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## **Single generated algebras of continuous functions**

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Every continuous map  $X \rightarrow Y$  defines, by composition, a homomorphism between the corresponding algebras of real-valued continuous functions  $C(Y) \rightarrow C(X)$ . By means of this homomorphism,  $C(X)$  is a  $C(Y)$ -algebra.

In this work, we study when is  $C(X)$  single generated as  $C(Y)$ -algebra, that is, when does exist a function  $f \in C(X)$  such that  $C(X) = C(Y)[f]$ .

We shall prove, for compact spaces  $X$  and  $Y$ , that if  $C(X) = C(Y)[f]$ , then the map  $X \rightarrow Y$  is locally injective.

We shall give examples of locally injective continuous maps, between compact spaces  $X \rightarrow Y$  such that  $C(X)$ , with the structure of  $C(Y)$ -algebra induced by the composition morphism  $C(Y) \rightarrow C(X)$ , is not single generated.