Definition 12.19. [2CS] *Suppose that either $I = \mathbb{R}^+$ or $I = \mathbb{R}$ in the following, for simplicity.*
Let $\varepsilon > 0$; given a bounded function $f : I \to \mathbb{R}$ [a] *, we define the* "sup transform" *as the function $g : I \to \mathbb{R}$ given by*

$$g(x) = \sup_{y \in (x, x+\varepsilon)} f(y) \ . \tag{12.20}$$

We summarize this transformation with the notation $g = F(\varepsilon, f)$.

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[a] The "bounded" hypothesis is convenient, the following resulst are valid even without this hypothesis, with simple modifications.