Prolog Example 1

Programme:

\[
\begin{align*}
\text{block} & (\text{block1}). \\
\text{block} & (\text{block2}). \\
\text{block} & (\text{block3}). \\
\text{block} & (\text{block4}). \\
\text{table} & (\text{table1}). \\
\text{on} & (\text{block1}, \text{block2}). \\
\text{on} & (\text{block2}, \text{table1}). \\
\text{on} & (\text{block3}, \text{block4}). \\
\text{on} & (\text{block4}, \text{table1}). \\
\text{above}(X,Y) & :- \text{block}(X), \text{block}(Y), \text{on}(X,Y). \\
\text{above}(X,Y) & :- \text{block}(X), \text{table}(Y), \text{on}(X,Y). \\
\text{above}(X,Y) & :- \text{block}(X), \text{block}(Z), \text{on}(X,Z), \text{above}(Z,Y).
\end{align*}
\]

Queries:

?- on(block1, table1).  Answer: no
?- above(block1, table1).  Answer: yes
?- above(block1, block2).  Answer: yes
?- above(block2, X).  Answer: X = table1  // was wrong on the original handout
?- above(block3, X).  Answer: X = block4, Answer2: X = table1  // was wrong
?- above(X, table1).  Answer 1: X = block1, Answer 2: X = block2, // was wrong
  Answer 3: X = block3, Answer 4: X = block4
?- above(X, Y).  Answer: ???
Prolog Example 2

Programme:

\[
\begin{align*}
a(g, h). \\
a(g, d). \\
a(e, d). \\
a(h, f). \\
a(e, f). \\
a(a, e). \\
a(a, b). \\
a(b, f). \\
a(b, c). \\
a(f, c). \\
p\text{ath}(X, X). \\
p\text{ath}(X, Y) & : - a(X, Z), \text{path}(Z, Y).
\end{align*}
\]

Queries:

?- a(e,d). Answer: ???
?- path(e,d). Answer: ???
?- path(e,X). Answer: ???
?- path(X,Y). Answer: ???