

Remark 7.58. [237] Suppose that the set J is directed but not filtering; then by [06V] it admits a maximum element that we call ∞ ; the above definitions and properties can also be stated in this case, but they are trivial, since

$$\lim_{j \in J} f(j) = \lim_{j \in J} \inf f(j) = \lim_{j \in J} \sup f(j) = f(\infty) \quad .$$