A FEW NOTES ON MARAIN

by Iain M Banks

Marain is a synthetic language created towards the very beginning of the Culture with the specific intention of providing a means of expression which would be a culturally inclusive and as encompassingly comprehensive in its technical and representational possibilities as practically achievable - a language, in short, that would appeal to poets, pedants, engineers and programmers alike. The intention was to start with a linguistic blank sheet, yet with the accumulated knowledge of the hundreds of thousands known to those people and machines charged with the language's devising. It had, therefore, no specific links to any of the main languages spoken by the people who came together to make up the Culture as a civilisation, save those statistically likely.

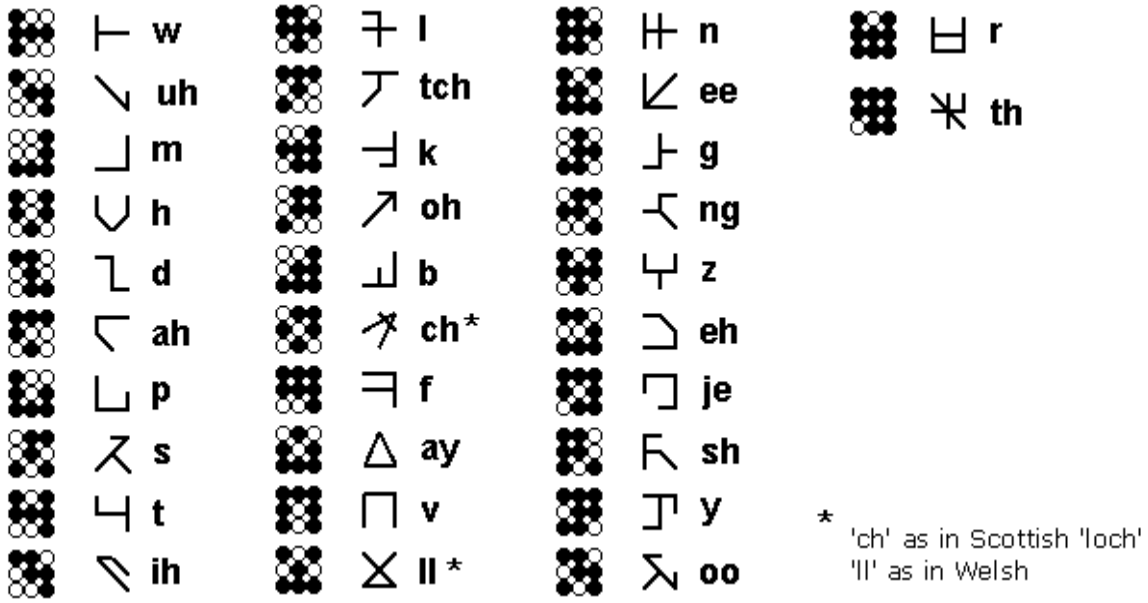
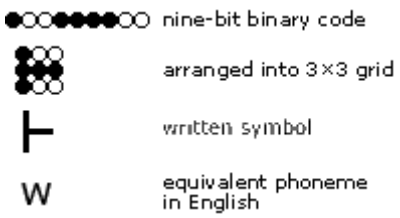


Figure 1: 

Figure 2: 

Figure 3: 

Marain's principle symbols are based around a three-by-three grid, which is itself a diagrammatic representation of a nine-digit binary number, or byte, it being intended from the start that the language could be rendered into binary code as informationally economically as possible. The number 1 would be shown as in figure 1, while the letter equivalent to our phoneme "w", the first letter in the Marain alphabet shown in the list accompanying this text, would be the binary number 100111100, or 121 in base 10. This means that there are a total of 512 possible values, or symbols, from 0 to 511 (shown in figures 2 and 3 respectively).



The choice of the principle symbols listed here was dictated by the requirements that each symbol can be rotated and mirrored, without being mistaken for any other of the primary alphabetical symbols. The rotated versions of these are generally used to represent phonemes close to the original, unrotated sound, though others have little in common with the sound of the original, being used to stand for different vocalisations. The original idea behind this flexibility was to allow Marain accurately, and relatively simply, to reproduce any language capable of being spoken by a humanoid.

All other values of the grid are associated with symbols for numbers (in base 8), punctuation, and the more common units of measurement, physical and mathematical symbols and constants, chemical elements and so on.

While the 3×3 grid is the basis of the language's symbols and is the standard of default mode of Marain, it is only that, and there are various commonly used complications which increase the length of the byte. For the normal data transmission purposes, for example, the principle part of the byte is followed by an additional buffer bit.

Where further complexity is required the binary byte used (ignoring the buffer bit) can be expanded beyond nine; a ten-bit byte provides a further 512 symbols, and a twelve bit byte - the most commonly used value after the standard notary byte due to the relative ease of representing it as a grid and therefore a written symbol - offers a total of 4,096 symbols. The next square grid after the 3×3 gird, of course, is 4×4, offering 65,536 symbols. Larger bytes - and therefore grids - are generally used to transmit pictograms, culturally alien symbols and simple diagrams. There is no restriction in principle the length of the byte and therefore the dimensions of the grid implied; by specifying a grid of, say, a million bits to a side, a fairly detailed black and white photograph could in theory be transmitted within a Marain data stream without recourse to specialised symbols or codes, though in practise, due to the economies offered by data compression, this happens only rarely.

It should be noted that while Marain was designed to be as quintessentially clear, concise and unambiguous a language as it is within the wit of human and machine to devise - and is, like the best games, essentially very simple but offering almost infinite possibilities - experience has proved that the judicious dropping of buffer bits and the use of varying byte-lengths, usually without the relevant notification of those mathematical or other pattern, though just as often not, plus the equally unflagged, abrupt and sporadic switching to entirely alien binary codes (Morse code being a perfect example) thankfully enables the Culture Minds fully to indulge their seemingly congenital predilection of unnecessary obfuscation, wilful contrariness and the fluent generation of utter and profound confusion in others.

It should be notes that the "written" symbols in the list are only those which have become the most used. Obviously in many of the symbols there are lots of other equally plausible ways to join up the dots. So humans can use Marain to confuse their fellows, too.

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