Web Semantics – Exercises session 4

Maria Boritchev

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1   Formal Concepts

1. Using the NextClosure algorithm, find all the formal concepts that can be derived from the formal context represented by table 1.

2. Draw the corresponding concept lattice.

3. Same questions for the formal context represented by table 2.

	English A2	English C2	French A2	French C2
Amir		×		×
Boris	×		×	
Charlie	×			×
Diana		×	×	
Estelle	×			×

Table 1: Students and their language levels.

	Composite (c)	Even (e)	Odd (o)	Prime (p)	Square (s)
1			×		×
2		×		×	
3			×	×	
4	×	×			×
5			×	×	
6	×	×			
7			×	×	
8	×	×			
9	×		×		×
10	×	×			

Table 2: Properties of numbers from 1 to 10.

2 Description logics

For each of the following concepts, build a suitable concept description, using only the concept names:

$$Person, \ Female$$

and the role name `hasChild`.

1. woman

2. mother

3. grandmother

4. mother who doesn't have any daughters

5. mother of many children ($\geqslant 3$)

Order these concepts with respect to "is more general than" relation.