

COL703

Assignment 3

Tasks accomplished :-

1. Struct making
2. Exceptions raised whenever a term, predicate, or an argument is not wellformed :
 - The exceptions are raised at the following places :-
 - a. Whenever we get an FF predicate -> raise NotWFA
 - b. Whenever we get a free variable -> raise NotClosed
 - c. Whenever we get two functions with the same name but different arity -> raise NotWFT
 - d. Whenever we get two atoms with the same name but different arity -> raise NotWFP
 - e. When the term of the quantifiers ALL and EX is not a variable -> raise NotVAR
3. Equality checkings :-

All the equality checking functions which checks whether two terms, termlists, predicates, predicate lists, substitution, etc. are equal or not.
4. Substitution :-

The functions of applying a substitution to a term, term list, predicate, predicate list are defined.
5. Composition :-

The composition function of two substitutions is defined
6. Unifications :-

The unification of two terms, term lists, predicates, predicate lists are defined.

 - Unification of two terms is not possible when (when the terms are not equal) :
 - a. When both are different constants.
 - b. One is variable and other is function and the variable appears in the term list of the function
 - c. When both are function having either different names or different arities.
 - Unification of two predicates is not possible when (when the predicates are not equal):
 - a. When the predicates are not of the same type, i.e., AND and OR can never be unified.
 - b. When string in two ATOMs are not same, they cannot be unified.
 - c. When the one of predicates, terms, term list inside a predicate cannot be unified.

Files Submitted :-

1. FOL.sml : Contains the given signature
2. struct.sml : Contains the structure of the given signature
3. main.sml : contains all the functions

How to run? :-

1. Open smlnj compiler on the terminal
2. use "FOL.sml";
3. use "struct.sml";
4. use "main.sml";

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