

The Telegraph (Morse Code)

1. Introduction

Along with the invention of the electromagnetic telegraph in 1837, the first Morse code was developed in 1837 by American painter and inventor Samuel Finley Breese Morse. Using electric pulses, the telegraph transmitted messages in Morse code through cables connected across large distances. The first message, “What hath God wrought”, was successfully sent by Morse’s telegraph in Morse code in 1844 from Washington State to Baltimore state which is approximately forty miles apart (Driscoll, 2006). As the telegraph became more popular as a mode of communication in other countries, it also became known as the Victorian Internet (Oxlade, 2005: 34). Additionally, because the Morse code was developed specifically for use with the telegraph, in this paper, to discuss one is to discuss the other.

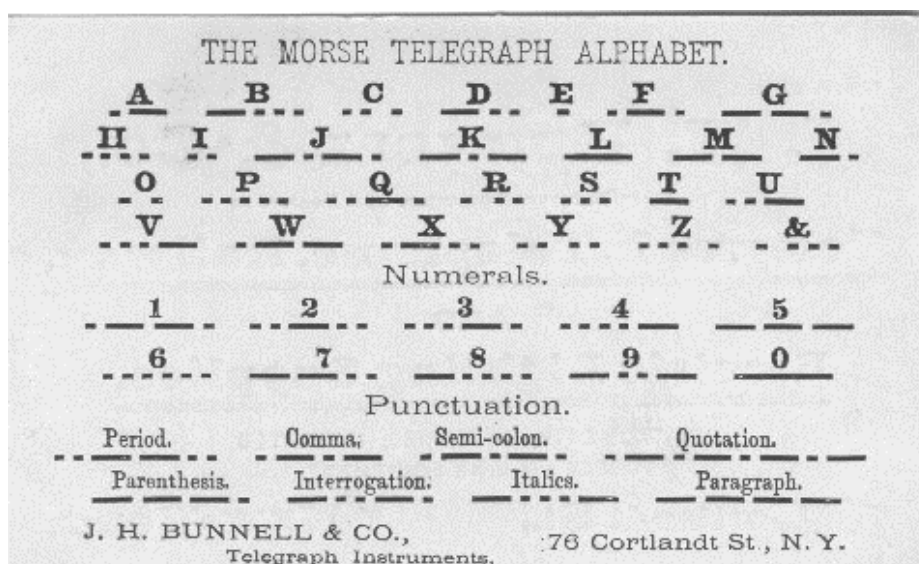


Fig.1 The first Morse code invented in 1838

However, as more countries adopted the use of the telegraph as a means of communication, they realised that the original Morse code, also known as the American Morse code, did not account for non-Latin alphabets and languages whose orthographies require diacritics (“Morse Code”, n.d.). Hence, the International Morse Code – also the Continental Morse Code – was created in 1851.

The International Morse Code

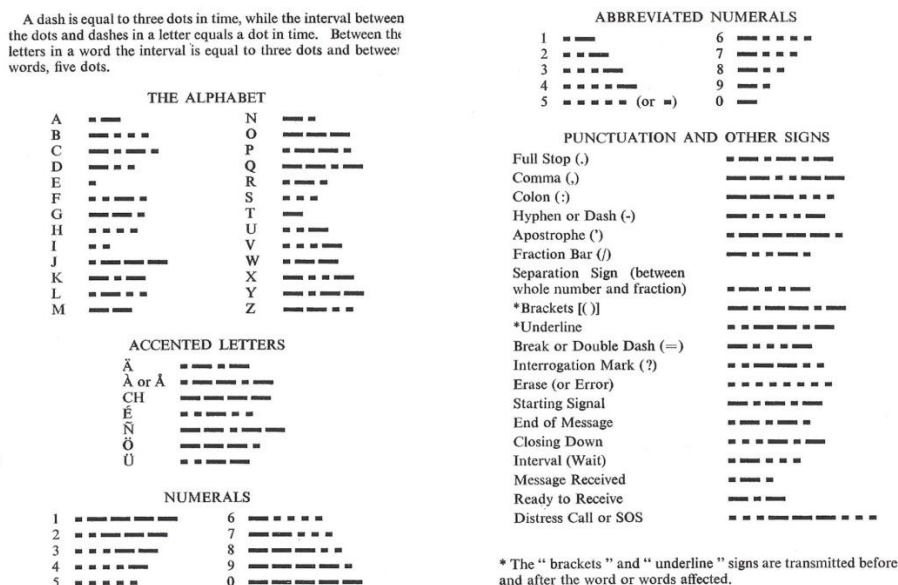


Fig. 2 The International Morse Code created in 1851

From Fig.2, we see that the International Morse Code also includes signals that facilitate message transmission, such as “starting signal”, “end of message” and “wait”.

2. The Morse code

The Morse code consists of sequences of dots and/or dashes. Combinations of dots and/or dashes are used to represent the different letters of the Latin alphabet, numerals as well as punctuation. The dots are short pulses called “dits” and the dashes are longer pulses called “dahs” (NRICH, n.d.). The time intervals between dots and dashes are vital because time interval is used as the orthographic equivalent of space, character and word separation.

Dot “dit”	1 unit
Dash “dah”	3 units
Time interval between the dots and dashes in a letter	1 unit
Time interval between letters	3 units
Time interval between words	7 units

Table 1 Relationship of the time intervals used in Morse code

The time interval for keying Morse code is relative to the others, using a dot as the base-time unit. As illustrated in Table 1, the duration of a dash is three times that of a dot. Also, because each letter may include more than a single dot or dash, the time interval between them is one unit of time.

The Morse code was used together with the electromagnetic telegraph and the wireless telegraph across the world throughout the twentieth century (Driscoll, 2006), before the radio and satellites slowly replaced them in the mid-twentieth century (Gugliotta, 2007). Back then, the telegraph was used by the press to transmit news to the audiences, for communication between different countries, media advertising, facilitate communication between ports and ships, the railway, military operations and personal communications (Arceneaux, 2014; Drinkwater, 2005). As radio technology improved, the official use of the Morse code was eventually phased out in the 1990s and is mainly used today by radio enthusiasts (Driscoll, 2006).

Speech-like		Text-like	
Time bound	Depends	Space bound	No
Spontaneous	No	Contrived	Yes
Face-to-face	No	Visually decontextualized	Yes
Loosely structured	Depends	Elaborately structured	Yes
Socially interactive	No	Factually communicative	Yes
Immediately revisable	Yes	Repeatedly revisable	No
Prosodically rich	No	Graphically rich	No

Table 2 Comparison of the Morse code to text and speech

Table 2 shows the similarity of Morse code to text and speech using David Crystal’s seven features for the classification of the different mediums of communication. In general, the Morse code is more text-like than speech-like. In terms of being speech-like, because telegrams are received almost immediately, the telegraph operators might choose to reply instantly, thus the “time bound” feature makes it speech-like. Furthermore, the operators might also choose to respond as if they were speaking to each other, the Morse code might become as loosely structured as speech. Therefore, the speech-like features of the Morse code would be dependent on the context of the communication.

An interesting element regarding the telegraph is the lack of “repeatedly revisable” feature. The telegram is more speech-like in this case because the electric pulse transmitted cannot be withdrawn. Another interesting feature to note is that the telegram is neither prosodically nor graphically rich. For one, it would be almost impossible to input pictures and tables into telegrams. Moreover, due to the absence of audio in a telegram, it would not be prosodically rich.

In addition, the speed of transmitting in Morse code is WPM20-30 (NRICH, n.d.), which is similar to that of the writing medium but slightly slower than typing. This is surprising since every letter takes more time to be transmitted than to be typed out, thus we would expect the speed for the input in Morse code to be much slower and for typing to be significantly faster.

3. Consequences of using Morse code

In the late eighteenth century, the use of the telegraph was imagined to be a method which encouraged a universal language of communication between people all around the world (Fairclough, 2013). With the introduction of Morse code, the motivation to use written communications is promoted across the world – it is hence not surprising that the increased usage would alter language used in communication and in society, as well as inspire new technology to be invented to bolster this new medium of communication.

3.1 Effects on language

Firstly, when languages are written, they accelerate its standardisation process (Seargeant & Swann, 2012: 79). This is because having a standard form would increase the efficiency in understanding and communication between two or more parties. Thus, as Morse code was widely used to send information over vast distances, the sender and recipient of the telegram would have to share a common variety of a language so as to understand the intended message.

On the other hand, as opposed to using an existing language for communication, codes and abbreviations were developed by people using the Morse code (Drinkwater, 2005). The first example is emergency codes, such as the famous ‘SOS’ signal, made up by three dots, three dashes, and followed by three dots again (NRICH, n.d.). This simple sequence is easy to identify, hence was established as the international distress signal. The other example is the

use of abbreviations in the railway industry, such as the word “very” to “VY”. Other than enhancing the efficiency with which messages could be sent and received, increasing the volume of messages transmitted also garnered more profits for the telegraph operators (Drinkwater, 2005).

As with any new form of communication, new words were also coined and old words were adapted to express new meaning relating to the telegraph. For example, a “telegram” was a new term coined in 1852 to define a message that was sent by the telegraph (“Telegram”, n.d.). The verb “wire” was defined as “to send (a message) electronically, esp. a telegram” by the Oxford English Dictionary (n.d.). The earliest appearance of this verb was in the mid-1850s, after the invention of the electromagnetic telegraph (“Wire”, n.d.).

3.2 Inventions inspired by the telegraph

Apart from changing the way language is used, the telegraph and Morse code has also spurred the invention of the use of radio transmissions. The way that the wireless telegraph was used to transmit information had inspired some scientists to research more about the use of radio waves. According to Gugliotta (2007), in the early twentieth century, a Canadian autodidact, Reginald Fessenden, found a way to transmit information over radio waves instead of pulses using amplitude modulation (AM), which in turn gave rise to the frequency modulation (FM), discovered by an American radio engineer Edwin Armstrong. Some radio amateurs, who were intrigued by the use of radio transmission, turned to broadcasting messages using audio instead of Morse code and this led to audio broadcasting as a form of commercial product (Arceneaux, 2013; Gugliotta, 2007).

3.3 Effects on society

Morse code has also facilitated communication for military operations. For example, with the use of radio communication in Morse code, the Japanese navy managed to defeat the Russian fleet in the Battle of Tsushima in 1905 (Gugliotta, 2007). In another example, the US military uses Morse code in the twentieth century for their communications. Moreover, since the sending of telegrams involved a third party to help transmit the information, by using Morse code, people would be able to send coded information to other parties so that the messages

sent would be innocuous except to the intended recipients, especially messages that carry immense political and military value.

The use of the telegraph (and thus Morse code) has also helped improve communication between people. As it was faster to transmit and receive messages, people did not need to wait for weeks and months for their letters to be delivered to their recipient and wait further for the recipient to respond to their message. Thus, for businessmen seeking to network with their counterparts in other countries, telegrams could speed up business negotiations. In addition, families who were living apart could maintain contact with each other despite their geographical differences. With increased opportunities for communication, this medium became a large part of the social and economic function of a country (Weightman, 2009: xvii) and expanded the purpose of telecommunication.

4. Conclusion

The invention of the telegraph, and consequentially, the Morse code, has greatly advanced telecommunications in the world. Although newer technology has surpassed the telegraph, signals created from Morse code are still recognised and used today. This medium of communication seems to have revolutionised communication systems around the world, motivating the need for greater connectivity between people in the world even until today.

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