FK and IK

FK vs IK

In animating you will consider Forward Kinematics or Inverse Kinematics when moving your limbs.

FK

FK animating starts from the base of the the limb, for an arm it would be your shoulder, then to your elbow, then to your wrist. Each movement from the shoulder carries the same rotation and movement to the child bone.

This the default animation and it is great for natural movements where you would want your limbs to swing freely.

This is the typical way of thinking about how your limbs and joints work. When you wave at a person you rotate your shoulder left and right while keeping your elbow and wrist aligned.

IK

This works differently from FK because you consider your movement from the end of the chain, such as the hand or the foot. You work backward to see how your current position of the hand and foot affect the position of your other limbs.

This is great for animating someone who places hand in one place without it moving, but the rest of the body does.

You would need to add in the bone constraint for inverse kinematics.

Analogy

FK is procedural programming paradigm where you specify the exact movement of the bone from parent down to the child. Movement from parent affect the child.

IK is functional programming paradigm where you specify the end result, and the position for the rest of the joint comes from the end result.

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