Analysis 2 (Vorlesungen)

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Example 1. *Pairwise independence $\not\Longrightarrow$ independent:*

Consider a tetrahedron: One side is red, one side is green, one side is blue and one has stripes of all 3 colours. The probability of getting each colour on a dice roll is 1/2; the probability of getting two *colours at the same time is 1/4 for any pair of colours.*

However, they are not independent, as the chance of getting all 3 is not given by the product

$$P(red \cap blue \cap green) = \frac{1}{4} \neq \frac{1}{8}$$

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