Continuity with or without ideal

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Triple $\langle X, \tau, \mathcal{I} \rangle$, where τ is a topology on the set X and $\mathcal{I}$ is an ideal on X is called *ideal topological space. Local function,* defined by

$$A^*_{(\tau, \mathcal{I})} = \{x \in X : A \cap U \notin \mathcal{I} \text{ for each } U \in \tau(x)\}$$

generates topology τ^* on X (which is finer than τ) in such way that F is closed in τ^* iff $F^* \subseteq F$.

If $f : \langle X, \tau_X \rangle \to \langle Y, \tau_Y \rangle$ is a continuous (open, closed) function, its "idealisation" does not have to be continuous (open, closed). We give several sufficient conditions when mapping remains continuous (open, closed) and through several examples we illustrate that the conditions we considered can not be weakened.

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