
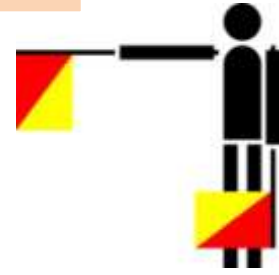


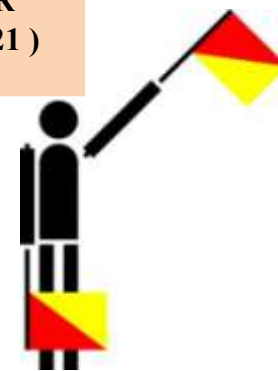
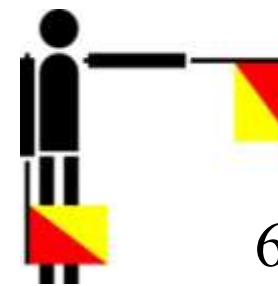
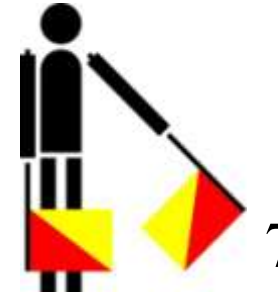


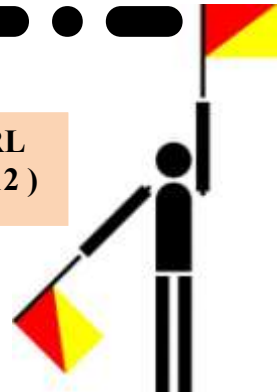
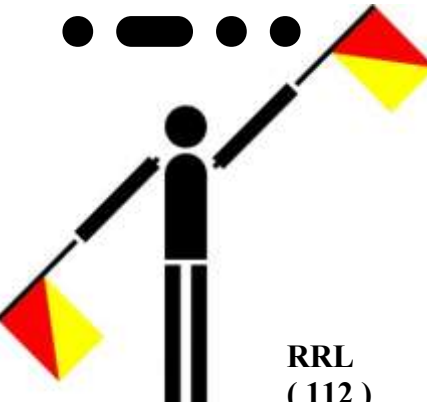

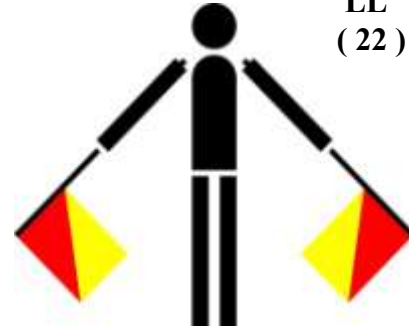


Phonetic Alphabet, Morse Code, Semaphore, and Wig Wag -- OBSERVER'S Point of View

Note that the flag view here is from the MESSAGE RECEIVER'S perspective.

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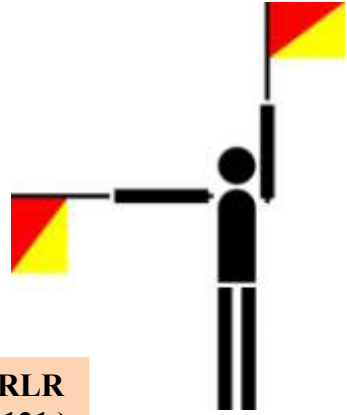
<p>A ALPHA</p> <p>● ●●</p> <p>RR (11)</p>  <p>1</p>	<p>B BRAVO</p> <p>●●● ●●●</p> <p>RLLR (1221)</p>  <p>2</p>	<p>C CHARLIE</p> <p>●●● ●●●</p> <p>LRL (212)</p>  <p>3</p>	<p>D DELTA</p> <p>●●● ●●</p> <p>RRR (111)</p>  <p>4</p>	<p>E ECHO</p> <p>●</p> <p>LR (21)</p>  <p>5</p>	<p>F FOXTROT</p> <p>●●● ●●●</p> <p>RRRL (1112)</p>  <p>6</p>	<p>G GOLF</p> <p>●●● ●●●</p> <p>RRL (1122)</p>  <p>7</p>
<p>H HOTEL</p> <p>●●● ●●●</p>  <p>LLR (221)</p> <p>8</p>	<p>I INDIA</p> <p>●●● ●●●</p> <p>L (2)</p>  <p>9</p>	<p>K KILO</p> <p>●●● ●●●</p> <p>RLRL (1212)</p>  <p>0</p>	<p>L LIMA</p> <p>●●● ●●●</p>  <p>RRL (112)</p>	<p>M MIKE</p> <p>●●● ●●●</p>  <p>LRRL (2112)</p>	<p>N NOVEMBER</p> <p>●●● ●●●</p>  <p>LL (22)</p>	

O OSCAR



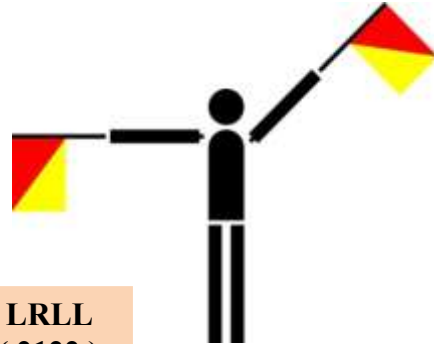
RL
(12)

P PAPA



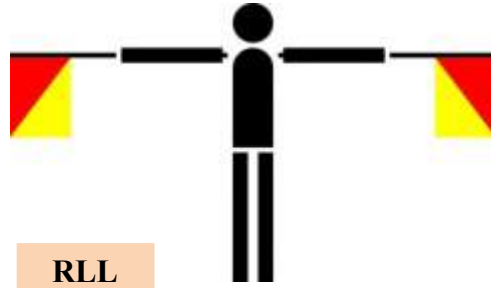
LRLR
(2121)

Q QUEBEC



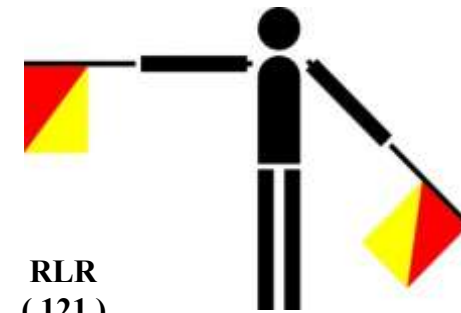
LRL
(2122)

R ROMEO



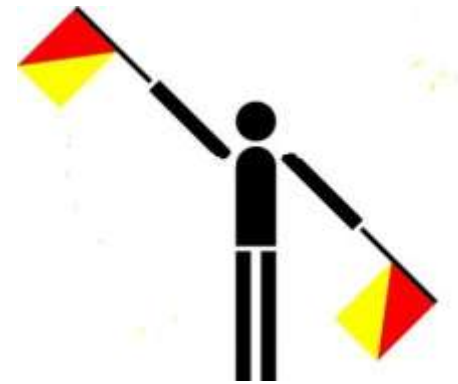
RLL
(122)

S SIERRA

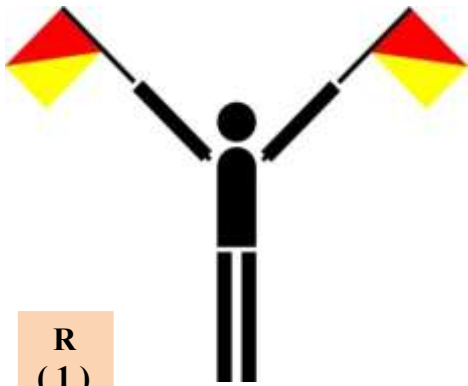


RLR
(121)

CANCEL



T TANGO



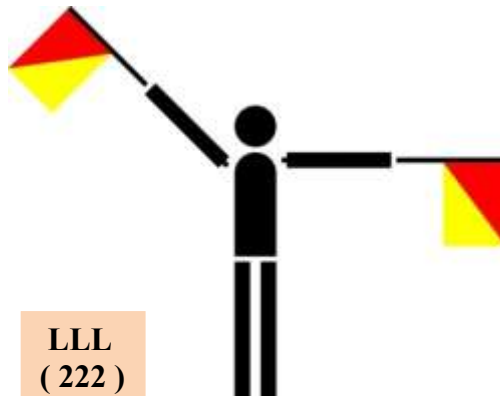
R
(1)

U UNIFORM



LLR
(221)

Y YANKEE



LLL
(222)

WIG WAG ENDINGS

AND LLLL
(2222)
ED RLL
(1222)
ING RRLR
(1121)
TION LLLR
(2221)

WIG WAG NUMERALS

1 RLLLR (12221)
2 LRRRL (21112)
3 RRLRR (11211)
4 RRRLR (11121)
5 RRRRL (11112)
6 LRRRR (21111)
7 LLRRR (22111)
8 LLLLR (22221)
9 LLRLR (22122)
0 RRRRR (11111)

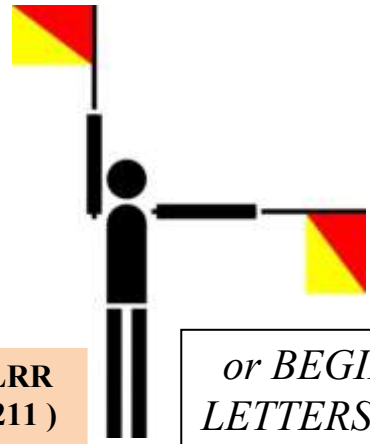
WIG WAG

END OF WORD =
FLAG IS DIPPED
DIRECTLY
BEFORE THE
SENDER

END OF
SENTENCE = 2
END OF WORDS

END OF MESSAGE
= 3 END OF
WORDS

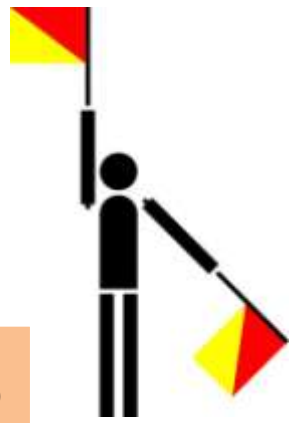
J JULIETT



LLRR
(2211)

or *BEGIN LETTERS*

V VICTOR



LRRR
(2111)

MORSE NUMERALS

- 1 .- - - -
- 2 .- - - -
- 3 .- .- -
- 4 .- .- -
- 5 .- .- .

MORSE NUMERALS

- 6 -
- 7 -
- 8 - - . . .
- 9 - - . . .
- 0 - - - . -

MORSE PUNCTUATION

- PERIOD .- .- .-
- COMMA - . - . -
- QUESTION .- .- .-
- DASH - . . . -

- AR -- END OF MESSAGE - - .- .-

- SK - END TRANSMISSION .- .- .-

NUMBERS FOLLOW

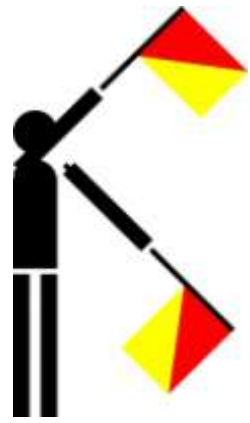


W WHISKEY



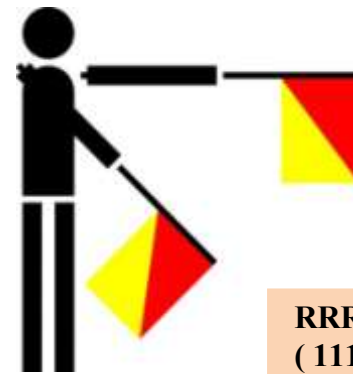
LLRL
(2212)

X X-RAY



RLRR
(1211)

Z ZULU

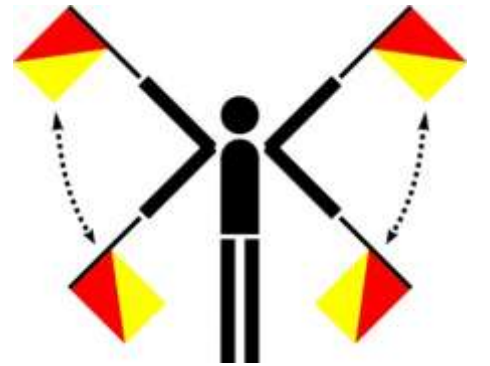


RRRR
(1111)

REST



ERROR





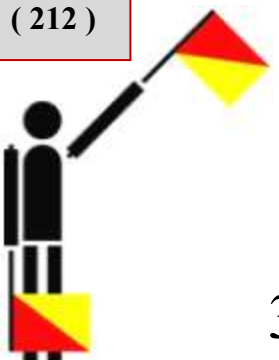






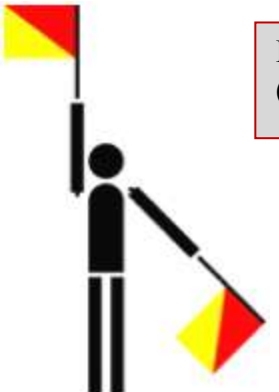
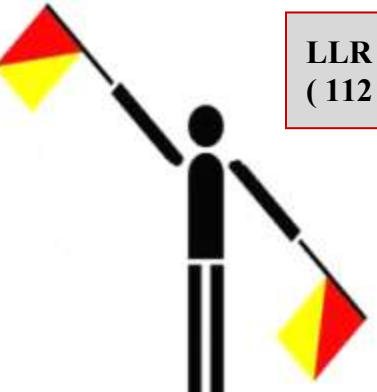
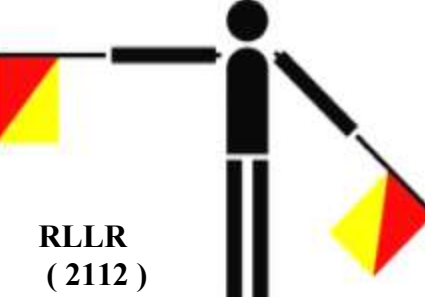
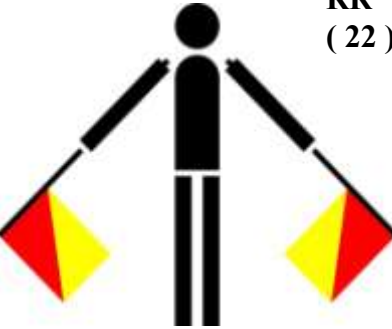
Phonetic Alphabet, Morse Code, Semaphore, and Wig Wag -- SENDER'S Point of View

With these pages facing the sender, the sender should point the flags in the same direction as this diagram.

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Semaphore: if the diagram below shows a flag pointing → then the sender's flag should also point →.

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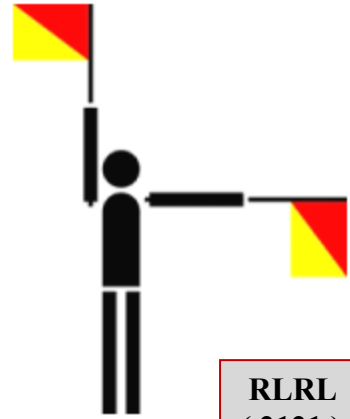
<p>A ALPHA</p> <p>● ●●</p> <p>LL (11)</p>  <p>1</p>	<p>B BRAVO</p> <p>●●● ●●●</p> <p>LRRL (1221)</p>  <p>2</p>	<p>C CHARLIE</p> <p>●●● ●●●</p> <p>RLR (212)</p>  <p>3</p>	<p>D DELTA</p> <p>●●● ●●</p> <p>LLL (111)</p>  <p>4</p>	<p>E ECHO</p> <p>●</p> <p>LR (12)</p>  <p>5</p>	<p>F FOXTROT</p> <p>●●● ●●●</p> <p>LLLR (1112)</p>  <p>6</p>	<p>G GOLF</p> <p>●●● ●●●</p> <p>LLRR (1122)</p>  <p>7</p>
<p>H HOTEL</p> <p>●●● ●●●</p>  <p>RRL (221)</p> <p>8</p>	<p>I INDIA</p> <p>●●●</p> <p>R (2)</p>  <p>9</p>	<p>K KILO</p> <p>●●● ●●●</p> <p>LRLR (1212)</p>  <p>0</p>	<p>L LIMA</p> <p>●●● ●●●</p> <p>LLR (112)</p> 	<p>M MIKE</p> <p>●●● ●●●</p> <p>RLLR (2112)</p> 	<p>N NOVEMBER</p> <p>●●● ●●●</p> <p>RR (22)</p> 	

O OSCAR



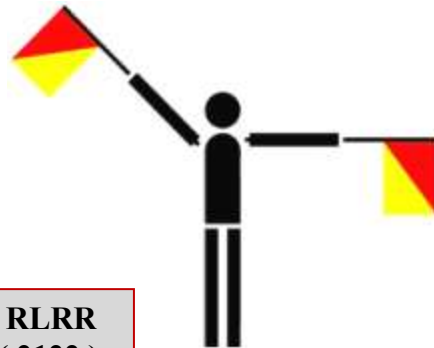
LR
(12)

P PAPA



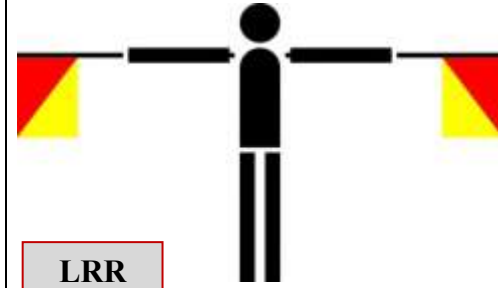
RLRL
(2121)

Q QUEBEC



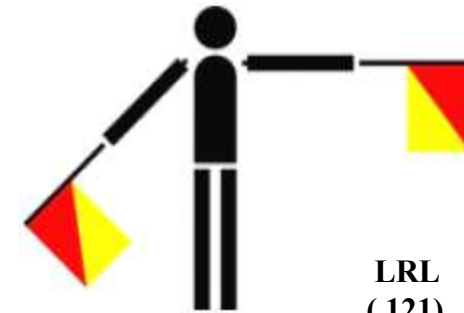
RLRR
(2122)

R ROMEO



LRR
(122)

S SIERRA

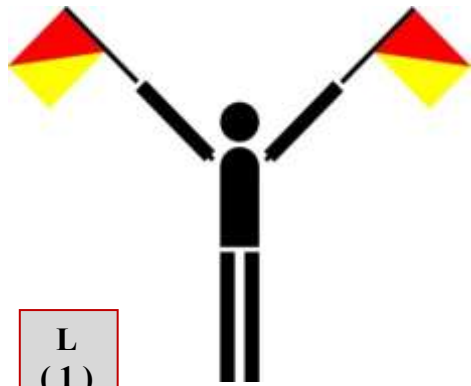


LRL
(121)

CANCEL



T TANGO



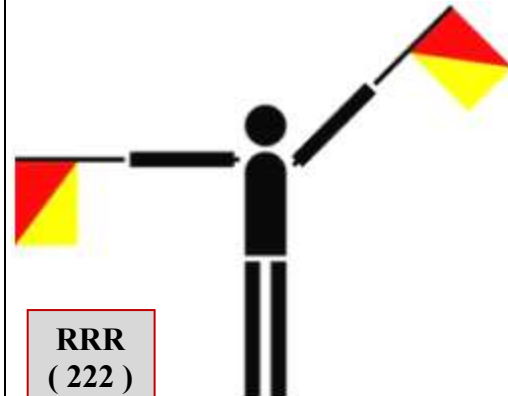
L
(1)

U UNIFORM



RRL
(221)

Y YANKEE



RRR
(222)

WIG WAG ENDINGS

AND RRRR
(2222)
ED LRRR
(1222)
ING LLRL
(1121)
TION RRRL
(2221)

WIG WAG NUMERALS

1 LRRRL (12221)
2 RLLLR (21112)
3 LLRL (11211)
4 LLLRL (11121)
5 LLLLR (11112)
6 RLLLL (21111)
7 RRLLL (22111)
8 RRRRL (22221)
9 RRLRR (22122)
0 LLLLL (11111)

WIG WAG

END OF WORD =
FLAG IS DIPPED
DIRECTLY
BEFORE THE
SENDER

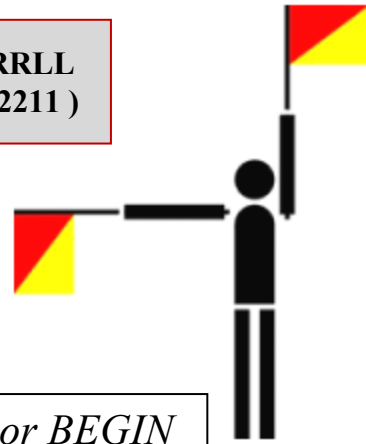
END OF
SENTENCE = 2
END OF WORDS

END OF MESSAGE
= 3 END OF
WORDS

J JULIETT



RRL
(2211)



or BEGIN LETTERS

V VICTOR



RLL
(2111)



MORSE NUMERALS

- 1 .- - - -
- 2 .- - - -
- 3 .- .- -
- 4 .- .- -
- 5 .- .- .

MORSE NUMERALS

- 6 -
- 7 -
- 8 - - . . .
- 9 - - . . .
- 0 - - - . -

MORSE PUNCTUATION

- PERIOD .- .- .-
- COMMA - . - . -
- QUESTION .- .- .-
- DASH - . .- .-
- AR -- END OF MESSAGE - - .- .-
- SK - END TRANSMISSION .- .- .-

NUMBERS FOLLOW



W WHISKEY



RRLR
(2122)



X X-RAY



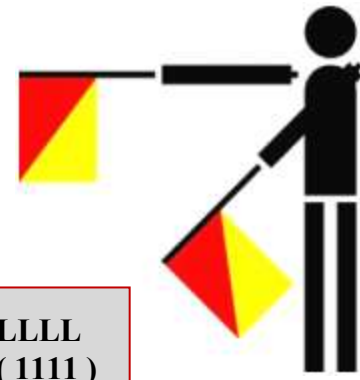
LRL
(1211)



Z ZULU



LLL
(1111)



REST



ERROR



Using the Phonetic Alphabet, Morse Code, Semaphore, and Wig Wag Charts

These charts pull together three signaling systems – Morse Code, Semaphore, and Wig Wag signaling, along with the military’s phonetic alphabet. These charts are not complete, nevertheless they may help students of signaling with learning the codes and the relationships between them.

Observer chart – The observer chart is for the use of the person receiving the message. Flag orientations for semaphore (the two flag diagram) and wig wag (the LR codes) correspond to what the message receiver will see.

Sender chart – While learning, the sender can place this chart facing him or her, and match the flag orientations shown. For example, the letter “B” in semaphore shows a flag extending to the right on the sender’s chart: the sender should use his right arm to a flag in the same direction (to the right). Similarly, a wig wag “T” requires the sender to dip the single flag to the left and then to the right. Of course, the message receiver sees the opposite, as shown on the observer chart.

The purpose of the sender chart is to eliminate the mental translation needed for each letter, which may enable the user to learn the correct sequences faster. Practice sending and receiving so you are equally good at both. For practice, these sheets might be placed on a post or object in front of the sender or receiver so that the person can refer to them readily. Or the individual letters might be cut out and used as flash cards.

As these charts are stored as PDF files, you can print them at any size. Try 11” by 17” paper (or A4), if you have access to a printer that can use large paper. You might find it helpful to mount the rows on a poster board.

A few words about the charts here will follow. Discussions about how the systems work are readily available elsewhere and need not be repeated here.

Semaphore: the semaphore flags shown here are in the “circle” sequence, and so are not in strict alphabetical order. Note that in each row, one flag is always held in the same position. Knowing this can help with learning groups of letters.

Wig Wag: Wig wag signaling was developed before the Civil War. It uses only one flag, dipped either to the right or the left the appropriate amount of times, or directly in front of the sender to indicate a space between words or to end a sentence or message.

Most wig wag code tables use a “1,2,3” coding system, where “1” means the flag is dipped to the left of the sender, “2” means a dip to the sender’s right, and “3” means the flag is dropped directly in front of the sender. However, for learning purposes, the charts here also show the codes as “L” left and “R” right, which might be more memorable and easier than remembering which way is “2”.

The original wig wag code dipped the flags on the opposite sides from later wig wag usage. The wig wag code shown here follows the coding used for the Boy Scout Signaling merit badge, as listed in the modified Signaling Merit Badge Workbook at <http://www.bsa150.com/pubs/Signaling.pdf> (Troop 150, Enterprise, AL) and reproduced here:

Wig-Wag Signal Chart (Used for Composing Messages)

A	11	K	1212	U	221	1	12221
B	1221	L	112	V	2111	2	21112
C	212	M	2112	W	2212	3	11211
D	111	N	22	X	1211	4	11121
E	21	O	12	Y	222	5	11112
F	1112	P	2121	Z	1111	6	21111
G	1122	Q	2122	and	2222	7	22111
H	211	R	122	ed	1222	8	22221
I	2	S	121	ing	1121	9	22122
J	2211	T	1	tion	2221	0	11111

Wig-Wag Signal Chart (Used for Decoding Messages)

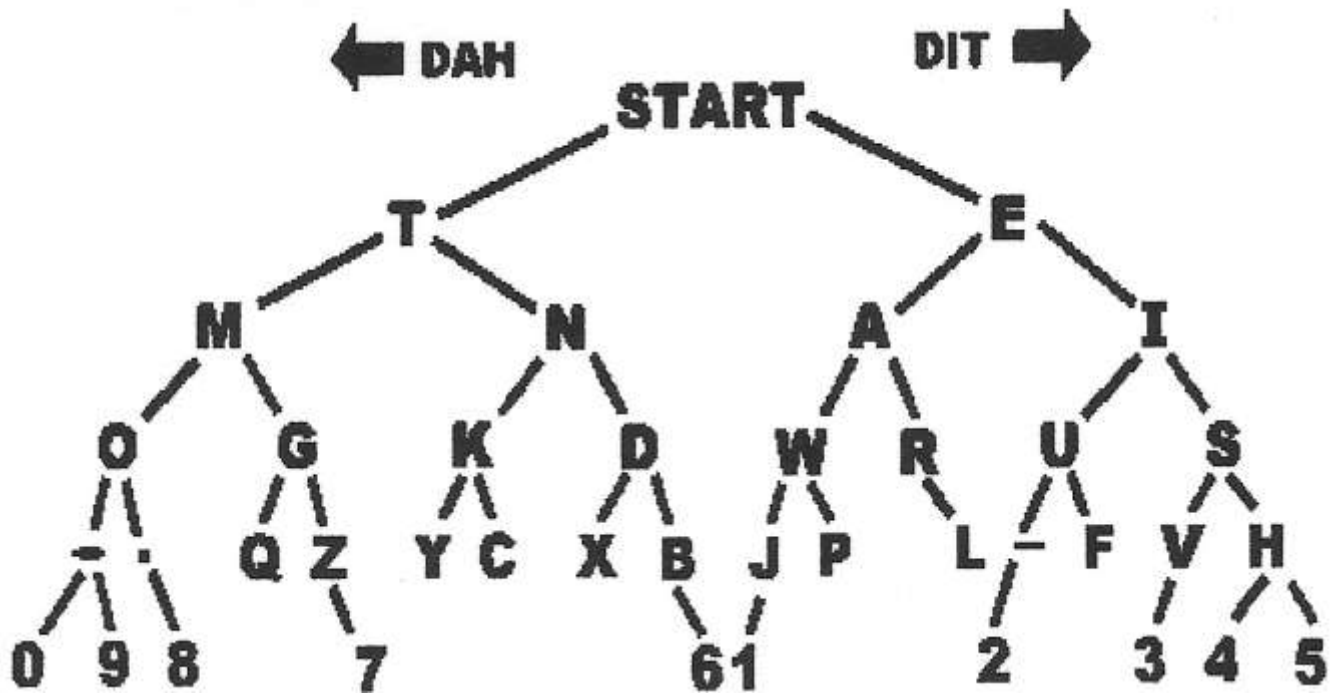
1	T	211	H	1221	B	11111	0
2	I	212	C	1222	ed	11112	5
11	A	221	U	2111	V	11121	4
12	O	222	Y	2112	M	11211	3
21	E	1111	Z	2121	P	12221	1
22	N	1112	F	2122	Q	21111	6
111	D	1121	ing	2211	J	21112	2
112	L	1122	G	2212	W	22111	7
121	S	1211	X	2221	tion	22122	9
122	R	1212	K	2222	and	22221	8

Phonetic Alphabet: The phonetic alphabet in the charts is used by the military in radio communications and is one of the more common phonetic alphabets in use. The idea here is that, under static or interference conditions, a person may not be able to distinguish letters (think ‘B’ and ‘V’ under such conditions) but a word may be more discernable.

Morse Code: Morse code dots and dashes are shown on the charts above. Morse code is, of course, the same for both sender and receiver. Morse Code may be sent by wire, by radio, and by light flashes. It was particularly used for telegraph operations as well as radio, and is still employed in the amateur radio services today

Learning Morse code requires teaching the ear and brain to think of one letter “unit” as a single letter. . You want to think of or hear ---· and hear “Z”. This is not unlike hearing a whole word instead of the individual letters as they are pronounced. Repeated practice is the only way to get to that point.

The following chart, which is available in several forms over the Internet, illustrates one way to help translate dots and dashes into letters. Move right and down each time you hear a “dah” (dash), or left and down each time you hear a “dit” (dot).



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December 2010