Alien Crab Monster IK System Explained:

The IK system works relative to the actors slope rotation, and moves feet both up and down based on where they should be.
Virtually all other IK systems I have seen on the marketplace work assuming a flat surface, and only move feet upwards.

This is accomplished by having extra bones in my animation which store a world-space copy of where the foot bones should be without any modification to IK.

These bones had the foot animation baked in, and were attached to the root, not the legs.
These bones are used as as a reference to determine whether the foot should move up, down, or not at all.
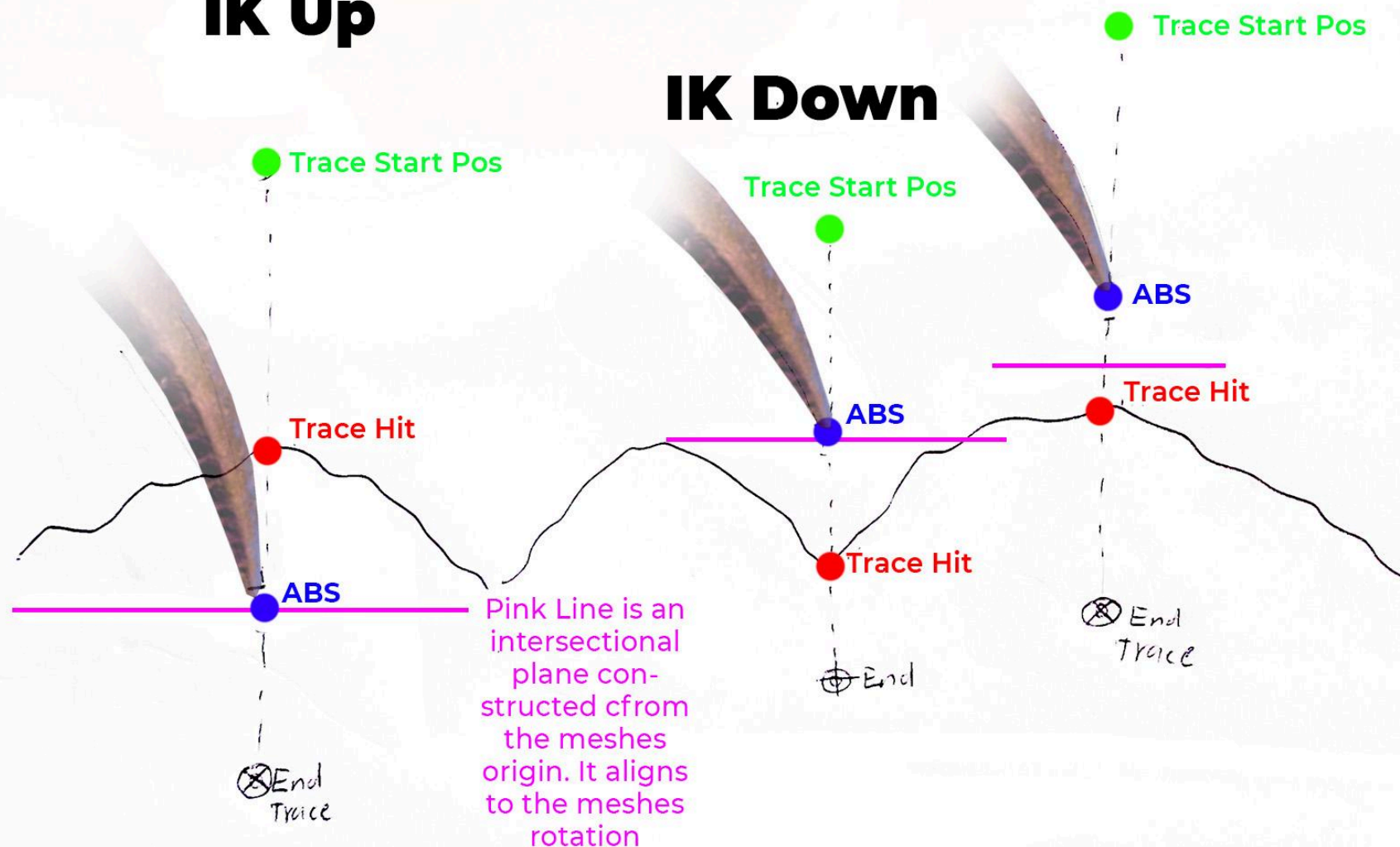
Please see the image on the page below for an explanation of how I determined this

The 'ABS' is the absoloute world-space position of where the foot would have been if it wasn't modified to have IK enabled.

No IK

IK Up

IK Down

● Trace Start Pos

● Trace Start Pos

Trace Start Pos

●

● ABS

● ABS

● Trace Hit

● Trace Hit

● Trace Hit

⊗ End
Trace

● ABS

Pink Line is an intersectional plane con- structed cfrom the meshes origin. It aligns to the meshes rotation

● Trace Hit

⊕ End

⊗ End
Trace

⊗ End
Trace

If the Trace Hit is above the Intersectional plane, move the IK up.

If the Trace Hit is below the Intersectional Plane, and the ABS is level with the Plane, IK the foot down.

If the ABS is above Intersectional Plane, dont animate the IK - because the foot is trying to lift up and walk.