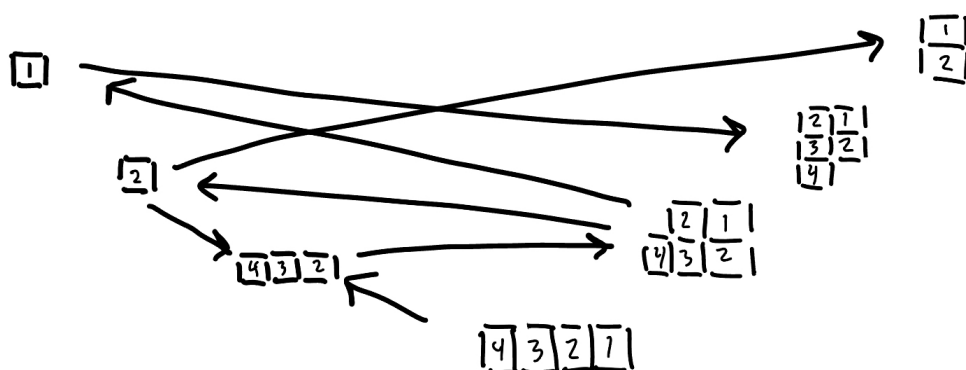


Lecture 17: main exercises

Exercise 17.1. Verify that the skew-shape modules are preprojective algebra modules. That is, verify that the maps ψ_i, ψ_i^* satisfy

$$\sum_{i=1}^{n-1} \psi_i \psi_{i^*} - \psi_{i^*} \psi_i = 0.$$

Exercise 17.2. Choose two arrows in the endomorphism quiver below. For each of your chosen arrows, explicitly find a map between the two modules and check that it is a morphism of preprojective algebra modules.



Lecture 17: additional exercises

Exercise 17.3. Suppose $\nu \subset \mu \subset \lambda$, so the skew shape λ/ν contains λ/μ and μ/ν . Show that there is an injective morphism $M_{\lambda/\mu} \hookrightarrow M_{\lambda/\nu}$ and a surjective morphism $M_{\lambda/\nu} \twoheadrightarrow M_{\mu/\nu}$. (These maps are enough to give the morphisms in the example from lecture, but in general you need more.)