SZS PRINT SERVICE
Draft guidelines for tactile material

version 0.3.3

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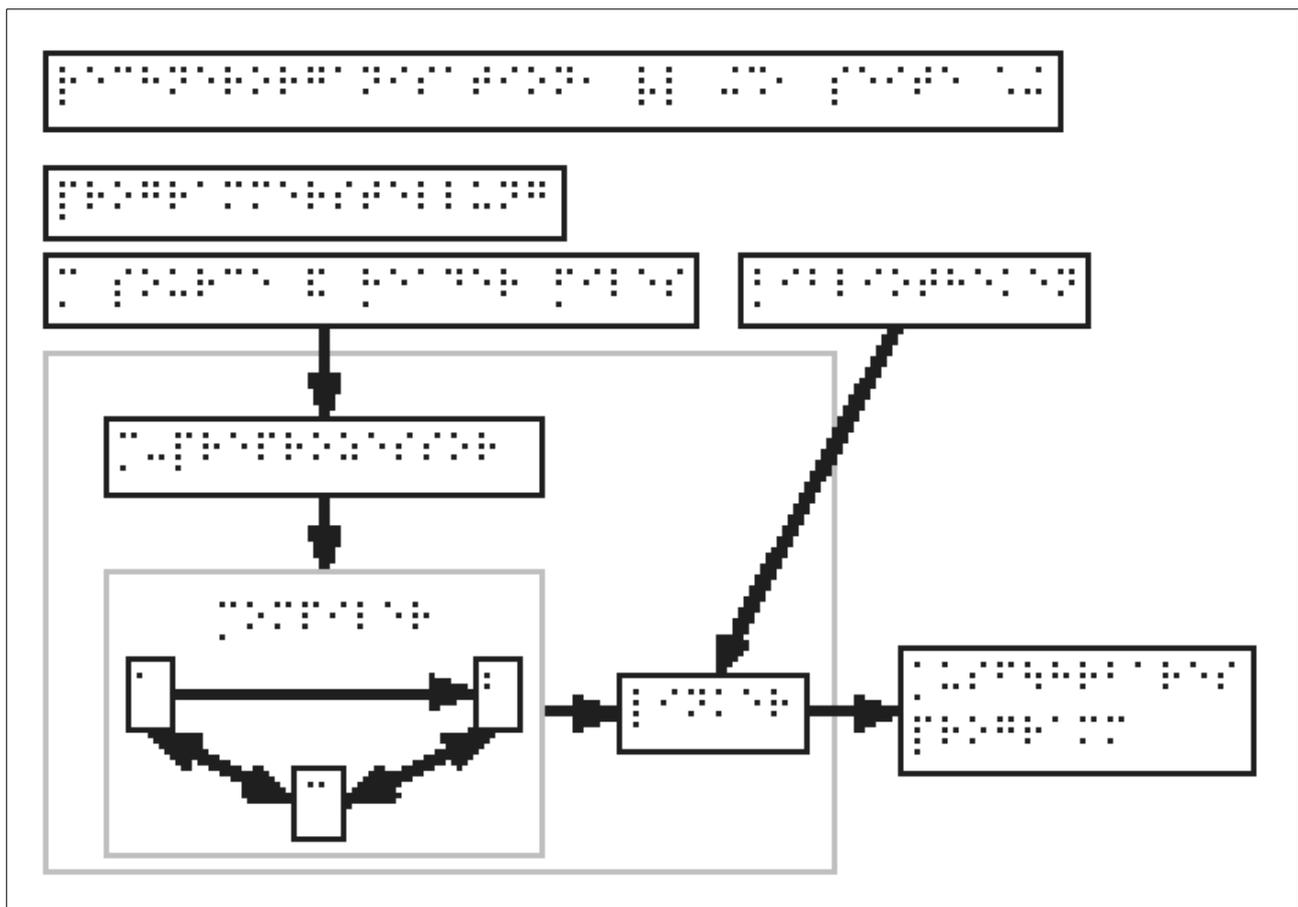
INTRO

This document describes the standard used at SZS (Studienzentrum für Sehgeschädigte Karlsruhe) to draw tactile materials for blind students at the Karlsruhe Institute of Technology.

GUIDELINES

1. If possible, please use the latest version of Draw Libre Office to draw up your files.

2. Supported page sizes are A4 and A3, with landscape or portrait orientation.
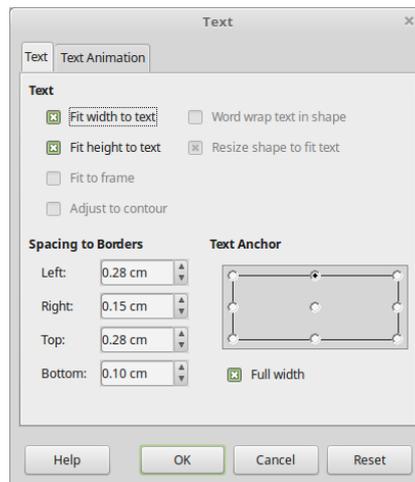
3. Text style:

   3.1. Use only the "Braille Computer ASCII" font-type and the font-size of "36pt"

   3.2. Do not use bold or italic font-style

   3.3. Set for the text box a spacing to borders of 0,2 cm for on all sides
   (select text box → Menu → Format → Text)
   You get the best results with: Left 0,28 Right 0,15 Top 0,28 Bottom 0,1 cm, and with the options 'Fit width to text' and 'Fit height to text'

   3.4. Insert the text in a text box and use for the border a continuous black line of null width (or smaller that 0,1 cm)

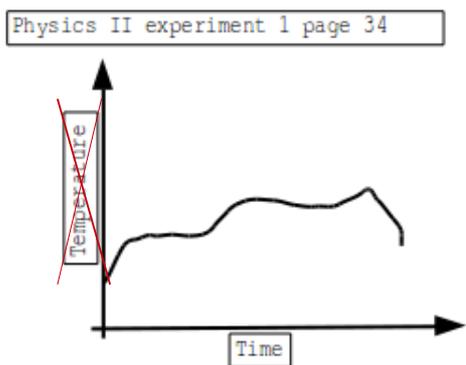   `Braille DE Computer ASCII; 36pt; normal`

4. Arrow style:

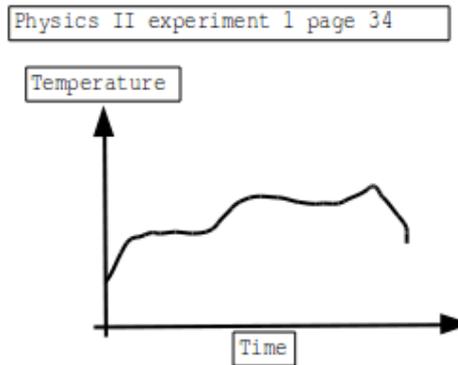   4.1. Line style: continuous line, width 0,2 cm

   4.2. Arrow: width 0,8 cm

5. Leave a space at least of 1.2 cm around the whole page. Embossed elements too close to the page edge have the tendency to cut the paper.

6. Do not insert text in two different direction on the same page


| Wrong - text in double directions | Correct version |

7. Do not use superscript, subscript, Greek characters and other mathematical symbols (e.g. x^2, vel_x , α, β, θ); use the Latex representation (e.g.: x^2, vel_x, \alpha, \beta, …) instead.

8. If the text is over a colored surface element, set a white background for the text box, such as the text "NP-schwer" in the example below.
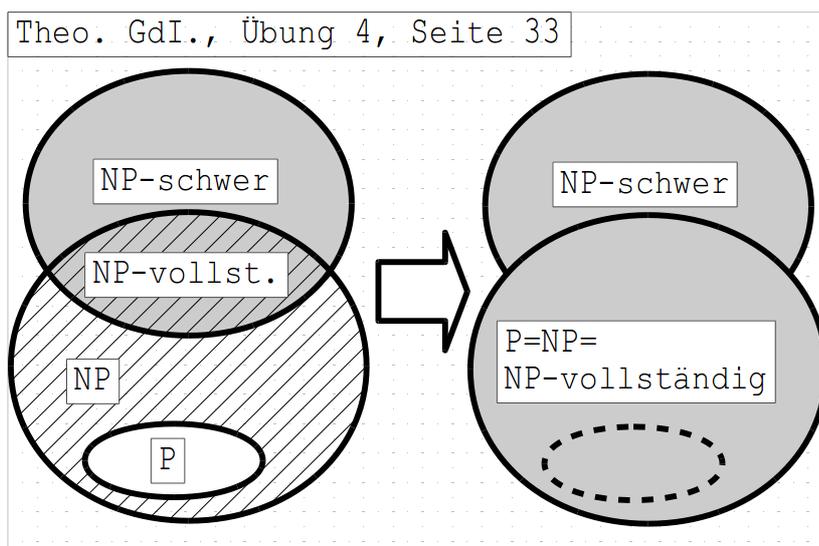

9. Do not use the border for the text box if the text is surrounded by a graphic element.
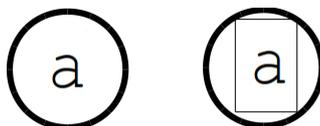
on left side, the correct style

10. Do not put the text too close to a graphical element, otherwise it will be impossible to recognize the Braille text. Consider that the Braille font requires more space than the same character but with a normal font. In the image, you can see three different examples. The items e1) to e3) show the normal print preview of the object and the Braille emboss. In the third column, the dots representing the characters are highlighted in red.
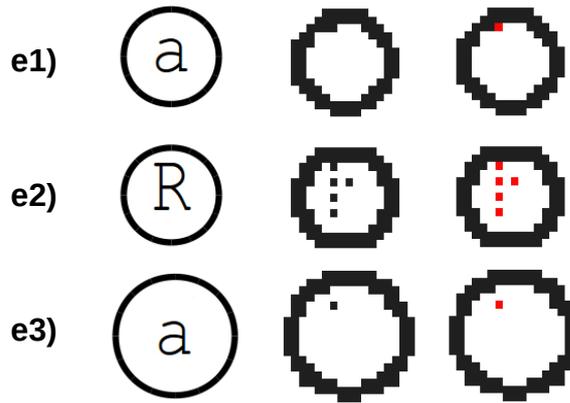
In case e1) it is impossible to feel the dot that represents the character 'a' in Braille. In case e2) the character 'R' can be easily confused with the character 'p' in Braille (' ⠏ ').
In case e3) the problem is removed increasing the dimension of the graphical element (the round solid line).

Please pay attention to insert the text exactly in the middle of the graphical element. The best practice in Draw is to **not** create two elements (a shape and a text box), but to insert the text inside the shape object. It is sufficient to create the shape and double click on its border. At this point a cursor will appear to insert the text associated with the shape, without text box.

11. Do not use very small graphical elements. The embosser can not depict these elements because it has a resolution of 20 DPI, while a laser printer has a resolution of 150-600 DPI or more.
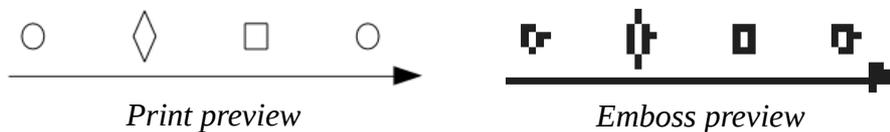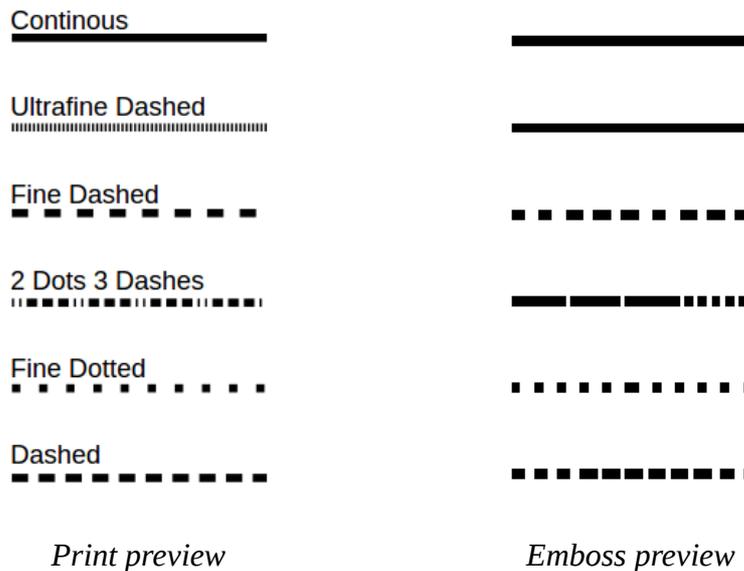

Example image 300 DPI
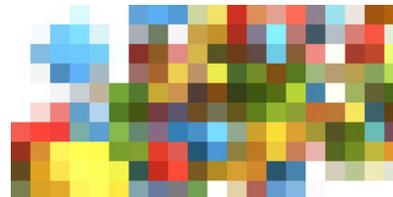
Same image but at 20 DPI

This means that a square of 1 cm side will be printed with 3500 dots by a normal printer and just 62 dots by a Braille embosser.

Print preview

Emboss preview

Small elements with different shape will be represented with similar shape by the embosser.

12. For the same reason (resolution of 20DPI of the embosser), not all the dashed and dotted line styles can be used. For example "Ultrafine Dashed" and "2 Dots 3 Dashes" styles have not enough spacing between the elements, and the lines embossed with these styles are too similar to the lines with "Continous" style.

Print preview	Emboss preview
Continous	▬▬▬▬▬
Ultrafine Dashed	▬▬▬▬▬
Fine Dashed	▪ ▪ ▬ ▪ ▬ ▪ ▪ ▪
2 Dots 3 Dashes	▬▬ ▬▬ ▬ ▪▪▪▪
Fine Dotted	▪ ▪ ▪ ▪ ▪ ▪ ▪ ▪
Dashed	▪ ▪ ▪ ▬▬▬▬ ▪

Print preview   *Emboss preview*

13. How to use colors in your tactile graphics

To reproduce different colors with a Braille embosser it is possible using different tactile dot heights. Our printer has 7 gradations to represent colors, but it is not possible to distinguish between all of them.

To be sure that two colors can be identified, the best practice is to use just the following four colors:
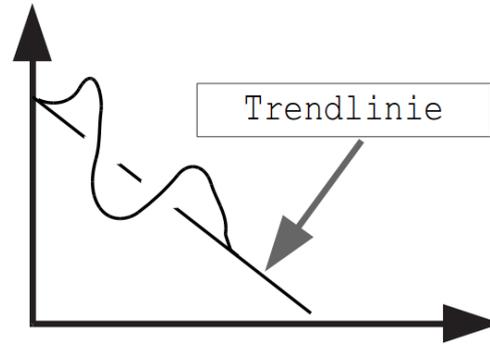
Color	Color name in Linux Libre Office palette
	WHITE
	Gray 2
	Gray 3
	Black

Gray 1 and Gray 2 are represented with the same dots height.
The gray tones from Gray 4 to Gray 10 are too similar to Black to be distinguished.

14. If a line intersects another line, please consider to use two different colors for the line (typically Black for the most important element and Gray 3 for the other one). If this is not possible, brake the less important line with a small white area.
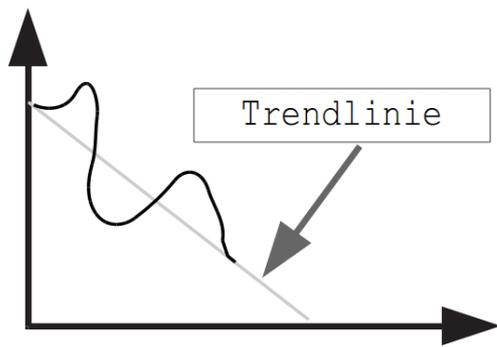
Best solution - different colors   *Other solution - white break*

15. For a bug in the printer driver, if you cover a text-box with a shape (or an image), the text will be not printed by the laser printer, but the text will be embossed. In the example below there is some text forgotten behind the first shape of the diagram (the orange graphic element). It is not possible to see this text, and it will be not printed, but it will be embossed as showed in the emboss preview.
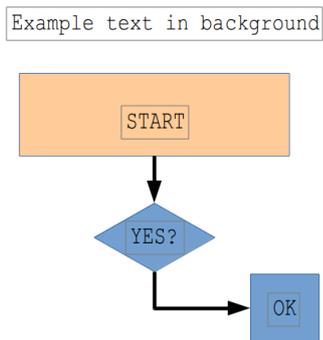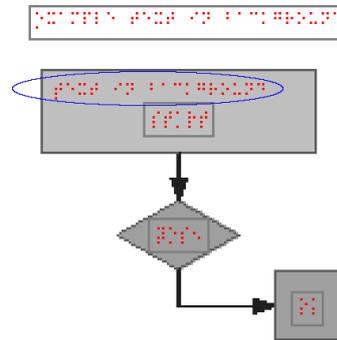
Print preview   *Emboss preview*

16. The braille embosser is not able to emboss some particular symbols, also if they have a "Braille computer ASCII" font style. For example:

Symbol	Name/Description	Unicode
'	LEFT SINGLE QUOTATION	U+2018
,	RIGHT SINGLE QUOTATION	U+2019
…	HORIZONTAL ELLIPSIS (Three dots in one symbol)	U+2026
–	EN DASH	U+2013

In general the user doesn't insert these symbol voluntary, but are automatically converted from LibreOffice. For example if you type three consecutive dots and one space, they are converted in an horizontal ellipsis, or if you type a normal apostrophe it is converted in a left or right quotation.

We suggest you to change opportunely the setting of the Libreoffice's AutoCorrect Tool. (Menu → Tools → AutoCorrect Options) In particular:

Tab "OPTIONS":

   Use replacement table --> deselected

Tab "LOCALIZED OPTIONS":

   Single Quotes - Replace --> deselected

   Double Quotes - Replace --> deselected