

Our research is focused on psychological mechanisms of decision making. Regal rules assume, that agencies responsible for the proceedings make decisions on the basis of their own conviction, which shall be founded upon evidence taken and appraised at their own discretion, with due consideration to the principles of sound reasoning and personal experience. Results of previous psychological research demonstrate that human judgment frequently violates traditional normative standards and under uncertainty behaviour can be irrational - people often do not give answer that is correct according to logic or probability theory. Quantum probability theory has been proven useful in characterizing decision making, which appears irrational under classical probability theory. In quantum probability theory, probabilistic assessment is often strongly context and order dependent. Individual states can be *superposition* states (all possible values in the superposition have some potential of being expressed, and it is impossible to assign any specific value before the measurement), and composite systems can be *entangled* (properties of one element depend on the state of its twin, entangled element and they cannot be decomposed into their subsystems, psychological measures have to be made sequentially and context generated by the first measure can influence response to the next one).

We will be searching for answers to following research questions: How judges make their judgments in criminal cases? What type of probability theory best describes the way lawyers make judgments under uncertainty and decision under conflict? Can their decisions be explained and predicted using a quantum theory? Could quantum probability theory provide us with any advantages in cognitive modelling?

A total of 120 participants (40 judges, 40 attorneys and prosecutors and 40 person without legal education) will be asked to complete a written test in which they will assess evidence and assign probabilities to suspects' guilt. In each trial participants will be presented with 12 pairs of datasets (summary of legal proceedings at investigative and/or juridical stage), remaining blind to the outcome of the case. Presentation order and cases assignment will be randomized.

We predict interaction in relation to how the case description will be presented and evaluated. Study will determine whether judges are prone to the conjunction fallacy and order effect. It will allow to verify, if judges' decision - making differs from other people's. It will significantly contribute to the quantum cognition research and help to establish, if *superposition* and *complementarity* principles apply to decision - making in criminal proceedings.