Careful consideration of this example will make the difference between the conditional and frequentist viewpoints clear. The overall performance of δ, in any type of repeated use, would indeed be 75%, but this arises because half the time the *actual* performance will be 100% and half the time the *actual* performance will be 50%. And, for any given application, one *knows* whether one is in the 100% or 50% case. It clearly would make little sense to conduct an experiment, use $\delta(x)$, and actually report 75% as the measure of accuracy, yet the frequentist viewpoint suggests doing so. Here is another standard example.

EXAMPLE 13. Suppose X is 1, 2, or 3 and θ is 0 or 1, with X having the following probability density in each case:

	x = 1	2	3
$f(x\|0)$	0.005	0.005	0.99
$f(x\|1)$	0.0051	0.9849	0.01

The classical most powerful test of H_0: $\theta=0$ versus H_1: $\theta=1$, at level $\alpha=0.01$, concludes H_1 when $X=1$ or 2, and this test also has a Type II error probability of 0.01. Hence, a standard frequentist, upon observing $x=1$, would report that the decision is H_1 and that the test had error probabilities of 0.01. This certainly *gives the impression* that one can place a great deal of confidence in the conclusion, but is this the case? Conditional reasoning shows that the answer is sometimes no! When $x=1$ is observed, the likelihood ratio between $\theta=0$ and $\theta=1$ is $(0.005)/(0.0051)$ which is very close to one. To a conditionalist (and to most other statisticians also), a likelihood ratio near one means that the data does very little to distinguish between $\theta=0$ and $\theta=1$. Hence the conditional "confidence" in the decision to conclude H_1, when $x=1$ is observed, would be only about 50%. (Of course $x=1$ is unlikely to occur, but, when it does, should not a sensible answer be given?)

The next example is included for historical reasons, and also because it turns out to be a key example for development of the important Likelihood Principle in the next subsection. This example is a variant of the famous Cox (1958) conditioning example.

EXAMPLE 14. Suppose a substance to be analyzed can be sent either to a laboratory in New York or a laboratory in California. The two labs seem equally good, so a fair coin is flipped to choose between them, with "heads" denoting that the lab in New York will be chosen. The coin is flipped and