

## Entailment

**Problem 9.** For each of the following sets of sentences, determine whether it entails  $P(a)$ .

(i)  $Q(a), \exists x(P(x) \wedge Q(x))$ .

(ii)  $Q(a), \forall x(Q(x) \rightarrow P(x))$ .

(iii)  $\exists xP(x), \forall xy(P(x) \leftrightarrow P(y))$ .

(iv)  $a \neq b, \neg P(b)$ .