

# Subtracting SFDD

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## 1 Subtracting

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

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

NB:  $\ominus$  is an homomorphism.