Letters

In response to "mathematical formulæ"

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I welcome Massimo Guiggiani and Lapo Mori's helpful style guide "Suggestions on how *not* to mishandle mathematical formulæ" [1]. However, there are a few points which the authors might have got wrong.

At §5.2, the authors said "walk *at most* 2 *km north*" is the "correct form". But in fact the correct form, as specified by §6.1.1 of the excellent NIST advice [4], is that "Unit symbols are printed in roman (upright) type regardless of the type used in the surrounding text", giving "walk *at most* 2 km *north*". This can perhaps be achieved by

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walk \emph{at most $2~\mathrm{km}$ north}.
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The NIST guide also advised (§10.5.3) "digits should be separated into groups of three, counting from the decimal marker towards the left and right, by the use of a thin, fixed space." Example: "43 279.168 29". This should apply even in the English language.

At §5.4, the authors said that "round brackets can be used in tables and graphs when units appear next to a symbol of the corresponding physical quantity instead of the numeric value to which they refer". However, this is inferior to the NIST suggestion (§7.1): "to eliminate the possibility of misunderstanding, an axis of a graph or the heading of a column of a table can be labeled '$t/°C$' instead of 't (°C)' or 'Temperature (°C).' Similarly, an axis or column heading can be labeled '$E/(V/m)$' instead of 'E (V/m)' or 'Electric field strength (V/m).'" There is a mnemonic rationale to this: Let's say we see a number "36.8" under the heading "τ/s". This stands for the (incorrect) formula "$\tau/s = 36.8$", which can be converted into the correct expression $\tau = 36.8$ s.

While I still have the gentle readers' attention, may I mention a few more items. First, the international standard IEC 80000-13 [2] introduces binary prefixes. So now we should speak of "two mebioctets" (2 Mio) rather than "two megabytes". ("Mebi-" is exactly 2^{20}, not 10^6 "mega-"; the byte has not always been defined as 8 bits.)

Second, we should use the correct SI unit "gigagram" (1 Gg) rather than the "megaton" ("1 Mt") when measuring things like greenhouse gas emission (the horror of "1 $MtCO_2$"!) or explosive energy in TNT equivalents.

Third, I would like to start a trend of using ISO 4217 [3] currency codes with SI prefixes; for example, "38 kEUR". This is convenient and avoids creating a new currency symbol (and a new typographical problem) whenever a new currency is introduced (a recent example being the euro).

References

[1] Massimo Guiggiani and Lapo Mori. Suggestions on how *not* to mishandle mathematical formulæ. *TUGboat*, 29(2):255–263, 2008.

[2] International Electrotechnical Commission. *IEC 80000-13:2008 Quantities and units — Part 13: Information science and technology.* Genève, Switzerland, 2008.

[3] International Organization for Standardization. *ISO 4217:2008 Codes for the representation of currencies and funds.* Genève, Switzerland, 2008.

[4] Ambler Thompson and Barry N. Taylor. *NIST Special Publication 811: Guide for the Use of the International System of Units (SI).* National Institute of Standards and Technology, Gaithersburg, Maryland, USA, 2008.

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