

Subroutine:  $Sp(p)$

Date

No.

Message from clause  $a$  to variable  $i$

$$\eta_{a \rightarrow i} = \prod_{j \in V(a) \setminus \{i\}} \left( \frac{\pi_{j \rightarrow a}^u}{\pi_{j \rightarrow a}^u + \pi_{j \rightarrow a}^s + \pi_{j \rightarrow a}^*} \right)$$

Message from variable  $i$  to clause  $a$

$$\pi_{i \rightarrow a}^u = \left( 1 - p \prod_{b \in C_a^u(i)} (1 - \eta_{b \rightarrow i}) \right) \prod_{b \in C_a^s(i)} (1 - \eta_{b \rightarrow i})$$

$$\pi_{i \rightarrow a}^s = \left( 1 - p \prod_{b \in C_a^s(i)} (1 - \eta_{b \rightarrow i}) \right) \prod_{b \in C_a^u(i)} (1 - \eta_{b \rightarrow i})$$

$$\pi_{i \rightarrow a}^* = p \prod_{b \in C_a^s(i)} (1 - \eta_{b \rightarrow i}) \prod_{b \in C_a^u(i)} (1 - \eta_{b \rightarrow i})$$