13. Perturbative invertibility (= Fredholm)

For $P \in \Psi_c^*(X)$

$\exists\, Q \in \Psi_c^*(X)$ s.t. $PQ = Id - A$, $QP = Id - B$

$A, B \in \Psi_c^{-\infty}(X)$

$\Leftrightarrow$ $I(P)^{-1}$ exists

<u>Note - M</u> (Atiyah - Patodi - Singer, Lauter - Moroianu)

$$\mathrm{ind}(P) = \int_X AS - \tfrac{1}{2}\eta(I(P))$$

'Usual' formula in terms of $\sigma(P)$

- Splits interior / boundary.
- I_1 multiplicative in all terms.