

INSTRUCTIONS FOR PREDICATE CALCULUS SEMANTICS TUTOR

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LANGUAGE USED: The version of predicate calculus used in this program is limited in the following ways: We have only 4 predicate symbols, L, R, P and Q. L and R are *two-place* predicates, and P and Q are *one-place* predicates. We only consider universes whose elements are drawn from a, b, c, and d. We assume that each element of the universe has a name, and we don't distinguish between a thing and its name (this is sloppy logical theory, but it's convenient).

HOW TO START PROGRAM: Insert disk in drive A:, type FIRSTORD, and press the return key.

HOW TO SPECIFY INTERPRETATIONS: To specify an interpretation, you need to do 5 things.

(1): Specify a DOMAIN consisting of one or more of the elements a, b, c, d, enclosed in braces to indicate a set. Example: {a, c}.

(2) & (3): Construct interpretations for L and R. Each of these interpretations is a set of pairs. Each pair is enclosed in bent brackets < and >. The set of pairs is enclosed by { and }. You can only use pairs whose elements come from the domain. Example: {<a,b>,<b, c>,<a,c>}. It is also legal to have an empty set of pairs, written {}.

(4) & (5): Construct interpretations for P and Q. Each of these is a set of elements from the domain. Examples: {a} or {a, c}. It is also legal to have an empty set, written {}.

PROBLEM SETS: There are three problem sets. The first is a true/false quiz, where the interpretation is given, and you have to answer true or false. The computer will keep score for you.

The second problem set requires you to specify interpretations which will make the given sentence true. If you type in an improper specification of some part of the interpretation, the incorrect entry will be displayed in a special editor window. Erase incorrect characters with the backspace key (above the return key), and type additional correct characters. When you have corrected your errors press the return key.

If you give wrong answers in the 2nd or 3rd problem sets, a special window will open to help you. This window will give the meaning (or more exactly, the truth-conditions) of the statement in the particular interpretation you have constructed. For example, if your domain is {a,b} and your statement is $(\exists x)Lxx$, the window will show the statement $Laa \vee Lbb$. This is because the statement $(\exists x)Lxx$ will be true in that domain if and only if $Laa \vee Lbb$ is. This should help you understand just what the original statement amounts to in the interpretation you have selected.

The third problem set requires you to specify a interpretation which will show that the given argument is invalid. This means that every premise must be true in your interpretation, and the conclusion must be false. As in other Proof Tutor programs, you can select problems or problem sets by using the up and down arrow keys (also labeled 8 and 2 on the right of the keyboard) to move the light bar to the selection you want, and then press enter to select it.