Examples:

advertises(tony, frosted_flakes) ^
carnivore(tony) ^
voiced_by(tony, lee_marshall) ^
tawny(tony) ^
daughter(tony, antoinette) ^
black_stripes(tony)

(See the Wikipedia entry for “Tony the Tiger”)

friend(tigger, pooh) ^
friend(tigger, piglet) ^
carnivore(tigger) ^
voiced_by(tigger, jim_cummings) ^
tawny(tigger) ^
black_stripes(tigger) ^
created_by(tigger, milne)

(See the Wikipedia entry for “Tigger”)
Non-examples:

advertises(chester, cheetos) ^
carnivore(chester) ^
voiced_by(chester, johnny_michaels) ^
tawny(chester) ^
dark_spots(chester)

(See the Wikipedia entry for “Chester Cheetah”)

black_stripes(harry) ^
middle_eastern(harry) ^
gray(harry) ^
carnivore(harry)

(Harry is a striped hyena)

tawny(zoe) ^
black_stripes(zoe) ^
ungulate(zoe) ^
home(zoe, liberia)

(Zoe is a Zebra Duiker)
Evolution of Version Space Rules

Initial:

\[ G = \{ \text{true} \rightarrow \text{tiger}(X) \} , \]
\[ S = \{ \text{false} \rightarrow \text{tiger}(X) \} \]
After First Example

\[
\text{advertises}(tony, \text{frosted\_flakes}) \land \\
\text{carnivore}(tony) \land \\
\text{voiced\_by}(tony, \text{lee\_marshall}) \land \\
\text{tawny}(tony) \land \\
\text{daughter}(tony, \text{antoinette}) \land \\
\text{black\_stripes}(tony)
\]

\[G \text{ (unchanged)} = \{ \text{true} \rightarrow \text{tiger}(X) \} \]

\[S = \{ \text{advertises}(X, \text{frosted\_flakes}) \land \\
\text{carnivore}(X) \land \\
\text{voiced\_by}(X, \text{lee\_marshall}) \land \\
\text{tawny}(X) \land \\
\text{daughter}(X, \text{antoinette}) \land \\
\text{black\_stripes}(X) \rightarrow \text{tiger}(X) \} \]

(a single rule with six conjuncts)
After First Non-Example:

advertises(chester, cheetos) ^  
carnivore(chester) ^  
voiced_by(chester, johnny_michaels) ^  
tawny(chester) ^  
dark_spots(chester)

G = { advertise (X, frosted_flakes) → tiger(X),  
      voiced_by(X, lee_marshall) → tiger(X),  
      daughter(X, antoinette) → tiger(X),  
      black_stripes(X) → tiger(X) } 

(four different rules)

S (unchanged) = { advertise (X, frosted_flakes) ^  
                  carnivore(X) ^  
                  voiced_by(X, lee_marshall) ^  
                  tawny(X) ^  
                  daughter(X, antoinette) ^  
                  black_stripes(X) → tiger(X) } 

(a single rule with six conjuncts)
After Second Example:

\[
\text{friend(tigger, pooh)} \land \\
\text{friend(tigger, piglet)} \land \\
\text{carnivore(tigger)} \land \\
\text{voiced_by(tigger, jim_cummings)} \land \text{tawny (tigger)} \land \\
\text{black_stripes(tigger)} \land \\
\text{created_by(tigger, milne)}
\]

\[
G = \{ \text{black_stripes}(X) \rightarrow \text{tiger}(X) \}
\]

\[
S = \{ \text{carnivore}(X) \land \\
\text{tawny}(X) \land \\
\text{black_stripes}(X) \rightarrow \text{tiger}(X) \}
\]

(a single rule with three conjuncts)
After second Non-Example:

black_stripes(harry) ^
middle_eastern(harry) ^
gray(harry) ^
carnivore(harry)

\[ G = \{ \text{tawny}(X) ^\ 
    \text{black_stripes}(X) \rightarrow \text{tiger}(X) \} \]

(a single rule with two conjuncts)

\[ S = \{ \text{carnivore}(X) ^\ 
    \text{tawny}(X) ^\ 
    \text{black_stripes}(X) \rightarrow \text{tiger}(X) \} \]

(a single rule with three conjuncts)
After third Non-Example:

tawny(zoe) ^
black_stripes(zoe) ^
ungulate(zoe) ^
home(zoe, liberia)

\[ G = \{ \text{carnivore}(X) ^
    \text{tawny}(X) ^
    \text{black_stripes}(X) \rightarrow \text{tiger}(X) \} \]

(a single rule with three conjuncts)

\[ S = \{ \text{carnivore}(X) ^
    \text{tawny}(X) ^
    \text{black_stripes}(X) \rightarrow \text{tiger}(X) \} \]

(a single rule with three conjuncts)

Our algorithm has now converged on a single rule having three conjuncts