

# Experts' Judgments of Likelihood: Fast but not Frugal?

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**Abstract:** A novel explanation of judgments by experts about the likely outcome of events is presented. It is proposed that these judgments are derived from a combination of the likelihood of every known risk factor that could affect the outcome of the uncertain event, each weighted by the chance recalling that risk. To test this proposal, an ACT-R model was developed in a study of Royal Navy officers. Each officer read six scenarios describing operational situations and assessed the likelihood of success in each situation. Then they noted all the possible risks that might affect that operation and the likelihood of these risks occurring. The model combined the likelihood of the different risks to predict the overall judgments of likelihood of success. When overconfidence was incorporated into the model, there was a good fit between the model and the experimental data, supporting this model as a possible mechanism for expert judgments.