Content:

About "Active Ragdoll" package

This solution is doing the most correct following of the animation. It is even much more correct than all it's analogs.

To create stable Active Ragdoll, first, you have to read all guide lines from Unity3d: https://docs.unity3d.com/Manual/RagdollStability.html

How to make your ragdoll active:
1) Configure your ragdoll. You can do it using Ragdoll helper
2) Add BzRagdoll component
3) In BzRagdoll component:
- set Ragdoll rigid property to the main top-level rigid of your character.
- add feet bones to attached limbs
- set checkbox "Convert On Start"

And that is all you need. Now you can request the IBzRagdoll interface from your character and set some properties:
- set IsRagdolled to true to convert your model to active ragdoll format.
- set IsConnected to true to get your ragdoll to be attached to animation (this is called Active Ragdoll)

It does not support legacy animation type.

BzRagdoll component

This is the main component that converts your character to "Active Ragdoll" and back.
Properties of BzRagdoll component:
Convert On Start – Converts your model to ragdoll and make it connected to the animation.
Mass Reduction – used to decrease mass value of ragdoll components when ragdoll is connected (this is for realistic purpose. For example, if two objects collide with each other, one 80 kg. and another 1 kg., the first object will not be affected much, but if you throw 1 kg. to the person in real world, he will be affected much. So to gain the same effect you can decrease the player mass).
Ragdoll Rigid – need to be the root rigid of your ragdoll skeleton.
Attached Limbs – the bones that you want to strictly follow your animation. For example, feet.
Controller Move Type – If you use transform when you are moving your character, set it to transform, for Rigidbody select Rigidbody.
Joint Spring Root – Spring parameter of the joint of root transform.
Joint Spring Attach – Spring parameter of the joint of bones from attach list.
Joint Spring – Spring parameter of other joints on Active Ragdoll.

Delete Joints – for debugging purposes. When you have some troubles with your model, you can delete its original joints to ensure that the error is not related to these joints.
Delete Colliders – for debugging purposes. When you have some troubles with your model, you can delete its colliders to ensure that the error is not related to these colliders.

BzRagdoll implements interface IBzRagdoll. And I suggest you to use this interface to communicate with ragdoll. This is because in the interface we have only those methods and properties that were designed for you to be used and no other stuff.

Balancer

In the real world, if you push somebody, he has to step away to prevent falling. This component determines how fast the character should walk and in which direction to find balance.
BzBalancerDefault
For humanoid animation you can leave all its properties empty, but for a generic type of model, you have to set Hips, Head, Left foot and Right foot transforms.

Behavior handlers

BzRagdoll component is only converting to/from ragdoll and connecting it to animation. But If you want to do some other logic, for example, play getup animation when it is connected again, you need to use behavior handlers.
All behavior handlers must implement IRagdollBehaviour interface and be attached to your character.

```
public interface IRagdollBehaviour
{
    void OnIsRagdolledChanged(bool newValue);
    void OnIsConnectedChanged(bool newValue);
}
```

Behavior “GetUpAnimationHandler”

This is used to set getup animation when your character is getting up.
You have to define 2 animations: GetUpFromBelly and GetUpFromBack.
And set transition time – this is a time required to joints to find its correct position after the character was not connected.

Behavior “JointBounceStabilizer”

If you hit your character, it starts to swing from one side to another. This component is trying to eliminate this swinging.

Ragdoll Helper

This package fully includes Ragdoll Helper class http://u3d.as/kSZ

Example Scene Included

In Assets/BzKovSoft/ActiveRagdollSamples you can find sample scene.