Technische Universität Dresden

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Formal Concept Analysis
Exercise Sheet 5, Winter Semester 2015/16

Exercise 1 (drawing nested line diagrams)
Given the following formal context $\mathbb{K} = (G, M, I)$.

	< 60	≥ 60	one term	two terms	CDU	SPD	FDP
Heuss		×		×			×
Lübke		×		×	×		
Heinemann		×	×			×	
Scheel	×		×				×
Carstens	×		×		×		
Weizsäcker		×		×	×		
Herzog		×	×		×		
Rau		×	×			×	
Köhler		×		×	×		
Wulff	×		×		×		

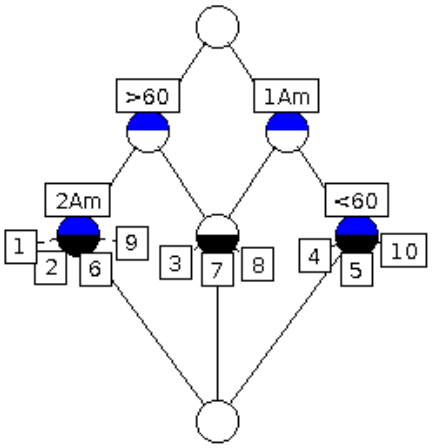
a) Draw a nested line diagram of the concept lattice for the attribute sets $M_1 := \{< 60, \geq 60, \text{one term}, \text{two terms}\}$ and $M_2 := \{\text{CDU}, \text{SPD}, \text{FDP}\}$.

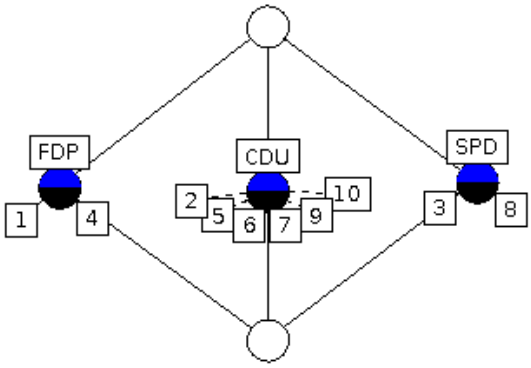
b) Draw a regular line diagram of the concept lattice $\underline{\mathfrak{B}}(G, M, I)$.

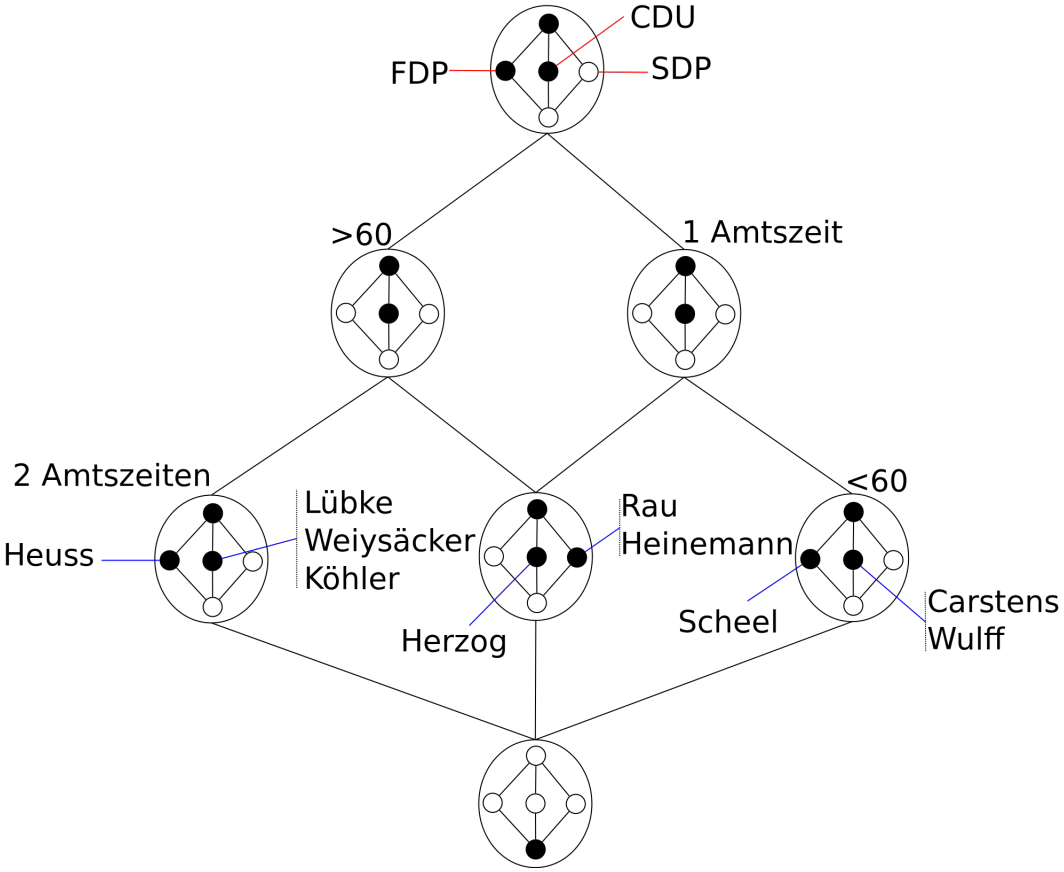
Solution:

1. The objects {Heuss, Lubke, Heinemann, Scheel, Carstens, Weizsacker, Herzog, Rau, Kohler, Wulff} are represented by numbers {1, 2, 3, 4, 5, 6, 7, 8, 9, 10 } in that order for simplicity.

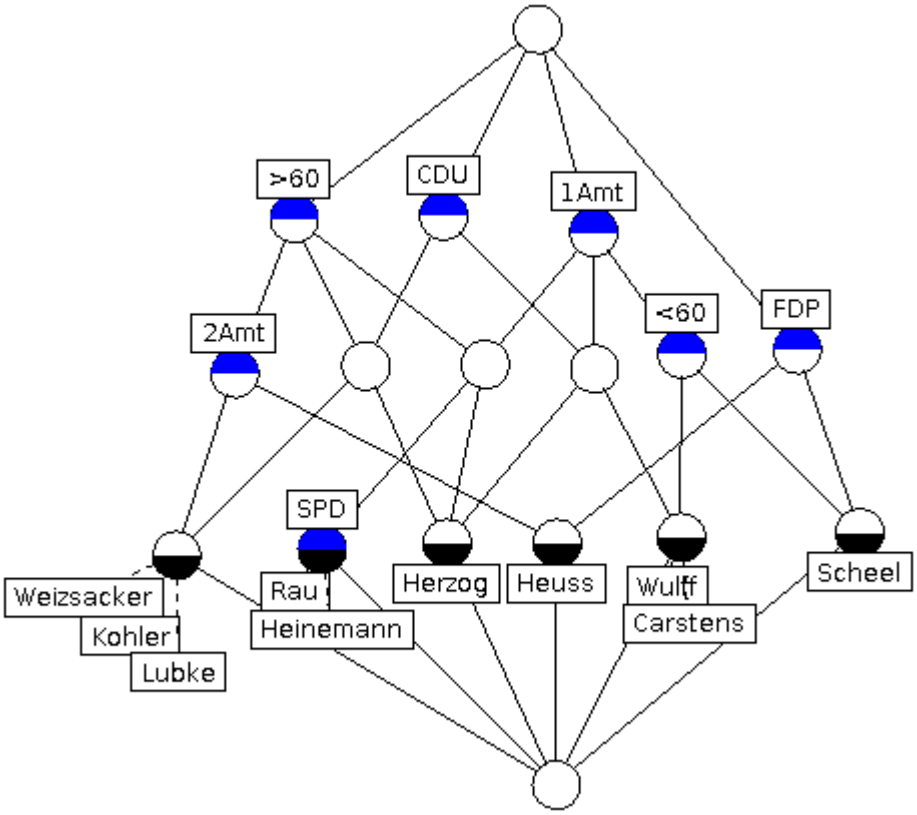
a)


>60
1Am
2Am
<60
1
2
6
9
3
7
8
4
5
10


FDP
CDU
SPD
1
4
2
5
6
7
9
10
3
8


CDU
FDP
SDP
>60
1 Amtszeit
2 Amtszeiten
<60
Lübke
Weiysäcker
Köhler
Heuss
Rau
Heinemann
Herzog
Scheel
Carstens
Wulff

b)


>60
CDU
1Amt
2Amt
<60
FDP
SPD
Weizsacker
Kohler
Lubke
Rau
Heinemann
Herzog
Heuss
Wulff
Carstens
Scheel