Exercise 4

1. **Analyse** the following argument (a) intensionally, (b) hyperintensionally and **explain**, under which analysis it comes out valid**:**

   Tom seeks an abominable snowman.
   Abominable snowman is Yeti.
   _____
   Tom seeks Yeti.

   Comment. The second premise is to be read *de dicto*, i.e. as specifying the *identity of the property of being an abominable snowman* and *being a Yeti*, but the terms 'abominable snowman' and 'Yeti' are not synonymous.

   Hint:
   ad (a) *Seek* is here a relation-in-intension of an individual to a property, the instances of which Tom wants to find; hence *Seek*/$(o\iota(o\iota)_{\tau\omega})_{\tau\omega}$.
   ad b) *Seek* is here a relation-in-intension of an individual to the *construction* of a property, the instances of which Tom wants to find; hence *Seek**/$(o\iota*_n)_{\tau\omega}$.

2. **Prove the validity of the following argument** for both readings, intensional as well as hyperintensional**:**

   Tom seeks an abominable snowman.
   _____
   Tom seeks something abominable.

   Hint. In the intensional case we do not have to apply the substitution method, but in the hyperintensional case we have to.
   The term 'abominable' is to be analysed as denoting a property modifier, i.e. *Abominable*/$((o\iota)_{\tau\omega}(o\iota)_{\tau\omega})$: a function that associates a given root property with the modified property. Hence the term 'abominable snowman' denotes a property that is constructed by the Composition [^{0}*Abominable* ^{0}*Snowman*].

3. **Analyse and prove the validity:**

   Tom is solving the equation *Sin(x)=0*.
   _____
   Tom is solving something.

   Hint. Apply *Solve**/$(o\iota*_1)_{\tau\omega}$: the relation-in-intension of an individual (here Tom) to the *construction*. Tom wants to find out what is constructed by that construction.
   The term 'equation *Sin(x)=0*' can be analysed simply by the Closure λx [[^{0}*Sin x*] = ^{0}0].
   To infer the conclusion you do not have to apply the substitution method.

4. **Analyse and prove the validity:**

   Tom is solving the equation *Sin(x)=0*.
   _____
   There is a number *n* such that Tom is solving the equation *Sin(x)=n*.

   Hint. To infer the conclusion you *must* apply the substitution method.