə kambə pæk̩ol genikulum dʒinɔkkjo pantikem kollum ku kwejo kollo kolu kolu kɔl ko kwel pektus kor kɔeþ kwore kɔz kor kɔr kur ku:r fi:ka:tum fikat solikulus akkwa lakum lak ȳak lak saksum ka:li:ginem kaliz̩ej keliz̩ej kajkia kajlum fokum fwɔko fɔk fok kinerem kammi:num kamino kamiju kemiju kəmi

**l** 006C 14

mulierem animalia alimaja nema:l aukellus utʃʃello utʃʃel peduklus pedo:li arþol albero arbul silwa selba selva selba selve pałus pal palo pal pa:l folia ərel flo:rem floe:r flor flor flɔ: flɔ:r flɔ:r flɔ:are pellel pjel pellel peli peli pjel pjele kola plu:ma plym pluma plomə plomə plume pilus pwal pelo pelo pelu pilu pe:l kapillus kapello kabelu k̩eþelu cavel o:rikla ore:le okulus voli gula gœl gola gola golə gole ungula ōgl ōngule petiolus peθiolo pitʃʃo pæk̩ol genikulum dʒenoli a:la el ala ala ala el ale kollum kollo kolu kolu kwel spatula epol espalda spalla spal spale alma alma alme so:lem sol sole sol solikulus solej solo soreli lu:na lyn luna luna lue lue lən lune lunə st:lla etwal stella istrel̩ istrel̩ əstel stœl stœl pluwia plqi pluʒə plef ploje ploaje flu:men flumi flumi flum lakum lak lago lago lagu layu lak la:t lak sa:lem sel sal sale sal sal sa:l lapidem laude sabulum sabl sabulonem savalɔn pulwerem polvere pɔlvar pulwus polbo pols nu:bilus nublo nuvola nuvol nu:l ka:li:ginem kaliz̩ej keliz̩ej nebula njebja newl̩ njyl tinjeblas kajlum sjel ȳjelo sel ʃi:l gelu: ȳel jelo dʒelo glas glas gles glaf̩e lingʷa l̩ag lengwa lingwa ligwe l̩ev 'l̩enge limbə

**m** 006D 2

fe:mina fam embra femmina feme:f fembra foem feme:ne mulierem muxer mo:λde mu:λe mu:λe mu:λe mujere domina dam dam do:amnə infantem mari:tus ma:zi mariðo marito maridu məriðu marit mari:t mərit ma:trem me:z ma:dre madre m̩ej m̩ej marə mer mari animalia omaj alimaja nema:l nəmaje piskem awem passerem kanem serpentem wermem berme verme ve:mi vermi verm vjerme arborem se:men seme:mentis səm̩as simjente semente sem̩efi sim̩eti səmen sim̩es semenf̩e səminf̩o gra:nūm ra:di:kem kortikem flo:rem gra:men g̩ramen grama gr̩eme gr̩eme gram grame fu:nem restem pellel karnem sangʷin̩em ossum adepem o:wum plu:ma plym pluma pjuma plomə plomə plume dentem pedem gamba gamba gamba kambə ja:mbə genikulum manum m̩e mano ma:no m̩eñ m̩eñ m̩eñ man minə wentrem pantikem kollum dorsum anima am alma alma awme alme am inimə fi:ka:tum so:lem fu:men fjume flumi flumi flum lakum mare me:b mar mare ma:z mar mer ma:r mare sa:lem saksum lapidem sabulum sabulonem pulwerem ka:li:ginem fumata fyme fumata fuma:tə fumase fumate kajlum wentum niwem fu:mus umo fumo fumu fum fum fokum kinerem kammi:num səm̩e kamino kammino kemiju kəmi ʃim̩e camin montem m̩o monte monte mōt̩i mōti mun m̩o mōnt mōnte monta:nea mōtaj montaja montajna mōtēne mōtejne muntajne mōtaj montaje noctem diurnum annum no:men no:me nomi nomi nɔm nume no:minem nombre limbə

**n** 006E 4

fe:mina femmina feme:ne domina dɔnna done done dɔnə done dɔamnə infantem infante fante nijo nino nen̩ej nen̩ej nen nini sponsa sponsus animalia nema:l nəmaje kanem kan kane can kijne serpentem serpjente serpente sərpint se:men semente simjente semente səmen semenf̩e səminf̩o gra:nūm g̩ren gr̩an grano gr̩in gran frondea frondza frunzə ra:di:kina

## Appendix 4 - Words containing each segment

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basin resen rđđesinə gra:men g̃ramen fu:nem fune funje kwan kotenna konnə kojin karnem karne kañni karni karn  
karne sang"winem sangwe sank sindje kornu: kɔrn kwerno korno kɔnnu kornu kɔrn kwen korn penna pen penna pen  
pen pene panə na:sus ne naso na:so nas ne na:s nas nariθ naris nariš na:ris dentem djente dente dint dinte ungula  
ungja ḱngule ungi perna pjerna perno p̃ernə perna genikulum z̃onu inoxo ḱjinokkjo z̃enoł d̃genoli d̃genunkj manum  
mano ma:no man minə wentrem bjentre bentra vintre vintre pantikem panθa pantſa pantse pintefje intera:nea entraña  
əntrajə sinus seno sen san pwat̃sin pwet̃rin anima inimə lu:na lyn luna luna luna lənə lune lunə flu:men hareña  
arena reña ərenə areñ reñe arinə sabulonem savalən nu:be:s ny nube nube nuvēj nuvēj nu:bilus nublo nuvola nuvol nu:l  
nor ka:liginem nebula njebja nevwə nevwə newla njyl negurə tene:bra:s tinjeblas tñebra:s wentum bjento vento ben  
'vint vint niwem njebe neve nevi new nivaj ne:f nea kinerem ſenere sendrə θeniθa ſinise ſenuʃ kammi:num kamino  
kammino camin montem monte mun monte munte monta:nea montaja montajna montajə montaje noctem nūj nofje  
noftte nojti nojti nit nyt nogapte diurnum djurno zorn zɔrna zɔrna diurna:ta z̃unne xornada ḱjornata ḱjornade annum  
anno enu an an no:men nō no:me nomi nomi nō nō nume no:minem nombre lingʷa lingwa l̃enge

**O 006F**

**17**

molle domina doja dona done nijo nino sponsa sposa ispoza ispoze spose mariðo marito sponsus esposo sp̃oz̃o ispozu  
ispozu sokius sots omaj wazo uttfello paxaro passero p̃oxo pidokkjo piołu piołu poł arborem arbol albero arbore  
palo palo fruto frutto grano grano folia oxa fołe fołe frondea frondza kortikem kortikea korteθa kortetfja kɔñfisə skortea  
ekoɔs flor fjore floz flor kotenna kodžie kodie konnə po ossum weso ɔsso osu os webo wɔvo ovu ovu ow kornu:  
kwerno korno kɔnnu kornu korn kola koda plomə pelo pelo kabejo kapello orej orexa orekkja orełe orejla ore:le okulus  
oxo ɔkkjo ołu ołu voli ok! naso na:so boka bokka boke boke gola gola golə perno petiolus peθiolo pitʃølo pitʃor  
inoxo ḱjinokkjo z̃enoł d̃genoli mano ma:no kollum kwejo kollo ko dorsum do dɔsso dos do do epol seno seno peſo petto  
kor kor iyaðo fegato sol sole solikulus soreli o pjoddja ploje rio rio lago lago sasso sorə sabulonem polvere polbo pols  
nublo nuvola nuvol nor θjelo ſjelo bjento vento jelo ḱjelo umo fumo fokum fwego fw̃ko fogu foyu fok kamo kamo  
montem monte monte monta:nea montaja montajna montaje noctem nofje djurno ḱjorno zorn xornada ḱjornata ḱjornade  
ajno anno nomi nomi nombre

**P 0070**

**34**

sponsa epuz sposa sp̃oz̃a ispoza ispoze əsp̃oz̃ə spose sponsus epu esposo sp̃oz̃o ispozu ispozu əsp̃os̃ spo:s patre pez pađre  
padre paj paj parə per pari piskem peθ p̃effe pej̃si pej̃si pes pes peste pwasō pehō passerem paxaro passero paseru  
pasar pasare peduklus pu p̃oxo pidokkjo piołu piołu poł pju pedo:li pədułje serpentem seip̃ā serpiente serpente seip̃e:si  
sirp̃eti s̃arpen s̃erp̃e s̃arpint s̃arpe ɔp pa:lus pal palo palo paw paw pal pa pal par jep pellem po p̃jel pelle peli peli peł  
pe p̃jel pjele adepem adipe plu:ma plym pluma pjuma plomə plom plume penna pen peja penna penə penə penə pen  
panə pilus pwal pelo pelo pelu pilu pel pe:l pər kapillus kapello kapitia kap kap pedem pje pje pjede pe pe pew pi pit  
piez ḱjop̃ perna pjerna perno p̃ernə p̃ernə petiolus peθiolo pitʃølo pekłol pitʃor pantikem pās panθa panſa p̃esə p̃esə  
panſa p̃as pantse pintefje spatula epol espalda spalla ijspadwə ijspadwə əsp̃alłə spal spale spate pektus pi peſo petto pejtu  
pejtu pit pet pjept pwat̃sin pwet̃rin apa pluwia plui pjoddja pluz̃e plef ploje pl̃oje ri:paria petra pjeł pjetra pedre  
pedre peđre pir pjere pjatra lapidem pulwerem pudł var pulbere p̃olvar pulwus polbo po po pols nogapte

**R 0072**

**15**

mulierem mui:r mujere maritus marito mari:t mārit madre mer mari patre padre per pari passerem passero pasar  
serpentem serpente s̃arpen s̃erp̃e s̃arpint wermem verme vjer vja:r vjerme arborem albero arbul arbore fru:ktus frut  
frut frukt gra:num grano gran grin gran grīw frondea frondza ra:di:kem raiθ ərel radri:s ra:di:ki:na resen rđđesinə kortikem  
kortikea kortetfja skortea əskorsə skwartfje flo:rem fjore fl̃or flor herba erba erbə jerbe gra:men grame restem resta  
rjeste karnem karne karn ſtar car kr̃oh gras kornu: korno korn kwar korn o:rikla orekkja ore:le ureke nariſe na:ris perna  
perno pernə pitʃor wentrem vintri vintre intera:nea dorsum pwet̃rin kor kwore kɔr kur kur soreli ri:wus rio rio riw re riw  
riw ri:p̃aria rivi:r mare mare mar mar mare sare petra p̃ir pjere hare:na reña aren reñe arinə sorə pulwerem  
polvere p̃olvar pulbere terra tjera terra ter tjere tsarə nor negurə tene:bra:s sir d̃jer kinerem ſenere sendrə stra:ta strada  
strade diurnum ḱjorno diurna:ta ḱjornata ḱjornade

**S 0073**

**33**

sponsa sposa sp̃oz̃a ispoza əsp̃oz̃ə spose mari:tus sponsus esposo sp̃oz̃o ispozu əsp̃os̃ spo:s sokius sots be:stia bies bis  
piskem pes pwasō aukellus useł passerem passero paseru pasar pasare peduklus serpentem seip̃ā serpiente serpente  
seip̃e:si sirp̃eti s̃arpen s̃erp̃e s̃arpint silwa selva  
simjente semente semēfj simēti samen simēs semenfje səminfj frōsə frōsə kais radri:s kais resen kɔñfisi kɔñfisi  
kurtise skortea ekoɔs skortsa əskorsə hwes skwartfje skqartsə restem rista resta rjeste sang"winem sā sangre sangwe s̃eñi s̃eñi  
sanj s̃oñ sank sindje ossum os weso ɔsso osu os wes os g̃res grasa gras pilus kapillus kavetta kabese kebese testa

## Appendix 4 - Words containing each segment

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testa teste testə t̪es̪ teste tsəastə okulus na:sus naso na:so nas na:s nas naris na:ris petiolus pās p̪es̪ p̪es̪ p̪as̪ dorsum dɔsso dos dwes spatula espalda spalla əspalʌlə spal spale spate sinus s̪e seno seno seju seju si sen san pektus so:lem sol sole s̪ow s̪oł s̪oare solikulus s̪ołej s̪oł soreli ste:lla estreja stella istrelə əstel stœl stœl stœla ri:wus sa:lem sel sal sale saw sal sal se sal sare saksum sasso sejfu sejfu sas sabulum sabl sajþru sajþru sorə sabulonem savjɔ̄ savalon pulwus pols nu:bes̪ nu:bilus tene:bra:s̪ tinjeblas treves tanebrəs fumase fumase sjel sew sew sel sir glas glas gles fu:mus s̪adz̪ sendrə s̪et̪ size: size: ʃinise stra:ta estrada strada istrade strade die:

**t** 0074 **26**

infantem infante fante ūfeti mari:tus marito marit mari:t mörít ma:trem patre tata tata tata tata tata tate tatə be:stia peste uttfello serpentem serpjente serpente sirp̪eti sarpint fru:ktus frutto frutte frujt frut frukt sementis simjente semente sim̪eti kortikem kɔrtisi kortikea korteθa kurtis̪a skortea restem rista resta uesti rjeste kotenna kapitia kavettsa testa tet̪ testa teste testə teste tsəastə dentem djente dente d̪eti dint dinte pi:t̪ petiolus pitʃ̪olo wentrem v̪at̪ bjentre bentrə v̪et̪ vintri vintre pantikem pintefse intera:nea ătraj entraja ītrēne ītrēne əntrajə spatula spate pektus petto pejtu pejtu pit̪ pet̪ pjept̪ pwat̪zin pwetrin fi:ka:tum fegato foet̪ fia:t fikat̪ ste:lla etwal estreja stella istrelə əstel stœl stœle stœla lat̪ petra pjetra pjatrə terra tez̪ tjera terra tez̪ tez̪ terə ter tjere tene:bra:s̪ tinjeblas treves treves tanebrəs̪ fu:ma:ta fumata fuma:ta fumate wentum bjento vento v̪etu v̪etu 'vint vint gjat̪fa s̪et̪ stra:ta estrada strada istrade ijtrade strade montem monte monte möti mönt munte monta:nea mötaj montaja montajna mötēne mötēne muntajə mötaj montaje noctem notte nojti nit nyt jöt nöapte diurna:ta ðjornata

**u** 0075 **13**

mulierem muxer mu:ler mu:ler mui:r mujere epuz mari:tus maridu məriðu sponsus epu ispozu iʃpozu sokius aʃkellus uttfello useλ uhe uʃʃel paseru paseru peduklus pu pioλu pioλu pju pədułke arvuri arbul pa:lus fru:ktus frutto frutte frute frujt frut frukt gran:um fułə frunzə kurtis̪ fune funje ossum osu osu o:wum oву u kɔnku kornu kua pluma pjuma plume pilus pelu pilu kapillus kabelu kəʃbelu ureλə urekə urekə okulus ołu ołu uj na:sus bułka buʃ bukə gula gurə ungula uŋja uŋje uŋgle ungje petiolus genikulum zənu zueλu zueλu dʒenunkj manum kollum ku kolu kolu dorsum spatula sinus seju seju pektus pejtu kur fi:ka:tum figedū fifeðu solikulus luna luna lue lue luna luna pluwia jubja suve suve plužə fjume flumi flumi flum ri:wus ʑiu riu lakum lagu layu saksum sejfu sejfu laude sabulum sajþru sajþru sabulonem pulwerem pudz̪ pulbere pulwus nube nube nuvēj nuvēj nu:bilus nublo nuvol nebula negurə fumata fuma:ta fumase fumate fumate kajlum wentum v̪etu v̪etu fu:mus umo fumo fumu fum fum fokum fogu foyu fʃenuʃə kammi:num kamijnu kemiju mun munte muntajə diurnum zuł dʒurno dʒu diurna:ta zułne annum enu enu nume

**V** 0076 **50**

avi avi veł verme vełmi vermi verm vjer vja:r vjerme ałvori arvuri selva səwva selve ełva ełva wɔvo oву oву oву səvə dʒvə cavel səvə kavettsa cavel voli v̪at̪ v̪et̪ vintri vintre suve suve ʑivjeż rivir savjɔ̄ savalon polvere pɔłvar nuvēj nuvēj nuvola nuvol nevwə nevwə treves treves v̪a vento v̪etu v̪etu v̪e 'vint vint neve nevi nevi nivaj vwa via viə viə voj vie l̪e

**W** 0077 **47**

pwasõ awem aw wazo wermem silwa səwva paw paw fwee hwes̪ skwarzfe kwan sangwe weso wes̪ o:wum webo wɔvo ɔw ow kwerno kwen kwar kow pwal pew ʐweλu wentrem kwejo kwel dwes̪ iʃpadwə iʃpadwə pwat̪zin pwetrin kwore awme fwa s̪ow etwal aywa akkwa agwə agwə ajywə ew pluwia ri:wus ʑiw riw riw saw pulwerem pulwus nevwə nevwə newlə sew sew wentum niwem new fwego fwøko wia vwa lengwa lingwa ligwə ɬengwa

**X** 0078 **16**

muxer paxaro pjaxo oxa orexa oxo inoxo xornada

**Y** 0079 **62**

fryt plym lyn by ny njyl fyme nyt

**Z** 007A **35**

epuz spoza ispoza iʃpoza əspozə spozo ispozu iʃpozu wazo frunzə piez̪ s̪ize s̪ize zi

## Appendix 4 - Words containing each segment

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<b>ð</b>	00F0	<b>37</b>
mariðu meriðu maðre paðre iyaðu fiyðu pjeðra peðra peðra istraðr		
<b>õ</b>	00F5	<b>48</b>
pwasõ pehõ frõse frõse õgl mõfõi mõti mõtajr mõtējne mõtējne		
<b>ø</b>	00F8	<b>73</b>
kø ðøvø løn fo		
<b>í</b>	0129	<b>28</b>
ifèfí ifèfí ïtrëjne size size kamijnu ligwe ligwe		
<b>ŋ</b>	014B	<b>71</b>
sangre saŋgwa ðengwə		
<b>œ</b>	0153	<b>11</b>
fœm fœj flœr flœr œf œj gœl gœj kœs fœt stœl fœ		
<b>ɛ</b>	0250	<b>9</b>
femær femja dona dona iſpozæ meriðu biſe biſe paseru paseru selve frute frute foða frõse frõse keiſ kõfisæ kurtisæ erve erve grẽmæ gremæ kodžie kodie graſe graſe kauðe kauðe penæ penæ keþelu kabese keþese teste teste oreða orejæ orejæ neris boke boke upa upa perna perna zwælu pẽsa pẽsa ïtrëjne ïtrëjne iſpadwe iſpadwe awmæ almæ figedu fiyðu lue lue istrelæ iſtrela agwe agwe suve suve pedre pedre arejæ arejæ teræ teræ kelizéj nevwæ nevwæ træves træves fumase fumase size size viæ viæ istraðr iſtraðr kemijnu mõtējne mõtējne die die enu enu ligwe ligwe		
<b>a</b>	0251	<b>59</b>
pa ðfar am am fwa hare:na savjɔ		
<b>ɔ</b>	0254	<b>23</b>
dõnna dõnæ dõne sposa espõzæ spõzo espõs pidõkkjo ãp fãlla kõfisæ kõrtisi skortsa əskorsæ fl̩ ãs ãsso ãs che krãh wãvo ãw kõan kõrno kõrn kõw kõde plõm ãrej ãkkjo bõk bõce gole ãngule pitjõlo pekõl ðjinõkkjo jõõ kõlu kõlã dãsso kwore kõa kõr sãw sãl sãl sãlej solo savalõn polvar po po fwãko fõk moint nõte ñot zõvna zõvna ñon ñon		
<b>ə</b>	0259	<b>24</b>
dõnæ dõamnæ espõzæ mõrit espõs maræ paræ tatæ nõmajæ pasare pãdukje sãrpen abræ sãmãs sãmen sãminfæ fuñæ frunzæ ærel rãdãfina əskorsæ skqartsæ erbæ jarbæ konnæ cqadæ plomæ penæ panæ þor ðøvø kõbeñl ðøve testæ tseastæ ureñæ bokæ bukæ golæ guræ kamþæ gambæ perna zõnu zõnoñ minæ alæ bentra pajõs ãntrajæ espalázæ inimæ fedžæ lunæ lunæ əstel ajywæ apæ pluzæ pedræ pjatræ ærenæ arinæ soræ teræ tsaræ newlæ neguræ tanebræs tseafjæ geatæ sendæ tñenujæ biæ ðemæ kõmi muntajæ diæ ðengwæ limba		
<b>ɛ</b>	025B	<b>12</b>
femine efã per bies pes pehõ utſello uhe uſſel sjerpẽ verm sewva selve semenfæ gven ərel resen hwes ekb erba erve jep gřamen resta kefjí peli pe pjel ſer che wes gres kwen kõde plume pen penæ pen penæ pel kõbeñl ðgvæ ðøve caveñl tet testa teste teste ſes teste ureñæ bõce dente pjede pe pe pew perno perna perna perna pekõl kwel dwes sen petto pet pwetrin əstel stale ew plef re meñ sel peðre rena aren rene terra teræ teræ tjere nevwæ nevwæ træves træves sjel ſelo sew sew sel vento nevi nevi zel ðjelo zel gles sendæ ſinise munte ðengwæ 'lenga		
<b>ʃ</b>	025F	<b>80</b>
jambe		

## Appendix 4 - Words containing each segment

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<b>g</b>	0261	<b>63</b>
gra:num græn grano grano græw græw gra grin gran griw gra:men gramen grama græma greme gram grame sangre sangwe sëgi sëgi sôg græs grasa græf græf gras gula goel gola gola golæ gœj gole guræ ungula ðgl ungja ðg ñngule unjje gamba gamba gamba genikulum fegato figedu agwe agwe age lago lago lagu kali:ginem neguræ gelu: glas gjatjæ glas gles glafæ geatsæ fwego fogu lâg lengwa lingwa ligwe ligwe lengwæ 'lengæ		
<b>Y</b>	0263	<b>81</b>
iyado fiyeðu aywa ajywæ layu foyu		
<b>U</b>	0265	<b>61</b>
fuqi plqi nuqi		
<b>i</b>	0268	<b>31</b>
ifeti ifpoze ifpozu pejsi avi sirpëti vermi arvuri simëti sëminfæ këfti peli karni sëgi sindge pilu dëti mina pintefæ istrelæ flumi riw vint nevi mòti nojti nomi		
<b>I</b>	026A	<b>78</b>
na:ris		
<b>ɛ</b>	026B	<b>58</b>
selva soł ȝeł		
<b>n</b>	0272	<b>22</b>
dona nijo alimaja pena peñe uña uña uña juña pajë entraña itreñne ètreñne èntrajne kamijnu kemijnu mòtaj montajna montajna mòtene mòtene muntajne mòtaj montajne jut ajo ajo		
<b>f</b>	027E	<b>8</b>
embra fembra muxer mułer mariđo maridu mariđu marit mađre marø pađre parø paxaro pasaru pasaru pasare serpjente sirpëti sarpe berme vermi verm arþol arvorí arvuri abrø par fruto frute frutj grano græw græw gra frøse frunzæ këftisi korteña kurtise skqartsæ flor flor floare jerba erve jarbæ grama græma greme gram rista karne karni karne sangre grasa græf gres kwerno kornu pø orexa orela orejæ urela nariñ naris guræ pjerna perne bjentre bentre entraña itreñne ètreñne èntrajne kor soqare estreja istrelæ istrelæ mar mar pjeđra pedre peđre pjatræ arena areje ereje ørenæ sajþru sajþru tøves tøves tønebræs fjer estrada istrade ifstraðe djurno zorn xornada nombre		
<b>R</b>	0280	<b>75</b>
orej		
<b>K</b>	0281	<b>19</b>
mułev tañi meñ reñ sekrä sekrëfî veñ veñmi añañ aavnori fuqi græn kais kais kasis kasis kasis ekoks floñ floñ eñb eñb eñb gramen këfî këfti señ kaken kaken kaken okej reñne vâñ ðkaj pwatkin kœs kœs ky kiw kiw kiw jek taw taw pjeñ pudz teñ teñ teñ sâñz zukna zukna zukne		
<b>ʃ</b>	0283	<b>36</b>
ifpoze ifpozu biffa biñe biñe pesse pejsi pejsi pes peste sjë sarpe këfî këfî këfti señ græf græf gres jævø jæve teste neris bus pajse ifpadwe ifpadwe istrelæ suve suve sejju sejju tøves tønusæ ifstraðe jæmæ		
<b>λ</b>	028E	<b>18</b>
molle mułev mułev mułe useñ piolù piolù roñ foñña foñña foñña fuñe peñ kæbeñ oreñya orajya urayya oñu oñu zueñu zueñu zueñu kœy esrallye luna laka lengwæ		

## Appendix 4 - Words containing each segment

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<b>ž</b>	0292	79
žāb žānu žāneju žāwāju žānoj plužā kāližēj keližēj žel žel žāk žorn žāvna žāvna žāvne		
<b>j</b>	029D	67
jerba kabejo kwejo estreja jubja jelo		
<b>dz</b>	02A3	66
frondza		
<b>đz</b>	02A4	68
kodžie sindže đzve đzăp đjinokkjo đgenoli đgenunk <sup>j</sup> fedžə pjoddža đzelo đger đzorno đgu đzornata đgornade		
<b>ts</b>	02A6	40
sots skortsa skoartsə tsəastə pantse tsarə geatsə		
<b>tʃ</b>	02A7	30
ifētʃi utʃello utʃjel tʃe seɪpētʃi semētʃi semenitʃe səminitʃe rədətʃinə kɔktʃisi kortetʃa kɔktʃise skwartʃe kɛtʃi tʃur caveʃ tʃes nariʃe dětʃi pitʃjolo pitʃjor pantʃa pintetʃe peʃo tʃeaʃə tʃelo tʃi:l tʃer gjatʃa glaʃe tʃenere tʃinise tʃenuʃə tʃimě mōtʃi noʃe		
<b>þ</b>	03B2	57
aɹþol kəþelu kaþeθa keþese sajþru sajþru		
<b>θ</b>	03B8	44
peθ raiθ korteθa kaþeθa nariθ peθiolو panθa θjelo θeniθa		
<b>ẽ</b>	1EBD	56
seɪpētʃi sirpēti sjerpē semētʃi simēti simēs dētʃi dēti mē ētrep̩e sē vētu vētu		

## Appendix 5 - Word Lists by Language

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### Latin

Cognate	IPA	Sounds
Woman-Primary	fe:mina	f-ai-m-e-n-ah
Woman-Mulier	mulierem	m-u-l-e-ay-r-ay-m
Woman-Domina	domina	d-oh-m-e-n-ah
Child-Primary	infantem	e-n-f-ah-n-t-ay-m
Wife-Primary	sponsa	s-p-oh-n-s-ah
Husband-Primary	mari:tus	m-ah-r-E-t-u-s
Husband-Sponsus	sponsus	s-p-oh-n-s-u-s
Husband-Socius	sokius	s-oh-k-e-u-s
Mother-Primary	ma:trem	m-A-t-r-ay-m
Father-Primary	patre	p-ah-t-r-ay
Father-Tata	tata	t-ah-t-ah
Animal-Primary	animalia	ah-n-e-m-ah-l-e-ah
Animal-Bestia	be:stia	b-ai-s-t-e-ah
Fish-Piskem	piskem	p-e-s-k-ay-m
Bird-Avem	awem	ah-w-ay-m
Bird-Aucellum	aukellus	au-k-ay-l-l-u-s
Bird-Passerem	passerem	p-ah-s-s-ay-r-ay-m
Dog-Primary	kanem	k-ah-n-ay-m
Louse-Primary	peduklus	p-ay-d-u-k-l-u-s
Snake-Primary	serpentem	s-ay-r-p-ay-n-t-ay-m
Worm-Primary	wermem	w-ay-r-m-ay-m
Tree-Primary	arborem	ah-r-b-oh-r-ay-m
Forest-Primary	silwa	s-e-l-w-ah
Stick-Primary	pa:lus	p-A-l-u-s
Fruit-Primary	fru:ktus	f-r-U-k-t-u-s
Seed-Primary	se:men	s-ai-m-ay-n
Seed-Sementis	sementis	s-ay-m-ay-n-t-e-s
Seed-Granum	gra:num	g-r-A-n-u-m
Leaf-Primary	folia	f-oh-l-e-ah
Leaf-Frondea	frondea	f-r-oh-n-d-ay-ah
Root-Primary	ra:di:kem	r-A-d-E-k-ay-m
Root-Radicina	ra:di:ki:na	r-A-d-E-k-E-n-ah
BarkOfATree-Primary	kortikem	k-oh-r-t-e-k-ay-m
BarkOfATree-Corticea	kortikea	k-oh-r-t-e-k-ay-ah
BarkOfATree-Skortea	skortea	s-k-oh-r-t-ay-ah
Flower-Primary	flo:rem	f-l-O-r-ay-m
Grass-Primary	herba	h-ay-r-b-ah
Grass-Gramen	gra:men	g-r-A-m-ay-n
Rope-Primary	fu:nem	f-U-n-ay-m
Rope-Restis	restem	r-ay-s-t-ay-m
Skin-Pellis	pellem	p-ay-l-l-ay-m
Meat-Primary	karnem	k-ah-r-n-ay-m
Blood-Primary	sang <sup>w</sup> inem	s-ah-n-gw-e-n-ay-m
Bone-Primary	ossum	oh-s-s-u-m
FatNoun-Primary	adepem	ah-d-ay-p-ay-m
Egg-Primary	o:wum	O-w-u-m
Horn-Primary	kornu:	k-oh-r-n-U
Tail-Primary	kauda	k-au-d-ah
Feather-Primary	plu:ma	p-l-U-m-ah
Feather-Penna	penna	p-ay-n-n-ah
Hair-Primary	pilus	p-e-l-u-s
Hair-Capillus	kapillus	k-ah-p-e-l-l-u-s
Head-Primary	kapitia	k-ah-p-e-t-e-ah
Head-Testa	testa	t-ay-s-t-ah

## Appendix 5 - Word Lists by Language

Ear-Primary	o:rikla	O-r-e-k-l-ah
Eye-Primary	okulus	oh-k-u-l-u-s
Nose-Primary	na:sus	n-A-s-u-s
Mouth-Primary	bukka	b-u-k-k-ah
Mouth-Gula	gula	g-u-l-ah
Tooth-Primary	dentem	d-ay-n-t-ay-m
Fingernail-Primary	ungula	u-n-g-u-l-ah
Foot-Primary	pedem	p-ay-d-ay-m
Leg-Gamba	gamba	g-ah-m-b-ah
Leg-Perna	perna	p-ay-r-n-ah
Leg-Petiolus	petiolus	p-ay-t-e-oh-l-u-s
Knee-Genuculum	genikulum	g-ay-n-e-k-u-l-u-m
Hand-Primary	manum	m-ah-n-u-m
Wing-Primary	a:la	A-l-ah
Belly-Primary	wentrem	w-ay-n-t-r-ay-m
Belly-Pantex	pantikem	p-ah-n-t-e-k-ay-m
Guts-Primary	intera:nea	e-n-t-ay-r-A-n-ay-ah
Neck-Primary	kollum	k-oh-l-l-u-m
Back-Primary	dorsum	d-oh-r-s-u-m
Back-Spatula	spatula	s-p-ah-t-u-l-ah
Breast-Primary	sinus	s-e-n-u-s
Breast-Pectus	pektus	p-ay-k-t-u-s
Heart-Primary	kor	k-oh-r
Heart-Anima	anima	ah-n-e-m-ah
Liver-Primary	fi:ka:tum	f-E-k-A-t-u-m
Sun-Primary	so:lem	s-O-l-ay-m
Sun-Soliculus	solikulus	s-oh-l-e-k-u-l-u-s
Moon-Primary	lu:na	l-U-n-ah
Star-Primary	ste:lla	s-t-ai-l-l-ah
Water-Primary	ak^a	ah-kw-ah
Rain-Primary	pluwia	p-l-u-w-e-ah
River-Primary	flu:men	f-l-U-m-ay-n
River-Rivus	ri:wus	r-E-w-u-s
River-Riparia	ri:pa:ria	r-E-p-A-r-e-ah
Lake-Primary	lakum	l-ah-k-u-m
Sea-Primary	mare	m-ah-r-ray
Salt-Primary	sa:lem	s-A-l-ay-m
Stone-Primary	saksum	s-ah-k-s-u-m
Stone-Petra	petra	p-ay-t-r-ah
Stone-Lapidem	lapidem	l-ah-p-e-d-ay-m
Sand-Primary	hare:na	h-ah-r-ai-n-a
Sand-Sabulum	sabulum	s-ah-b-u-l-u-m
Sand-Sabulo	sabulonem	s-ah-b-u-l-oh-n-ay-m
Dust-Primary	pulwerem	p-u-l-w-ay-r-ay-m
Dust-Pulwus	pulwus	p-u-l-w-u-s
Earth-Primary	terra	t-ay-r-r-ah
Cloud-Primary	nu:be:s	n-U-b-ai-s
Cloud-Nubilus	nu:bilus	n-U-b-e-l-u-s
Fog-Primary	ka:li:ginem	k-A-l-E-g-e-n-ay-m
Fog-Nebula	nebula	n-ay-b-u-l-ah
Fog-Tenebras	tene:bra:s	t-ay-n-ai-b-r-A-s
Fog-Fumata	fu:ma:ta	f-U-m-A-t-ah
Fog-Caecia	kajkia	k-aj-k-e-ah
Sky-Primary	kajlum	k-aj-l-u-m
Wind-Primary	wentum	w-ay-n-t-u-m
Snow-Primary	niwem	n-e-w-ay-m
Ice-Primary	gelu:	g-ay-l-U
Smoke-Primary	fu:mus	f-U-m-u-s

## Appendix 5 - Word Lists by Language

Fire-Focus	fokum	f-oh-k-u-m
Ash-Primary	kinerem	k-e-n-ay-r-ay-m
Road-Primary	wia	w-e-ah
Road-Strata	stra:ta	s-t-r-A-t-ah
Road-Camminus	kammi:num	k-ah-m-m-E-n-u-m
Mountain-Primary	montem	m-oh-n-t-ay-m
Mountain-Montanea	monta:nea	m-oh-n-t-A-n-ay-ah
Night-Primary	noctem	n-oh-tya-t-ay-m
Day-Primary	die:s	d-e-ai-s
Day-Diurnus	diurnum	d-e-u-r-n-u-m
Day-Diurnata	diurna:ta	d-e-u-r-n-A-t-ah
Year-Primary	annum	ah-n-n-u-m
Name-Nomen	no:men	n-O-m-ay-n
Name-Nominem	no:minem	n-O-m-e-n-ay-m
Tongue-Primary	lingʷa	l-e-n-gw-ah

### French

Cognate	IPA	Sounds
Woman-Primary	fam	f-ah-m
Woman-Domina	dam	d-ah-m
Child-Primary	ãfã	NasalA-f-NasalA
Wife-Primary	epuz	ay-p-u-zz
Husband-Primary	maži	m-ah-rr-e
Husband-Sponsus	epu	ay-p-u
Mother-Primary	mež	m-ay-rr
Father-Primary	pež	p-ay-rr
Animal-Primary	omaj	oh-m-ah-jg
Fish-Pescion	pwasð	p-w-ah-s-on
Bird-Aucellum	wazo	w-ah-zz-oh
Dog-Primary	ſjɛ	shh-jg-ehnn
Louse-Primary	pu	p-u
Snake-Primary	ſeɪpã	s-ay-rr-p-NasalA
Worm-Primary	vež	v-ay-rr
Tree-Primary	ažbž	ah-rr-b-rr
Stick-Primary	pal	p-ah-l
Fruit-Primary	fižqi	f-rr-eu-e
Seed-Sementis	səmãš	s-aah-m-NasalA-s
Seed-Granum	ggen	g-rr-eh-n
Leaf-Primary	fœj	f-uuh-jg
Root-Radicina	kažin	rr-ah-s-e-n
BarkOfATree-Skortea	ekožs	ay-k-oh-rr-s
Flower-Primary	flœž	f-l-uhh-rr
Grass-Primary	ɛžb	eh-rr-b
Grass-Gramen	gžamen	g-rr-ah-m-eh-n
Skin-Primary	kwan	k-w-ah-n
Skin-Pellis	po	p-oh
Meat-Primary	ſež	shh-eh-rr
Blood-Primary	ſá	s-NasalA
Bone-Primary	øs	euh-s
FatNoun-Crassia	gžes	g-rr-eh-s
Egg-Primary	œf	uuh-f
Horn-Primary	kɔžn	k-euh-rr-n
Tail-Primary	kø	k-uu
Feather-Primary	plym	p-l-eeh-m
Feather-Penna	pen	p-eh-n
Hair-Primary	pwal	p-w-ah-l

## Appendix 5 - Word Lists by Language

Hair-Capillus	ʃøvø	shh-aah-v-uu
Head-Primary	ʃøvø	shh-aah-v-eh
Head-Testa	tøt	t-eh-t
Ear-Primary	oøøj	oh-rr-ayj
Eye-Primary	œj	uuh-jg
Nose-Primary	ne	n-ay
Mouth-Primary	bʊʃ	b-u-shh
Mouth-Gula	gœl	g-uuh-l
Tooth-Primary	dã	d-NasalA
Fingernail-Primary	ðøgl	on-g-l
Foot-Primary	pje	p-jg-ay
Leg-Gamba	ʒãb	gzah-NasalA-b
Knee-Genuculum	ʒənu	gzah-aah-n-u
Hand-Primary	mẽ	m-chn
Wing-Primary	el	ay-l
Belly-Primary	vãtš	v-NasalA-t-rr
Belly-Pantex	pãs	p-NasalA-s
Guts-Primary	ãtšaj	NasalA-t-rr-ah-jg
Neck-Primary	ku	k-u
Back-Primary	do	d-oh
Back-Spatula	epol	ay-p-oh-l
Breast-Primary	sẽ	s-ehn
Breast-Pectus	pi	p-e
Breast-Pectorina	pwatšin	p-w-ah-t-rr-e-n
Heart-Primary	kœv	k-uhh-rr
Heart-Anima	am	a-m
Liver-Primary	fwa	f-w-a
Sun-Soliculus	solej	s-euh-l-ehj
Moon-Primary	lyn	l-eeh-n
Star-Primary	etwal	ay-t-w-ah-l
Water-Primary	o	oh
Rain-Primary	plqi	p-l-eu-e
River-Rivus	ry	rr-eeh
River-Riparia	riŋjɛv	rr-e-v-jg-ay-rr
Lake-Primary	lak	l-ah-k
Sea-Primary	mæv	m-eh-rr
Salt-Primary	sel	s-eh-l
Stone-Petra	pjœv	p-jg-ay-rr
Sand-Sabulum	sabl	s-ah-b-l
Dust-Primary	pudš	p-u-d-rr
Earth-Primary	tev	t-ay-rr
Cloud-Primary	ny	n-eeh
Fog-Fumata	fyme	f-eeh-m-ay
Sky-Primary	sjøl	s-jg-eh-l
Wind-Primary	vã	v-NasalA
Ice-Primary	zœl	gzah-eh-l
Ice-Glacies	glas	g-l-ah-s
Fire-Focus	fø	f-uu
Ash-Primary	sádø	s-NasalA-d-rr
Road-Primary	vwa	v-w-ah
Road-Camminus	ʃømẽ	shh-aah-m-ehnn
Mountain-Primary	mõ	m-oon
Mountain-Montanea	mõtaj	m-on-t-ah-VdPalatalNasal
Night-Primary	nqi	n-eu-e
Day-Diurnus	ʒuš	gzah-u-rr
Day-Diurnata	ʒuŋne	gzah-u-rr-n-ay
Year-Primary	ã	NasalA
Name-Nomen	nõ	n-oon

## Appendix 5 - Word Lists by Language

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Tongue-Primary	lág	l-NasalA-g
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### Spanish

Cognate	IPA	Sounds
Woman-Primary	embra	ay-m-b-er-ah
Woman-Mulier	muxer	m-u-xha-ay-er
Woman-Domina	doja	d-oh-VdPalatalNasal-ah
Child-Primary	infante	e-n-f-ah-n-t-ay
Child-Ninnus	nijo	n-e-VdPalatalNasal-oh
Wife-Primary	esposa	ay-s-p-oh-s-ah
Husband-Primary	mariðo	m-ah-er-e-dd-oh
Husband-Sponsus	esposo	ay-s-p-oh-s-oh
Mother-Primary	maðre	m-ah-dd-er-ay
Father-Primary	paðre	p-ah-dd-er-ay
Father-Tata	tata	t-ah-t-ah
Animal-Primary	alimaja	ah-l-e-m-ah-VdPalatalNasal-ah
Fish-Piskem	peθ	p-ay-th
Bird-Avem	abe	ah-b-ay
Bird-Passerem	paxaro	p-ah-xha-ah-er-oh
Dog-Primary	kan	k-ah-n
Louse-Primary	pjoxo	p-jg-oh-xha-oh
Snake-Primary	serpiente	s-ay-er-p-jg-ay-n-t-ay
Worm-Primary	berme	b-ay-er-m-ay
Tree-Primary	arþol	ah-er-bb-oh-l
Forest-Primary	selba	s-ay-l-b-ah
Stick-Primary	palo	p-ah-l-oh
Fruit-Primary	fruto	f-er-u-t-oh
Seed-Sementis	simjente	s-e-m-jg-ay-n-t-ay
Seed-Granum	grano	g-er-ah-n-oh
Leaf-Primary	oxa	oh-xha-ah
Root-Primary	raiθ	r-ah-e-th
BarkOfATree-Corticea	korteθa	k-oh-er-t-ay-th-ah
Flower-Primary	flor	f-l-oh-er
Grass-Primary	jerba	VdPalatalFricative-ay-er-b-ah
Grass-Gramen	grama	g-er-ah-m-ah
Rope-Restis	rista	er-e-s-t-ah
Skin-Pellis	pjel	p-jg-ay-l
Meat-Primary	karne	k-ah-er-n-ay
Blood-Primary	sangre	s-ah-nya-g-er-ay
Bone-Primary	weso	w-ay-s-oh
FatNoun-Crassia	grasa	g-er-ah-s-ah
Egg-Primary	webo	w-ay-b-oh
Horn-Primary	kwerno	k-w-ay-er-n-oh
Tail-Primary	kola	k-oh-l-ah
Feather-Primary	pluma	p-l-u-m-ah
Feather-Penna	peña	p-ay-VdPalatalNasal-ah
Hair-Primary	pelo	p-ay-l-oh
Hair-Capillus	kabejo	k-ah-b-ay-VdPalatalFricative-oh
Head-Primary	kaþeθa	k-ah-bb-ay-th-ah
Ear-Primary	orexa	oh-er-ay-xha-ah
Eye-Primary	oxo	oh-xha-oh
Nose-Primary	naso	n-ah-s-oh
Nose-Nares	nariθ	n-ah-er-e-th
Mouth-Primary	boka	b-oh-k-ah
Mouth-Gula	gola	g-oh-l-ah
Tooth-Primary	djente	d-jg-ay-n-t-ay

## Appendix 5 - Word Lists by Language

Fingernail-Primary	una	u-VdPalatalNasal-ah
Foot-Primary	pje	p-jg-ay
Leg-Gamba	gamba	g-ah-m-b-ah
Leg-Perna	pierna	p-jg-ay-er-n-ah
Leg-Petiolus	peθiolo	p-ay-th-e-oh-l-oh
Knee-Genuculum	inoxo	e-n-oh-xha-oh
Hand-Primary	mano	m-ah-n-oh
Wing-Primary	ala	ah-l-ah
Belly-Primary	bjentre	b-jg-ay-n-t-er-ay
Belly-Pantex	panθa	p-ah-n-th-ah
Guts-Primary	entraña	ay-n-t-er-ah-VdPalatalNasal-ah
Neck-Primary	kwejo	k-w-ay-VdPalatalFricative-oh
Back-Spatula	espalda	ay-s-p-ah-l-d-ah
Breast-Primary	seno	s-ay-n-oh
Breast-Pectus	peʃo	p-ay-ts-oh
Heart-Anima	alma	ah-l-m-ah
Liver-Primary	iyaðo	e-juh-ah-dd-oh
Sun-Primary	sol	s-oh-l
Moon-Primary	luna	l-u-n-ah
Star-Primary	estreja	ay-s-t-er-ay-VdPalatalFricative-ah
Water-Primary	aywa	ah-juh-w-ah
Rain-Primary	jubja	VdPalatalFricative-u-b-jg-ah
River-Rivus	rio	r-e-oh
Lake-Primary	lago	l-ah-g-oh
Sea-Primary	mar	m-ah-er
Salt-Primary	sal	s-ah-l
Stone-Petra	pjeðra	p-jg-ay-dd-er-ah
Stone-Lapidem	laude	l-ah-u-d-ay
Sand-Primary	arena	ah-er-ay-n-ah
Dust-Pulwus	polbo	p-oh-l-b-oh
Earth-Primary	tjera	t-jg-ay-r-ah
Cloud-Primary	nube	n-u-b-ay
Cloud-Nubilus	nublo	n-u-b-l-oh
Fog-Nebula	njebla	n-jg-ay-b-l-ah
Fog-Tenebras	tinjeblas	t-e-n-jg-ay-b-l-ah-s
Fog-Fumata	fumata	f-u-m-ah-t-ah
Sky-Primary	θjelo	th-jg-ay-l-oh
Wind-Primary	bjento	b-jg-ay-n-t-oh
Snow-Primary	njebe	n-jg-ay-b-ay
Ice-Primary	jelo	VdPalatalFricative-ay-l-oh
Smoke-Primary	umo	u-m-oh
Fire-Focus	fwego	f-w-ay-g-oh
Ash-Cinisia	θeniθa	th-ay-n-e-th-ah
Road-Primary	bia	b-e-ah
Road-Strata	estrada	ay-s-t-er-ah-d-ah
Road-Camminus	kamino	k-ah-m-e-n-oh
Mountain-Primary	monte	m-oh-n-t-ay
Mountain-Montanea	montaña	m-oh-n-t-ah-VdPalatalNasal-ah
Night-Primary	noʃe	n-oh-ts-ay
Day-Primary	dia	d-e-ah
Day-Diurnus	djurno	d-jg-u-er-n-oh
Day-Diurnata	xornada	xha-oh-er-n-ah-d-ah
Year-Primary	ano	ah-VdPalatalNasal-oh
Name-Nominem	nombre	n-oh-m-b-er-ay
Tongue-Primary	lengwa	l-ay-nya-g-w-ah

## Appendix 5 - Word Lists by Language

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### Italian

Cognate	IPA	Sounds
Woman-Primary	femmina	f-ay-m-m-e-n-ah
Woman-Mulier	moʎʎe	m-oh-yuh-yuh-ay
Woman-Domina	dənna	d-euh-n-n-ah
Child-Primary	fante	f-ah-n-t-ay
Child-Ninnus	nino	n-e-n-oh
Wife-Primary	spoza	s-p-euh-zz-ah
Husband-Primary	marito	m-ah-r-e-t-oh
Husband-Sponsus	spozo	s-p-euh-zz-oh
Mother-Primary	madre	m-ah-d-r-ay
Father-Primary	padre	p-ah-d-r-ay
Father-Tata	tata	t-ah-t-ah
Animal-Bestia	biffa	b-e-shh-shh-ah
Fish-Piskem	peʃʃe	p-ay-shh-shh-ay
Bird-Aucellum	utʃfello	u-t-ts-eh-l-l-oh
Bird-Passerem	passero	p-ah-s-s-ay-r-oh
Dog-Primary	kane	k-ah-n-ay
Louse-Primary	pɪdɔkkjo	p-e-d-euh-k-k-jg-oh
Snake-Primary	serpente	s-ay-r-p-ay-n-t-ay
Worm-Primary	verme	v-ay-r-m-ay
Tree-Primary	albero	ah-l-b-ay-r-oh
Forest-Primary	selva	s-ay-l-v-ah
Stick-Primary	palo	p-ah-l-oh
Fruit-Primary	frutto	f-r-u-t-t-oh
Seed-Primary	seme	s-ay-m-ay
Seed-Sementis	semente	s-ay-m-ay-n-t-ay
Seed-Granum	grano	g-r-ah-n-oh
Leaf-Primary	foʎʎa	f-euh-yuh-yuh-ah
Leaf-Frondea	frondza	f-r-oh-n-VdPalatoAlveolarAffricate-ah
BarkOfATree-Corticea	kortetʃa	k-oh-r-t-ay-t-ts-ah
BarkOfATree-Skortea	skortsa	s-k-euh-r-VlAlveolarSibilantAffricate-ah
Flower-Primary	fjore	f-jg-oh-r-ay
Grass-Primary	erba	eh-r-b-ah
Rope-Primary	fune	f-u-n-ay
Rope-Restis	resta	r-eh-s-t-ah
Skin-Primary	kotenna	k-oh-t-ay-n-n-ah
Skin-Pellis	pelle	p-ay-l-l-ay
Meat-Primary	karne	k-ah-r-n-ay
Blood-Primary	sangwe	s-ah-n-g-w-ay
Bone-Primary	osso	euh-s-s-oh
FatNoun-Primary	adipe	ah-d-e-p-ay
Egg-Primary	wɔvo	w-euh-v-oh
Horn-Primary	korno	k-eh-r-n-oh
Tail-Primary	koda	k-oh-d-ah
Feather-Primary	pjuma	p-jg-u-m-ah
Feather-Penna	penna	p-ay-n-n-ah
Hair-Primary	pelo	p-ay-l-oh
Hair-Capillus	kapello	k-ah-p-ay-l-l-oh
Head-Primary	kavetta	k-ah-v-ay-t-t-s-ah
Head-Testa	testa	t-ch-s-t-ah
Ear-Primary	orekkja	oh-r-ay-k-k-jg-ah
Eye-Primary	okkjo	euh-k-k-jg-oh
Nose-Primary	na:so	n-A-s-oh
Nose-Nares	nariʃe	n-ah-r-e-ts-ay
Mouth-Primary	bokka	b-oh-k-k-ah

## Appendix 5 - Word Lists by Language

Mouth-Gula	gola	g-oh-l-ah
Tooth-Primary	dente	d-eh-n-t-ay
Fingernail-Primary	ungja	u-n-g-jg-ah
Foot-Primary	pjede	p-jg-eh-d-ay
Leg-Gamba	gamba	g-ah-m-b-ah
Leg-Perna	perno	p-eh-r-n-oh
Leg-Petiolus	pittsølo	p-e-t-ts-euh-l-oh
Knee-Genuculum	çjinøkkjo	VdPalatoAlveolarSibilant-e-n-euh-k-k-jg-oh
Hand-Primary	ma:no	m-A-n-oh
Wing-Primary	ala	ah-l-ah
Belly-Pantex	panſa	p-ah-n-ts-ah
Neck-Primary	kollo	k-oh-l-l-oh
Back-Primary	døsso	d-euh-s-s-oh
Back-Spatula	spalla	s-p-ah-l-l-ah
Breast-Primary	seno	s-ay-n-oh
Breast-Pectus	petto	p-eh-t-t-oh
Heart-Primary	kwore	k-w-euh-r-ay
Heart-Anima	alma	ah-l-m-ah
Liver-Primary	fegato	f-ay-g-ah-t-oh
Sun-Primary	sole	s-oh-l-ay
Moon-Primary	luna	l-u-n-ah
Star-Primary	stella	s-t-ay-l-l-ah
Water-Primary	akkwa	ah-k-k-w-ah
Rain-Primary	pjoddža	p-jg-oh-d-VdPalatoAlveolarSibilant-ah
River-Primary	fjume	f-jg-u-m-ay
River-Rivus	rio	r-e-oh
Lake-Primary	lago	l-ah-g-oh
Sea-Primary	mare	m-ah-r-ray
Salt-Primary	sale	s-ah-l-ay
Stone-Primary	sasso	s-ah-s-s-oh
Stone-Petra	pietra	p-jg-ay-t-r-ah
Sand-Primary	rena	r-eh-n-ah
Dust-Primary	polvere	p-oh-l-v-ay-r-ay
Earth-Primary	terra	t-ch-r-r-ah
Cloud-Primary	nube	n-u-b-ay
Cloud-Nubilus	nuvola	n-u-v-oh-l-ah
Fog-Nebula	nebbja	n-ay-b-b-jg-ah
Fog-Fumata	fuma:ta	f-u-m-A-t-ah
Sky-Primary	ſelo	ts-eh-l-oh
Wind-Primary	vento	v-eh-n-t-oh
Snow-Primary	neve	n-ay-v-ay
Ice-Primary	đjelo	VdPalatoAlveolarSibilant-eh-l-oh
Ice-Glaces	gjatſa	g-jg-ah-t-ts-ah
Smoke-Primary	fumo	f-u-m-oh
Fire-Focus	fwoko	f-w-euh-k-oh
Ash-Primary	ſenere	ts-ay-n-ay-r-ay
Road-Primary	via	v-e-ah
Road-Strata	strada	s-t-r-ah-d-ah
Road-Camminus	kammino	k-ah-m-m-e-n-oh
Mountain-Primary	monte	m-oh-n-t-ay
Mountain-Montanea	montajna	m-oh-n-t-ah-VdPalatalNasal-VdPalatalNasal-ah
Night-Primary	nøtte	n-euh-t-t-ay
Day-Primary	di	d-e
Day-Diurnus	đorno	VdPalatoAlveolarSibilant-oh-r-n-oh
Day-Diurnata	đornata	VdPalatoAlveolarSibilant-oh-r-n-ah-t-ah
Year-Primary	anno	ah-n-n-oh
Name-Nomen	no:me	n-O-m-ay
Tongue-Primary	lingwa	l-e-n-g-w-ah

## Appendix 5 - Word Lists by Language

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### Brazilian Portuguese

Cognate	IPA	Sounds
Woman-Primary	femēs	f-ay-m-ay-ahh
Woman-Mulier	mūȳēs	m-u-yuh-ay-rr
Woman-Domina	donās	d-oh-n-ahh
Child-Primary	īfē̄sī	een-f-ahn-ts-e
Child-Ninnus	nenē̄j	n-ay-n-ehnj
Wife-Primary	ispoza	e-s-p-oh-zz-ah
Husband-Primary	maridu	m-ah-er-e-d-u
Husband-Sponsus	ispozu	e-s-p-oh-zz-u
Mother-Primary	mē̄j	m-ahnjn
Father-Primary	paj	p-aj
Father-Tata	tata	t-ah-t-ah
Animal-Bestia	bis̄ē	b-e-shh-ahh
Fish-Piskem	pejj̄i	p-ayj-shh-e
Bird-Avem	avi	ah-v-e
Bird-Passerem	pas̄eru	p-ah-s-ahh-er-u
Dog-Primary	k̄ew̄	k-au_diphthong_nasal
Louse-Primary	pióyu	p-e-oh-yuh-u
Snake-Primary	sēk̄pē̄ʃ̄i	s-ay-rr-p-ehn-ts-e
Worm-Primary	vermi	v-ay-rr-m-e
Tree-Primary	arvori	ah-rr-v-oh-er-e
Forest-Primary	sewva	s-ch-w-v-ah
Stick-Primary	paw	p-ah-w
Fruit-Primary	frute	f-er-u-t-ahh
Seed-Sementis	sem̄ēʃ̄i	s-ay-m-ehn-ts-e
Seed-Granum	gr̄ew̄	g-er-au_diphthong_nasal
Leaf-Primary	foyē	f-oh-yuh-ahh
Leaf-Frondea	frōsē	f-er-on-s-ahh
Root-Primary	rais	rr-ah-e-s
BarkOfATree-Primary	kōr̄fisī	k-euh-rr-ts-e-s-e
BarkOfATree-Corticea	kōrfisē	k-oh-rr-ts-e-s-ahh
Flower-Primary	flor̄	f-l-oh-rr
Grass-Primary	er̄vē	ay-rr-v-ahh
Grass-Gramen	gr̄emē	g-er-ahn-m-ahh
Rope-Restis	rēʃ̄i	rr-eh-shh-ts-e
Skin-Primary	kodžiē	k-oh-VdPalatoAlveolarSibilant-e-ahh
Skin-Pellis	pel̄i	p-eh-l-e
Meat-Primary	kānni	k-ah-rr-n-e
Blood-Primary	s̄eḡi	s-ahn-g-e
Bone-Primary	osu	oh-s-u
FatNoun-Crassia	graſ̄ē	g-er-ah-shh-ahh
Egg-Primary	ovu	oh-v-u
Horn-Primary	kōnu	k-oh-rr-n-u
Tail-Primary	kaud̄ē	k-au-d-ahh
Feather-Penna	pen̄ē	p-ay-n-ahh
Hair-Primary	pelu	p-ay-l-u
Hair-Capillus	kabelu	k-ah-b-ay-l-u
Head-Primary	kabes̄ē	k-ah-b-ay-s-ahh
Head-Testa	test̄ē	t-eh-s-t-ahh
Ear-Primary	orēȳē	oh-er-ay-yuh-ahh
Eye-Primary	ōyu	oh-yuh-u
Nose-Nares	naris	n-ah-er-e-s
Mouth-Primary	bok̄ē	b-oh-k-ahh
Tooth-Primary	dē̄ʃ̄i	d-ehn-ts-e
Fingernail-Primary	uŋ̄ē	u-VdPalatalNasal-ahh

## Appendix 5 - Word Lists by Language

Foot-Primary	pɛ	p-eh
Leg-Perna	pɛkna	p-eh-rr-n-ahh
Knee-Genuculum	zueyú	gzah-u-ay-yuh-u
Hand-Primary	mew	m-au_diphthong_nasal
Wing-Primary	a	ah
Belly-Pantex	pẽsə	p-ahn-s-ahh
Guts-Primary	ĩtřeňe	een-t-er-ahn-VdPalatalNasal-ahh
Neck-Primary	kolu	k-euh-l-u
Back-Spatula	išpadwə	e-shh-p-ah-d-w-ahh
Breast-Primary	seju	s-ayj-u
Breast-Pectus	pejtu	p-ayj-t-u
Heart-Primary	kəv	k-euh-rr
Heart-Anima	awmə	ah-w-m-ahh
Liver-Primary	figedu	f-e-g-ahh-d-u
Sun-Primary	sɔw	s-euh-w
Moon-Primary	luw	l-u-ahh
Star-Primary	istrelə	e-s-t-er-ay-l-ahh
Water-Primary	agwe	ah-g-w-ahh
Rain-Primary	ſuve	shh-u-v-ahh
River-Primary	flumi	f-l-u-m-e
River-Rivus	kiw	rr-e-w
Lake-Primary	lagu	l-ah-g-u
Sea-Primary	maꝝ	m-ah-rr
Salt-Primary	saw	s-ah-w
Stone-Primary	sejſu	s-ayj-shh-u
Stone-Petra	pedrə	p-ay-d-er-ahh
Sand-Primary	areje	ah-er-ayj-ahh
Sand-Sabulum	sajþru	s-aj-bb-er-u
Dust-Pulwus	po	p-euh
Earth-Primary	tevə	t-ay-rr-ahh
Cloud-Primary	nuvěj	n-u-v-ehnj
Fog-Primary	kalízěj	k-ah-l-e-gzah-ehnj
Fog-Nebula	nevve	n-eh-v-w-ahh
Fog-Tenebras	tr̥eves	t-er-eh-v-ahhh-s
Fog-Fumata	fumase	f-u-m-ah-s-ahh
Sky-Primary	sew	s-eh-w
Wind-Primary	větu	v-ehn-t-u
Snow-Primary	nevi	n-eh-v-e
Smoke-Primary	fumu	f-u-m-u
Fire-Focus	fogu	f-oh-g-u
Ash-Cinisia	síze	s-een-zz-ahh
Road-Primary	vie	v-e-ahh
Road-Strata	istradə	e-s-t-er-ah-d-ahh
Road-Camminus	kamīnu	k-ah-m-een-VdPalatalNasal-u
Mountain-Primary	mōfí	m-on-ts-e
Mountain-Montanea	mōtřeňe	m-on-t-ahn-VdPalatalNasal-ahh
Night-Primary	nojti	n-oj_diphthong-t-eee
Day-Primary	dír	d-e-ahh
Day-Diurna	zɔrná	gzah-euh-rr-n-ah
Year-Primary	enu	ahh-n-u
Name-Nomen	nomi	n-oh-m-e
Tongue-Primary	lígwə	l-een-g-w-ahh

## Portuguese

Cognate	IPA	Sounds
Woman-Primary	femje	f-ay-m-jg-ahh

## Appendix 5 - Word Lists by Language

Woman-Mulier	muñer	m-u-yuh-ay-er
Woman-Domina	done	d-oh-n-ahh
Child-Primary	ífeti	een-f-ahn-t-eee
Child-Ninnus	nenēj	n-ay-n-ehnj
Wife-Primary	íʃpoze	eee-shh-p-oh-zz-ahh
Husband-Primary	meriðu	m-ahh-er-e-dd-u
Husband-Sponsus	íʃpozu	eee-shh-p-oh-zz-u
Mother-Primary	mæj	m-ahnjn
Father-Primary	paj	p-aj
Father-Tata	tata	t-ah-t-ah
Animal-Bestia	bíʃe	b-e-shh-ahh
Fish-Piskem	peʃʃi	p-ahhj-shh-eee
Bird-Avem	avi	ah-v-eee
Bird-Passerem	pasəru	p-ah-s-ahh-er-u
Dog-Primary	kew̄	k-au_diphthong_nasal
Louse-Primary	pioyu	p-e-oh-yuh-u
Snake-Primary	sirpēti	s-eee-er-p-ehn-t-eee
Worm-Primary	vermi	v-ay-er-m-eee
Tree-Primary	arvuri	ah-er-v-u-er-eee
Forest-Primary	selv̄a	s-eh-ssha-v-ahh
Stick-Primary	paw	p-ah-w
Fruit-Primary	frute	f-er-u-t-ahh
Seed-Sementis	simēti	s-eee-m-ehn-t-eee
Seed-Granum	grāw̄	g-er-au_diphthong_nasal
Leaf-Primary	foye	f-oh-yuh-ahh
Leaf-Frondea	frōse	f-er-on-s-ahh
Root-Primary	keiʃ	rr-ahh-e-shh
BarkOfATree-Primary	kortisi	k-euh-er-t-e-s-eee
BarkOfATree-Corticea	kurtise	k-u-er-t-e-s-ahh
Flower-Primary	flor	f-l-oh-er
Grass-Primary	erva	eh-er-v-ahh
Grass-Gramen	greme	g-er-ahh-m-ahh
Rope-Restis	keʃti	rr-ay-shh-t-eee
Skin-Primary	kodie	k-oh-d-e-ahh
Skin-Pellis	peli	p-ay-l-eee
Meat-Primary	karni	k-ah-er-n-eee
Blood-Primary	səgi	s-ahn-g-eee
Bone-Primary	osu	oh-s-u
FatNoun-Crassia	graʃ̄a	g-er-ah-shh-ahh
Egg-Primary	ovu	oh-v-u
Horn-Primary	kornu	k-oh-er-n-u
Tail-Primary	kaud̄a	k-au-d-ahh
Feather-Penna	pena	p-ay-n-ahh
Hair-Primary	pilu	p-eee-l-u
Hair-Capillus	keβelu	k-ahh-bb-ay-l-u
Head-Primary	keβese	k-ahh-bb-ay-s-ahh
Head-Testa	teʃte	t-eh-shh-t-ahh
Ear-Primary	orejȳa	oh-er-ahhj-yuh-ahh
Eye-Primary	oýu	oh-yuh-u
Nose-Nares	nariʃ	n-ahh-er-e-shh
Mouth-Primary	boke	b-oh-k-ahh
Tooth-Primary	d̄eti	d-ehn-t-eee
Fingernail-Primary	uña	u-VdPalatalNasal-ahh
Foot-Primary	pe	p-eh
Leg-Perna	peñea	p-eh-er-n-ahh
Knee-Genuculum	z̄wəñ	gzah-w-ahh-yuh-u
Hand-Primary	wəñ	m-au_diphthong_nasal
Wing-Primary	a	ah

## Appendix 5 - Word Lists by Language

Belly-Pantex	p̄ese	p-ahn-s-ahh
Guts-Primary	ētreñe	ehn-t-er-ahh-VdPalatalNasal-ahh
Neck-Primary	kōlu	k-euh-l-u
Back-Spatula	iʃpadwə	e-shh-p-ah-d-w-ahh
Breast-Primary	seju	s-ahhj-u
Breast-Pectus	pejtu	p-ahhj-t-u
Heart-Primary	kor	k-oh-er
Heart-Anima	alme	ah-l-m-ahh
Liver-Primary	fryeðu	f-e-juh-ahh-dd-u
Sun-Primary	søl	s-euh-ssha
Moon-Primary	lue	l-u-ahh
Star-Primary	iʃtrelə	eee-shh-t-er-ay-l-ahh
Water-Primary	agwe	ah-g-w-ahh
Rain-Primary	ſuve	shh-u-v-ahh
River-Primary	flumi	f-l-u-m-eee
River-Rivus	riu	rr-e-u
Lake-Primary	layu	l-ah-juh-u
Sea-Primary	mar	m-ah-er
Salt-Primary	sal	s-ah-l
Stone-Primary	sejſu	s-ahhj-shh-u
Stone-Petra	peðrə	p-eh-dd-er-ahh
Sand-Primary	areje	ahh-er-ahhj-ahh
Sand-Sabulum	sajβru	s-aj-bb-er-u
Dust-Pulwus	po	p-euh
Earth-Primary	teþrə	t-eh-rr-ahh
Cloud-Primary	nuvej	n-u-v-ahnjn
Fog-Primary	keližej	k-ahh-l-e-gzah-ahnjn
Fog-Nebula	nevve	n-eh-v-w-ahh
Fog-Tenebras	treveſ	t-er-eh-v-ahh-shh
Fog-Fumata	fumase	f-u-m-ah-s-ahh
Sky-Primary	sew	s-eh-w
Wind-Primary	vētu	v-ehn-t-u
Snow-Primary	nevi	n-eh-v-eee
Smoke-Primary	fumu	f-u-m-u
Fire-Focus	foyu	f-oh-juh-u
Ash-Cinisia	sīze	s-een-zz-ahh
Road-Primary	vie	v-e-ahh
Road-Strata	iʃtraðrə	e-shh-t-er-ah-dd-ahh
Road-Camminus	kemiju	k-ahh-m-e-VdPalatalNasal-u
Mountain-Primary	mōti	m-on-t-eee
Mountain-Montanea	mōtērə	m-on-t-ahh-VdPalatalNasal-ahh
Night-Primary	nojti	n-oj_diphthong-t-eee
Day-Primary	dir	d-e-ahh
Day-Diurna	ʒɔrnə	gzah-euh-rr-n-ah
Year-Primary	enu	ahh-n-u
Name-Nomen	nomi	n-oh-m-eee
Tongue-Primary	līgwə	l-een-g-w-ahh

## Catalan

Cognate	IPA	Sounds
Woman-Primary	fembra	f-ay-m-b-er-ah
Woman-Mulier	muÿe	m-u-yuh-ay
Woman-Domina	dõø	d-euh-n-aah
Child-Ninnus	nen	n-ay-n
Wife-Primary	espõzo	aah-s-p-euh-zz-aah
Husband-Primary	marit	m-ah-er-e-t

## Appendix 5 - Word Lists by Language

Husband-Sponsus	əspəs	aah-s-p-euh-s
Mother-Primary	marə	m-ah-er-aah
Father-Primary	parə	p-ah-er-aah
Fish-Piskem	peʃ	p-ay-shh
Bird-Avem	aw	ah-w
Bird-Aucellum	usey	u-s-ay-yuh
Dog-Primary	ka	k-ah
Louse-Primary	poʃ	p-oh-yuh
Snake-Primary	sərpen	s-ahh-r-p-ay-n
Worm-Primary	vərm	v-eh-er-m
Tree-Primary	abrə	ah-b-er-aah
Forest-Primary	selba	s-ay-l-b-ah
Stick-Primary	pal	p-ah-l
Fruit-Primary	frujt	f-er-u-jg-t
Seed-Sementis	səmen	s-ahh-m-ay-n
Seed-Granum	gra	g-er-ah
Leaf-Primary	fuʃə	f-u-yuh-aah
Root-Primary	ərel	aah-r-eh-l
BarkOfATree-Skortea	əskɔrṣə	aah-s-k-euh-r-s-aah
Flower-Primary	flo	f-l-euh
Grass-Primary	erbə	ay-r-b-ah
Grass-Gramen	gram	g-er-ah-m
Skin-Primary	konnə	k-oh-n-n-aah
Skin-Pellis	peʃ	p-ay-yuh
Meat-Primary	karn	k-ah-r-n
Blood-Primary	saj	s-ah-nya
Bone-Primary	əs	euh-s
FatNoun-Crassia	gref	g-er-ay-shh
Egg-Primary	əw	euh-w
Horn-Primary	kɔrn	k-euh-r-n
Tail-Primary	kua	k-u-ah
Feather-Primary	ploma	p-l-oh-m-aah
Feather-Penna	peʃə	p-eh-VdPalatalNasal-aah
Hair-Primary	pel	p-eh-l
Hair-Capillus	kəbeʃ	k-ahh-b-eh-yuh
Head-Primary	kap	k-ah-p
Head-Testa	testə	t-ay-s-t-aah
Ear-Primary	ureyə	u-er-eh-yuh-aah
Nose-Primary	nas	n-ah-s
Nose-Nares	na:ris	n-A-r-I-s
Mouth-Primary	bokə	b-oh-k-ahh
Mouth-Gula	golə	g-oh-l-ahh
Foot-Primary	pew	p-eh-w
Leg-Gamba	kambə	k-ah-m-b-ahh
Leg-Perna	pərnə	p-eh-r-n-ahh
Knee-Genuculum	ʒənouy	gzah-ahh-n-oh-yuh
Wing-Primary	alə	ah-l-ahh
Belly-Primary	bentrə	b-ay-n-t-er-aah
Belly-Pantex	pajʃə	p-ah-VdPalatalNasal-shh-aah
Guts-Primary	əntrajə	aah-n-t-er-ah-VdPalatalNasal-aah
Neck-Primary	kaʃ	k-euh-yuh
Back-Primary	dos	d-oh-s
Back-Spatula	əspaʎʎə	aah-s-p-ah-yuh-yuh-aah
Breast-Primary	si	s-e
Breast-Pectus	pit	p-e-t
Heart-Primary	kɔr	k-euh-r
Liver-Primary	fedʒə	f-ay-VdPalatoAlveolarSibilant-aah
Sun-Primary	sɔl	s-euh-l

## Appendix 5 - Word Lists by Language

Moon-Primary	λunə	yuh-u-n-aah
Star-Primary	østel	aah-s-t-ch-l
Water-Primary	ajywə	aj-juh-w-aah
Rain-Primary	płuʒə	p-l-u-gzah-aah
River-Rivus	riw	r-e-w
Lake-Primary	λak	yuh-ah-k
Sea-Primary	mar	m-ah-r
Salt-Primary	sal	s-ah-l
Stone-Petra	peðrə	p-ay-dd-er-aah
Sand-Primary	ərenə	aah-er-ay-n-aah
Sand-Sabulum	sorə	s-oh-r-aah
Dust-Pulwus	pols	p-oh-l-s
Earth-Primary	terə	t-eh-r-aah
Cloud-Nubilus	nuvol	n-u-v-oh-l
Fog-Nebula	newlə	n-ay-w-l-aah
Fog-Tenebras	tənebrəs	t-aah-n-ay-b-er-aah-s
Sky-Primary	sel	s-eh-l
Wind-Primary	ben	b-ay-n
Snow-Primary	new	n-ay-w
Ice-Primary	ʒəl	gzah-eh-ssha
Ice-Glacies	glas	g-l-ah-s
Smoke-Primary	fum	f-u-m
Fire-Focus	fök	f-euh-k
Ash-Primary	sendrə	s-eh-n-d-r-aah
Road-Primary	biə	b-e-aah
Road-Camminus	kəmi	k-aah-m-e
Mountain-Primary	mun	m-u-n
Mountain-Montanea	muntajə	m-u-n-t-ah-VdPalatalNasal-aah
Night-Primary	nit	n-e-t
Day-Primary	diə	d-e-aah
Day-Diurnus	zɔrn	gzah-oh-er-n
Year-Primary	aj	ah-VdPalatalNasal
Name-Nomen	nəm	n-euh-m
Tongue-Primary	λɛŋgwə	yuh-ch-nya-g-w-aah

## Walloon

Cognate	IPA	Sounds
Woman-Primary	fœm	f-uuh-m
Woman-Domina	dam	d-ah-m
Child-Primary	ɛfā	eh-f-NasalA
Mother-Primary	mer	m-ay-r
Father-Primary	per	p-eh-r
Animal-Bestia	bies	b-e-eh-s
Fish-Pescion	pehō	p-eh-h-on
Bird-Aucellum	uhe	u-h-eh
Dog-Primary	ȝɛ	ts-ehnn
Louse-Primary	pju	p-jg-u
Snake-Primary	sjerpẽ	s-jg-eh-r-p-ehn
Worm-Primary	vjer	v-jg-ay-r
Tree-Primary	ɔp	euh-p
Stick-Primary	pa	p-a
Fruit-Primary	fryt	f-r-ehh-t
Seed-Sementis	simẽs	s-e-m-ehn-s
Seed-Granum	qrin	g-r-e-n
Leaf-Primary	fɔj	f-mid_low_diphthong
Root-Radicina	resen	r-ch-s-eh-n

## Appendix 5 - Word Lists by Language

BarkOfATree-Skortea	hwes	h-w-ch-s
Flower-Primary	flør	f-l-uuh-r
Grass-Primary	jep	jg-ch-p
Skin-Primary	kojin	k-oj_diphthong-e-n
Skin-Pellis	pε	p-eh
Meat-Primary	ʃar	ts-a-r
Blood-Primary	søg	s-oon-g
Bone-Primary	she	euh-h-eh
FatNoun-Crassia	krøh	k-r-euh-h
Egg-Primary	u	u
Horn-Primary	kwen	k-w-eh-n
Tail-Primary	kow	k-euh-w
Feather-Primary	pløm	p-l-euh-m
Feather-Penna	pen	p-eh-n
Hair-Capillus	dʒve	VdPalatoAlveolarSibilant-v-eh
Head-Testa	fjes	ts-eh-s
Ear-Primary	ɔrej	euh-VlUvularTrill-ehj
Eye-Primary	uj	u-jg
Nose-Primary	ne	n-ay
Mouth-Primary	bøk	b-euh-k
Mouth-Gula	gœj	g-uuh-jg
Tooth-Primary	dε	d-ehnn
Fingernail-Primary	øg	oon-g
Foot-Primary	pi	p-e
Leg-Gamba	dʒãp	VdPalatoAlveolarSibilant-NasalA-p
Knee-Genuculum	jŋo	VdPalatalNasal-VdPalatalNasal-euh
Hand-Primary	mẽ	m-ehnn
Wing-Primary	el	ay-l
Belly-Primary	v̞t	v-ehnn-t
Belly-Pantex	pãs	p-NasalA-s
Neck-Primary	ko	k-oh
Back-Primary	do	d-oh
Back-Spatula	spal	s-p-ah-l
Breast-Pectorina	pwetrin	p-w-eh-t-r-e-n
Heart-Primary	kur	k-u-r
Heart-Anima	am	a-m
Liver-Primary	fæt	f-uuh-t
Sun-Soliculus	solo	s-euh-l-euh
Moon-Primary	løn	l-uu-n
Star-Primary	stœl	s-t-uuh-l
Water-Primary	ew	eh-w
Rain-Primary	plef	p-l-eh-f
River-Rivus	re	r-eh
River-Riparia	rivi:r	r-e-v-E-r
Lake-Primary	lak	l-ah-k
Sea-Primary	mer	m-ay-r
Salt-Primary	se	s-ay
Stone-Petra	pir	p-e-r
Sand-Primary	aren	ah-r-eh-n
Sand-Sabulo	savjɔ	s-a-v-jg-oon
Earth-Primary	ter	t-ay-r
Fog-Nebula	njyl	n-jg-eeh-l
Sky-Primary	sir	s-e-r
Wind-Primary	v̞	v-ehnn
Snow-Primary	nivaj	n-e-v-aj
Ice-Glacies	gles	g-l-eh-s
Fire-Focus	fœ	f-uhh
Ash-Primary	set	s-ehnn-t

## Appendix 5 - Word Lists by Language

Road-Primary	voj	v-oj_diphthong
Road-Camminus	ſimē	ts-e-m-chnn
Mountain-Primary	mō̄	m-oon
Mountain-Montanea	mō̄taj	m-oon-t-ah-VdPalatalNasal
Night-Primary	nyt	n-eeh-t
Day-Diurnus	dʒu	VdPalatoAlveolarSibilant-u
Year-Primary	ā	NasalA
Name-Nomen	nō̄	n-oon
Tongue-Primary	lēv	l-chnn-v

### Friulian

Cognate	IPA	Sounds
Woman-Primary	femeine	f-eh-m-e-n-ay
Woman-Mulier	mui:r	m-u-E-r
Woman-Domina	dōne	d-euh-n-ay
Child-Ninnus	nini	n-e-n-e
Wife-Primary	spose	s-p-oh-s-ay
Husband-Primary	mari:t	m-ah-r-E-t
Husband-Sponsus	spo:s	s-p-O-s
Mother-Primary	mari	m-ah-r-e
Father-Primary	pari	p-ah-r-e
Father-Tata	tate	t-ah-t-ay
Animal-Primary	nema:l	n-ay-m-A-l
Animal-Bestia	bis	b-e-s
Fish-Piskem	pes	p-eh-s
Bird-Aucellum	uʃʃel	u-ts-jg-eh-l
Bird-Passerem	pasar	p-ah-s-ah-r
Dog-Primary	can	tya-ah-n
Louse-Primary	pedo:li	p-ay-d-O-l-e
Snake-Primary	sarpint	s-ah-r-p-e-n-t
Worm-Primary	vja:r	v-jg-A-r
Tree-Primary	arbul	ah-r-b-u-l
Forest-Primary	selve	s-eh-l-v-ay
Stick-Primary	pa:l	p-A-l
Fruit-Primary	frut	f-r-u-t
Seed-Sementis	sementſɛ	s-ay-m-eh-n-ts-eh
Seed-Granum	gran	g-r-ah-n
Leaf-Primary	fwee	f-w-ay-ay
Root-Primary	radri:s	r-ah-d-r-E-s
BarkOfATree-Skortea	skwarfſe	s-k-w-ah-r-ts-ay
Flower-Primary	flo:r	f-l-O-r
Grass-Primary	jerbe	jg-ay-r-b-ay
Grass-Gramen	grame	g-r-ah-m-ay
Rope-Restis	rjeste	r-jg-ay-s-t-ay
Skin-Pellis	pjel	p-jg-eh-l
Meat-Primary	ca:r	tya-A-r
Blood-Primary	sank	s-ah-n-k
Bone-Primary	wes	w-eh-s
FatNoun-Crassia	gras	g-r-ah-s
Egg-Primary	u:f	U-f
Horn-Primary	kwar	k-w-ah-r
Tail-Primary	kōde	k-euh-d-eh
Feather-Primary	plume	p-l-u-m-eh
Feather-Penna	pene	p-eh-n-ay
Hair-Primary	pe:l	p-ai-l
Hair-Capillus	cavel	tya-ah-v-ay-l

## Appendix 5 - Word Lists by Language

Head-Primary	cavɛʃ	tya-ah-v-ch-ts
Head-Testa	teste	t-ch-s-t-ay
Ear-Primary	ore:le	oh-r-ai-l-ay
Eye-Primary	voli	v-oh-l-e
Nose-Primary	na:s	n-A-s
Mouth-Primary	bɔce	b-euh-tya-eh
Mouth-Gula	gole	g-euh-l-ay
Tooth-Primary	dint	d-e-n-t
Fingernail-Primary	ɔngule	euh-n-g-u-l-ay
Foot-Primary	pi:t	p-E-t
Leg-Gamba	jambe	VdPalatalStop-ah-m-b-ay
Leg-Petiolus	pekol	p-ch-k-euh-l
Knee-Genuculum	dʒenoli	VdPalatoAlveolarSibilant-ay-n-oh-l-e
Hand-Primary	man	m-ah-n
Wing-Primary	ale	ah-l-ay
Belly-Primary	vintri	v-e-n-t-r-e
Belly-Pantex	pantse	p-ah-n-VlAlveolarSibilantAffricate-ay
Neck-Primary	kwel	k-w-eh-l
Back-Primary	dwes	d-w-eh-s
Back-Spatula	spale	s-p-ah-l-ay
Breast-Primary	sen	s-eh-n
Breast-Pectus	pet	p-eh-t
Heart-Primary	ku:r	k-U-r
Liver-Primary	fia:t	f-e-A-t
Sun-Soliculus	soreli	s-oh-r-ay-l-e
Moon-Primary	lune	l-u-n-ay
Star-Primary	stele	s-t-eh-l-ay
Water-Primary	age	ah-g-ay
Rain-Primary	ploje	p-l-oh-jg-ay
River-Primary	flum	f-l-u-m
River-Rivus	riu	r-e-u
Lake-Primary	la:t	l-A-t
Sea-Primary	ma:r	m-A-r
Salt-Primary	sa:l	s-A-l
Stone-Primary	sas	s-ah-s
Stone-Petra	pjere	p-jg-ay-r-ay
Sand-Primary	rene	r-eh-n-ay
Sand-Sabulo	savalon	s-ah-v-ah-l-euh-n
Dust-Primary	polvar	p-euh-l-v-ah-r
Earth-Primary	tjere	t-jg-eh-r-ay
Cloud-Nubilus	nu:l	n-U-l
Fog-Fumata	fumate	f-u-m-ah-t-ay
Sky-Primary	ʃʃ:l	ts-E-l
Wind-Primary	'vint	v-e-n-t
Snow-Primary	ne:f	n-ai-f
Ice-Glacies	glatʃe	g-l-ah-ts-ay
Smoke-Primary	fum	f-u-m
Fire-Focus	fu:k	f-U-k
Ash-Cinisia	ʃʃinise	ts-e-n-e-s-eh
Road-Primary	vie	v-e-ay
Road-Strata	strade	s-t-r-ah-d-ay
Road-Camminus	camin	tya-ah-m-e-n
Mountain-Primary	mɔnt	m-euh-n-t
Mountain-Montanea	montane	m-oh-n-t-ah-VdPalatalNasal-ay
Night-Primary	jɔt	VdPalatalNasal-euh-t
Day-Primary	di	d-e
Day-Diurnata	dʒornade	VdPalatoAlveolarSibilant-oh-r-n-ah-d-ay
Year-Primary	an	ah-n

## Appendix 5 - Word Lists by Language

Name-Nomen	nən	n-euh-n
Tongue-Primary	'lēnge	l-eh-n-g-ay

### Romanian

Cognate	IPA	Sounds
Woman-Primary	femeje	f-ay-m-ay-jg-ay
Woman-Mulier	mujere	m-u-jg-ay-r-ay
Woman-Domina	do̯amnə	d-oaa-m-n-aah
Husband-Primary	mərit	m-aah-r-e-t
Husband-Socius	sots	s-oh-VIAAlveolarSibilantAffricate
Father-Tata	tatə	t-ah-t-aah
Animal-Primary	nəmajə	n-aah-m-ah-jg-ay
Fish-Piskem	pejte	p-ay-shh-t-ay
Bird-Passerem	pasore	p-ah-s-aah-er-ay
Dog-Primary	kijne	k-eeej-n-ay
Louse-Primary	pədükje	p-aah-d-u-k-jg-ay
Snake-Primary	jarpe	shh-ah-er-p-ay
Worm-Primary	vjerme	v-jg-ay-r-m-ay
Tree-Primary	arbore	ah-r-b-oh-r-ay
Stick-Primary	par	p-ah-er
Fruit-Primary	frukt	f-r-u-k-t
Seed-Sementis	səminʃə	s-aah-m-eee-n-ts-aah
Seed-Granum	griw	g-r-iw
Leaf-Primary	foaje	f-oaa-jg-ay
Leaf-Frondea	frunzə	f-er-u-n-zz-aah
Root-Radicina	radəʃinə	r-aah-d-aah-ts-e-n-aah
BarkOfATree-Skortea	skoartsə	s-k-oaa-er-VIAAlveolarSibilantAffricate-aah
Flower-Primary	floare	f-l-oaa-er-ay
Grass-Primary	jarbə	jg-ah-er-b-aah
Rope-Primary	funje	f-u-n-jg-ay
Skin-Pellis	pjele	p-jg-ay-l-ay
Meat-Primary	karne	k-ah-er-n-ay
Blood-Primary	sindʒe	s-eee-n-VdPalatoAlveolarSibilant-ay
Bone-Primary	os	oh-s
Egg-Primary	ow	oh-w
Horn-Primary	korn	k-oh-r-n
Tail-Primary	coadə	tya-oaa-d-aah
Feather-Penna	panə	p-ah-n-aah
Hair-Primary	pər	p-aah-er
Head-Primary	kap	k-ah-p
Head-Testa	tseastə	VIAAlveolarSibilantAffricate-eaha-s-t-aah
Ear-Primary	ureke	u-r-ay-k-ay
Eye-Primary	ok̪i	oh-kpalatal
Nose-Primary	nas	n-ah-s
Mouth-Primary	bukə	b-u-k-aah
Mouth-Gula	gurə	g-u-er-aaah
Tooth-Primary	dinte	d-e-n-t-ay
Fingernail-Primary	ungje	u-n-g-jg-ay
Foot-Primary	piez	p-e-ay-zz
Leg-Gamba	gambə	g-ah-m-b-aah
Leg-Petiolus	pitʃor	p-e-ts-jg-oh-r
Knee-Genuculum	dʒenunk̪i	VdPalatoAlveolarSibilant-ay-n-u-n-kpalatal
Hand-Primary	mina	m-eee-n-aah
Belly-Primary	vintre	v-e-n-t-r-ay
Belly-Pantex	pintefə	p-eee-n-t-ay-ts-ay
Back-Primary	do	d-oh

## Appendix 5 - Word Lists by Language

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Back-Spatula	spate	s-p-ah-t-ay
Breast-Primary	san	s-ah-n
Breast-Pectus	pjept	p-jg-ay-p-t
Heart-Anima	imimə	e-n-e-m-aah
Liver-Primary	fikat	f-e-k-ah-t
Sun-Primary	soare	s-oaa-er-ay
Moon-Primary	lunə	l-u-n-aah
Star-Primary	stea	s-t-eaha
Water-Primary	apə	ah-p-aah
Rain-Primary	ploaje	p-l-oaa-jg-ay
River-Rivus	riw	r-eee-w
Lake-Primary	lak	l-ah-k
Sea-Primary	mare	m-ah-r-ay
Salt-Primary	sare	s-ah-r-ay
Stone-Petra	pjatrə	p-jg-ah-t-er-aah
Sand-Primary	arinə	ah-r-e-n-aah
Dust-Primary	pulbere	p-u-l-b-ay-r-ay
Earth-Primary	tsarə	VIAAlveolarSibilantAffricate-ah-r-aah
Cloud-Nubilus	nor	n-oh-r
Fog-Nebula	negurə	n-ay-g-u-r-aah
Fog-Caecia	fætʃə	ts-eaha-ts-aah
Sky-Primary	fər	ts-ay-er
Wind-Primary	vint	v-eee-n-t
Snow-Primary	nea	n-eaha
Ice-Primary	dʒer	VdPalatoAlveolarSibilant-ay-r
Ice-Glacies	geatsə	g-eaha-VIAAlveolarSibilantAffricate-aah
Smoke-Primary	fum	f-u-m
Fire-Focus	fok	f-oh-k
Ash-Cinisia	fenuʃə	ts-ay-n-u-shh-aah
Mountain-Primary	munte	m-u-n-t-eh
Night-Primary	noɔpte	n-oaa-p-t-ay
Day-Primary	zi	zz-e
Year-Primary	an	ah-n
Name-Nomen	nume	n-u-m-ay
Tongue-Primary	limbə	l-e-m-b-aah

## Appendix 6 - Segment Groups

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Where symbols appear in pairs, the one to the right represents a rounded vowel.

### Vowel

	Front	Near-Front	Central	Near-Back	Back
Close	i • y		ɪ		u
Near-close		I			
Close-mid	e • ə		ə		o
Mid					
Open-mid		œ • ε			ɛ
Near-open			a		
Open		a			ɑ

### Long-Vowel

	Front	Near-Front	Central	Near-Back	Back
Close	i:				u:
Near-close					
Close-mid					
Mid	e:				o:
Open-mid					
Near-open					
Open			a:		

### Nasal-Vowel

	Front	Near-Front	Central	Near-Back	Back
Close	ĩ				ẽ
Near-close					ã
Close-mid					õ
Mid					
Open-mid		ẽ			ɔ̃
Near-open			ã		
Open					

### Long-Nasal-Vowel

## Appendix 6 - Segment Groups

---

	Front	Near-Front	Central	Near-Back	Back
Close					
Near-close					
Close-mid					
Mid					
Open-mid					
Near-open					
Open					

### Vowel-Diphthong

	Front	Near-Front	Central	Near-Back	Back
Close			ij̥ iw̥		
Near-close					
Close-mid					oj̥
Mid	ej̥				
Open-mid		ɛj̥			ɔj̥
Near-open		aj̥	jḁ		
Open			au̥		ɔc̥

### Nasal-Vowel-Diphthong

	Front	Near-Front	Central	Near-Back	Back
Close					
Near-close					
Close-mid					
Mid	ẽj̥				
Open-mid					
Near-open			ãj̥		
Open			ãw̥		

### Vowel-Non-Sylabic

	Front	Near-Front	Central	Near-Back	Back
Close					
Near-close					
Close-mid					
Mid					

## Appendix 6 - Segment Groups

---

Open-mid					
Near-open					
Open					

### Vowel-Diphthong-Non-Sylabic

	Front	Near-Front	Central	Near-Back	Back
Close					
Near-close					
Close-mid		ea			oa
Mid					
Open-mid					
Near-open					
Open					

### Pulmonic Consonants

Manner	Bilabial	Labial-Velar	Labio-Dental	Dental	Alveolar	Post-Alveolar	Palatal	Velar	Uvular	Glottal
Nasal, Stop										
Nasal	m				n		j̊	ŋ̊		
Stop	p b	kʷ gʷ		t d		c j	k g			
Sibilant, Fricative				s z	f z					
Fricative	β		f v θ ð				j x y		χ h	
Approximant						j				
Tap/Flap					f					
Trill					r			R		
Lateral, Fricative					l		λ			
Lateral, Approximant										
Lateral, Tap/Flap										

Shaded areas denote articulations judged to be impossible. Where symbols appear in pairs, the one to the right represents a modally voiced consonant.

### Non-Pulmonic Consonants

Manner	Palatal
Stop	k <sup>j</sup>
Ejective, Stop	
Ejective, Fricative	
Ejective, Lateral, Fricative	
Tenuis, Click	
Nasal, Click	
Tenuis, Lateral, Click	
Implosive	
Lateral, Approximant	

## Appendix 6 - Segment Groups

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Shaded areas denote articulations judged to be impossible. Where symbols appear in pairs, the one to the right represents a modally voiced consonant.

### Pulmonic Affricates

Manner	Alveolar	Palato-Alveolar
Sibilant	ts	tʃ
Lateral		
Voiced		
Non-Sibilant		

Shaded areas denote articulations judged to be impossible.

### Ejective Affricates

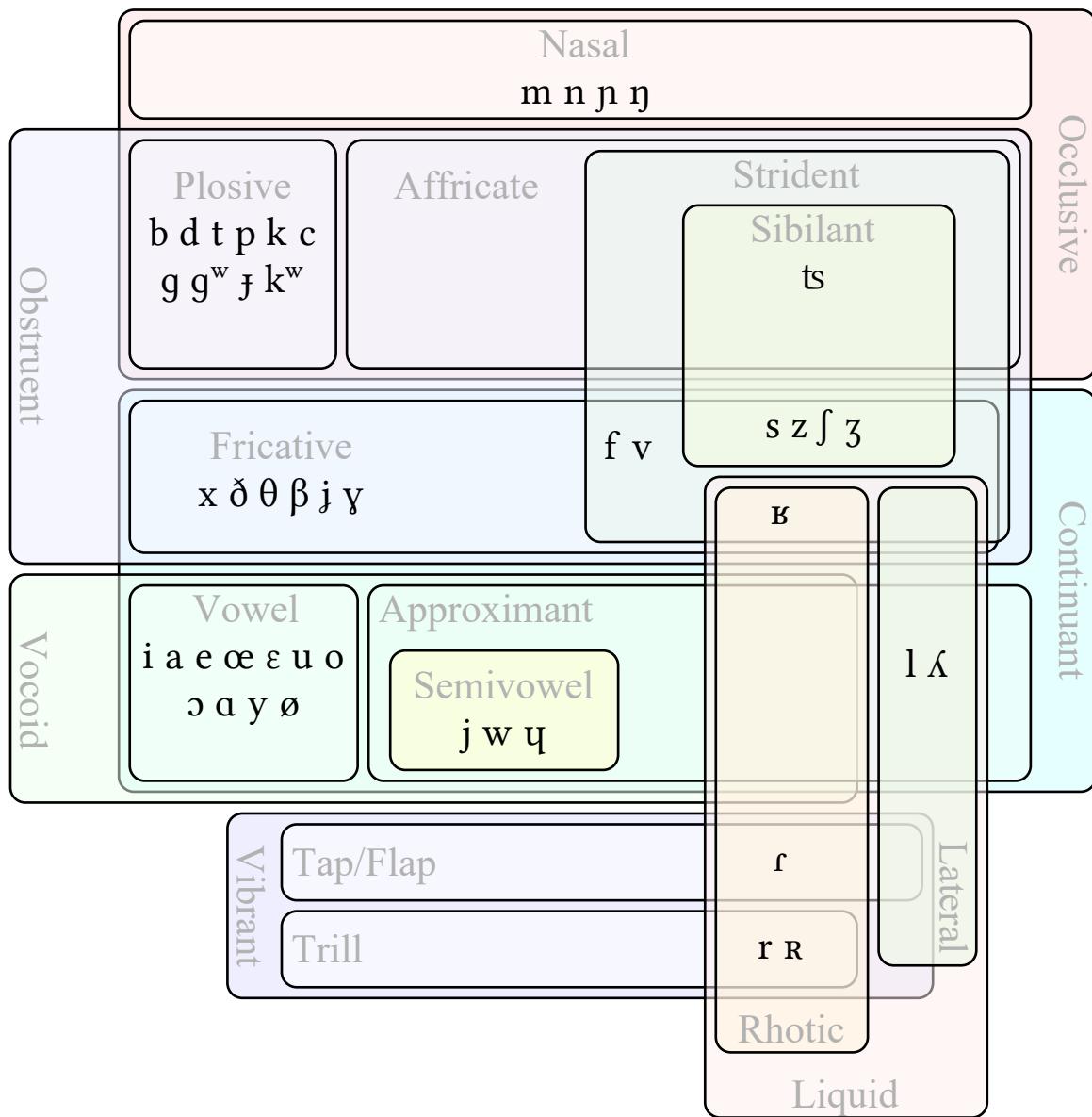
Manner
Central
Lateral

Shaded areas denote articulations judged to be impossible.

### Other Segments

W	Labial-Velar Vocoid Semivowel Voiced Approximant Continuant Labial Velar	ɫ	Alveolar Voiced Velarized Pulmonic Lateral Approximant
ɥ	Labial-Palatal Vocoid Semivowel Voiced Approximant Continuant Palatalized Labial	ð	Alveolar Voiced Sibilant Affricate
ç	Palato-Alveolar Voiced Sibilant Affricate		

## Appendix 7 - Euler Feature Diagram



## Appendix 8 - International Phonetic Alphabet

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### IPA Segments

<b>ɛ̃j</b>	<b>ɛ̃w̃</b>	<b>aʊ</b>	<b>ea</b>
0250, 0303, 006A, 0303 Near-open Central Nasal Vowel Diphthong	0250, 0303, 0077, 0303 Open Central Nasal Vowel Diphthong	0061, 0075, 032F Open Central Vowel Diphthong	0065, 032F, 0061 Close-mid Front Vowel Diphthong Non-Sylabic
<b>ɔɑ</b>	<b>ẽj</b>	<b>aj</b>	<b>a:</b>
006F, 032F, 0061 Close-mid Back Vowel Diphthong Non-Sylabic	1EBD, 006A, 0303 Mid Front Nasal Vowel Diphthong	0061, 006A Near-open Near-Front Vowel Diphthong	0061, 02D0 Open Central Vocoid Long Vowel Continuant
<b>ej</b>	<b>e:</b>	<b>i:</b>	<b>k<sup>j</sup></b>
0065, 006A Mid Front Vowel Diphthong	0065, 02D0 Mid Front Vocoid Long Vowel Continuant	0069, 02D0 Close Front Vocoid Long Vowel Continuant	006B, 02B2 Palatal Stop Palatalized
<b>k<sup>w</sup></b>	<b>oj</b>	<b>o:</b>	<b>u:</b>
006B, 02B7 Labial-Velar Pulmonic Stop Occlusive Labial Velar	006F, 006A Close-mid Back Vowel Diphthong	006F, 02D0 Mid Back Rounded Vocoid Long Vowel Continuant	0075, 02D0 Close Back Rounded Long Vowel
<b>ɛj</b>	<b>ẽ</b>	<b>ã</b>	<b>ɔj</b>
0250, 006A Near-open Central Vowel Diphthong	0250, 0303 Near-open Central Rounded Nasal Vowel	0251, 0303 Near-close Back Nasal Vowel	0254, 006A Open-mid Back Vowel Diphthong
<b>ɔ</b>	<b>ɛj</b>	<b>ɛ̃</b>	<b>g<sup>w</sup></b>
0254, 0303 Open-mid Back Rounded Nasal Vowel	025B, 006A Open-mid Near-Front Vowel Diphthong	025B, 0303 Open-mid Near-Front Nasal Vowel	0261, 02B7 Labial-Velar Voiced Pulmonic Stop Occlusive Labial Velar
<b>ɪj</b>	<b>ɪw̃</b>	<b>a</b>	<b>b</b>
0268, 006A Close Central Vowel Diphthong	0268, 0077 Close Central Vowel Diphthong	0061 Open Near-Front Vocoid Vowel Continuant Parent Vowel	0062 Bilabial Voiced Pulmonic Stop Occlusive

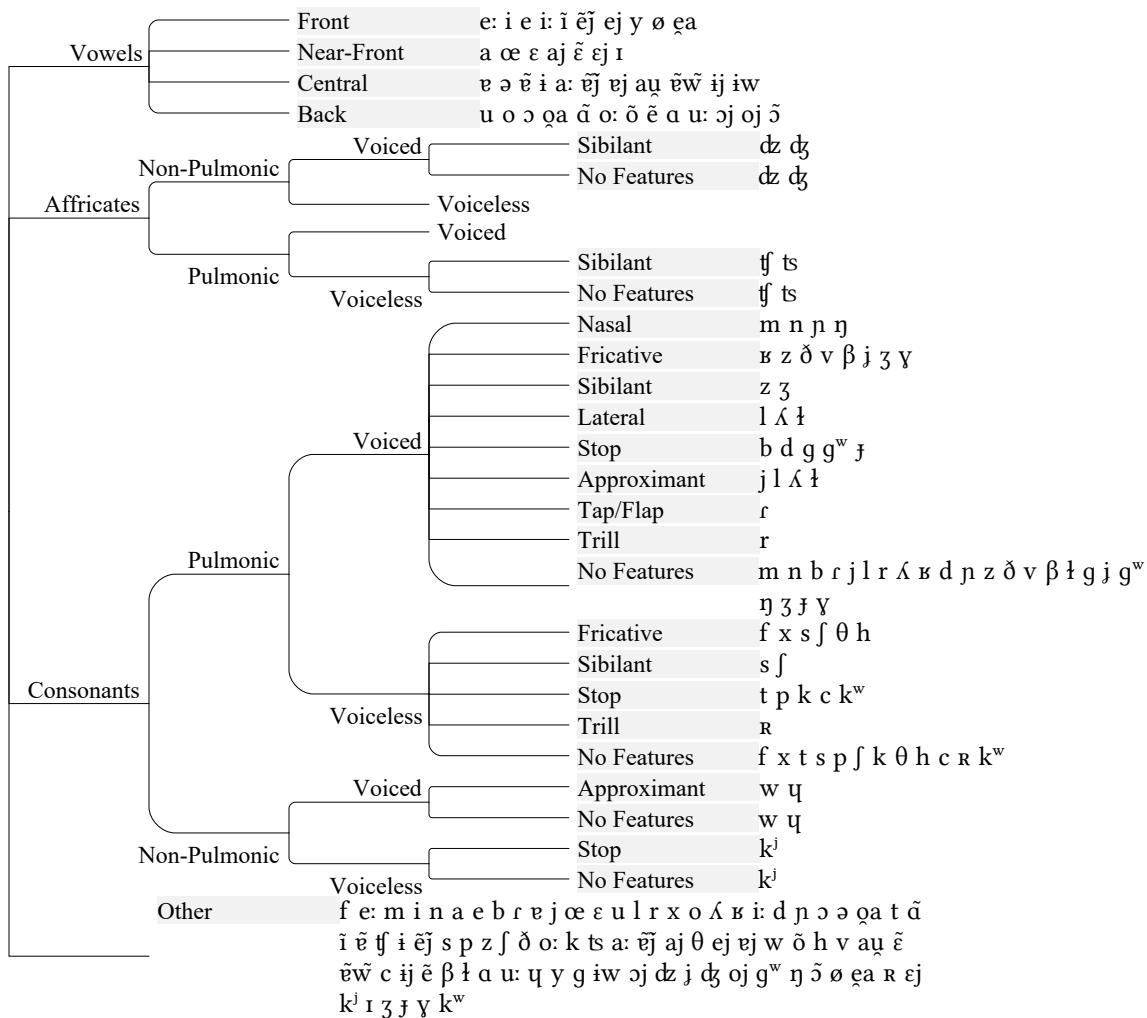
## Appendix 8 - International Phonetic Alphabet

c	d	e	f
0063 Palatal Pulmonic Stop Occlusive	0064 Alveolar Voiced Pulmonic Stop Occlusive	0065 Close-mid Front Vocoid Vowel Continuant Parent Vowel	0066 Labio-Dental Pulmonic Fricative Strident Obstruent Continuant Labial Dental
h	i	j	k
0068 Glottal Pulmonic Fricative	0069 Close Front Vocoid Vowel Continuant Parent Vowel	006A Palatal Vocoid Semivowel Voiced Pulmonic Approximant Continuant	006B Velar Pulmonic Stop Occlusive
l	m	n	o
006C Alveolar Vocoid Voiced Pulmonic Lateral Approximant Rhotic Liquid	006D Bilabial Voiced Pulmonic Nasal Occlusive	006E Alveolar Voiced Pulmonic Nasal Occlusive	006F Close-mid Back Rounded Vocoid Vowel Continuant Parent Vowel
p	r	s	t
0070 Bilabial Pulmonic Stop Occlusive	0072 Alveolar Voiced Pulmonic Trill Rhotic Vibrant Liquid	0073 Alveolar Pulmonic Sibilant Fricative Strident Obstruent Continuant	0074 Alveolar Pulmonic Stop Occlusive
u	v	w	x
0075 Close Back Rounded Vocoid Vowel Continuant Parent Vowel	0076 Labio-Dental Voiced Pulmonic Fricative Strident Obstruent Continuant Labial Dental	0077 Labial-Velar Vocoid Semivowel Voiced Approximant Continuant Labial Velar	0078 Velar Pulmonic Fricative Obstruent Continuant
y	z	ð	ø
0079 Close Front Rounded Vocoid Vowel Continuant Parent Vowel	007A Alveolar Voiced Pulmonic Sibilant Fricative Strident Obstruent Continuant	00F0 Dental Voiced Pulmonic Fricative Obstruent Continuant Dental	00F5 Close-mid Back Rounded Nasal Vowel
ø	í	ŋ	œ
00F8 Close-mid Front Rounded Vocoid Vowel Continuant Parent Vowel	0129 Close Front Nasal Vowel	014B Velar Voiced Pulmonic Nasal Occlusive	0153 Open-mid Near-Front Rounded Vocoid Vowel Continuant

## Appendix 8 - International Phonetic Alphabet

<b>a</b> 0250 Near-open Central Rounded Vowel Parent Vowel	<b>ɑ</b> 0251 Open Back Vocoid Vowel Continuant Parent Vowel	<b>ɔ</b> 0254 Open-mid Back Rounded Vocoid Vowel Continuant Parent Vowel	<b>ə</b> 0259 Close-mid Central Vowel Parent Vowel
<b>ɛ</b> 025B Open-mid Near-Front Vocoid Vowel Continuant Parent Vowel	<b>ʃ</b> 025F Palatal Voiced Pulmonic Stop Occlusive	<b>g</b> 0261 Velar Voiced Pulmonic Stop Occlusive	<b>ɣ</b> 0263 Velar Voiced Pulmonic Fricative Obstruent Continuant
<b>ψ</b> 0265 Labial-Palatal Vocoid Semivowel Voiced Approximant Continuant Palatalized Labial	<b>ɪ</b> 0268 Close Central Vowel Parent Vowel	<b>ı</b> 026A Near-close Near-Front Vowel Parent Vowel	<b>ɫ</b> 026B Alveolar Voiced Velarized Pulmonic Lateral Approximant
<b>ɲ</b> 0272 Palatal Voiced Pulmonic Nasal Occlusive	<b>f</b> 027E Alveolar Voiced Pulmonic Tap/Flap Rhotic Vibrant Liquid	<b>r</b> 0280 Uvular Pulmonic Trill Rhotic Vibrant Liquid	<b>ɹ</b> 0281 Uvular Voiced Pulmonic Fricative Rhotic Strident Obstruent Continuant Liquid
<b>ʃ</b> 0283 Post-Alveolar Pulmonic Sibilant Fricative Strident Obstruent Continuant	<b>λ</b> 028E Palatal Vocoid Voiced Pulmonic Lateral Approximant Rhotic Liquid	<b>ʒ</b> 0292 Post-Alveolar Voiced Pulmonic Sibilant Fricative Strident Obstruent Continuant	<b>j</b> 029D Palatal Voiced Pulmonic Fricative Obstruent Continuant
<b>dʒ</b> 02A3 Alveolar Voiced Sibilant Affricate	<b>ðʒ</b> 02A4 Palato-Alveolar Voiced Sibilant Affricate	<b>tʂ</b> 02A6 Alveolar Pulmonic Sibilant Affricate Occlusive Strident	<b>tʃ</b> 02A7 Palato-Alveolar Pulmonic Sibilant Affricate
<b>β</b> 03B2 Bilabial Voiced Pulmonic Fricative Obstruent Continuant	<b>θ</b> 03B8 Dental Pulmonic Fricative Obstruent Continuant Dental	<b>ẽ</b> 1EBD Close Back Nasal Vowel	

## Appendix 9 - Feature Tree



## Appendix 10 - Diacritics

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### Diacritics

Undefined escape character	$\sim$	Nasalized	$\cdots$	Centralized
Advanced	$-$	Retracted	$\checkmark$	Rising Tone
Voiceless	$\circ$	Implosive	$\downarrow$	Syllabic
Ejective	$,$	$\mathfrak{f}$ Pharyngealized	$\wedge$	Falling tone
Non-syllabic	$\sim$	$\neg$ No audible release	$\curvearrowleft$	Rhotic hook
Advanced tongue root	$\dashv$	$\llcorner$ Apical	$\backslash\backslash$	Extra low tone
Less rounded	$\smile$	$\lrcorner$ Dental	$\sim$	Velarized or Pharyngealized
Global fall	$\searrow$	$\gamma$ Velarized	$\checkmark$	High tone
Aspirated	$h$	$\mathfrak{j}$ Palatalized	$\sim$	Creaky voiced
Low tone	$\checkmark$	$\mathfrak{l}$ Lateral release	$\mid$	Mid tone
Laminal	$\square$	$\mathfrak{m}$ Linguo-Labial	$n$	Nasal release
More rounded	$\checkmark$	$\tau$ Lowered	$\lrcorner$	Retracted tongue root
Global rise	$\nearrow$	$\perp$ Raised	$\backslash\backslash$	Extra high tone
Breathy voiced	$\dots$	$\vee$ Voiced	$w$	Labialized
Extra short	$\checkmark$	$\times$ Mid-centralized	$\downarrow$	Down-step
Up-step	$\uparrow$	$\vdash$ Long	$\checkmark$	Half-long
Indeterminacy in french vowels				Begin Non-segmental notation
Voiced epiglottal fricative	$\mathfrak{f}$	$!$ Post-alveolar click	$ $	End non-segmental notation
Dental click	$ $	$\parallel$ Major group	$  $	Minor group
Palatal click	$\dagger$	$\circ$ Voiceless descender	$-$	Alveolar lateral click
Tie-bar below	$)$	$\smile$ Tie-bar above	$\mid$	Combining macron
Becomes	$\longrightarrow$	Separator	$\mathfrak{t}$	Ready made combination

## Appendix 11 - Languages

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### Latin

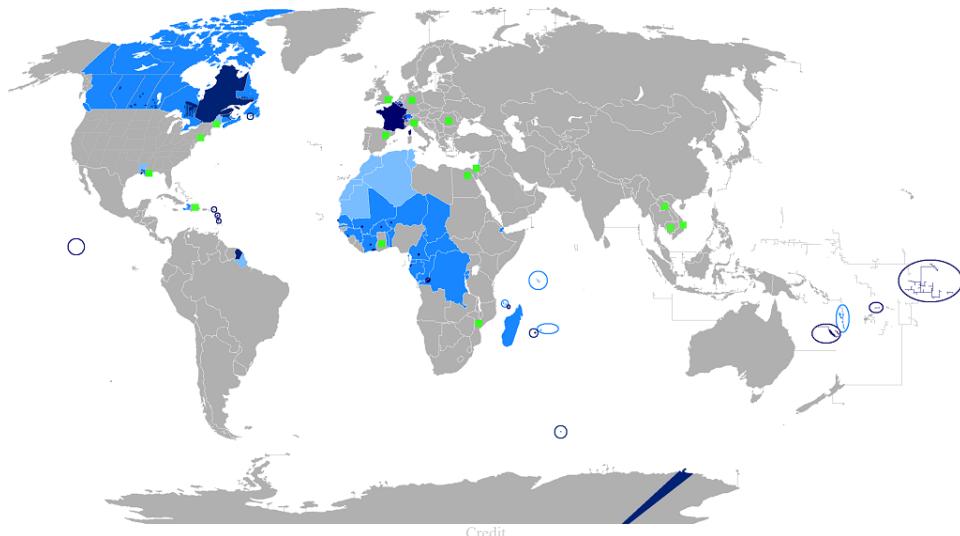


A classical language belonging to the Italic branch of the Indo-European languages. Latin was originally spoken in the area around Rome, known as Latium. Through the power of the Roman Republic, it became the dominant language in Italy, and subsequently throughout the western Roman Empire, before eventually becoming a dead language. Latin has contributed many words to the English language. In particular, Latin (and Ancient Greek) roots are used in English descriptions of theology, the sciences, medicine, and law.

By the late Roman Republic (75 BC), Old Latin had been standardised into Classical Latin. Vulgar Latin was the colloquial form spoken at that time and attested in inscriptions and the works of comic playwrights like Plautus and Terence[3] and author Petronius. Late Latin is the written language from the 3rd century; its colloquial form Vulgar Latin developed in the 6th to 9th centuries into the Romance languages, such as Italian, Sardinian, Venetian, Neapolitan, Sicilian, Piedmontese, Lombard, French, Franco-Provençal, Occitan, Corsican, Ladin, Friulan, Romansh, Catalan/Valencian, Aragonese, Spanish, Asturian, Galician, and Portuguese. Medieval Latin was used as a literary language from the 9th century to the Renaissance which used Renaissance Latin. Later, Early Modern Latin and New Latin evolved. Latin was the language of international communication, scholarship and science until well into the 18th century, when vernaculars (including the Romance languages) supplanted it. Ecclesiastical Latin remains the official language of the Holy See and the Roman Rite of the Catholic Church. Latin is a highly inflected language, with three distinct genders, six or seven noun cases, five declensions, four verb conjugations, six tenses, three persons, three moods, two voices, two or three aspects, and two numbers. The Latin alphabet is derived from the Etruscan and Greek alphabets and ultimately from the Phoenician alphabet.

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### French



A Romance language of the Indo-European family. It descended from the Vulgar Latin of the Roman Empire, as did all Romance languages. French evolved from Gallo-Roman, the Latin spoken in Gaul, and more specifically in Northern Gaul. Its closest relatives are the other langues d'oïl—languages historically spoken in northern France and in southern Belgium, which French (Francien) largely supplanted.

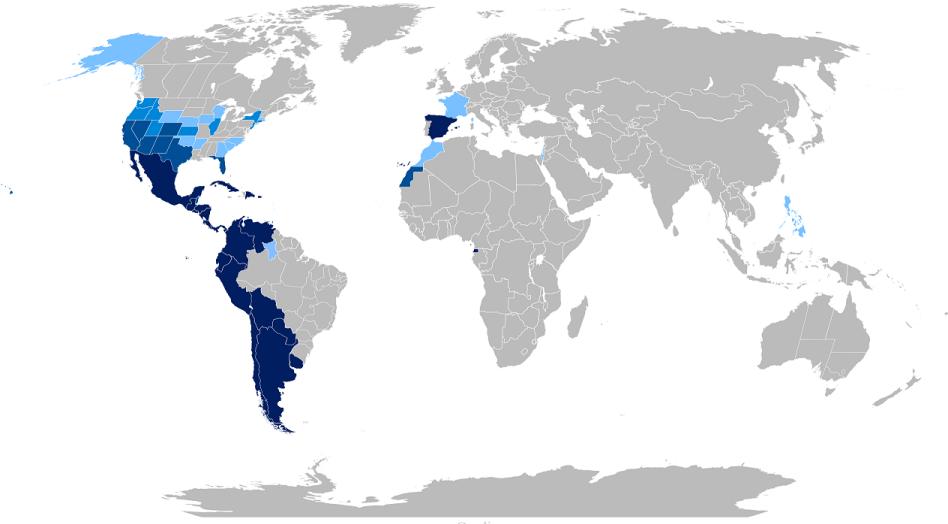
French was also influenced by native Celtic languages of Northern Roman Gaul like Gallia Belgica and by the (Germanic) Frankish language of the post-Roman Frankish invaders. Today, owing to France's past overseas expansion, there are numerous French-based creole languages, most notably Haitian Creole. A French-speaking person or nation may be referred to as Francophone in both English and French.

French is an official language in 29 countries across multiple continents, most of which are members of the Organisation internationale de la Francophonie (OIF), the community of 84 countries which share the official use or teaching of French. French is also one of six official languages used in the United Nations. It is spoken as a first language (in descending order of the number of speakers) in France; the Democratic Republic of Congo; Algeria; Morocco; Canada (provinces of Quebec, Ontario and New Brunswick as well as other Francophone regions); Cameroon; Belgium (Wallonia and the Brussels-Capital Region); Ivory Coast; Tunisia; western Switzerland (Romandy—all or part of the cantons of Bern, Fribourg, Geneva, Jura, Neuchâtel, Vaud, Valais); Monaco; parts of Luxembourg; parts of the United States (the states of Louisiana, Maine, New Hampshire and Vermont); northwestern Italy (autonomous region of Aosta Valley); and various communities elsewhere.

## Appendix 11 - Languages

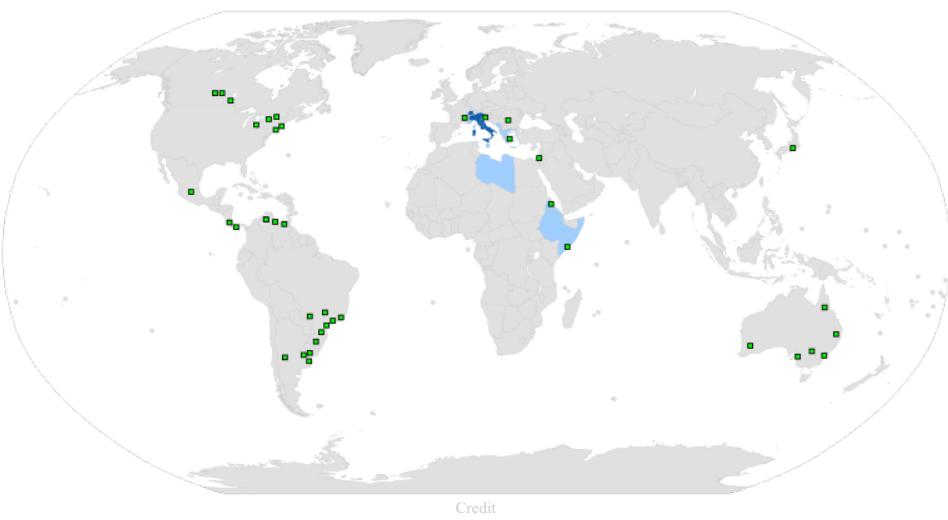
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### Spanish



A Romance language that originated in the Iberian Peninsula of Europe. Today, it is a global language with nearly 500 million native speakers, mainly in Spain and the Americas. It is the world's second-most spoken native language after Mandarin Chinese, and the world's fourth-most spoken language overall after English, Mandarin Chinese, and Hindi.

### Italian



A Romance language of the Indo-European language family. Italian is the closest national language to Latin, from which it descends via vulgar Latin of the Roman Empire. Taking into account both national and regional languages, it is seen that Italian and Sardinian are together the least differentiated from Latin. Italian is an official language in Italy, Switzerland (Ticino and the Grisons), San Marino, and Vatican City. It has an official minority status in western Istria (Croatia and Slovenia).

It formerly had official status in Albania, Malta, Monaco, Montenegro (Kotor), Greece (Ionian Islands and Dodecanese), and is generally understood in Corsica by Corsican speakers (many linguists classify Corsican as an Italian dialect). It used to be an official language in the former colonial areas of Italian East Africa and Italian North Africa, where it still has a significant role in various sectors.

Italian is also spoken by large immigrant and expatriate communities in the Americas and Australia. Italian is included under the

## Appendix 11 - Languages

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languages covered by the European Charter for Regional or Minority languages in Bosnia and Herzegovina and in Romania, although Italian is neither a co-official nor a protected language in these countries. Many speakers of Italian are native bilinguals of both Italian (either in its standard form or regional varieties) and another regional language of Italy.

### Brazilian Portuguese



The set of dialects of the Portuguese language native to Brazil and the most influential form of Portuguese worldwide. It is spoken by almost all of the 200 million inhabitants of Brazil and spoken widely across the Brazilian diaspora, today consisting of about two million Brazilians who have emigrated to other countries. With a population of over 205 million, Brazil is by far the world's largest Portuguese-speaking nation and the only one in the Americas.

### Portuguese



Credit

A Romance language originating in the Iberian Peninsula of Europe. It is the sole official language of Portugal, Angola, Mozambique, Guiné-Bissau, Cape Verde, São Tomé and Príncipe, and Brazil, while having co-official language status in East Timor, Equatorial Guinea, and Macau. A Portuguese-speaking person or nation is referred to as "Lusophone" (lusófono). As the result of expansion during colonial times, a cultural presence of Portuguese and Portuguese creole speakers are also found around the world. Portuguese is part of the Ibero-Romance group that evolved from several dialects of Vulgar Latin in the medieval Kingdom of Galicia and the County of Portugal, and has kept some Celtic phonology and its lexicon.

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### Catalan



A Western Romance language derived from Vulgar Latin. It is the official language of Andorra, and a co-official language of three autonomous communities in eastern Spain: Catalonia, the Valencian Community and the Balearic Islands. It also has semi-official status in the Italian comune of Alghero. It is also spoken in the Pyrénées-Orientales department of France and in two further areas in eastern Spain: the eastern strip of Aragon and the Carche area in the Region of Murcia. The Catalan-speaking territories are often called the Països Catalans or "Catalan Countries".

The language evolved from Vulgar Latin in the Middle Ages around the eastern Pyrenees. Nineteenth-century Spain saw a Catalan literary revival, culminating in the early 1900s.

### Walloon



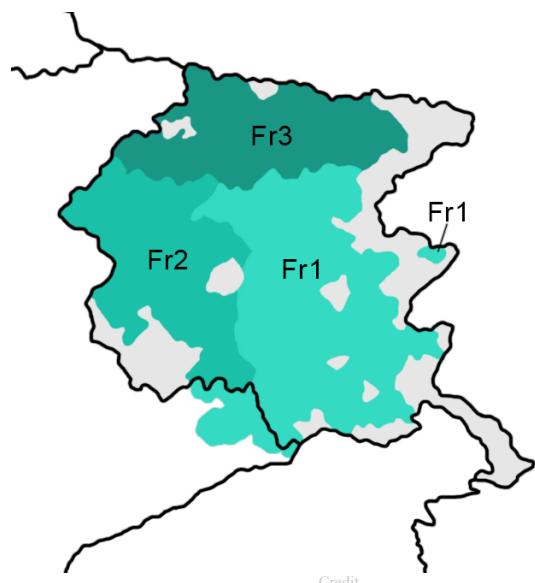
A Romance language that is spoken in much of Wallonia and (to small extent) in Brussels, Belgium; some villages near Givet, northern France; a clutch of communities in northeastern Wisconsin, U.S.; and in some parts of Canada. It belongs to the langue d'oïl

## Appendix 11 - Languages

language family, the most prominent member of which is the French language. The historical background of its formation was the territorial extension since 980 of the Principality of Liège to the south and west.

Despite its rich literature, beginning anonymously in the 16th century and with well-known authors since 1756, the use of Walloon has decreased markedly since France's annexation of Wallonia in 1795. This period definitively established French as the language of social promotion, far more than it was before. After World War I, public schools provided French-speaking education to all children, inducing a denigration of Walloon, especially when accompanied by official orders in 1952 to punish its use in schools. Subsequently, since the middle of the 20th century, generational transmission of the language has decreased, resulting in Walloon almost becoming a dead language. Today it is scarcely spoken among younger people, with vast majority of its native speakers being the elderly (aged 65 and over). In 2007, the number of people with knowledge of the language was estimated at 600,000.

### Friulian



A Romance language belonging to the Rhaeto-Romance family, spoken in the Friuli region of northeastern Italy. Friulian has around 600,000 speakers, the vast majority of whom also speak Italian.

It is sometimes called Eastern Ladin since it shares the same roots as Ladin, but over the centuries, it has diverged under the influence of surrounding languages, including German, Italian, Venetian, and Slovene. Documents in Friulian are attested from the 11th century and poetry and literature date as far back as 1300. By the 20th century, there was a revival of interest in the language.

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### Romanian



Credit

A Balkan Romance language spoken by approximately 24–26 million people as a native language, primarily in Romania and Moldova, and by another 4 million people as a second language. According to another estimate, there are about 34 million people worldwide who can speak Romanian, of whom 30 million speak it as a native language. It is an official and national language of both Romania and Moldova and is one of the official languages of the European Union.

Romanian is a part of the Eastern Romance sub-branch of Romance languages, a linguistic group that evolved from several dialects of Vulgar Latin which separated from the Western Romance languages in the course of the period from the 5th to the 8th centuries. To distinguish it within the Eastern Romance languages, in comparative linguistics it is called Daco-Romanian as opposed to its closest relatives, Aromanian, Megleno-Romanian and Istro-Romanian. Romanian is also known as Moldovan in Moldova, although the Constitutional Court of Moldova ruled in 2013 that "the official language of the republic is Romanian".