Matrix Similarity

1 Why

TODO

2 Definition

A first square matrix is *similar* to a second square matrix if there exists a nonsingular matrix such that the first matrix is identical to the product of the inverse of the nonsingular matrix the second square matrix and the nonsingular matrix.

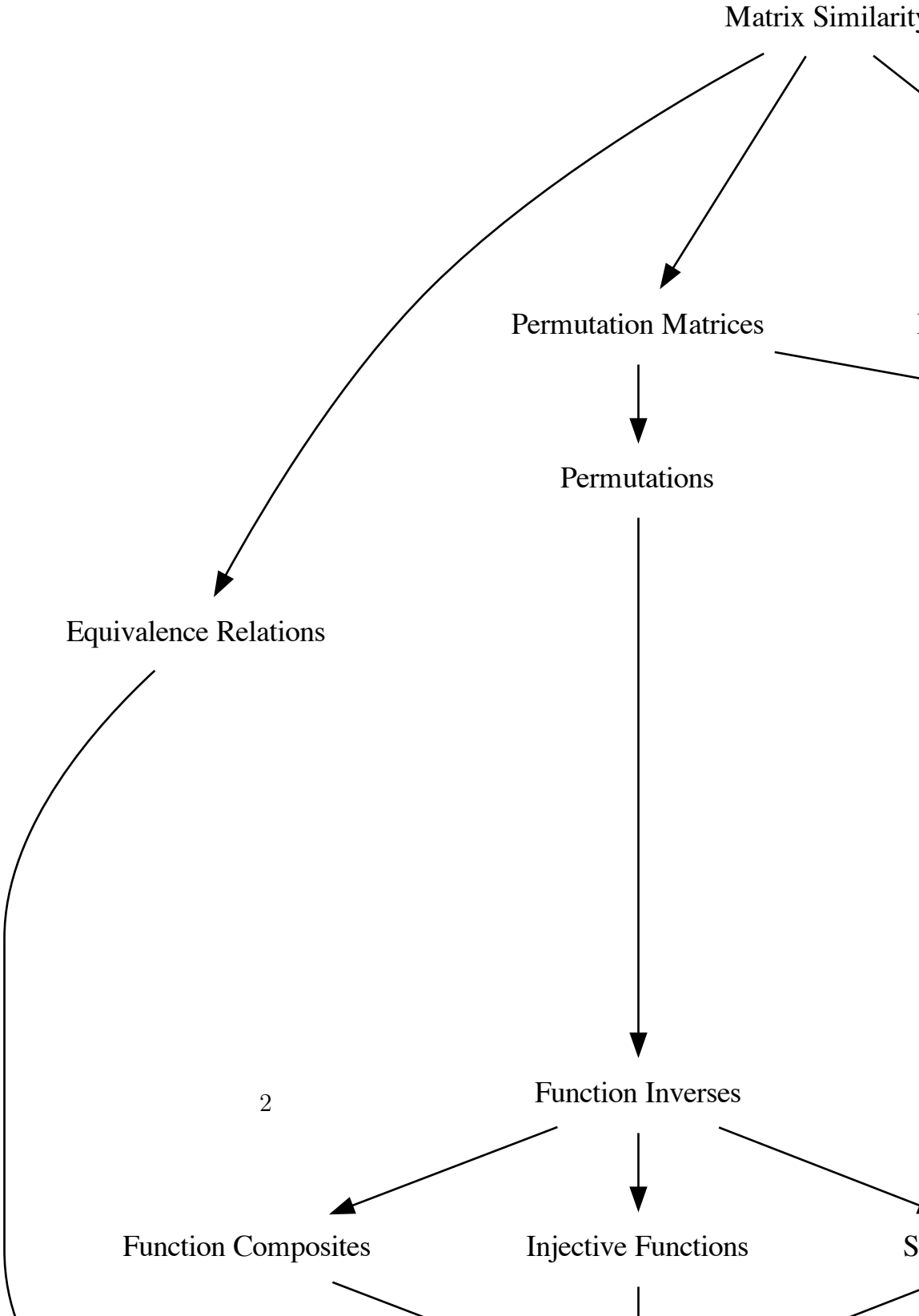
2.1 Notation

Let $A, B \in \mathbf{R}^{n \times n}$. B is similar to A if there exists a nonsingular matrix $S \in \mathbf{R}^{n \times n}$ such that

$$B = S^{-1}AS.$$

3 Equivalence Relation

Proposition 1. *Similarity is an equivalence relation.*


Matrix Similarity
Permutation Matrices
Permutations
Equivalence Relations
Function Inverses
Function Composites
Injective Functions