

## Closest Point Property

Suppose H is a Hilbert space  $A \subset H$  closed and convex. then if  $x \in H$ , there exists a unique  $z \in A$  closest to x. There exists a unique  $z \in A$  closest to x such that

$$d(z,x) = \inf_{y \in A} d(y,x).$$

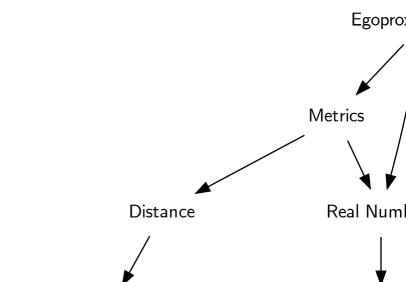
*Proof.* Take any sequence  $(y_n)_n$  such that

$$d(y_n, x) \to d = \inf_{y \in A} d(y, x)$$

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