A C^*-algebra A in which the closed unit ball of A^+ isn't the closed convex hull of the projections of A. (Note that the closed unit ball of positive elements of each hereditary C^*-algebra A of a von Neumann algebra is the closed convex hull of its projections).

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The only projections of $C([0,1])$ are 0 and 1. So the closed convex hull of $C([0,1])$ is $\{f \mid \exists c \in [0,1]; f = c\}$, not equal to $(C([0,1]))_1^+$.