Concealment refers to passive measures taken by the violator to conceal the presence of the target from the surveillance system. The target does not avoid the system's search pattern; rather, camouflage and other concealment techniques are used to degrade the ability of the monitoring system to recognize the target as it passes overhead. Concealment, then, effectively reduces the acuity of the surveillance system, hence reducing the probability of identification. However, the inclusion of this factor raises a logical inconsistency in the analysis. The problem as originally defined assumed that the treaty violation was inadvertent, an unintended infraction likely caused through negligence or lax organizational control and co-ordination. To assume that the violator attempts to hide the offending units implies an awareness that its actions are in contravention of the treaty. Thus, the violation could not be inadvertent. For consistency in the definition of the problem, the model assumes that no effort at concealment is made.

To summarize, although further refinements in sensor technologies, data processing and management, computer-assisted interpretation, etc. will continue, the interpretation task will never become perfect. In other words, there remains some chance that the system will not provide timely identification of a treaty violation even though the surveillance system has passed in its vicinity. Probability estimates for identification, therefore, must be incorporated in the calculation of the overall probability of detection.

The probability of detection, then, is a conditional probability dependent upon the intersection of two events:

Event A. The target falls within the area searched by the sensor;

Event B. The sensing/interpretation system identifies the violation. According to the Multiplicative Law of Probability, the probability of the intersection of these two events is

$$p(ab) = p(a) \times p(b|a)$$

That is, the probability that both events occur equals the probability of the first multiplied by the probability of the second given that the first has already occurred.[12] In this model, the probability of detection is

$$p(d) = p(o) \times p(i)$$

where $p(d)$ = probability of detection;
$p(o)$ = probability of observation;
$p(i)$ = probability of identification given that the target is observed.

To illustrate, assume that the probability of observation is 1/8 or .125 (see above). If the probability of identification is .95 (i.e., given that the target