

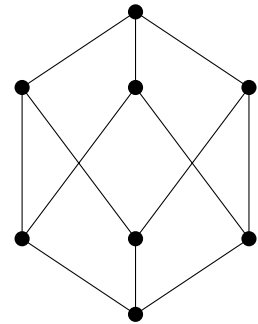
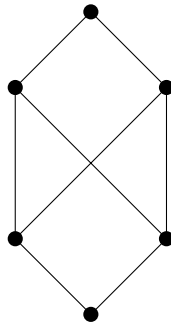
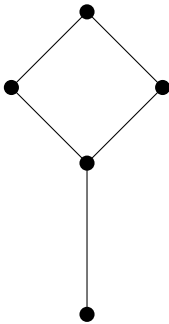
Formal Concept Analysis and Logic

Exercise Sheet 2

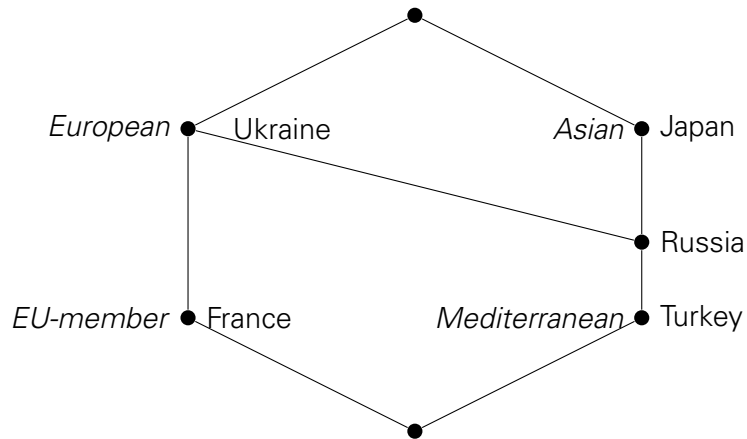
Dr. Felix Distel
Summer Semester 2012

Exercise 5

a) Which of the following Hasse-diagrams represent lattices?



b) Reconstruct the cross-table from the following concept lattice.



c) If possible, give crosstables whose concept lattices are isomorphic to the lattices presented in part a).

Exercise 6

- Use Next-Closure to compute all the closed sets of the context from Exercise 3 (given again at the end of this exercise sheet).
- Draw the concept lattice of this context.

Exercise 7

Let M be a set of attributes, $A, B \subseteq M$ sets of attributes and \mathcal{L} a set of implications. Show that the following two statements are equivalent.

- $A \rightarrow B$ follows from \mathcal{L} .
- In every context (G, M, I) in which all implications from \mathcal{L} hold, $A \rightarrow B$ also holds.

Exercise 8

Let (G, M, I) be a formal context. Let $A \rightarrow B$ be an implication that holds in (G, M, I) . Show that $A \rightarrow B$ follows from $\{A \rightarrow A''\}$.

	CDU/CSU	SPD	Grüne	Linke	FDP
Baden-Württemberg		×	×		
Bayern	×				×
Berlin	×	×			
Brandenburg		×		×	
Bremen		×	×		
Hamburg		×			
Mecklenburg-Vorpommern	×	×			
Niedersachsen	×				×
NRW		×	×		
Rheinland-Pfalz		×	×		
Saarland	×				
Sachsen	×				×
Sachsen-Anhalt	×	×			
Schleswig-Holstein	×				×
Thüringen	×	×			