
Reasoning Procedures II

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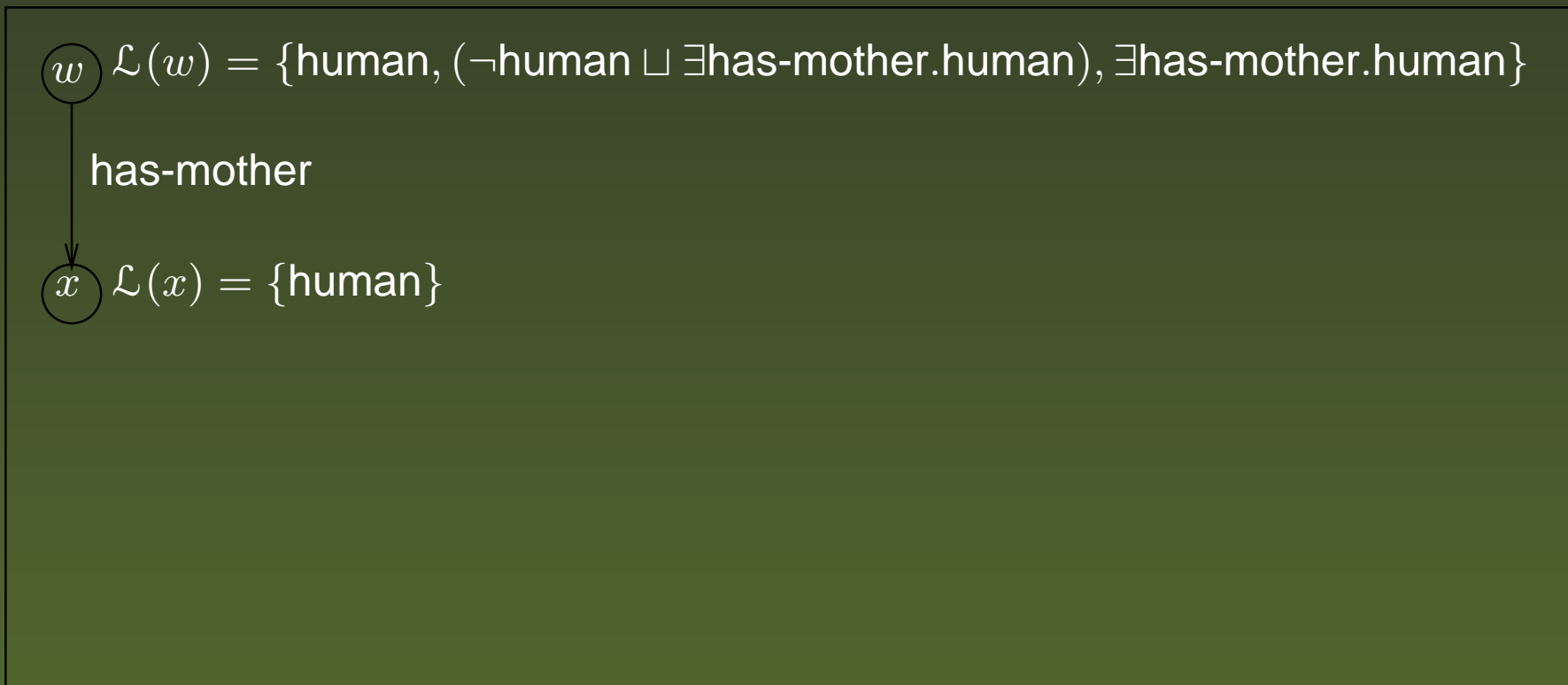
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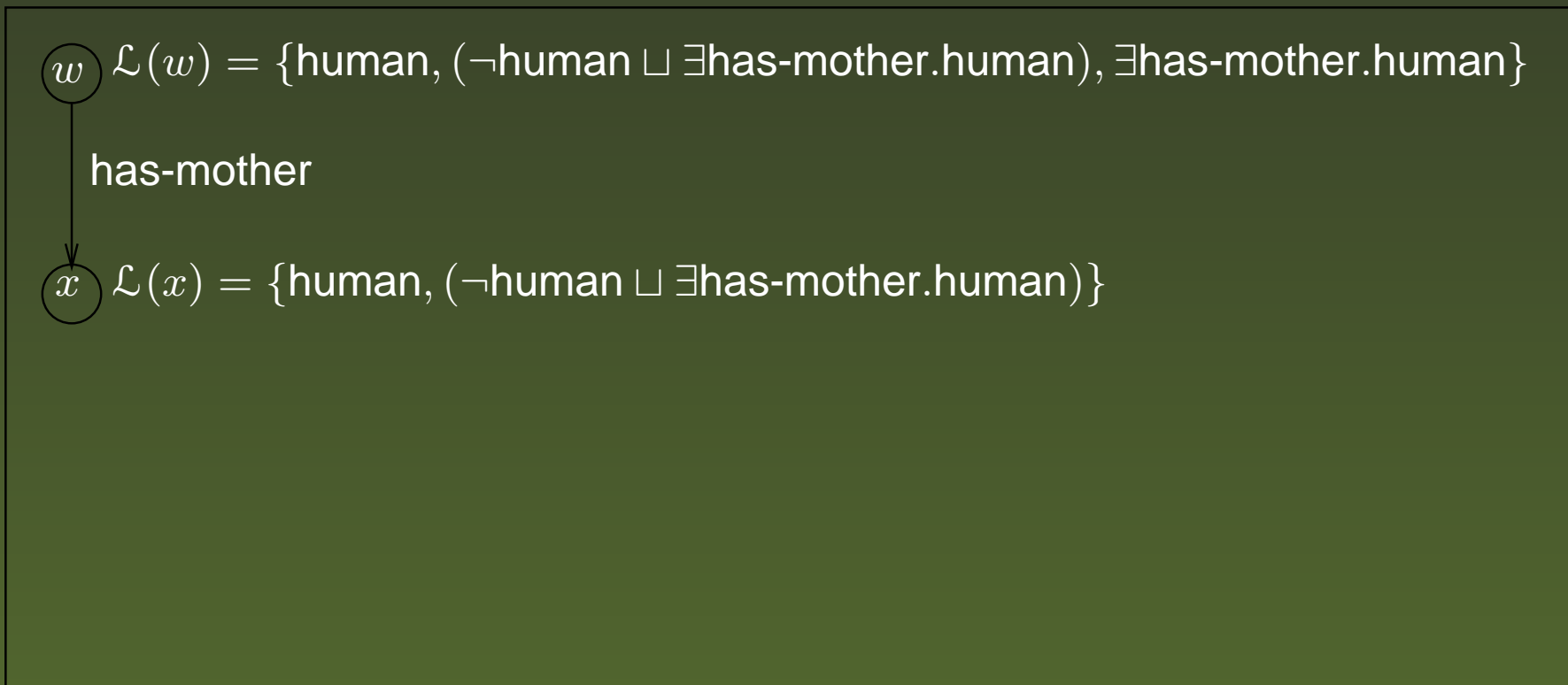
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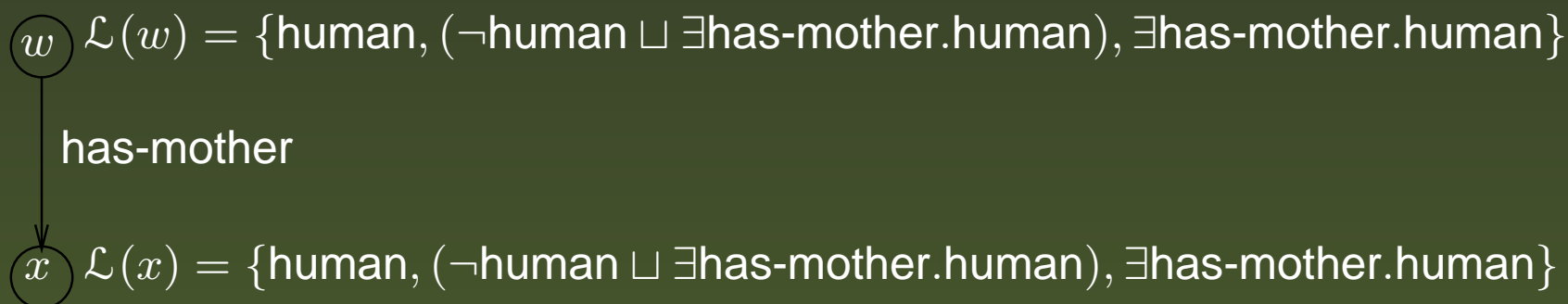
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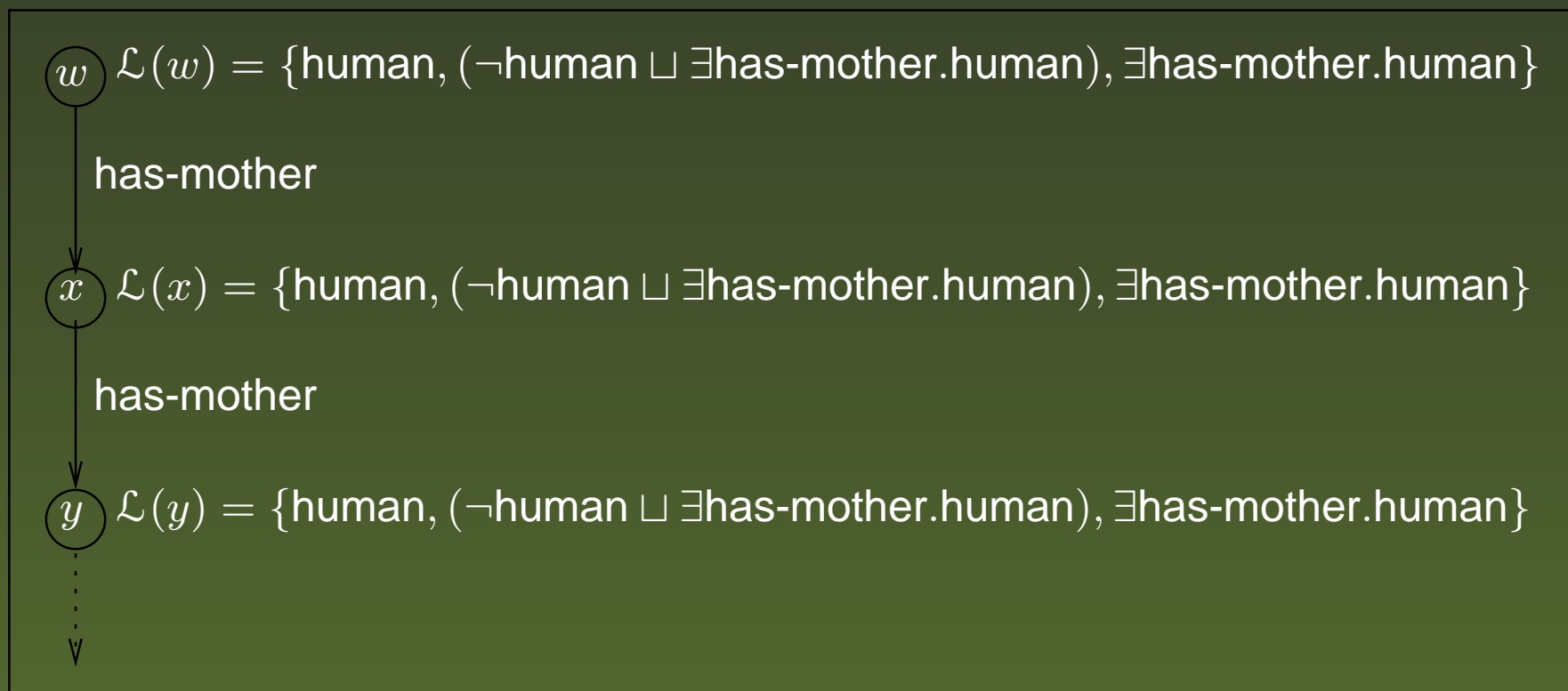
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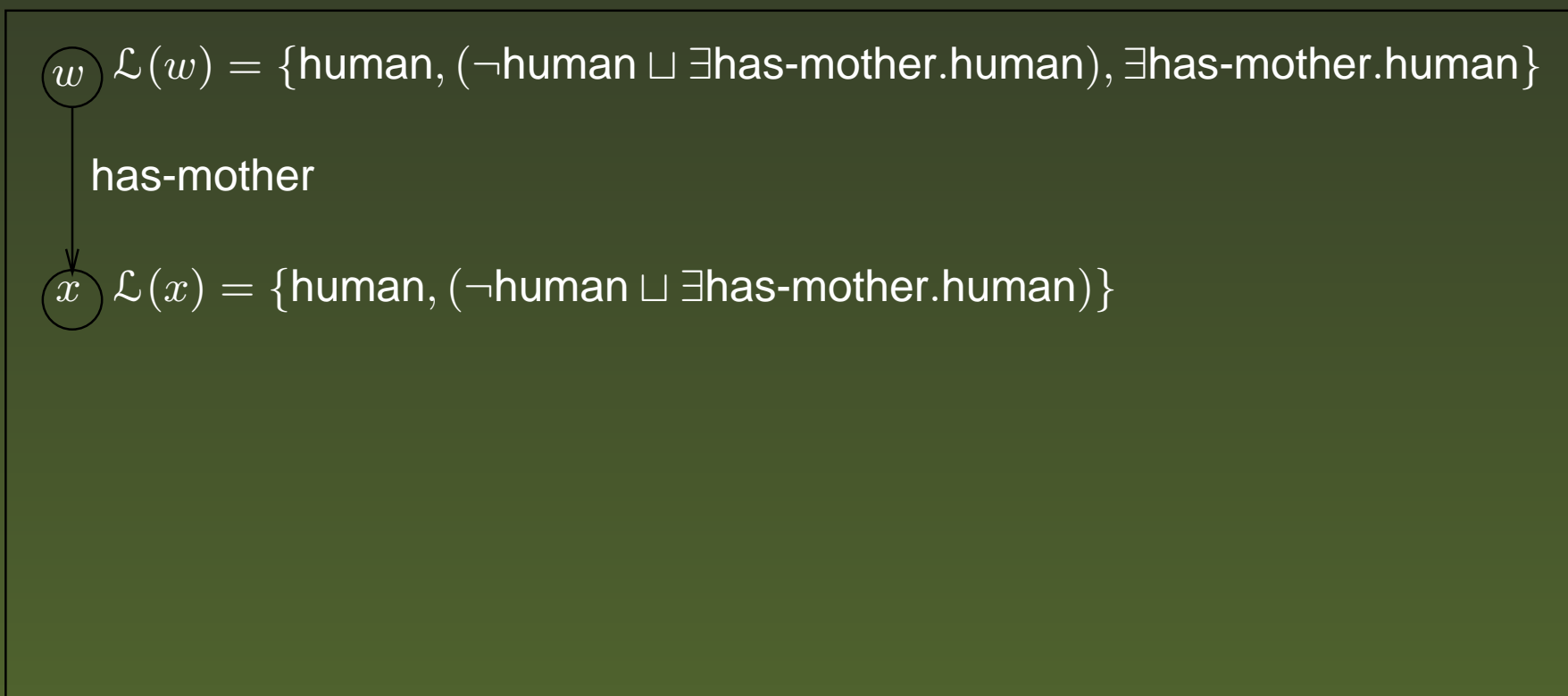
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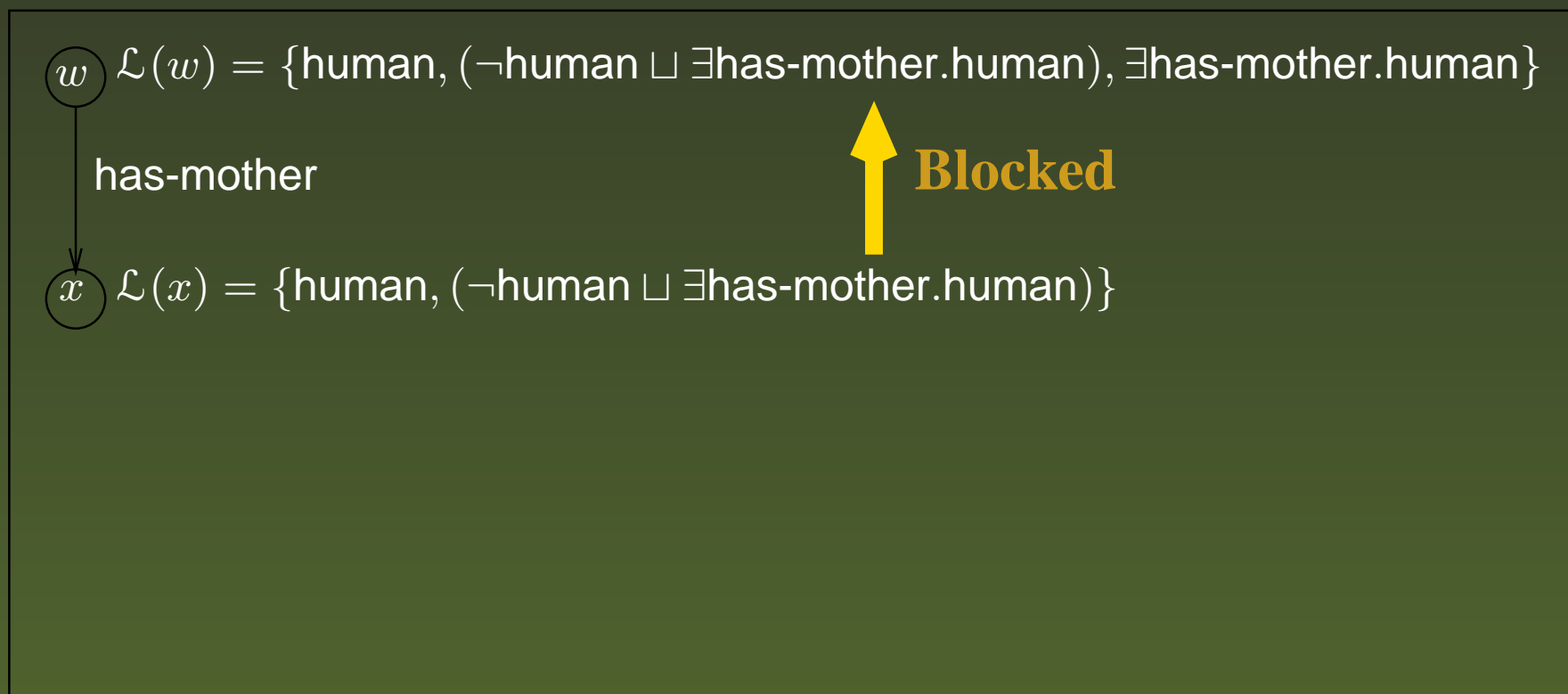
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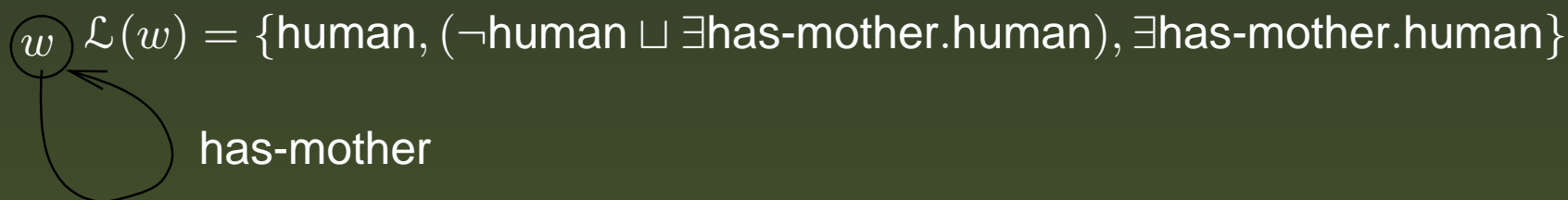
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block represents **cyclical** model

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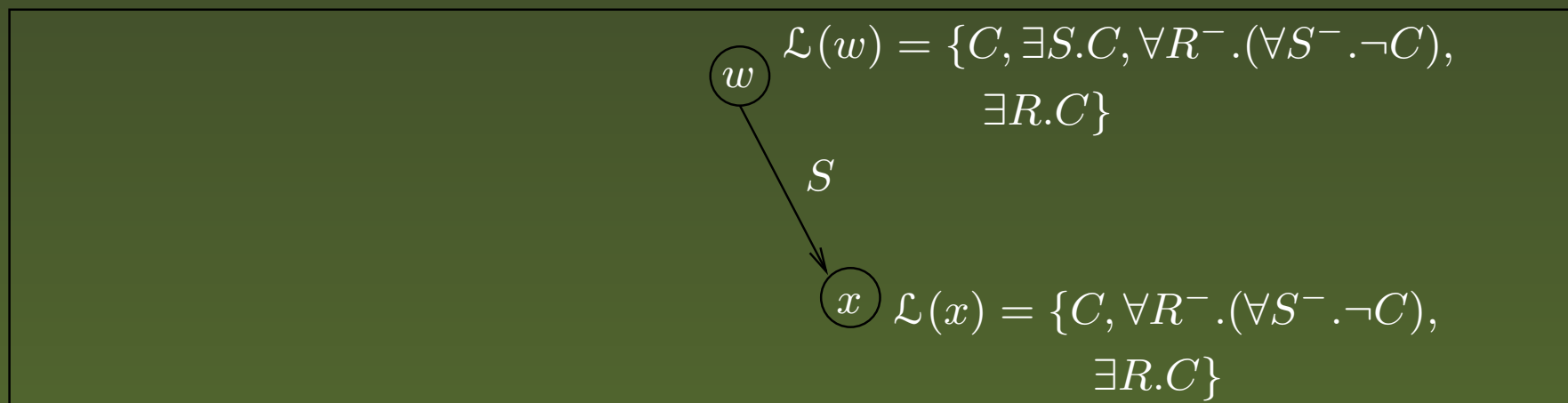
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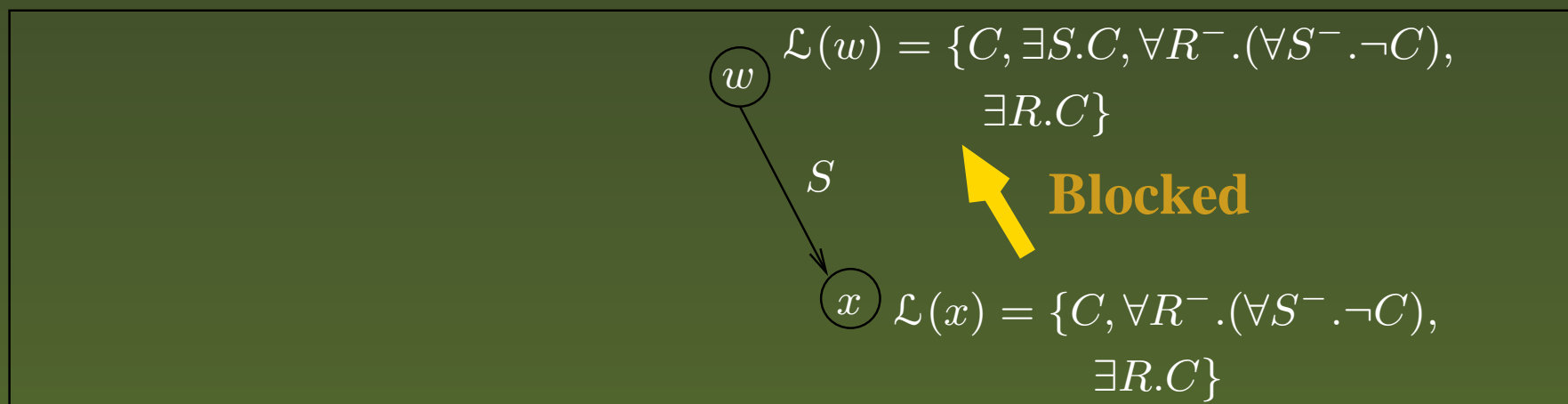
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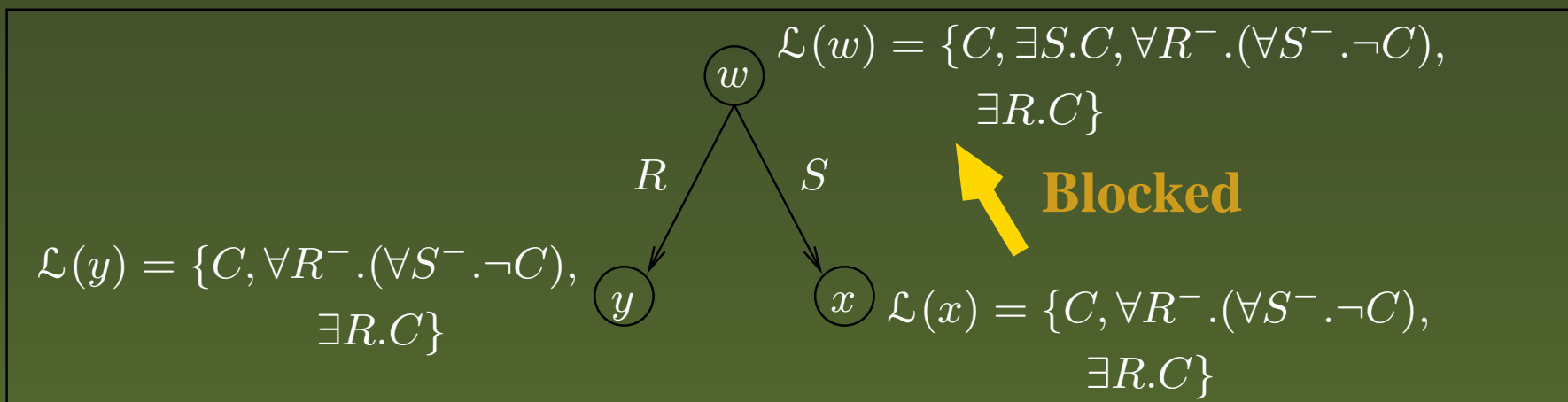
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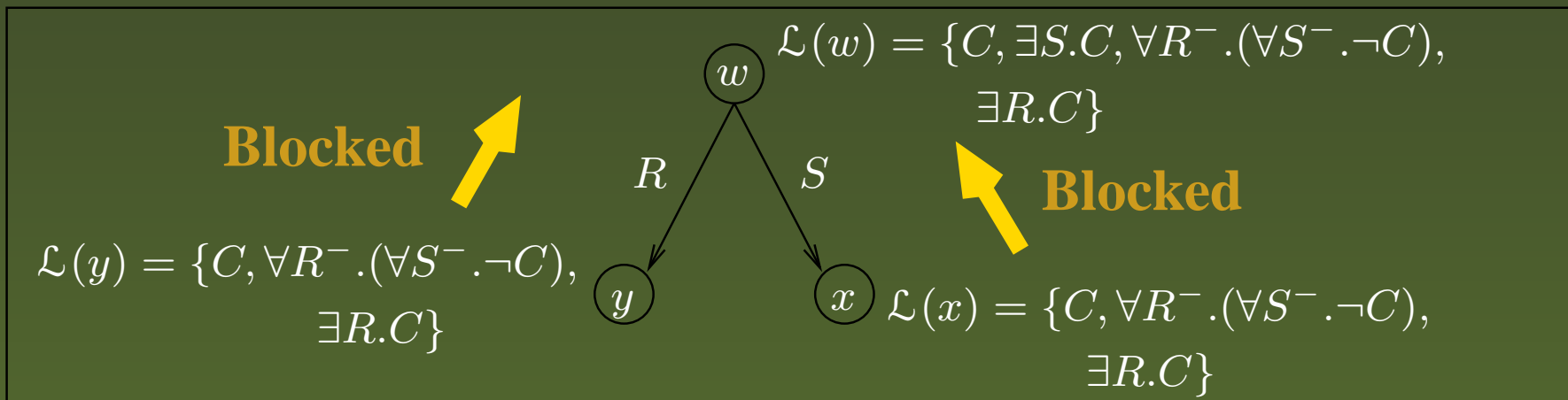
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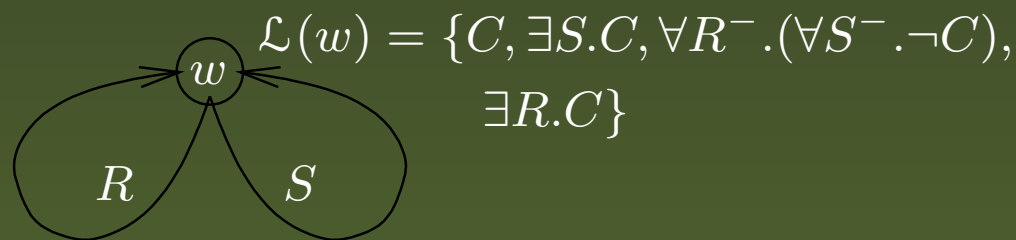
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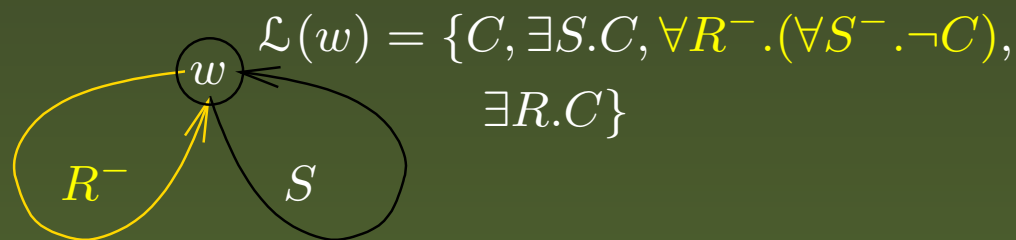


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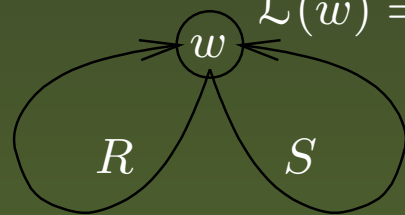


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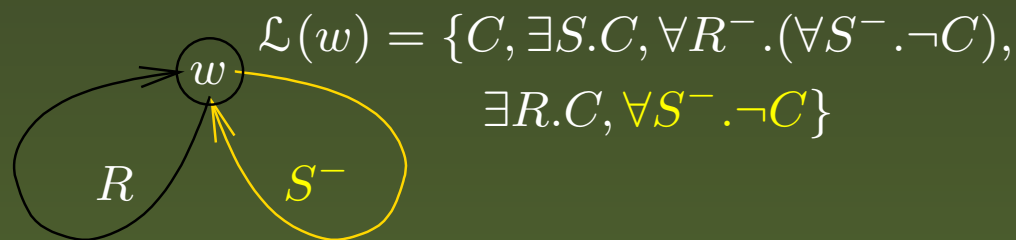
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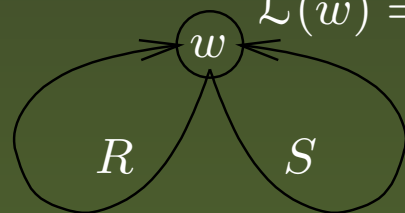


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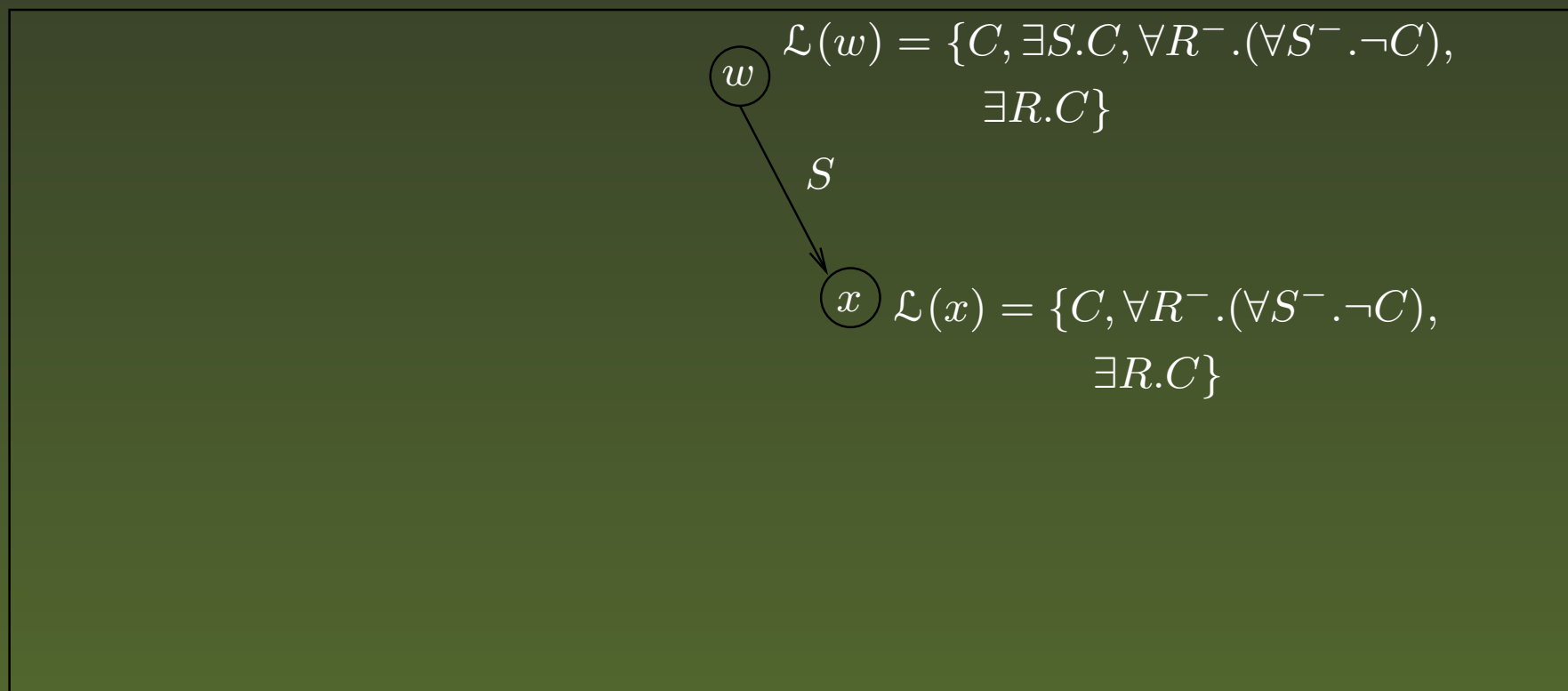
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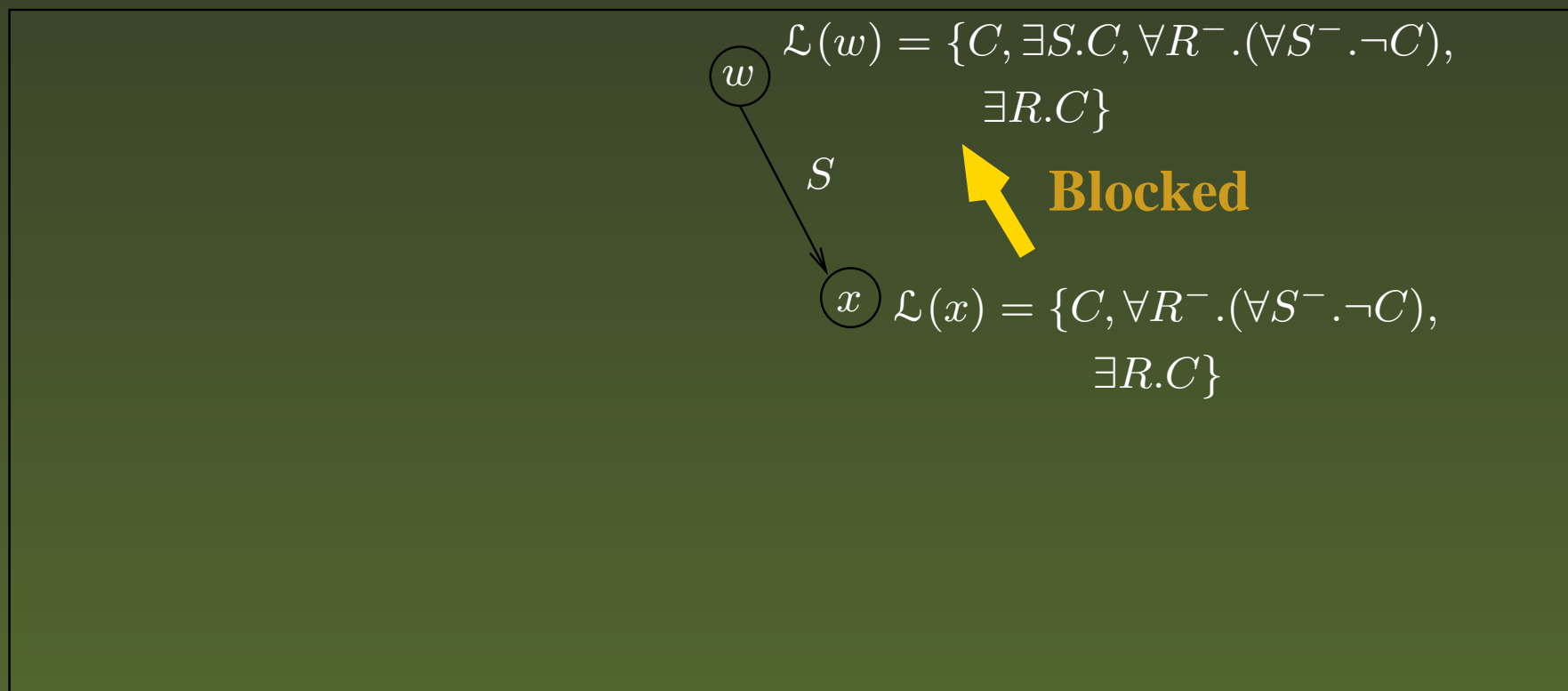
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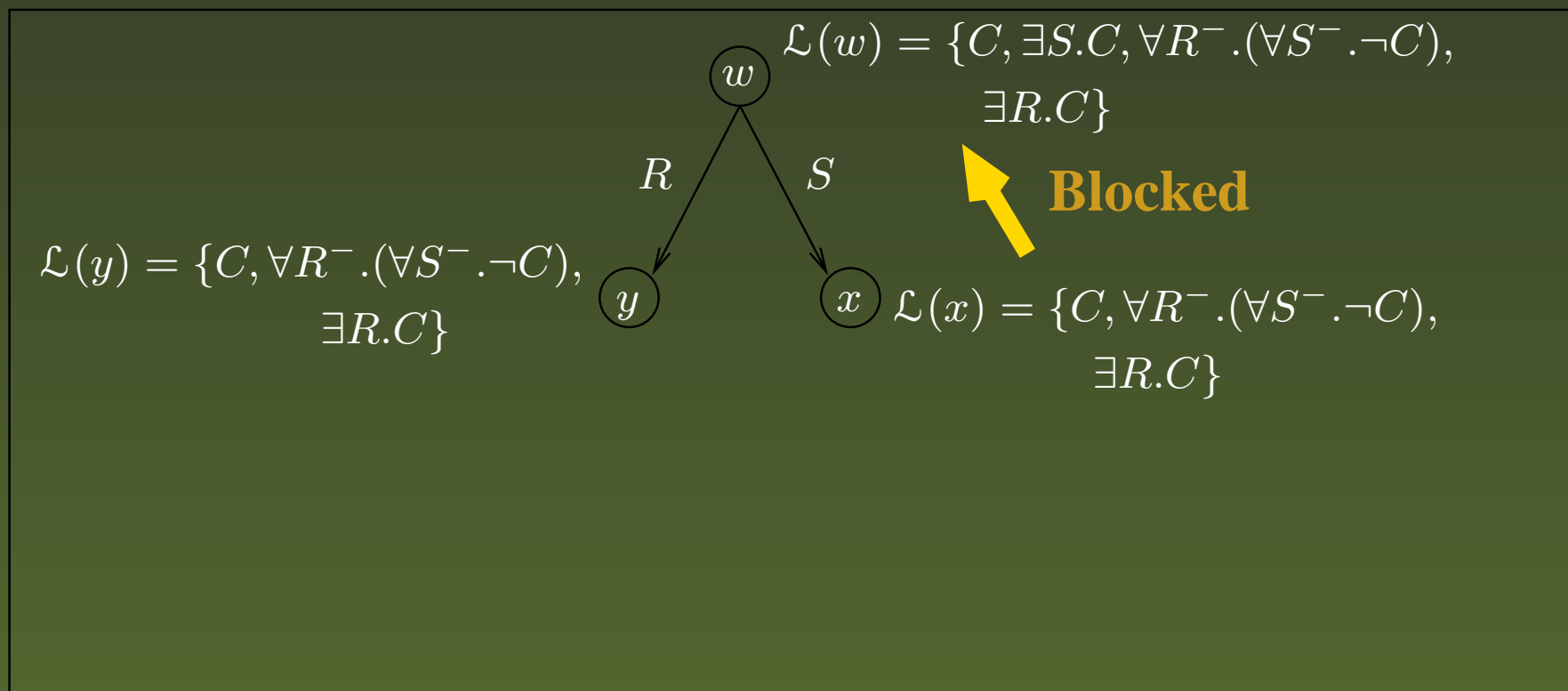
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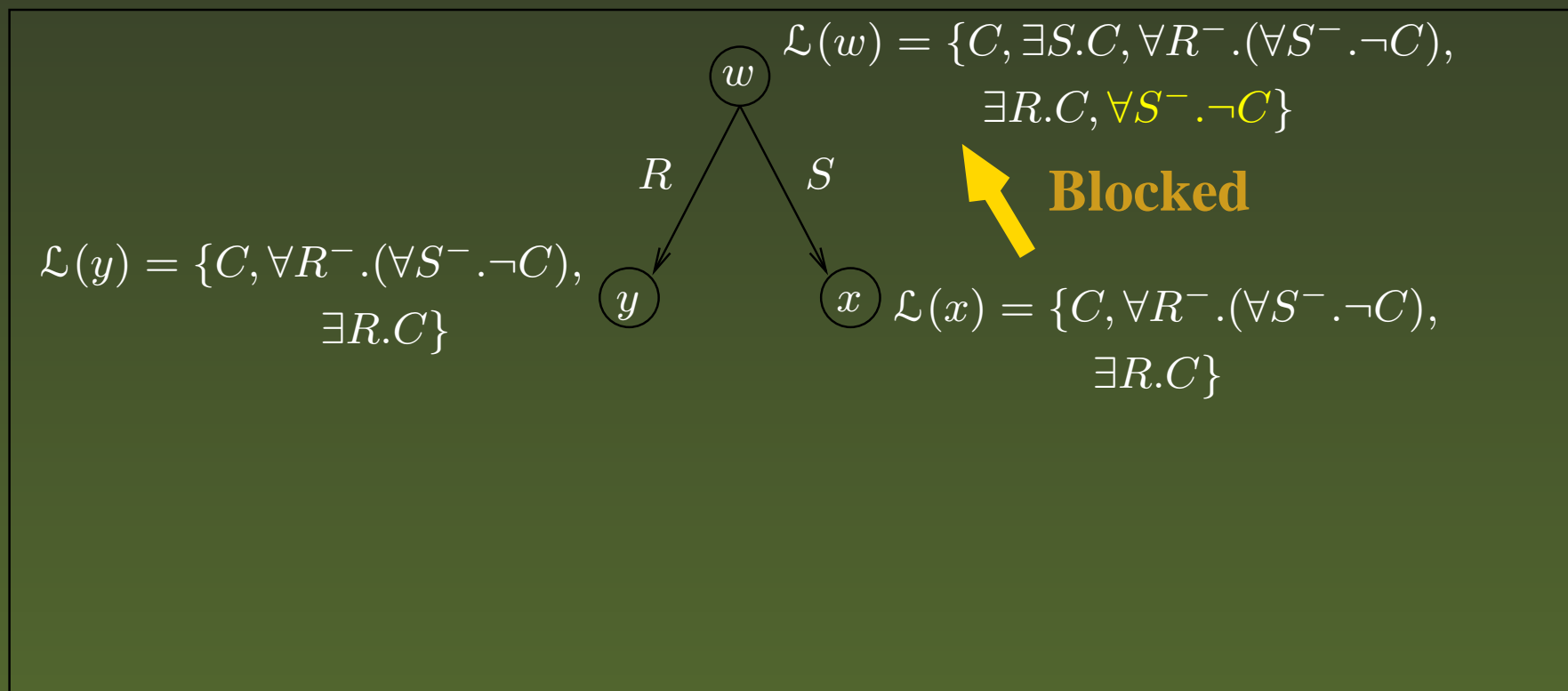
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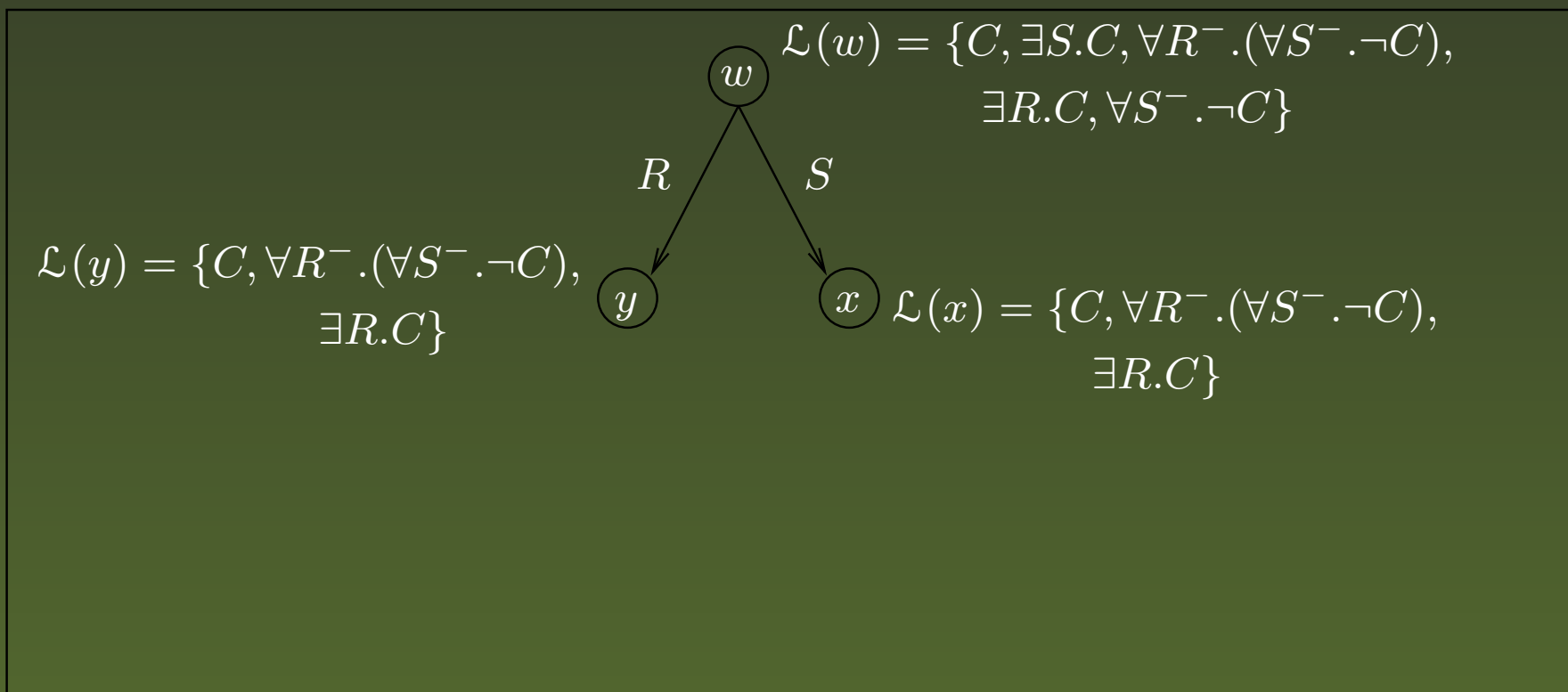
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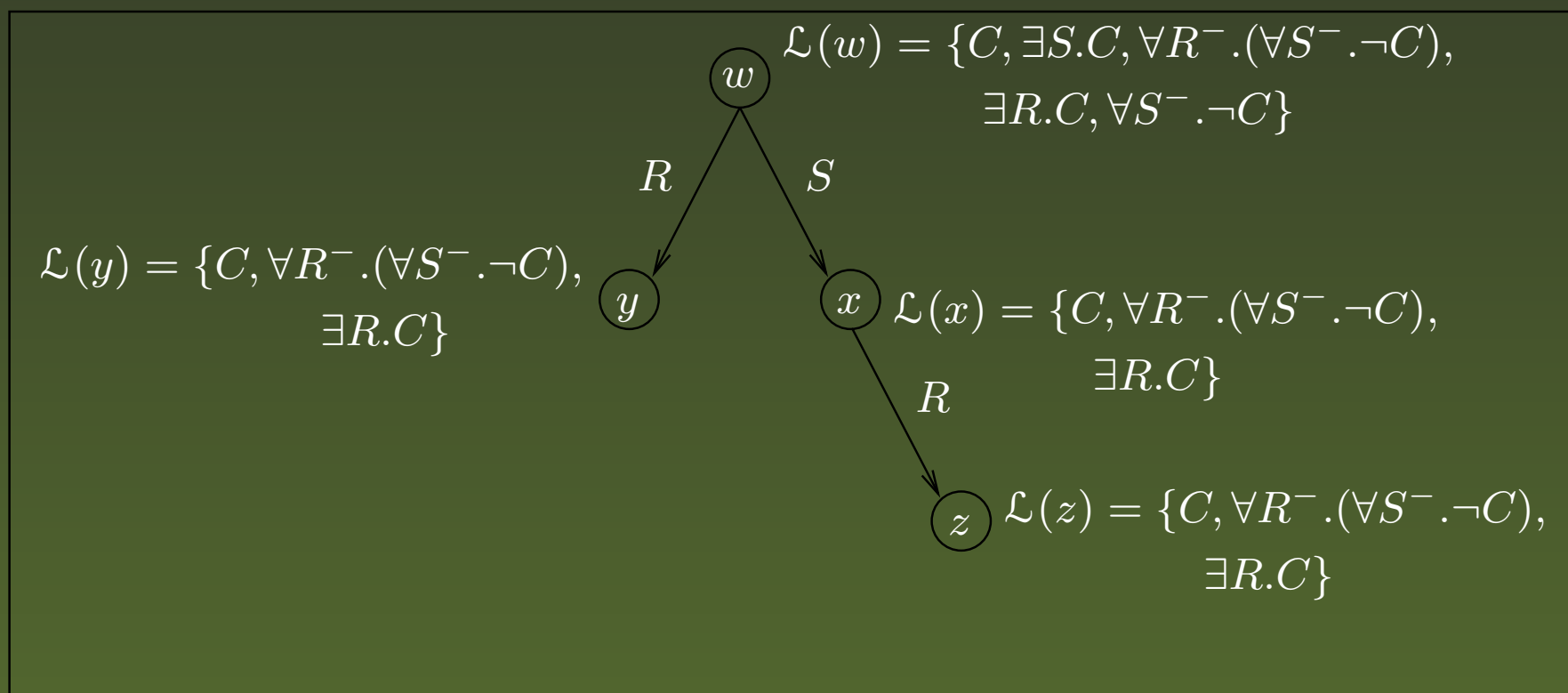
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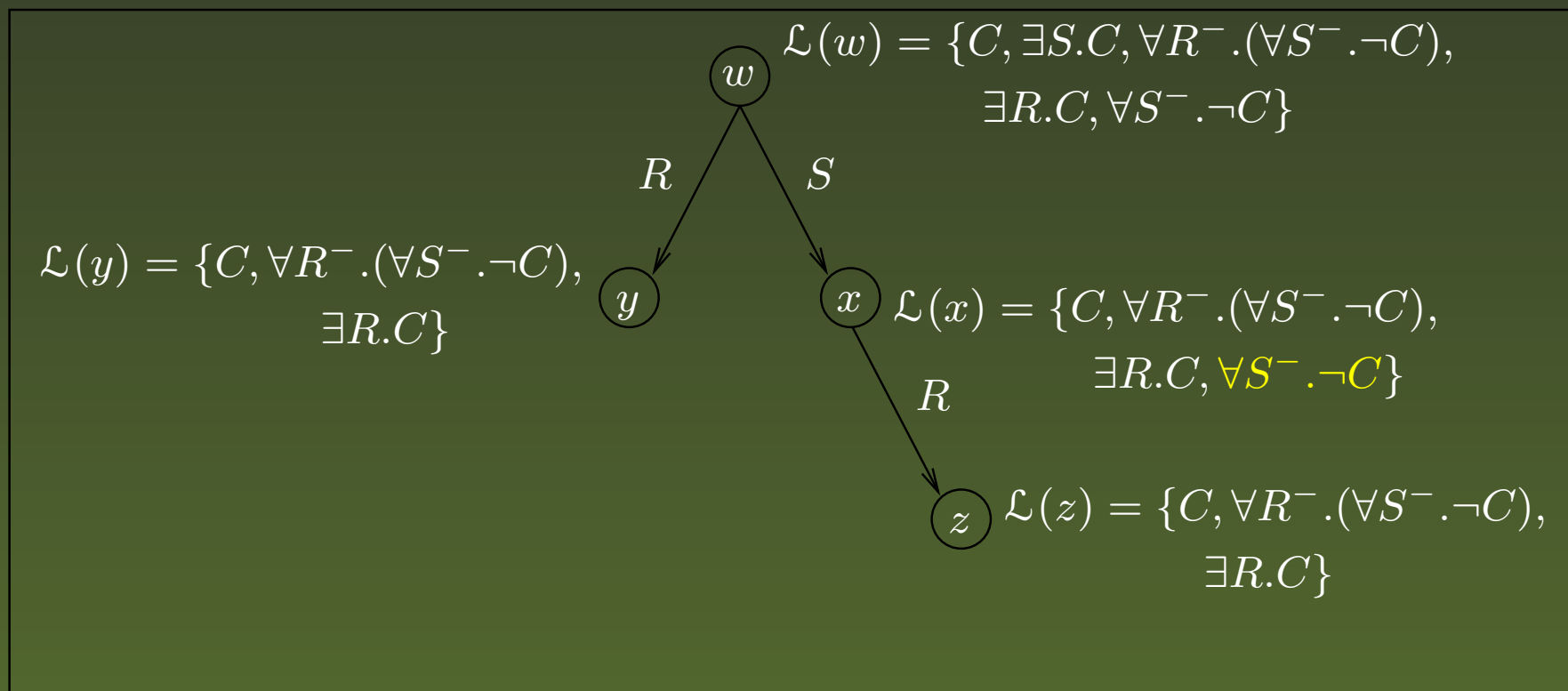
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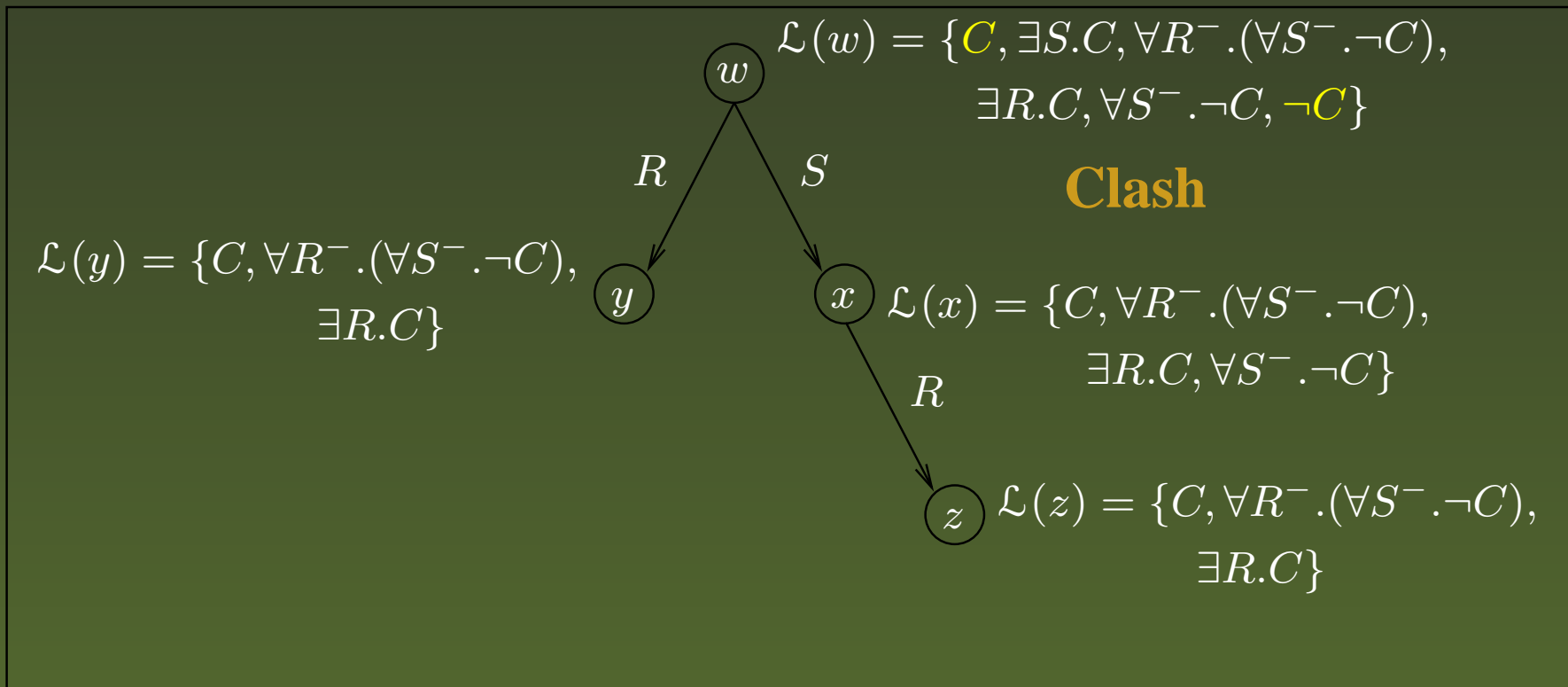
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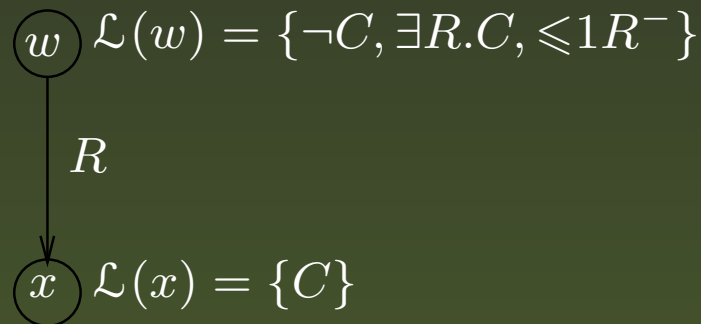
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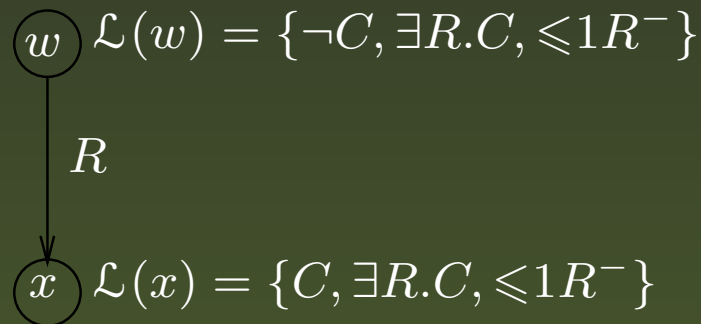
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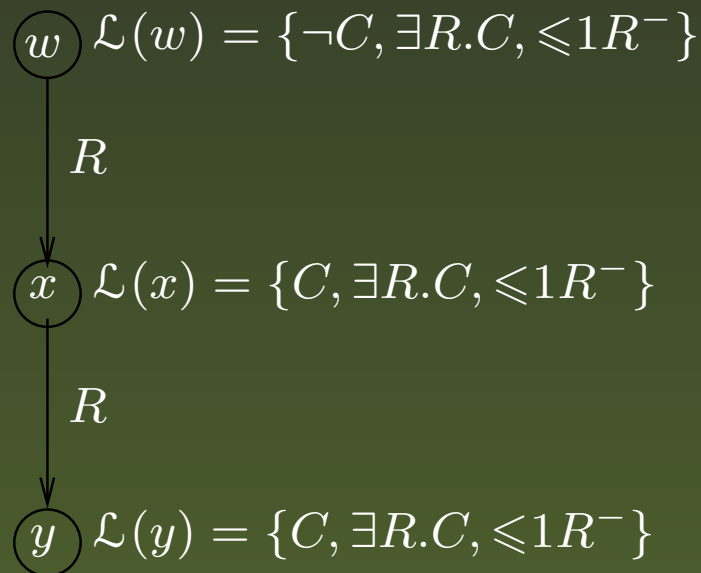
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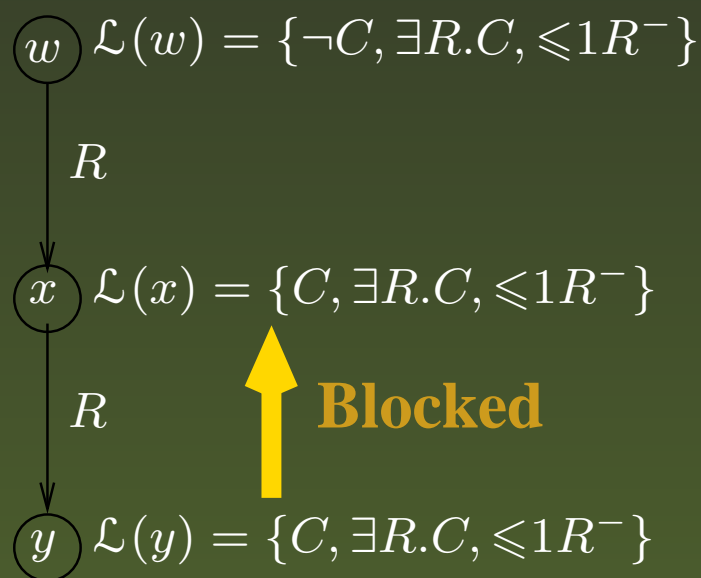
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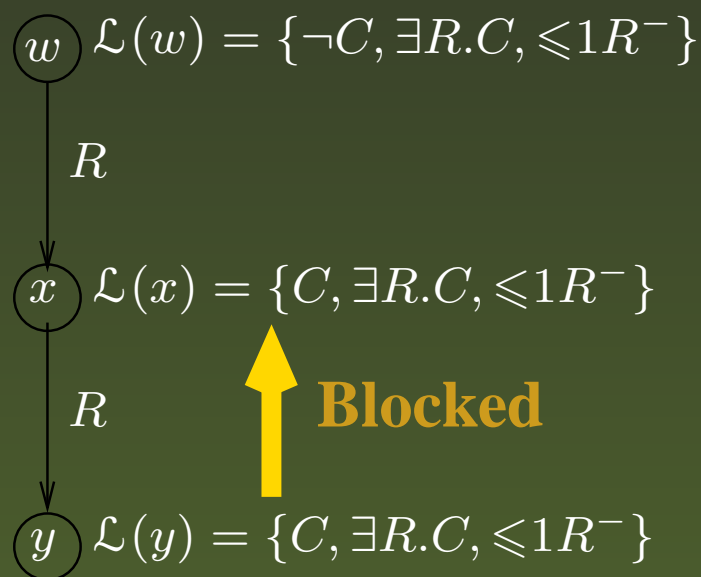
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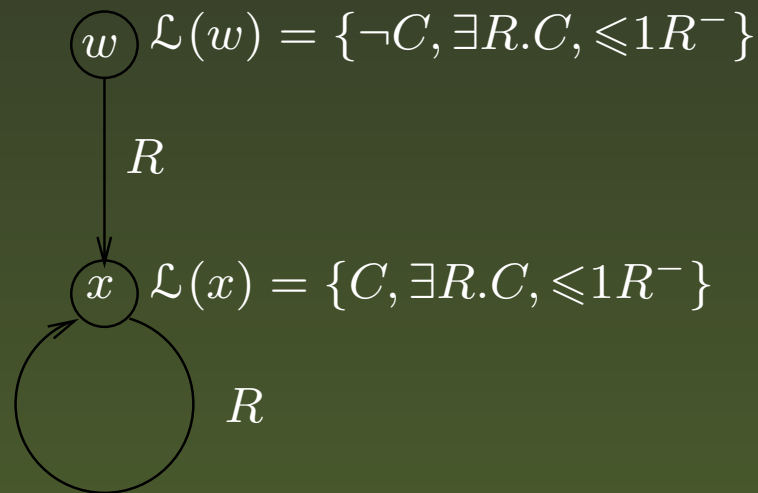
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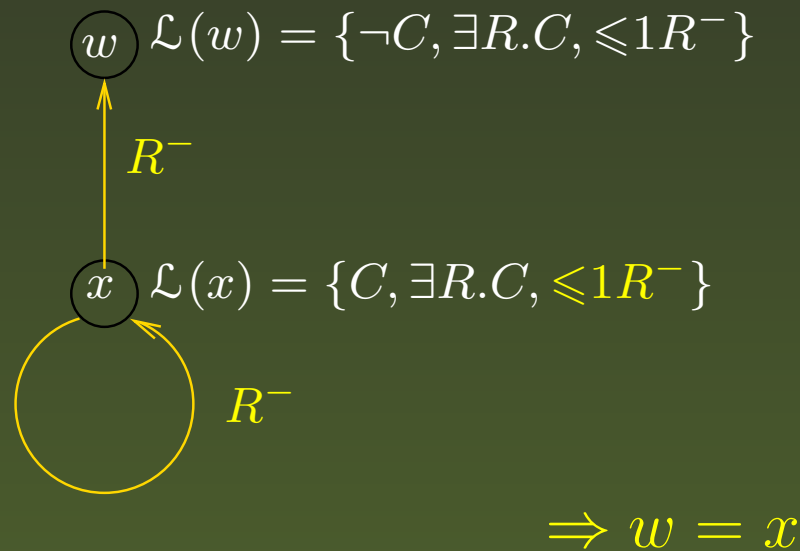
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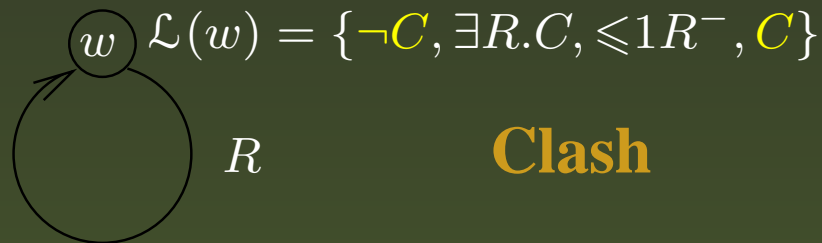
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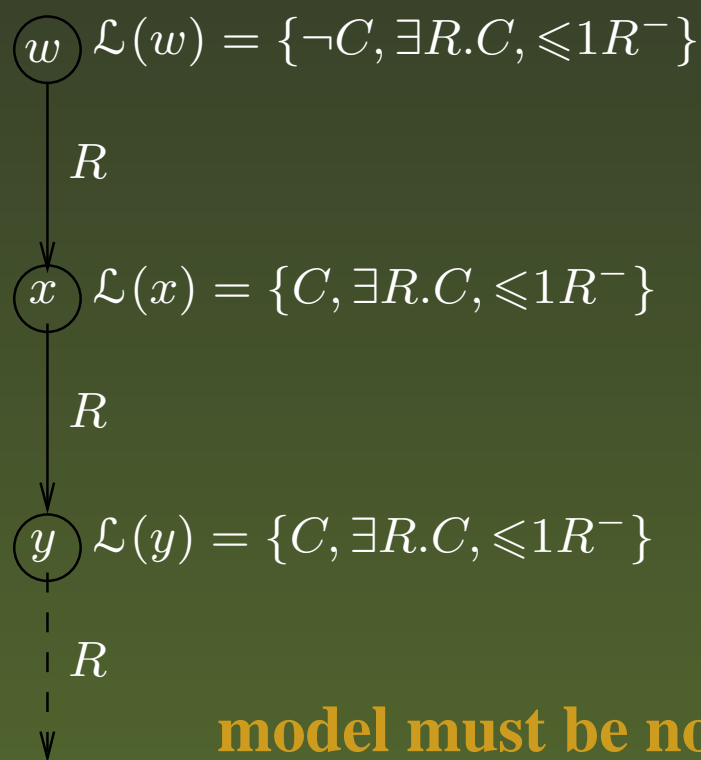
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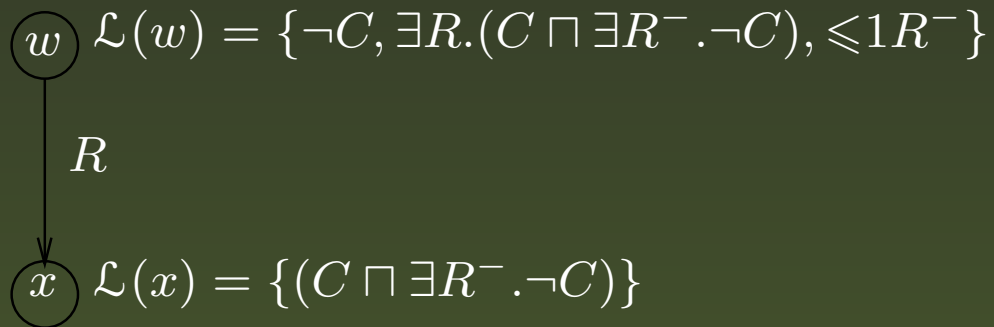
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- ➔ With non-finite models, even dynamic blocking not enough
- ➔ E.g., testing $\neg C$ w.r.t. $\mathcal{T} = \{\top \sqsubseteq \exists R.(C \sqcap \exists R^-. \neg C), \top \sqsubseteq \leq 1R^-\}$

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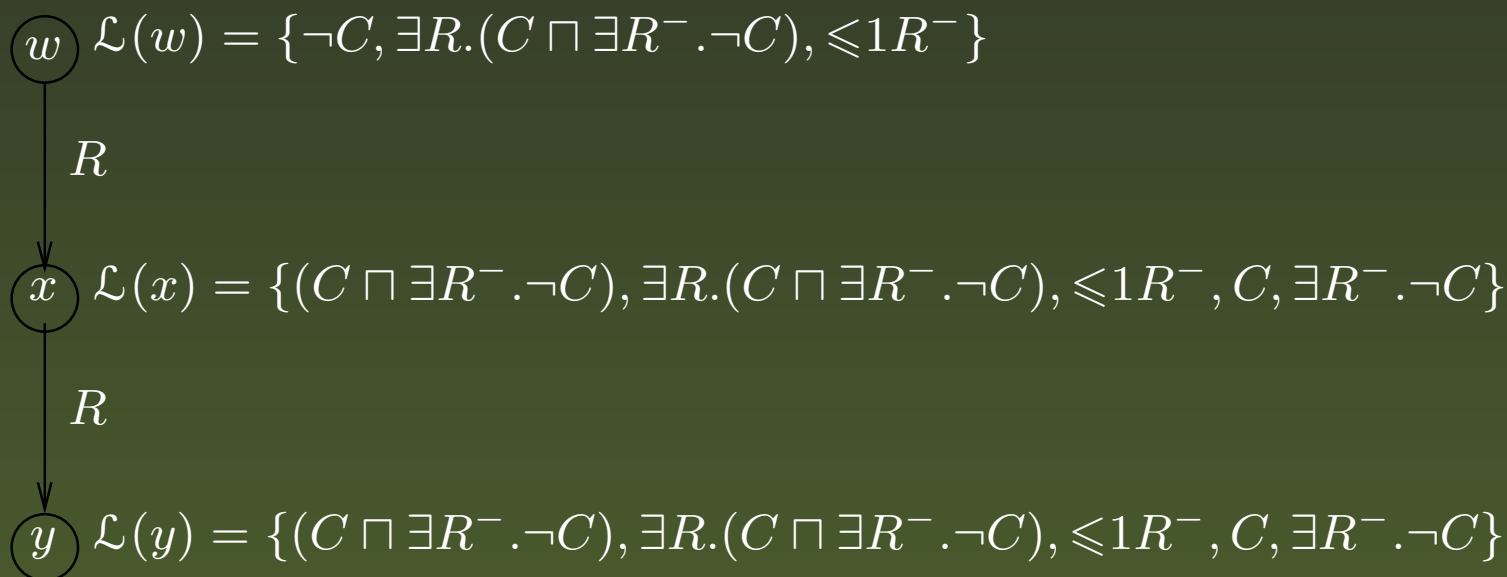
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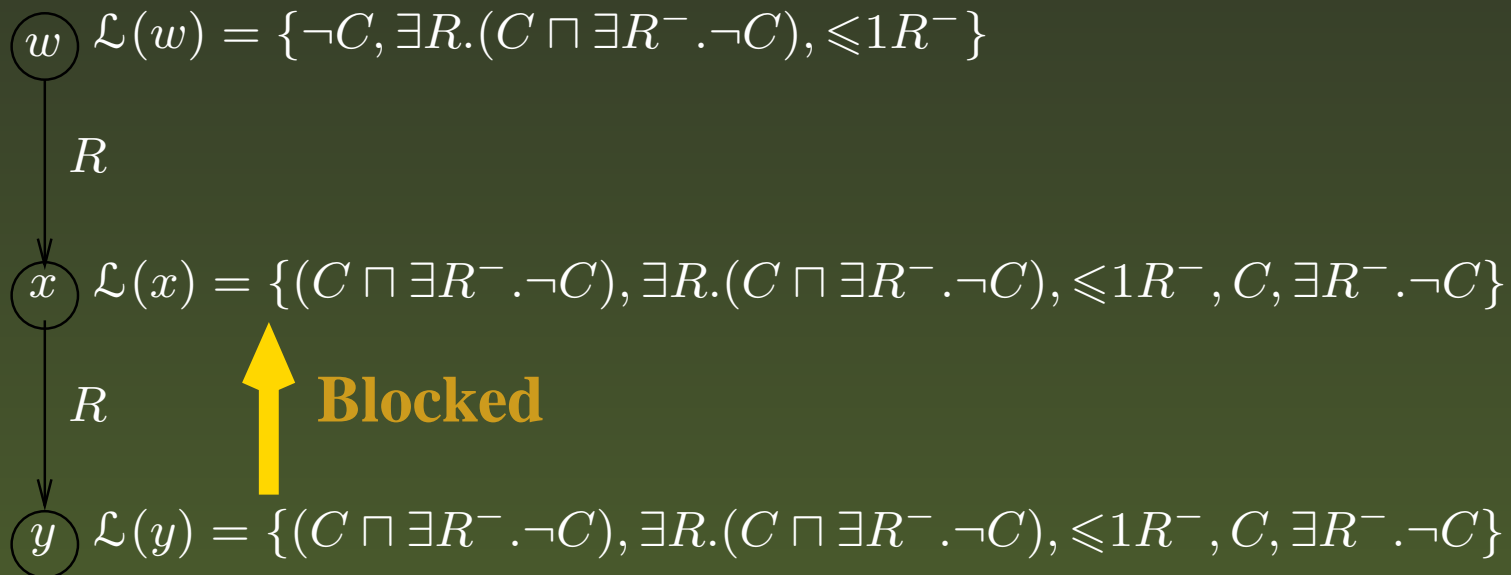
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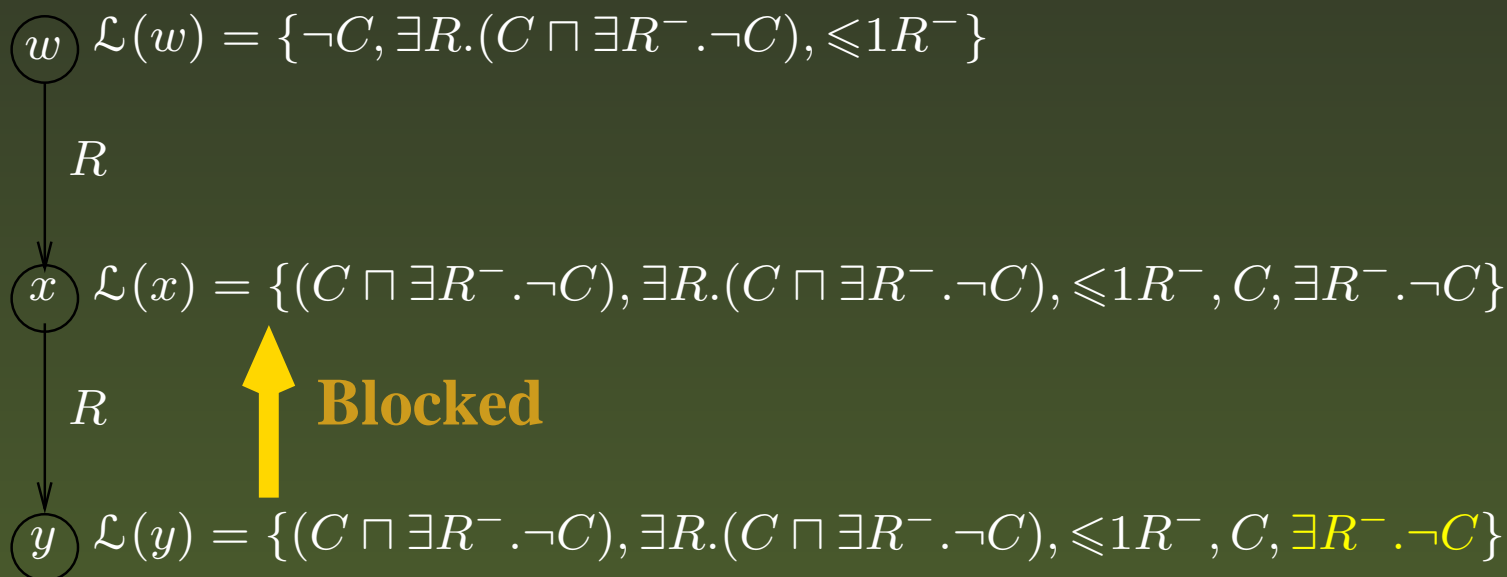
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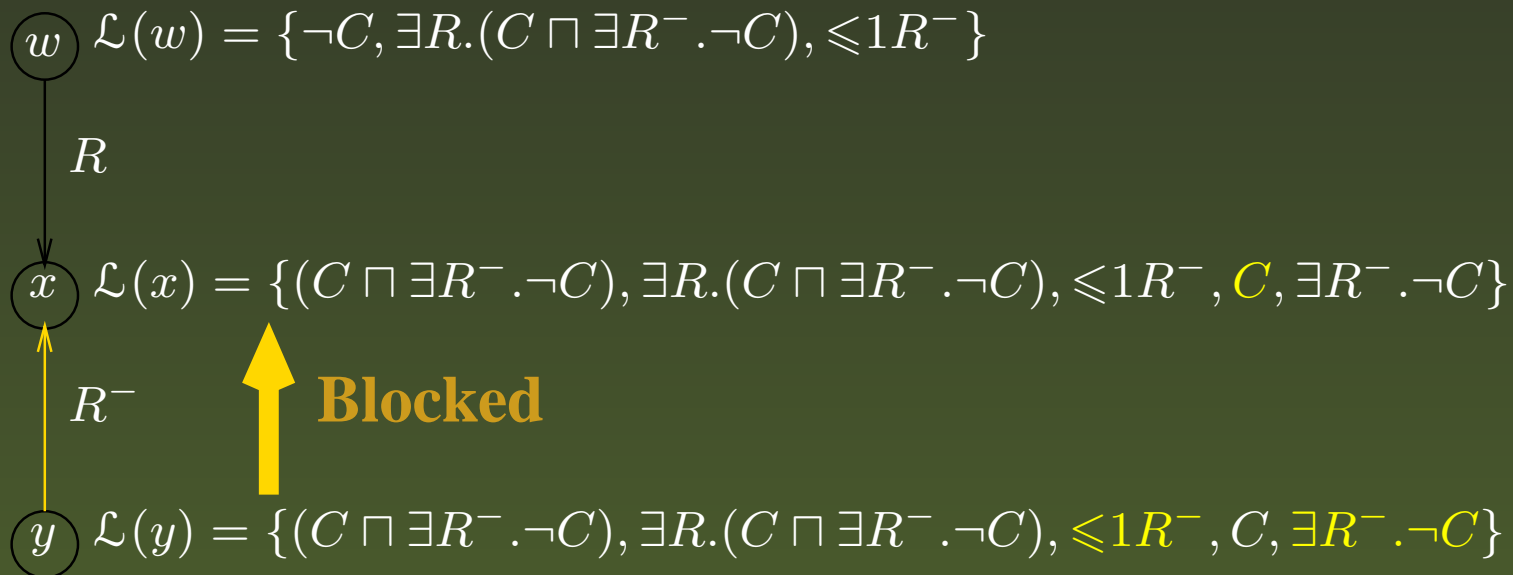
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Inconsistency due to $\leq 1R^- \in \mathcal{L}(y)$ and $C \in \mathcal{L}(x)$

Double Blocking I

- Problem due to $\exists R^-. \neg C$ term **only** satisfied in **predecessor** of blocking node

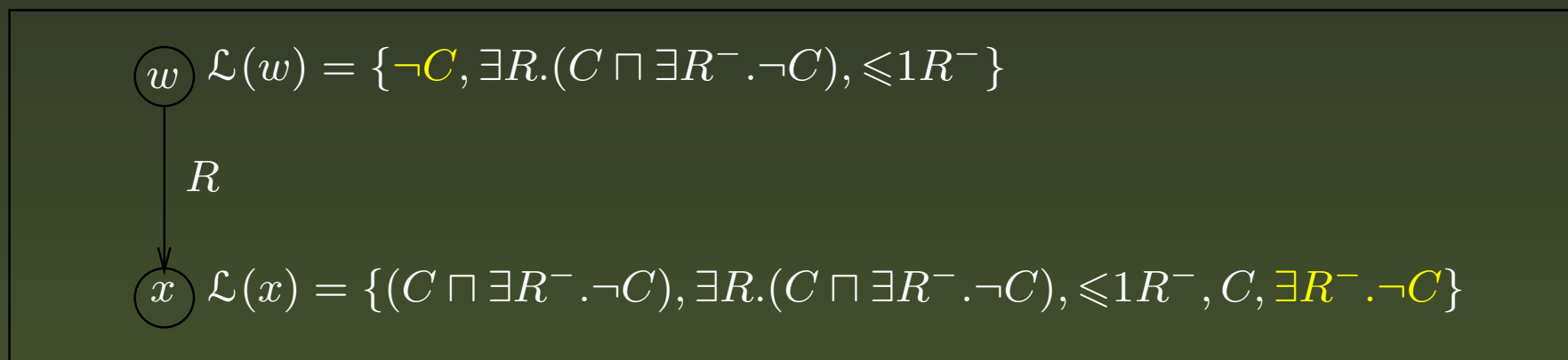
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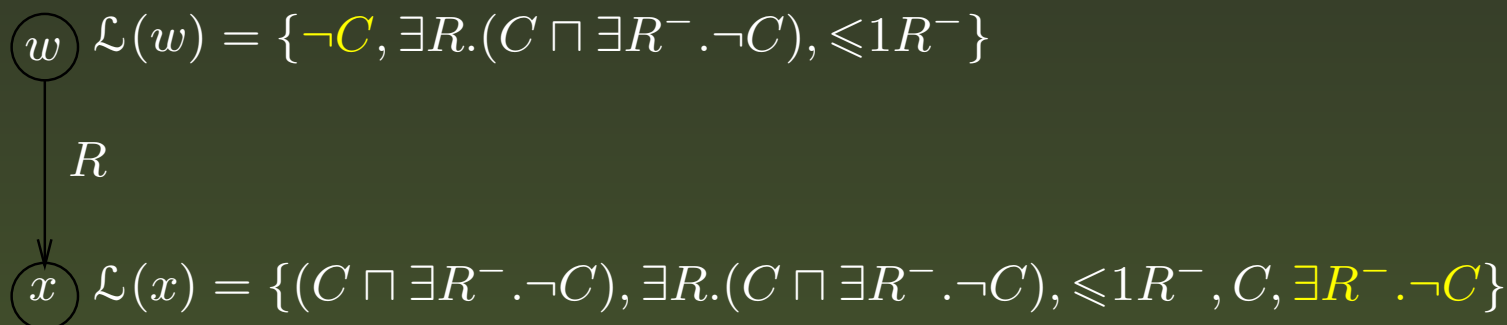
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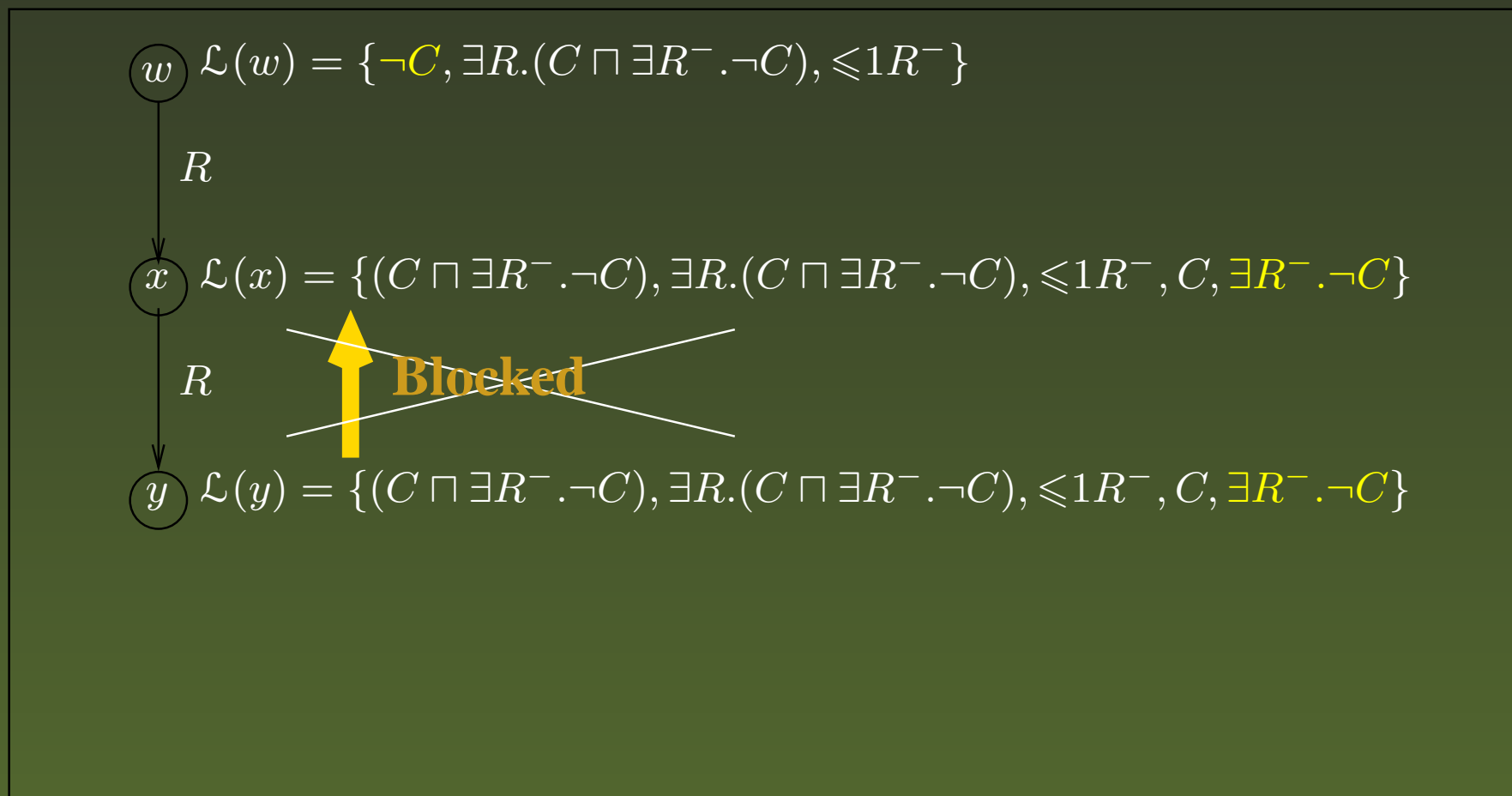
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- ➔ Solution is **Double Blocking** (pairwise blocking)
- Predecessors of blocked and blocking nodes also considered
 - In particular, $\exists R.C$ terms satisfied in predecessor of blocking node must also be satisfied in predecessor of blocked node $\neg C \in \mathcal{L}(w)$

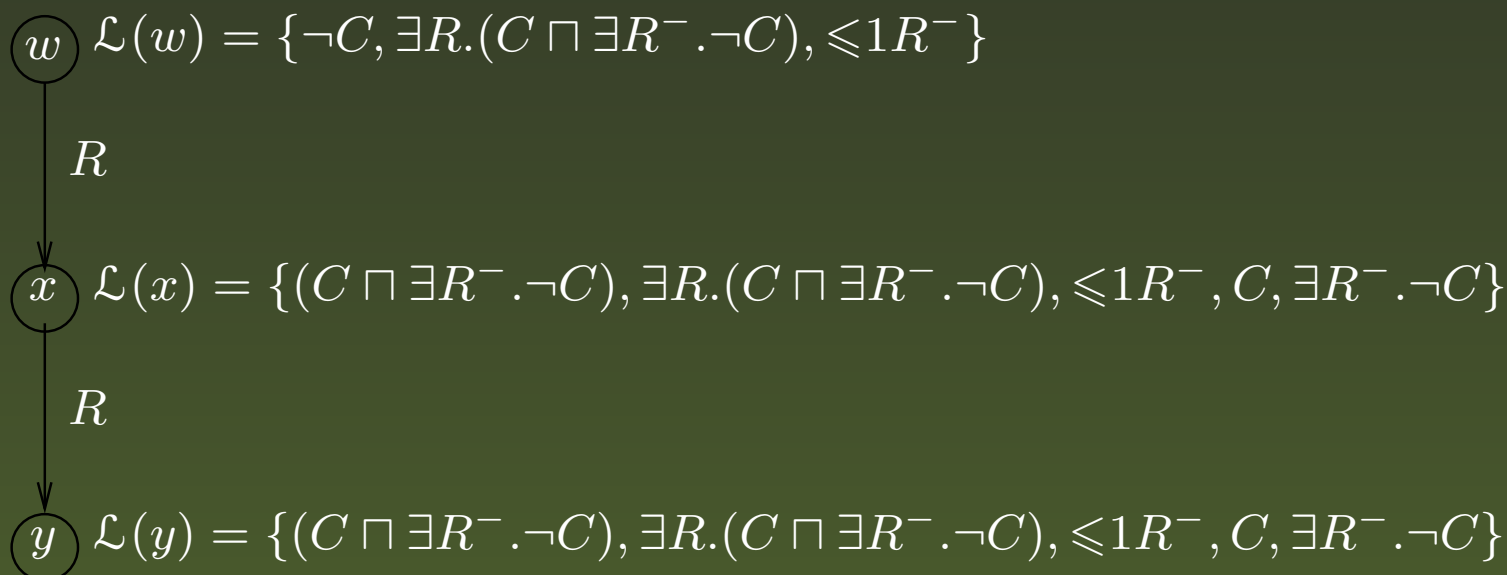
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- Due to pairwise condition, block no longer holds



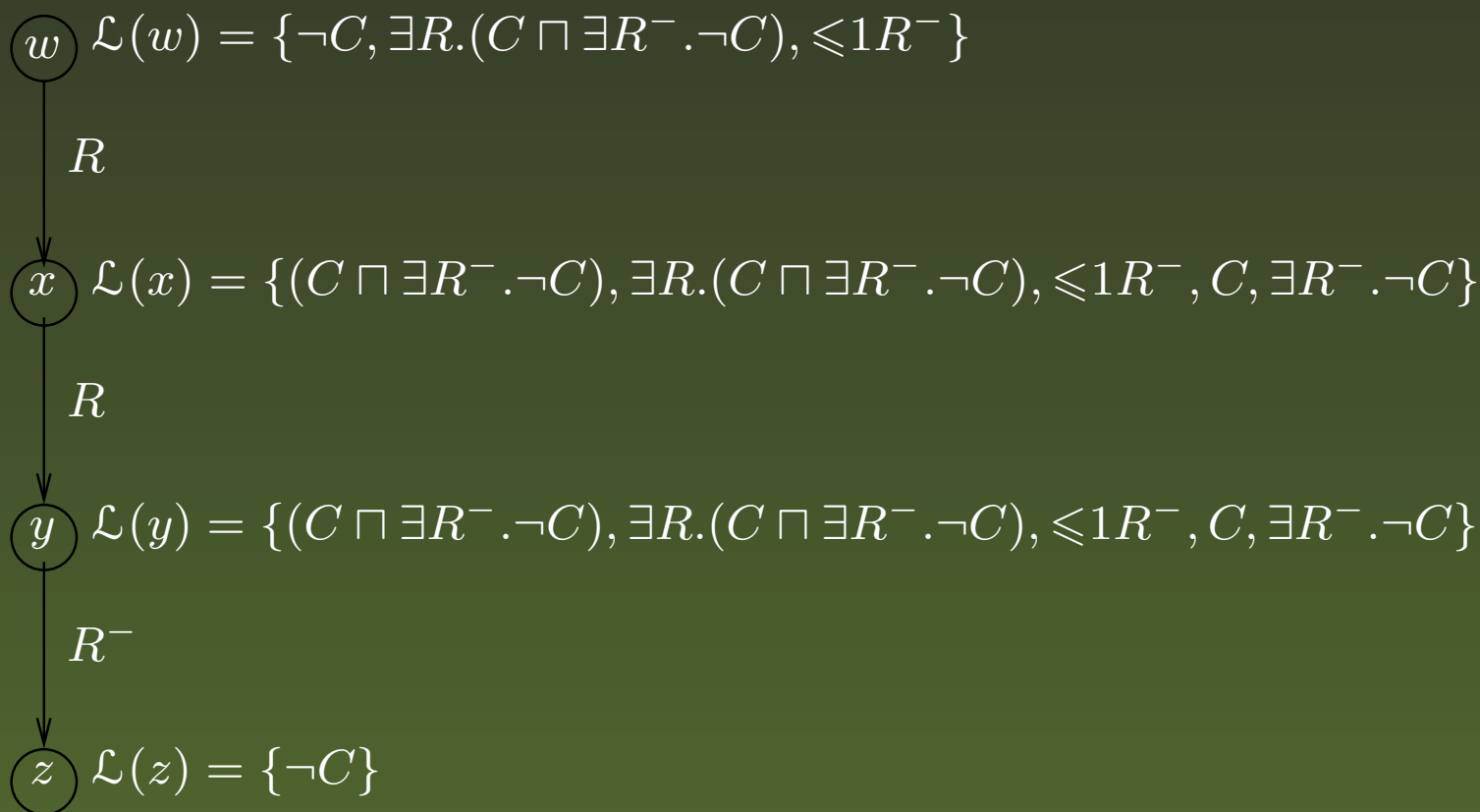
Double Blocking II

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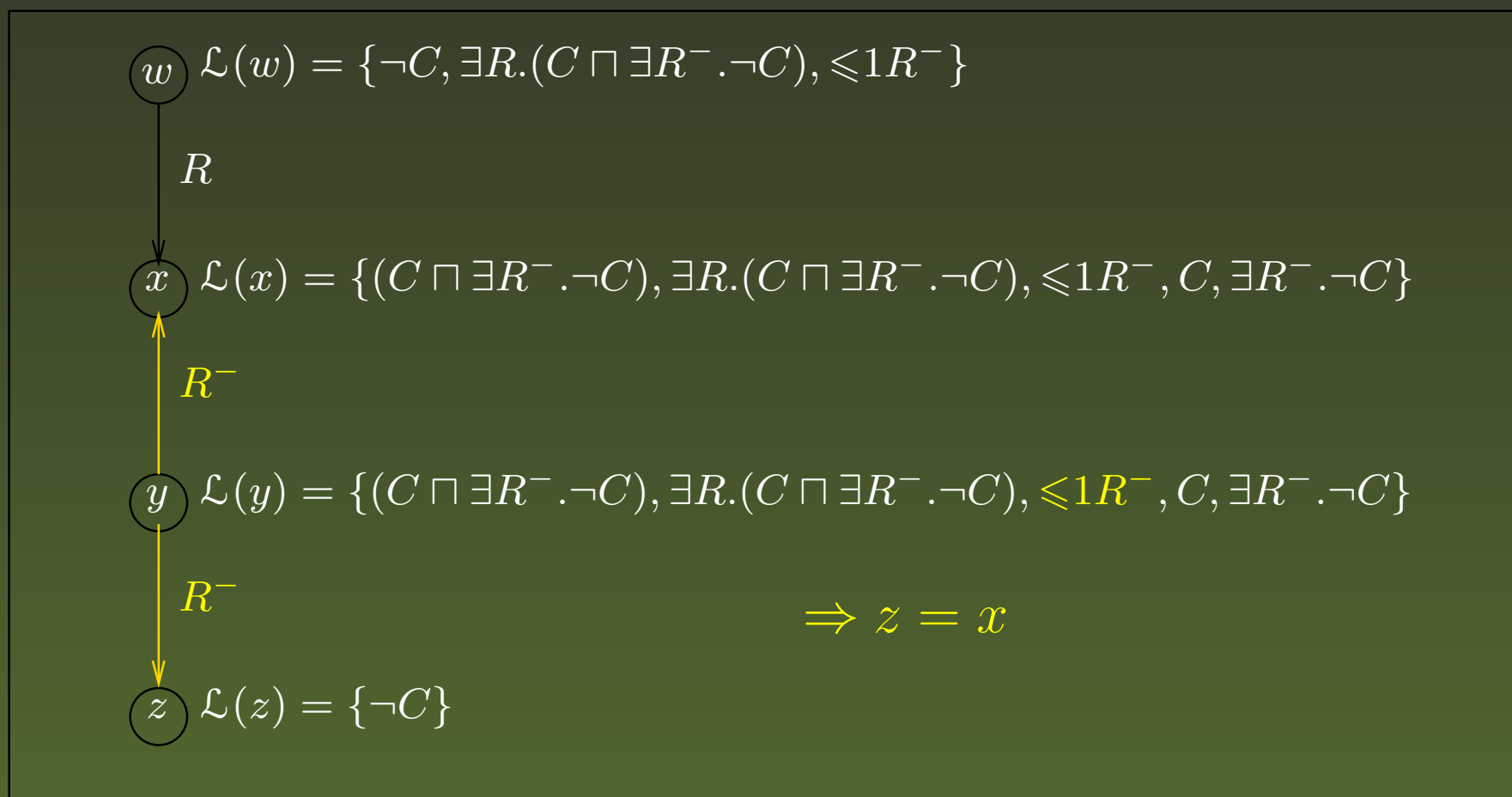
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Clash