



Radically Conventional

If you're a long-time member of the Dozenal Society of America, some changes you see in this issue of the *Duodecimal Bulletin* may take you aback. First, you'll have noticed that the Dwiggins ten digit (Ꝛ) has been replaced with the Pitman ten (ꝝ). Second, something seems to have happened to all the usual Humphrey points (semicolons acting as "duodecimal" points, in contrast to periods acting as "decimal" points). In their stead there seem to be a lot of "z" and "d" subscripts. Gentle Readers, I beg your indulgence, as I address both of these developments in turn.

PITMAN VERSUS DWIGGINS

As long anticipated, the glyphs for the Pitman characters have achieved official recognition by a mainstream, international standards body: the Unicode Consortium. As of June 15th_z, 1188_z (June 17th_d, 2015_d), version 8.0.0 of the Unicode standard¹ has been released, including the following two code-points of dozenal interest:²

U+218Ax	ꝝ	TURNED DIGIT TWO
		• digit for 10 _d in some duodecimal systems
U+218Bx	Ꝟ	TURNED DIGIT THREE
		• digit for 11 _d in some duodecimal systems

Kudos to our Israeli friend "Treisaran" for alerting the DozensOnline Forum about this.³ Also, someone has already updated the "Duodecimal" article on Wikipedia.⁴ Of course, it will be some time before operating system fonts catch up with the new standard, so that we can actually see these glyphs rendering on our web browsers. But the significance of this milestone for the DSA, as well as for its sister organization, the Dozenal Society of Great Britain, cannot be overstated. The time has come for this publication to begin using the Pitman characters as its default convention.

This is feasible, thanks to the efforts of our current president, Don Goodman (Member 398_z), who some time ago developed a package for typesetting these characters in L^AT_EX⁵. Not to mention the brilliant work of our previous editor, and past president, Mike De Vlieger (Member 378_z), using Adobe Illustrator to render these, and numerous other alternate characters.

The official position of the DSA has long been, and continues to be, not to endorse particular characters, but rather uphold the freedom of individual dozenalists to experiment with characters they prefer. This publication has always been a friendly

¹<http://www.unicode.org/versions/Unicode8.0.0/>

²<http://www.unicode.org/charts/PDF/Unicode-8.0/U80-2150.pdf>

³<http://z13.invisionfree.com/DozensOnline/index.php?showtopic=1324>

⁴<https://en.wikipedia.org/wiki/Duodecimal>

⁵<http://www.ctan.org/tex-archive/fonts/dozenal>

place for members to field their symbology suggestions, and that will not change.⁶

Nevertheless, the DSA has also long recognized the importance of settling upon some *default* which we can all count upon as a convention, and which the publications of the Society endeavor to adhere to in the interest of fostering understanding. As the new editor of the *Duodecimal Bulletin*, I take it as my responsibility to see to it that this publication continues to fulfill that obligation.

The Dwiggins characters were certainly serviceable as a default convention. For my own part, I admit I've grown a bit fond of them, and regret their eclipse. The obvious provenance of the Dwiggins ten from the ancient Roman numeral ten strikes a definite "Least-Change" chord.⁷ For some time to come, typing **X** and **E** for ten and eleven will continue to be a necessary expedient in disadvantaged media, such as email.

However, we must concede that the Pitman ten predates the Dwiggins, having been introduced by Sir Isaac Pitman in 1860_d (1080_z). It has a more number-like appearance, without the Dwiggins ten's unfortunate similarity to both the algebraic unknown (**x**) and the multiplication sign (**×**). The Unicode Consortium evidently observed signs of usage of the Pitman numerals on both sides of the Atlantic, whereas the Dwiggins appears to have been an exclusively American peculiarity. Further, it turns out that the **7** character has been independently suggested more than once, in more than one country, in more than English: For instance, Don Vicente Pujals de la Bastida came up with exactly the same shape for a dozenal ten in 1844_d (1098_z), in his work *Filosofía de la Numeración, ó Descubrimiento de un Nuevo Mundo Científico*.⁸ This underscores the *international* appeal of the Pitman transdecimals.

HUMPHREY-FREE ZONE

As to the second matter, I have written an article in this issue entitled "Base Annotation Schemes," exploring the history of how the members of the DSA (and DSGB) have undertaken to annotate (or, as the case may be, *not* annotate) the bases of numbers. To summarize, I make the case that we really need an annotation method that is

- *equitable*—one that treats all bases alike, neither favoring any particular base, nor disadvantaging any base;
- *explicit*—one that presents some kind of *positive* statement of a number's base, rather than relying on some implicit assumption;
- *comprehensive*—one that can tackle *any* base, and scale to *all* bases;
- *modular*—one that implements *only* the function of base-annotation, while neither participating in, nor interfering with, the function of any other textual feature, whether in the syntax of numbers or of prose; by implication, one that can be *omitted*, when appropriate, without disturbing any other function of text; and, as much as possible, one that is "lightweight" rather than "cumbersome";

⁶Personally, I have taken a fancy of late to using a mirror-reversed six (**ⓧ**) as a stylized "d" evocative of "de^kk". It is quite number-like, has an obvious seven-segment representation, is easy to hand-write with a single stroke, and, as you can see, is readily typeset in L^AT_EX.

⁷Ralph H. Beard, "The Opposed Principals", *Bulletin* Vol. 1, No. 3, WN 2, Oct 1161_z (1945_d).

⁸http://www.dozenal.org/drupal/sites/default/files/pujals_de_la_bastida_filosofia_de_la_numeracion_0.pdf

- *familiar*—one that requires as little deviation as possible from what everyday folks are used to (“Principle of Least Change”).

I argue that the base annotation techniques that have been most popular among dozenalists, in particular the Humphrey point, fail to meet these criteria.

On the other hand, the conventions of mainstream mathematics include a technique for base annotation that satisfies nearly all of these goals. In one important respect, however, it falls short on the first goal. It’s a technique which most of you likely learned in secondary school. As near as I can tell, it has been around even longer than the DSA and the DSGB. If the founders of these societies learned this technique as students, they evidently ignored it.

Interestingly, certain dozenalists, in particular another past president, our esteemed emeritus member Gene Zirkel (Member 67_z), have at one time or another touched upon ideas which could have been grafted into this mainstream technique to let it satisfy even my first bullet point. All that it would take is a simple synthesis—which you see demonstrated here.

Why am I doing this? I am a relative newcomer to dozenalism. By trade, I am a software engineer, and therefore very detail-oriented and mathematically inclined, and something of an amateur linguist. The architectures I deal in are entirely in the abstract (versus the architectures Mike deals with, which are often in concrete). As a kid growing up in the Chicago area, I fondly remember enjoying the “Little Twelvetoes” cartoon from Schoolhouse Rock,⁹ with its “dek-el-do”. But I had no idea that “dozenal societies” existed, until I happened to stumble across the DozensOnline Forum in 11E7_z (2011_d). I am surprised now at how much the subject has captivated me since then.

So, to me, something like the Humphrey point is not an old, familiar, well-worn tradition, hewn out of the living rock by titans of old and lovingly polished over the ages, but more of a rank, avant-garde, hot-off-the-presses-and-rough-around-the-edges neologism, the work of ardent, but evidently naive, amateurs. The fact that they happened to have been located some six dozen years down-time doesn’t change that.

The nuns and priests at my Catholic high school, who drilled into me the fundamentals of English prose style and the principles of mathematics, were quite academically rigorous, and insisted on high standards. The things that dozenalists have done with punctuation and numerals ... well, they just aren’t *done*. Worse, they shouldn’t *need* to be done. Worst of all, in failing to be *equitable*, these techniques single-out one base in particular to place at greatest *disadvantage* ... and that is base *twelve*.

Now I find myself asked to edit this publication, contemplating whether I should support something some of you may cherish as a sacred tribal practice, or an emblem of dozenalist solidarity, but which I see as just a weight holding dozenal back, and I find that ... I can’t. I just *can’t*. I *have* to try to persuade you that there is a better



“It is often easier to ask for forgiveness than to ask for permission.”

GRACE HOPPER

⁹ https://www.youtube.com/watch?v=_uJsoZheTR4&index=12&list=PLnx6r9S_SJ7I_Msib-Nj-zgROaicmyqA8

way, and prove it by demonstration. Money-where-my-mouth-is. If this means I'll be voted off the island, so be it.

You may feel that I'm being a radical iconoclast. But from my perspective, I feel I'm standing up for a more conservative, conventional, indeed "Least-Change" approach to annotating bases. In doing so, I'm trying to stand up for base twelve, pull it out of a mathematical ghetto that we have inadvertently created, assert its legitimacy to go mainstream, and help make sure that it fits comfortably there.

What you will find in these pages is that, for the most part, every number, whether dozenal or decimal or some other base, has its base explicitly annotated somehow. All without violating generally-accepted rules of English prose style and mathematical symbology, that readers of any serious publication have a right to expect. As editor, I consider it my obligation to satisfy that expectation.

You may see a number annotated individually. Or it might be part of a parenthesized expression that has been annotated as an aggregate. Or it might be part of a table or row or column, or some other structure, which carries a blanket annotation. If there is *no* annotation at all, it's either because it's a single-digit number, and therefore unambiguous; or there's a deliberate reason to not identify any base at all, in which case the *lack* of annotation should stand out like a sore thumb. There is actually a specific case in Jay Schiffman's paper in this issue, where he needs to be indefinite about the base in order to make a particular point.

If it isn't already, I think it ought to be the policy of the DSA *not* to promote any particular scheme for disambiguating the base of a number. This publication should be a friendly place for anyone wishing to propose a solution of their own, and it will be. Of course, I think it's fair to subject any such proposals to analysis against the criteria I've outlined above. Meanwhile, we still need some *default* convention that we can all rely upon, for the sake of communicating clearly with each other. Hence I'm offering the one you see here, which I've laid out in detail in my article.

Along with a lot of carefully-annotated dozenal numerals, another thing you may notice on these pages is a lot of carefully-annotated *decimal* numerals, often side-by-side. Almost as if I meant for this publication to act as some kind of "Berlitz Guide" supplying translations between the language of a dozenal world and the language of this predominantly decimal one. In point of fact, I *do* think that this would be an important role for this publication to fulfill.

If, as I do, you hope for the DSA to attract many new members, as we head into a new biquennium,⁷ it will be important for such folks to get used to translating back and forth between their "native" decimal and this "second language" of dozenal. Having a "Rosetta stone" of sorts to practice with could come in handy. Perhaps some of you could benefit from that sort of immersive exercise yourself. I know I do. ■■■

Make a Dozenal Difference! *The DSA no longer charges dues; membership is free. Our officers volunteer their time as a labor of love. If you're a lover of base twelve too, please consider making a modest donation to help us produce The Duodecimal Bulletin and The Dozenal Newscast, maintain the website, as well as advocate and educate the world about the usefulness of the dozen. Thanks!*

⁷See page 31_z.