BANA

BRAILLE CODES UPDATE

2007

Developed Under the Sponsorship of the

BRAILLE AUTHORITY OF NORTH AMERICA

Effective Date: January 1, 2008

BANA MEMBERS

American Council of the Blind
American Foundation for the Blind
American Printing House for the Blind
Associated Services for the Blind and Visually Impaired
Association for Education and Rehabilitation of the Blind and Visually Impaired
Braille Institute of America
California Transcribers and Educators of the Visually Handicapped
Canadian Association of Educational Resource Centres for Alternate Format Materials
The Clovernook Center for the Blind and Visually Impaired
CNIB (Canadian National Institute for the Blind)
National Braille Association
National Braille Press
National Federation of the Blind
National Library Service for the Blind and Physically Handicapped, Library of Congress

Royal New Zealand Foundation of the Blind. Associate Member

This document is available for download in various formats from www.brailleauthority.org.

TABLE OF CONTENTS

INTRODUCTION

These are exciting times in the field of braille code development. As the vast array of print characters, styles, and formats continue to evolve so must the braille codes intended to represent the constantly-shifting representation of print. It is a real challenge to keep the medium of braille precise enough to accurately reflect complex print document formats, while remaining flexible enough to maintain readability for the braille user.

In a continuing effort to be as responsive as possible to braille readers and braille transcribers, the Braille Authority of North America (BANA) has created this new publication, BANA Braille Codes Update. This edition of the update is a compilation of braille code changes that have been adopted by BANA during the past several years, and all have been approved for early release in order to allow braille users and producers to begin utilizing these code changes, and incorporating them into the production process. The effective date of all code changes outlined in this release is January 1, 2008.

Updates to three braille codes are included in this document. They are:

English Braille, American Edition 1994, Revised 2002
Rules 1, 2, 6, 7, 8, and 16

Braille Formats: Principles of Print to Braille Transcription, 1997
Rules 1, 2, 5, 6, 8, and 13

and

Nemeth Code for Mathematics and Science Notation, 1972 Revision
Rules 1, 2, 5, 9, 12, 16, 17, 18, 24, and 25

Many of these changes are small but have been adopted in an effort to make braille codes more consistent and usable for both braille readers and braille transcribers. As computer translation of braille continues to play an increasingly important role in braille production, these code

changes also represent a desire to make this process more accurate and straightforward.

This Update is not intended to be an end in itself but is a preliminary release of specific changes prior to the complete revision and publication of new editions of each of the applicable codes. It is intended that subsequent BANA Codes Updates will be published as necessary, and will contain code changes that have been adopted since the previous Update, or since the previous issuance of the relevant codebook.

The format of material contained in this Update may vary slightly from one section to the next. These variations in format arise primarily from the fact that this document was assembled from numerous source documents. BANA Publication Guidelines have also evolved over time, and the layout of each codebook has its own unique style and design. BANA is using this Update as a test for a few new design features, and welcomes input from users. Many transcribers have requested that a larger print font be used in our codebooks. The document is set in 14 point Verdana and Times New Roman throughout. The size of simulated braille has been steadily decreased in print instructional materials on braille from the traditional 24 point to smaller sizes. We have chosen to use 16 point Simbraille which we hope is satisfactory. The print document contains numerous page breaks so that it is possible to insert pages from this update into original codebooks.

This Update is being distributed in several electronic formats through the BANA web site (www.brailleauthority.org). Users can easily create print and/or braille versions from the provided files. Hard copy print or braille versions will be available upon request to the BANA Chair.

Thanks to the tireless efforts of the three BANA technical committees: literary, formats, and mathematics, who have all worked hard to prepare the material for this Update. Special thanks to the BANA Publications Committee for their assistance, and to BANA Administrative Assistant Warren Figueiredo, who coordinated the gathering of all of the material together and prepared it for publication.

We sincerely hope that these code changes are met with enthusiasm by braille readers and transcribers and we would welcome any comments or feedback on this publication.

Judy Dixon
BANA Chair

ENGLISH BRAILLE AMERICAN EDITION 1994 REVISED 2002

2007 Update

Developed by the Literary Braille Technical Committee of the Braille Authority of North America

Martha Pamperin, Chairperson
Darleen Bogart, Board Liaison
Nancy Barker
Anna Lee Braunstein
Julia Moyer
Joseph Sullivan
John Wilkinson
Tom Keith, Consultant

Effective Date: January 1, 2008

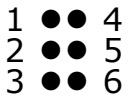
Table of Changes

Rule	Page	Change
Definition of Braille	1	Additional symbols section added
I	I-1	The bar; oblique stroke; fraction line sign and the line sign are now dealt with in Rule VII and Rule IX respectively
I 4a-b	I-4	Revised section
II	II-1	Transcriber's note symbol is added after "termination sign"
II 11	II-7	Entire section replaced
II 12b(1)	II-10	Examples updated
II 12b(5)	II-11	Example updated to show crosshatch
VI 27a(1)	VI-2	Example using ampersand deleted from this section and moved to Rule VIII 31g
VI 27e	VI-3	Rule change
VII 28a	VII-1	The slash is added to the list of symbols that do not terminate the effect of a number sign
VII 28c(1)	VII-2	Adds a description of the print representation of fractions
VII 28e	VII-4	Revised and expanded section demonstrates the use of the slash
VIII 31b	VIII-2	Symbols updated
VIII 31d	VIII-4	Wording and examples have been revised
VIII 31f	VIII-5	Example is revised to show the print happy face symbol as one with no braille counterpart
VIII 31g	VIII-5	New section adds additional symbols
XVI 47h	XVI-6	Brought into conformity with Rule I 4

ENGLISH BRAILLE
AMERICAN EDITION 1994
Revised 2002
2007 Update

DEFINITION OF BRAILLE

Braille is a system of touch reading for the blind which employs embossed dots evenly arranged in quadrangular letter spaces or cells. In each cell, it is possible to place six dots, three high and two wide. By selecting one or several dots in characteristic position or combination, 63 different characters can be formed. To aid describing these characters by their dot or dots, the six dots of the cell are numbered 1, 2, 3, downward on the left, and 4, 5, 6, downward on the right, thus:



The 63 possible characters have a systematic arrangement and are universally grouped in a table of seven lines, as follows:

1st Line 

2nd Line 

3rd Line 

4th Line 

5th Line 

6th Line 

7th Line 

Line 1 is formed by dots 1, 2, 4, 5.

Line 2 adds dot 3 to each of the characters of Line 1.

DEFINITION OF BRAILLE

Line 3 adds dots 3-6 to each of the characters of Line 1.

Line 4 adds dot 6 to each of the characters of Line 1.

Line 5 repeats the characters of Line 1 in the lower portion of the cell, using dots 2, 3, 5, 6.

Line 6 is formed of dots 3, 4, 5, 6.

Line 7 is formed of dots 4, 5, 6.

Braille, as officially approved, comprises two systems. Uncontracted Braille is in full spelling and consists of the letters of the alphabet, punctuation, numbers, and a number of composition signs which are special to braille. Contracted Braille consists of Uncontracted Braille plus 189 contractions and short-form words, and should be known as "English Braille." Uncontracted braille should be designated as "Uncontracted English Braille." These systems have previously been designated as Grade 1 Braille (uncontracted braille) and Grade 2 Braille (contracted braille). Below is a complete chart of the characters and their meanings:

(**Note:** For other systems (grades) of braille, See App. C.)

ALPHABET AND NUMBERS

1	2	3	4	5	6	7	8	9	0
a	b	c	d	e	f	g	h	i	j
									

k	l	m	n	o	p	q	r	s	t
									

u	v	w	x	y	z

PUNCTUATION SIGNS

Sign	Meaning	
⠂	,	comma
⠆	;	semicolon
⠒	:	colon
⠲	.	period
⠖	!	exclamation point
⠶	( )	opening and closing parentheses
⠐⠶	[	opening bracket
⠶⠂	]	closing bracket
⠦	?	question mark
⠦	“ "	opening double quotation mark
⠴	” "	closing double quotation mark
⠐⠦	` '	opening single quotation mark
⠴⠂	’ '	closing single quotation mark
⠔⠔	*	asterisk
⠄	’ '	apostrophe
⠄⠄⠄	...	ellipsis
⠤	-	hyphen
⠠⠤	—	dash
⠠⠤⠠⠤	_____	double dash

COMPOSITION SIGNS

Sign	Meaning
⠂	non-Latin letter indicator
⠼	number sign
⠈	print symbol indicator
⠈	accent sign
⠨	decimal point
⠨	italic sign
⠨⠨	double italic sign
⠰	letter sign
⠠	capital sign
⠠⠠	double capital sign
⠠⠄	transcriber’s note symbol (beginning and ending)
⠠⠄	termination sign

ADDITIONAL SYMBOLS

Braille	Print	Meaning
⠙⠛	°	degree(s)
⠋⠞	′	single prime meaning foot or feet
⠇	£	pound(s) (sterling)
⠍⠔	′	single prime meaning minute(s) of arc
⠏⠜	¶	paragraph
⠎⠑⠉	″	double prime meaning second(s) of arc

ADDITIONAL SYMBOLS

⠯	§	section
⠫	$	dollar(s)
⠳	/	fraction line
⠸	|	end of foot
⠸⠸	‖	Caesura sign
⠈⠁	@	at
⠈⠉	¢	cent(s)
⠈⠑	€	euro(s)
⠈⠽	¥	yen
⠈⠯	&	ampersand
⠈⠩⠯	%	percent
⠈⠒	″	double prime meaning inch(es)
⠰	˘	short or unstressed syllable sign
⠰⠉	©	copyright
⠰⠗	®	registered trademark
⠰⠞	™	trademark
⠤	¯	long or stressed syllable sign
⠼	#	crosshatch (commonly means “number” or “pounds”)
⠌	/	slash

ONE-CELL WHOLE-WORD AND PART-WORD SIGNS

Sign	Meaning	Sign	Meaning	Sign	Meaning
⠃	but	⠧	very	⠪	ow
⠉	can	⠺	will	⠂	ea
⠙	do	⠭	it	⠆	be * bb
⠑	every	⠽	you	⠒	con cc
⠋	from	⠵	as	⠔	dis dd
⠛	go	⠯	and *	⠢	en enough
⠓	have	⠿	for *	⠖	to ff
⠚	just	⠷	of *	⠶	were gg
⠅	knowledge	⠮	the *	⠦	his
⠇	like	⠾	with *	⠔	in *
⠍	more	⠡	ch child	⠔⠒	into
⠝	not	⠬	gh	⠴	was by
⠏	people	⠩	sh shall	⠌	st still
⠟	quite	⠹	th this	⠬	ing
⠗	rather	⠱	wh which	⠼	ble
⠎	so	⠫	ed	⠜	ar
⠞	that	⠻	er	⠒	com
⠥	us	⠳	ou out		

* These are used as both one-cell whole-word and part-word signs.

TWO-CELL CONTRACTIONS

	Initial-letter Contractions Preceded by dot(s)			Final-letter Contractions Preceded by dot(s)		
Sign	**5** ⠐	**4-5** ⠘	**4-5-6** ⠸	**4-6** ⠨	**5-6** ⠰	**6** ⠠
⠀	—	—	cannot	—	—	—
⠁	day	—	—	ound	—	—
⠂	ever	—	—	ance	ence	—
⠃	father	—	—	—	—	—
⠄	—	—	—	—	ong	—
⠅	here	—	had	—	—	—
⠆	know	—	—	—	—	—
⠇	lord	—	—	—	ful	—
⠈	mother	—	many	—	—	—
⠉	name	—	—	sion	tion	ation
⠊	one	—	—	—	—	—
⠋	part	—	—	—	—	—
⠌	question	—	—	—	—	—
⠍	right	—	—	—	—	—
⠎	some	—	spirit	less	ness	—
⠏	time	—	—	ount	ment	—
⠐	under	upon	—	—	—	—
⠑	work	word	world	—	—	—
⠒	young	—	—	—	ity	ally

TWO-CELL CONTRACTIONS

	Initial-letter Contractions Preceded by dot(s)			Final-letter Contractions Preceded by dot(s)		
Sign	**5** ⠐	**4-5** ⠘	**4-5-6** ⠸	**4-6** ⠨	**5-6** ⠰	**6** ⠠
⠫	there	these	their	—	—	—
⠡	character	—	—	—	—	—
⠹	through	those	—	—	—	—
⠱	where	whose	—	—	—	—
⠻	ought	—	—	—	—	—

SHORT-FORM WORDS

⠁⠃	about	⠁⠇	also
⠁⠃⠾	above	⠁⠇⠮	although
⠁⠉	according	⠁⠇⠵	altogether
⠁⠉⠒	across	⠁⠇⠺	always
⠁⠋	after	⠃⠉	because
⠁⠋⠝	afternoon	⠃⠋	before
⠁⠋⠗	afterward	⠃⠓	behind
⠁⠛	again	⠃⠇	below
⠁⠛⠊	against	⠃⠝	beneath
⠁⠍⠎	almost	⠃⠎	beside
⠁⠇⠗	already	⠃⠞	between

SHORT-FORM WORDS

 beyond

 blind

 braille

 children

 conceive

 conceiving

 could

 deceive

 deceiving

 declare

 declaring

 either

 first

 friend

 good

 great

 herself

 him

 himself

 immediate

 its

 itself

 letter

 little

 much

 must

 myself

 necessary

 neither

 o’clock

 oneself

 ourselves

 paid

 perceive

 perceiving

 perhaps

 quick

 receive

 receiving

 rejoice

SHORT-FORM WORDS

 rejoicing

 said

 should

 such

 themselves

 thyself

 today, to-day

 together

 tomorrow, to-morrow

 tonight, to-night

 would

 your

 yourself

 yourselves

Rules of Braille

Rule I

PUNCTUATION SIGNS

[page I-1] The slash and line symbols have been moved to the rules in which they are described. Rule VII contains the description of the slash. Rule IX contains the description of the line sign.

Sign	Meaning	
⠂	,	comma
⠆	;	semicolon
⠒	:	colon
⠲	.	period
⠖	!	exclamation point
⠶	( )	opening and closing parentheses
⠦	[	opening bracket
⠴	]	closing bracket
⠢	“ " ?	opening double quotation mark; question mark
⠔	” "	closing double quotation mark
⠠⠦	‘ '	opening single quotation mark
⠴⠄	’ '	closing single quotation mark
⠐⠔	*	asterisk
⠄	’ '	apostrophe
⠄⠄⠄	...	ellipsis
⠤	-	hyphen
⠠⠤	—	dash
⠠⠤⠠⠤	____	double dash
⠐⠂	” "	ditto sign

[page I-4] Section 4 no longer includes the requirement to insert an apostrophe in plural abbreviations, numbers or letters where none exists in print. Instead, the section now includes the instruction, "Follow print copy for use of the apostrophe."

Follow print when transcribing the exclamation "hm." Use a letter sign before the *h* to prevent confusion with the short form word for "him." Accordingly, Rule XVI, Section 47.h is modified to reflect this change.

4. (10-07) Apostrophe: ⠄

Follow print copy for use of the apostrophe. **Ex:**

'tis ⠄⠞⠊⠎

don't ⠙⠕⠝⠄⠞

Jones' ⠚⠕⠝⠑⠎⠄

1930's ⠼⠁⠊⠚⠄⠎

1930s ⠼⠁⠊⠚⠎

p's and q's ⠏⠄⠎ ⠯ ⠟⠄⠎

ps and qs ⠏⠎ ⠯ ⠟⠎

Ps and Qs ⠠⠏⠎ ⠯ ⠠⠟⠎

h'm ⠓⠄⠍

hm ⠓⠍

hmm ⠓⠍⠍

a. An apostrophe does not terminate the effect of a double capital sign. **Ex:**

DON’T SING “SWEET ROSY O’GRADY!”
⠠⠠⠙⠕⠠⠝⠄⠞ ⠠⠠⠎⠊⠝⠛ ⠠⠠⠦⠠⠠⠎⠺⠑⠑⠞ ⠠⠠⠗⠕⠎⠽ ⠠⠠⠕⠄⠠⠠⠛⠗⠁⠙⠽⠖⠴
⠠⠠⠞⠓⠑ ⠠⠠⠏⠗⠑⠎⠊⠙⠑⠝⠞⠄⠎ ⠠⠠⠊⠝⠊⠞⠊⠁⠞⠊⠧⠑ ⠠⠠⠕⠅⠄⠙

THE GI’s arm was injured.
⠠⠠⠮ ⠠⠠⠛⠊⠄⠎ ⠁⠗⠍ ⠺⠁⠎ ⠊⠝⠚⠥⠗⠫

OK'd ⠠⠠⠕⠅⠄⠙

ABC’s ⠠⠠⠁⠃⠉⠄⠎

ABCs ⠠⠠⠁⠃⠉⠎

Rule II

SPECIAL BRAILLE COMPOSITION SIGNS

[page II-1] In the list of symbols at the beginning of Rule II, on the line describing the termination sign, “transcriber’s note symbol” is added.

Sign	Meaning
⠠	non-Latin letter indicator
⠼	number sign
⠈	accent sign; print symbol indicator
⠨	italic sign; (also decimal point)
⠨⠨	double italic sign
⠰	letter sign
⠠	capital sign
⠠⠠	double capital sign
⠠⠄	termination sign; transcriber’s note symbol (beginning and ending)

[page II-7] Section 11.a now contains a description of the termination sign used to end the effect of an emphasis indicator before the end of a word. It does not require insertion of hyphens where none exist in print. It requires uncontracted braille for partially emphasized words.

11. (10-07) Termination sign, transcriber's note symbol: ⠸⠸

a. Termination sign: When it is necessary to end the effect of the double capital sign, the italic sign, or any other emphasis sign before the end of a word, insert the termination sign to show return to regular text. Braille such partially emphasized words without contractions. When it is not possible to determine whether the termination sign should be placed before or after a hyphen or other mark of punctuation occurring in the middle of a word, place the termination sign before the punctuation mark. List this sign on the special symbols page. (See App. A. 9 and *Braille Formats: Principles of Print to Braille Transcription,* most recent edition, for information about special symbols pages.) **Ex:**

extrad*i*te ⠠⠭⠗⠁⠙⠨⠊⠞⠑

extra*dite* ⠠⠭⠗⠁⠙⠨⠊⠞⠑

unSELFish ⠸⠸⠥⠝⠠⠎⠑⠇⠠⠋⠊⠎⠓

they're ⠸⠽⠫⠗⠑

BASEball ⠸⠸⠠⠃⠁⠎⠑⠃⠁⠇⠇

fun*da*mental ⠸⠸⠋⠥⠝⠙⠁⠍⠑⠝⠞⠁⠇

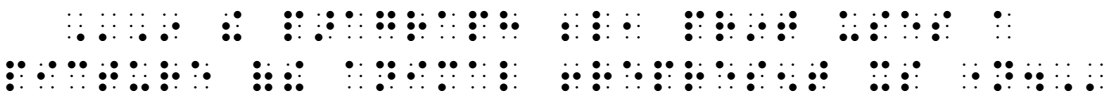
white-collar ⠸⠘⠺⠓⠊⠞⠑⠤⠉⠕⠇⠇⠁⠗

DO-ing ⠸⠸⠠⠙⠠⠕⠤⠬

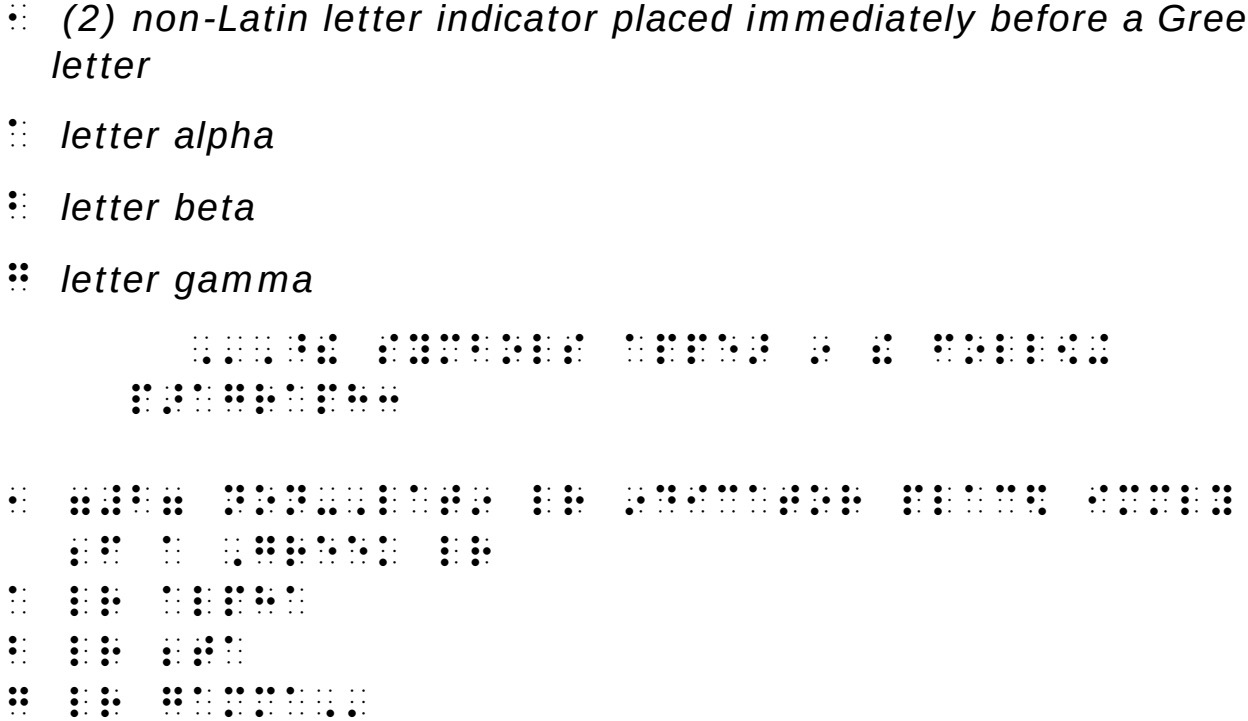
[page II-8] The preceding description of the use of the termination sign is now Subsection 11.a. A new Subsection 11.b describes the transcriber's note symbol. Note that whole word lower signs are allowed in contact with this symbol. Since whole word lower signs are permitted in contact with the capital and double capital signs, there seemed no need to forbid them in contact with the transcriber's note symbol.

b. Transcriber's note symbol (opening and closing): Braille the transcriber's note symbol immediately before the first symbol and immediately following the last symbol of all text inserted by the transcriber regardless of the length of the text or the number of paragraphs it contains. (For information on the placement and format of transcriber's notes, see *Braille Formats: Principles of Print to Braille Transcription*, Rule 1.7.) **Ex:**

In the paragraph below, print uses a picture of the animal to represent its name.



These symbols appear in the following paragraph:



(2) non-Latin letter indicator placed immediately before a Greek letter

letter alpha

letter beta

letter gamma

12. Letter sign: …

[page II-10] Examples in Section 12.b(1) are updated to use the new slash symbol.

b. The letter sign is not required before a single capitalized or uncapitalized letter when:

(1) The letter is an initial or an abbreviation followed by a period or a slash. **Ex:**

Dr. J. F. Pilgrim, M.D.

c/o 

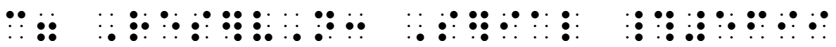
s/he 

[page II-11] Example in Section 12.b(5) is updated to use the new crosshatch symbol.

(5) The letter sign is not required when the letter in, or referring to, an outline or listing is followed by, or enclosed within, punctuation marks. **Ex:**

...

c) Reservation: Serial #5699



Rule VI

ABBREVIATIONS

[page VI-2] From Section 27.a(1), the example A&P is deleted. Because of the addition of an ampersand symbol in Rule VIII, Section 31.g, that example no longer illustrates the rule.

(1) In such combinations as in "ATandT" and "NYUers" only the uncapitalized letters of the abbreviations should be contracted. **Ex:**

AFofL ⠠⠠⠠⠠⠠⠠⠠

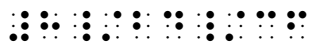
ATandT ⠠⠠⠠⠠⠠⠠⠠

NYUers ⠠⠠⠠⠠⠠⠠⠠

[page VI-3] Section 27.e, the rule for dates, is changed so that when print uses a slash to separate the parts of a numeric date, braille uses a slash as well.

If part of the date is written as a Roman numeral, braille now follows print.

e. (10-07) When a date is written as a series of numbers separated by slashes or hyphens, follow print for the order of the numbers and the use of either slashes or hyphens as separators. For all other separators, including spaces, substitute braille hyphens for the separators used in print.

8/24/36 

25/6/94 

2006/05/06 

08-24-36 

08.24.36 

08 24 36

24.VIII.36

Rule VII

NUMBERS AND ROMAN NUMERALS

28. Cardinal Numbers: Numbers are expressed by the letters "a" through "j" preceded by the number sign. ⠼

[page VII-1] In Section 28.a, the slash is added to the list of symbols that do not terminate the effect of the number sign.

a. (10-07) The effect of the number sign is not terminated by commas, colons, hyphens, fraction lines, decimals, or slashes. However, after a space or a dash, the number sign must be repeated.

[page VII-2] Section 28.c(1) adds a description of the print representation of fractions. Follow print with respect to use of the slash or fraction line.

c. Simple Fractions:

(1) (10-07) The sign ⠌ represents the fraction line.

(a) When the numerator and denominator of a fraction are printed on different levels of type, whether directly above one another or offset diagonally, use the fraction line to represent the horizontal or slanted line that separates them.

¼ ⠼⠁⠌⠼⠙ $\frac{10}{100}$ ⠼⠁⠚⠌⠼⠁⠚⠚

(b) When the numerator and denominator are printed on the same level of type with a slash between them, use a slash in braille. (However, see the note in Section 28.e(2) about the option to substitute a fraction line.)

10/100 ⠼⠁⠚⠸⠌⠼⠁⠚⠚

[page VII-4] Revised and expanded Section 28.e changes the braille representation of the print slash to a two-cell symbol and contains the direction to follow print for use and spacing. These changes give the reader exact information about the print and maintain the number of cells between numbers at two. The transcriber no longer needs to know whether two numbers are related as parts of a fraction or have some other relationship.

e. Slash: (10-07) The slash has many uses and is given various names including *oblique stroke*, *diagonal*, *solidus*, and *virgule*.

(1) Use ⠸⠌ to represent a slash wherever it appears in print. Follow print spacing. List this symbol on the special symbols page.

and/or ⠯⠸⠌⠕⠗⠯

Author / Editor ⠠⠁⠥⠹⠕⠗ ⠸⠌ ⠠⠑⠙⠊⠞⠕⠗

1st/2nd ⠼⠁⠌⠼⠃⠝⠙

pages v/vi ⠏⠁⠛⠑⠎ ⠧⠸⠌⠧⠊

print/braille ⠏⠗⠔⠞⠸⠌⠃⠗⠇⠇⠑

(2) If a slash appears between two numbers, do not repeat the number sign after the slash.

Model 09/52 ⠠⠍⠕⠙⠑⠇ ⠼⠚⠊⠸⠌⠑⠃

20/20 hindsight ⠼⠃⠚⠸⠌⠼⠃⠚ ⠓⠔⠙⠎⠊⠛⠓⠞

open 24/7 ⠕⠏⠑⠝ ⠼⠃⠙⠸⠌⠼⠛

416/480-7530 ⠼⠙⠁⠋⠸⠌⠼⠙⠓⠚⠤⠼⠛⠑⠉⠚

£5/3/2 (sterling coinage) ⠈⠇⠼⠑⠸⠌⠼⠉⠸⠌⠼⠃

1/2 cup ⠼⠁⠸⠌⠼⠃ ⠉⠥⠏

Note: For certain publications, an agency, publisher, or transcribing group may elect to substitute the fraction line for the slash in obvious fractions, describing this substitution in a transcriber's note.

(3) If a number is followed by a slash and then by a letter, use a letter sign after the slash.

System 15/a ⠠⠎⠽⠎⠞⠑⠍ ⠼⠁⠑⠌⠁

$2.29/gal. ⠠⠼⠃⠲⠃⠊⠌⠛⠁⠇⠲

pages g43/g44 ⠏⠁⠛⠑⠎ ⠛⠼⠙⠼⠌⠛⠼⠙⠼

(4) No letter sign is required when a single letter touches a slash.

c/o ⠉⠌⠕

I/O ⠠⠊⠌⠠⠕

s/he ⠎⠌⠓⠑

(5) Use the letter sign before any group of letters touching a slash that could be misread as a short-form word.

cd/album ⠉⠙⠌⠁⠇⠃⠥⠍

> [page VII-4] The following rules concerning contractions in contact with a slash depend on a determination of when a symbol is standing alone or is at the beginning of a word. Contractions like those for "can" and "this" are used only when the symbols that represent them stand alone. When they are in contact with a slash, they are not standing alone and so cannot be used. Similarly the contractions for "be," "con," "dis," and "com" are not at the beginning of a word when they touch a slash so they cannot be used next to the slash. The following rules show how this explanation applies.

(6) The following contractions may not be used next to a slash:

(a) The alphabetic one-cell whole-word contractions *b* through *z*.

and/but ⠯⠌⠃

to/from the airport ⠞⠕⠌⠋⠗⠕⠍ ⠮ ⠁⠊⠗⠏⠕⠗⠞

from/to the airport ⠋⠗⠕⠍⠌⠞⠕ ⠮ ⠁⠊⠗⠏⠕⠗⠞

(b) The whole-word contractions for “child,” “shall,” “this,” “which,” “out” and “still.”

in/out box ⠊⠝⠸⠌⠳⠞ ⠃⠕⠭

this/that ⠹⠊⠎⠸⠌⠹⠁⠞

child/infant ⠡⠊⠇⠙⠸⠌⠔⠋⠁⠝⠞

(c) The part-word contractions “be,” “con,” “com,” and “dis.”

remain/come ⠗⠑⠍⠁⠔⠸⠌⠉⠕⠍⠑

agreement/contract ⠁⠛⠗⠑⠑⠰⠞⠸⠌⠉⠕⠝⠞⠗⠁⠉⠞

contract/agreement ⠒⠞⠗⠁⠉⠞⠸⠌⠁⠛⠗⠑⠑⠰⠞

harmony/discord ⠓⠜⠍⠕⠝⠽⠸⠌⠙⠊⠎⠉⠕⠗⠙

observe/behold ⠕⠃⠎⠻⠧⠑⠸⠌⠃⠑⠓⠕⠇⠙

(d) The whole-word contractions for “be,” “enough,” “were,” “his,” “in,” and “was.”

his/hers ⠓⠊⠎⠸⠌⠓⠻⠎

out/in ⠳⠞⠸⠌⠊⠝

(7) If a slash occurs between capitalized abbreviations or other sequences of capitalized letters, repeat the capital sign following the slash. Likewise, repeat the italic sign when a slash occurs between two words in italic type.

USOM/APO

⠠⠠⠥⠎⠕⠍⠸⠌⠠⠠⠁⠏⠕

MAY/JUNE

⠠⠠⠍⠁⠽⠸⠌⠠⠠⠚⠥⠝⠑

dog/cat

⠨⠙⠕⠛⠸⠌⠨⠉⠁⠞

Put out the dog/cat/rabbit.

⠨⠨⠠⠏⠥⠞ ⠳ ⠮ ⠙⠕⠛⠸⠌⠉⠁⠞⠸⠌⠸⠗⠁⠆⠊⠞⠲

(8) When a slash occurs between words and the words must be divided between lines, the hyphen should be inserted following the slash.

typist/- ⠞⠽⠏⠊⠌⠸⠌⠤
stenographer ⠌⠢⠕⠛⠗⠁⠏⠓⠻

Rule VIII

COINAGE, WEIGHTS, MEASURES AND OTHER SPECIAL SYMBOLS

31. When in print a number or letter is preceded or followed by a symbol or abbreviation for coinage, weight, measure, or other special sign, in braille follow the print order, spelling, capitalization, punctuation, and spacing for the abbreviation or the corresponding braille symbol.

> [page VIII-2] In Section 31.b, the two symbols represented by crosshatch ("number" and "pounds") are removed from the list. A new crosshatch symbol is provided in Section 31.g. Added terms, "prime" and "double prime," clarify the meanings of the braille equivalent symbols for inch(es), foot or feet, minutes (of arc), and seconds (of arc). The term "of arc" takes the place of "angular."

b. (10-07) Print Symbols:

Print	Braille	Meaning
¢	⠈⠉	cent(s)
°	⠙⠛	degree(s)
$	⠲	dollar(s)
€	⠈⠑	euro(s)
′	⠋⠞	single prime meaning foot or feet
″	⠈⠔	double prime meaning inch(es)
′	⠍⠔	single prime meaning minute(s) of arc
¶	⠏⠜	paragraph
%	⠈⠒⠏	percent
£	⠇	pound(s) (sterling)
″	⠎⠑⠉	double prime meaning second(s) of arc
§	⠎⠄	section
¥	⠈⠽	yen

[page VIII-3] The examples showing crosshatch are moved to §31.g.

(1) (10-07) Use the list of braille equivalents as shown in §31.b above.

$36

£25 7d

16¢

21¥

€5

42 €

It's 5%

§3

(a) Insert a letter sign when the braille equivalent for degrees, feet, minutes of arc, seconds of arc, section, or paragraph immediately follows a number.

18°

5′ or

10″ or

(b) Insert a letter sign when a braille equivalent that begins with a letter follows another letter.

The temperature of the water rose 5 C°.

It measures x′ in diameter.

(c) Insert a letter sign before any letter which follows a braille equivalent.

98°F ⠰⠊⠓⠨⠋

§d ⠰⠎⠙

¶k ⠰⠏⠅

(2) [*No changes made to this section.*]

c. Non-Latin Letters: [*No changes made to this section.*]

[page VIII-4] The wording of Section 31.d is revised and the examples showing ampersand, at sign, and crosshatch have been deleted because these print symbols now have braille equivalents. The content and intent of this section is unchanged except for the removal of those symbols.

d. (10-07) In texts where it is required to show that a special symbol is used for degrees, feet, minutes of arc, paragraph, seconds of arc, or section, place dot 4 ⠈ before the braille symbol or letter combination. Such usage should be employed only when it is necessary to show the exact symbol, such as in typewriting instruction manuals or other technical works. List this symbol on the special symbols page. (See App. A. 9.) **Ex:**

3° ⠼⠉⠈⠴

[page VIII-5] In Section 31.f, there is no change except that the print happy face symbol has replaced the copyright symbol as an example of a symbol with no braille counterpart. Copyright now has its own braille symbol, described in §31.g.

f. (10-07) The appropriate word should be substituted for any special symbol for which no provision has been made in this code such as "happy face" for "☺."

[page VIII-5] Six symbols are added to the literary code in the new Section 31.g. These symbols are available to be used to represent the equivalent print symbols wherever they occur.

g. (10-07) Additional Symbols:

Print	Braille	Meaning
&	⠯	ampersand
@	⠈⠁	at
©	⠘⠉	copyright
®	⠘⠗	registered trademark
™	⠘⠞	trademark
#	⠼	crosshatch (commonly means "number" or "pounds")

(1) Use the list of braille equivalents shown in §31.g above. Follow print spacing and punctuation. List these symbols on the special symbols page. (See App. A. 9.)

(2) A letter sign is not required before a single letter when the letter appears immediately before or immediately after one of these symbols.

(3) These symbols terminate the effect of the double capital sign. **Ex:**

AT&T

The B & O Railroad

The B&O Railroad

&c (etc)

5 peaches @ 10% off

©2006

© 1994, 1995

TI-83™

Microsoft®

Apt. #A

#7

Ed carried the 100# bag.

Rule XVI

SHORT-FORM WORDS

[page XVI-6] In Section 47.h, the instruction to insert an apostrophe between the *h* and *m* of the print exclamation *hm!* is removed.

h. (10-07) In the transcription of the print expressions "h'm" and "hm!" follow print for use or nonuse of the apostrophe. Use the letter sign to prevent confusion between the expression "hm" and the short-form word, "him." **Ex:**

H'm ⠠⠓⠄⠍

Hm ⠠⠓⠍

h'm ⠓⠄⠍

hm ⠓⠍

BRAILLE FORMATS
PRINCIPLES OF PRINT TO BRAILLE TRANSCRIPTION 1997

2007 Update

Developed by the Braille Formats Technical Committee of the Braille Authority of North America

Lynnette Taylor, Chairperson
Kim Charlson, Board Liaison
Deborah Brown
Susan Christensen
Debbie Gillespie
Ann Kelt
Sandy Smith
Dena Garrett, Consultant
Dorothy Worthington, Consultant

Effective Date: January 1, 2008

Disclaimer

In the upcoming new versions of *English Braille, American Edition, 1994: Revised 2002 (EBAE)* and *Braille Formats: Principles of Print to Braille Transcription, 1997 (BF)* there will be a structural change in responsibilities. *EBAE* will have the responsibility for the formation and use of signs, symbols, and indicators. *BF* will have the responsibility of assigning print-to-braille formats.

In the interim, any changes in either publication will follow these areas of responsibility. *EBAE* updates and changes will supersede any *BF* rules governing symbol formation, unless specifically identified otherwise in this update. *BF* updates and changes will supersede *EBAE* rules for print-to-braille formatting.

There are a number of discrepancies not resolved at this time. The entire list of Additional Symbols provided in this update's *English Braille, American Edition* has not gone through committee review. Only those symbols discussed in the rules, and identified in *Braille Formats 2007 Update*, are currently affected.

Note: This portion of the update indicates the format indent-runover in the form of 3-1, i.e., indent in cell 3 with runovers in 1. This allows braille producers to quickly identify the format at a glance.

Table of Changes

Rule	Page	Change
1: 7b(3)	12	Changed to match *EBAE* rule for transcriber's note symbol followed by whole word lower sign
1: 13e	18-19	Text and examples deleted; text and examples added for print page numbers
1: 13f	19	Section added for alphabetic page numbers
2: 2c	28	Clarification of list format for title pages
2: 2c(5)	31	ISBN information modified
5: 2d-e	59	Change/add new symbols to match *EBAE* rules, @, #, ©, ™, ®
5: 4a(1)	61	Change rule regarding slash and number sign to match *EBAE* rule
5: 6b	64	Change rule regarding slash and number sign to match *EBAE* rule
6: 3h	72	Section added for boxes within boxes
8: 8e	95	Section added for skeleton table format
8: 9	95	Clarification that table format should be selected based on best representation of information
8: 9f	100	Section added for linear table format
8: 9g	100	Section added for listed table format
13: 8g	140	Section added for pictures used as exercises

Examples: Table of Changes

The following changes are made to reflect the *EBAE* rules in this update.

Example	Line	Change
1	11	Change *Copyright* to ⠠⠉⠕⠏⠽⠐⠗ ⠘⠉
1	14	Add *Transcription of* before ISBN
2 (1 of 2)	12	Change *Copyright* to ⠠⠉⠕⠏⠽⠐⠗ ⠘⠉
2 (1 of 2)	16	Add *Transcription of* before ISBN
10	13-24	Change dash in page numbers to the new format, e.g., ⠼⠁⠼⠃ and ⠁⠼⠁⠼⠃
13 (1 of 2)	8-9	Change *Copyright* to ⠠⠉⠕⠏⠽⠐⠗ ⠘⠉
16 (2 of 2)	3	Change *In* after open TN symbol to ⠠⠄⠠⠔
19 (1 of 3)	8	Change *In* after open TN symbol to ⠠⠄⠠⠔
53 (1 of 2)	6	Change *Copyright* to ⠠⠉⠕⠏⠽⠐⠗ ⠘⠉
54 (2 of 2)	9	Change *copyright* to ⠉⠕⠏⠽⠐⠗ ⠘⠉
66 (2 of 2)	4	Change *In* after open TN symbol to ⠠⠄⠠⠔
79 (1 of 3)	14	Change *In* after open TN symbol to ⠠⠄⠠⠔
84 (1 of 2)	4	Change *Copyright* to ⠘⠉
92 (1 of 2)	5	Change *In* after open TN symbol to ⠠⠄⠠⠔

Rule 1
Basic Principles and General Formats

7. **Transcriber's notes.**

b. **Content and format of transcriber's notes.**

[page 12] Delete the last sentence of the paragraph to conform to the *EBAE* rule change.

(3) (10-07) … As a lower-cell enclosure symbol, the transcriber's note symbol must not be in contact with any whole-word, lower-cell braille contraction.

13. **Print page numbers.**

e. **Pages numbered with letter/number or number/number combinations.**

Rationale: This format creates less conflict with a running head or other text that may appear on line one.

[pages 18-19] Delete the following sentence from the paragraph.

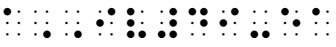
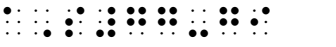
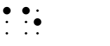
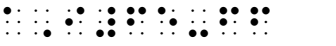
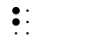
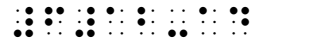
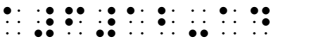
> Each of the consecutive page numbers must be preceded by the number indicator and separated by a braille dash (36, 36) from the letter(s) or number(s) that accompany them.

[page 19] Replace the deleted text above with the following sentence.

> For consistency, the letter or Roman numeral always precedes the number, regardless of the position in the print page number.

[page 19] Delete the examples, and replace with the following.

(10-07)

Print		Combined Page Numbers		Combined/Continued Numbers	
IV49		IV49-51		aIV49-51	
77S		S77-79		aS77-79	
I–65		I65-66		aI65-66	
6-12		#6#12-14		a#6#12-14	

> Words preceding page numbers should be changed to an appropriate uppercase letter, e.g., Change *Reference 1* to *R1*.

Word/Number	Combination/Continued Page Numbers	
Reference 1	R1	
Reference a1	aR1	
Reference 1-6	R1-6	
Reference a1-6	aR1-6	

[page 19] Delete Exception to 13e.

[page 19] Change NOTE to the following sentence.

NOTE: The same format must be used for all text page numbers within the volume, i.e., main body of the text, title page, table of contents, index, etc.

13. **Print page numbers.**

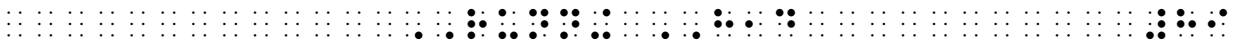
Rationale: Print page numbers in words (alphabetic) must be shown. Therefore, it is necessary for a format, that is distinct and quickly located, can accommodate any length page number or page size, and is easily automated. Braille readers are already familiar with the current page change indicator of unspaced dots 36 leading to the right-adjusted page number, as outlined in Rule 13a(3)(b). Readers can readily learn to scan and recognize the *alphabetic page change indicator*.

[page 19] Change 13f. to 13g. Insert the following as the new 13f.

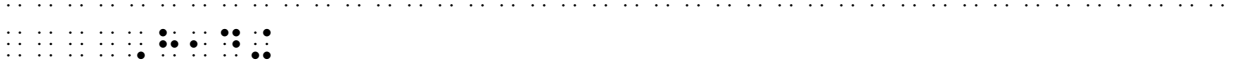
f. (10-07) **Alphabetic page numbers.** Print page numbers may be shown as digits and words (alphabetic), especially in foreign language, grammar, and lower grade math books. As this may be used as an additional teaching technique, both sets of page numbers are to be included in braille. The alphabetic page change indicator appears on the line after the page change indicator. Beginning at the margin, insert six cells of dots 36, followed immediately by the alphabetic number in 7-7. Explain this format on the Transcriber's Note page.

Print page changes are shown in both digits and words. The page numbers in digits are brailled as usual. The alphabetic page numbers are found on the next line, preceded by six cells of dots 36. The page number in words looks like this for page 92.

(1) When using a running head, place the alphabetic print page indicator (six unspaced dots 36) at the left margin on line two, immediately followed by the alphabetic page number in 7-7. Do not leave a blank line after the alphabetic page number unless required by other formats.

1 

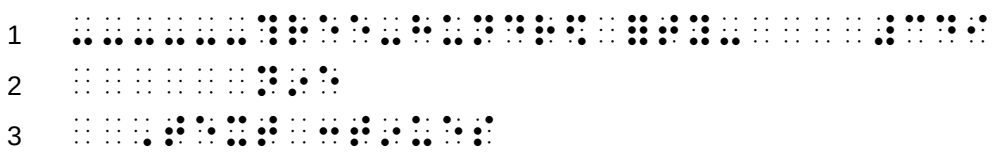
2 

3 

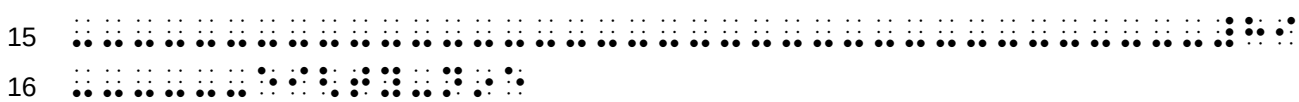
4

(2) When a running head is not used, place the alphabetic page change indicator and the numeric page number on the first line. Maintain the necessary three blank cells before the numeric page number.

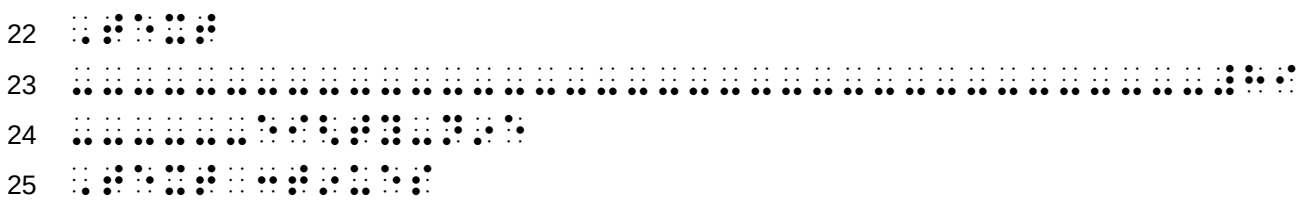
(Example shows a 30 cell line for narrow paper.)



(3) In the middle of a braille page, place the alphabetic print page indicator on the next line after the print page change indicator.



(4) Page changes indicated with both digits and words must remain together and cannot be split between braille pages. If there isn’t sufficient room at the end of a page for the entire print page change and one line of text, the print page change will start at the top of the next braille page.



Rule 2
Preliminary Page Formats

2. **Title pages.**

[page 28] Change "left alignment" to "listing." This clarification updates the rule to match the format used in Example 1.

c. (10-07) **Format for title pages.** … An agency may require the use of a specific title page format, e.g., centering or listing items, notice of sponsorship, etc. …

2. Title pages.

c. Format for title pages.

(5) Publisher information, copyright and reproduction notices, ISBN.

Rationale: Beginning January 1, 2007, the book industry began using 13-digit ISBNs to identify all books. This change expands the numbering capacity of the ISBN system and alleviates numbering shortages in certain areas of the world. During the transition period, publishers may place both the ISBN-10 and the ISBN-13 on the Copyright Page in this or similar format:

ISBN-10: 1-56619-909-3
ISBN-13: 978-1-56619-909-4

For the braille version, the 10- and 13-digit ISBNs should be included whenever they are present in the print, and preceded by "Transcription of ----", to accurately reflect this is a braille edition of a print book.

[page 31] Change paragraph (c) to the following, and add the subsections and example.

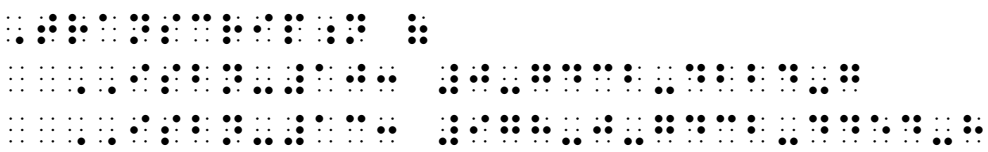
(c) (10-07) **ISBN.** The International Standard Book Number (ISBN) is assigned to specifically identify a particular book. The International Standard Serial Number (ISSN) similarly identifies a magazine, journal, or other periodical publication. The ISBN for the specific edition on hand (e.g., student edition, hardcover, etc.) usually appears on the copyright page and/or back book cover. When shown in print, the number must be placed on the title page immediately after the copyright and reproduction notices. Follow print for capitalization, punctuation, and spacing.

[1] Insert *Transcription of* before the ISBN.

Transcription of ISBN: 0-7432-4224-7

[2] Include both 10- and 13-digit ISBNs on the title page when they appear in print. Each ISBN is brailled on consecutive lines, using the centered or list format required by the requesting agency. When a list format is used, each ISBN entry begins on a new line in cell 3.

Transcription of
ISBN-10: 0-7432-4224-7
ISBN-13: 978-0-7432-4454-8



Rule 5
Mathematical and Nonalphabetical Signs
Print Shapes, Numbers, and Numerations Systems

2. **Mathematical and nonalphabetical signs in general textbooks.**

[page 59] Change and/or add the following signs to conform to the *EBAE* rule changes. The new signs appear below.

d. **Signs and abbreviations for units of measure**

(1) (10-07) **Signs for units of measure.**

⠸⠸ # pound of weight sign

e. (10-07) **Nonalphabetical signs.** Placement and spacing of the braille symbols listed below should follow the print copy.

Note: The ampersand has not changed, however the symbol should be used wherever it appears in print, rather than changing it to and. The rule as stated above is accurate.

⠈⠯ @ at

⠸⠸ # crosshatch, number sign

⠘⠉ © copyright

⠸⠹ ™ trademark

⠸⠗ ® registered trademark

4. Numbers and number combinations

a. Dates

[page 61] Change the last sentence to conform to the *EBAE* rule change.

(1) (10-07) … The number indicator must be repeated following a dash.

Note: The BANA Literary Committee has not made a final decision on how a print dot in dates will be represented. Consequently, *Braille Formats* will continue to use the decimal point (46) and not the period.

6. Numeration systems

[page 64] Change the last sentence to conform to the *EBAE* rule change.

b. (10-07) **Double numeration.** … The number indicator must be repeated after a dash, but not after a slash, hyphen or a decimal point.

Rule 6
Punctuation, Enclosure or Grouping Symbols
Boxed Materials

3. **Boxed or screened materials.**

Rationale: This provides a better understanding of boxed material.

[page 72] Add this new section to the end of Rule 6.

h. (10-07) **Boxes within boxes**

(1) **One box within another box.** The outside box lines are the full cell box line (123456). The inner box lines are the top box line (2356) and the bottom box line (1245).

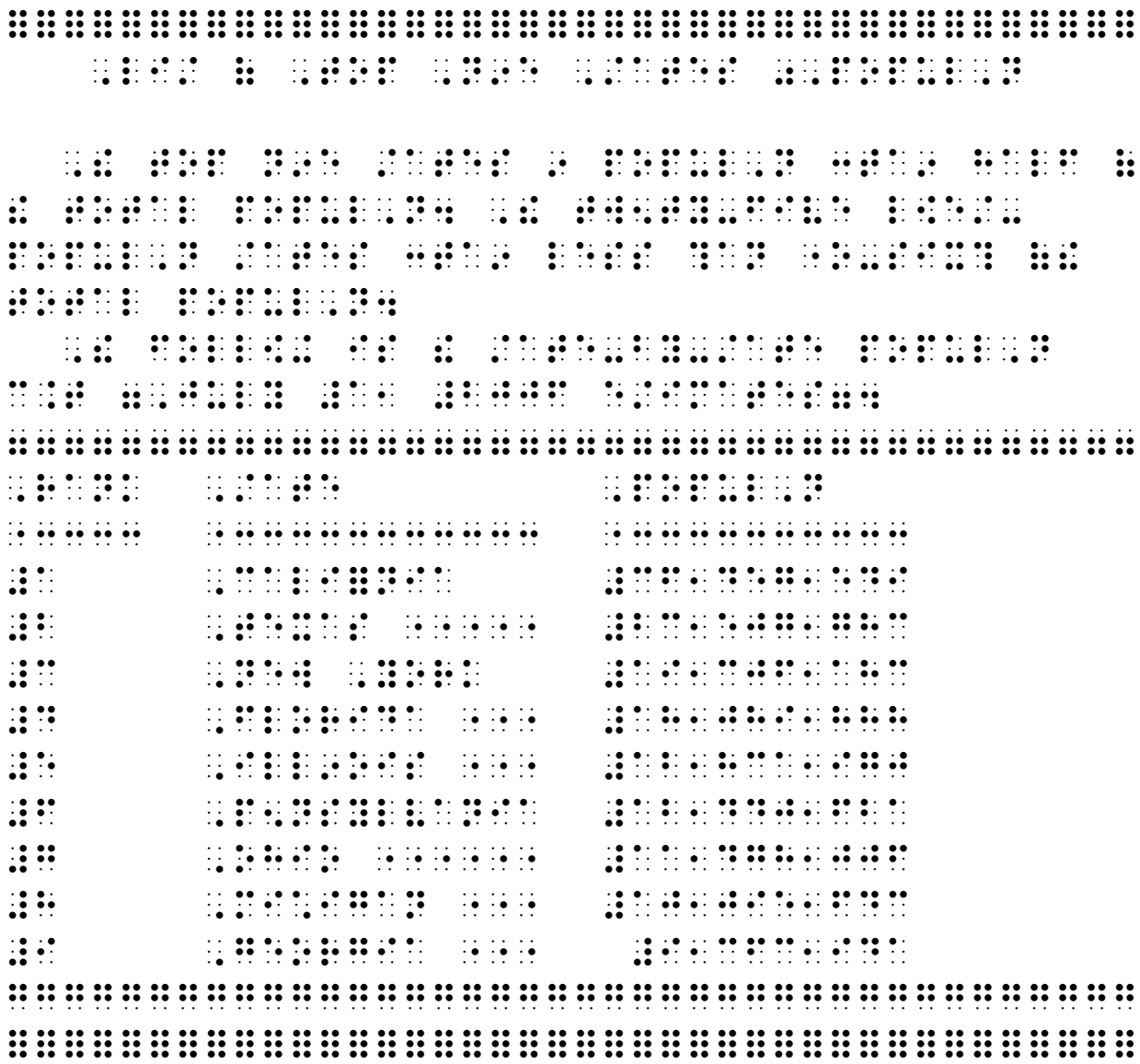
(2) **More than one box within another box.** The outside box lines are the full cell (123456), the inner box lines are the top box line (2356) and the bottom box line (1245). If necessary, include a transcriber's note explaining how the boxes are related.

List of Top Nine States by Population

The top nine states in population contain half of the total population. The twenty-five lowest-population states contain less than one-sixth of the total population.

The following is the state-by-state population count (July 1, 2006 estimates).

Rank	State	Population
1	California	36,457,549
2	Texas	23,507,783
3	New York	19,306,183
4	Florida	18,089,888
5	Illinois	12,831,970
6	Pennsylvania	12,440,621
7	Ohio	11,478,006
8	Michigan	10,095,643
9	Georgia	9,363,941



Rule 8
Tables

8. Items in the columns of a table

e. Blanks or omissions in columns of a table

Rationale: Including skeleton tables provides the reader with the same activities as his peers.

[page 95] Add this new subsection before (f).

(3) (10-07) **Skeleton tables** only show column and/or row headings.

(a) Braille the headings using normal table format, and indicate the empty spaces with a dash. Limit the skeleton to two blank rows. Add a transcriber's note when there are three or more blank rows or columns, to indicate how many blank rows and/or columns appear in print.

Print shows four blank rows.

(b) Add a transcriber's note if the print format of the skeleton table does not indicate the number of rows:

This table does not have a specified number of rows.

(c) If the table shows a required number of answers, provide the same number of columns and/or rows as the print.

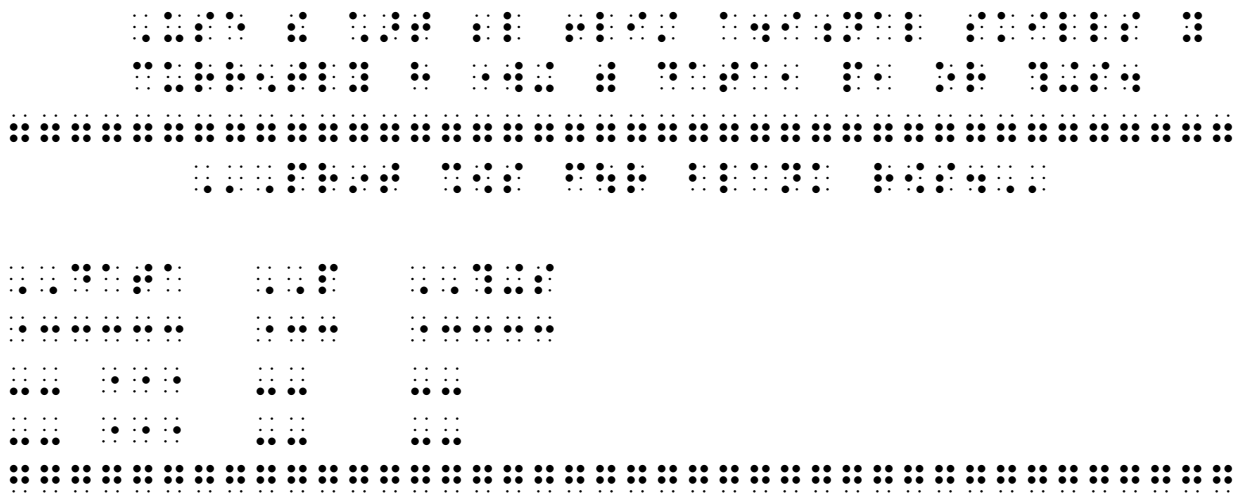
Cause	→	Effect
Ed told a lie.	→	I got upset.
Ed denied it.	→	I got angrier.
Ed betrayed others.	→	He ended up friendless.
	→	
	→	
	→	

(d) Use a dash (36, 36) to indicate blank headings or entries.

(e) Use another format if the table is too wide for the braille page.

Use the chart below to list additional skills you currently have working with data, people, or things.

DATA	PEOPLE	THINGS



9. **Formats for wide tables.**

Rationale: As the first part of the paragraph states, it is important to choose the most appropriate format for clarity. With the additional table formats added with this Update, there are a variety of choices to convey the information. It is not appropriate to stipulate an order of table formats, and it is the responsibility of the braille producer to choose the best option.

[page 95] Delete the last sentence in *9. Formats for wide tables*.

(10-07) … However, as a general rule, transcription preference should follow the order in which the formats are given below.

9. **Formats for wide tables.**

Rationale: This format was originally in the 1977 Formats, and BANA requested the reintroduction of this option.

[page 100] Add this new section before Section 10.

f. (10-07) **Linear format.** This can be an effective option when dealing with wide tables with a limited number of columns, especially when the column entries are intuitive so the reader doesn't need to refer to the transcriber's note. This format is not well-suited for multiple columns of numbers, repetitive entries, or similar entries (e.g., all proper names) as the reader will have difficulty matching the information with the proper column heading. It is also not appropriate if the table entries include colons, semicolons, or periods.

(1) Leave a blank line after a centered title.

(2) Insert a transcriber's note, with a blank line between the note comment and column order. Insert a colon after the first column heading, a semicolon after the internal columns, and a period after the last column. The order of column headings, with the appropriate punctuation marks is listed in 1-3. The ending transcriber's note symbol follows the completion of the note.

Columns follow one another in this order:

Heading of Column 1: Heading of Column 2; Heading of Column 3.

(3) Leave a blank line after the transcriber's note.

(4) Each row of the table is listed in 1-3. Start with the information of the first column followed by a colon. Continue on the same braille line with the information from subsequent columns in that row, punctuated as shown in the transcriber's note.

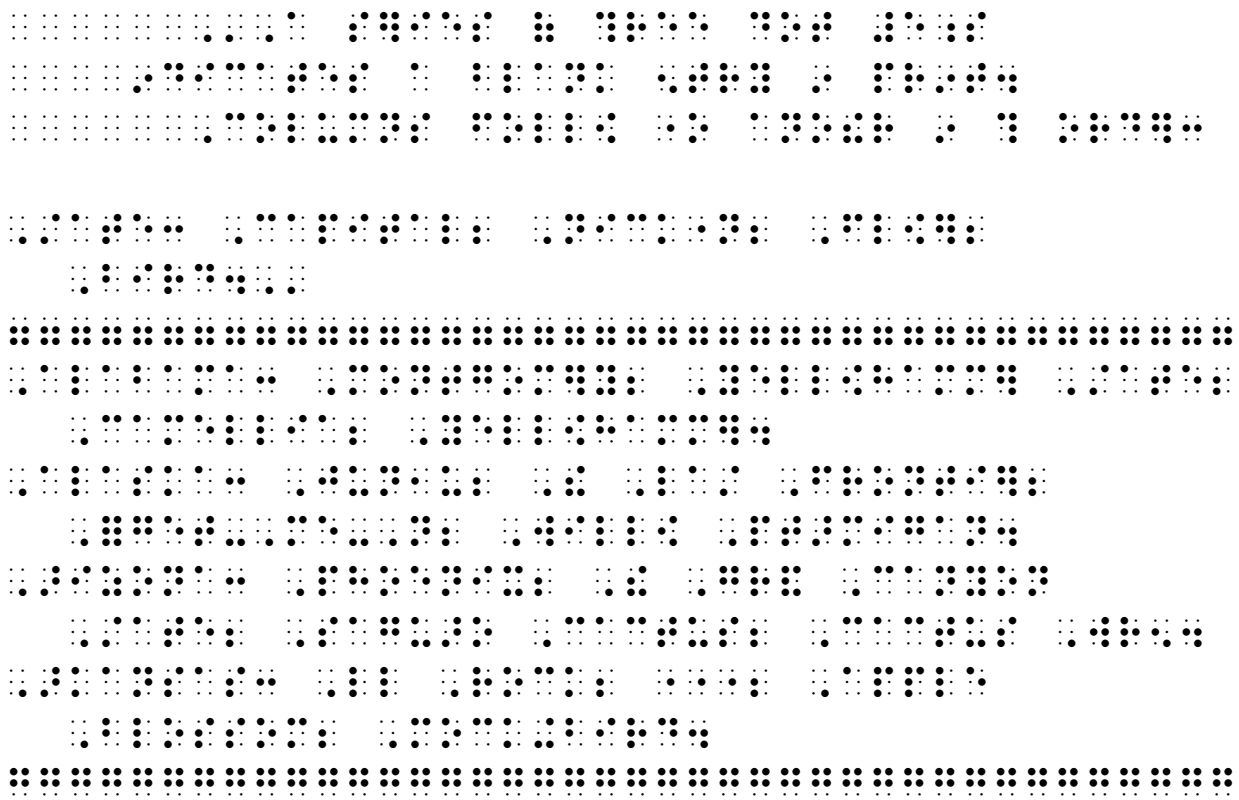
(5) This format is used for all succeeding rows of the table, with information from the first column always starting in cell 1.

(6) Repeat column labels for all table entries (e.g., the dollar sign, percent sign, year, bushels, etc.).

(7) Insert three unspaced dot 5s to represent a blank entry in print (followed by the appropriate punctuation) and explain this usage in a transcriber's note.

A series of three dot 5s indicates a blank entry in print.

State	**Capital**	**Nickname**	**Flower**	**Bird**
Alabama	Montgomery	Yellowhammer State	Camellia	Yellowhammer
Alaska	Juneau	The Last Frontier	Forget-Me-Not	Willow Ptarmigan
Arizona	Phoenix	The Grand Canyon State	Saguaro Cactus	Cactus Wren
Arkansas	Little Rock		Apple Blossom	Mockingbird



9. **Formats for wide tables.**

Rationale: Some tables become useless in a stairstep or linear format because the reader needs to constantly refer to the transcriber's note. The listed format retains the relationship between the headings and the column entries.

[page 100] Add this new section before Section 10.

g. (10-07) **Listed table**. This format repeats the column heading for each entry. The format is useful for tables with numerous columns, columns of numbers, repetitive entries, or non-intuitive entries. It takes a good deal of space, but it aids the reader by identifying column headings with each entry.

(1) The table is preceded and followed by a blank line

(2) Column headings may be abbreviated but not keyed; identify abbreviations not easily recognized in a transcriber's note

(3) All column headings are followed by a colon

(4) The first column heading, with the corresponding row heading, is in 5-5

(5) Column headings and single entries are in 1-3

(6) Column headings with multiple entries are in 1-5, 3-7 with *each* entry in 3-7

(7) Insert three unspaced dot 5s to represent a blank entry in print and explain this usage in a transcriber's note.

A series of three dot 5s indicates a blank entry in print.

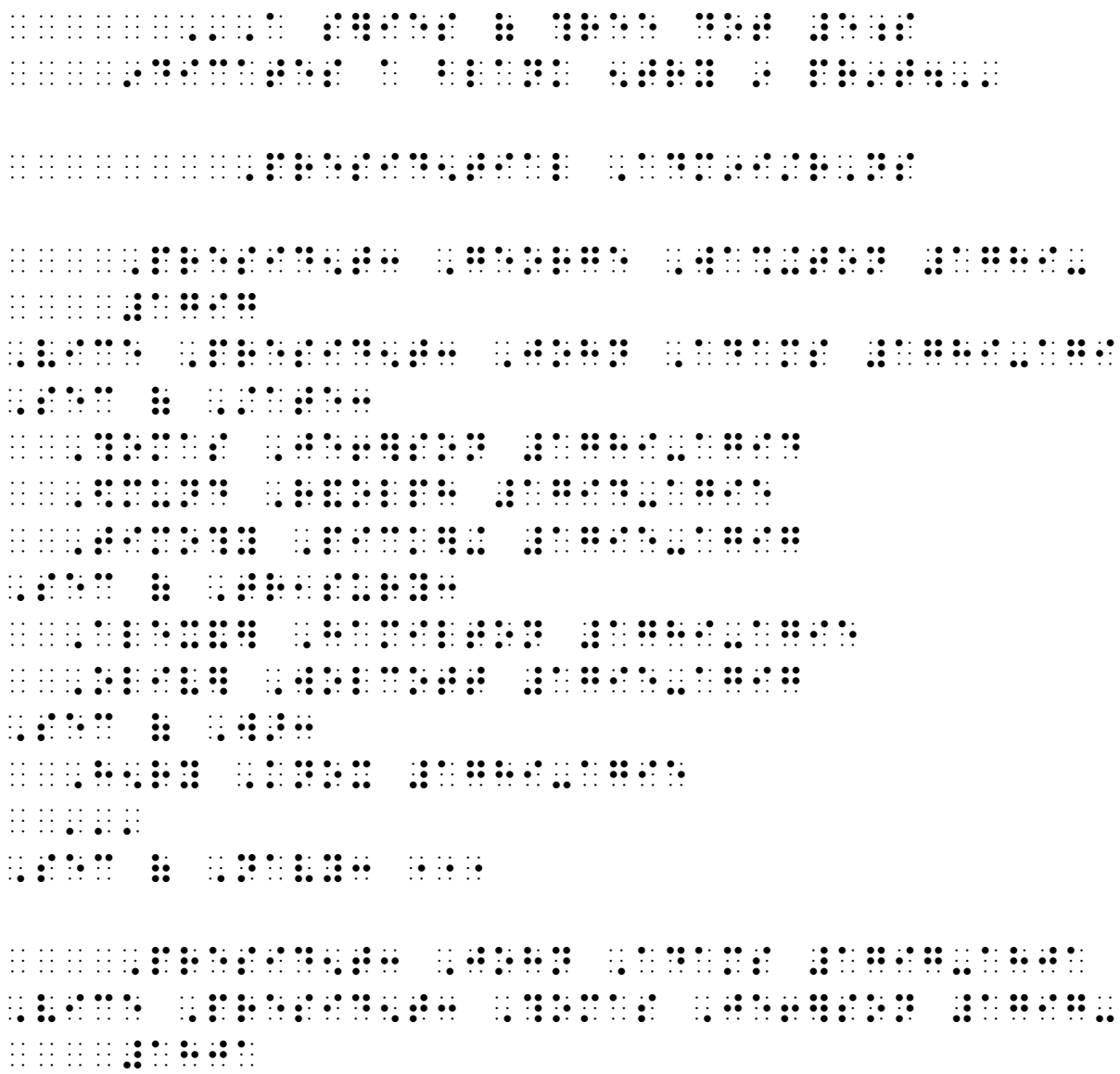
(8) Use a dash (36, 36) for blank entries which are to be filled in

(9) Continue this format until the first row is completed

(10) Leave a blank line before each row

PRESIDENTIAL ADMINISTRATIONS

President	Vice President	Secretary of State	Secretary of Treasury	Secretary of War	Secretary of Navy	Postmaster General	Attorney General
George Washington 1789-1797	John Adams 1789-1797	Thomas Jefferson 1789-1794	Alexander Hamilton 1789-1795	Henry Knox 1789-1795		Samuel Osgood 1789-1791	Edmund Randolph 1789-1794
		Edmund Randolph 1794-1795	Oliver Wolcott 1795-1797	Timothy Pickering 1795-1796		Timothy Pickering 1791-1795	William Bradford 1794-1795
		Timothy Pickering 1795-1797		James McHenry 1796-1797		Joseph Habersham 1795-1797	Charles Lee 1795-1797
John Adams 1797-1801	Thomas Jefferson 1797-1801	Timothy Pickering 1797-1800	Oliver Wolcott 1797-1801	James McHenry 1797-1800	Benjamin Stoddert 1798-1801	Joseph Habersham 1797-1801	Charles Lee 1797-1801
		John Marshall 1800-1801	Samuel Dexter 1801	Samuel Dexter 1800-1801			



Rule 13
Exercises, Drills, Tests, and Test Booklets

8. Formats for exercises, drills, and tests

Rationale: Many texts now use pictures in exercises. This format avoids the clutter of having individual transcriber's notes for each picture while still conveying text that has been changed in braille.

[page 140] Add this new section before 9.

g. (10-07) **Pictures used as exercises.** When items in an exercise are shown as pictures, or as pictures with text, insert the transcriber's note symbol (6, 3) before the word *Pictures*. Place the closing transcriber's note symbol after the last entry.

Note: Use this option only when appropriate. Care should be taken to not give the answers. Guidance should be obtained from the teacher or publisher in testing situations.

Find the picture that best matches each food group.

____ 1. Fat, Oils, and Sweets Group

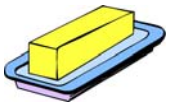
____ 2. Milk, Yogurt and Cheese Group

____ 3. Vegetable Group

____ 4. Meat, Poultry, Fish, Dry Beans, Eggs and Nuts Group

____ 5. Fruit Group

____ 6. Bread, Cereal, Rice, and Pasta Group

A. 	B. 
C. 	D. 
E. 	F. 

THE NEMETH CODE FOR MATHEMATICS AND SCIENCE NOTATION 1972 REVISION

2007 Update

Developed by the Mathematics Braille Technical Committee of the Braille Authority of North America

Dorothy Worthington, Chairperson
Mary Archer, Board Liaison
Helen McMillan
Allison O'Day
Susan Osterhaus
Jean Simpson
Joanne Baldwin, Consultant
Mary Denault, Consultant

Betsy McBride, Consultant

Effective Date: January 1, 2008

Table of Changes

Rule	Page	Change
I	6	Keystroke indicator added to list of shape indicators
II: §11b	15	Non-use of numeric indicator modified
II: §11b(4)	15	Example revised
II: §16	18	Numerals in diagrams revised
V: §33a	39-40	Examples (1)-(4) updated
IX: §55e	68	Rule edited; Examples (12)-(14) added
XII: §64	77-78	Parenthetical expressions edited
XVI	110	Adds keystroke indicator to interior shape modification indicator list
XVI	111	Corrects the print shape for "is perpendicular to"
XVI: §111a	115	Additional paragraph added
XVI: §111d	116	Adds new subsection on calculator or computer keystrokes
XVI: §115e	118	Adds new subsection that deals with spacing between keystroke constructions
XVII: §119a	121	Edited rule
XVII: §119c	122	Example (7) modified to show correct spacing
XVIII: §120	124	Braille in example (14) corrected
XVIII: §126	126	Braille in example (3) corrected
XVIII: §128a	127	Braille in example (1) corrected
XXIV: §128c	170	Rule on division clarified; additional examples given

Rule	Page	Change
XXIV: §184a	183	Example (1) corrected to show proper use of numeric indicators in unified expressions
XXV: §185biii	186	Typographical error corrected
XXV: §191bvi	197	Typographical error corrected
XXV: §196	207	New section on stem-and-leaf plots added
Appendix A	208	Braille examples corrected
Appendix B	219	Several index entries corrected
Appendix B	238	Braille entry for empty set corrected
General Index	249, 251	Index items corrected

RULE I--BRAILLE INDICATORS

Shape Indicators

[page 6]:

Keystroke Indicator (10-07) ⠈⠐⠂

(Limited to use with calculator and computer-related text.)

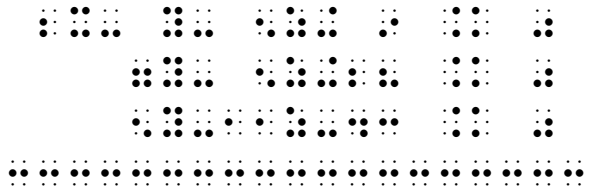
RULE II -- NUMERIC SIGNS AND SYMBOLS

§11. Non-Use of the Numeric Indicator:

[page 15] Change sentence to read:

b. (10-07) The numeric indicator must not be used in work arranged in columns and aligned for addition, subtraction, or multiplication, or in spatial arrangements for division.

(4) Draw a line under the print example and replace the example with the following:



§16. Numerals in Diagrams:

[page 18] Change first sentence to read:

(10-07) In diagrams which contain numeric labels, the numeric indicator must be used, except for the numeric labels on number lines in which case the numeric indicator should be omitted.

§33a. Examples (1)-(4):

[pages 39 and 40] Mathematical statements should begin in cell 3 with runovers in cell 1 (not 1-3 as shown). (Refer to Rule XXV, §194.a.ii, page 204.)

RULE IX -- CONTRACTIONS AND SHORT-FORM WORDS

§55e. Non-Use of Contractions and Short-Form Words:

[page 68] Change the first sentence to read:

The one-cell, whole-word alphabet contractions for *but*, *can*, … *you*, *as* and the lower-sign whole-word contractions for *be*, *enough*, *were*, *his*, *in*, *was*, *to*, *into*, *by*, whether capitalized, italicized, or neither, must not be used when these words are in direct contact with any grouping symbol.

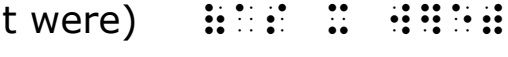
Change the last sentence to read:

When this rule precludes the use of a contraction in one part of a word, no part of the word may be contracted except in the case of the whole-word lower-sign contraction for *enough*, *were*, and *into*, which may be partially contracted.

Add the following examples:

(12) (into vs. onto) 

(13) (enough work done) 

(14) (as it were) 

RULE XII -- FRACTIONS

§64. Mixed Numbers, Examples (3) and (4):

[page 77] Change parenthetical explanation to read:

(this is not a mixed number; expression begins with a letter)

§64. Mixed Numbers, Example (5):

[page 78] Change parenthetical explanation to read:

(this is not a mixed number; fraction contains a letter)

RULE XVI -- SHAPES

Interior Shape-Modification Indicator

[page 110] Add subentry

Keystroke Indicator ⠸⠅
(Limited to use with calculator and computer related text.)

Basic Shapes

[page 111] Change the print shape representing “Is Perpendicular To” to ⊥

§111a. Shape with Interior Modification:

[page 115] Add the following paragraph:

(10-07) The numeric indicator must be used before a numeral or before a decimal point and a numeral following the interior shape-modification indicator.

§111d. Shape with Interior Modification:

[page 116] Add the following new subsection d.:

d. (10-07) When a shape with interior modification depicts a labeled calculator or computer key within the instructional text, it must be represented in a contracted form employing a keystroke shape symbol/indicator.

i. The key label will immediately follow the keystroke indicator.

ii. The shape of the key is irrelevant. The actual shape(s) used in a particular text should be specified on the Transcriber's Notes page.

iii. No single keystroke construction may be divided between braille lines.

iv. The rules for preferred division of mathematical expressions do not apply; do not drop to a new line because the symbol on the key is a sign of comparison. If it is possible, duplicate the print lines when such lines are arranged in a logical sequence.

v. No contractions may be used in a word, part of a word, or an abbreviation in contact with this symbol/indicator whether capitalized, italicized, neither or both.

vi. No space may be left between keystroke constructions and other similar constructions or mathematical symbols in a sequence of related calculations. Arrows contained in the labels on the keys should not be spaced from the material to which they apply.

vii. The numeric indicator is not required within the contracted keystroke construction.

(1) ⊕ *or* [+]

(2) [(] 2 [×] 3 [+] 4 [)] [×] 5 [=]

(3) n [×] P [×] [(] [(]1[–] [(]1[+] i [%] [)] [y^x]

n [+/–] [)] [÷] i [%] [)] [y^x] 1 [+/–] [–] P [=]

(4) 2 [.] 75 [y^x] [.] 34 [+/–] [=]

(5) ENTER ↑

(6) → °C

(7) [x⇄y]

(8) [8]

§115e. Spacing with Symbols of Shape:

[page 118] Add new e.:

e. (10-07) No space may be left between keystroke constructions and other similar constructions of mathematical symbols in a sequence of related calculations. Arrows contained in the labels on the keys should not be spaced from material to which they apply.

RULE XVII -- FUNCTION NAMES AND THEIR ABBREVIATIONS

§119. Spacing with Function Names and Their Abbreviations:

[page 121] Change sentence to read:

a. (10-07) A space must be left after an unmodified function name or its abbreviation. If the function name or its abbreviation carries a superscript, subscript, modifier, or other braille indicator, the space must follow the superscript, subscript, termination of modifier, or other braille indicator.

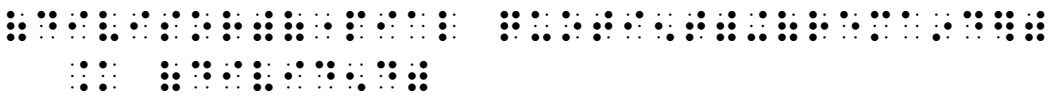
§119c. Spacing with Function Names and Their Abbreviations:

[page 122] Change Example (7) braille to:

RULE XVIII -- SIGNS AND SYMBOLS OF GROUPING

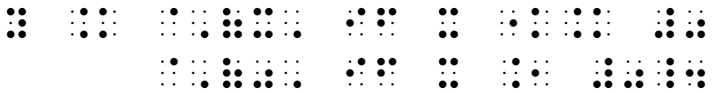
§120. Symbols of Grouping, Example (14):

[page 124] Change braille to:



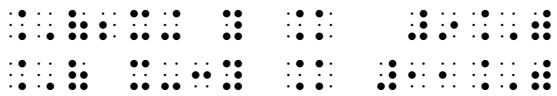
§126. Use of Enlarged Grouping Symbols, Example (3):

[page 126] Change braille to:



§128a. Spacing with Symbols of Grouping, Example (1):

[page 127] Numeric indicators are required after the comparison signs. (Refer to §126 (1) (page 126.) Change braille to:



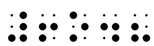
§180c. Division:

[page 170] Change the third sentence to read:

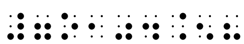
(10-07) However, when the division arrangement contains only a divisor and a dividend composed entirely of numerals with or without decimal points and/or commas, but no quotient and no partial products and differences, …

Add the following examples:

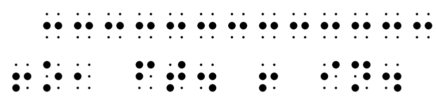
$6\overline{)48}$



$7\overline{)104.58}$

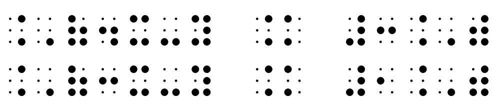


$6\overline{)1\,\text{ft.}\,6\,\text{in.}}$



§184a. Unified Expressions, Example (1):

[page 183] Numeric indicators are required after the comparison signs. (Refer to Example (2).) Change braille to:



RULE XXV -- FORMAT

§185biii. Spatial Arrangements:

[page 186] Change word “principle” to “principal”.

§191bvi. Margins for Non-Spatial Itemized Material, Example (3)

[page 197] Third braille line, first visible cell should be:

[page 207] Insert new section:

§196. (10-07) Stem-and-Leaf Plots:

A stem-and-leaf plot is a method of showing data distribution. It is a specialized table that is brailled in Nemeth notation using the rules for Tables and Columns in *Braille Formats: Principles of Print to Braille Transcription.*

A stem-and-leaf plot is made up of columns and rows which usually include a heading. The data may be shown as numbers or letters. A key is almost always provided and must be brailled beginning in cell 1 preceding the stem-and-leaf plot.

The symbols used in a stem-and-leaf plot do not need to be included on a Special Symbols page unless the text is an elementary math book below the 4th grade.

a. The stem-and-leaf plot resembles a horizontal bar graph, and therefore, it is important to retain the shape. A vertical line (dots 456) separates the column headings and extends to the end of the plot. One blank cell precedes and follows the vertical line. The data on the left (stem) is right justified to the vertical line and the data on the right (leaf) is left justified to the vertical line.

i. Avoid running over lines if possible. If necessary to runover the line, indent the line two cells to the right. Exception: in back-to-back plots that have a runover in the left column, the indention is two cells to the left.

ii. A runover of leaves shown in print should be ignored. Use the full width of the braille column before beginning an indented row.

iii. The next stem-and-leaf row entry begins on the line after the runover.

iv. Note: Do not follow the *Braille Formats* rules for blank spaces that occur across the width of a column in tables. A blank space in a stem-and-leaf plot column is left blank and may occur in either the stem or leaf.

v. Every effort should be made to be consistent throughout a transcription.

b. If a key is provided in print, it must precede the stem-and-leaf plot, even though it may appear in a different location in print. The portion of the key that replicates an entry in the plot is brailled without the numeric indicator or English letter indicator and including vertical lines as it would appear within the plot. The value assigned to the key is brailled using the numeric indicator or English letter indicator as required by the Nemeth Code. The key is formatted in cell 1 with any runover in cell 3.

When two keys are shown in print for back-to-back plots, the left column key is brailled first, followed by the right column key. Each is brailled beginning in cell 1 with any runover in cell 3.

c. When the data is represented by numbers in the body of the plot:

i. omit the numeric indicator in the body of the plot,

ii. braille single digit entries unspaced,

iii. entries consisting of groups of two or more digits require one blank cell between entries, (*See example 26D*.)

iv. omit a comma or other punctuation shown between units of data.

d. When the data is represented by letters in the body of the plot:

i. single cap each capital letter,

ii. omit the English letter indicator in the body of the plot,

iii. single letters are brailled unspaced,

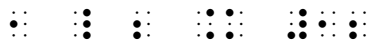
iv. entries consisting of groups of two or more letters require one blank cell between each entry,

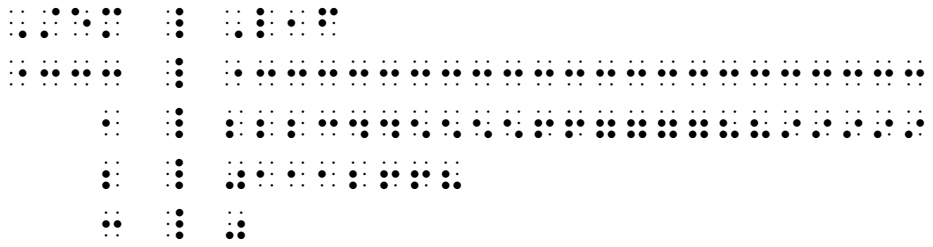
v. omit a comma or other punctuation shown between units of data.

(1) This example is a basic stem-and-leaf plot with designated columns and a runover in print in the first line under "Leaf." Notice that no numeric indicator is used in either column and that there is no space between numbers.

Stem	Leaf
1	2 2 2 3 4 4 5 5 5 6 6 7
	7 7 7 8 8 9 9 9 9 9
2	0 1 1 1 2 6 6 8
3	0

1|2 = 12





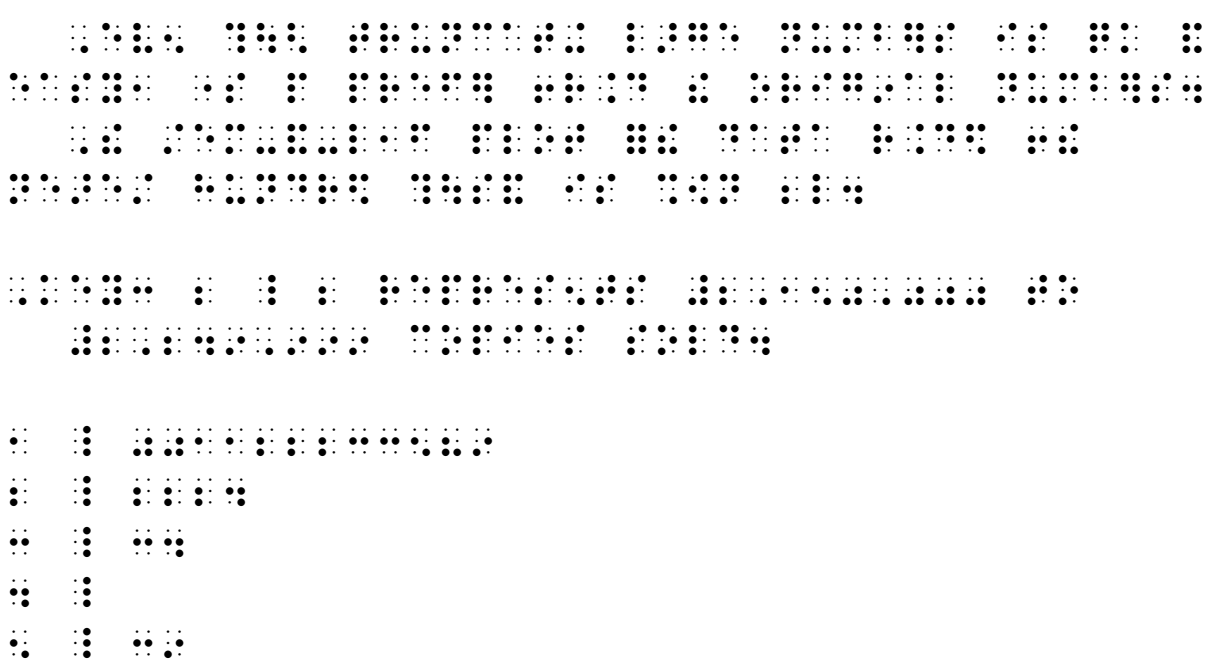
(2) This example is also a basic stem-and-leaf plot but without designated column headings. It also has a blank space in the leaf column next to stem #4.

Even though truncating large numbers is quick and easy, some people prefer to round the original numbers.

The stem-and-leaf plot for the data rounded to the nearest hundred thousand is shown below.

1	0 0 1 1 2 2 2 3 3 5 8 9
2	2 2 2 4
3	3 4
4	
5	3 9

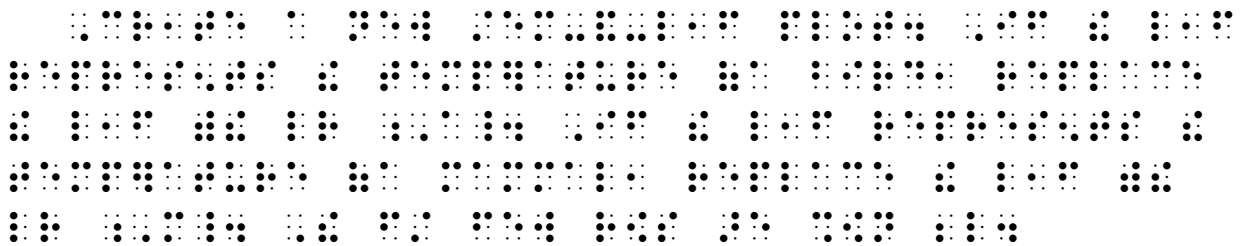
Key: 2|2 represents 2,150,000 to 2,249,999 copies sold

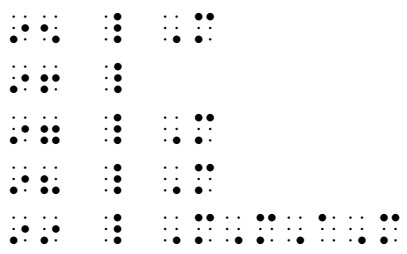


(3) This example is another undesignated plot with letters instead of numbers in the leaf column. No spaces are needed between letters, whether capitalized or not.

Create a new stem-and-leaf plot. If the leaf represents the temperature of a bird, replace the leaf with the letter *A*. If the leaf represents the temperature of a mammal, replace the leaf with the letter M. The first few rows are shown below.

95	M
96	
97	M
98	M
99	M M A M

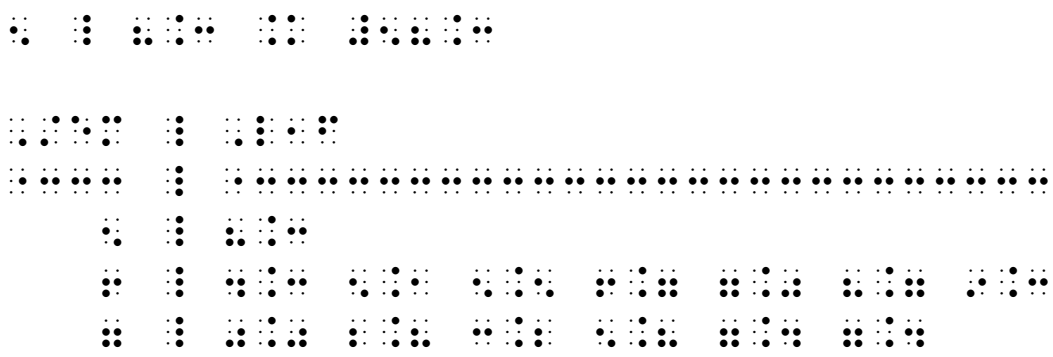




(4) This example has numbers with decimals in the leaf column.

Stem	Leaf
5	8.3
6	4.3 5.1 5.5 6.7 7.0 8.7 9.3
7	0.0 2.8 3.2 5.8 7.4 7.4

5|8.3 = 58.3



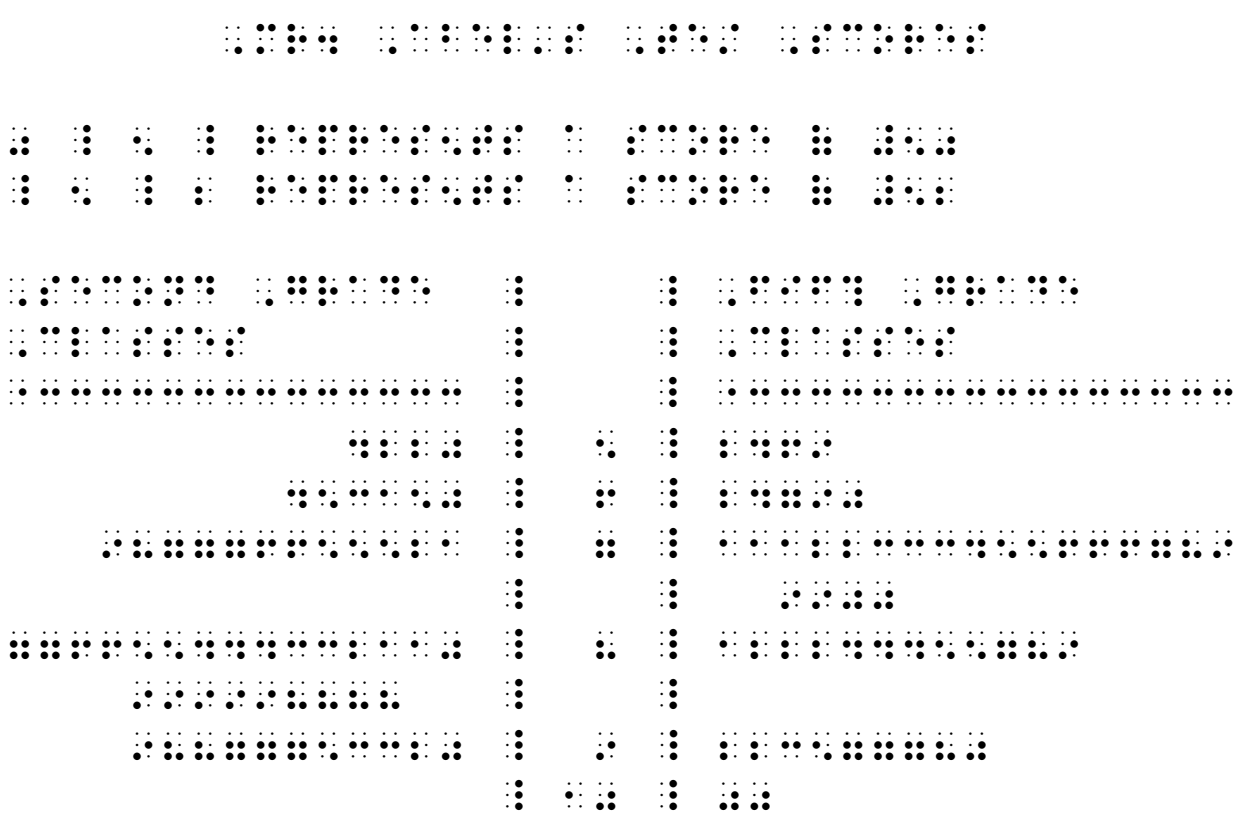
(5) This example is called a back-to-back stem-and-leaf plot and is used when two sets of data are to be compared. Notice that there are two keys in these types of plots. Always put the left column key first followed by the right column key, both at the margin preceding the plot. Runovers to the left column are two cells to the left; runovers to the right column are two cells to the right.

Mr. Abel's Test Scores

Second Grade Classes		Fifth Grade Classes
4220	5	2469
453150	6	24790
987776655521	7	11122333455666789990 0
99999888877665544433211 0	8	122244455789
98877753320	9	223577780
	10	00

0 | 5 | represents a score of 50

| 5 | 2 represents a score of 52



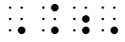
APPENDIX A COMBINATIONS OF TYPE-FORM, ALPHABETIC, AND CAPITALIZATION INDICATORS

LOWER-CASE LETTERS

[page 208] Sanserif: Change braille to:

CAPITALIZED LETTERS

Sanserif: Change braille to:



APPENDIX B -- INDEX OF BRAILLE SYMBOLS

[page 219] Change print page number for Hebrew tsadi from 152 to 24; single integral print page number from 25 to 122. Add print page 25 for Russian yerih.

[page 238] Change braille example for "Empty Set" to:

[page 249] The last column at the bottom of the page, under “Empty Set” the item “Runovers in … §195b, page 206” should be listed as the last item under “Enclosed List”. (It is under the wrong category.)

[page 251] The page reference for “Minutes” should be 156, not 172.