

# 1 Middle A

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	-
A	p	a	a	a		a	a	a	a		a	a	a	a		a	æ	a	a	a		v					ei
B	a	æ	æ	æ	b	æ	æ	b	b	a	ei	æ	æ	æ	b	æ		a	æ	æ	b	ʌ	ʊ	æ	b	ʌ	ʌ
C	k	ʌ	æ	æ	k	æ	ei	ʌ	k	ʌ	ei	ʌ	æ	æ	k	æ	k	a	æ	k	k	æ	k	æ	k	a	ʌ
D	a	ʌ	æ	æ	d	æ	æ	a	d	ei	ʌ	ʌ	æ	æ	d	æ	æ	a	ʌ	ei	d	ei	ʊ	æ	d	a	ʌ
E		b	i	ɛ	ei	i	i	i	ɪ		i	i	i	i		i	k	ɪ	i	i	ou	i	i		i	i	ʌ
F	a	æ	æ	æ	f	æ	æ	a	f	ʌ	ei	æ	ʌ	æ	au			a	æ	f	f	ei	ʊ	k	f	ei	ʌ
G	a	ʌ	g	æ	g	g	æ	æ	g	ai	a	ʌ	æ	ʌ	a	æ	ʌ	a	æ	ei	g	æ	a	æ	ei	ʌ	ʌ
H	a	æ	æ	æ	ɛ	æ	æ	h	ei	a	ei	æ	æ	æ	au	æ	æ	a	æ	æ	h	ei	ʊ	k	ei	ei	ʌ
I	a	ʌ	æ	ʌ	i	ʌ	ʌ	ai	ei		æ	ʌ	ʌ	ʌ	au	æ	k	a	ʌ	i	i	a	ʌ	æ	i	æ	ʌ
J	a	ʌ	æ	a	ɛ	æ	æ	dʒ	ei	a	ʌ	æ	æ	æ		ʌ	æ	a	æ		ʊ	a	ʌ	k	ei	æ	ʌ
K	k	ʌ	ʌ	ei	k	ʌ	ɪ	ʌ	k	a	a	æ	æ	æ	a	æ		a	ʌ	æ	k	ʌ	a		k	a	ʌ
L	l	ʌ	l	æ	l	a	æ	ʌ	l	l	ʌ	a	æ	æ	l	æ	l	l	æ	l	l	a	l	æ	l	a	ʌ
M	a	ʌ	ʌ	æ	m	a	æ	ʌ	ei	ʌ	ei	æ	æ	ʌ	au	æ	æ	a	æ	æ	ʊ	ei	ʊ	æ	m	a	ʌ
N	n	ʌ	æ	a	n	ʌ	n	ʌ	n	a	a	ʌ	ʌ	ʌ	n	æ	æ	a	ʌ	n	n	a	ʌ	k	n	a	ʌ
O	ou	æ	ou	ou		ou	ou	ou	a		ou	ou	ou	ou	ou	p	a	ʊ	ou	ou	ou	ou	a	k		æ	ʌ
P	a	ʌ	æ	æ	i	æ	æ	p	p	ʌ	æ	æ	æ	æ	a	ei	æ	a	æ	æ	ʊ	æ	a	æ	ei	æ	ʌ
Q		a									j		a						ei	ʌ			a			ʌ	
R	a	ʌ	æ	æ	ɪ	æ	æ	ʌ	ɪ	a	ʌ	ʌ	æ	æ	ɪ	ɪ	æ	ɛ	æ	ei	ɪ	æ	ɪ	k	ɪ	a	ʌ
S	a	ʌ	æ	æ	s	ei	a	a	ei	æ	a	a	æ	æ	a	s		a	æ	æ	ʊ	a	ʊ	æ	s	a	ʌ
T	t	ʌ	æ	ʌ	t	t	t	t	t	a	ei	ʌ	æ	æ	au	t	ʌ	a	ʌ	t	t	a	t	æ	t	ʌ	ʌ
U	ʌ	ʌ	w	a	ei	a	a	a	ei	a	ei	ʌ	a	a			æ	a	ei	u	u	a	w	k	w	a	ʌ
V	a	ʌ	æ	ei	v		v	v	v	ʌ	a	æ	æ	æ	v	ei	a	a	æ	v	v	a	ʊ	k	v	a	ʌ
W	a	a	æ	a	ɛ	a	æ	a	w	ai	ei	ʊ	a	a		a		ʊ	a	ʊ	w	ei	ʌ	æ	w	a	ʌ
X		s	z				z		s			s	z	s				s	ʌ	s	k	ei					ʌ
Y	a	ʌ	ʌ	æ	i	j	ʌ	a		dʒ	æ	ʌ	a	ʌ	au	æ		a	a	ʌ	ʊ	æ	ʊ	æ	j	a	ʌ
Z	z	ʌ	æ	a	æ	a	æ	z	ai	ai	æ	a	a	a		æ		a	ʌ	z	z	a	a		ei	æ	ʌ
-	a	ʌ	æ	æ	ɛ	æ	æ	a	ɛ	ʌ	ʌ	æ	æ	æ	ei	ʌ	æ	a	ʌ	æ	ʊ	æ	ʌ	æ	ei	æ	ʌ

## 2 Middle B

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	-
A	b	b	b	b	b			b	b	b	b	b	b	b	b	b		b	b	b	b		b		b	b	b
B	b		b		b				b			b			b		i	ɹ	b		b				b		b
C	k		b		k				k									k	b		k						i
D	b				b				b			b			b			b			b				b		
E	b	ε		b	b			b	b		b	b	b	b	b			b	b	ε	b	ei			b		b
F	b				b				b						b												
G	b				b				b			b			b			b			b				b		b
H	b				b				b			b			b			b			b				b		
I	b	ɹ		b	b	b		b	b		b	b	b	b	b			b	b		b		b		b		b
J																											
K	b				b				b			b			b			b			b				b		
L	b				b	l			b			b			b			b	b		b				b		b
M	b	m	b	m	m	m		ʌ	b		m	b	m	m	b			b	m		b				b		m
N	b		b		b				b			b			b			b			b				b		
O	b	ɑ	b	b	b	b	b	b	b	b	b	b	ɑ	b	b			b	b	b	b	b	b		b	b	b
P	b				b										b			b			b						
Q	b																										
R	b				b				b			b	b		b			b	b		b				b		b
S	b				b	b			b			b			b			b			b				b		
T	b				b				b			b			b			b			b				b		b
U	b	ʌ	b	b	b	b	b	b	b	b	b	b	b	b	b	b		b	b	t	b	b	b		b	b	b
V																											
W	b				b				b			b			b			b			b				b		b
X	s				s										s			s			b				b		
Y	b			b	b				b		b	b			b			b			b				b		b
Z	b				b				b						z						b				b		
-	b	b			b			b	b	b		b	b		b			b		b	b				b		b

### 3 Middle C

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	-
A	k	k	k	k	s	k	ʌ	tʃ	s		æ	k	k	k	k	ʌ	k	k	k	k	k	k	k		s	tʃ	k
B	k				tʃ			b			b				k				s		k					b	i
C	k				s			k	tʃ			k			k			k	i	i	k				tʃ		i
D	k				s			d			d	k			k			k			d						i
E	k		ɛ	k	s			ɛ	s		ɛ	k	k	k	k		ɛ	k	k	k	k	k	k		s	tʃ	k
F	k								s						k												i
G								tʃ							k						k						
H	k				s			tʃ				k			k			ɹ			k						
I	k	k	k		s	k		ɹ	s		ɹ	k		k	k			k	k	k	k				s	ɹ	k
J								ɛɪ	tʃ																	tʃ	
K	k				s			tʃ							k												k
L	k	i			s			l	s		l	l			k			k	i	k	k				s	tʃ	k
M	ʌ	ʌ	ʌ	ʌ	æ	ʌ	ʌ	m	æ	ʌ	ʌ	ʌ	ʌ	ʌ	k	ʌ	ʌ	ʌ	ʌ	ʌ		ʌ	ʌ			tʃ	i
N	k				n			n	s		ŋ	k	m		k			k	k	k	k				s	n	k
O	k		k		s			k	s		ɑ	k			k		oʊ	k	k	k	k				s	tʃ	k
P	k							p	s						k				i	t						tʃ	i
Q																											
R	k				s			ɹ	s		k	k	k	tʃ	k	k	ɜ	k	k	k	k				s	tʃ	k
S	k				s			f	s		k				k			k	i		k				s	ɹ	k
T	k				s			tʃ	t		k				k			k			k				s	tʃ	ʌ
U	k		u		s			tʃ	s		ʌ	k			k			k	k	k	k		k		s	tʃ	k
V								tʃ	tʃ						k												
W	k		au		s			tʃ				k			k			ɹ								tʃ	
X	s				s			s	s		s				s			s			s				s		s
Y	k				s			k	s		ɹ	k			k			k			k				i	ɹ	
Z	k							tʃ	ɹ			s			k						k					ɹ	
-	k	i	i	s	s	s		tʃ	s			k	s	i	k	i		k	s	ʊ	k		k	i	s	tʃ	i

## 4 Middle D

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	-
A	d	d	d	d	d	d	æ	d	d	d <sub>3</sub>	d	d	d	d	d	d	d	d	d	æ	d	d	d		d	d	d
B	d				d				d					d	d			d			d				d		
C	k		d		k				k					k			d	d		k				k		d	
D	d	d			d			d	d			d		d			d	d	d	d	d		w		d		d
E	d	d	d	ε	d	d	ε	d	d	d <sub>3</sub>	d	d	d	d	d	d	d	d	d	d	d	d	d		d	d <sub>3</sub>	d
F	d				d	d			f					d													
G	d				d				d					d							d						
H	d				d				d					d			d			d					d		d
I	d	d	d	ɪ	d	ɪ	ɪ	d	d	d	d	d	d	d	d	d		d	d	ɪ	d		d		d	d	d
J	d				d																d				d	d <sub>3</sub>	
K	d													d			d				k						
L	d	d	d		d	d		d	d		d	d	d	d	d	d		d	d	l	d	d	d		d		d
M	d				d				d					d			d			d							d
N	d	d	d	n	d	d	d	d	d	n	d	d	d	d	d	d	d	d	d	n	d	d	d		d	n	d
O	d	d	d	ɑ	d	d	ɑ	d	d	d <sub>3</sub>	d	d	d	d	d	d		d	d	d	d		d		d	d	d
P	d				d				d					d			d								d		i
Q																											
R	d	d	d	d	d	d	d	d	d	d <sub>3</sub>	d	d	d	d	d	d	d	d	d	ɹ	d	v	d		d	d	d
S	d				d				d					d	d			ɹ		s							d
T	d				s				d					d			d	d							d		d
U	d	d	d	ʌ	d	d	ʌ	d	d	d <sub>3</sub>	d	d	d	d	d			d	d	d	d	d	d		d	d	d
V	d				d													d									d
W	d				d			d	d			d		d	d			d	d		d				d		d
X														d													
Y	d	d			d		ɪ	d	d			l	d	ʌ	d			d	d	t	d					d <sub>3</sub>	d
Z	d				d				d					d				d								d	d
-	d	d	d	d	d	d		d	d	d <sub>3</sub>	d	d	d	d	d		d	d	d		d	d	d		d	d <sub>3</sub>	d

## 5 Middle E

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	-
A	i	ε	ε	d	ɑ	f	ε	er			k	l	er	n	ɑ		k	ɹ	s	t	aʊ	er	ar		er	ε	er
B	i	b	ε	ε	b	ɹ	ɹ	ɹ	b	er	ε	ε	ε	ε	er	er	ɹ	b	b	ε	j	ε	ɹ	k	b	ε	b
C	s	s	ε	s	s	s	ɹ	h	s	er	ε	ε	m	ε	i	ε		s	ɹ	ε	u	k	s	ε	s	ε	s
D	d	ε	ɹ	ɹ	d	ɹ	ɹ	d	d	ɹ	ɹ	ε	ε	ʌ	i	ɹ	ʌ	d	d	ɹ	d	ɹ	d	ε	d	ε	d
E	i	i	i	i		i	i	i	i		i	i	i	i	i	i		ɹ	i	i	i	i	i	ɹ	u	i	i
F	f	f	ε	ε	i	ε	f	ε	f	ɹ	ɹ	ε	ε	ε	i	p		f	ε	ε	j	i	j	k	f	ε	f
G	ʌ	ε	ε	dʒ	i	ε	ε	ε	ar	er	i	ʌ	m	ʌ	i	p		ʒ	ɹ	ε	ʒ	ε	dʒ		g	ε	dʒ
H	ε	ε	ε	t	i	ε	ε	ε	ar	ε	ε	ε	ε	ε	i	ε	t	ʒ	ɹ	ε	j	ε	j	ε	i	ε	tʃ
I	i	i	i	i		i	i	i	ar	ε	i	i	i	ʌ		i		i	i	i	j	i	j		ε	ʌ	i
J	dʒ	ε	ε	ε	dʒ	ε	ɹ	ε		dʒ	ε	ε	ε	ε	ε	ε		ε	ε	ε	dʒ	er	u	ε	er	ɹ	ε
K	i	k	k	k	k	k	ε	k	k	k	ε	ʌ	ε	ʌ	k	ε		k	k	ʌ	k	ε	j		k	ʌ	k
L	l	l	ε	l	l	ε	ε	l	l	er	ε	l	ε	ʌ	i	ε	ʌ	l	l	l	l	ε	l	ε	l	ε	l
M	i	m	ε	ε	i	m	ε	ε	m	er	ɹ	ε	ε	ʌ	i	m	ε	m	m	ε	m	ε	m	k	m	ε	m
N	n	n	ε	n	n	n	ε	n	n	er	ɹ	n	m	ʌ	i	ε	ε	n	n	ε	u	ε	u	k	n	ε	n
O	i	oʊ	oʊ	oʊ	i	oʊ	oʊ	oʊ	oʊ		oʊ	oʊ	oʊ	n		oʊ	i	u	oʊ	oʊ	k	oʊ	oʊ	ɹ	i	oʊ	oʊ
P	p	ε	ε	p	p	p	ε	ε	p	er	ɹ	ε	ε	ε	i	ε	er	ʒ	p	ε	j	ε	j	k	p	ε	p
Q																											
R	i	i	ε	ʒ	ɹ	ɹ	ε	ɹ	ɹ	ɹ	ε	ε	ε	ε	i	i	i	ʒ	ɹ	ε	ɹ	ε	ɹ	k	ɹ	ε	ɹ
S	i	s	ε	s	i	s	ε	s	s	er	ε	ʌ	ε	ʌ	i	ε	i	ʒ	ɹ	ε	s	ε	s	ε	s	i	s
T	t	t	ε	ɹ	t	ε	ʌ	t	t	er	ε	ε	ε	ʌ	i	ε	ʌ	t	t	ε	t	ε	t	ε	t	ε	t
U	w	u	u	u	w	u	u	u	u	u	u	u	m	ʌ	i	u		ʒ	ε	u	j	ε	t	k	u	ε	u
V	v	v	ε	v	v	f	ε	i	v	v	ɹ	v	m	ʌ	i	p	v	v	v	v	v	er	v	ε	v	ε	v
W	w	ε	ε	d	i		ε	ε	ar		ε	ε	ε	ε		ε		ʒ	ε	ε		ε		ε	er	ε	oʊ
X		ε	z	s					s			s	z	s				s	ɹ	ʌ					s		s
Y	j	b	ε	d	i		g	er	j		ε	ε	ε	ε	oʊ	ε		ʒ	ε	ε	u	ε	w	k	er	ε	ar
Z	z	i	ε	z	z	ε	i	ε	ar	er	ε	ʌ	ε	ʌ	i	ε		z	ɹ	ε	u	er	ε		z	ɹ	z
-	i	ε	ε	ε	i	ε	ε	ε	ar	ɹ	ε	ε	ε	ε	i	ε	ɹ	ʒ	ε	ε	j	ε	j	ɹ	ar	ε	i

## 6 Middle F

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	-
A	f		f	f	f	f	f	f	f		f	f	f	f	f			f	f	f	f			k	f	f	f
B	f										b			f			f			f							ε
C	k				k						f			ε						f							
D	d				f				f		d			f			f			f		Λ					ε
E	f		f	d	f	f	f		f		f	f		f	f			f	f	f	f	f			f	f	f
F	f	f	f		f			f	f		f	f	f	f	f	f		f	f	f	j				f	f	f
G	f				f				f		f			f				f			f						
H	ε			ε	f				f		f			f				ɹ			f						
I	f		f		f	ɹ		f	f		f	f	f	f	f			f	f	f	f				f		f
J					f						ε																
K	f								f		f			f							k						
L	f	f		f	l	l	f	f	f		f	f		f	f			f	f	f	f		f				f
M	f				f				f		f			m				f			f				f		
N	f				f	n			f		f	f	ε	f				f		f	f						f
O	f	f	f		f	u	f		f		f	f	f	f	f		f	f	f	f	f				f	f	f
P	f				f	p			f		f			f	f			f			f						f
Q																											
R	f	f			f	ɹ		f	f		f	f	f		f			f	f	f	f						f
S	f				f	f			f		f			f							f				f		
T	f				f				f		f			f				f			f						
U	Λ	f	f	f	f	Λ		f	f		f	f	f	f	f			f	f	f	f						f
V																											
W	f								f		f			f							f						
X	f				s				s					s													
Y	f				f	ɹ			f		f			f				f			f						
Z					f																f						
-	f	ε			f				f	f		f	ε		f			f	f	f	f				f		ε

## 7 Middle G

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	-
A	g	g	g	g	d <sub>3</sub>	g	æ	ʌ	d <sub>3</sub>			g	g	g	g	g		g	g	g	g		g		g		g
B															b			g									
C	g				g			ʌ	g			g			g			g			ʌ		g		g		
D	g		d <sub>3</sub>	d	d <sub>3</sub>			d <sub>3</sub>	d <sub>3</sub>		d <sub>3</sub>	d <sub>3</sub>	m		g	d <sub>3</sub>		g	d <sub>3</sub>		g		d <sub>3</sub>		d <sub>3</sub>		
E	g	g			g	g	ɛ	g	d <sub>3</sub>			g	g	g	g			g	g	ɛ	g		g		d <sub>3</sub>		g
F	f							g							f			g									
G	g		k		g			g	g			g		n	g	p		g	g		g				g		g
H	g				g			i							g						g						d <sub>3</sub>
I	g	g		g	d <sub>3</sub>	g	ɪ	aɪ	d <sub>3</sub>			g	g	g	g	g		g	g	g	g		g		d <sub>3</sub>	g	g
J																											
K	g	i													ʌ			g									
L	g				d <sub>3</sub>			l	d <sub>3</sub>			g			g			g			g				d <sub>3</sub>		g
M	g				m								g		m			g									
N	g	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	d <sub>3</sub>	ŋ	ŋ	g	ŋ	ŋ	g	ŋ	k	g	ŋ	t	g	ŋ	ŋ	ʃ	d <sub>3</sub>	ŋ	ŋ
O	g	g		g	d <sub>3</sub>	g	ɑ	g	d <sub>3</sub>	g		g	g	g	g			g	g	g	g		g		d <sub>3</sub>		g
P	g												i		g			g									i
Q	k																										
R	g			g	g	f	g	g	d <sub>3</sub>			g	g	g	g		k	g	g	g	g		g		d <sub>3</sub>		g
S	g				g				g						g			g		d <sub>3</sub>	g						
T	g				g										g			g			g						
U	g	g		g	u	g	ʌ	ʊ	g		g	g	g	g	g			u	g	ʌ	g		g				g
V					g										g			g									
W	g				d <sub>3</sub>				g						g						g						
X					d <sub>3</sub>							s															
Y	g			g	g		ɪ		g			g	g	g	g			g	g		g	g			d <sub>3</sub>		
Z	g				d <sub>3</sub>				s						g			g									
-	g			g	d <sub>3</sub>	g		g	g	d <sub>3</sub>		g	g	n	g	g		g	g	d <sub>3</sub>	g	g	g		d <sub>3</sub>		i

## 8 Middle H

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	-
A	h			a	h	a	g	a	h		k	a	m	a	h			a	ʌ	a	h	a	a		h		ʌ
B	a								ɪ			b			h						u						m
C	tʃ	b	tʃ	d	tʃ	f	g	h	tʃ		ʃ	l	m	n	k	tʃ		ɪ	k	k	ʌ	ʃ	w		tʃ		tʃ
D	h				h				d			ʌ			h	d		ɪ			h					d	d
E	h	ɛ		ɛ	h	f	ɛ		h		k	l	ɛ	ɛ	h			ɪ		t	h					h	ɛ
F	h				h				h						h												
G	h	b		d	g	f			g		k	l	m	n	h	p		ɪ	z	t	h		aɪ		g		ʌ
H	h				h				h						h												a
I	h			ɪ	h	ɪ			h			ɪ	ɪ	ɪ	h			ɪ			h				h		ɪ
J	a				ɛ				dʒ																		
K	h				h				h			l	m		h			ɪ	k	k	k					j	k
L	h				h				l						h						h						
M	h				m				h				h		h						h						tʃ
N	h				h				h						h						h					h	n
O	h	b		oʊ	h			oʊ	h	oʊ	k	oʊ	oʊ	a	h			ʌ	oʊ	t	h		oʊ		h		oʊ
P	f			tʃ	f				f			f		n	f			f	f	f	f				f		f
Q																											
R	h				h				aɪ				m		h						h					ɪ	ɜ
S	ʃ	ʃ	ʃ	ʃ	ʃ	ʃ	ʃ	h	ʃ	dʒ	ʃ	ʃ	ʃ	ʃ	ʃ	ʃ		ɪ		t	ʃ	ʃ	ʃ		ʃ		ʃ
T	θ	θ	θ	θ	ð	f	θ	h	θ	θ	θ	θ	m	θ	θ	p	k	ɪ	θ	θ	θ	θ	θ		θ		θ
U	h			ʌ	u	u		ʌ	h			u	m	ʌ	h			ʊ	ʌ	t	h				aʊ		ʌ
V	h														v												
W	w				w				w						h						w				w		
X	s				s				z						z						s						
Y	h				h				h						h			ɪ			h						eɪ
Z	z			d	z				ɪ		k			n	ʒ						u						
-	h	eɪ	eɪ		h	tʃ	tʃ		h	h		h	h	h	h			h	ʃ		h		h		h		tʃ

## 9 Middle I

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	-
A	j	er	ɪ	er	ar	er	er	h	ar	dʒ	k	er	er	er	i	er	æ	ɛ	er	er	ar	er	w	k	j	er	ar
B	i	ɪ	ɪ	ɪ	b	ɪ	ɪ	ɪ		ɪ	ɪ	ɪ	ɪ	ɪ	ar	ar	b	ɜ	ɪ	ɪ	i	ɪ	ar	ɪ		ɪ	i
C	f	ʌ	ɪ	ʌ	s	ɪ	ɪ	ɪ	k		ɪ	ɪ	i	ɪ	i	ʌ	s	ɜ	ɪ	ɪ	i	ɪ	s			s	i
D	i	ɪ	ɪ	ɪ	d	ɪ	ɪ	ɪ	ɪ	i	ɪ	ɪ	ɪ	ɪ	i	ɪ	i	ɜ	ɪ	ɪ	i	ɪ	i	k	ɪ	d	i
E	i	ar	ar	ar	ar	ar	er	ar	er	dʒ	k	ar	ar	ar	j	p		ɪ	ar	ar		i	ar	k	j	i	er
F	i	ar	ɪ	ɪ	f	ɪ	ɪ			i	ɪ	ɪ	i	ɪ	i	ɪ	ɪ	f	ɪ	ɪ	i	ar		ɪ		ɪ	i
G	i	ɪ	ɪ	ɪ	i	ɪ	ɪ	i	ɪ		ar	ɪ	ɪ	ɪ	i	ɪ	ʒ	ɜ	ɪ	ɪ	u	ɪ	ɪ		i	ar	i
H	i	ɪ	ɪ	ɪ	i	ɪ	h	h	i	ar	k	ɪ	ɪ	ɪ	i	ɪ	k	ɜ	ɪ	ɪ	i	ar	w	ɪ	j	ar	i
I	ʌ		i	d	i			i						i	j				i	ar						z	i
J	i	ɪ	ɪ	ɪ	dʒ	ɪ	ɪ	i	i		ɪ	ɪ	ɪ	ɪ	i	ɪ		ɪ	ɪ	i	dʒ	i	i		i		i
K	i	ɪ	ɪ	ɪ	k	ɪ	i	i	i	ɪ	i	ɪ	ɪ	ɪ	i	ɪ		ɜ	ɪ	ɪ	i	ɪ	ɪ		i	ar	i
L	i	ɪ	ɪ	ɪ	l	ɪ	l	ɪ		ar	ɪ	ɪ	ɪ	ɪ	i	ɪ	ɪ	ɪ	ɪ	ɪ	i	ɪ	ɪ	k	l	l	i
M	i	ɪ	ɪ	ɪ	m	i	ɪ	ɪ	i	i	ɪ	ɪ	ɪ	ɪ	i	ɪ		ɪ	ɪ	ɪ	i	m		ɪ	i	m	i
N	i	ɪ	ɪ	ɪ	n	n	ɪ	ɪ	n		ɪ	ɪ	ɪ	ɪ	j	ɪ	n	ɪ	ɪ	ɪ	i	n		k	ɪ	n	i
O	j	b	ʌ	ʌ	w	ɑ	ʌ				ʌ	ʌ	m	ʌ	i	ʌ		ɑ	ʌ	ʌ	i	v		w		ar	ʌ
P	i		ɪ	ʌ	i	ɪ	ɪ	ɪ			ar	ɪ	ɪ	ɪ	i	ar	p	ɪ	ɪ	ɪ	i	ɪ	ɪ	ɪ		i	i
Q	i		i											ɪ			ɪ	i									i
R	i	ɪ	ɪ	ɪ	i	ɪ	ɪ	i	ɪ	i	ɪ	ɪ	ɪ	ɪ	i	ɪ	i	ɪ	ɪ	ɪ	i	ɪ	ɪ	k	i	ar	i
S	i	ʌ	ɪ	ar	i	ʌ	ɪ	i			ɪ	ɪ	ɪ	ɪ	ʌ	ɪ	z	ɪ	ɪ	ɪ	i	s	ɪ	ɪ	i	ar	i
T	f	ɪ	ɪ	ɪ	t	ʌ	ɪ	i	t	i	ɪ	t	ɪ	t	f	ɪ	t	t	ɪ	t	i	t	ar	k	i	t	i
U	i	ɪ	ɪ	ɪ	ar	ɪ	ɪ			i	ɪ	ɪ	ɪ	ɪ	i	ɪ		w	ɪ	u	j	ɪ		ɪ		ɪ	i
V	i	ar	ɪ	ɪ	v		ɪ	i			ɪ	v	ɪ	ɪ	i	ɪ		ar	ɪ	ɪ	i	ar		k	ɪ	i	i
W	i	ar	ɪ	ɪ	i	ɪ	ɪ	ɪ	i		ɪ	ɪ	ɪ	ɪ	ar	ar		w	ɪ	ɪ		ɪ	i	ɪ	w	ɪ	i
X	i	ʌ	s	s	s	s	s		s			z	s	s	f	s		s	ɪ	ʌ	i	s	s		s		i
Y	ʌ			ɪ	i		ɪ		ɪ		ar	ɪ	ɪ	ɪ		ɪ			ɪ	i							i
Z	i	ʌ	ɪ	z	z	ɪ	ɪ				ɪ	ɪ	ɪ	z	i	ɪ		ɜ	i	i	i	ɪ	i		i	i	i
-	i	ɪ	ar	ar	i	ar	ɪ	ɪ	i	ɪ	ɪ	ɪ	ɪ	ɪ	ar	ar	ar	ɪ	ɪ	ɪ	i	ar	ɪ	ɪ	ar	ɪ	ar

## 10 Middle J

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	-
A	d <sub>3</sub>		ai	d	j				d <sub>3</sub>	j	k			d <sub>3</sub>	d <sub>3</sub>			æ	ai		d <sub>3</sub>						d <sub>3</sub>
B				d <sub>3</sub>											j						d <sub>3</sub>						
C																					k						
D	d <sub>3</sub>				d <sub>3</sub>				d <sub>3</sub>				d <sub>3</sub>		d <sub>3</sub>						ʌ						
E	j		d <sub>3</sub>	d	d <sub>3</sub>				j		d <sub>3</sub>	d <sub>3</sub>	ei	ei	d <sub>3</sub>				d <sub>3</sub>		d <sub>3</sub>						ei
F					j										j												
G	d <sub>3</sub>				ε				d <sub>3</sub>						d <sub>3</sub>												
H					j				d <sub>3</sub>						ʌ												
I	d <sub>3</sub>				j				d <sub>3</sub>		i			ʌ	j							w					
J	j																										d <sub>3</sub>
K	j				j				d <sub>3</sub>						j												
L	j				d <sub>3</sub>				d <sub>3</sub>						d <sub>3</sub>							j					
M	j																										
N	d <sub>3</sub>				d <sub>3</sub>				d <sub>3</sub>						d <sub>3</sub>						d <sub>3</sub>	ε			d <sub>3</sub>		
O	j		tʃ	d	d <sub>3</sub>				d <sub>3</sub>		k	ɰ		n	d <sub>3</sub>					ɰ	ou						d <sub>3</sub>
P	p				j										d <sub>3</sub>												
Q																											
R	d <sub>3</sub>				d <sub>3</sub>				d <sub>3</sub>						d <sub>3</sub>							d <sub>3</sub>			d <sub>3</sub>		
S	ʒ				s										ou							s					
T	j				d <sub>3</sub>										t												
U	j		d <sub>3</sub>		d <sub>3</sub>				d <sub>3</sub>						d <sub>3</sub>							d <sub>3</sub>				d <sub>3</sub>	d <sub>3</sub>
V					d <sub>3</sub>																						
W															d <sub>3</sub>												
X																											
Y	d <sub>3</sub>																										
Z																											
-	d <sub>3</sub>				d <sub>3</sub>	d <sub>3</sub>		d <sub>3</sub>	d <sub>3</sub>						d <sub>3</sub>	d <sub>3</sub>						d <sub>3</sub>		d <sub>3</sub>		d <sub>3</sub>	ei

# 11 Middle K

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	-
A	k	k	æ	k	k	k	æ	k	k		æ	k	k	k	k			k	k	k	k	k	k		k	k	k
B	k				k			k	k						k												
C	k	k	ɑ	k	k	k	k	k	k	k	k	k	k	k	k	k		k	k	k	k	k	k		k		k
D	k				k				k					ʌ	k											k	er
E	k	k	k	k	k			k	k		ɛ	k	k	ɪ	k			k	k	k	k		w		k		k
F	k				k				k					k	k												er
G									k						k						ʌ						
H	k				k				k		k				k												
I	k			d	k			k	k		k	k	m	i	k	k		k	k	k	k	k	k		k		k
J	k				k										k						k						
K	k				k			k	k		er			n	k												k
L	k	k	k		k			k	k			k	k	k	k			k	k	k	k		k		k		k
M	k				k			ʌ	k						k						k	k					
N	k	k	k		k	k		k	k	k	ŋ	k	k	k	k	k		k	k	k	k	ŋ	k		k		k
O	k	k	k	k	k	k		k	k		k	k	k	k	k	k		k	k	k	k		k		k		k
P	k				k				k					n	k						k					k	
Q																											
R	k	k		k	k	k	k	k	k	dʒ	k	k	k	k	k	k		k	k	k	k	ɛ	k		k		k
S	k				k	k			k	k		k	k		k	k		k	k	k	k		k		k		k
T	k				k				k					n	k			k			k					k	
U	k		k		k			u	k	k	ʌ	k	k	k	k			u	k	k	k				k		k
V	k								k						k												
W	k	k			k				k					n	k				k					k		k	k
X																											
Y	k				aɪ			ɪ	k	j		k	k		k			k	k								k
Z	k				k				k						k			s							k		k
-	k		k		k		k	k	k	k	er	k	k	n	k			k	k		k	k	k		k		er

## 12 Middle L

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	-
A	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1
B	1				Δ				1	1					1			1			1	Δ			1		1
C	1			1	1				1						1						1				1		1
D	1				Δ				1			Δ			1						1				1		1
E	1	1	1	1	1	1	1	1	1	1	1	ε	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
F	1				1				1						1						1				1		1
G	1	1			Δ				1						1						1				1		1
H	1	1	tf		1	1	g	1	1		1		1		1		k	1	1	1	Δ		w		1		1
I	1	1	1	1	1	1	1	1	1	1	1	r	1	1	1	1		1	1	1	1	1	1		1	1	1
J									1																		1
K	1				1				1						1						1				1		1
L	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	k	1	1	1	1	1	1		1	1	1
M	1				1				1						1						1				1		1
N	1				1				1						1						1				1		1
O	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1
P	1				1				1						1						1				1		1
Q																											
R	1	1	1	1	1	1		1	1			1	m		1	p			1	1	1		w		1	1	1
S	1				1				1						1						1				1		1
T	1				Δ				1						1						1				1		1
U	Δ	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	k	1	1	1
V	1		1		1				1						1				1		1				1		1
W	1	1		1	1				1		1				1				1	t	1				1		1
X					s				s						1												
Y	1		Δ	ai	1				1		1	1	1		1	r			1	1	1	1	1		1		1
Z	1				Δ				1				Δ		1										1		1
-	1	p	ε		1			1	1	1		1		1	1	ε			ε	ε	1		1	1	1		ε

### 13 Middle M

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	-
A	m	m	m	m	m	m	m	m	m		m	m	æ	m	m	m	m	m	m	m	m	m	m		m	m	m
B	m				b				m														ʌ				
C	k				k				k						k						k			ɛ			
D	m				m				m						m						m					ɛ	
E	m	m	m	m	m	m	m	m	m	m	m	m	ɛ	m	m	m		m	m	m	m		m		m	m	m
F	m				m																						m
G	m	ʌ			m				m						m				m		m				m		m
H	m				m				m	m		ʌ		m					m	m	m				m		m
I	m	m	m	m	m	m	ɪ	m	m		m	m	m	m	m	m		m	m	m	m		m		m	m	m
J	m																										m
K	m				m				ʌ						m						m						
L	m	m		m	m		m	m	m		m	m	l	m	m		m		m		m		m		m		m
M	m		k		m				m		m				m				m		j				m		m
N	m				m				m						m						m				m		
O	m	m	m	m	m	m	m	m	m		m	m	m	m	m	m	m	m	m	m	m		m		m	m	m
P	m				m										p						m						ɛ
Q	u																										
R	m	m	m		m	m		m	m		m		m	m	m			m	m	m	m		m		m		m
S	m				m				m						m			m	m		m				m		m
T	m				m				m						m						m				m		m
U	m	m	m	m	m	m	m	m	m		m	m	ʌ	m	m	m	m	m	m	m	m	m	m			m	m
V	m																										
W	m				m				m						m						ʌ				m		m
X	m				s				s			ɛ															
Y	m	m	m		m				m				m	m	m	m		m	m	m	m						m
Z	m				m				m						m						m						m
-	m	m	m		m	m	ɛ	m	m		m	m	m	n	m	ɛ		m	m	m	m		m		m		ɛ

## 14 Middle N

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	-
A	n	n	n	n	n	n	ŋ	n	n	n	ŋ	n	n	n	n	n	ŋ	n	n	n	n	n	n	ŋ	n	n	n
B	n				n				n						n										n		n
C	k				k				k					ε	k							k				n	
D	n		ε		n				n						n							n				n	n
E	n	n	n	n	n	n	ŋ	n	n	n	ŋ	n	n	ε	n	n	n	n	n	n	n	n	n	n	n	n	n
F	n				n				n																		ε
G	n		n		n				n			n	m		n	p			n	t	n				n		n
H	n			n	n		ŋ	n	n		ŋ	n	n	n	n	n	k		n	n	n					i	n
I	n	n	n	n	n	n	ɪ	n	n	n	ŋ	n	n	ɪ	n	n	n	n	n	n	n	n	n	n	k	n	n
J	n				dʒ				n						n											n	n
K	n	ε			n				n						n							n					
L	n				n			n	n						n				n		n				n		n
M	n				n				n			m			n				m		n				n		m
N	n	n	n		n	ε	n	n	n		n				n				n	n	n		w		n	n	n
O	n	n	n	n	n	n	ŋ	n	n	n	ŋ	n	n	ɑ	n	n	ɑ	n	n	n	n	n	n	n	k	n	n
P	n				n				n						n												ε
Q																											
R	n	n	n	n	n	n		n	n		ŋ	n	n	n	n	n	n	ɹ	n	n	n		n		n	n	n
S	n				n				n						n							n				n	
T	n				n				n						n							n				n	
U	n	n	n	n	n	n	ŋ	n	n	n	ŋ	n	n	ʌ	n	n	n	n	n	n	n	n	n	n	ŋ	n	n
V	n				n				n																		
W	n	n	k	d	n	n	n	n	n			n	n		n	n		n	n	n	n		n	k	n		n
X	s				s				n						n												
Y	n	n	ŋ	n	n	n	n	n	n	n	ŋ		m	ɪ	n			n	n	n	n	n	n	n	k	n	n
Z	n				n				n						n											n	
-	n	ε		ε	n	ε	ε		n		ε				n	ε				ε	n	ε			n		ε

# 15 Middle O

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	-
A	oʊ	b	oʊ				h	oʊ	i		oʊ	oʊ	oʊ	oʊ		p		h	oʊ	aʊ	aʊ	h			j		aʊ
B	h	a	oʊ	a	b	b	a	oʊ	b	ʌ	a	oʊ	a	a	b	oʊ	a	h	oʊ	a	b	oʊ	b	k	h	oʊ	oʊ
C	oʊ	oʊ	a	oʊ	oʊ	k	a	oʊ	k	oʊ	oʊ	oʊ	ʌ	ʌ	k	a		h	oʊ	a	k	ʌ	aʊ	k	k	oʊ	oʊ
D	oʊ	oʊ	a	a	d	d	h	oʊ	h		oʊ	oʊ	ʌ	ʌ	u	a		h	oʊ	oʊ	d	oʊ	aʊ	k	d	oʊ	oʊ
E	oʊ	oʊ	i	ʌ		h	ʌ	oʊ	w		a	a	oʊ	ʌ		oʊ		h	oʊ	oʊ	i	oʊ	oʊ	a	i	a	oʊ
F	oʊ	oʊ	oʊ	oʊ	f		oʊ	oʊ	h	a	f	oʊ	oʊ	a	ʊ	h		h	a	oʊ	f		aʊ	a	f		oʊ
G	oʊ	a	a	a	oʊ	g	a	g	oʊ	oʊ	oʊ	oʊ	ʌ	ʊ	oʊ		h	oʊ	g	g	ʌ	aʊ		g	oʊ	oʊ	
H	oʊ	a	a	d	oʊ	h	a	oʊ	h	j	oʊ	oʊ	oʊ	a	u	a	ʌ	h	a	a	h	ʌ	aʊ	a	h		oʊ
I	oʊ	oʊ	oʊ	oʊ	oʊ	oʊ	a	oʊ	oʊ	oʊ	oʊ	oʊ	ʌ		oʊ		h	oʊ	ʌ	ʌ	oʊ	ʌ	a		oʊ	oʊ	
J	oʊ	a	a	oʊ	oʊ	oʊ	a	a	dʒ	oʊ	oʊ	oʊ	h	a	u	a	k	h	oʊ	a	dʒ	oʊ	aʊ		dʒ	a	oʊ
K	oʊ	oʊ	ʌ	oʊ	oʊ	h	oʊ	oʊ	h	oʊ	oʊ	oʊ	ʌ	u	a		h	oʊ	oʊ	aʊ	ʌ	h	k	oʊ	oʊ	oʊ	
L	oʊ	oʊ	l	oʊ	l	h	ʌ	l	l	l	oʊ	a	oʊ	ʌ	l	ʌ	ʌ	h	oʊ	a	l	ʌ	l	a	l	oʊ	oʊ
M	oʊ	oʊ	ʌ	a	oʊ	a	oʊ	oʊ	h	oʊ	oʊ	oʊ	ʌ	m	oʊ	oʊ	h	oʊ	oʊ	m	u	m	a	m	oʊ	oʊ	
N	oʊ	oʊ	ʌ	oʊ	n	n	oʊ	ʌ	n	oʊ	oʊ	oʊ	a	a	n	a	n	h	oʊ	oʊ	n	oʊ	n	a	n	oʊ	oʊ
O	a	u	u	ʊ	u	u	u	u	u	u	ʊ	u	u	u	u	u		ɪ	u	u		u			u	u	u
P	oʊ	oʊ	a	a	oʊ	p	ʌ	oʊ	h		oʊ	a	a	a	u	a	p	h	oʊ	a	p	a	p	k	h	oʊ	oʊ
Q													a														
R	ɪ	oʊ	ɪ	oʊ	ɪ	ɪ	oʊ	oʊ	ɪ	a	oʊ	oʊ	oʊ	ʌ	ɪ	a	ɪ	ɪ	oʊ	oʊ	ɪ	oʊ	ɪ	a	ɪ	oʊ	oʊ
S	oʊ	oʊ	oʊ	oʊ	oʊ	h	ʌ	s	s	oʊ	a	oʊ	ʌ	ʌ	s	a	oʊ	h	oʊ	oʊ	s	oʊ	s	k	h	oʊ	oʊ
T	oʊ	oʊ	t	oʊ	t	t	ʌ	t	t	oʊ	oʊ	oʊ	ʌ	ʌ	t	a	a	t	oʊ	oʊ	t	oʊ	t	a	t	ʌ	oʊ
U			oʊ	ʌ		h		u	w		oʊ	oʊ	oʊ	oʊ		oʊ		ʊ	oʊ	oʊ	u	oʊ	u		h	oʊ	oʊ
V	oʊ	oʊ	ʌ	a	oʊ		oʊ	a	v	h	v	oʊ	a	a	ʊ	oʊ		h	oʊ	oʊ	v	ʌ	v	k	v		oʊ
W		a	a	h	oʊ	w	oʊ	oʊ	h	h	a	oʊ	ʊ	ʌ	ʊ	a		w	h	oʊ	w	oʊ	aʊ		w	a	oʊ
X			s	s			s					s	ʌ	ʌ		s		s	s	s		s					oʊ
Y	oʊ	oʊ	a	oʊ	oʊ	h	oʊ	oʊ	oʊ	oʊ	oʊ	oʊ	ʌ	u	a		h	oʊ	oʊ	j	oʊ	j		oʊ		oʊ	
Z	oʊ	a	s	oʊ	oʊ	oʊ	ʌ	s	oʊ		oʊ	oʊ	a	oʊ	u	oʊ		h	oʊ	z	u	a	z		z	z	oʊ
-	oʊ	ʌ	a	oʊ	oʊ	h	oʊ	oʊ	h	oʊ	oʊ	oʊ	oʊ	a	u	a	oʊ	h	a	a	aʊ	oʊ	oʊ	a	h	oʊ	oʊ

## 16 Middle P

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	-
A	p	p	p	p	p	p	p	æ	p	p	p	p	p	p	p	p		p	p	p	p		p		p		p
B	p											p			p			p									
C	k				k			k	k			k							i								
D	p				p	d		f	p			p			p			p			d						i
E	p	p	p	ε	p	p	g	f	p		p	p	ε	p	p	ε		p	p	p	p		p		p		p
F	f														p												
G	p				p				p			l			p			p	i								
H	p								p			l			p						ʊ						
I	p	p	p		p	p		f	p	p	p	p	p	p	p	ɪ		p	p	p	p		p		p	p	p
J																											
K	p				p				p			p			p			p									
L	p				p	p		l	p			p		i	p			p	p	l	p		p				p
M	p	m	p	m	p	p	p	m	p		p	p	p	p	p	m		p	p	p	p				p		p
N	p				p			n	p			p			p			p			p						
O	p	p	p	p	p	p	p	f	p	p	p	p	p		p	ɑ		p	p	p	p		p		p		p
P	p				p			f	p			p	p	p	p			p	p		p				p		p
Q																											
R	p		s		p	p		f	p			p	p	p	p			p	p	p	p				p		p
S	p	z			p			f	p			p		p	p			p	p		p				p		p
T	p				p			f	t			p			p			p			p						i
U	p	p	p	p	p	p	p	f	p	p	p	p	p	p	p	ʌ		p	p	p	p		p		p		p
V																								ε			i
W	p				p				p			p			p												
X	s				s			s	s			s			s			s			s						
Y	p			i	p			f	p			p		p	p	ɪ		p	p	p	p						p
Z	p																	p			p						
-	p		p		p	f	i	f	p			p	i	n	p			p	s	t	p				p		i

# 17 Middle Q

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	-
A	k						k		k												k	k					k
B																											u
C																					k						k
D	i																				k						
E																					k						k
F																					k						
G									k												w						
H																					w						
I		k							k												k						k
J																											
K																											
L																					k						
M																					k	k					
N																					k						k
O																					k						
P																											
Q																											
R																					k						
S									k												k						k
T																					k						
U																					u						
V																											
W																					w						
X																					s						
Y																					k						
Z																					k						
-	k								k			k		k							k						k

# 18 Middle R

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	-
A	ɪ	ɪ	ɪ	ɪ	ɪ	ɪ	ɪ	ɪ	ɪ	ɪ	ɪ	ɪ	ɪ	ɪ	ɪ	ɪ	ɪ	ɪ	ɪ	ɪ	ɪ	ɪ	ɪ	k	ɪ	ɪ	ɪ
B	ɪ		ɜ		ɪ				ɪ						ɪ						ɪ				ɪ	ɪ	
C	ɪ				ɪ				ɪ					ɜ	ɪ						ɪ				ɪ		
D	ɪ			ɜ	ɪ				ɪ				ɜ	ɜ	ɪ						ɪ				ɪ	dʒ	aɪ
E	ɜ	ɜ	ɜ	ɜ	ɜ	ɜ	ɜ	ɜ	ɪ	ɜ	ɜ	ɜ	m	ɜ	ɪ	ɜ	k	ɪ	ɜ	ɜ	ɪ	ɜ	ɜ	k	ɜ	z	ɜ
F	ɪ				ɪ				ɪ						ɪ						ɪ				ɪ		
G	ɪ	ɜ			ɪ				ɪ						ɪ						ɪ				ɪ	ɜ	ɜ
H	ɪ	ɪ		ɜ	ɪ		g	ɪ	ɪ		ɪ	ɪ	ɪ	ɪ	ɪ			ɪ	ɪ	ɪ	ɪ				ɪ	z	ɪ
I	ɪ	ɪ	k	ɜ	aɪ	ɪ	ɜ	ɪ	ɪ	ɜ	ɜ	l	ɜ	ɜ	ɪ	p	ɜ	ɪ	ɪ	ɜ	ɪ	v	ɪ		ɪ	z	ɪ
J															dʒ												
K	ɪ				ɪ				ɪ						ɪ						ɪ				ɪ	ɪ	ɜ
L	ɪ				ɪ				ɪ						ɪ						ɪ				ɪ		ɜ
M	ɪ				ɪ			ɜ	ɪ						ɪ				s		ɪ				ɪ		ɜ
N	ɪ				ɪ			n	ɪ						ɪ						ɪ				ɪ		
O	ɪ	ɪ	ɪ	ɪ	ɪ	ɪ	ɪ	ɪ	ɪ	ɪ	ɪ	ɪ	ɪ	ɪ	ɪ	ɪ	ɪ	h	ɜ	ɪ	ɪ	ɪ	ɪ	ɛ	ɪ	ɪ	ɜ
P	ɪ		ɜ		ɪ				ɪ						ɪ						ɪ				ɪ	ɜ	ɑ
Q																											
R	ɪ				ɪ	f	g	ɜ	ɪ			ɪ	ɪ		ɪ				ɪ		ʌ	ɜ			ɪ		ɪ
S	ɪ			ɜ	ɪ				ɪ						ɪ	ɪ			ɜ		ɪ				ɪ		ɜ
T	ɪ	ɜ			ɪ				ɪ					ɪ	ɪ						ɪ				ɪ	ɜ	ɜ
U	ɪ	ɜ	ɜ	ɜ	ɜ	ɜ	ɜ	h	ɪ	dʒ	ɜ	ɜ	ɜ	ɜ	ɪ	ɜ	k	ɜ	ɜ	ɜ	ɪ	ɜ	ɜ		ɪ	ɜ	ɜ
V	ɪ	ɜ		ɜ	ɪ				ɪ						ɪ						ɪ				ɪ		ɜ
W	æ				ɪ				ɪ						ɪ						ɪ				ɪ	ʌ	ɜ
X	ɪ														s												
Y	ɪ			ɜ	ɪ		ɪ		ɪ			ɪ	m	ɜ	ɪ			ɪ	ɜ	ɜ	ɪ				ɜ		ɪ
Z	ɪ														ɪ												
-	ɪ				ɪ			ɪ	ɪ						ɪ	ɑ					ɪ		ɪ		ɪ	ɜ	ɑ

# 19 Middle S

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	-
A	s	s	s	s	s	s	s	æ	s		s	s	z	s	s	s	s	s	s	s	s	ʌ	s		s	ʃ	z
B	s	s	s	z	s			b	s		s	s			s	s				s	s				s		z
C	s	s			k			k	s			k			s	i			k	s			k				s
D	s	z	d	z	s			d	s		s	d	z	d	s	s			s	s	d	ɛ	d				z
E	s	s	s	z	z	z	s	ɛ	s	s	s	s	s	s	s	s	ɛ	s	ɛ	s	s	z	s		s	ɛ	z
F	s	f	f		s			ʃ	s		s		m	s	s	s			f	s	s						s
G	s	z	ʌ	z	s	z		ʃ	s		s	z	z		s	s		z		s	s	z	z		z		z
H	s	s	s		s			ʃ	s		s	s	s	s	s	p				s	ʃ		s		ɪ		s
I	s	s	s	s	z	s	s	ɪ	s	s	s	s	ʌ	s	s	s	s	s	ɪ	s	s	ɪ	s	ɛ	s	ʃ	s
J					s				s		s																
K	s	s	k	s	s	s	s	ʃ	s		s	s	s	s	s	s			k	s	s	k	s		s		s
L	s	z	l	z	s	s	z	l	s		s	l	s	l	s	s		l	l	s	s	l	l		z	ʃ	z
M	s	z	s	s	s	z	n	m	z		s	m	z		s	s			ɛ	s	m		z		z		z
N	s	z	n	z	s	s	n	n	s		s	s	s	s	s	s		z	s	s	s	n	n		s	n	z
O	s	s	s	s	ou	s	s	ʃ	s	s	s	s	z	s	s	s	s	ɑ	s	s	s	ou	s		s	ʃ	z
P	s	s	p		s		s	p	s		s	p	m		s						s	s			ai		s
Q																											
R	s	z	ɪ	z	s	s	s	ʃ	s		s	s	s	z	s	s	s	s	s	s	s	z	s		s	ʃ	z
S	s	s	s		s	s	s	ʃ	s		k	s	s	s	s	s		s		s	ʃ	s	s		s		s
T	s	s	tʃ	s	s	s		tʃ	s		s	s	s	s	s	s				s	s	t	s		s		s
U	s	s	s	s	s	f	s	ʌ	u		s	s	s	s	s	s	s	s	ʌ	s	u	ʌ	s		z	ʃ	s
V	s				s			ʃ	s		s				s					s							z
W	au	b	k	z	z	s	z	ʃ	z		s	s	z	z	s	z		z	s	s	s		z		z		z
X	s		k		k			k	s						s					s	k						s
Y	s	z	s	z	s	s		ɪ	s		s	s	z	ai	s	s			s	s	s	i			s	ɪ	z
Z	s		t						s											s							ʃ
-	s	s	s	ɛ	s	s	s	ʃ	s	ʃ	s	s	s	s	s	s	s	s	s	s	s	s	s		s	ʃ	ɛ

## 20 Middle T

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	-
A	t	t	æ	t	t	t	er	θ	er	t	t	t	t	t	t	t		t	t	t	t	t	t	ε	t	t	t
B	t				t	f		t	t			t			t			t	t		t				t		t
C	t				t	t		k	k			t	t	t	t			t	t		k	i			t		t
D	t				t	f	g	d	t		k	t	t	t	t			t	t								t
E	t	t	ε	t	t	t		θ	t	t	t	t	t	t	t	t		t	t	ε	t	t	t		t	t	t
F	t	t		t	t			f	t		t	t		t	t			t	t	t	t		t		t		t
G	t				t			θ	t			t	t		t				t							t	t
H	t	b	k		t	f		θ	t			l	m	t	Λ			t	s	t	t		t		i		t
I	t	t	ɪ		t	t	t	ɪ	t	t	t	t	t	t	t	t		t	t	ɪ	t	t	t		t	t	t
J	t								t		t				t												
K	t				t			k	t				t		t			t			t						t
L	t	t		t	t	t	t	l	t		t	t	t	l	t		t	t	t		l	t	t		t	t	t
M	m				t			m					t		t			t				i				t	t
N	t	t	t	t	t	t	t	n	t	t	t	t	t	t	t	t		t	t	n	t	n	t	t	t	t	t
O	t	t	ɑ	t	t	t	g	θ	t		t	t	t	t	t	t		t	t	ɑ	t	t	t		t	t	t
P	t		p		t	t		θ	t			t	t	p	t			t	t		p		p		t		t
Q																											
R	t	t	t		t	t	ɪ	θ	t	t	t	t	t	t	t			t	t	t	t	ɜ	t		t	t	t
S	t	t	t	t	t	t	t	θ	t	er	t	t	t	t	t	t		t	t	s	t	t	t		t	t	t
T	t	t	t		t	t	t	θ	t		t	t	t	t	t			t	t		t	t	t		t	t	t
U	t	t	Λ	t	u	t	t	θ	u		t	t	t	t	t	t		t	t	Λ	u	t	t		t	t	t
V					ε			v				ɪ			t							t					
W					t			θ	t						t			t	t		Λ				t		t
X	s	s			s			s	s				s		s			s	t		s				t		t
Y	t				t			θ	t		t	t			t			t	t	t	t					ai	t
Z	t				t				t		t				t				t								t
-	t	t	tʃ		t			θ	t	dʒ	k	t			t			t	t		t	t	t		t		i

## 21 Middle U

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	-
A	aʊ	aʊ	ɰ	d	aʊ	f	b	aʊ	aʊ	aʊ	ɰ	ɰ	aʊ	ɰ		p	k	ɰ	aʊ	t		v	w	oʊ	aʊ	aʊ	oʊ
B	u	ʌ	ʌ	ʌ	j	ʌ	ʌ	b	ɪ	u	j	ʊ	ʌ	ʌ	w	ʌ	b	b	ʌ	ʌ	u			ʌ	b	ʌ	u
C	u	j	u	ʌ	j	k	u	j	w			ʌ	ʌ	ʌ	w	ʌ		j	ʌ	j	j	j			k	u	u
D	u	u	ʌ	ʌ	u	ʌ	ʌ	u	u	u	u	ʌ	ʌ	ʌ	u	u	d	ʊ	ʌ	ʌ		u	u	k	d	u	u
E	u	u	u	u	u	f	u	u	u		k	u	ʌ	u		u		u	u	u		u	u	oʊ	u	u	u
F	u		j	ʌ	j	ʌ	j	ʊ		u	u	ʌ	j	ʌ	u		u	f	j	j						ʌ	u
G	w	u	u	u	g	g	u	ʌ	g	j		j	ʌ	ʌ	j	ʌ		g	ʌ	ʌ					ai	u	u
H	w	ʌ	ʌ	ʌ	j	ʌ	ʌ	u	u	u	k	ʌ	j	ʌ	u	ʌ		ʒ	ʌ	ʌ	ʊ	u	u	ʌ	ai		u
I		u	u	u		u					u	u	ʌ	ʌ				u	ʌ	u						u	u
J	ɑ	u	ʌ	ʌ	u		ʌ	ʌ	u	u	u	u	ʌ	ʌ		u		ʊ	ʌ	ʌ	u	u	u	ʌ			u
K	w	u	ʌ	ʌ	k	ʌ	u	u	u	ʌ	ʌ	ʌ	ʌ	ʌ	u	ʌ		ʒ	ʌ	ʌ		u	u		u	ʌ	u
L	j	u	u	u	l	ʌ	ʌ	l	u	u	u	u	ʌ	ʌ	ʊ	u	l	l	ʌ	u	u	u	u	ʌ	l	u	u
M	u	u	ʌ	ʌ	j	ʌ	ʌ	ʊ	j	u	j	ʌ	ʌ	ʌ	w	ʌ		m	ʌ	j						u	u
N	j	ʌ	u	u	u	j	ʌ	u	u	u	u	ʌ	ʌ	ʌ	j	ʌ		n	ʌ	ʌ	u	u		ʌ	ai	u	u
O	u	b	aʊ	aʊ	u	oʊ	ʌ	u	i		aʊ	l	m	aʊ		u	u	ɹ	ʌ	t		u	aʊ	u	u	u	u
P	u	ʌ	u	j	w	ʌ	j	p	u	j	j	j	ʌ	ʌ	w	ʌ		ʒ	ʌ	j	u		j		w	u	u
Q	w	u		u	w			ʌ	w						u	w									w		u
R	u	u	ʌ	u	ɹ	ʌ	ʌ	u	u	u	ʌ	u	ʌ	ʌ	u	ʌ		ʊ	ʌ	u	u	u	u	ʌ	u	u	u
S	w	ʌ	ʌ	u	u	ʌ	ʌ	u	u	u	u	ʌ	ʌ	ʌ	u	u		ʒ	ʌ	ʌ	u	u			u	u	u
T	u	ʌ	ʌ	t	u	ʌ	ʌ	t	u		u	ʌ	ʌ	ʌ	w	u		tʃ	ʌ	t		u		ʌ	t	u	u
U				u								ʌ	u	u				ʊ	u								u
V			v		j				ʊ		u	ʌ	ʌ	ʌ	u			ʊ	ʌ	ʌ						v	u
W		ʌ			w			u		ʌ		ʊ	ʌ	ʌ		ʌ		ʒ	ʌ	ʌ				u	ɰ	ʊ	u
X	u	z		z	u							z	ʌ			ʌ		ʒ	ʌ								u
Y	u	u	u	u	w		u	u	j		u	u	ʌ	ʌ		ʌ		ʊ	u	u		u				u	u
Z	u	u	ʌ		w	ʌ	ʌ	u	u		u	u	ʌ	u	u	ʌ		ʒ	u	u		u				u	u
-	j	j	u	u	ʊ	j	ʌ	u	j		j	ʌ	ʌ	ʌ		ʌ		ʒ	j	j		j	j		u	u	u

## 22 Middle V

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	-
A	v		v	v	v				v		v	v	v	v	v			v	v	v	v	v			v		v
B					b				v						v			b									
C	k				k				k						k												
D	v			v	v				v						v												
E	v		v		v		v		v	v		v	v	v	v			v	v	t	v	ε			v	v	v
F	v																										
G	v				v				v																		
H	v				v				v																		
I	v				i			v	v		v	v		v	v			v	v		v	i			v		v
J					v																						
K	v				v				v																		
L	v			ɑ	v		v		v						v			l		l	v				v		
M					v				m																		
N	v				v			n	v		v				v			v			v				v		
O	v		v	v	v		v	v	v		v		v	v	v	i		v	v		v	ɑ			v		v
P																											
Q									v																		
R	v				v				v		v				v						v				v		v
S	z				v				s						v												i
T	v				v				v						v				v								i
U	v				v				v						v			ɪ	v								i
V					v				v						v										v		
W					v				v																		
X									s																		
Y	v				v				i						v												
Z	s				v				v						v												
-	v				v				v		v		v	v	v	i		v	v		v				v		i

## 23 Middle W

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	-
A	w	u	u	u	u	u	g	u	u		u	u	u	u	w	p		u	u	u	w	u			u		u
B	w				w																						
C	k				k			k	w						w			ɹ							w		
D	w				w			d	w						w			d							w		
E	w	u	u	d	u	u	u	w	w		u	u	m	u	w	u	k	ɹ	u	u	w	u	u		u		u
F	w								w																		l
G	w				w				w						w			ɹ							w		
H	w				w			w	w						w			ɹ									
I	w				w				w						w												ɹ
J	w																										
K	w				w			k	w						w			k			w						
L	w				w			l	w						w			ɹ							w		
M	w				w				m						w			m									l
N	w				w			n	w						w			n			w				w		
O	ɹ	ou	k	aʊ	aʊ	ou	g	ou	ou	dʒ	ou	aʊ	m	aʊ	w	ou		ɹ	f	ou	w		aʊ		ou	aʊ	ou
P	w				w				p						p			p									
Q																											
R	w				w			w	w						w			ɹ							w		
S	w				w			s	w						w			s			w				w		
T	w				w			t	w						w			t			t				w		
U	w				ɹ				w		k		m		u				s								u
V																											
W	w														w												
X					s										s												
Y	w				w			i	w						w			i									
Z	w				w				w						w												
-	w				w			w	w		w	ɹ	w	w	w			ɹ	ɹ		w				w		ɹ

## 24 Middle X

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	-
A	k	k	k		k	k		k	k			k	k		k	k			k	k	s		k	k	s	k	s
B																											
C			k																								
D																											
E	g	k	k		k	k	k	g	k			k	k	k	k	k	k	k	k	k	g				k	s	s
F																											s
G									f																		
H																											
I	k	k		k	k	k			k			k	k	k	s				k	k	k	k			s	s	
J																											
K																											
L									k						z				k								s
M																											k
N					s				z								k		ŋ								s
O	k	k	k	k	k	k	k	k	k			k	k	k	k				k	k		k	k	k	k		s
P																											s
Q																											
R	s				s				s			s															s
S																											s
T	s																										s
U	k	k			k	k		k	k			k			k	k				k	g						ou
V																											
W																											
X	s								s						s												s
Y									s																		s
Z																											
-	z				z			z	z				ε		z				ε	ε	z				z		ε

## 25 Middle Y

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	-
A	ar	er	er	er	er	er	er	er	er		k	er	m	er	er	er		er	er	er	j	er	er		ar	er	er
B	i	ar			ar	ɪ	ar	i	i		ɪ	ʌ		ɪ	j	ar		ar	b	b	ar	b	ar			ʌ	i
C	ar	ar	ar	ɪ	ar		ɪ	i			ɪ	ɪ	ɪ	ɪ	i	ar		ɪ	ɪ	ar			ɪ				i
D	ar	i	ar	i	d		i		i		ɪ	ɪ	i	ar	j				ɪ	d	i		d				i
E	er	i	i	er	ar	er	er	h	er		k	l	i	er	er	i		ɛ	i	t	j	i	i				i
F					ar	f			f		ar		m	i	j												ar
G	j	i			j		ar		j			ar	ɪ	ɪ	j	ɪ		ar	i	ar	j	ar				ɪ	i
H	ar	ar	ar	ar	ar		ar		ɪ	dʒ	k	ar	ar	ar	j	ar		ar	ɪ	ar	j		ar	k			i
I	j				j										ou										m		
J									dʒ					ɪ													i
K	j	ar	ar	ar	ar		ar	ar	i		ar	ar	ɪ	ɪ	j	ar		ar	ar	ar	j		ar			ar	i
L	j	ar	ar	ar	l	ɪ	ɪ	i	ar		ar	ar	ɪ	ɪ	i	ɪ		ɪ	ɪ	ɪ	j	ar	i	k		ar	i
M	j		ar	ar	ar		ɪ	ar			ɪ	ar		ɪ	ar			ɪ	ɪ	ɪ	j			k			i
N	j	i	ar	ar	j	i	ar	ar	j		ɪ	ʌ	ɪ	ar	j	ar	ar		i	i	j	i	i	k			i
O	ʃ	ʃ	ʃ	ʃ	ʃ	ʃ	g	ʃ	ʃ		k	ʃ	ʃ	ʃ	j			ʃ	ʃ	ʃ	ʃ	v				ʃ	ʃ
P	j	ɪ	i		ar		ɪ	ɪ	p		ar	ar	ɪ	ar	j	ar		ar	ɪ	ɪ			p	ɪ			i
Q																											
R	ar	ɪ	ɪ	ar	ar	i	ɪ	i	i		ar	ʌ	i	ɪ	ar	ɪ		ar	ɪ	i	ar	ɪ	i	k		ar	i
S	j	ɪ	ar	ɪ	s	i	ɪ				ɪ	ɪ	ɪ	ɪ		ɪ		ɪ	ɪ	s		ɪ					i
T	j	ɪ	ar	i	ar	i	ar	i	t		ar	ar	ɪ	ɪ	ar	ar		ar	i	i	j	t	t	k			i
U	j	ar	ar	d	ar		ʃ		ar		ar	ar	m	ar	ar	ar		ar	ar	ar	j	v					i
V	j			ɪ	j			h	v					ɪ					i				v				i
W	ar	ar	ɪ	ar	j	ɪ	ar	ɪ			ɪ	ar	ar	ɪ	ar			ɪ	ɪ	i							i
X			s				s					ar	s					s		s		ar					i
Y	j								ɪ																		
Z		ɪ	ɪ	ar			ar		i		ɪ	ɪ	ar	ɪ		ɪ		ʒ	ɪ		j		ɪ			z	i
-	j	i		ɪ	j		i		j			ɪ		i	j	ɪ	i		i	ɪ	j	ɪ				i	ar

## 26 Middle Z

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	-
A	z	z	z	z	z		z	z	z		z	z	z	z	z	z	s		Λ	z	z				z	t	z
B	z				z				b												z						
C	tʃ				ε				z		k		tʃ	n	tʃ										i		tʃ
D	z				z			dʒ	dʒ		dʒ				oʊ						z		v		z		z
E	z	ε	k	z	z		z	z	z		z	z	z	z		z	z				z	z			z	z	z
F									z																		z
G	z							g																			
H																											
I	z	z	z	z	ai			i	ai		z	l	z	z	z		z	z	ai	s	z	z				i	z
J					z																						
K															z												
L	z	t			z		t	l	z		Λ	z	l	z			l	l					l		z		z
M	z				m				z						z												z
N	z	z			z			z	z		n	z	z		z						z		n		z		z
O	z	z	z	z	z		z		z			z	z	z	z				z	s	z		z		z	t	z
P									s																		
Q																											
R	z	z	ʒ		z	f		z	z		s	z	s	z	z					z	z		z		z		z
S	ʃ		ʃ		ε			s	i		ʃ	s		ʃ	α					s	Λ		v		i		ʃ
T	z	s	s		z	s	s	s	t		s	t	s	s	z	s		s	t	s	z	t	s		s		s
U	z	z	z		z			u	z			z	z	z	z					t	z				z	t	z
V									z																		
W					z																						
X									s																		
Y	z				ai			z	ai										i								z
Z	s				z				s			z	z		z						s		z		z		z
-	z	z		z	z			ʒ	z			z	z		z				ʒ		z	z	z		z		i