LESSON 3

Read about this PROVISIONAL EDITION in the front matter to this book.
Check the NFB website periodically for updates to this lesson.

- *MORE ABOUT PUNCTUATION*
- *PUNCTUATION IN NEMETH CODE*
    - *The Punctuation Indicator*
- *INTRODUCTION TO SIGNS OF GROUPING*
    - *Code-Switching Considerations*
    - *Spacing with Signs of Grouping*
- *IDENTIFIERS, cont.*

FORMAT

Keep Together—Hyphenated Expressions

Side-by-Side Layout

MORE ABOUT PUNCTUATION

3.1 Punctuation Mode: Punctuation mode is determined by whether the punctuation occurs inside or outside of the Nemeth Code switches. The concept is simple – punctuation that occurs outside of the Nemeth Code switch indicators is brailled according to the rules of Unified English Braille; punctuation occurring within the Nemeth Code switch indicators is brailled according to the rules of the Nemeth Code. Take another look at this example from **Lesson 2**, noting that UEB punctuation is used for the question mark and the Nemeth Code comma and ellipsis are used in the mathematical portion.

Example 3.1-1 What is the secret clue in this series? 5.0, 8.2, 11.4, 14.6, …

⠠⠱⠁⠞ ⠊⠎ ⠮ ⠎⠑⠉⠗⠑⠞ ⠉⠇⠥⠑ ⠔ ⠹ ⠎⠻⠊⠑⠎⠦
⠸⠩ ⠼⠢⠨⠴⠠ ⠼⠦⠨⠆⠠ ⠼⠂⠂⠨⠲⠠ ⠼⠂⠲⠨⠖⠠ ⠄⠄⠄ ⠸⠱

3.2 Spacing of UEB Punctuation and Code Switch Indicators: As shown in **Lesson 2**, punctuation that relates to the main text is placed outside of the switch indicators when the surrounding text is in UEB. There is no space between the terminator and the following punctuation.

Example 3.2-1 To begin, divide 64 ÷ 8, then subtract.

⠠⠞⠕ ⠆⠛⠔⠂ ⠙⠊⠧⠊⠙⠑ ⠸⠩ ⠼⠖⠲⠨⠌⠦ ⠸⠱⠂ ⠮⠝
⠎⠥⠃⠞⠗⠁⠉⠞⠲

Note the use of the literary comma (dot 2) outside of the Nemeth terminator.

3.2.1 Spacing of the UEB Dash: Follow UEB spacing rules for the dash when the dash falls outside of the code switches. In the first example below, the dash is unspaced in print. In the second example, the dash is spaced in print. *Reminder:* The space before the Nemeth Code Terminator does not represent a space in print.

Example 3.2-2 Divide 64 ÷ 8—then subtract.

⠠⠙⠊⠧⠊⠙⠑ ⠸⠩ ⠼⠖⠲⠨⠌⠦ ⠸⠱⠠⠤⠮⠝ ⠎⠥⠃⠞⠗⠁⠉⠞⠲

Example 3.2-3 Divide 64 ÷ 8 — then subtract.

⠠⠙⠊⠧⠊⠙⠑ ⠸⠩ ⠼⠖⠲⠨⠌⠦ ⠸⠱ ⠠⠤ ⠮⠝ ⠎⠥⠃⠞⠗⠁⠉⠞⠲

In the next example, the dash is unspaced in print. In the final example, the dash is spaced in print. *Reminder:* The space after the Opening Nemeth Code Indicator does not represent a space in print.

Example 3.2-4 We continue—8–14 = –6

⠠⠺⠑ ⠒⠞⠔⠥⠑⠠⠤⠸⠩ ⠼⠦⠤⠂⠲ ⠨⠅ ⠤⠼⠖ ⠸⠱

Example 3.2-5 We continue — 8–14 = –6

⠠⠺⠑ ⠒⠞⠔⠥⠑ ⠠⠤ ⠸⠩ ⠼⠦⠤⠂⠲ ⠨⠅ ⠤⠼⠖ ⠸⠱

3.3 Nemeth Braille Punctuation: When punctuation occurs within mathematical material, Nemeth Code punctuation is used. Even when the punctuation belongs to the sentence structure, excessive code switching is avoided by using Nemeth Code punctuation. In the example below, the Nemeth Code comma (dot 6) is used within the series even though the comma itself is not "mathematical."

Example 3.3-1 Multiplication can be expressed as a series of addition problems:
5 × 2 = 5 + 5, 5 × 3 = 5 + 5 + 5, 5 × 4 = 5 + 5 + 5 + 5, and so on.

⠠⠍⠥⠇⠞⠊⠏⠇⠊⠉⠁⠰⠝ ⠉ ⠆ ⠑⠭⠏⠗⠑⠎⠎⠫ ⠵ ⠁ ⠎⠻⠊⠑⠎
⠷ ⠁⠙⠙⠊⠰⠝ ⠏⠗⠕⠃⠇⠑⠍⠎⠒ ⠸⠩ ⠼⠢⠈⠡⠆ ⠨⠅ ⠼⠢⠬⠢⠠
⠼⠢⠈⠡⠒ ⠨⠅ ⠼⠢⠬⠢⠬⠢⠠ ⠼⠢⠈⠡⠲ ⠨⠅ ⠼⠢⠬⠢⠬⠢⠬⠢⠠ ⠸⠱
⠯ ⠎ ⠕⠝⠲

The last comma is placed inside the switch in order to continue the established pattern. It would not be wrong to place that comma after the Nemeth Code terminator as a dot 2 literary comma.

Instructions: Consider carefully where to place the code switch indicators and what kind of punctuation to use in these three sentences. Apply 3-1 Nemeth Code paragraphing.

PRACTICE 3A

72813654, when written as 72 81 36 54, is obviously divisible by 9.

Write these numbers: 3.79, 500, –123, 2,000.88, –250,794. Now add them together.

Is the answer 4.0‰, or is it 4.0%?

PUNCTUATION IN NEMETH CODE

3.4 Background: So far we have looked at mathematical punctuation that is essentially unambiguous in mathematical context: the comma, decimal, the short and long dash, and the ellipsis. These symbols are not the same as their UEB counterparts. To review:

Mathematical Punctuation of the Nemeth Code	
Comma	⠠
Decimal Point	⠨
Dash (short)	⠤⠤
Long Dash	⠤⠤⠤⠤
Ellipsis	⠄⠄⠄

When punctuation is brailled inside the Nemeth Code switches, clarification is required because many punctuation marks are represented by the same braille dots as Nemeth numerals and symbols.

Literary Punctuation Mark			**Could be misread in Nemeth Code as a ...**
Semicolon	;	⠆	*(numeral 2)*
Colon	:	⠒	*(numeral 3)*
Period	.	⠲	*(numeral 4)*
Exclamation Point	!	⠖	*(numeral 6)*
Question Mark	?	⠦	*(numeral 8)*
Quotation Marks	" "	⠦ ⠴	*(numerals 8 and 0)*
Apostrophe	'	⠄	*(prime sign)*

> The BANA Nemeth Code Technical Committee is discussing details regarding the treatment of "single" quotation marks in Nemeth context.

Throughout this course, isolated examples which illustrate Nemeth Code rules are marked with this icon: ⫸
Nemeth Code switch indicators are omitted from these isolated examples.

The Punctuation Indicator

3.5 Role of the Punctuation Indicator: A punctuation indicator is placed before one or more of the punctuation marks listed in the box above when such punctuation occurs in mathematical context and the punctuation is not preceded by a space. Use of the punctuation indicator assures that the braille is read as punctuation and is not misread as a mathematical symbol.

Punctuation Indicator	⠸

⫸ 2 · 2 · 2; ⠼⠆⠡⠆⠡⠆⠸⠆

The punctuation indicator prevents the semicolon from being misread as the numeral 2.

Example 3.5-1 In this example, a comma separates member pairs; a semicolon separates sets. 2 · 2, 2 · 2 · 2; 3 · 3, 3 · 3 · 3; 4 · 4, 4 · 4 · 4.

⠀⠀⠠⠔ ⠹ ⠑⠭⠁⠍⠏⠇⠑⠂ ⠁ ⠉⠕⠍⠍⠁ ⠎⠑⠏⠜⠁⠞⠑⠎ ⠍⠑⠍⠃⠻
⠏⠁⠊⠗⠎⠆ ⠁ ⠎⠑⠍⠊⠉⠕⠇⠕⠝ ⠎⠑⠏⠜⠁⠞⠑⠎ ⠎⠑⠞⠎⠲
⠸⠩ ⠼⠆⠡⠆⠠ ⠼⠆⠡⠆⠡⠆⠸⠆ ⠼⠒⠡⠒⠠ ⠼⠒⠡⠒⠡⠒⠸⠆ ⠼⠲⠡⠲⠠
⠼⠲⠡⠲⠡⠲ ⠸⠱⠲

Although the opening Nemeth Code indicator will fit on line 2, the first math expression will not. In general, keep the switch indicators on the same line as the mathematics to which they apply. The final period applies to the entire sentence. It is placed after the Nemeth Code terminator.

When there are two or more punctuation marks in a row following a mathematical item, only one punctuation indicator is used. If a comma is one of the punctuation marks the mathematical comma is brailled.

⫸ "−", "=". ⠦⠤⠸⠴⠠ ⠦⠨⠅⠸⠴⠲

The punctuation indicator prevents the closing quotation mark from being misread as the numeral 0 and the closing quotation mark and period from being misread as 04.

Example 3.5-2 Signs for "plus", "minus", and "equals" are "+", "−", "=". ÷ means "divided by".

⠀⠀⠠⠎⠊⠛⠝⠎ ⠿ ⠦⠏⠇⠥⠎⠴⠂ ⠦⠍⠔⠥⠎⠴⠂ ⠯ ⠦⠑⠟⠥⠁⠇⠎⠴
⠜⠑ ⠸⠩ ⠦⠬⠸⠴⠠ ⠦⠤⠸⠴⠠ ⠦⠨⠅⠸⠴⠲ ⠨⠌ ⠸⠱ ⠍⠂⠝⠎
⠦⠙⠊⠧⠊⠙⠫ ⠃⠽⠴⠲

A punctuation indicator is not needed for the opening quotation marks because they are preceded by a space and so will not be misread as numerals.

3.5.1 Comparison Sign in Quotes: Note that, although a space is generally left between a comparison sign and an expression which precedes or follows it, a space is not left between a comparison sign and a punctuation mark which applies to it. Observe how this applies to the equals sign in the example above.

3.5.2 Number in Quotes: A numeric indicator is required when a numeral immediately follows an opening quotation mark.

⋙ "40+10=50" ⠦⠼⠲⠴⠬⠂⠴⠀⠨⠅⠀⠼⠢⠴⠸⠴

Example 3.5-3 Add 48+13 in your head. Think: "40+10=50" ... "8+3=11" ... "50 + 11 = 61".

⠠⠁⠙⠙⠀⠸⠩⠀⠼⠲⠦⠬⠂⠒⠀⠸⠱⠀⠔⠀⠽⠗⠀⠓⠂⠙⠲⠀⠠⠹⠔⠅⠒
⠸⠩⠀⠦⠼⠲⠴⠬⠂⠴⠀⠨⠅⠀⠼⠢⠴⠸⠴⠀⠄⠄⠄⠀⠦⠼⠦⠬⠒⠀⠨⠅⠀⠼⠂⠂⠸⠴
⠄⠄⠄⠀⠦⠼⠢⠴⠬⠂⠂⠀⠨⠅⠀⠼⠖⠂⠸⠴⠀⠸⠱⠲

Even though this ellipsis is not mathematical (it indicates pausing while thinking), the ellipsis of the Nemeth Code is used because it is inside the Nemeth Code switches. The final period applies to the entire sentence. It is placed after the Nemeth Code terminator.

> The BANA Nemeth Code Technical Committee is discussing details regarding the treatment of digital clock time. Correct transcriptions of the examples in this section will be confirmed after approval is obtained. For now, provisional solutions are provided.

3.5.3 Clock Time: Digital clock time expressed with the use of a colon may be brailled in UEB or in Nemeth Code, depending on the context. In mathematical context, a punctuation indicator precedes the colon to prevent misreading the colon as the number 3. A numeric indicator is then required to set the reading mode back to "numbers."

3:30

UEB: ⠼⠉⠒⠼⠉⠚

Nemeth: ⠸⠩⠀⠼⠒⠸⠒⠼⠒⠴⠀⠸⠱

Recall from **Lesson 2** that when connected numerals are shown in mathematical context, the numeric indicator is not used after a hyphen connecting them.

7:45-8:20

UEB: ⠼⠛⠒⠼⠙⠑⠤⠼⠓⠒⠼⠃⠚

Nemeth: ⠸⠩⠀⠼⠶⠸⠒⠼⠲⠢⠤⠦⠸⠒⠼⠆⠴⠀⠸⠱

Example 3.5-2 Last night, Jayquan arrived at 7:45 and left at 8:20. Use the shortcut method to figure out how many minutes he stayed. 7:45-8:20 = 15+20 = 35. Jayquan stayed for 35 minutes.

PROVISIONAL SOLUTION

⠠⠇⠁⠌ ⠝⠊⠣⠞⠂ ⠠⠚⠁⠽⠟⠥⠁⠝ ⠜⠗⠊⠧⠫ ⠁⠞ ⠼⠛⠒⠼⠙⠑
⠯ ⠇⠑⠋⠞ ⠁⠞ ⠼⠓⠒⠼⠃⠚⠲ ⠠⠥⠎⠑ ⠮ ⠩⠕⠗⠞⠉⠥⠞ ⠍⠑⠹⠕⠙
⠞⠕ ⠋⠊⠛⠥⠗⠑ ⠳ ⠓⠪ ⠸⠍ ⠍⠔⠥⠞⠑⠎ ⠓⠑ ⠌⠁⠽⠫⠲
⠸⠩ ⠼⠶⠸⠒⠼⠲⠢⠤⠦⠸⠒⠼⠆⠴ ⠨⠅ ⠼⠂⠢⠬⠆⠴ ⠨⠅ ⠼⠒⠢ ⠸⠱⠲
⠠⠚⠁⠽⠟⠥⠁⠝ ⠌⠁⠽⠫ ⠿ ⠼⠉⠑ ⠍⠔⠥⠞⠑⠎⠲

3.6 Punctuation with Omission Signs: When a sign of omission represents omitted mathematical content the appropriate omission symbol of the Nemeth Code is brailled and it is punctuated mathematically. The punctuation is unspaced from the omission symbol. (There is one exception noted after the examples.)

⫸ 2 × …, ⠼⠆⠈⠡ ⠄⠄⠄⠠
⫸ 2 × ___. ⠼⠆⠈⠡ ⠤⠤⠤⠤⠸⠲
⫸ 2 × ? ; ⠼⠆⠈⠡⠿⠸⠆

Take another look at this example from **Lesson 2**. Notice the use of the mathematical comma with the long dash.

Example 3.6-1 Ways to write "10": ___ + 5, ___ − 3, 2 × ___, 50 ÷ ___.

⠠⠺⠁⠽⠎ ⠞⠕ ⠺⠗⠊⠞⠑ ⠦⠼⠁⠚⠴⠒ ⠸⠩ ⠤⠤⠤⠤ ⠬⠢⠠
⠤⠤⠤⠤ ⠤⠼⠒⠠ ⠼⠆⠈⠡ ⠤⠤⠤⠤⠠ ⠼⠢⠴⠨⠌ ⠤⠤⠤⠤ ⠸⠱⠲

*Reminders from **Lesson 2**: The long dash and the ellipsis are spaced away from the multiplication symbol even though operation signs are usually unspaced.*

Example 3.6-2 Fill in the missing numbers in the series: 3, 6, ?, 12, ??, 18.

⠠⠋⠊⠇⠇ ⠔ ⠮ ⠍⠊⠎⠎⠬ ⠝⠥⠍⠃⠻⠎ ⠔ ⠮ ⠎⠻⠊⠑⠎⠒
⠸⠩ ⠼⠒⠠ ⠼⠖⠠ ⠿⠠ ⠼⠂⠆⠠ ⠿⠿⠠ ⠼⠂⠦ ⠸⠱⠲

Switch Decision: The general omission symbol is a Nemeth Code symbol. The use of that symbol supports the decision to use Nemeth Code to braille the entire series even though the numerals do not necessarily require a switch.

Reminder: The general omission symbol is spaced according to rules of the item it represents (in this case, a numeral). The same number of omission symbols shown in print should be used in braille.

3.6.1 SPACING EXCEPTION—The Hyphen: Although no space is left between an ellipsis and a related punctuation mark or between a long dash and a related punctuation mark, if the punctuation mark is a hyphen then a space is required.

⫸ 40% - ___ ⠼⠲⠴⠈⠴⠤ ⠤⠤⠤⠤
⫸ … -9.3 ⠄⠄⠄ ⠤⠼⠔⠨⠒

Example 3.6-3 Orchids thrive when humidity ranges from 40% - ___. ___ -80% is considered optimal for most varieties.

⠠⠕⠗⠡⠊⠙⠎ ⠹⠗⠊⠧⠑ ⠱⠢ ⠓⠥⠍⠊⠙⠰⠽ ⠗⠁⠝⠛⠑⠎ ⠋
⠸⠩ ⠼⠲⠴⠈⠴⠤ ⠤⠤⠤⠤⠸⠲ ⠤⠤⠤⠤ ⠤⠼⠦⠴⠈⠴ ⠸⠱ ⠊⠎
⠒⠎⠊⠙⠻⠫ ⠕⠏⠞⠊⠍⠁⠇ ⠿ ⠍⠕⠌ ⠧⠜⠊⠑⠞⠊⠑⠎⠲

3.7 Punctuation and Spacing of Plural or Possessive Endings: When "s" or apostrophe-s is attached to a mathematical expression it becomes part of that expression. This means that—in mathematical context—the "s" is punctuated mathematically.

⫸ ×s: ⠈⠡⠎⠸⠒

Example 3.7-1 Insert +s or insert ×s: $4 \ldots 2 = 8$; $8 \ldots 2 = 10$.

⠠⠔⠎⠻⠞ ⠸⠩ ⠬⠎ ⠸⠱ ⠕⠗ ⠔⠎⠻⠞ ⠸⠩ ⠈⠡⠎⠸⠒
⠼⠲ ⠄⠄⠄ ⠼⠆ ⠨⠅ ⠼⠦⠸⠆ ⠼⠦ ⠄⠄⠄ ⠼⠆ ⠨⠅ ⠼⠂⠴ ⠸⠱⠲

Reminder: A Nemeth Code format rule states that a mathematical expression must not be divided between braille lines if it will fit on one line within current margins. The expression "4 ... 2 = 8" must not be divided and so it begins on line 2.

A punctuation indicator is required before the apostrophe in a possessive ending "apostrophe-s". Even so, a punctuation indicator is still required before a punctuation mark that immediately follows the "s". Compare this similar example to the previous one.

⫸ ×'s: ⠈⠡⠸⠄⠎⠸⠒

Example 3.7-2 Insert +'s or insert ×'s: $4 \ldots\ 2 = 8$; $8 \ldots 2 = 10$.

⠠⠔⠎⠻⠞ ⠸⠩ ⠬⠸⠄⠎ ⠸⠱ ⠕⠗ ⠔⠎⠻⠞ ⠸⠩ ⠈⠡⠸⠄⠎⠸⠒
⠼⠲ ⠄⠄⠄ ⠼⠆ ⠨⠅ ⠼⠦⠸⠆ ⠼⠦ ⠄⠄⠄ ⠼⠆ ⠨⠅ ⠼⠂⠴ ⠸⠱⠲

A punctuation indicator is needed both before the apostrophe and before the colon in ×'s:.

The ending is unspaced from the symbol even if the symbol normally requires a space.

⫸ =s ⠨⠅⠎

⫸ ='s ⠨⠅⠸⠄⠎

Instructions: Here is a list of isolated mathematical items and punctuation marks. Following the centered heading and the blank line, braille an opening Nemeth Code indicator in cell 1 and continue with the first item in the list on the same line. Stay in Nemeth Code throughout the practice (braille the clock time in Nemeth Code). Begin each line in cell 1; begin any runovers in cell 3. Braille a Nemeth Code terminator after the completion of the last item in the list.

PRACTICE 3B

+, − ; ×, ÷ .

+'s, −'s, ×'s, ÷'s; =s, >s, <s.

" :: "

5.1, 6.22, 7.333; $8.44, $9.55; $10.66.

10:45-11:25

−16 > −____; 16 < ____ .

$1,400 < £ $\underline{\ ?\ }$

5'3" ..., 6'1"—6'2" ..., 7'0".

"8 · 3 = 3 · 8"

3.8 SUMMARY—Situations That Do Not Require a Punctuation Indicator: Previous examples are revisited to illustrate situations in which the punctuation indicator is not needed.

— The mathematical comma never requires a punctuation indicator.

⫸ 5.0, ⠼⠢⠨⠴⠠

Example 3.8-1 What is the secret clue in this series? 5.0, 8.2, 11.4, 14.6, ...

⠠⠱⠁⠞ ⠊⠎ ⠮ ⠎⠑⠉⠗⠑⠞ ⠉⠇⠥⠑ ⠔ ⠹ ⠎⠻⠊⠑⠎⠦
⠸⠩ ⠼⠢⠨⠴⠠ ⠼⠦⠨⠆⠠ ⠼⠂⠂⠨⠲⠠ ⠼⠂⠲⠨⠖⠠ ⠄⠄⠄ ⠸⠱

— The punctuation indicator is not used before a hyphen or a dash.

⫸ 5.5-7.0 ⠼⠢⠨⠢⠤⠶⠨⠴
⫸ $47,689—2.6% ⠈⠎⠲⠶⠠⠖⠦⠔⠤⠤⠼⠆⠨⠖⠈⠴

Example 3.8-2 Plants thrive in soils that measure from 5.5-7.0 on the pH scale.

⠠⠏⠇⠁⠝⠞⠎ ⠹⠗⠊⠧⠑ ⠔ ⠎⠕⠊⠇⠎ ⠞ ⠍⠂⠎⠥⠗⠑ ⠋
⠸⠩ ⠼⠢⠨⠢⠤⠶⠨⠴ ⠸⠱ ⠕⠝ ⠮ ⠏⠠⠓ ⠎⠉⠁⠇⠑⠲

Example 3.8-3 The final cost was $47,689—2.6% more than advertised.

⠠⠮ ⠋⠔⠁⠇ ⠉⠕⠌ ⠴ ⠸⠩ ⠈⠎⠲⠶⠠⠖⠦⠔⠤⠤⠼⠆⠨⠖⠈⠴ ⠸⠱
⠍ ⠹⠁⠝ ⠁⠙⠧⠻⠞⠊⠎⠫⠲

— A punctuation indicator is not needed if the first character following a space is a punctuation mark or if the punctuation mark begins on a new line.

⫸ "+", "-" ⠦⠬⠸⠴⠠ ⠦⠤⠸⠴

Example 3.8-4 Symbols for "plus", "minus", and "equals" are "+", "-", "=".

⠠⠎⠽⠍⠃⠕⠇⠎ ⠿ ⠦⠏⠇⠥⠎⠴⠂ ⠦⠍⠔⠥⠎⠴⠂ ⠯
⠦⠑⠟⠥⠁⠇⠎⠴ ⠜⠑ ⠸⠩ ⠦⠬⠸⠴⠠ ⠦⠤⠸⠴⠠ ⠦⠨⠅⠸⠴ ⠸⠱⠲

— In a sequence of punctuation marks following a mathematical expression, the punctuation indicator precedes only the first punctuation mark.

⫸ "=". ⠦⠨⠅⠸⠴⠲

Example 3.8-5 Symbols for "plus", "minus", and "equals" are "+", "-", "=". ÷ means "divided by".

⠠⠎⠽⠍⠃⠕⠇⠎ ⠿ ⠦⠏⠇⠥⠎⠴⠂ ⠦⠍⠔⠥⠎⠴⠂ ⠯
⠦⠑⠟⠥⠁⠇⠎⠴ ⠜⠑ ⠸⠩ ⠦⠬⠸⠴⠠ ⠦⠤⠸⠴⠠ ⠦⠨⠅⠸⠴⠲
⠨⠌ ⠸⠱ ⠍⠂⠝⠎ ⠦⠙⠊⠧⠊⠙⠫ ⠃⠽⠴⠲

INTRODUCTION TO SIGNS OF GROUPING

3.9 Definition: In mathematical context, symbols such as parentheses, braces, and brackets are not considered to be punctuation; they are classified as *signs of grouping*. Here are some grouping signs commonly encountered in technical material.

Opening Parenthesis	(	⠷
Closing Parenthesis	)	⠾
Opening Brace	{	⠨⠷
Closing Brace	}	⠨⠾
Opening Bracket	[	⠈⠷
Closing Bracket	]	⠈⠾
Opening Angle Bracket	⟨	⠨⠨⠷
Closing Angle Bracket	⟩	⠨⠨⠾
Vertical Bar	|	⠳
Double Vertical Bar	||	⠳⠳

More signs of grouping will be presented in later lessons.

3.10 Signs of Grouping with Numerals: The numeric indicator is not used before a numeral or before a decimal point that immediately follows an opening grouping sign.

⫸ (3)(.5)   ⠷⠒⠾⠷⠨⠢⠾

Example 3.10-1 "Three times point five" can be written this way: (3)(.5).

⠦⠠⠹⠗⠑⠑ ⠐⠞⠎ ⠏⠕⠔⠞ ⠋⠊⠧⠑⠴ ⠉ ⠆ ⠺⠗⠊⠞⠞⠢ ⠹
⠺⠁⠽⠒ ⠸⠩ ⠷⠒⠾⠷⠨⠢⠾ ⠸⠱⠲

The numeric indicator is not used after a minus sign that immediately follows an opening grouping sign.

⫸ |−8| ⠳⠤⠦⠳

Example 3.10-2 |−8| is spoken "the absolute value of negative eight."

⠸⠩ ⠳⠤⠦⠳ ⠸⠱ ⠊⠎ ⠎⠏⠕⠅⠢ ⠦⠮ ⠁⠃⠎⠕⠇⠥⠞⠑
⠧⠁⠇⠥⠑ ⠷ ⠝⠑⠛⠁⠞⠊⠧⠑ ⠑⠊⠣⠞⠲⠴

Lacking an opening grouping sign, the numeric indicator is required when the numeral is preceded by a space or begins a braille line. Compare:

⫸ 1) ⠼⠂⠾

⫸ (1) ⠷⠂⠾

3.11 Punctuation with Grouping Symbols: Grouping symbols of the Nemeth Code are mathematical symbols and therefore must be punctuated mathematically inside of the switch indicators. Thus, except for the mathematical comma, hyphen, and dash, a punctuation indicator must be used before a punctuation mark following a sign of grouping.

⫸ {−5}, (0), [+5]. ⠨⠷⠤⠢⠨⠾⠠ ⠷⠴⠾⠠ ⠈⠷⠬⠢⠈⠾⠸⠲

⫸ ("20%"), ⠷⠸⠦⠼⠆⠴⠈⠴⠸⠴⠾⠠

Example 3.11-1 What fractions do these percentages represent? ("20%"), ("25%"), ("50%")

⠠⠱⠁⠞ ⠋⠗⠁⠉⠰⠝⠎ ⠙ ⠘⠮ ⠏⠻⠉⠢⠞⠁⠛⠑⠎
⠗⠑⠏⠗⠑⠎⠢⠞⠦ ⠸⠩ ⠷⠸⠦⠼⠆⠴⠈⠴⠸⠴⠾⠠ ⠷⠸⠦⠼⠆⠢⠈⠴⠸⠴⠾⠠
⠷⠸⠦⠼⠢⠴⠈⠴⠸⠴⠾ ⠸⠱

Reminder: A numeric indicator is required when a numeral immediately follows an opening quotation mark.

3.12 Nested Grouping Symbols: When two or more grouping signs follow one another the outer set may be printed using a taller size in order to visually distinguish the nested groupings. The braille transcription does not differentiate between the sizes—regular grouping symbols are brailled.

Example 3.12-1 $\big((4+7)-(7+4)\big)$

⠸⠩ ⠷⠷⠲⠬⠶⠾⠤⠷⠶⠬⠲⠾⠾ ⠸⠱

In print, the first and last parentheses are taller than the others.

Note that this does not apply to the vertical bar since the double vertical bar is a distinct mathematical symbol. Nested vertical bars are discussed in a later lesson.

Code-Switching Considerations

3.13 "Enclosed" Technical Material: When parentheses, brackets, braces, or quotation marks enclose isolated technical material, recommended practice is to braille the paired punctuation inside the code switches.

⋙ "+" ⠦⠬⠸⠴

Example 3.13-1 "+" means *plus*, "−" means *minus*, and "=" means *equals*.

⠸⠩ ⠦⠬⠸⠴ ⠸⠱ ⠍⠂⠝⠎ ⠨⠂⠏⠇⠥⠎⠂ ⠸⠩ ⠦⠤⠸⠴ ⠸⠱
⠍⠂⠝⠎ ⠨⠂⠍⠔⠥⠎⠂ ⠯ ⠸⠩ ⠦⠨⠅⠸⠴ ⠸⠱ ⠍⠂⠝⠎
⠨⠂⠑⠟⠥⠁⠇⠎⠲

Recall that UEB symbols are not used inside of the Nemeth Code switches. Even when a sign of grouping is functioning as a punctuation mark rather than a mathematical symbol, the Nemeth Code grouping symbols are used inside the switches.

⋙ (×) ⠷⠈⠡⠾

Example 3.13-2 Multiplication can be printed as a dot (·) or as a cross (×).

⠠⠍⠥⠇⠞⠊⠏⠇⠊⠉⠁⠰⠝ ⠉ ⠆ ⠏⠗⠔⠞⠫ ⠵ ⠁ ⠙⠕⠞
⠸⠩ ⠷⠡⠾ ⠸⠱ ⠕⠗ ⠵ ⠁ ⠉⠗⠕⠎⠎ ⠸⠩ ⠷⠈⠡⠾ ⠸⠱⠲

3.13.1 Punctuation Following a Sign of Grouping: Grouping signs of the Nemeth Code are punctuated mathematically. This rule is illustrated by expanding the previous example, continuing in Nemeth Code following the period.

⋙ (×). ⠷⠈⠡⠾⠸⠲

Example 3.13-3 Multiplication can be printed as a dot (·) or as a cross (×). 12 · 3 is just another way to write 12 × 3.

⠠⠍⠥⠇⠞⠊⠏⠇⠊⠉⠁⠰⠝ ⠉ ⠆ ⠏⠗⠔⠞⠫ ⠵ ⠁ ⠙⠕⠞
⠸⠩ ⠷⠡⠾ ⠸⠱ ⠕⠗ ⠵ ⠁ ⠉⠗⠕⠎⠎ ⠸⠩ ⠷⠈⠡⠾⠸⠲
⠼⠂⠆⠡⠒ ⠸⠱ ⠊⠎ ⠚ ⠁⠝⠕⠮⠗ ⠺⠁⠽ ⠞⠕ ⠺⠗⠊⠞⠑
⠸⠩ ⠼⠂⠆⠈⠡⠒ ⠸⠱⠲

3.14 The Bigger Picture: On the other hand, if the punctuation applies to a larger phrase where UEB is being used, braille the paired punctuation marks in UEB.

Example 3.14-1 Al shouted, "The answer is 99¢!"

⠰⠠⠁⠇ ⠩⠳⠞⠫⠂ ⠦⠠⠮ ⠁⠝⠎⠺⠻ ⠊⠎
⠸⠩ ⠼⠔⠔⠈⠉ ⠸⠱⠖⠴

Example 3.14-2 ($1.01 is the correct answer.)

⠐⠣⠸⠩ ⠈⠎⠂⠨⠴⠂ ⠸⠱ ⠊⠎ ⠮ ⠉⠕⠗⠗⠑⠉⠞ ⠁⠝⠎⠺⠻⠲⠐⠜

However, do not switch out of Nemeth Code merely for the sake of a punctuation mark. The practice of avoiding excessive code switching takes precedence over symmetrical pairing of punctuation marks.

Example 3.14-3 Al shouted, "The answer is 99¢!" ($1.01 is the correct answer.)

⠰⠠⠁⠇ ⠩⠳⠞⠫⠂ ⠦⠠⠮ ⠁⠝⠎⠺⠻ ⠊⠎ ⠸⠩ ⠼⠔⠔⠈⠉⠸⠖⠴
⠷⠈⠎⠂⠨⠴⠂ ⠸⠱ ⠊⠎ ⠮ ⠉⠕⠗⠗⠑⠉⠞ ⠁⠝⠎⠺⠻⠲⠐⠜

If you ask yourself, "Does the punctuation apply only to the math expression, or does it apply to the whole phrase (not just the math)?" and "Is Nemeth Code in effect both before and after the punctuation?" the best transcription interpretation will usually be clear.

Spacing with Signs of Grouping

3.15 Spacing Inside of the Grouping Signs: Unless other rules apply, no space is left between an opening or a closing sign of grouping and the material which it encloses.

⫸ [−4] ⠈⠷⠤⠲⠈⠾

⫸ (12¢) ⠷⠂⠆⠈⠉⠾

This includes symbols which usually require spacing—no space is left between a dash, an ellipsis, a sign of comparison, or any other symbol and its sign of grouping.

⫸ ‖…‖ ⠳⠳⠄⠄⠄⠳⠳

⫸ (<, =, >) ⠷⠐⠅⠠ ⠨⠅⠠ ⠨⠂⠾

Example 3.15-1 Circle the correct comparison sign: 14 ÷ 7 (<, =, >) 14 − 7

⠠⠉⠊⠗⠉⠇⠑ ⠮ ⠉⠕⠗⠗⠑⠉⠞ ⠉⠕⠍⠏⠜⠊⠎⠕⠝ ⠎⠊⠛⠝⠒
⠸⠩ ⠼⠂⠲⠨⠌⠶ ⠷⠐⠅⠠ ⠨⠅⠠ ⠨⠂⠾ ⠼⠂⠲⠤⠶ ⠸⠱

3.15.1 SPECIAL CASE—When a space is printed between an opening and a closing sign of grouping and that blank space does not represent an omission, the space between the grouping signs is included in the braille transcription.

Example 3.15-2 Angle brackets ⟨ ⟩ denote a sequence.

⠠⠁⠝⠛⠇⠑ ⠃⠗⠁⠉⠅⠑⠞⠎ ⠸⠩ ⠨⠨⠷ ⠨⠨⠾ ⠸⠱ ⠙⠢⠕⠞⠑
⠁ ⠎⠑⠟⠥⠰⠑⠲

Context will help you determine whether the print sign is an angle bracket or a "less than" or a "greater than" symbol.

3.16 Spacing Outside of the Grouping Signs: The spacing before and after an enclosed expression is subject to the spacing rules for the signs which precede or follow the enclosure.

Example 3.16-1 Perform the multiplication before the addition: $(4 \times 30) + (4 \times 2) = 128$

⠠⠏⠻⠿⠍ ⠮ ⠍⠥⠇⠞⠊⠏⠇⠊⠉⠁⠰⠝ ⠆⠋ ⠮ ⠁⠙⠙⠊⠰⠝⠒
⠸⠩ ⠷⠲⠈⠡⠒⠴⠾⠬⠷⠲⠈⠡⠆⠾ ⠨⠅ ⠼⠂⠆⠦ ⠸⠱

Operation signs are unspaced; comparison signs are spaced.

Example 3.16-2 Complete the missing values in the range (0.1) ... (0.9)

⠠⠉⠕⠍⠏⠇⠑⠞⠑ ⠮ ⠍⠊⠎⠎⠬ ⠧⠁⠇⠥⠑⠎ ⠔ ⠮ ⠗⠁⠝⠛⠑
⠸⠩ ⠷⠴⠨⠂⠾ ⠄⠄⠄ ⠷⠴⠨⠔⠾ ⠸⠱

The ellipsis is spaced.

No space is left between an enclosed expression and a numeral when these items are part of the same expression unless other spacing rules apply. These items often appear to be spaced in print.

Example 3.16-3 Does $5\,(9 + 7) = (5 \cdot 9) + 7$?

⠠⠙⠕⠑⠎ ⠸⠩ ⠼⠢⠷⠔⠬⠶⠾ ⠨⠅ ⠷⠢⠡⠔⠾⠬⠶ ⠸⠱⠦

No space is left between an enclosed expression and another sign of grouping when these items are part of the same expression unless other spacing rules apply. These items often appear to be spaced in print.

Example 3.16-4 Multiply, then add: $[(3)(-1)] + [(1)(-3)]$

⠠⠍⠥⠇⠞⠊⠏⠇⠽⠂ ⠮⠝ ⠁⠙⠙⠒
⠸⠩ ⠈⠷⠷⠒⠾⠷⠤⠂⠾⠈⠾⠬⠈⠷⠷⠂⠾⠷⠤⠒⠾⠈⠾ ⠸⠱

Instructions: Format each line in print as a 3-1 paragraph in braille.

PRACTICE 3C

Is $3(-2.5) + (-4)$ the same as $3(-2.5 + (-4))$?

Use a number line to illustrate this addition problem: $[-4 - (-1)] + [-1 - (-3)]$.

$7 + (-3) + (-4) = ?$

$8 + |(-2) + (-3)| = ?$

$|2(-7.5)| + 3.2(2) = ?$

The **multiplicative identify** [sic] property is illustrated: $(83)(1) = 83$.

A pair of braces "{ }" indicates a set.

What is the meaning of the symbol "||" in "The answer is $\|3.1\|$"?

3.17 Code Switching and Identifiers—Maintaining Alignment: In itemized sections, the identifiers should each begin in the same cell. You have learned one format for itemized text: 1-3. In that layout, each identifier should begin in cell 1. By placing the opening Nemeth Code indicator at the end of the line of text that precedes a list of numbered items you can ensure that all identifiers begin in the same cell.

Example 3.17-1 Kenny listed three ways to write "twelve" in a math sentence.

1. $5+7$
2. $144 \div 12$
3. $(10 \times 6) - (8 \times 6)$

⠀⠀⠠⠅⠢⠝⠽ ⠇⠊⠌⠫ ⠹⠗⠑⠑ ⠺⠁⠽⠎ ⠞⠕ ⠺⠗⠊⠞⠑
⠦⠞⠺⠑⠇⠧⠑⠴ ⠔ ⠁ ⠍⠁⠹ ⠎⠢⠞⠰⠑⠲ ⠸⠩

⠼⠂⠸⠲ ⠼⠢⠬⠶
⠼⠆⠸⠲ ⠼⠂⠆⠆⠨⠌⠂⠆
⠼⠒⠸⠲ ⠷⠂⠴⠈⠡⠖⠾⠤⠷⠦⠈⠡⠖⠾ ⠸⠱

If there is no room for the opening Nemeth Code indicator at the end of the line that precedes the identified material, place it on the next line in the appropriate runover cell. The code switch indicator does not take the place of the blank line that must precede the itemized material.

Example 3.17-2 Kenny's classmates came up with two more.

4. $|-12|$
5. $11.9 + .1$

⠀⠀⠠⠅⠢⠝⠽⠄⠎ ⠉⠇⠁⠎⠎⠍⠁⠞⠑⠎ ⠉⠁⠍⠑ ⠥⠏ ⠾ ⠞⠺⠕ ⠍⠲
⠸⠩

⠼⠲⠸⠲ ⠳⠤⠂⠆⠳
⠼⠢⠸⠲ ⠼⠂⠂⠨⠔⠬⠨⠂ ⠸⠱

3.18 Context Decisions and Code Switching: Even though an identifier is not part of the math, there is no need to switch out of Nemeth Code simply to braille an identifier. Notice in the two examples above that all of the itemized expressions are in Nemeth Code as well as their identifiers. If code switching is required within the itemized portion, identifiers are transcribed according to the rules for the code in use at the time regarding upper-cell or lower-cell numerals, use of indicators, and construction of related punctuation or grouping symbols. All identifiers in a section do not need to be transcribed in the same code.

Example 3.18-1 By understanding decimal multiplication you can mentally calculate the following products.

1. (−0.1) (−0.04)
2. (−0.02) (0.3)
3. Write a similar problem to challenge yourself.

⠀⠀⠀⠀⠠⠃⠽ ⠐⠥⠌⠯⠬ ⠙⠑⠉⠊⠍⠁⠇ ⠍⠥⠇⠞⠊⠏⠇⠊⠉⠁⠰⠝ ⠽ ⠉
⠍⠢⠞⠁⠇⠇⠽ ⠉⠁⠇⠉⠥⠇⠁⠞⠑ ⠮ ⠋⠕⠇⠇⠪⠬ ⠏⠗⠕⠙⠥⠉⠞⠎⠲
⠸⠩

⠼⠂⠸⠲ ⠷⠤⠴⠨⠂⠾⠷⠤⠴⠨⠴⠲⠾
⠼⠆⠸⠲ ⠷⠤⠴⠨⠴⠆⠾⠷⠴⠨⠒⠾ ⠸⠱
⠼⠉⠲ ⠠⠺⠗⠊⠞⠑ ⠁ ⠎⠊⠍⠊⠇⠜ ⠏⠗⠕⠃⠇⠑⠍ ⠞⠕ ⠡⠁⠇⠇⠢⠛⠑
⠀⠀⠽⠗⠋⠲

The identifiers can be brailled in either code. Note how the switch indicators are placed where they are least intrusive to the flow of text and do not interfere with the alignment of the first cell of the identifiers.

Embedded identifiers may be brailled in Nemeth Code to avoid excess code switching.

Example 3.18-2 **Mental Math** Find the answers without pencil or calculator. (1) 75–44 (2) 30 × 80 (3) 270 ÷ 9

⠀⠀⠀⠀⠘⠂⠠⠍⠢⠞⠁⠇ ⠘⠂⠠⠍⠁⠹ ⠠⠋⠔⠙ ⠮ ⠁⠝⠎⠺⠻⠎ ⠾⠳⠞
⠏⠢⠉⠊⠇ ⠕⠗ ⠉⠁⠇⠉⠥⠇⠁⠞⠕⠗⠲ ⠸⠩ ⠷⠂⠾ ⠶⠢⠤⠲⠲
⠷⠆⠾ ⠼⠒⠴⠈⠡⠦⠴ ⠷⠒⠾ ⠼⠆⠶⠴⠨⠌⠔ ⠸⠱

PRACTICE 3D

1) The box is 2’4” in height.

2) $5'$ is the same as $60''$

3) $12' + 15'' = 13'3''$

FORMAT

3.19 ***Keep Together*****—Hyphenated Expressions:** A hyphenated expression containing one or more mathematical components must not be divided between braille lines.

Example 3.19-1 The following problem uses a (1.5-to-1; 2.5-to-1; 3.5-to-1) high torque right-angle gearbox.

⠠⠞ ⠋⠕⠇⠇⠪⠬ ⠏⠗⠕⠃⠇⠑⠍ ⠥⠎⠑⠎ ⠁
⠸⠩ ⠷⠂⠨⠢⠤⠞⠕⠤⠼⠂⠸⠆ ⠼⠆⠨⠢⠤⠞⠕⠤⠼⠂⠸⠆
⠼⠒⠨⠢⠤⠞⠕⠤⠼⠂⠾ ⠸⠱ ⠓⠊⠣ ⠞⠕⠗⠟⠥⠑ ⠐⠗⠤⠁⠝⠛⠇⠑
⠛⠑⠜⠃⠕⠭⠲

Because Nemeth Code format rules are applied throughout a technical transcription, this rule also applies in UEB text when a numeral and a word are connected by a hyphen.

Example 3.19-2 Estimate how many seconds are in a 24-hour day.

⠠⠑⠌⠊⠍⠁⠞⠑ ⠓⠪ ⠸⠍ ⠎⠑⠉⠕⠝⠙⠎ ⠜⠑ ⠔ ⠁
⠼⠃⠙⠤⠓⠳⠗ ⠐⠙⠲

3.20 Margins for Itemized Material with No Subdivisions—Side-by-Side Layout: When the print copy arranges itemized material side-by-side across the page and there are no subdivisions, the braille format is changed so that all identifiers start in cell 1.

Example 3.20-1

Homework for Monday

1. 30×90 2. 71×300 3. $90 \div 2$
4. $382 + 802$ 5. $568 - 392$ 6. $147 - 26$

⠠⠓⠕⠍⠑⠐⠺ ⠿ ⠠⠍⠕⠝⠐⠙ ⠸⠩
⠼⠂⠸⠲ ⠼⠒⠴⠈⠡⠔⠴
⠼⠆⠸⠲ ⠼⠶⠂⠈⠡⠒⠴⠴
⠼⠒⠸⠲ ⠼⠔⠴⠨⠌⠆
⠼⠲⠸⠲ ⠼⠒⠦⠆⠬⠦⠴⠆
⠼⠢⠸⠲ ⠼⠢⠖⠦⠤⠒⠔⠆
⠼⠖⠸⠲ ⠼⠂⠲⠶⠤⠆⠖ ⠸⠱

Line 1: Note that the opening Nemeth Code indicator is placed at the end of the cell-5 heading. A discussion about code switches and headings occurs in a later lesson.

For further practice, see Appendix A—Reading Practice.

ANSWERS TO PRACTICE MATERIAL

⠠⠠⠏⠗⠁⠉⠞⠊⠉⠑ ⠼⠉⠠⠁

⠼⠛⠃⠓⠁⠉⠋⠑⠙⠂ ⠱⠢ ⠺⠗⠊⠞⠞⠢ ⠵
⠸⠩ ⠼⠶⠆ ⠦⠂ ⠒⠖ ⠢⠲ ⠸⠱⠂ ⠊⠎ ⠕⠃⠧⠊⠳⠎⠇⠽
⠙⠊⠧⠊⠎⠊⠃⠇⠑ ⠃⠽ ⠼⠊⠲

⠠⠺⠗⠊⠞⠑ ⠘⠮ ⠝⠥⠍⠃⠻⠎⠒ ⠸⠩ ⠼⠒⠨⠶⠔⠠ ⠼⠢⠴⠴⠠
⠤⠼⠂⠆⠒⠠ ⠼⠆⠠⠴⠴⠴⠨⠦⠦⠠ ⠤⠼⠆⠢⠴⠠⠶⠔⠲ ⠸⠱⠲ ⠠⠝⠪ ⠁⠙⠙
⠮⠍ ⠞⠛⠗⠲

⠠⠊⠎ ⠮ ⠁⠝⠎⠺⠻ ⠸⠩ ⠼⠲⠨⠴⠈⠴⠴ ⠸⠱⠂ ⠕⠗ ⠊⠎ ⠭
⠸⠩ ⠼⠲⠨⠴⠈⠴ ⠸⠱⠦

⠠⠠⠏⠗⠁⠉⠞⠊⠉⠑ ⠼⠉⠠⠃

⠸⠩ ⠬⠠ ⠤⠸⠆ ⠈⠡⠠ ⠨⠌⠸⠲
⠬⠸⠄⠎⠠ ⠤⠸⠄⠎⠠ ⠈⠡⠸⠄⠎⠠ ⠨⠌⠸⠄⠎⠸⠆ ⠨⠅⠎⠠ ⠨⠂⠎⠠
⠐⠅⠎⠸⠲
⠦⠰⠆⠸⠴
⠼⠢⠨⠂⠠ ⠼⠖⠨⠆⠆⠠ ⠼⠶⠨⠒⠒⠒⠸⠆ ⠈⠎⠦⠨⠲⠲⠠ ⠈⠎⠔⠨⠢⠢⠸⠆
⠈⠎⠂⠴⠨⠖⠖⠸⠲
⠼⠂⠴⠸⠒⠼⠲⠢⠤⠂⠂⠸⠒⠼⠆⠢
⠤⠼⠂⠖ ⠨⠂ ⠤ ⠤⠤⠤⠤⠸⠆ ⠼⠂⠖ ⠐⠅ ⠤⠤⠤⠤⠸⠲
⠈⠎⠂⠠⠲⠴⠴ ⠐⠅ ⠈⠇⠿
⠼⠢⠄⠒⠄⠄ ⠄⠄⠄⠠ ⠼⠖⠄⠂⠄⠄⠤⠤⠼⠖⠄⠆⠄⠄ ⠄⠄⠄⠠ ⠼⠶⠄⠴⠄⠄⠸⠲
⠦⠼⠦⠡⠒ ⠨⠅ ⠼⠒⠡⠦⠸⠴ ⠸⠱

⠠⠠⠏⠗⠁⠉⠞⠊⠉⠑ ⠼⠉⠠⠉

⠠⠊⠎ ⠸⠩ ⠼⠒⠷⠤⠆⠨⠢⠾⠬⠷⠤⠲⠾ ⠸⠱ ⠮ ⠎⠁⠍⠑ ⠵
⠸⠩ ⠼⠒⠷⠤⠆⠨⠢⠬⠷⠤⠲⠾⠾ ⠸⠱⠦

⠠⠥⠎⠑ ⠁ ⠝⠥⠍⠃⠻ ⠇⠔⠑ ⠞⠕ ⠊⠇⠇⠥⠌⠗⠁⠞⠑ ⠹ ⠁⠙⠙⠊⠰⠝
⠏⠗⠕⠃⠇⠑⠍⠒ ⠸⠩ ⠈⠷⠤⠲⠤⠷⠤⠂⠾⠈⠾⠬⠈⠷⠤⠂⠤⠷⠤⠒⠾⠈⠾⠸⠲

⠼⠶⠬⠷⠤⠒⠾⠬⠷⠤⠲⠾ ⠨⠅ ⠿

⠼⠦⠬⠳⠷⠤⠆⠾⠬⠷⠤⠒⠾⠳ ⠨⠅ ⠿

⠳⠆⠷⠤⠶⠨⠢⠾⠳⠬⠒⠨⠆⠷⠆⠾ ⠨⠅ ⠿ ⠸⠱

⠠⠮ ⠘⠂⠍⠥⠇⠞⠊⠏⠇⠊⠉⠁⠞⠊⠧⠑ ⠘⠂⠊⠙⠢⠞⠊⠋⠽ ⠨⠣⠎⠊⠉⠨⠜
⠏⠗⠕⠏⠻⠞⠽ ⠊⠎ ⠊⠇⠇⠥⠌⠗⠁⠞⠫⠒
⠸⠩ ⠷⠦⠒⠾⠷⠂⠾ ⠨⠅ ⠼⠦⠒ ⠸⠱⠲

⠠⠁ ⠏⠁⠊⠗ ⠷ ⠃⠗⠁⠉⠑⠎ ⠸⠩ ⠦⠨⠷ ⠨⠾⠸⠴ ⠸⠱
⠔⠙⠊⠉⠁⠞⠑⠎ ⠁ ⠎⠑⠞⠲

⠠⠱⠁⠞ ⠊⠎ ⠮ ⠍⠂⠝⠬ ⠷ ⠮ ⠎⠽⠍⠃⠕⠇ ⠸⠩ ⠦⠳⠳⠸⠴ ⠸⠱
⠔ ⠦⠠⠮ ⠁⠝⠎⠺⠻ ⠊⠎ ⠸⠩ ⠳⠳⠒⠨⠂⠳⠳ ⠸⠱⠴⠦

⠠⠠⠏⠗⠁⠉⠞⠊⠉⠑ ⠼⠉⠠⠙

⠼⠁⠐⠜ ⠠⠮ ⠃⠕⠭ ⠊⠎ ⠸⠩ ⠼⠆⠄⠲⠄⠄ ⠸⠱ ⠔ ⠓⠑⠊⠣⠞⠲
⠼⠃⠐⠜ ⠸⠩ ⠼⠢⠄ ⠸⠱ ⠊⠎ ⠮ ⠎⠁⠍⠑ ⠵ ⠸⠩ ⠼⠖⠴⠄⠄
⠼⠒⠾ ⠼⠂⠆⠄⠬⠂⠢⠄⠄ ⠨⠅ ⠼⠂⠒⠄⠒⠄⠄ ⠸⠱

EXERCISE 3

Exercise 3 will be available when this course is finished being written and is no longer "Provisional".

Proceed to Lesson 4.