0.0.1 Dissociate

The operation *dissociate* will remove some $k \mapsto v$ from KV given $k \in KV$

$$
\begin{array}{|l}
\hline
Dissociate[KV, K] \\
m?\,, m! : KV \\
k? : K \\
dissociate\_ : KV \times K \nrightarrow KV \\
\hline
m! = dissociate(m?\,, k?\,) \bullet m! = m? \lhd k? \Rightarrow \\
\quad (\mathrm{dom}\ m! = \mathrm{dom}\,(\,m? \setminus k?\,)) \land \\
\quad (\,m? \setminus m! = k? \iff k? \in m?\,) \land \\
\quad (\,m? \setminus m! = \emptyset \iff k? \notin m? \Rightarrow m? = m!\,) \land \\
\quad ((k?\,, m?_{k?}\,) \notin m!\,) \\
\hline
\end{array}
$$

such that every mapping in $m?$ is also in $m!$ except for $k? \mapsto m?_{k?}$.

$$
\begin{array}{ll}
M = \langle\!\langle k_0 v_{k_0}, k_1 v_{k_1} \rangle\!\rangle & \\
\quad k_0 = abc \ \land v_{k_0} = 123 & [k_0 v_{k_0} = abc \mapsto 123] \\
\quad k_1 = def \ \land v_{k_1} = xyz \mapsto 456 & [k_1 v_{k_1} = def \mapsto xyz \mapsto 456] \\
dissociate(M, abc) = \langle\!\langle def \mapsto xyz \mapsto 456 \rangle\!\rangle & \\
dissociate(M, def) = \langle\!\langle abc \mapsto 123 \rangle\!\rangle & \\
dissociate(M, xyz) = M & [xyz \notin M]
\end{array}
$$