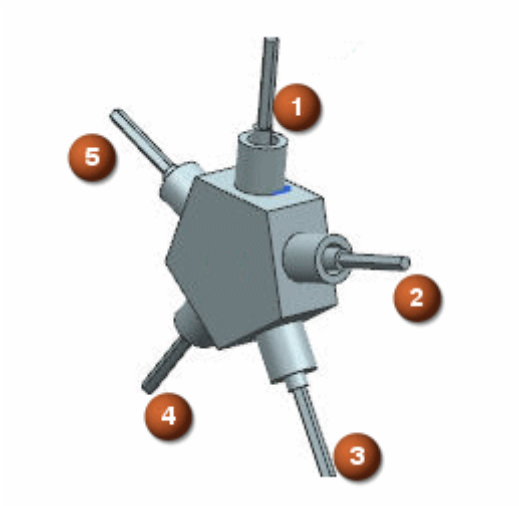
Duplicating geometry with different physics properties

Use proxy objects to apply different physics properties to multiple instances of a subassembly within a top assembly. Use the proxy object to create a unique runtime parameter for each instance in the top level assembly. You can use runtime parameters to create reusable higher level physics objects. For example, use this to assign different angular velocities to multiple instances of a motor subassembly.



Motor instance	Angular velocity
1	5
2	10
3	15
4	20
5	25

You can apply either a rigid body or a proxy object to a specific object. When creating a proxy object, you must attach the proxy object to a rigid body for it to function properly.

Open a subassembly

Run the Proxy Object command

In the Proxy Object dialog box, select the relevant geometry that will control motion. The physics that you attach to the proxy object will be duplicated for the remaining instances in the top assembly.

Apply joints

Use the joint commands to establish basic connections.

Apply actuators

Use the actuator commands to add controlled motion.

Create a runtime expression

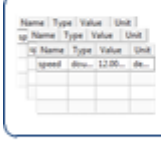
Create a runtime expression to parameterize the attributes. This lets you vary the physics of each instance individually in the top assembly.

Return to the top assembly

Return to the top assembly to access the multiple instances of physics.

Connect proxy objects in the top assembly

Attach proxy objects to rigid bodies. This assigns the associated parameter to the rigid body.



Assign different values to the proxy objects

Set the value for each instance of the associated parameter.

Verify motion

Run the simulation and verify that the subassemblies are moving according to their associated parameters.