

## Answer

The following are tautologies: (a), (c), (d), (e), (g), (h), (j).

Here is a counterexample to (b): Let  $y$  be a variable, let  $\sigma$  be a behavior  $s_1, s_2, \dots$  in which  $y$  equals either 1 or 2 in each state  $s_i$ , depending on whether  $i$  is odd or even. Then:

$$\llbracket \Diamond \Box ((y = 1) \vee (y = 2)) \rrbracket(\sigma) = \text{TRUE}$$

$$\llbracket (\Diamond \Box (y = 1)) \vee (\Diamond \Box (y = 2)) \rrbracket(\sigma) = \text{FALSE}$$

[CLOSE](#)