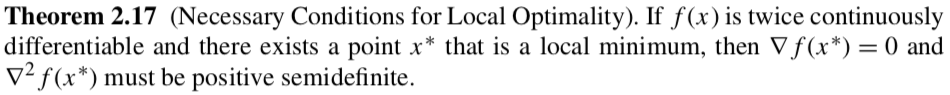
****

**Claim 1:**

Overall approach: assume is a local minimizer and . Establish contradiction.

Step 1. Write Taylor series around to calculate

Step 2. Choose and substitute into Taylor series

Step 3. Choose t sufficiently small so that does not change sign in the Taylor series

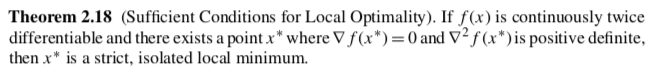
Step 4. Establish contradiction with definition of local minimizer.

**Claim 2**: must be positive semidefinite. Overall approach is same as above.

Step 1: Write Taylor series with

Step 2: Choose t sufficiently small so that does not change signs due to continuity

Step 3: Establish contradiction.



**Claim 1:** strict local minimizer

Step 1: Write Taylor series

Step 2: Apply

Step 3: Choose p sufficiently small to evoke continuity of the second derivative

Step 4: Recover definition of strict local minimizer

**Claim 2:** isolated local minimizer

Step 1: Consider neighborhood where is P.D. for all

Step 2: Assume local minimizers

Step 3: Write Taylor series (integral form)

Step 4: Evoke that .

Step 5: Contradiction with is P.D.