Mode-Correctness

- Only a checking conclusion has some known variables from the input.

- Meta-type variables can be classified into *known* and *unknown* variables.

$$\mathsf{MC}_{as}(\cdot) = \top$$

$$\mathsf{MC}_{as}\left(\overrightarrow{[\Delta_i]A_i^{d_i}}, [\Delta_n]A_n^{\Leftarrow}\right) = fv(\Delta_n, A_n) \subseteq \left(S \cup fv^{\Rightarrow}\left(\overrightarrow{[\Delta_i]A_i^{d_i}}\right)\right) \wedge \mathsf{MC}_{as}\left(\overrightarrow{[\Delta_i]A_i^{d_i}}\right)$$

$$\mathsf{MC}_{as}\left(\overrightarrow{[\Delta_i]A_i^{d_i}}, [\Delta_n]A_n^{\Rightarrow}\right) = \quad fv(\Delta_n) \subseteq \left(S \cup fv^{\Rightarrow}\left(\overrightarrow{[\Delta_i]A_i^{d_i}}\right)\right) \wedge \mathsf{MC}_{as}\left(\overrightarrow{[\Delta_i]A_i^{d_i}}\right)$$

- for a synthesis premise, only types in the context need to be known, and the synthesised

- To synthesise the types of premises of a rule,

meta-type variables become known.

- for a checking premise, all types need to be known by the checking site;

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