

One-level variation, two-sample t-test

Colin Aitken

During the course of a crime a window has been broken. A suspect is apprehended soon afterwards and fragments of glass are found on his clothing. It is of interest to assess the uncertainty relating to whether the fragments came from the broken window. The assessment will be discussed for the moment in the context of an approach based on significance probabilities and for measurements on one characteristic only, the refractive index. Significance probabilities can be assessed by comparing the measurements from the crime scene and from the suspect's clothing using a two-sample t-test. The derivation and use of the test will be explained with comments on its advantages and disadvantages.