relative likelihood of each possible consequence. Here the safeguards program has an important role. The state's value for violating will be a blend, or weighted average, of the values of the two possible consequences of violating — Detected or Undetected — with the weights reflecting the relative likelihoods of these outcomes.

A typical situation is shown in Figure 1b. If there is no inspection (left side of Figure 1b), the likelihood of detection is small, so the net value of the Violate alternative is large, as it reflects mainly the $+d$ units that the state gains for an undetected violation. But if there is inspection (right side of Figure 1b), the detected violation component, $-b$, has much greater weight, and the net value of the Violate alternative declines.

A role of a safeguards program is quite apparent from Figure 1b. If the state's understanding of the inspection program is sufficient to drive its evaluation of the Violate option below 0 (on the scale adopted here), the state will choose Comply. If, however, the detection of a violation is unlikely enough that the net value of the Violate option remains positive, the state will choose Violate. Note that the dependence on the state's assessment of the inspection program is applicable to the NPT, particularly insofar as IAEA inspection procedures are known in advance.

What determines whether the net value of the Violate option exceeds the net value of the Comply option? For now, note that the net value of Violate (relative to Comply) reflects the values for detected and undetected violations. It also reflects the state's assessment of the inspection programme, because the likelihood of detection determines which specific mixture of these two values will be used. Further information is given in Section 3.1, where the question is formulated in a more specific context.

There is, however, another important lesson to be drawn from Figure 1b. An inspection program is effective if it results in a large enough drop in the state's net value for the Violate option. This drop in value (shown on the right side of Figure 1b) is therefore a natural measure of the effectiveness of the programme. In this sense, *an inspection program deters violations if, and only if, it is sufficiently effective.*

Thus, *inspection effectiveness* refers to the reduction in the state's net evaluation of its option to Violate. This is shown schematically in Figure 1c, where other terminology relating to inspections is also shown. *Inspection resources* are those factors that increase an inspecting agency's capacity to inspect. In the case of the IAEA, for example, inspection resources refer not only to the IAEA's inspection budget, but also to its trained personnel, specialized