MIDI4TEXT

write faster with piano chords!

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What is Midi4Text?

Midi4Text is the first fast writing system for music keyboards based on the principles of stenographic machines. In particular it derives its principles from the only shorthand system in the world based on a musical keyboard: the Michela system.

What is the Michela system?

The Michela system is an exceptionally machine stenography method built on the use of a piano keyboard formed by 20 keys, 10 symmetrical keys for each hand, corresponding to two specific areas of a common musical keyboard: from D sharp to C major and from E major to C sharp. The machine was invented in the second half of the nineteenth century, and it still remains a fast input device of surprising simplicity and effectiveness. In its digital version is still used in the present day by the Italian Senate for the production of parliamentary reports.

What is this book about?

With machine stenography it's possible to type at oral speed and therefore transcribe any kind of speech exceptionally fast (above 200 words per minute). To obtain this result abbreviations are used for each word, which are then automatically translated by the computer. Learning a stenotype system normally takes a rather long period (1,5-2 years).

This theory book, and the basic dictionary provided, is not about professional stenography. It was instead designed by the authors for the purpose of extending the possible applications of the Michela machine. This method derives from a free adaptation of the Michela digital stenography system, in order to create a simplified and quick to learn syllabic theory/dictionary (since it is not necessary to learn any abbreviation or create any personal dictionary), valid in all the fields where a more efficient and faster way for manual writing/inputting texts is needed. Besides, since the

movement of the fingers and wrists is very small, both with respect to a QWERTY keyboard and to a normal piano (the only movement of a certain entity is that of the arms), it is possible to write for a very long time without getting tired (with obvious benefits also in terms of prevention of some muscle diseases due to repetitive movements). Moreover, this method could be also particularly suitable to realize aids for people with communication disabilities (for example by adding a text to voice software or outputting to a Braille display it's possible to create a free and very efficient - natural speech pace - voice communicator for people with disabilities or a fast writing device for the blind). Finally, being based on a Open Source software (Plover) and using a common MIDI keyboard (already present in many houses or available at low prices) is probably the cheapest solution to enter the world of machine stenography.

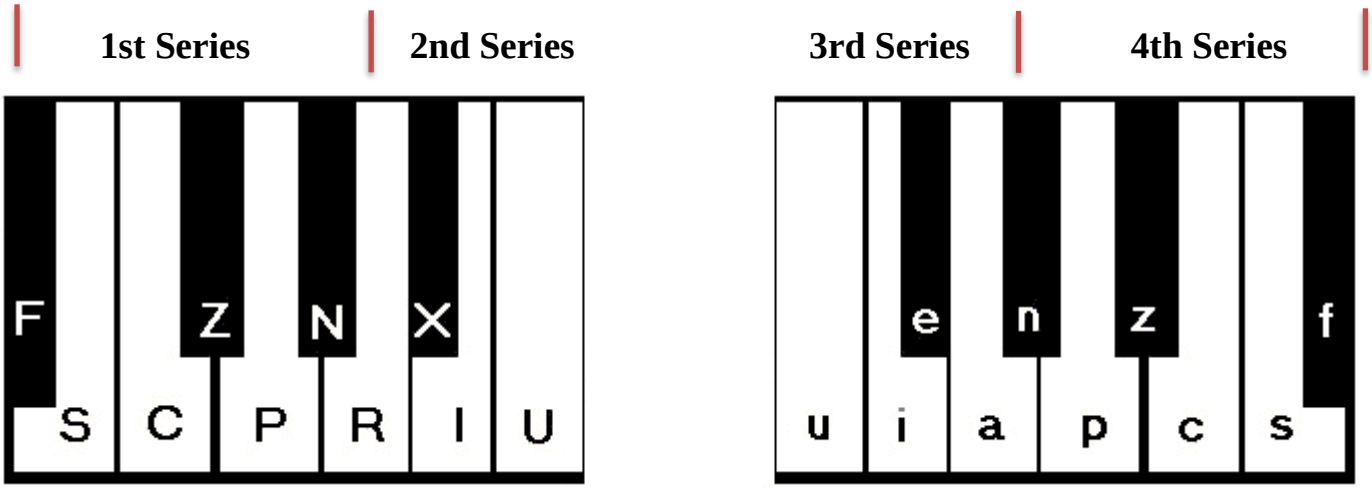
What is the syllabic writing?

All the traditional western machine shorthand system in existence today (Grand Jean, Marino, Michela, Melani, Palantype, Stenotype, Velotype) are based, as a first step, on the syllabic writing (each combination of keys on the keyboard, like a chord on a piano, represent a syllable). This is the writing methodology which the stenography student normally learns at the beginning of his learning path before entering in more specialized writing methods based on the use of abbreviations (or briefs) to represent one or more words in a single stroke. In syllabic writing each word is first divided into syllables (also if this division sometimes doesn't follow exactly the grammar rules), each of which corresponds to a combination of keys (so called "stroke") on the steno keyboard. The corrispondence between the syllable and the stroke can vary depending on the system family. In the so called "phonetic" system (Grand Jean, Marino, Michela, Palantype and Ireland) the stroke corresponds to the sound of the syllable, so it represent properly a "phoneme". In the so called "orthographic" systems, instead, (Melani, Velotype) the stroke represents exactly the characters of the syllable, so its orthography.

The syllabic writing method of this book is based precisely on the orthography of the syllables, therefore it can be classified among these latter systems. As said, each stroke represent a syllable. For example, the two syllables word "window", will be written in two consecutive pressure of two different strokes "win-dow", the first to represent the group of letters "win", the second to represent the group of letters "dow" (plus the final blank space which is indicated in the same stroke). With a traditional alphanumeric keyboard (QWERTY) to write this word 7 keypresses are needed (6 for the letters, one for the blank space). Let's see another example. In the case of the word "personification", syllabically written "per-so-ni-fi-ca-tion", six strokes will be required, against the 16 needed with the ordinary keyboard (15 keypresses + the blank space). As can be easily understood, a syllabic and orthographic writing method ("orthosyllabic" from now on) is per se an efficient way of writing and allows much higher writing speeds than with an ordinary keyboard, also without the use of any abbreviation.

So let's take a better look to the Michela layout.

As it has been said, the Michela keyboard uses two portions of 10 keys (almost two octaves) of a common musical keyboard, each of which is divided in two sectors (called «Series»).



This layout and the assignment of the various keys to the different fingers of the hand has been carefully studied by the inventor to achieve maximum efficiency and speed of writing by limiting the movements of the fingers as much as possible.(*)

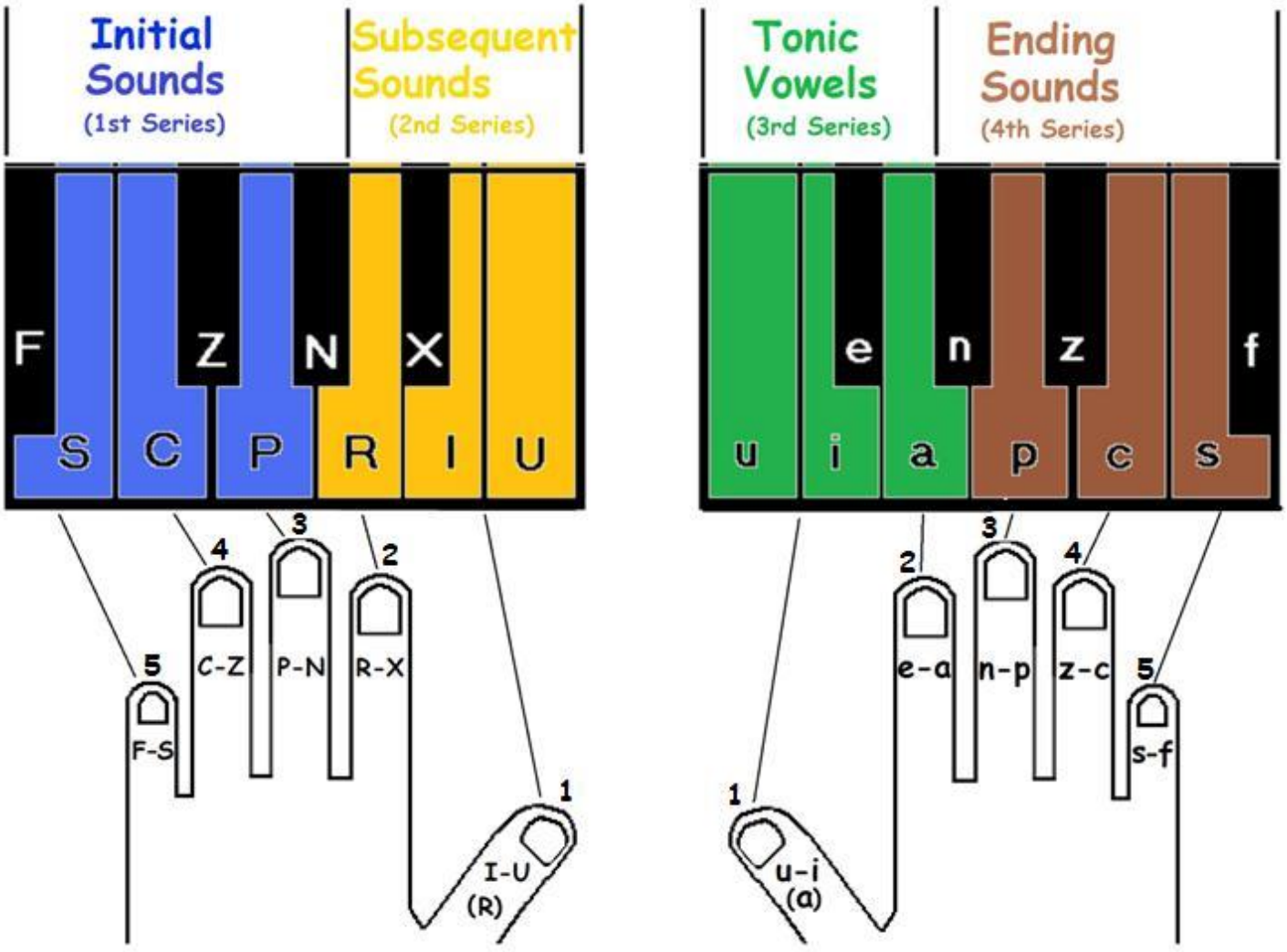
By using the Michela keyboard, it’s possible to write syllables phonetically, as if they were piano chords. The sound of a syllable is, in fact, generated by pressing one or more keys contemporarily with both hands. Each syllable is composed of a set of sounds (phonemes), which the inventor classified into four phonic elements: 1st phonic element (initial sound); 2nd phonic element (subsequent to the 1st); 3rd main phonic element (tonic vowel); 4th phonic element (final sound). For example, the syllable “SI” is made up of the initial sound “S” and the main vowel sound «I». In the word “traction”, the syllable “TRAC” comprises the initial “T” sound, the following sound “R”, the main vowel sound “A”, and the concluding sound “C”, while the syllable “TION” is composed of the initial “T” sound, the subsequent “I” sound, the main vowel “O” and the closing sound «N». Such reoccurring fragmentation of the syllable in segments, allows for the deconstruction into the four parts a syllable can ideally be

divided into: each of these parts is represented in one of the four Series of the keyboard, which ideally repeat the structure of the syllable.

As previously stated, the keyboard consists of two distinct regions enclosing 10 keys, one for each hand. Two specific keys are assigned to each finger, which have not to be pressed simultaneously (with the exception of the thumbs).

The Michela keyboard's layout is entirely symmetrical and specular, as seen above and 75 percent of the sounds in the left keyboard are repeated and mirrored in the right keyboard with the same combinations. Such structure greatly facilitates the memorization of the different sounds. Each key represents a different phoneme and is associated to a different grapheme, however, the individual sounds that can be generated from the four series are not limited to those corresponding to the 20 keys: numerous other sounds can be created by combining different keys, likewise to constructing chords on a piano.

Since this syllabic writing method is different from the original Michela phonetic



method and is based on the representation of syllables in their exact spelling (so called

orthographic writing) and not on their sound, from now on we will refer to «characters» instead of «sounds» and «phonemes».

Midi4Text orthosyllabic table

1st and 4th Series: initial (and ending) characters

1st SERIES (2nd SERIES)	*CHARACTER(S)*	*EXAMPLES*
F (f) *(lesson I)*	initial/final f	*f*ather, *f*ox, a*ff*ection, nai*f*
S (s) *(lesson V)*	initial/final s(1)	*s*on, po*ss*ession, le*ss*, thi*s*
C (c) *(lesson VI)*	initial/final sh	*sh*e, wi*sh*
FC (cf) *(lesson IV)*	initial h; final st, h(3)	*h*ouse, have, horse, *h*at, be*h*ind, u*h*, bes*t*, cres*t*
SC (cs) *(lesson VIII)*	initial/final v	*v*ine, *v*iolent, e*v*e, de*v*
Z (z)(1) *(lesson V)*	initial/final z	zapping, zoo, horizon, dizzy
FZ (zf) *(lesson XV)*	initial/final th (digraph)	*th*e, bro*th*er, pa*th*, ear*th*, weal*th*
SZ (zs)(2) *(lesson IX)*	initial k/final k	*k*ing, *k*eystone, *k*not, boo*k*, see*k*
zc(5) *(lesson IX)*	final ck	bla*ck*, tra*ck*, sna*ck*, ce*ck*
P (p) *(lesson II)*	initial/final p	*p*eo*p*le, rep*p*tile, *p*ap*p*er, na*p*
FP (pf) *(lesson II)*	initial/final t	*t*rifle, gen*t*le, *t*rade, ba*t*
SP (ps) *(lesson VIII)*	initial/final ch(1)	whi*ch*, ea*ch* *ch*amber, pea*ch*
CP (pc) *(lesson VI)*	initial/final initial q(4)	be*c*ause, a*cc*ount *c*on*q*uest, topi*c* a*cq*uired, publi*c*
FCP (pcf) *(lesson XIII)*	initial/final b	tri*b*ute, *b*ecause, fa*b*
SCP (pcs) *(lesson I)*	initial/final d	*d*ear, *d*epre*d*ate, pa*d*, Ne*d*
SZN (nzs) *(lesson VI)*	initial/final x	*x*eno, *x*erox, mi*x*

1st SERIES (2nd SERIES)	*CHARACTER(S)*	*EXAMPLES*
ZP (pz) *(lesson XI)*	init./fin. g[1]	*g*iant, *g*reen, *g*enerous, *g*eese, su*gg*est whi*g*, bu*g*
FZP (pzf) *(lesson XI)*	init./fin. gh (digraph)	ghostwriter, gherkin, li*gh*t, dau*gh*ter, hi*gh*, rou*gh*, thou*gh*
SZP (pzs) *(lesson XII)*	init./fin. m	*m*ore, *m*useu*m*
N (n) *(lesson I)*	init./fin. n	*n*iece, *n*oo*n*, *n*o*n*e, te*n*
FN (nf) *(lesson XII)*	init. ind init. und(3) fin. nd (blend)	i*nd*ustry, *und*er, fou*nd*, bo*nd*
SN (ns) *(lesson VII)*	init. inc, ing/gn(3) fin. ng, gn(3) (blend)	include, income, gnu, writi*ng*, ki*ng* desi*gn*
CN (nc) *(lesson X)*	init./fin. w	*w*ater, *w*ine, *w*olf, stra*w*, bo*w*,
FCN (ncf) *(lesson XIV)*	init./fin. r	*r*efuse, *r*eimburse, far, dear
SCN (ncs) *(lesson IX)*	init./fin. l	*l*ance, *l*iteral, be*ll*
ZN (nz) *(lesson X)*	init./fin. y	*y*ester, *y*et, *y*es, boy, grey, may
FZN (nzf) *(lesson VII)*	init. int fin. nt, n't(3) (blend)	*int*ense, intend, re*nt*, fo*nt*, ca*n't*, do*n't*

1) In the traditional Michela stenographic system based on phonetics, different combinations are provided to distinguish between hard, soft, voiced and unvoiced sounds of the consonants C, G and S. In the case of the present method, based on a plain orthographic writing, this distinction has been maintained converting the phonemes in their orthographic equivalent. So the soft C becomes «ch», the hard G becomes «gh» and the voiced S becomes «z», while the hard C, soft G and unvoiced S consonant sounds correspond to the respective letters.

2) In the original English layout this combination was assigned to the Z sound («dz» and «ts» IPA sounds). Considering that, as said in note above, the letter Z is already represented in English with the voiced S this combination is used to represent the letter K at the beginning of the word and the group «ck» at the end.

3) Only for specific abbreviations or definitions.

4) If followed by "u".

5) This combination, which does not respect the original Michela finger assignment, is exceptionally used to represent the final "ck" digraph in some words. It is done by shifting the right pinky on the c key.

2nd and 3rd series: subsequent characters (2nd) and vowels (3rd)

2nd SERIES	*CHARACTER(S)*	*EXAMPLES*
R *(les. I)*	r	g*r*eat, t*r*ifle, g*r*adual, sc*r*ape
X *(les. VI)*	s	cap*s*ule, gip*s*y
I *(les. II)*	i	ital*i*an, soldier
RI *(les. III)*	l	g*l*ass, cog*l*ove, c*l*austral, c*l*ew, p*l*ummer
XI *(les. VIII)*	w/h[(1)](f/v)[(2)]	d*w*arf, d*w*ell, , p*h*oto, w*h*atever
U *(les. III)*	u (undo, space)	habit*u*al, grad*u*al
RU *(les. XII)*	m	at*m*osphere, arith*m*etic, govern*m*ent
XU *(les. IX)*	n	garde*n*er
UI *(les. XIII)*	p/b[(2)] (n.bar if no 3rd)	s*p*ort
RIU *(les. XIV)*	t/d[(2)]	s*t*ation
XIU *(les. XI)*	c/k[(2)]/g[(2)]	s*c*arf
RX *(les. IV)*	e	r*e*ad, f*e*ed
RXI *(les. IV)*	o/(w. 1st and 2nd): number bar	s*o*on, s*o*und

3rd SERIES	*CHARACTER(S)*	*EXAMPLES*
a *(les. I)*	a	*a*lg*e*bra, *a*ge, n*a*me, g*a*te, *a*lcove *a*ft*e*r, breakfast
e *(les. IV)*	e	f*e*deral, *e*pic, fe*e*l
i *(les. II)*	i	f*i*ddle, w*i*ne, f*i*tly
ie *(les. IV)*	o	G*o*d, h*o*me, f*o*rtune
u *(les. III)*	u	*u*mbrella, h*u*sband, *u*sage, b*u*t
ua *(les. I)*	a (ending syllable)[(3)]	slog*a*n, gramm*a*r
ue *(les. IV)*	e (ending syl.)[(3)]	ass*e*t, cont*e*st
ui *(les. II)*	i (ending syl.)[(3)]	em*i*t, lim*i*t
uie *(les. IV)*	o (ending syl.)[(3)]	grandson, teap*o*t
uia *(les.III)*	u (ending syl.)[(3)]	tr*u*st, outp*u*t
ia *(les.XV)*	ou	tr*ou*ble, spaci*ou*s
ea *(les. V)*	ea	b*ea*utiful, spr*ea*dsheet
iea *(les. V)*	ea/ou (end. syl.)	br*ea*k, retr*ea*t, pr*ou*d, tedi*ou*s

(1) After p, w, r, g.

(2) This alternative value is used only in case of briefs and abbreviations.

(3) This combination is used in the final syllables of the word instead of the corresponding vowel key to indicate the presence of the space at the end of the syllable.

Inter-serial combinations: 1st+2nd series

1st+2nd SERIES		*CHARACTER(S)*	*EXAMPLES*	
FC	R	initial str	*str*eam, *str*etch	*(les. IV)*
FC	RI	initial spl	*spl*ash, *spl*it	*(les. XIII)*
FC	IU	initial spr	*spr*ay, *spri*nt	*(les. XIII)*
FC	XIU	initial scr	*scr*ape, *scr*oll	*(les. XIII)*
C	XIU	initial sk	*sk*yfall, *sk*eptic	*(les. IX)*
S	X	initial sci	*sci*ence, fas*ci*ated	*(les. XIII)*
NZ	I	initial j	*J*ames, *j*et, *j*oin	*(les. XI)*

Inter-serial combinations: 2nd+3rd series

2nd+3rd SERIES		*CHARACTER(S)*	*EXAMPLES*	
U	u	au	*au*dience, *au*thor, d*au*ghter,	*(les. X)*
I	i	ai	m*ai*n, ingr*ai*n	*(les. X)*

Inter-serial combinations: 3rd+4th series

3rd+4th SERIES		*CHARACTER(S)*	*EXAMPLES*	
i	nz	Y (ending syllable)	loss*y*, sunn*y*, pretty	*(les. X)*

Special combinations

1st, 2nd, 3rd and, 4th SERIES	*COMMAND*	*EXAMPLES*
zcs (alone or w. 1st, 2nd, and 3rd Series) *(les. X)*	*capitalize*	A, B, C, Ned, *C*onstitution
ea(*)	*add blank space*	
RXea(*)	*delete blank space*	
iea (alone or with 4th Series)	*apostrophe {'}*	you'd, I'm
U(*) *(les. III)*	*delete/correct stroke*	
RXI *(les. XVI)*	*number bar*	1, 2, 26, 1471...
nzf	*carriage return*	
FZNX	*tabulation*	

*If pressed alone

THE SYLLABIC WRITING

As mentioned, with this method each word is written in syllables and the operator types on the MIDI keyboard a combination of keys (stroke) to represent them. The words are then written respecting their spelling, exactly as in the QWERTY keyboard, but, unlike the latter, the indication of the blank space between words is not put in a separate stroke but is folded in the last stroke relative to the word. For example, the word «fantastic» on the QWERTY keyboard is usually written by successively pressing the keys of its component letters (plus the space bar): «f+a+n+t+a+s+t+i+c+[]» (10 consecutive key presses + the space bar[]). With this syllabic system the same word will be written: «fan+tas+tic[]» (3 consecutive presses of key combinations). Another example. In the case of the word «syllabic», with the QWERTY keyboard it will be necessary to press in succession 9 keys: «s+y+l+l+a+b+i+c+[]», while with the syllabic system it will be necessary to enter the combinations «syl+lab+ic[]» (3 combinations). Must be underlined that even if the system is syllabic following the rules of the English syllabic spelling is not mandatory. It is in fact possible to divide words in several ways and different sequences of letters that do not respect the rules of hyphenation providing that they can be represented by the layout of the system. For example, the word «fantastic» could be written «fan-tast-ic», «fant-as-tic» or «fant-a-stic» and the word «syllabic», «syl-la-bic», «sy-llab-ic» or «sy-lla-bic». In some cases the non-observance of the English hyphenation rules could also due to the presence at the end of the syllable of complex clusters of consonants that cannot be represented in a single stroke. For example, the word «attempts», which according to the rules should be spelled «at-tempts», with the Midi4Text will be written «at-tem-pts» and the word «rhythm», which is formed by a single syllable, will be written in two strokes «rhy-thm».

THE BLANK SPACE

to "space" or to "no space", this is the question

As said, Western shorthand keyboard can be divided into phonetics and orthographic systems. In the former the blank spaces at the end of the words are never indicated (with some exceptions) being present in the definition of the abbreviations relating to the different words; in the latter, the blank space are usually indicated (although with no autonomous stroke). In this last case, two different method are usually followed to indicate the blank space, depending on whether is indicated the presence of a «space» at the end of the final syllables of each word (e.g. Melani system) or the absence of a space («no space») between the syllables belonging to the same word (e.g. Velotype system). The two methods have pros and cons but the "space" system is undoubtedly more intuitive for novice users, because they find mentally easier to think of the presence of a space at the end of each word (the same system used in QWERTY keyboards); for this reason the "space" method is the one adopted by this theory.

INSTALLATION AND CONFIGURATION OF THE MICHELA KEYBOARD AND PLOVER

As a Michela input device it is possible to use a common MIDI musical keyboard (from 32 keys upwards) or a dedicated Michela-MIDI keyboard. First of all, install any drivers for the musical MIDI keyboard or the dedicated Michela-MIDI keyboard. Then proceed with the installation of the Plover software. The version of the Plover program for Windows, Mac and Linux compatible with the Michela keyboard can be downloaded at this address:

"*https://github.com/openstenoproject/plover/releases*"

then follow the installation instructions available at this address:

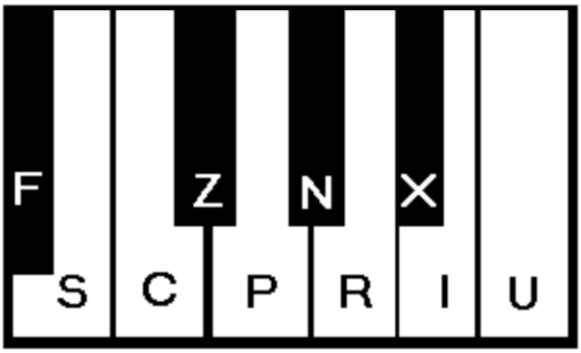
"*https://github.com/openstenoproject/plover/wiki/Installation-Guide*".

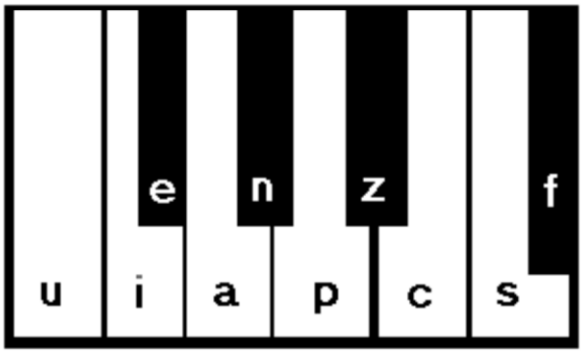
Once installed start Plover and make sure your computer is connected to the Internet. Click on the "Plugins Manager" item. A window will open showing all the plugins available: click on the "plover-midi" item and click on "Install/Update"; once this plugin is installed click on the "plover-michela" item and click on Install/Update. Once both plugins are installed, the program must be restarted using the "Restart" button in the same window.

Once Plover has been restarted it is necessary to configure the MIDI keyboard.

If you are using a musical MIDI keyboard, click on "Configure" and then on "Machine". In the opening window select the "MIDI keyboard" item in the "Machine" drop-down menu; in the drop-down menu "Options" then select the MIDI driver for your keyboard you're using (this can have different names).

Immediately below, the keys of the MIDI keyboard according to the English nomenclature (from C to B) will be displayed in the "Keymap" menu. There are 11 octaves (-2 to 8). Double clicking with the left button in the «Action» area next to each button will open a drop-down menu with the literal indication of the buttons according to the Michela coding, which is as follows:





It's now necessary to associate the 20 keys of the Michela keyboard to the 20 keys of the musical keyboard that you intend to use to emulate the Michela keyboard, linking each key of the musical keyboard to the corresponding Michela key in the drop-down menu. To do this the user must choose which octaves of the MIDI musical keyboard to use to emulate the two keyboards of the Michela system. Generally it is good to choose two non-contiguous octaves to leave a certain space between the two half-keyboards and allow easier writing, but this depends very much on user preferences. One possible configuration (whose operation has been verified on keyboards from 61 to 88 keys) is the following:

LEFT KEYBOARD	**RIGHT KEYBOARD**
D#2 = F-	E3 = -u
E2 = S-	F3 = -i
F2 = C -	F#3 = -e
F#2 = Z-	G3 = -a
G2 = P-	G#3 = -n
G#2 = N-	A3 = -p

A2 = R-	A#3 = -z
A#2 = X-	B3 = -c
B2 = I-	C4 = -s
C3 = U-	C#4 = -f

It may happen that during the definition of the keys the following message appears: "WARNING: Keymap is invalid, behavior undefined, action" .. "is not bound"; which must be ignored (it will no longer appear when all the keys are all defined). Once all the keys have been defined, click on the "apply" button and then on "OK" to close the window. At this point it is necessary to exit the program (by right clicking on the icon in the task bar and selecting «quit») and then restart the program to save the created layout.

Once the program has restarted, reopen the configuration menu and click on «System».

In the present plugin there are two possible dictionaries that can be loaded "Michela phonetic" or "Michela orthographic": they are both for Italian language. Wanting to use the orthographic dictionary for English, it is irrelevant which option to choose. Therefore select one of the two items and click on the «Apply» button and then on «OK".

A series of dictionaries (files with the extension "json") will then be displayed in the main window. Click on the entries of all the dictionaries and press the red button at the bottom, marked with an "X" to delete all these dictionaries. Then press the green button marked with the "+" sign and select the item "Open dictionaries". Search for and select the "Midi4Text main (eng).json" file and click on the "Open" button. Do the same for the briefs dictionaries " Midi4Text briefs (eng).json". It is also advisable to create a user dictionary (press the green button marked with the "+" sign and select "New dictionary") to insert any new definitions without altering the main dictionaries.

At this point, with the MIDI keyboard connected to the computer, toggle the items "Output" and "Enable" on the right of the screen. By hovering the mouse over the

Plover icon in the system tray, make sure that the items "Output enabled" and "MIDI keyboard is connected" appear. If the "MIDI keyboard is disconnected" item appears, check the connection with the MIDI keyboard and the correct detection of the device by the computer and, by right-clicking on the Plover icon, select "Reconnect machine". If the "Output is disabled" item appears, right-click on the "Output toggle" item.

Once both of the aforementioned items are present, select "Paper Tape" on the main menu; a window will appear simulating a shorthand strip. Press the keys of the MIDI keyboard that have been chosen to emulate the Michela keyboard and make sure that the corresponding Michela literal signs appear on the screen. In the event that some keys are not displayed or there are errors in the mapping correct the same from the "Machine" menu and then pressing the "Apply" key, as seen above (always exiting and re-entering the application to save the configuration). Since not all keyboards use the same octaves, if no key appears on the screen, try to press, one by one, all the keys of the musical keyboard until you identify at least one key which corresponds to a literal sign Michela. At that point, having identified at least one key, remap all the keys so that they correspond to the literal symbols indicated in the Michela layout shown on page 2.

Once you have verified that the keyboard works and the keys that appear in the shorthand window are correct, open any text editor (Word, text editor etc.) and check that the phonemes corresponding to the set of the various combinations Michela appear on the screen.

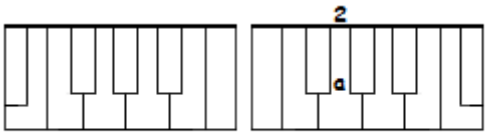
ILLUSTRATIVE LESSONS

Michela split keyboard prototype

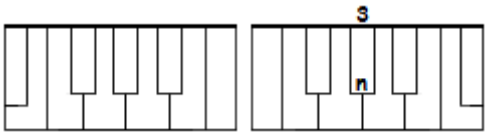
Lesson I

(The number on the key correspond to the fingers to be used according to the diagram shown in the layout above)

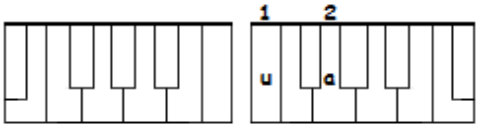
Key **a** (3rd Series) *Character*: A



Key **n** (4th Series) *Character*: ending N

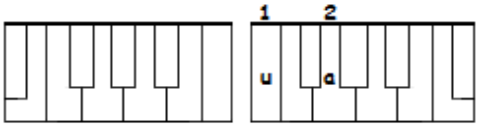


Keys **ua** (3rd Series) *Character*: A (ending syllable)(*)

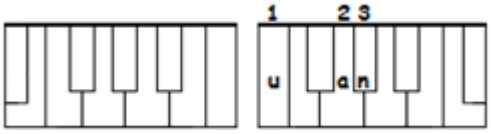


(*) As showed in the table above, the ending syllable vowel key is used in the final syllables of the word in the place of the standard vowel key to indicate the presence of a blank space at the end of the syllable. The ending syllable is generally obtained adding the "u" key to the standard vowel key (with the exception of the character "u" and the special dyphtong "ea" as we'll see).

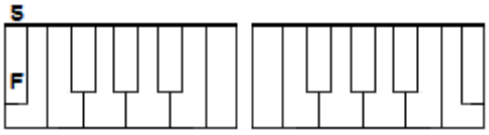
words: A (ua),



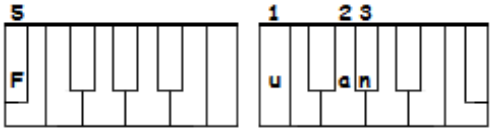
AN (uan)



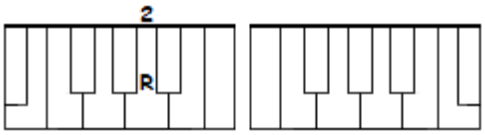
Key **F** (1st Series) *Character*: initial F



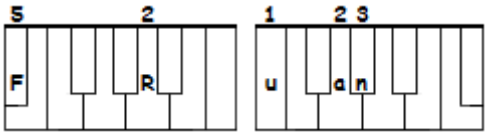
words: FAN (Fuan)



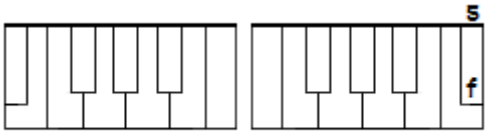
Key **R** (2nd Series) *Character*: middle R



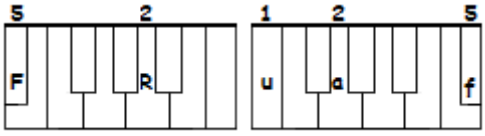
words: FRAN (FRuan)



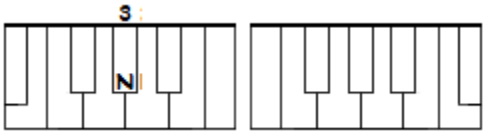
Key **f** (4th Series) *Character*: ending F



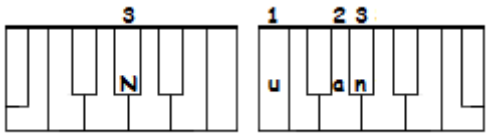
words: FRAF (FRuaf)



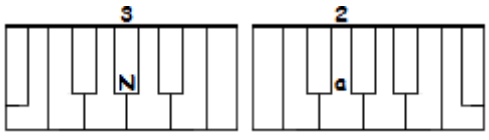
Key **N** (1st Series) *Character*: initial N

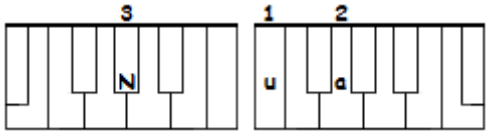


words: NAN (Nuan),

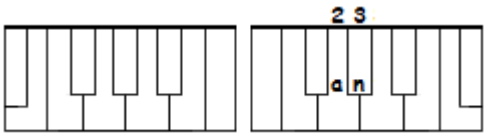


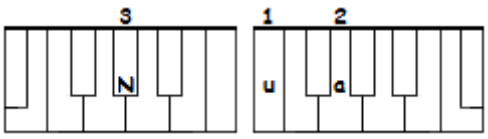
NANA (Na/Nua),



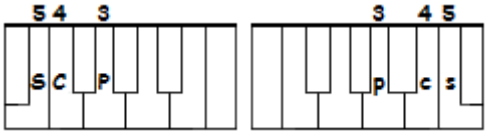


ANNA (an/Nua)

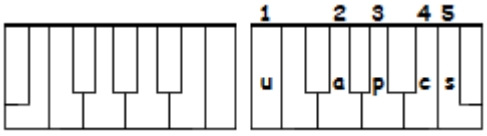




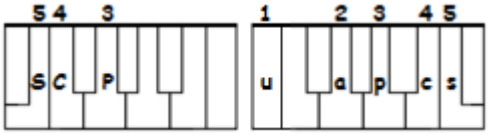
Keys **SCP** (1st Series) *Character*: init./end. D keys **pcs** (1st Series)



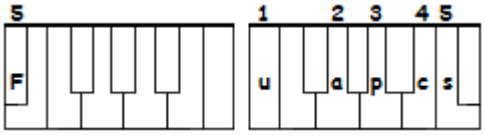
words: AD (uapcs)



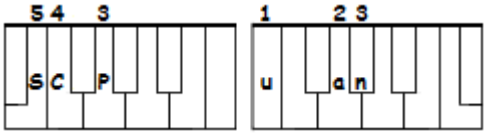
DAD (SCPuapcs)



FAD (Fuapcs)

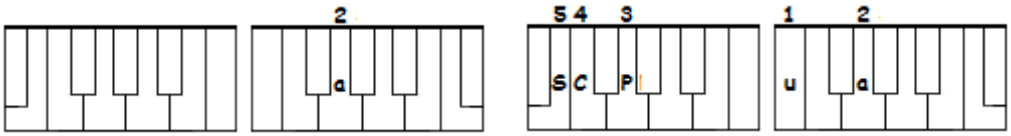


DAN (SCPuan)



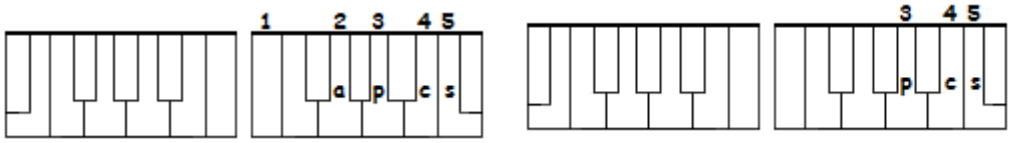
Note: As a generale rule, the syllable's initial character is always written in the 1st Series, which is intended to represent it, except when the syllables begins with a vowel, which are instead written in the 3rd Series (as we'll see, some interserial combination for vowel digraph like "AU", and AI" can exceptionally start in the 2nd Series).

ADA (a/SCPua)



Note: if at the end of the word there is a consonant cluster that cannot be represented in the 4th Series, this will be written in two strokes using the 4th Series to write the final consonant with the blank space

ADD(*) (apcs/pcs)



NAND(*) (Nan/pcs)

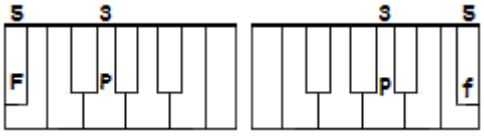
*Syllables ending with consonant clusters that cannot be represented in the 4th series will be written with an additional stroke writing the final consonant with the 4th Series. In this case the final blank space at the end of the word is automatically added.

Sentences: A Dad (ua SCPuapcs). A fan (ua Fuan). Dad Dan (SCPuapcs SPCuan). A fraf (ua FRuaf). A Dad fad (ua SCPuapcs Fuapcs) (*).

(*) since the combination for the capitals will be illustrated in a later lesson for the moment the words in uppercase will be written in lowercase.

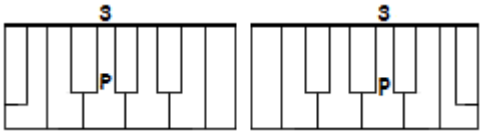
Lesson II

FP (1st Series) *Character*: initial and final T **pf** (4th Series)



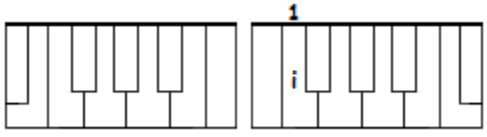
FAT (Fuapf), DAT (SCPuapf), TAN (FPuan), AT (uapf), FRAT (FRuapf), DANTE (SCPan/FPue).

P (1st Series) *Character*: initial and final P **p** (4th Series)

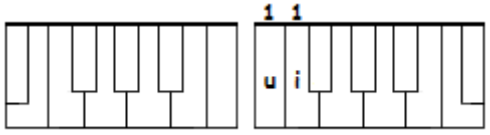


PAT (Puapf), PAD (Puapcs), TAP (FPuap), PAN (Puan), NAP (Nuap), TRAP (FPRuap)

Key **i** (3rd Series) *Character*: I

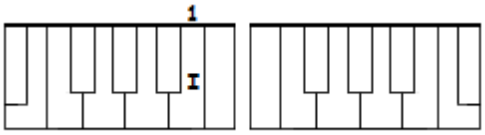


Keys u**i** (3rd Series)(*) *Character*: I (ending syllable)



(*) This combination requires the keys "i" and "u" of the 3rd Series to be simultaneously lowered. This will be carried out by pressing the right hand thumb placed in a transversal position above said keys. The same tecnique applies to the examples found below, where the keys "IU" or "ui" keys must be pressed simultaneously in the 2nd and 3rd Series.

IT (uipf), PIN (Puin), FIN (Fuin), FIT (Fuipf), TIP (FPuip), DIN (SCPuin), DRIN (SCPRuin), UNDID (un/SCPuipcs), DINA (SCPi/Nua), TRAIN (FPRa/uin).

Key **I** (2nd Series) *Character*: middle I(*) 

(*) As an exception, in the case of some initial dithptongs this character can be used as initial: Ionian = Iie/Niuan

TIA (FPIua), PIA (PIua), NIA (NIua), DIANA (SCPIa/Nua), FIAT (FIuapf).

Briefs

With this system it's possible to write each words syllabically without any abbreviation (brief). Anyway the user can decide to introduce some of them, particularly for the most recurrent words or phrases, to reduce the number of strokes and/or keys to be pressed. For this reason, at the end of each lesson will be showed some possible abbreviations with the keys just learned (a more complete list of abbreviations can be found in the appendix). It must be highlighted that being an ortographic system each abbreviations should not use common syllables, or sequences of them, which can be present inside words.

Briefs

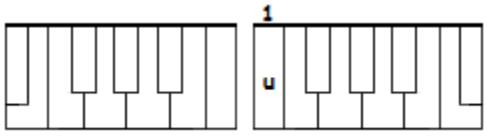
for = FR
I = I

Sentences

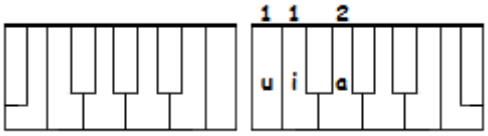
A fat dad = ua Fuapf SCPuapcs
A fin in a pan = ua Fuin uin ua Puan
A train trip = ua FPRa/uin FPRuip
Diana in a Fiat = SCPIa/Nua uin ua FIuapf
A nap in a train = ua Nuap uin ua FPRa/uin

Lesson III

Key **u** (3rd Series) *Character*: U

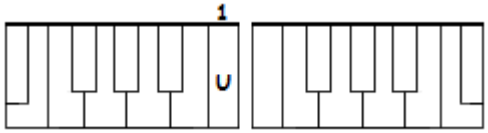


Key**s** **uia** key (3rd Series) *Character*: U
(ending syllable)



PUT (Puiapf), TUNA (FPu/Nua), PUP (Puiap), PUN (Puian), UP (uiap), FUN (Fuian), NUT (Nuiapf), NUN (Nuian), FUND (Fun/pcs).

Key **U** (2nd Series) *Character*: middle U/undo

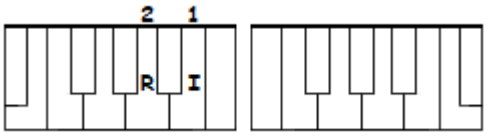


DUAD (SCPUuapcs), FONDUE (Fien/SCPUue), UNDUE (un/SCPUue)

undo (delete last stroke) (*)

(*) The "U" key pressed alone delete the last stroke which has been inputted. Eg: Pa/Puan/U/Pua = "papa".

Keys **RI** (2nd Series) *Character*: middle L



FLAT (FRIuapf), PLAN (PRIuan), PLAIN (PRIa/uin), FLAN (FRIuan)

---

briefs

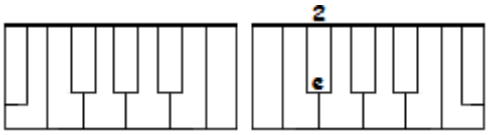
I = I
new = NU
few = FU
did = SCPI

Sentences

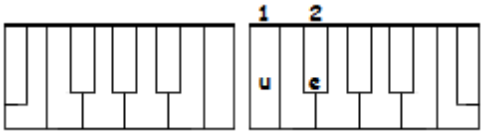
I did it (I SCPI uipf)
Put a tuna in a new pan (Puiapf ua FPu/Nua uin ua NU Puan).
A pun for fun (ua Puian FR Fuian)
A flat flan (ua FRIapf FRIan)

Lesson IV

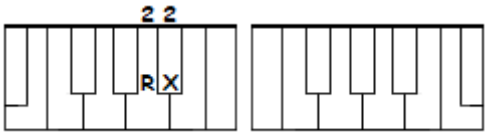
Key **e** (3rd Series) *Character*: E



Keys **ue** (3rd Series) *Character*: E
(ending syllable)



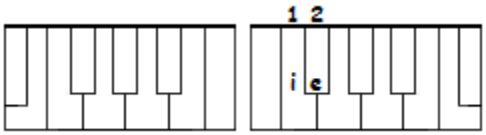
Keys **RX** (2nd Series) *Character:* middle E(*)



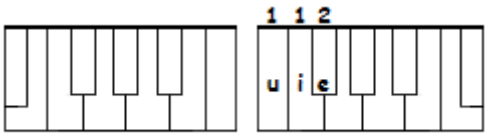
(*)This combination is made by rotating the thumb under the index finger, similarly to what happens with the piano keyboard with the so-called "thumb passage".

TED (FPuepcs), NED (Nuepcs), NEED (NRXuepcs), NEEDS (NRXepcs/s), NEEDED (NRXepcs/uepcs *or* NRXe/SCPuepcs), ATE (a/FPue), PET (Puepf), PETRIFIED (Pe/FPRi/FIuepcs), DEED (SCPRXepcs), TEPID (FPep/uipcs *or* FPe/Puipcs), FETID (Fepf/uipcs *or* Fe/FPuipcs), FRET (FRuepf), FRED (FRuepcs), FRIED (FRi/uepcs), TRIED (FPRi/uepcs), PEN (Puen), TEN (FPuen), FETE (Fe/FPue), FEEDS (FRXepcs/s), NET (Nuepf), PETE (Pe/FPue), NOTED (Nie/FPuepcs), TEA (FPRXua), NEAT (NRXuapf)

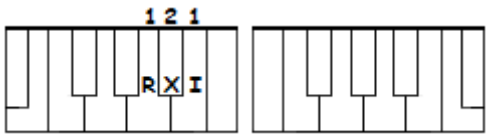
Keys **ie** (3rd Series) *Character*: O



Keys **uie** (3rd Series) *Character*: O
(ending syllable)



Keys **RXI** (2nd Series) *Character:* middle O(*)

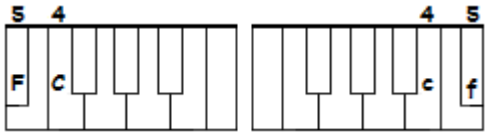


(*)This combination is made by rotating the thumb under the index finger, similarly to what happens with the piano keyboard with the so-called "thumb passage".

TO (FPuie), ON (uien), DOT (SCPuiepf), NOT (Nuiepf), NOUN (NRXIuian)(*) DOTTED (SCPiepf/FPuepcs), POT (Puiepf), PRO (PRuie), PROP (PRuiep), OPEN (ie/Puen), OPENED (ie/Pe/Nuepcs), NOTE (Nie/FPue), NOTED (Nie/FPuepcs), NOTEPAD (Nie/FPe/Puapcs), NOTATE (Nie/FPa/FPue), POTATO (Pie/FPa/FPuie), DIODE (SCPIie/SCPue), NOD (Nuiepcs), NODE (Nie/SCPue), NODDED (Niepcs/SCPuepcs), NATION (Na/FPIuien), TOE (FPRXIue), DOE (SCPRXIue), DOAT (SCPRXIuiepf), FOOD (FRXIuiepcs), TOO (FPRXIuie), SON (Suien), SOON (SRXIuien), FOOT (FRXIuiepf), SOAP (SRXIuap), COAT (CPRXIuapf).

*As will be shown in lesson V, the dyphtong ou" can be represented also with the combinations ia/iea.

Keys **FC** (1st Series) *Character:* initial H/ending ST (H)(*) **cf** (4th Series)

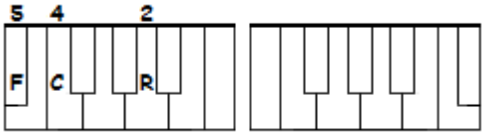


HE (FCue), HOT (FCuiepf), HIT (FCuipf), HIS (FCuis), HAT (FCuapf), HATE (FCa/FPue), HATRED (FCa/FPRuepcs), HEN (FCuen), HAD (FCuapcs), HAPPEN (FCap/Puen), HAPPENED (FCap/Pe/Nuepcs), HENNA (FCen/Nua), HOUSE (FCRXIu/Sue), HIP (FCuip), HAD (FCuapcs), HIDE (FCi/SCPue), HIDEOUT (FCi/SCPe/RXIuiapf), AH(*) (uacf), OH(*) (uiecf), EH(*) (Uuecf), NUH-HUH(*) (Nucf/FCuiacf), FEST (Fuecf), FINEST (Fi/Nuecf), FAST (Fuacf), PAST (Puacf), ENTRUST (EN/FPRucf), TEST (FPuecf), ATTEST (apf/FPuecf), ANTITRUST (an/FPi/FPRuiacf), UNITRUST (u/Ni/FPRuiacf), COAST (CPRXIuacf)

(*) The character "h" in the 4th Series is used only with specific entries and/or briefs.

Special inter-series combination

keys **FCR** (1st and 2nd Series) *Character*: initial STR (blend)(*)



STRIPE (FCRi/Pue), STRESS (FCRes/s), STRAP (FCRuap), STRIDE (FCRi/SCPue), STRIFE (FCRi/Fue).

*The initial ST blend without the consonant "R" and followed by a vowel (like in "stare") will usually be written with the S key in 1st Series and the combination T/D in 2nd Series which will be illustrated later.

Briefs

he = FCX
his = FCs

Prefixes and Suffixes(*)

extra-^ = SZNRa/ **(spostare alla x)**

Punctuation

{.} (full stop) = n

Sentences: Fred noted a hen in a pot. A diode fried in stress a test. I ate a tepid tuna. Ned on a train nodded to Dan. He ate a fetid fruit. Dad had a pen not a notepad. Ada had petrified for stress. Dina and Dan noted a fried potato in a pan.

Lesson V

Special inter-series combination for words ending with the vowel "E"

For all the sillables/words ending with the vowel E and following a consonant-vowel-consonant-vowel scheme (CVCV) (e.g. "tune", "in/sane", "hate", "node") is possible to save a stroke mirroring the vowel of the nuclues in the 2nd Series and leaving the 3rd Series empty. The so called "mirrored" vowels in the 2nd Series are the following:

A = R
e = X
i = I
o = XI
u = U

Whenever these combinations are used in place of the standard one of the 3rd Series to write a consonant-vowel-consonant (CVC) cluster, an "E" and the final space at the end of the syllable will be added automatically (eg: tune = FPUn; insane = in/SRn; hate = FCRpf; node = NXIpcs; update = up/SCPRpf).

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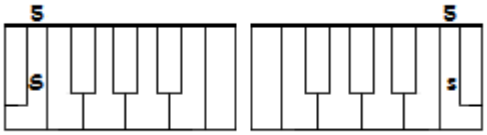
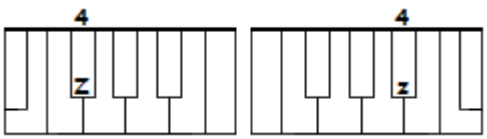
keys **S** (1st e 4th Series) *Character*: initial/ending S (4th Series)



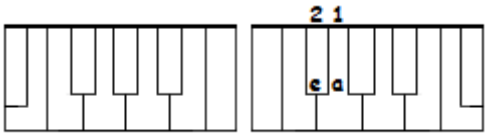
SAT (Suapf), SO (Suie), SOS (Suies), SON (Suien), SAD (Suapcs), DOS (SCPuies), SEAT (SRXuapf), SUN (Suian), SUNSET (Sun/Suepf), ASSETS (as/Sepf/s), SENATE (Sen/a/FPue *or* Se/Nua/FPue *or* Se/NRpf), HIS (FCuis), HAS (FCuas), ISSUE (ic/uia), AS (uas), NOISE (NRXIi/Sue), INSIDE (in/Si/SCPue *or* in/SIpcs), PASS (Pas/s), PASSED (Pas/Suepcs), DOES (SCPRXIues), DATAS (SCPa/FPuas), USE (u/Sue *or* Us), USED (u/Suepcs), HESITATE (FCe/Si/FPa/FPue *or* FCe/Si/FPRpf), HESITATED (FCe/Si/FPa/FPuepcs), HESITATION (FCe/Si/FPa/FPIuien), PROSE (PRie/Sue), ESCAPE (es/CPa/Pue *or* es/CPRp).

keys **Z** (1st Series) *Characters:*initial/ending Z **z** (4th Series)



ZAP (Zuap), ZANE (Za/Nue *or* ZRn), ZOO (ZRXIuie), ZONE (Zie/Nue *or* ZXIn), OZONE (ie/Zie/Nue *or* ie/ZXIn), SENSITIZE (Sen/Si/FPi/Zue *or* Sen/Si/FPIz).

Keys **ea**[1] (3rd Series) *Characters*: ea/blank space[2]



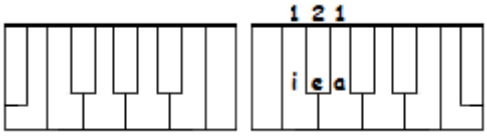
DREADED (SCPRea/SCPuepcs) TREATIES (FPRea/FPIues).

(1) As seen this combination of characters can be obtained combining the 2nd and the 3rd series keys RX+a. However this special 3d series combination can be useful in several cases in which the 2nd Series is used to represent other charachters. The keys "ea" are pressed by rotating the thumb under the index finger, similarly to what happens with the piano keyboard with the so-called "thumb passage". Note that this combination is also "mirrored" in the 2nd series for words ending with the vowel "E" (e.g. ease=RXs)

(2) Only as an individual stroke.

The combination "ea" can also be mirrored in the 2nd Series (keys RX) to write all the CVC+E words illustrated above (eg. ease =RXs; cease = CPRXs).

keys **iea**[2] (3rd Series) *Characters*: ea/ou[1] (ending syllable)



DREAD (SCPRieapcs), TREAT (FPRieapf), ESTREAT (es/FPRieapf), TREAD (FPRieapcs), SEA (Siea).

1) Only when the 2nd Series is engaged and according to the entries in the briefs dictionary (see Lesson XVI, note 2).

briefs

self = SRIuef

punctuation

{^'^} (apostrophe) = iea
{^'s} = ieas

prefixes and suffixes

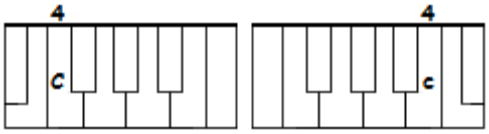
^ness = NXue

FRED'S (FRepcs/ieas), OPENNESS (ie/Pen/NXue), HOLINESS (FCie/SCNi/NXue).

He needs openness. A hen tried to escape and hit a net. His son needed a pen. Fred feeds a hen on a seat. Oh is a coast zone. Zane had hated DOS and hesitated to use it for his note. Diane's cat is on a seat. Inside Senate no hesitation.

Lesson VI

key **C** (1st Series) *Character*: init./end. SH (digraph) **c** (4th Series)



ASH (uac), CASH (CPuac), SHUT (Cuiapf), SHOT (Cuiepf), SHOE (CRXIue), SHIN (Cuin), SUSHI (Su/Cui), SHIP (Cuip), SHE (Cue), SHED (Cuepcs), SHOP (Cuiep), SHOPPED (Ciep/Puepcs), TRASH (FPRuac), SHOES (CRXIes), PUSH (Puiac), FISH (Fuic), CHEF (SPuef), SHEEPISH (CRXe/Puic).

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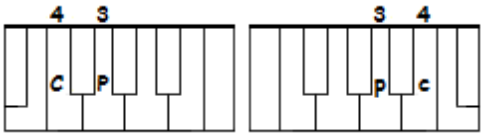
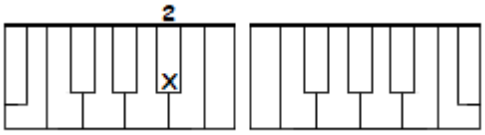
keys **CP** (1st Series) *Characters*: init. C, Q(*) /end. C **pc** (4th Series)



(*)When followed by middle "U"

CAT (CPuapf), FACE (FRpc *or* Fa/CPue), FACES (Fa/CPues), CUP (CPuiap), COP (CPuiep), QUEUE (CPUe/Uue), QUAD (CPUuiapcs), CRITIC (CPRipf/ipc *or* CPRi/FPuipc), ESCAPE (es/CPa/Pue *or* es/CPRp), ESCAPED (es/CPa/Puepcs), FOCUS (Fie/CPuias), CRITICIZE (CPRi/FPi/CPi/Zue or CRI/FPi/CPIz), CRITICIZED (CPRi/FPi/CPi/Zuepcs), CEASED (CPea/Suepcs), CRUDE (CPRu/SCPue), NICE (Ni/CPue *or* NIpc), CRUSH (CPRuiac), CRASH (CPRuac), CONTRACT (CPien/FPRapc/pf).

(spostare) KISS, (CPis), SEEK, (Suipc),), KIT (CPipf), KEY (CPue), KICK (CPipc), TRICK (FPRipc), TRUCK (FPRupc), SHOCK (Ciepc), HACK (FCapc), TRACK (FPRapc) FAKE (Fuapc), FRANK (FRan/pc)

Key **X** (2nd Series) *Character* middle S 

PSICHE (PXi/SPue), PSITTACOSIS (PXipf/FPa/CPie/Suis), SEPSIS (SE/PXuis), PEPSI (Pe PXui).

---

briefs

is = X
its = Xuipf
can = CPR
inside = NXuipcs
session = SXuien

prefix and suffixes

pseudo^ = PXupcs
psyco^ = PXipc

Punctuation

{!} = CPpc

Diane criticized Pete for his sushi food. Pete seek a nice food and not a fetid tuna fish. Chris had psittacosis. Pete had shopped ties and shoes. It's a sepsis issue. A nice pine crashed at sea. An issue has ceased with a deed.

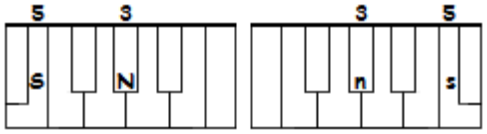
Lesson VII

Keys **FN** (1st Series) *Character*: init. IND, UND(*)/ fin. ND (blend) **nf** (4th Series)

(*) Only for specific prefixes and abbreviations.

INDIAN (FNIuan), INDIA (FZIua), INDONESIAN (FNie/Ne/ZIuan), INDONESIA (FNie/Ne/ZIua), INDEED (FNRXuepcs), SEND (Suenf), AND (uanf), TEND (FPuenf), SECOND (Sepc/uienf *or* Se/CPuienf), FOUND (FRXIunf), FIND (Fuinf). UNDER (FNuencf), UNDERCUT (FNencf/CPuiapf)

Keys **SN** (1st Series) *Characters:* initial INC, ING (*)/ final NG, GN(*) **sn** (4th Series)

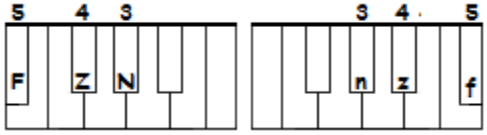


(*) Only for specific words/definitions.

INCITE (SNi/FPue *or* SNIpf), INCASE /SNa/Sue *or* SNRs), INCUSED (SNu/Suepcs), INGRESS (SNRes/s), INGRATE (SNRa/FPue), INGENIOUS (SNe/NIo/uias), GNU (SNuia), SING (Suins), SIGN (SIuins)(*), PING (Pins), SONGS (Suiens/s), FINDING (Fin/SCPuins), SUNG (Suns), SINGING (Sins/uins), INCREASING (in/CPRea/Suins), DESIGN (SCPe/SIuins)(*), ASSIGN (as/Suins)(*).

*definitions.

Keys **FZN** (1st Series) *Character:* init. INT **nzf** (4th Series)
fin. NT (blend), N'T[1]



[1] only with specific briefs

INTEND (FZNenf), INTESTINE (FZNes/FPi/Nue *or* FZNes/FPIn/), INTENDED (FZNen/SCPuepcs), INTENT (FZNuenzf), INTACT (FZNapc/pf), FONT (Fuienzf), COUNT (CPRXIuianzf), SENT (Suenzf), ACCOUNT (apc/CPRXIuianzf), CENT (Suenzf), QUAINT (CPUa/uinzf), CAN'T (CPuanzf).

Briefs

can't = CPuanzf
isn't =Xnzf
design = SCPXuins
don't = SCPuienzf
doesn't = SCPXuenzf
and = FN
sign = SIuins

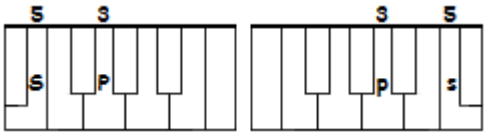
Punctuation

{,} = z

He sung for a king. Is any of you Indonesian. He opened a second account. He found an antic indian cup. Ned can't hit is son Fred. He intended to send his son Ned in India. Ada and Diane passed a day finding and singing indian songs.

Lesson VIII

keys **SP** (1st Series) *Character*: initial/final CH **ps** (4th Series)



CHIN (SPuin), CHINA (SPuin/ua *or* SPi/Nua), CHINESE (SPin/Xs, *or* SPI/Ne/Sue), CHOP, (SPuiep), CHUTE (SPUpf *or* SPu/FPue), CHOOSE (SPRXIie/Sue), CHOSE (SPXIs *or* SPie/Sue), CHASE (SPRs or SPa/Sue), CHEF (SPuef), TOUCH (FPRXIuiaps), TEACH (FPRXuaps), TECH (FPueps), SUCH (Suiaps), HATCH (FCapf/ps), HITCH (FCipf/ps), PEACH (PRXuaps), PINCH (Pin/ps), COACH (CPRXIuaps)

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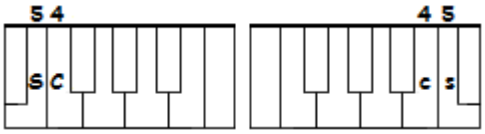
keys **SC** (1st Series) *Character*: init./fin. V **cs** 4th Series



VIP (SCuip), VOTE (SCXIpf *or* SCie/FPue), VEIN (SCRXuin), VANE (SCRn *or* SCa/Nue), AVOID (a/SCRXIuipcs), VANESSA (SCa/Nes/Sua), EVE (Xcs *or* e/SCue), DEV (SCPuecs), VIVID (SCics/uipcs *or* SCi/SCuipcs), PRIVATE (PRuics/Rpf *or* PRi/SCRpf *or* PRI/SCa/FPue), SAVE (SRcs, *or* /Sa/SCue), PAVE (PRcs *or* Pa/SCue), DAVE (SCPRcs *or* SCPa/SCue), POSITIVE (Pie/Si/FPIcs *or* Pie/Si/FPi/SCue), SAVING (Sa/SCuins).

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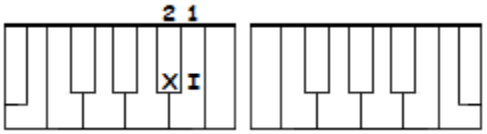
keys **XI** (2nd Series) *Characters*: middle W/H[(1)]/F[(2)]/V[(2)]



[(1)]after p, w, r
[(2)]used only in abbreviations and or prefixes/infixes

TWINS (FPXIin/s), TWO (FPXIuie), TWEET (FPXIe/uepf), TWEEN (FPXIe/uen), SWIFT (SXIif/pf) SWEET (SXIe/uepf), SWING (SXIins), TWIST (FPXIicf), SWUNG (SXIuians), SWAP (SXIuap), SWAN (SXIuan), PHOTO (PXIie/FPuie), .

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prefixes and infixes

divi^=SCPXIi
(division=SCPXIi/SIuien, individual=in/SCPXI/SCPuancs; etc.)

confi^=CPXIi
(confident=CPXIi/SCPuenzf; unconfined=un/CPXIi/Nuepcs etc.)

briefs

approach = PRuieps
have = FCcs
haven't = FCXIuenzf
having = SCns
he was = FCXIuas

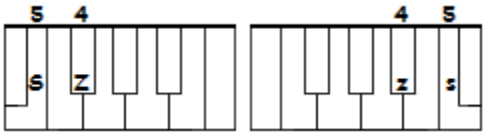
punctuation

{?} = PSsp

A Senate vote for increasing inside assets. Two twins sent a few tweets in a hideout to update Dave. Fred is such a fat chef. Vanessa sent to Eve a positive tweet. Pete has signed a positive swap contract. Did Dave chose to teach as a coach?

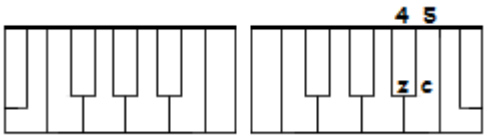
Lesson IX

keys **SZ** (lst Series) *Characters*: initial/ending K **zs** (4th Series)



KENT (SZuenzf), KISS (SZis/s), KING (SZuins), DRINK (SCPRin/zs), FAKE (FRzs *or* Fa/SZue), TAKE (FPRzs *or* FPa/SZue), TOOK (FPRXIuiezs), TWEAK (FPXIieapc), KNOT (SZXUuiepf), KNIFE (SZXUi/Fue).

keys **zc** (4th Series)(*) *Characters*: ending CK



(*) This combination, which does not respect the original Michela finger assignment, is exceptionally used to represent the final "ck" digraph in some words. It is done by shifting the right pinky on the c key.

CHECK (SPuezc), CKECKING (SPezc/uins), CHICKEN (SPizc/uen), CHUCK (SPuiazc), ATTACK (apf/FPuazc), TICKET (FPizc/uepf), KNOCK (SZXUuiezc), CRACK (CPRuazc).

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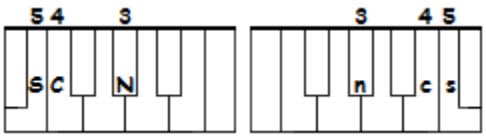
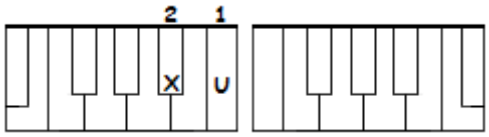
keys **SCN** (lst Series) *Characters in./end. L* **ncs** (4th Series)



LEAVE (SCNRXcs *or* SCNea SCue), LOVE (SCNRXcs *or* SCNie/SCue), LOVES (SCNie/SCues), LIVE (SCNIcs *or* SCNi/SCue), LET (SCNuepf), LOT (SCNuiepf), LISA (SCNi/Sua), LAST (SCNuacf), LIST (SCNuicf), KILL (SZincs/ncs), SELL

(Sencs/ncs), FELL (Fencs/ncs), VILE (SCIncs), VILLA (SCincs/SCNua), ALASKA (ancs/as/SZua *or* a/SCNas/SZua), LENS (SCNen/s), LIKE (SCNIzs *or* SCNi/SZue), NEIL (NRXuincs), LOLLIPOP (SCNiencs/SCNi/Puiep), TALE (FPRncs *or* FPa/SCNue), ALL (ancs/ncs), ALSO (ancs/Suie), NOVEL (Nie/SCuencs), ONLINE (ien/SCNIn *or* ien/SCNi/Nue), ALLIANCE (ancs/SCNIan/CPue), POLL (Piencs/ncs), LEPTIC (SCNep/FPuipc), LATIN (SCNapf/uin *or* SCNa/FPuin), TWELVE (FPXIencs/SCue).

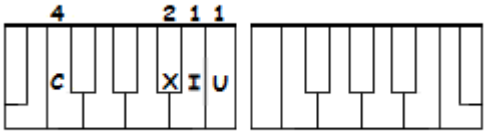
keys **XU** (2nd Series) *Character*: middle N



SNAP (SXUuap), SNACK (SXUuazc), SNAIL (SXUa/uincs), SNATCH (SXUapf/ps).

Interserial combination

keys **CXU** (1st+2nd series) *Characters*: initial SK



SKETCH (CXIUepf/ps), SKID (CXIUuipcs), SKIP (CXIUuip)

briefs

Senate = SXuapf
twelve = FPXIuecs
tank = FPXUuapc (*)
lens = SCNXUues (*)
also = SCNXuie
social=SXIUuancs

**The middle N Character, as other 2nd Series Characters, is very useful to create several briefs based on the anticipation o the middle N in the word.*

Prefixes & Suffixes

^ness = NXue

^nesses = NXues
^fulness =FXUues

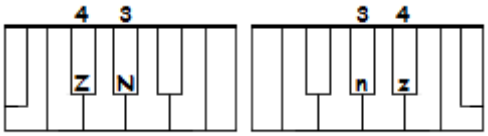
Punctuation

{:} = ZNXenz
{;} = NXen

Dave fell in love in Alaska. Fred canceled all datas online. Discovered and attacked in his hideout he escaped. Pete in a fine suit ate a quaint food: fried cow tail. An alliance for saving Alaska tuna fish.

Lesson X

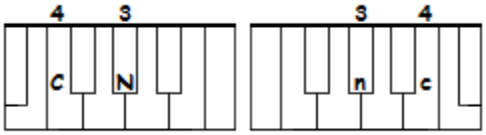
keys **ZN** (1st Series) *Character*: initial/final Y **nz** (4th Series)



YES (ZNues), YEAST (ZNRXuacf), YANKEE (ZNan/SZRXue), YELL (ZNencs/ncs), YEN (ZNuen), YALE (ZNa/SCNue *or* ZNRncs), YUCCA (ZNupc/CPa) YUCATAN (ZNu/CPa/FPuan), YOUNG (ZNRXIuians), TOY (FPuienz), DESTROY (SCPes/FPRuienz), CONVOY (CPien/SCuienz), ENVOY (en/SCuienz), ANNOY (an/Nuienz), DECOY (SCPe/CPuienz), CITY (CPi/FPuinz)(*), CRY (CPRuinz)(*), PUNY (Pu/Nuinz)(*), SUNNY (Sun/Nuinz)(*), HAPPY (FCap/Puinz)(*), WENDY (CNen/SCPuinz)(*)

(*) When the word ends with the character "Y" alone, the blank space at the end of the word is indicated by adding the "final i" keys in 3rd Series.

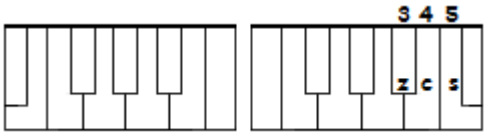
keys **CN** (lst Series) *Character*: initial/final W **nc** (4th Series)



WINE (CNIn *or* CNi/Nue), WANT (CNuanzf), WENT (CNuenzf), WATCH (CNapf/sp), WEEK (CNRXuezs), WEEKS (CNRXepc/s), WIDE (CNIpcs *or* CNi/SCPue), WRING (CNRuinf), WHEAT (CNXIieapf), WOOSH (CNRXIuiec), WRIST (CNRuicf), WHOSE (CNXIie/Sue), WITNESS (CNipf/XUs *or* CNipf/Nes/s), WILL (CNincs/ncs), WHITE (CNXIi/FPue), WROTE (CNRie/FPue), WENDY (CNen/SCPuinz), AWAY (a/CNuanz), SAW (Suanc), LAW (SCNuanc), PAW (Puanc), YELLOW (ZNencs/SCNuiens), AWFUL (anc/Fuiancs), WOW (CNuienc), DRAW (SCPRanc), CRAW (CPRuanc).

Capitalization

keys **zcs** (4th Series) *Command*: capitalize
- next word (if pressed alone)
- first letter (with other keys)



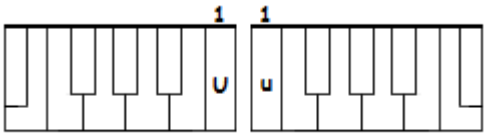
Note: this combination, like the "zc" combination for the "ck" (*) does not respect the original Michela finger assignment, and is used to capitalize words. It can be used in two ways:

1) alone, to capitalize the next word: Ned (zcs/Nuepcs), Dave (zcs/SCPRcs).

2) with other combination in the first three Series to capitalize the first character of a syllable: Yucatan (ZNu**zcs**/CPa/FPuan, Alaska (azcs/SCNas/SZua).

Special inter-series combinations

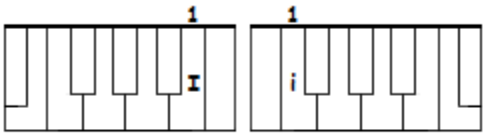
keys **Uu** (2nd+3rd Series) *Characters*: middle AU diphthongs



AUTOTEST Uu/FPie/FPuecf, AUDIO (anc/SCPIuie), CHAPEAU (SPa/Pe/Uuia)(*).

*The "Uuia" keys will be used to indicate the final syllable.

keys **Ii** (2nd+3rd Series) *Character*: middle AI



SAID (SCIuipcs)(*), PAID (PIuipcs)(*), PAINFUL (PIin/Fuiancs), SAILING (SIi/SCNuins), NAIF (NIuif)(*)

*The "Iui" keys will be used to indicate the final syllable.

Briefs

why = CNnz
you = IU
which = CNns
witness = CNXUues
would = CNuiapcs
where = CNXIuencf
were = CNXncf
work=CNRuiezs
yeah = ZNcf

Prefixes and suffixes

auto^ = Uupf
audio^ = Uupcs

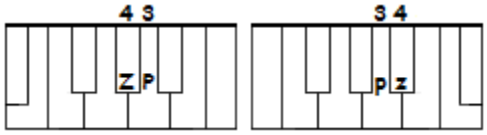
Punctuation

{-} (hyphen) = FCf
{_} (dash) = SCPc

Why don't you avoid noise, Ned? I chose to drink a yellow wine of Yucatan. It is an awful audio with a dreadful noise. I intend to pass a week in your Ionian house with its tepid sea. Wendy will pass a few weeks at Yale. Ten and two is twelve. I was checking an autofocus lens at sunset.

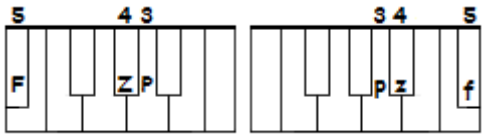
Lesson XI

keys **ZP** (1st Series) *Character*: initial/final G **pz** (4th Series)



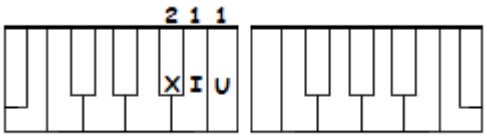
GO (ZPuie), GIANT (ZPIuanzf), GIVE (ZPIcs *or* ZPi/SCue), GAVE (ZPRcs *or* ZPa/SCue), GENIUS (ZPe/NIuias), PAGE (Puapz o*r* Pa/ZPue), GINA (ZPi/Nua), GENOA (ZPe/NRXIua), GRIT (ZPRuipf), GREY (ZPRuenz), GRAY (ZPRuanz), GROUP (FZPRie/uiap), GREEK (ZPRe/uezs), GRAPHIC (FZPRa/PXIuipc), GRACILE (ZPRa/CPIncs *or* ZPRa/CPi/SCNue), GUILTY (ZPUincs/FPuinz), EDGE (epcs/ZPue), WAGE (CNRpz *or* CNuapz), AGE (Rpz *or* a/ZPue), HUGE (FCUpz *or* FCa/ZPue), DOG (SCPuiepz), DRAGGING (SCPRapz/ZPuins), TAGGANT (FPapz/ZPuanzf), SNAGGY (SXUapg/ZPuinz).

keys **FZP** (1st Series) *Character*: initial GH/final GH **pzf** (4th Series)



GHOST (FZPuiecf), GHOTA (FZPuie/FPua), GHETTO (FZPepf/FPuie), GHAST (FZPuacf), TOUGH (FPRXIuiapzf), NAUGHTY (NUupzf/FPuinz), EIGHTH (RXipzf/zf), TAUGHT (FPUupzf/pf), LAUGH (SCNUuiapzf), LAUGHED (SCNUu/FZPuepcs).

keys **XIU** (2nd Series) *Sound C,K*(*),*G*(*)

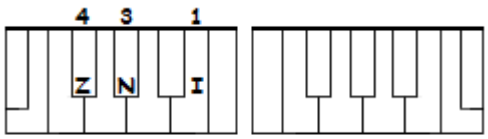


(*)Only with certain words/definitions

SCOTCH (SXIUiepf/ps), SKETCH (SXIUepf/ps), SKY (SXIUinz), SCAN (SXIUuan), SCOTS (SXIUiepf/s), SCOTLAND (SXIUiepf/SCNuanf), SCOTTISH (SXIUiepf/FPuic), SCOWL (SXIUienc/ncs), SCANDAL (SXIUanf/uancs *or* SXIUan/SCPuancs), SCANDALIZE (SXIUanf/a/SCNIz *or* SXIUan/SCPa/SCNIz), SCANDALIZED (SXIUan/SCPa/SCNi/Zuepcs) *or* SXIUan/SCPa/SCNIz/epcs), ESCAPE (e/SXIa/Pue, *or* es/CPRp).

Special inter-series combinations

keys **ZNI** (1st and 2nd Series) *Charachter J*



JUST (ZNIuiacf), JELLY (ZNIencs/SCNuinz), JULIA (ZNIu/SCNIua), JOHN (ZNIiecf/n), JACK (ZNIuazs), JANUS (ZNIa/Nuias), JAIL (ZNIa/uincs)(*)

* In this case the AI dipthong can't be used because the I keys is utilized by the J interserial combination.

Briefs:

Congress = CPXIUues
local = SCNXIUuancs
forget = FXIUuepf
packet = PXIUuepf
tucked = FPXIUuepcs
discuss = SCPXIUuias

Prefixes:

discuss^ = SCPXIUus (discussion=SCPXIUus/Iuin, discussed=SCPXIUus/uepcs)

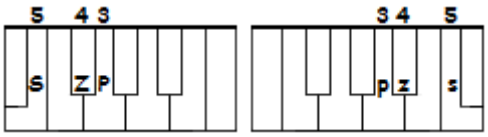
Punctuation and commands:

"^ (op. quote) = FZzf
^" (end. quote) = ZNnz
/ (slash) = SRIc
((op. parenthesis) = FNnf
) (op. parenthesis) = FZNnzf
_ (add blank space) = ea
{^} (delete blank space) = RXea
⁋ (paragraph) = nzf
(tabulation) =FZNX

Jack is a giant. John likes Greek and Latin. Janus had two faces. Julia loves graphic design. Jack and John took a trip to Genoa. Scottish and Scots are a nation and an ethnic group. Scandalized for what happened Lisa went away. Ada witnessed a dreadful discussion. You need a ticket to go in and watch the Congress session. Leo is puny and has not grit. I use to say a grey sky, not a gray sky. A gracile cat escaped a huge dog.

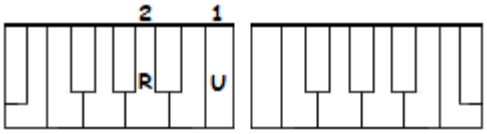
Lesson XII

keys **SZP** (1st Series) *Character*: initial/final M **pzs** (4th Series)



SOME (SXIpzs or Sie/SZPue), FROM (FRuiepzs), AMY (a/SZPuinz), MOMMY (SZPiepzs/SZPuinz), MUCH (SZPuiaps), ME (SCPue), MY (SZPuinz), MOMENT (SZPie/SZPuenzf), IMMENSE (ipzs/SZPen/Sue), OPTIMAL (iep/FPi/SZPuancs), MINIMAL (SZPi/Ni/SZPuancs), ULTIMATE (uncs/FPi/SZPRpf *or* uncs/FPi/SZPa/FPue), ADMISSION (apcs/SZPis/SIuien), MUSEUM (SZPu/SRXuiapzs).

keys **RU** (2nd Series) C*haracter*: midde M



SMALL (SRUancs/ncs), SMELL (SRUencs/ncs), SMASH (SRUuac), SMOKE (SRUie/SZue), SMUGGLE (SRUupz/ZPRIue), SMUT (SRUuiapf), SMILE (SRUi/SCNue), SMILED (SRUi/SCNuepcs), SMOG (SRUuiepz), SMIDGIN (SRUipcs/ZPuin)

Abbreviations

moment = SZPRUuenzf

much =SZPps

formal = FRUuancs

format =FRUuapf

Prefixes/infixes

form^ = FRU

forma^ = FRUa

formu^ = FRUu

format^ = FRUapf (eg. formation=FRUapf/Iuien; reformatting=PRe/FRUapf/FPuins)

formal^=FRUuncs (eg. formalize=FRUuancs/iz)

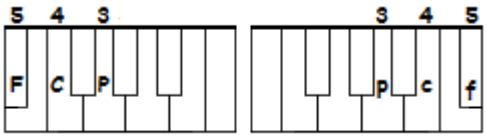
momen^ = SZPRUen (eg. momentous=SZPXUen/FPRXIuias; momentum=SZPRUen/FPuiapzs)

permis^ = PRUis (eg. permission = PRUis/SIuien; permissive=PRUis/SIcs)

Mommy gave a kiss to me. An immense smell of smog. Amy smiled and laughed in a moment.

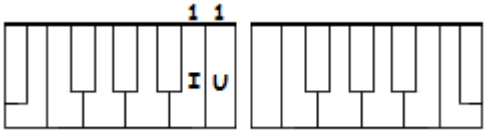
Lesson XIII

keys **FCP** (1st Series) *Character*: initial/final B **pcf** (4th Series)



BEN (FCPuen), BAD (FCPuapcs), BIG, FCPuipz, BANANA (FCPa/Na/Nua), BRED (FCPRuepcs), TAB (FPuapcf), TUBE (FPUpcf *or* FPu/FCPue), BUNNY (FCPun/Nuinz), BIANNUAL (FCPIan/NUuancs), AMBIT (apcf/FCPuipf), TREMBLED (FPRepzs/FCPRIuepcs), ABBEY (apcf/FCPuenz), AMBITIOUS (apzs/FCPi/FPIie/uias), BABBLE (FCPapcf/FCPRIue), BABY (FCPa/FCPuinz), BRONZE (FCPRien/Zue), BAMBOO (FCPapzs/FCPRXIuie), BOMB (FCPuie/pcf).

keys **IU** (2nd Series) C*haracter*: midde P/B[(1)]
number bar[(2)]



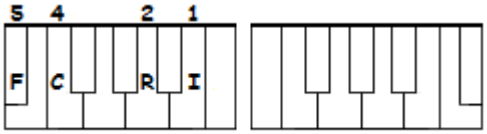
[(1)]The "B" characther is used only in abbreviations and or prefixes/infixes

[2)]Used to write numbers as will shown

SPACE (SIUa/CPue), SPASM (SIUas/pzs), SPOT (SIUuiepf), SPAM (SIUuapzs), SPY (SIUuinz), SPENT (SIUuenzf), SPEECH (SIUe/uesp), SPECIFIC (SIUe/CPi/Fuipc), SPECTRUM (SIUepc/FPRuiapzs), WINGSPAN (CNins/SIUuan), SPOTLESS (SIUiepf/SCNes/s), SPECULATION (SIUe/CPu/SCNa/FPIuien), INSPECTION (in/SIUepc/FPIuien), SPECIALIST (SIUe/CPIa/SCNuicf),

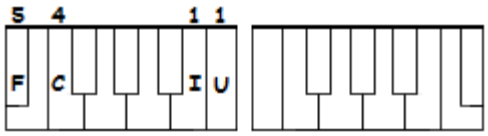
Special inter-series combinations

keys **FCRI** (1st+2nd series) Characters: initial SPL



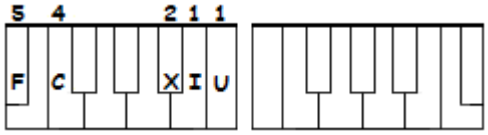
SPLASH (FCRIuac), SPLIT (FCRIuipf), SPLENDID (FCRIen/SCPuipcs), SPLICE (FCRIi/CPue), SPLATTER (FCRIapf/FPuencf), SPLEEN (FCRIe/uen), SPLODGE (FCRIiepcs/ZPue)

keys **FCIU** (1st+2nd series) Characters: initial SPR



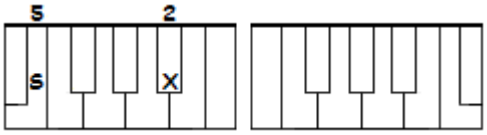
SPRING (FCIUuins), SPRAY (FCIUuanz), SPRINT (FCIUuinzf), SPRAG (FCIUuapz), SPREAD (FCIUieapcs *or* FCIUe/uapcs), SPRIT (FCIUuipf), SPRAWL (FCIUanc/ncs), SPRINKLE (FCIUuin/SZRIue)

keys **FCXIU** (1st+2nd series) Characters: initial SCR



SCREW (FCXIUuenc), SCRAP (FCXIUuap), SCRUB (FCXIUuiapcf)

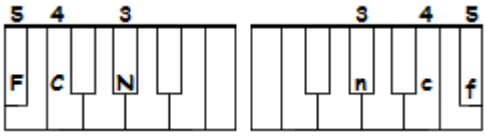
keys **SX** (1st+2nd series) Characters: initial SCI



SCIENCE (SXen/CPue, SCISSOR (SXis/Suiencf), SCISSION (SXis/SIuien).

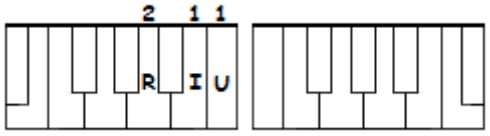
Lesson XIV

keys **FCN** (1st Series) *Character*: initial/final R **ncf** (4th Series)



RITE (FCNIpf *or* FCNi/FPue), RITA (FCNi/FPua), IRMA, (incf/SZPua), FOR (Fuiencf), RAM (FCNuapzs), HEARD (FCRXancf/pcs), RIGOR (FCNi/ZPuiencf), REMORSE (FCNe/SZPiencf/Sue), MARRIED (SZPancf/FCNIuepcs), RUMORS (FCNu/SZPiencf/s), ADMIRED (apcs/SZPi/FCNuepcs), LETTERS (SCNepf/FPencf/s), READS (FCNRXapcs/s) ERRATIC (encf/FCNa/FPuipc), ERROR (encf/FCNuiencf), RADIO (FCNa/SCPIuie), MORE (SZPXIncf *or* SZPie/FCNue), MOTOR (SZPie/FPuiencf), ARRIVE (ancf/FCNIcs *or* ancf/FCNi/SCue), SEVERAL (Se/SCe/FCNuancs), ROME (FCNXIpzs *or* FCNie/SZPue), ROMANCE (FCNie/SZPan/CPue), RECOURSE (FCNe/CPRXIuncf/Sue), RARITIES (FCNa/FCNi/FPIues), REMOVE (FCNe/SZPXIcs *or* FCNe/SZPie/SCue), HER (FCuencf), SUPPORT (Sup/Piencf/pf), ARREARS (ancf/FCNRXancf/s), ETERNAL (e/FPencf/Nuancs), ATTRACTIVE (apf/FPRapc/FPIcs *or* apf/FPRapc/FPi/SCue), REQUEST (FCNe/CPUuecf), EMPEROR (epzs/Pe/FCNuiencf).

keys **RIU** (2nd series) Characters: middle T/D[(*)]



[(*)]The "T" character is used only in abbreviations and or prefixes/infixes

STING (SRIUuins), STAIN (SRIUa/uin), STUDY (SRIUu/SCPuinz), STUDIED (SRIUu/SCPIuepcs), STUNTED (SRIUun/FPuepcs or SRIUunzf/uepcs), STELE (SRIUe/SCNue), STENOGRAPHER (SRIUe/Nie/FZPRa/PXIuencf), STAMP (SRIUapzs/p), STENOGRAPHY (SRIUe/Nie/FZPRa/PXIinz), STANFORD (SRIUan/Fiencf/pcs), STANCE (SRIUan/CPue), STEREO (SRIUe/FCNRXuie), STERILIZE (SRIUe/FCNi/SCNIzs *or* SRIUe/FCNi/SCNi/Zue), SYSTEM (Snz/SRIUuepzs)[(*)], SYLLABLE (Snz/SCNRIa/FCPRIue)[(*)].

[*)]In syllables containing the charachter "y" in a middle position, due to the fact that the 4 Series is already used, the ending sound can be written at the beginning of the following syllable using the 2nd Series.

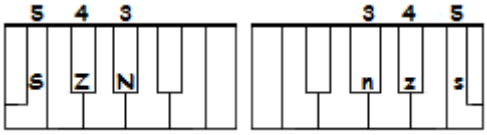
Briefs

active =CPRIUuics
medic=SZPRIUuipc
mental=SZPRIUuancs
system=SRIUpzs

Rita trembled for her error. Dante wrote several letters in support of the emperor. This reads like a bad romance novel. Rome is also called the eternal city. Irma studied stenography. At the Stanford museum we admired some rarities. A SOS request on the radio.

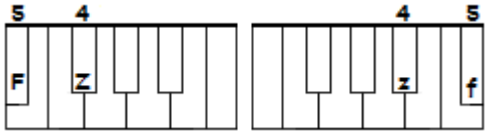
Lesson XV

keys **SZN** (1st Series) *Character*: initial/final X **nzs** (4th Series)



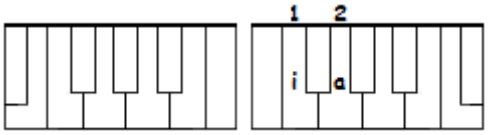
TAXI (FPa/SZNui), TAXED (FPa/SZNuepcs), XENON (SZNe/Nuien), EXOTIC (e/SZNie/FPuipc *or* enzs/ie/FPuipc), XENOPHILE (SZNe/Nie/PXIi/SZNue), XYLOPHONE (SZNnz/SCNie/PXIie/Nue), XEROX (SZNe/FCNuienzs), BOX (FCPuienzs), TAX (FPuanzs), MIX (SZPuinzs), EX (uenzs), EXTRA (enzs/FPRua), MATRIX (SZPa/FPRuinzs), SYNTAX (Snz/NRIUanzs), EXCELSIOR (enzs/CPencs/SIuiencf).

keys **FZ** (1st Series) *Character*: initial/final TH **zf** (4th Series)



THEM (FZuepzs), THOSE (FZXIs or FZie/Sue), THICK (FZuicz), THUNDER (FZun/SCPuencf), THINKING (FZin/SZuins), THOUGH (FZRXIuiapzf), TRUTH (FZRuiazf), CLOTH (CPRIuiezf), FAITH (FIuizf), AZIMUTH (a/Zi/SZPuiazf), SOUTH (SRXIuiazf), FOOTPATH (FRXIiepf/Puazf), BENEATH (FCPe/NRXuazf).

keys **ia**[(1)] (3rd Series) *Characters*: ou



GROUNDOUT (FZPRiand/RXIuiapf)[1)], THROUGHOUT (FZRiapzf/RXIuiapf)[1)], TROUBLESOME (FPRia/FCPRIe/SRXIpzs) [(1)], PREVIOUSLY, (PRe/SCIias/SCNuinz)[(1)], CETACEOUS (CPe/FPa/CPRXuias)[(2)], VARIOUS (SCa/FCNIias)[(2)], TEDIOUS (FPe/SCPIias)[(2)], MONSTROUS (SZPien/FCRias)[(2)].

1) As seen before the diphthong "OU" is usually written combining the "o" in the 2nd and the "u" in the 3rd series (RX+u). However some syllables with the diphthong "OU" can contain also subsequent sounds which must be represented in the 2nd Series (e.g. "ious", "ground", "cloud", "trous"). In these cases is always possible to split the syllable in two strokes (eg. gloriousness=GLO/RIO/US/NESS, groundfish_GRO/UND/FISH, cloudless=CLO/UD/LESS). As an alternative, is possible to use the combination "ia" to represent the "OU" dyphtong (eg. gloriousness=FZPRIie/FCNIias/NXue, groundfish =FZPRians/Fuic), cloudless= CPRIiapcs/SCNXue).

2) In the same way an ending syllable with the "OU" diphthong can be splitted in two strokes (tedious =TE/DIO/US, monstrous=MON/STRO/US. As an alternative, is possible to utilize the same "iea" combination used for the "ea" digraph in the ending syllables (in this case the right output will be automatically selected by the system using the briefs dictionary).

A taxi previously took me to the Excelsior. An exotic xylophone in a chinese box. I heard a monstrous thunder from the south. An extra tax beneath the Senate plan.

Lesson XVI

NUMBERS

Numbers are written using the 1st and 4th Series together with the "RXI" combination. In particular, the 1st Series is used to write the tens and the 4th Series to write the units. To facilitate the learning process, the combinations to represent the tens and the digits (identical in the two series) have been chosen, where possible, in order to recall one of the letters (or sound) present in the number to be represented. They are the following:

NUMBERS (TENS)	*KEYS*
10	CN
20	FP
30	FZ
40	F
50	ZN
60	Z
70	S
80	FC
90	N
00	SZ

+ RXI

NUMBERS (UNITS)	*KEYS*
1	nc
2	pf
3	zf
4	f
5	nz
6	z
7	s
8	cf
9	n
0	zs

The single digit will be written using the 1st Series while the tens using the 4th Series: S

1 (RXInc), 2 (RXIpf), 3 (RXIzf)... 10 (CNRXI), 20 (FPRXI), 30(FZRXI)...

The two-digit numbers will be written using the 1st and 4th series together: 12 (CNRXIpf), 26 (FPRXIz), 57 (ZNRXIs), 98 (NRXIcf).

The three-digit numbers will be written writing the hundreds in a separate stroke and the tens and units using the 1st and 4th Series toghether (or, as an alternative,

writing the hundreds and the tens in the same stroke and units in a single stroke): 112 (RXInc/CNRXIpf *or* CNRXInc/RXIpf), 326 (RXIzf/FPRXIz *or* FZRXIpf/RXIz), 857 (RXIcf/ZNRXIs or FCRXInz/RXIs), 998 (RXIn/NRXIcf or NRXIn/RXIcf).

Numbers of four digits will be written in two strokes writing thousands and hundreds in the first stroke and tens and units in the second strokes: 1226 (CNRXIpf/FPRXIz), 5798 (ZNRXIs/NRXIcf), 2657 (FPRXIz/ZNRXIs).

Numbers of more the four digit will be written using a mix of the techniques shown above. In case of sequences of zeros, the following combinations will be used:

00 = FCRXIpcs

000 = FZRXInf

000,000 = SZPRXIn

000,000,000 = FCPRXIn

000,000,000,000 = FPRXIncf

Other number entries

, (comma for number) = =NUenz

. (decimals) = XUenz

: (colon for time) =ZNXUenz

% per cent = PXIUnzf

$ dollar = SCPRIncf

Lesson XVI

OTHER PREFIXES, INFIXES AND SUFFIXES

Prefixes/Infixes

Using the 2nd Series is possible to define several frequent prefixes/infixes which can be useful to abbreviate many words. Here are some examples. Is possible to add others to the dictionary: the only requirement for their creation (as for any brief) is to avoid abbreviation which could conflict with sequences of characters that may be present in some words of the English language.

CPRUanzs = {command^} (commander - CPRUapzs/uencf -, commando, commandment)

CPRUen ={commen^} (commendable, commentary, commensals)

CPRUu = {commu^} (commute, communicate, commute)

CPXUepc ={connec^} (connect, disconnected, connector...)

CPRepc = {correc^} (correct, correctional, correctnesses...)

CPXi = {consi^} (consider, consideration, consigning...)

CPXIencf = {conver^} (conversion, convergent, conversely...)

CPXIen = {conven^} (conventional, conventicler, inconveniences...)

CPXIi = {confi^} (confident, confinement, configuring)

CPXis = {consis^} (consistence consistory, inconsistently...)

CPRIUapc = {contac^} (contact, contactee, recontacting...)

SCPRIe = {dele^} (delegation, deletion, nondelegate...)

SCPRIi = {deli^} (delicate, delicious, indelibilities...)

SCPRIUencf ={deter^} (deterrent, overdetermined, detergent...)

SCPXIi = {divi^} (division, dividend, divisive...)

SCPXIUus = {discus^} (discussion, discussed, discussant...)

FRUa = {forma^} (formabilities, formamide, formable)

FRUancs = {formal^} (formalize, formaldehydes, formalness)

FRUapf = {format^} (formative, information, conformation)

SZPXUie = {mino^} (minority, terminology, criminologist...)

SZPRUen = {momen^} (momently, momentum, momentariness...)

PRUis = {permis^} (permission, impermissibly, permissive...)

PXen = {presen^} (presented, representative, representation)

FPRIe = {tele^} (television, telegram, biotelemetric...)

FPRUa = {tima^} (estimated, legitimatize, ultimately...)

FPRIUa = {tota^} (totalisator, subtotaling, totally...)

SCRIie = {valo^} (valorise, revalorized, valorous...)

SCRIi = {vali^} (validation, invalidate, revalidates...)

SCRi={veri^} (verification, pulverized, verifier)

Other prefixes

after^=FRIUencf (aftermath=FRIUencf/SZPuazf)

ante^=Uanzf (antedate=Uanzf/SCPRpf)

anti^=Ianzf (antisocial=Ianzf/SXIUuancs)

any^=XUnz (anytime=XUnz/FPIpzs)

audio^=Uupcs (audiotape=Uupcs/FPRp)

auto^=Uupf (automatic=Uupf/SZPa/FPuipc)

counter^=CPRIUencf (countersign=CPRIUencf/SIuins)

every^=SCRenz (everytime=SCRenz/FPIpzs)

extra^=SZNRa (extravagant = SNRa/SCa/ZPuanzf)

hyper^=FCIip (hyperactive=FCIip/CPRIUics)

inter^= FZNencf (interface=FZNencf/FRpc)

intra^=FZNRa (intranet=FZNRa/Nuepf)

intro^= FZNRie (introduce=FZNRie/SCPUpc)

mega^=SZPXIUa (megabit=SZPXIUa/FCPuipf)

micro^=SZPXIUie (microwave=SZPXIUie/CNRcs)

mono^=SZPXUie (monotone=SZPXUie/FPXIn)

out^= RXIupf (outsaid=RXIupf/SIuipcs)

over^=SCRencf (overdue= SCRencf/SCPUue)

para^=IUancf (paramedic=IUancf/SZPRIUuipc)

part^=FCNIUapf (partner=FCNIUuapf/Nuencf)

port^=FCNIUiepf (portrait=FCNIUiepf/FCNIuipf)

post^=IUiecf (postbox=IUiecf/FCPuinzs)

photo^=IUiepf (IUiepf/Cuiep)

pseudo^=PXupcs (pseudoclassic=PXupcs/CPRIas/Suipc)

psycho^=PXipc (psychological=PXipc/SCNiepz/CPuancs)

retro^=FCNRIUie (retroactive=FCNRIUie/CPRIUuics)

self==SRIef (selflessly=SRIef/SCNes/SRIuinz)

semi^=Xepzs (semiannual=Xepzs/NUancs)

super^=Xup (supercar=Xup/CPuancf)

under^=FNencf (underfoot =FNencf/FRXIuiepf)

work^ = CNRiezs (workman=CNRiezs/SZPuan)

Suffixes (*)

^ally=SCNRIuinz (frantically=FRan/FPipc/SCNRIuinz)

^ance=NXIUue (finance=Fin/NXIUue)

^ard=RIUuancf (coward=CPienc/RIUuancf)

^bility = FCPRIUuinz (durability=SCPu/FCNa/ FCPRIUuinz)

^down SCPXIuien (sundown=Sun/SCPXIuien)

^fulness=FXUues (awfulness=ancFXUues)

^graph = ZPRuaf (phonograph=PXIie/Nie/ZPRuaf)

^less =SCNXue (useless=Us/SCNXue)

^logical=SCNiepz/CPuancs (tautological=FPUupf/ie/SCNiepz/CPuancs)

^logist=SCNXIUuicf (ethologist=e/FZie/SCNXIUuicf)

^logy = SCNXIUuinz (terminology=FPencf/SZPXUie/SCNXIUuinz)

^mental=SZPRIUuancs (monumental=SZPie/Nu/SZPRIUuancs)

^ness = NXue (witness=CNipf/NXue)

^nesses =NXues (witnesses=CNipf/NXues)

^off =XIuief (cutoff=Cpupf/XIuief)

^over=SCRuencf (passover= Pas/S/SCRuencf)

^rily=FCNRIuinz (primarily=PRi/SZPa/FCNRIuinz)

^self=SRIuef (myself=SZPnz/SRIuef)

^tious=FPIieas (cautious=CPa/FPIieas)

^work = CNRuiezs (network=Nepf/CNRuiezs)

*Some suffixes entry in the system can used also for words (e.g. "less, "work", "mental"); in this case their definition in the dictionary will not follow the typical suffixes syntax {^ ...}

Useful briefs

^'^=iea

^'s=ieas

^s'=ieaz

^'d=ieapcs

^'ll=ieancs

^'m=ieapzs

^'re=ieancf

^'ve=ieacs

^n't=ieanzf

aren't=Ruenzf

can't=XIUnzf

couldn't=CPRIUuenzf

daren't=SCPRuenzf

did = SCPI

didn't=SCPRIUuenzf

doesn't=SCPXuenzf

don't=SCPuienzf

for = FR

I = I

hadn't=FCRIUuenzf

hasn't=FCXuenzf

haven't=FCXIuenzf

he'd=FCRIUiea

he'll=FCRIiea

he's=FCXiea

he was =FCXIuas

I'd=Iieapcs

I'll=Iieancs

I'm=Iieapzs

isn't=Xnzf

it'd=RIUieapcs

it'll=RIUieancs

it's=RIUieas

I've=Iieacs

let's=SCNXiea

mightn't=SZPIinzf

mustn't=SZPXuianzf

needn't=NRIUuenzf

she'd=Cieapcs

she'll=Cieancs

she's=Cieas

shouldn't=CRIUuenzf

they'd=FZieapcs

they're=FZieancf

they've=FZieacs

to = RIU

wasn't=CNXuenzf

we'd=CNieapcs

we're=CNieancf

weren't=CNRuenzf

we've=CNieacs

won't=CNRXInzf

wouldn't=CNUnzf

you'd=ZNieapcs

you're=ZNieancf

you've=ZNieacs

you'll =ZNieancs

APPENDIX A

BRIEFS FOR MOST COMMON WORDS

Note: Several words which can be written in one stroke with the standard rules and without any brief have been omitted (eg: good = FZPRXIuiepcs; from= FRuiepzs)

```
'about': FCPRXIuiapf
'act':RIUuapc
'add': RIUuapcs
'active': CPRIUuics
'after': FRIUuencf
'again':ZPIuan
'all': SCNRI
'also': SCNXuie
'and': FN
'animal':NRUuancs
'any': XUuinz
'approach': PRuieps
'are': R
'ask':Xuazs
'before': FCPXIuiencf
'build': FCPRIuipcs
'business': FCPXUues
'can': CPR
'came': CPRpzs
'cause': CPUuias
'change':SPXUuapz
'Congress': CPXIUues
'contact': CPRIUuapc
'date': SCPRpf
'design': SCPXuins
'differ':SCPXIuencf
'earth': Rieazf
'even': XUuecs
'every': SCRuenz
'father': FRIUieancf
'forget': FXIUuepf
'first': FRuicf
'follow':FXIuiencs
'for': FR
'form': FRUuiencf
'format': FRUuapf
'formal': FRUuancs
'free': FRiea
'few': FU
'give': ZPIcs
'happened': FCXUuepcs
'have': FCcs
'having': FCns
'he': FCX
'health': FCRIieazf
'help': FCRIuep
'here': FCRncf
'home':FCXIpzs
'house':FCRXIuias
'I': I
'information': NXIuie
'inside': NXuipcs
'into': FZNuie
'its': RIUs
'large': SCNRuapz
'lens': SCPXUues
'less': SCNXue
'light': SCNRIUuipzf
'like': SCNIzs
'line': SCNIn
'little': SCNRIUuenc
'local'; SCNXIUuancs
'medic': SZPRIUuipc
'mental': SZPRIUuancs
'moment': SZPRUuenzf
'more': SZPXIncf
'mother':SZPRIUuencf
'much': SZPps
'must': SZPcf
'name': NRpzs
'new': NU
'news': NXIuias
```

```
'off': XIuief
'one':XIn
'only': NRIui
'other': RXIuencf
'over': SCRuencf
'packet': PXIUuepf
'page': PRpz
'part': FCNIUuapf
'people': PRIieap
'picture':PXIUuiancf
'place': PRIuapc
'port': FCNIUuiepf
'price': PRuipc
'proud': PRuiapcs
'rhythm': FCNRIUuipzs
'right': FCNRIUuipzf
'search': SRieaps
'season': SXiean
'self': SRIuef
'Senate': SXUuapf
'sentence': SXUues
'service': SXIuips
'session': SXuien
'site': SIpf
'social': SXIUuancs
'some': SXIpzs
'spell': SRIuep
'state': SRIUieapf
'tank': FPXUuazs
'take':FPRzs
'there': FZXncf'
'these': FZXs
'think': FZXUuizs
'three: FZRiea
'through': FZRuiapzfù
'time': FPIpzs
'town': FPXIuien
'tucked': FPXIUuepcs
'turn':FPRuian
'twelve': FPXIuecs
'under': FNuencf
'use': Us
'very': SCRuinz
'well': CNRIncs
'were': CNRncf
'what': CNpf
'were':CNXncf
'where': CNXIuencf
'which': CNps
'why':CNnz
'will': CNncs
'witness': CNXUues
'work': CNRuiepc
'world': CNRuiepcs
'would': CNuiapcs
'yeah': ZNcf
'yesterday': ZNuepcs
'you': ZNU
'your': ZNuiancf
```

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