MORSE OF COURSE: Paper Reveals Time Dimension Wasted

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Abstract

All modern communication protocols have been discovered to send nonsensical and invalid morse code sequences in addition to their intended data. This paper demonstrates that making use of these 'wasted bits' can effectively infinitely increase the transmission rate of binary data. An implementation of timing-based dual-stream morse encoding is provided in a modern programming language.

CCS Concepts • **Transport Protocols**; • **Encoding**; • **Implementation → Bash**;

Keywords SIGBOVIK, morse code, performance, bash, protocols

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1 Introduction

Communication between electronic entities can be concieved of as a system of tubes [1] or pipes [2]. Into these pipes, electronic satchels[3] are inserted by the electronic system. The contents of these "packets" are composed according to a specified algorithmic protocol[4], in a way such that, when recieved by the recipient [5] can be reassembled into the desired message[6].

Many protocols for sending data via the computer have been developed, such as TCP, FTP, HTTP, et cetera. Upon inspection of these protocols, it was discovered that, in addition to their intentional messages, they were also transmitting nonsensical and invalid morse code suquences.

Let "." represent a short transmission, and "-" represent a long transmission. An example transmission measured from a typical TCP communication is as follows:

....

.

This invalid morse code sequence is unparseable[7].

This paper will demonstrate that this wasted information can be meaningfully replaced with useful data, effectively doubling the effective transmission rate.

1.1 Mathematical Prolegomena

Let $\mathfrak{D}$ represent the number of bits per transmission in the ordinary dimension (1 vs 0).

Let $\mathfrak{M}$ represent the number of usable bits per transmission in the temporal dimension.

Let A_α represent the average packet transmission length.

Let c represent the fastest average length of time between each transmission packet sent via the transmission tube (that is, the limit provided by the combination of hardware construction and the speed of light in an average vacuum)[8].

Then, the rate of data transfer r of any protocol may be expressed as follows:

$$r = \frac{\mathfrak{M}}{A_\alpha} + \frac{\mathfrak{D}}{A_\alpha}$$

For typical transmissions protocols, these following values hold: $\mathfrak{M} = 0$, $\mathfrak{D} = 1$, and $A_\alpha = c$ With these values known, the equation may then be evaluated.

[1] c.f. Stevens et alia.

[2] As superbly illustrated in the inimitable interactive video title "Super Mario Bros. 2".

[3] So-called "packets".

[4] From the Byzantine πρωτόκολλον, meaning "First Page", referring to the average amount of the design specification Engineers are expected to read before beginning implementation.

[5] recipiō, recipere, recēpī, receptum.

[6] As expressed by the immortal MARSHALL McCLUHAN in the groundbreaking epistle "The Media is the Message",

> In a culture like ours, long accustomed to splitting and dividing all things as a means of control, it is sometimes a bit of a shock to be reminded that, in opera- tional and practical fact, the medium is the message.

[7] "sssssssssssssssssss" is one possible interpretation

[8] Though, as demonstrated by Dyson et al, brand and model can significantly affect results.

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$$r = \frac{\mathfrak{M}}{A_\alpha} + \frac{\mathfrak{D}}{A_\alpha}$$
$$r = \frac{0}{c} + \frac{1}{c}$$
$$r = \frac{1}{c}$$

With the transmission rate of standard protocols established, we now examine the transmission rate of a temporal encoding. In order for temporal encoding, i.e., morse code, to be successfully transmitted, pauses will be required to be inserted into the transmission stream. This means that, for such encodings,

$$\mathfrak{M} > 1 \models A_\alpha < c$$

Let us assume that each transmission unit contains one bit of information, and that, additionally, that transmission unit may be either short (a delay of 0) or long (a delay of some abritrary value λ). This would make the information value $\mathfrak{M}$, as defined above, 2. Given this, we may again evaluate the transmission rate equation with the following values in order to calculate the transmission rate of our new temporal encoding: $\mathfrak{M} = 2$, $\mathfrak{D} = 1$, and $A_\alpha = c + \lambda$

$$r = \frac{\mathfrak{M}}{A_\alpha} + \frac{\mathfrak{D}}{A_\alpha}$$
$$r = \frac{1}{c+\lambda} + \frac{1}{c+\lambda}$$
$$r = \frac{2}{c+\lambda}$$

With a small value λ, we may drastically increase throughput, up to an effective doubling.

As time is continuous, any given time interval may be divided into infinitely many fine gradations, e.g.,

$$long, short, veryshort, veryveryshort \cdots very_\infty short.$$

Thus, $\mathfrak{M}$ may be arbitrarily large. The industrial applications of this surprising fact should not be lost upon the reader.

1.2 Implementation

The author has provided an model implementation of timing-based encoding in the modern programming bash. The full source code of this program may be found at

https://github.com/ksanichols/morse-of-course.

Using utitilies such as tcpclient or bash's built in TCP support, this technique could easily be used across a network.

1.3 Conclusion

This simple technique and its concomitant arbitrarily large improvement in the performance of all data transmission protocols is certain to forever revolutionize economic activity on earth, with profound implications in all aspects of modern life.

That such an profound optimization has been hidden, unbeknownst to man, for so many years instills a profound humility in the author, and inspires great hope that many such great leaps in human intellectual accomplishment still remain to be made.