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Principles of Programming Langauges

Homework 2a

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2.17: To show that $><$ is an equivalence relation, we will show that it is reflexive, symmetric, and transitive. First, p1 $><$ p1 is true because you have the same parents as yourself. Next, p1 $><$ p2 = p2 $><$ p1 since if you have the same parents as someone, that someone has the same parents as you. Finally, p1 $><$ p2 $><$ p3 $- >$ p1 $><$ p3 since if you have the same parents as someone, and that person shares parents with a third person, you have the same parents as the third person.

2.18: This is not an equivalence since it fails the transitive property. If p1 and p2 share parent p12, and p2 shares parent p23 with p3, p1 and p3 have no guarantee of sharing any parents.