

Ex: For the properties of almost split sequences in regular components we proved, find examples of preprojective or preinjective ones not having these properties:

a) Find an indecomposable M and a proper mono $\tau M \longrightarrow M$

b) Find an almost split sequence
$$0 \longrightarrow \tau M \xrightarrow{[f_i]} E \oplus F \xrightarrow{[g_i]} M \longrightarrow 0$$

s.t. f_1, f_2, g_1, g_2 all are mono.

c) Find an example of an almost split sequence as above s.t. g_1 mono but E is still decomposable.

d) Find an example of an almost split sequence with 4 or more summands in the middle.

Ex: Consider the algebra $K[1 \rightrightarrows 2]$.

a) Describe all preprojective and all preinjective modules.

b) Find the dimension vectors of all regular modules.