Technische Universität Dresden

Prof. Dr. Sebastian Rudolph

Introduction to Formal Concept Analysis

Exercise Sheet 10, Winter Semester 2017/18

Exercise 1 (triadic FCA)

Let $\mathbb{F} = (U, T, R, Y)$ be a triadic context where

- $U = \{\underline{B}olzano, \underline{D}resden, \underline{L}isbon, \underline{V}ienna\}$
- $T = \{\underline{E}nglish, \underline{G}erman, \underline{I}talian, \underline{P}ortuguese\}$
- $R = \{\underline{S}treet, \underline{U}niversity, EMCL\ \underline{L}ectures\}$
- $Y = \{$ (B,E,U), (B,E,L), (B,G,S), (B,G,U), (B,I,S), (B,I,U), (D,G,S), (D,G,U), (D,E,U), (D,E,L), (L,E,U), (L,E,L), (L,P,S), (L,P,U), (V,E,U), (V,E,L), (V,G,S), $(V,G,U)\}$

a) For a given triadic context $\mathbb{F} = (U, T, R, Y)$ and some $u \in U$, the *u-slice* of $\mathbb{F}$ is the formal context (T, R, I) with $(t, r) \in I$ iff $(u, t, r) \in Y$. One can represent a tricontext by providing all its u-slices. Provide the crosstable representations of the B-, D- and L-, and V-slices of $\mathbb{F}$.

b) Use the algorithm from the lecture to determine all frequent triconcepts of this tricontext for $\tau_u = \tau_t = \tau_r = 1$.

c) What are the infrequent triconcepts?