

We first prove that if  $f$  is concave, then the algorithm cannot be trapped at  $\mathbf{u}$  if  $f(\mathbf{u}) < f^*$ .

**Lemma 9.4** Let  $f$  be concave. If  $f^{(k)} < f^*$ , then  $f^{(k+1)} > f^{(k)}$ .