

Tutorial 13

Solutions should be given till 4th February 2008, 16:00

Exercise 1 Types of missingness (20 points)

Show examples for missing data, where

- a) [5 pts.] a variable V is missing completely at random (MCAR),
- b) [5 pts.] a variable V is missing at random (MAR),
- c) [5 pts.] a variable V is missing systematically,
- d) [5 pts.] a variable V is hidden.

The example should not be the same as the example in the lecture notes.

Exercise 2 Types of missingness: MCAR vs. MAR (8 points)

The following statements are given:

- (1) If a set of variables V in a dataset D is MCAR, then V is also MAR in the same dataset
- (2) If a set of variables V in a dataset D is MAR, then V is also MCAR in the same dataset

Which of the statements are true? Justify your answer!

Exercise 3 Distribution of completion (7 points)

Suppose we are given the following instance: ($A=1, B=2, C=\text{missing}, D=\text{missing}$).

The distribution of completion should be the uniform distribution. Fill up the missing cells of the probability distribution table above.

A	B	C	D	$p(A,B,C,D) = ?$
0	0	0	0	
0	0	0	1	
0	0	1	0	
0	0	1	1	
0	1	0	0	
0	1	0	1	
0	1	1	0	
0	1	1	1	
1	0	0	0	
1	0	0	1	
1	0	1	0	
1	0	1	1	
1	1	0	0	
1	1	0	1	
1	1	1	0	
1	1	1	1	