

# Some questions about Lipschitz-free spaces

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Let  $M$  be a metric space equipped with a distinguished point  $0$ , and let  $Lip_0(M)$  be the Banach space of real-valued Lipschitz functions on  $M$  which vanish at  $0$ . This space is isometric to the dual space of the closed linear span of all Dirac measures. This predual  $\mathcal{F}(M)$  is called the free space over  $M$ , and enjoys nice functorial properties: in particular, Lipschitz functions between metric spaces extend to linear operators between the corresponding free spaces. We have therefore a functor from the structured world of metric spaces to Banach spaces, and it is useful to investigate how the properties of  $M$  transfer to properties of the free spaces. We will display some results along these lines and present some open questions, related for instance with Grothendieck's approximation properties.