1. For each diagram error in Figure P7, identify the consistency rule violated and suggest possible resolutions of the error. The ERD has generic names so that you will concentrate on finding diagram errors rather than focusing on the meaning of the diagram.



Figure P7: ERD for Problem 7

**Solution:**

The following ERD shows diagram errors in the ERD for problem 7.



The following list identifies possible ways to fix the diagram errors:

* Resolution of primary key rule violation: The problem can be resolved by specifying a primary key such as Attribute2-1.
* Resolution of the weak entity type rule: The problem can be resolved by either adding one or more identifying relationships or by changing the weak entity (Entity4) into a regular entity.
* Resolution of the identifying relationship rule: The problem can be resolved by adding one or more weak entities or making the relationship (Rel2) non-identifying.
* Resolution of the identification dependency cardinality rule: The problem can be resolved by changing the weak entity’s cardinality in Rel4 to (1,1).
* Resolution of the redundant FK rule: Normally the problem can be resolved by removing the redundant foreign keys (Entity5.Attribute4-1 and Entity6.Attribute7-1). If the attribute does not represent a foreign key, it should be renamed instead of removed. Note that Entity5.Attribute4-7 is not a violation of rule 9 because Attribute4-7 is not the primary key in Entity4.
* The ERD below shows one set of changes to remove the diagram errors.

