



ance. In doing so, we see our contributions as follows.











$$S = (S \setminus (\text{state}(m_2) \cup \overline{P_1})) \cup \text{state}(m_3) \cup \{i\_knows(m_4) \cup P_2\}. \quad (9)$$

Here and elsewhere, we simplify notation for singletons





ents, i.e., overloading notation,  $\{\mathcal{C}$

This rule is the same as ours, except that the constraint governing the derivavlesin293(ofpt)-3.6(t)8.3(h)7(e)0328.k(v)27.2yls

Intuitively, (10) requires that the intruder knowledge increase monotonically, and (11) requires that every vari-





intruder knowledge) is often neglected in other presentations of symbolic intruder approaches. One solution is to proceed on demand: a message in the intruder knowledge is analyzed if the result of this analysis can be unified with a message the intruder has to generate. We adopt







would have 24 instances. However, under the demand-driven strategy of the lazy intruder, not all of these in-

**Table 1.** Performance of OFMC over the flawed protocols  
of the Clark/







49. Thayer Fábrega FJ, Herzog JC, Guttman JD (1999) Strand spaces: proving security protocols correct. *J Comput Secur* 7:191–230
50. Turuani M (2003) *Sécurité*











