In the present work we study an identification of culprit and assesment of evidence against him. At first we define a simple model called the island problem and we derive the weight-of-evidence formula in its basic form. In the next chapters we analyse several modifications of island problem and related issues. We find how we can deal with uncertainty about basic parametres of model, like size of population. We investigate possibility of inclusion of different errors or influence of relatedness and subpopulation structure into model. At the close we enlarge mixtures of DNA, including deriving and programming of appropriate formulas.