Arabic Braille

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Is Arabic braille a writing system?

If we extend “reading” and “writing” to the sense of touch, then braille is a script, the graphs of which are cells (3 × 2 matrices of raised dots).

Using cells as graphemes of Arabic language makes out of Arabic braille a writing system.

Collective. Developed Arabic Braille system نظ Simone,_surf 2002

Four layers of Arabic script

Among the four layers of standard Arabic script [Osborn 2017, 27] one vanishes and the others are represented by graphemes of similar size and shape:

rasm
nuqta
shaddab
taskil

Notice that shaddah is placed before the base consonant.

Complexity vs. grapheme frequency

To measure the complexity of braille cells we used the following multiplicative weights:

| 1 | 1.2 |
| 1.1 | 1.3 |
| 1.4 | 1.5 |

These weights correspond to the order points in cells are taught.

We obtain the following results for English and Arabic:

Inheritance from English braille

Hamza is often denoted by an apostrophe-like symbol and ayin by its mirror-image. خ could be represented by a ‘x’. Soukoun is denoted by ‘’ in Hebrew (شد) and ‘א visually resembles a ‘v’.

Linguistic properties on the graph level

Hamza. Braille graphemes fail to represent the proximity of the various hamza forms (isolated and carried):

Phonetic proximity. Braille graphemes fail to represent phonetic proximity that is visible in standard Arabic through the rasm level:

Emphasis. Nevertheless, braille graphemes achieve in representing the common emphatic property that is visible in standard Arabic through the rasm level:

Regional graphemic variations

Egyptian yā’ /alif maqṣura inversion:

Disrespect of hamza rules:

Levantine 'māle : replacement of tāʿ marbuta by an /e/ phoneme, written as bā‘:

Conclusion

Exploring the braille adaptation of an abjad writing system, such as Arabic braille, may allow us to shed light on the nature of Arabic language, whether in oral, written or tactile modality.

References


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