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NUBS

NEMETH UNIFORM BRAILLE SYSTEM

Its implications to the

LITERARY

transcriber and reader

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NEMETH UNIFORM BRAILLE SYSTEM

STATUS UPDATE

Much progress has been made in finalizing the definition of the Nemeth Uniform Braille System (NUBS) and in reporting this accomplishment to the Braille Authority of North America. BANA has been actively defining a path for this evaluation process, by forming a task force to make a preliminary assessment of NUBS and to determine whether it was ready to turn over its Research Committee for a formal evaluation.

One of the current focuses of BANA, is to determine what changes, if any, should be made to the present literary code, or whether a complete new system should become the official braille code. This process has resulted in the 2007 revisions for English Braille American Edition (EBAE), the official code for literary braille transcription in the United States. It has also led to the consideration of two "uniform" braille codes, one of which might be selected to completely replace the current system.

These two "uniform codes" — UEB (Unified English Braille) and NUBS (Nemeth Uniform Braille System) — are available for study as future replacements to the current system. Both of these codes purport to encompass both the literary and scientific aspects of the braille code. They both offer a solid, structured format for literary braille.

UEB, which uses upper numbers throughout, is designed to handle relatively simple mathematical text, but might require the retention of the 1972 Nemeth Code for more complex mathematical material. NUBS, which uses dropped numbers, can handle very high-level mathematical expressions including complex fractions, nested radicals, partial differential equations, etc. Thus, the adoption of NUBS would replace the current literary code, the 1972 Nemeth Code, and the Computer Braille Code, although existing documents in these codes would not become obsolete.

Given the promise of a uniform braille system, I am sure that BANA would appreciate comments from any of you in regard to either of these two new systems. This is especially true of braille readers, as BANA needs to assess the readability of each system. In both systems, the bigger burden in adjusting to a new code falls on transcribers and software developers who have to transcribe the print text accurately in full accordance with the new system. So comments or suggestions from any of you would be very helpful.

Thank you, Joyce Hull

A NEW BRAILLE SYSTEM

To those of you have been transcribing or reading braille in its fairly stable form for 10, 20 or even 30 years, the mention of a “new braille code” is frightening! We have become so familiar with the current code, and the rules that govern this process, that we can almost read and transcribe in our sleep! So why even consider changes? The answer lies in the following:

1) The current system involves two rather different languages in order to handle (a) literary material and (b) technical or scientific texts. This puts a burden on transcribers, teachers, students, and braille readers who have to learn two or more languages which involve different formats, different punctuation and different numeric representations.

2) When literary transcribers encounter a short technical phrase, such as a simple fraction, a simple equation, or units such as ft^3 , they have no rules for such text. So the transcriber is forced to use whatever “literary” tools that can be applied. The result is that when a student tries to read this material, it is different from what that same text would be using the current Nemeth code! And, be assured, students are learning Nemeth in the early grades!

3) The ability to create braille by simply typing in the text has long been a necessity, particularly for teachers and educators of the blind. Many of these people are not certified in braille transcription, but are in a position where they must create braille worksheets and other classroom materials for their blind students, many of whom are “mainstreamed.” These educators must do this on an “I need it now” basis, and they need tools that will permit them to create quality braille. This procedure would be greatly enhanced by a language that is **not ambiguous**. They do not want “Deliver it to Company C.” to appear in braille as “Deliver it to Company Can.”

4) A related issue is the increase in the demand for print-to-braille translation using scanners or publishers’ files. Those of you who have read the rough copy that comes out of many of the current tools for such translation, can attest to the fact that some of these braille documents are almost unreadable. This is due to two elements:

- a) Some of the tools used for such translation cannot handle the problems in the current braille code where the proper conversion to braille is **context dependent**, and
- b) The transcriber does not take the time necessary to “clean it up” – both in braille context and in format.

There has been a concerted effort, through the Braille Authority of North America (BANA) to develop a unified braille code. The primary work in this area involved an attempt to combine, not only the literary and scientific codes, but to find a common ground with other English-speaking nations, primarily Canada, England, Australia, and New Zealand. This effort resulted in the proposed Unified English Braille Code, or UEBC, which, for various reasons, has met with strong opposition from some individuals and from some organizations.

Concurrent with the pursuit of UEBC, Dr. Abraham Nemeth was working on a Uniform Braille System, UBS, which seemed to have promise and which is the basis for the new code being discussed here today. (Dr. Nemeth prefers the word “system” to the word “code”.)

One area of concern in the acceptance of this new code is that the name NEMETH is associated with it. For those who are familiar with the Nemeth code, this is a tremendous plus. But for many transcribers – and readers – the word “Nemeth” might evoke thoughts of: “I don’t want to learn that hard stuff.” or “That must be for mathematicians.”

It should be emphasized that, although the proposed new code will cover all the way from learning your ABC’s through some very complex mathematical notation, the structure of the new system would be such that a transcriber would have to study only those chapters that relate to literary braille and become “recertified” in the new code as a literary brailist. The person who wants to go on into scientific transcription, can do the entire course and become certified both as a literary and as a mathematics transcriber.

So, although the new code is loaded with some fascinating new rules for the math transcriber, this need not affect the literary transcriber or reader. The beauty of the new system is that there is only one language – so that a literary transcriber who comes across a math expression can refer to the manual for that expression, or seek help from someone who is familiar with math transcription. There is no “shifting gears” to move from literary to scientific – it is all one braille system.

The purpose of this workshop is to try to allay possible fears associated with a new code, and to demonstrate that, for the literary transcriber and reader, this new system requires a minimum of adjustments. We will examine some of these adjustments.

MODES - Narrative and Notational

The 6-dot braille cell allows for only 63 different characters! This means that some of the characters must serve in multiple roles. In the current code we use the same symbol for parentheses, for “gg”, and for the word “were”; the symbol for open quotes and the word “his”, the symbol for “by” and the word “was”; the symbol for “ea” and the comma. In order to avoid confusion as to the meaning of these symbols, rules have been established that limit their use. For example, “ea” cannot be used to begin or end a word. So it cannot be mistaken for a comma. Other similar constraints allow these symbols to be used without confusion as to their meaning.

In order to extend this “sharing” of braille cell patterns to a whole extended field of scientific notation, some additional rules and constraints have been defined as a part of this new system.

This code uses two basic states or **modes** of operation - **narrative** for standard literary material, and **notational** for technical parts of a text. The “default” is **narrative**.

When you use a numeric indicator, you are automatically switched to the **notational** mode. The “switch” to the notational mode will also occur when you use the letter sign – as shown in the examples that follow this section.

You ask: “How do I know when the notational section ends?” The answer lies in “notational terminators” called **delimiters**. These are usually spaces, or certain punctuation marks such as a dash. When a delimiter is encountered, you are returned to the narrative mode to continue with the transcription.

While you are in the notational mode, you must remember to use the forms of punctuation and other rules that apply to the transcription in the notational mode. For most of you who prefer to limit your reading or transcribing to basic literary texts, this use of the notational mode will be quite limited – mostly dealing with numbers in your text.

The use of this two-mode system allows us to use one cell construct to mean different things depending on which mode we are in. If you are transcribing or reading in the notational mode, you will be “thrown” back to the narrative mode whenever you encounter a *delimiter* - most dashes and spaces. Therefore, you will find that many times when you begin a scientific phrase, you must first

declare that you are moving to the notational mode, using the ⠠ (56) prefix, or the ⠠ (3456) number sign.

There are some contexts in which the current form of the braille representation remains almost unchanged even though the braille is switching from narrative to notational and vice versa several times. Whenever you encounter a single letter, such as in "**from point *a* to point *b*.**" the dots 56, that precede the single letters, as used in the current code, will actually move you to the notational mode. Single letters, such as *x*, *y*, or *n*, are regarded as notational. The dots 56, preceding such letters, accomplish the mode change. Now the only thing you need to remember is that, while you are in this mode, notational commas and periods must be used. Therefore the period that follows the letter *b*, in the above phrase, must be a notational period. Note that a space following that period would take us back to the narrative mode. This same process applies when we encounter "He was born in 1945, during the war." The number sign that precedes the date takes us into the notational mode, so the comma must be a notational comma. The space following that comma takes us back to the narrative mode.

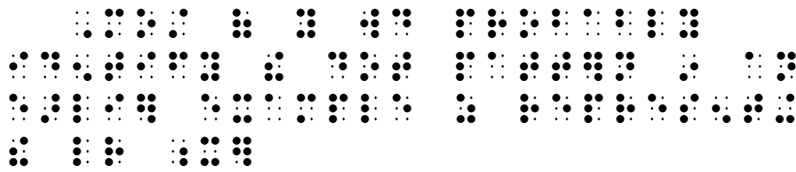
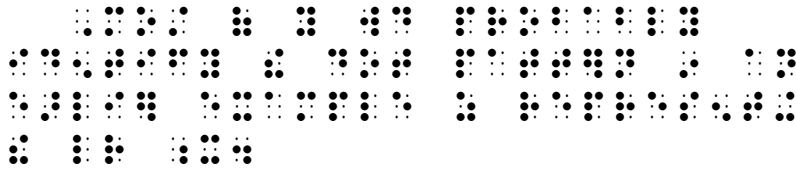
Remember, we are using dropped numbers, so the current literary comma or period could be interpreted as a **1** or a **4** if not properly used. For example, using a narrative comma after 1945 would create the number 19451.

Here is some key information on punctuation:

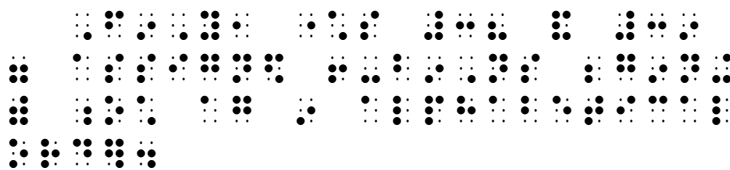
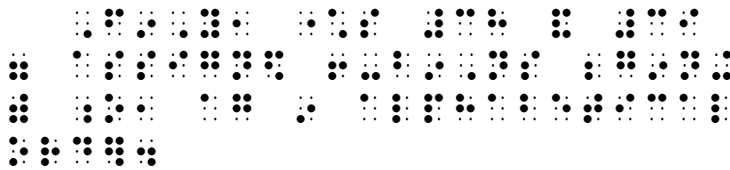
	Narrative	Notational
	-----	-----
Period	⠠ (256)	⠠ (12456)
Comma	⠠ (2)	⠠ (16)
Parentheses	⠠⠠ and ⠠⠠	⠠⠠ and ⠠

The next few pages show some examples of the "mode" issue. The print text examples are shown in bold print for clarity. The first brailled excerpt is done in the current code. The second shows how the same excerpt would be done in the new code. The brailled arrows on the right point to the line where the differences occur.

Most of you would probably identify the dot pattern in an earlier example as representing the letter *x*.



Finally, characters 38 and 39 were assigned to combinations beginning with *o*, again in alphabetical order.



The primary changes for the literary braille transcriber or reader user are:

- 1) Using numbers that occupy the lower part of the cell—"dropped numbers."
- 2) Some changes in punctuation—but many of the most common remain unchanged.
- 3) Minor changes in the technique for defining capitalization and for implementing italics.
- 4) Understanding the two modes—narrative, for normal literary material, and notational, for technical material—and learning how to invoke and interpret the indicators for switching from one mode to another.

The following pages are brailled examples showing the comparison between the current braille code and this new system.

Examples are shown for selected subjects in the following order:

“Dropped” numbers

Period and comma

Capitalized phrase

Italics – word

Italics -- phrase

Quotation marks

Parentheses

Short dash

Long dash

Accent signs

"Cuddle" words - (**and, for, of, the, with, a**)

"Hook" words - (**to, into, by**)

CAPITALIZED PHRASE

For your homework, you will read
THE CALL OF THE WILD by Jack London.

For your homework, you will read
THE CALL OF THE WILD by Jack London.

⠠⠠⠠⠠⠠⠠⠠⠠

For your homework, you will read
THE CALL OF THE WILD by Jack London.

⠠⠠⠠⠠⠠⠠⠠⠠

ITALICS: Word

A traditional *braille cell* is a rectangular area.

A traditional *braille cell* is a rectangular area.

⠠⠠⠠⠠⠠⠠⠠⠠

A traditional *braille cell* is a rectangular area.

⠠⠠⠠⠠⠠⠠⠠⠠

ITALICS: Phrase

We read several books such as
A Trip to South America and *Coming Home*.

We read several books such as
A Trip to South America and *Coming Home*.

⠠⠠⠠⠠⠠⠠⠠⠠

We read several books such as
A Trip to South America and *Coming Home*.

⠠⠠⠠⠠⠠⠠⠠⠠

"CUDDLE" WORDS - (and, for, of, the, with, a)

"HOOK" WORDS - (to, into, by)

What I have coined as the "cuddle" words – for obvious reasons – will do less "cuddling" in NUBS.

The "hook" words – currently can attach to any word that follows, provided no punctuation intervenes. They are now limited also.

One of the benefits of this adjustment is to partially reinstate the implications of a natural pause, such as in the sentence "This is the college I went to to get my Master's."

The chart shows whether these words can attach to other such words that follow them. For example, **for** can attach to **the** but not to **with**.

	Can "cuddle" or "hook" to
and	for, of, the with, a
for	the, a
of	the, a
the	none
with	the, a
to	the, a
into	the, a
by	the, a
a	none

Unless punctuation intervenes, hook words **to, into, by** can attach to any word that follows, except for **other hook words** plus **and, for, of, with** .

SO WHAT DO WE GAIN?

Now that you have seen most of the adjustments for literary transcription, the question arises: “What would we **gain** in adopting this new System?”

1) We will be supporting a braille system that will end the need for elementary school children to learn two braille systems, with different numeric representation, different punctuation, and different formats.

2) We will have a system of defining braille that will offer a great improvement in the ease of converting print to braille by typing, scanning or using publishers' files. This feature is the result of the unambiguous braille notation this new system provides. For a given series of braille cells, there will be only one print interpretation and vice versa.

3) Literary transcribers or readers who, upon encountering a scientific expression that they have questions about, can look up the correct braille notation in the manual, or they can confer with a transcriber or reader who has gone further into the technical aspects of the new System. That person will now be able to provide the correct technique to transcribe or interpret that expression. None of the rules you use in literary transcription have to be discarded as you move into scientific text. There is a **smooth, graceful transition** from the literary to the scientific.

4) There is no need for the literary transcriber, in studying this new System, to go beyond sections that apply to literary works. For those who want to deal with math and scientific transcription, here is a beautiful, new, comprehensive system for that work also. But, we will all be working from the "same sheet of music."

So, please keep an open mind as to the merits of such a new code and you may find that, over the long haul, this will be a blessing to creators and readers of braille and to students just learning to read braille.

If you have any questions, or need more information, please contact me at:

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The following documents can be downloaded from
www.braille2000.com

My thanks to Bob Stepp for providing this access.

Braille volumes are in .BRF format and are single-sided. Except for the workshop handouts, all of the braille documents are written in NUBS.

From the www.braille2000.com website, click on

Nemeth Uniform Braille System (NUBS)

to access the following 8 items.

Nemeth Uniform Braille System (NUBS)

CTEVH 2009 Conference, NUBS Workshop Handouts

NUBS--Literary Implications (print version, PDF)

NUBS--Scientific Implications (print version, PDF)

NUBS--Literary Implications (print version, RTF)

NUBS--Scientific Implications (print version, RTF)

NUBS--Literary and Scientific Implications (braille version of both handouts)

Condensed document

NUBS (condensed write-up) (print version, PDF)

NUBS (condensed write-up) (print version, RTF)

NUBS (condensed write-up in 4 braille volumes)
(braille version, ZIP)

Then click on here to access the following 5 items.

Full document

NUBS Chapters 0-3 (literary) (print version, PDF)

NUBS Chapters 4-5 (scientific) (print version, PDF)

NUBS Chapters 0-3 (literary) (print version, RTF)

NUBS Chapters 4-5 (scientific) (print version, RTF)

NUBS Chapters 0-5 (in 8 braille volumes) (braille version, ZIP)