Computational Logic

FORT 1.0

Franziska Rapp

joint work with

Aart Middeldorp

University of Innsbruck

COCO

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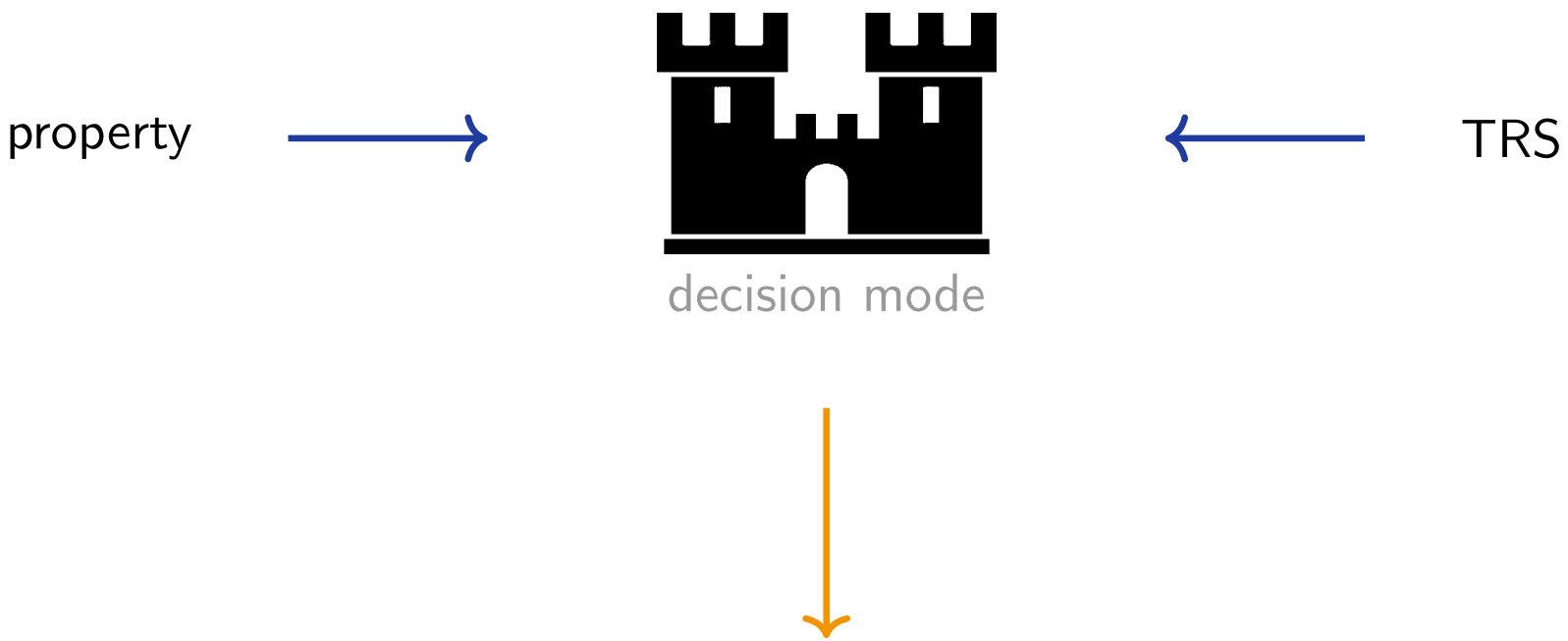
FORT



FORT

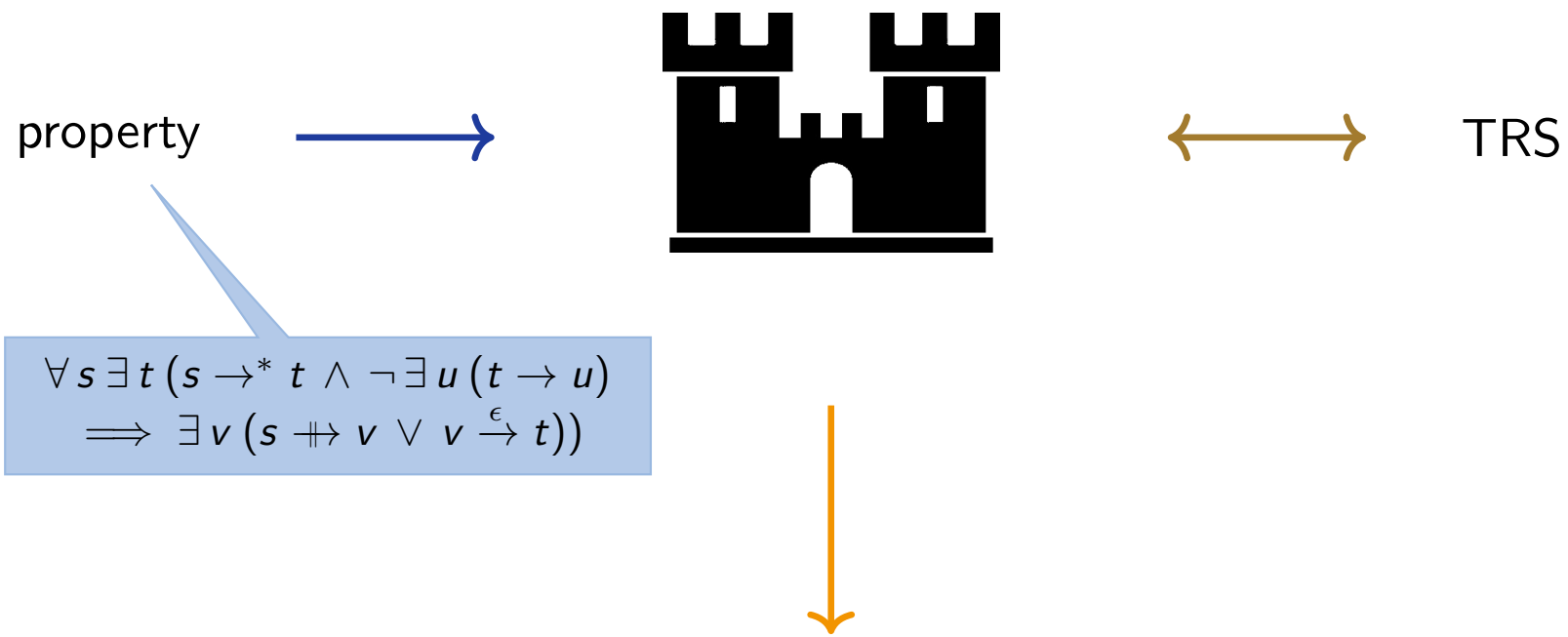
property →  → TRS

synthesis mode

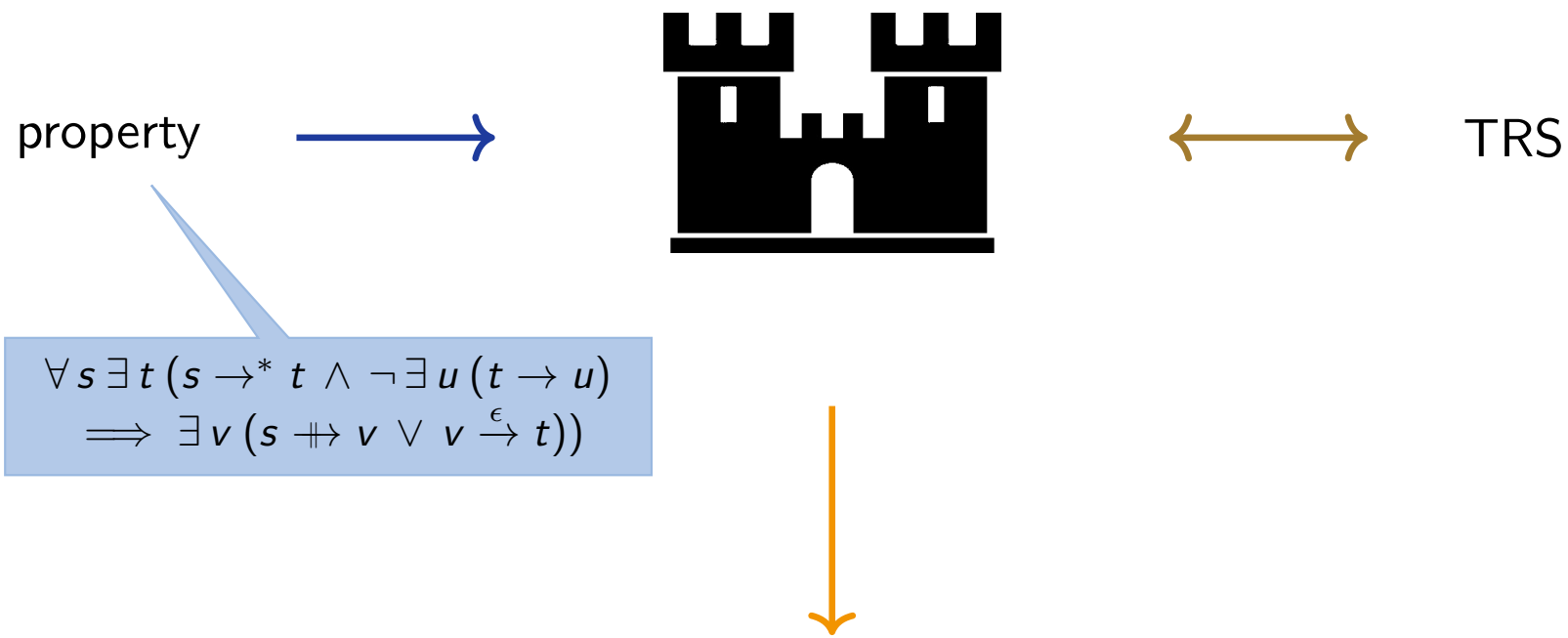
↓

no | ?

FORT


property
TRS
$\forall s \exists t (s \to^* t \wedge \neg \exists u (t \to u) \implies \exists v (s \twoheadrightarrow v \vee v \xrightarrow{\epsilon} t))$
yes | no | ?

FORT



FORT is based on tree automata techniques (Dauchet and Tison, LICS 1990)

Expressible Properties - Selection

$$\begin{aligned}
\mathrm{NF}(t) &\iff \neg\,\exists\, u\,(t \to u)\\
\mathrm{WN} &\iff \forall\, t\,\exists\, u\,(t \to^{!} u)\\
\mathrm{GCR} &\iff \forall\, t\,\forall\, u\,\forall\, v\,(t \to^{*} u \wedge t \to v \implies u \downarrow v)\\
\mathrm{GNFP} &\iff \forall\, u\,\forall\, v\,(t \to u \wedge t \to^{!} v \implies u \to^{!} v)\\
\mathrm{GUNC} &\iff \forall\, t\,\forall\, u\,(t \leftrightarrow^{*} u \wedge \mathrm{NF}(t) \wedge \mathrm{NF}(u) \implies t = u)\\
\mathrm{GUN} &\iff \forall\, t\,\forall\, u\,\forall\, v\,(t \to^{!} u \wedge t \to^{!} v \implies u = v)
\end{aligned}$$

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New in FORT 0.2

- properties on open terms

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GCR demo category

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- many-sorted TRSs — GCR demo category
- parallelization

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- many-sorted TRSs — GCR demo category
- parallelization — UN demo category

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- properties on open terms
- many-sorted
- parallelization

$$\mathsf{CR} \implies \mathsf{NFP} \implies \mathsf{UNC} \implies \mathsf{UN}$$
$$\mathsf{UN} \wedge \mathsf{WN} \implies \mathsf{CR}$$

GCR demo category

UN demo category