

complexes, cobalt complexes, zirconium complexes, samarium complexes and the like; more preferred are rhodium complexes, ruthenium complexes, iridium complexes, palladium complexes, nickel complexes and copper complexes; further more preferred
5 are rhodium complexes, ruthenium complexes, palladium complexes and iridium complexes; still more preferred are rhodium complexes and iridium complexes; and particularly preferred are iridium complexes.

Among the "transition metal complexes", specific examples
10 of the rhodium complexes, ruthenium complexes, iridium complexes, palladium complexes, nickel complexes and copper complexes include those similar to the specific examples of the "organic metal complex" used in the above-mentioned "Step (A-3)".

15 [0189]

The "transition metal complex" can also be prepared by adding a "ligand" and the other complex as a transition metal source to a reaction system. The "transition metal complex" may be directly added to a reaction container, or may be
20 prepared by adding a "transition metal source" mentioned above and a "ligand" to a reaction container. When the "transition metal complex" is prepared by adding a "transition metal source" and a "ligand" to a reaction container, the "ligand" is used in an amount of 1- to 100-fold by mole, preferably 1 to 5-fold by
25 mole, further more preferably 1.01 to 2.02-fold by mole, relative to the theoretical mole required to prepare the "transition metal complex".

While the amount of the "transition metal complex" to be used varies depending on the reaction container, the style of
30 the reaction, and the like, it is, for example, about 1.0 - about 0.00001 mol, per 1 mol of the substrate compound (A-c) or a salt thereof.

[0190]

In the "asymmetric reductive amination reaction" of Step
35 A-X, an additive such as a base, an acid, a salt and the like