**Assignment #5; Due February 26 at start of class**

1. Consider the set of indices **SemiConstant = SC = { f | |range(ϕf)| = 1 }**.
2. Using **STP**, **VALUE** and a minimum number of alternating quantifiers, describe the set **SemiConstant**.
3. Show that **TOT ≤m SemiConstant**, where **TOT = { f | ∀x ϕf(x)↓ }**.
4. Show that **SemiConstant ≤m TOT**, where **TOT = { f | ∀x ϕf(x)↓ }**.
5. Use Rice’s Theorem to show that **SemiConstant** is not recursive (not decidable). Note that members of **SemiConstant** do not need to converge for all input, but they must converge on at least one input and when they do converge they always produce the same output value. Hint: There are two properties that must be demonstrated.