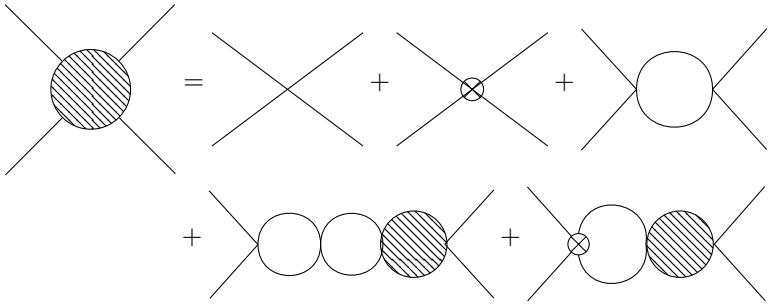
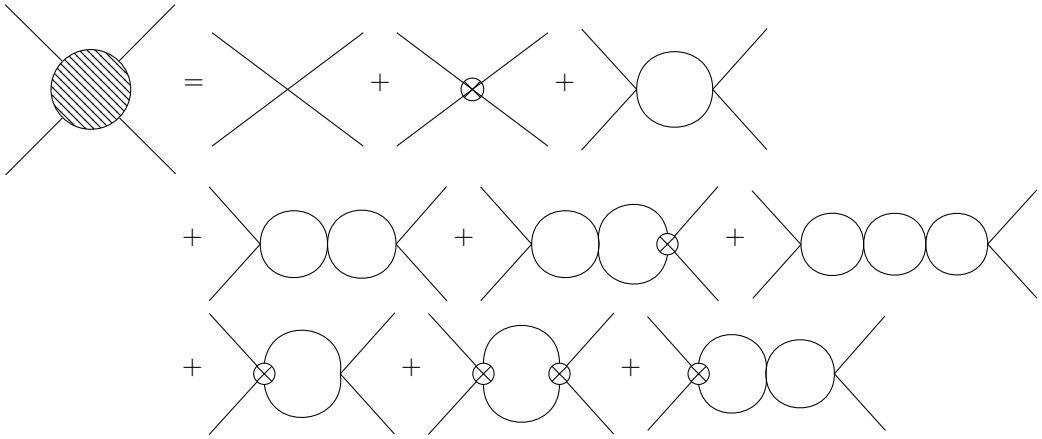
1 Perturbative view of integral equation

If we're to have the integral equation only with perturbative counterterms, for a start we can write



with one-loop counterterm.

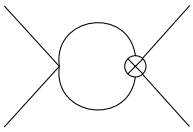
The iterative form is



(1)

(2)

It'd appeared that we missed one diagram during the iteration:



If we add this one, the r.h.s. of the integral equation won't be finite again. Thus, only the counterterm from one loop is not sufficient enough to cancel all the divergences.