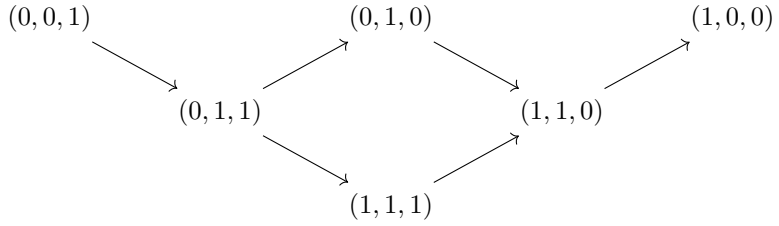
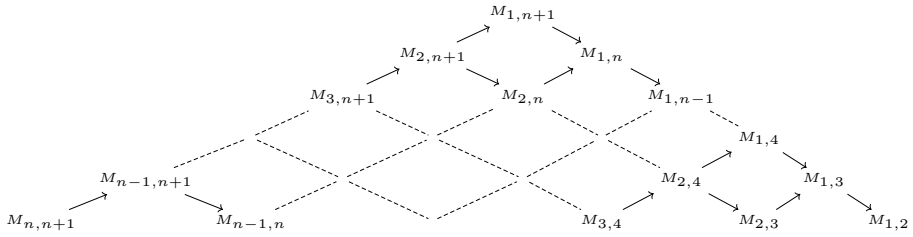
MATH 299Q: Homework 3 Solutions

Quiver Representations

1. We have the following:



2. We have the following:



Here, $M_{i,j+1} := \mathcal{S}(i) \oplus \mathcal{S}(i+1) \oplus \cdots \oplus \mathcal{S}(j)$. We also have the set of projective and injective representations given as;

$$\mathcal{P} = \{M_{1,n+1}, M_{2,n+1}, M_{3,n+1}, \ldots, M_{n-1,n+1}, M_{n,n+1}\},$$

$$\mathcal{I} = \{M_{1,n+1}, M_{1,n}, M_{1,n-1}, \ldots, M_{1,4}, M_{1,3}, M_{1,2}\}.$$

Note that in our presentation we have the levels (from top to bottom) as $\mathcal{P}(1), \mathcal{P}(2), \ldots, \mathcal{P}(n)$ rather than in question 1. where we have the levels as $\mathcal{P}(3), \mathcal{P}(2), \mathcal{P}(1)$.