1046-16-259 **George M. Bergman*** (gbergman@math.berkeley.edu), Department of Mathematics, University of California, Berkeley, CA 94720-3840. *An inner automorphism is only an inner automorphism, but an inner endomorphism can be something strange.*

The inner automorphisms of a group G can be characterized in a purely category-theoretic fashion, as those automorphisms of G that can be extended, in a functorial manner, to all groups H given with homomorphisms $G \to H$. (Unlike the group of inner automorphisms, the group of such systems of automorphisms is always isomorphic to G.) A similar characterization holds for inner automorphisms of an associative algebra R over a field K.

If one substitutes "endomorphism" for "automorphism" in these considerations, then in the group case, the only additional example is the trivial endomorphism; but in the K-algebra case, an unfamiliar construction (known to functional analysts) also comes up.

The preprint also investigates some similar further cases, about which I will not have time to say much in the talk; in particular, derivations of associative algebras, and endomorphisms and derivations of Lie algebras. (Received August 24, 2008)