A TYPE THEORY WITH SCOPED EQUALITY REFLECTION

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Feel free to change the stuff below as our thinking evolves. This is just a starting point. We have the following judgments:

$\vdash \Sigma$ sig	Σ is a valid signature
$\mathcal{H} \vdash_\Sigma \Gamma$ ctx	Γ is a valid context
$\Gamma \vdash_\Sigma \mathcal{H}$ hints	$\mathcal{H}$ is a valid hints set
$\Gamma; \mathcal{H} \vdash_\Sigma M : A$	M has type A
$\Gamma; \mathcal{H} \vdash_\Sigma M \equiv N : A$	M equals N at type A

The rules for the theory are given inductive-recursively below.

(Signatures) $$\frac{}{\vdash \diamond \text{ sig}} \qquad \frac{\vdash \Sigma \text{ sig} \quad \diamond \vdash^{\diamond}_{\Sigma} A : \mathbb{U} \quad \Sigma \# c}{\vdash \Sigma, c : A \text{ sig}}$$

(Contexts) $$\frac{}{\mathcal{H} \vdash_\Sigma \diamond \text{ ctx}} \qquad \frac{\mathcal{H} \vdash_\Sigma \Gamma \text{ ctx} \quad \Gamma; \mathcal{H} \vdash_\Sigma A : \mathbb{U} \quad \Gamma \# x}{\mathcal{H} \vdash_\Sigma \Gamma, x : A \text{ ctx}}$$

(Hints) $$\frac{}{\Gamma \vdash \diamond \text{ hints}} \qquad \frac{\Gamma \vdash_\Sigma \mathcal{H} \text{ hints} \quad \Gamma; \mathcal{H} \vdash_\Sigma A : \mathbb{U} \quad \Gamma; \mathcal{H} \vdash_\Sigma a, b : A}{\Gamma \vdash_\Sigma \mathcal{H}, a \equiv b : A \text{ hints}}$$

(Projection) $$\frac{x : A \in \Gamma}{\Gamma; \mathcal{H} \vdash_\Sigma x : A} \qquad \frac{c : A \in \Sigma}{\Gamma; \mathcal{H} \vdash_\Sigma c : A} \qquad \frac{a \equiv b : A \in \mathcal{H}}{\Gamma; \mathcal{H} \vdash_\Sigma a \equiv b : A}$$

(Reflect) $$\frac{\Gamma; \mathcal{H} \vdash_\Sigma p : \mathsf{Id}_A\ a\ b \quad \Gamma; (\mathcal{H}, a \equiv b : A) \vdash_\Sigma e : C}{\Gamma; \mathcal{H} \vdash_\Sigma \mathsf{reflect}\ p\ \mathsf{in}\ e : C}$$