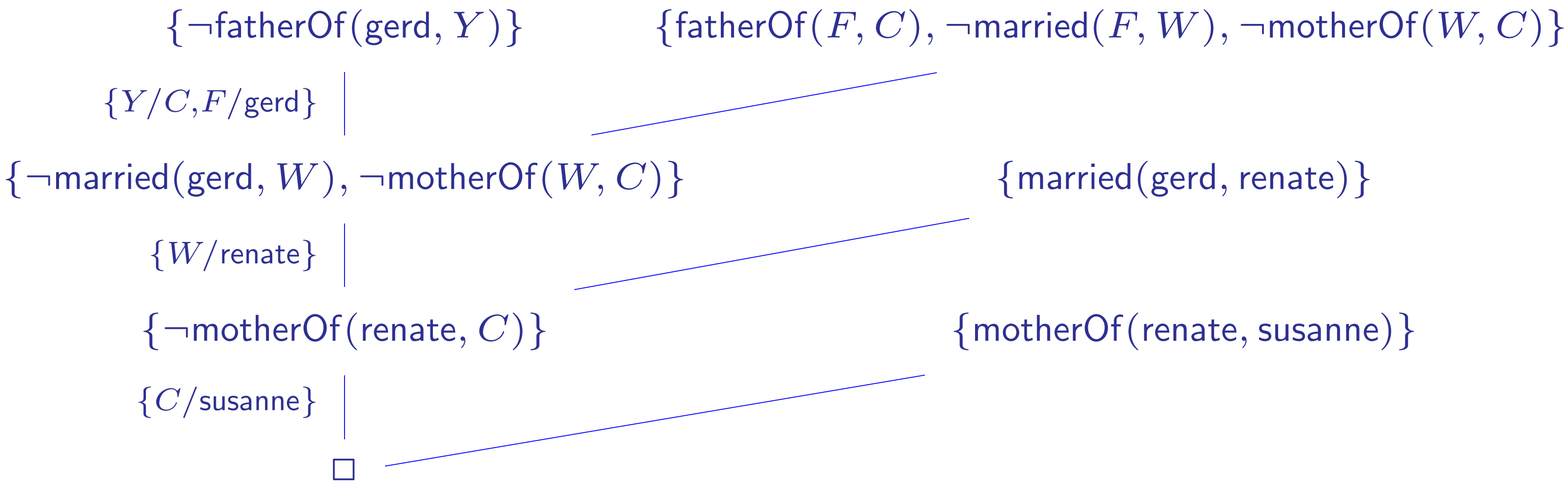
$$\mathcal{P} = \{ \ \{\text{motherOf}(\text{renate}, \text{susanne})\}, \{\text{married}(\text{gerd}, \text{renate})\}, \{\text{fatherOf}(F, C), \neg\text{married}(F, W), \neg\text{motherOf}(W, C)\} \ \}$$

$$G = \{\neg\text{fatherOf}(\text{gerd}, Y)\}$$



$$\{C/\text{susanne}\} \circ \{W/\text{renate}\} \circ \{Y/C, F/\text{gerd}\} = \{C/\text{susanne}, W/\text{renate}, Y/\text{susanne}, F/\text{gerd}\}$$

Let $\mathcal{P}$ be a logic program, let $G = \{\neg A_1, \ldots, \neg A_k\}$ be a query.

$D[\![\mathcal{P}, G]\!] = \{\sigma(A_1 \wedge \ldots \wedge A_k) \mid \mathcal{P} \models \sigma(A_1 \wedge \ldots \wedge A_k),\ \sigma$ is ground substitution$\}$
$P[\![\mathcal{P}, G]\!] = \{\sigma'(A_1 \wedge \ldots \wedge A_k)$ ground instance of $\sigma(A_1 \wedge \ldots \wedge A_k) \mid (G, \varnothing) \vdash_{\mathcal{P}}^{+} (\square, \sigma)\}$

There is a *computation step* $(G_1, \sigma_1) \vdash_{\mathcal{P}} (G_2, \sigma_2)$ iff

- $G_1 = \{\neg A_1, \ldots, \neg A_k\}$ with $k \geq 1$
- there exists a $K \in \mathcal{P}$ with $\nu(K) = \{B, \neg C_1, \ldots, \neg C_n\}$ such that
  - $\nu(K)$ has no common variables with G_1 or $RANGE(\sigma_1)$
  - A_i and B are unifiable with mgu σ
- $G_2 = \sigma(\{\neg A_1, \ldots, \neg A_{i-1}, \neg C_1, \ldots, \neg C_n, \neg A_{i+1}, \ldots, \neg A_k\})$
- $\sigma_2 = \sigma \circ \sigma_1$