Derivation of $f(m) \equiv g(k)$

Axioms:

$$\begin{aligned} i &\equiv j \\ k &\equiv l \\ f(i) &\equiv g(k) \\ j &\equiv f(j) \\ m &\equiv g(l) \end{aligned}$$

$$\begin{array}{lll} & f(m) & \\ \leftrightarrow_{\mathcal{E}} & f(g(l)) & \text{using } m \equiv g(l) \\ \leftrightarrow_{\mathcal{E}} & f(g(k)) & \text{using } k \equiv l \\ \leftrightarrow_{\mathcal{E}} & f(f(i)) & \text{using } f(i) \equiv g(k) \\ \leftrightarrow_{\mathcal{E}} & f(f(j)) & \text{using } i \equiv j \\ \leftrightarrow_{\mathcal{E}} & f(j) & \text{using } j \equiv f(j) \\ \leftrightarrow_{\mathcal{E}} & f(i) & \text{using } i \equiv j \\ \leftrightarrow_{\mathcal{E}} & g(k) & \text{using } f(i) \equiv g(k) \end{array}$$

$f(m) \equiv g(k) \in \mathcal{E}_9 \subseteq CC(\mathcal{E})$