Subtracting SFDD

Damien Morard

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1 Subtracting

$\ominus : \mathbb{S}, \mathbb{S} \to \mathbb{S}$ removes a SFDD from an other SFDD and return a SFDD:

$$\bot \ominus \langle t, \tau, \sigma \rangle = \bot$$
$$\langle t, \tau, \sigma \rangle \ominus \bot = \langle t, \tau, \sigma \rangle$$
$$\top \ominus \langle t, \tau, \sigma \rangle = \begin{cases} \top \ominus \sigma & \text{if } \sigma \neq \{\bot, \top\} \\ \top & \text{if } \sigma = \top \\ \langle t, \tau, \sigma \rangle & \text{if } \sigma > \bot \end{cases}$$
$$\langle t, \tau, \sigma \rangle \ominus \top = \langle t, \tau, \sigma \ominus \top \rangle$$
$$\langle t, \tau, \sigma \rangle \ominus \langle t', \tau', \sigma' \rangle = \begin{cases} \langle t, \tau, \sigma \ominus \langle t', \tau', \sigma' \rangle \rangle & \text{if } t < t' \\ \langle t, \tau \ominus \tau', \sigma \ominus \sigma' \rangle & \text{if } t = t' \\ \langle t, \tau, \sigma \rangle - \sigma' & \text{if } t > t' \end{cases}$$

NB: $\ominus$ is an homomorphism.