A patch of skin cut free of all nerve and other connections, rotated 180 degrees, and replaced in young tadpoles undergoes self-differentiation on body axes as determined prior to operation. When adult frog is stimulated in graft on its back, it wipes at its belly with forelimb. When stimulated in graft on belly, it wipes at its back with hind limb. Regardless of functional adaptation, the chemical quality of the skin with which the developing nerves connect, determines their pattern of central reflex connections.