

- In probability, given a set of conditional independencies involving  $n$  random variables, we are interested in determining whether it implies another set of conditional independencies.
- This problem is extremely difficult despite the very simple problem statement.
- The problem for  $n = 4$  was solved for  $n = 4$  by Matúš (1999) by means of a non-Shannon-type inequality.
- The problem remains open for  $n \geq 5$ .