Sore Throat

CASE STUDY:

**Mr. PF has a terrible sore throat and fever.** Mr. PF is a 34 year-old musician who can't sing and is suffering mightily with a sore throat. He was well until three nights ago. He now has a 102 fever. He has difficulty breathing due to enlarged tonsils. He has enlarged cervical lymph nodes. He has no cough and is otherwise normal.

(http://medsci.indiana.edu/c602web/602/c602web/inftut/docs/cas4a.html)

Background Information:

* Sore Throat can be caused by an infectious agent present in the following areas:
  1. Throat
  2. Middle Ear
  3. Nose
  4. Sinus Area
* Inhalation of irritants including the following:
  1. Smoke
  2. Pollen
  3. Polluted air
  4. Dust
* Bacterial infection if sore throat is accompanied by:
  1. Fever
  2. Achiness
  3. Fatigue
  4. Throat/mouth = red, yellow/white spots
* Initial Treatment:
  1. If throat is irritated from coughing, then use cough suppressant.
  2. If throat is sore from dry air, then use a nasal decongestant, humidifier, and vaporizer.
  3. Over the counter gargles, throat sprays, lozenges (benzocaine, phenol).

NARSESE Translation

<{John-Doe} --> [sore-throat]>.

<{John-Doe} --> [fever]>.

<{John-Doe} --> (/, temperature, \_, 102, degrees-Fahrenheit)>.

(--, <{John-Doe} --> [cough]>).

<[sore-throat] --> [infection]>.

<#x --> [throat-infection]> ==> <#x --> [sore-throat]>.

<(\*, [throat-infection], [sore-throat]) --> causation>.

<#x --> [middle-ear-infection]> ==> <#x --> [sore-throat]>.

<(\*, [middle-ear-infection], [sore-throat]) --> causation>.

<#x --> [nose-infection]> ==> <#x --> [sore-throat]>.

<(\*, [nose-infection], [sore-throat]) --> causation>.

<#x --> [sinuses-infection]> ==> <#x --> [sore-throat]>.

<(\*, [sinuses-infection], [sore-throat]) --> causation>.

<(&, [sore-throat], [fever]) --> [bacterial-infection]>.

<[sore-throat] --> [achiness]>.

<[sore-throat] --> [fatigue]>.

<[sore-throat] --> [swollen-throat]>.

<(&&, <#x --> [sore-throat]>, <#x --> [cough]) ==> (\*, [cough-suppressant], #x) --> treatment)>.

<(&&, <#x --> [sore-throat]>, <#x --> [dry-air]) ==> (\*, [nasal-decongestant], #x) --> treatment)>.

< (&&, <#x --> [sore-throat]>, <#x --> [dry-air]) ==> (\*, [humidifier], #x) --> treatment)>.

< (&&, <#x --> [sore-throat]>, <#x --> [dry-air]) ==> (\*, [air-vaporizer], #x) --> treatment)>.

< [OTC] <-> [over-the-counter]>.

<[over-the-counter] --> treatment>.

<<#x --> [sore-throat]> ==> <(\*, gargle, {#x}) --> OTC>>.

<<#x --> [sore-throat]> ==> <(\*, lozenges, {#x}) --> OTC>>.

<<#x --> [sore-throat]> ==> <(\*, throat-spray, {#x}) --> OTC>>.

STEP-BY-STEP

INPUT:

<{John-Doe} --> [sore-throat]>.

<{John-Doe} --> [fever]>.

<{John-Doe} --> (/, temperature, \_, 102, degrees-Fahrenheit)>.

< [OTC] <-> [over-the-counter]>.

<[over-the-counter] --> treatment>.

<<#x --> [sore-throat]> ==> <(\*, gargle, {#x}) --> OTC>>.

<<#x --> [sore-throat]> ==> <(\*, lozenges, {#x}) --> OTC>>.

<<#x --> [sore-throat]> ==> <(\*, throat-spray, {#x}) --> OTC>>.

OUTPUT:

OUT: <(\*,gargle,{{John-Doe}}) --> OTC>. %1.00;0.81%

OUT: <(\*,lozenges,{{John-Doe}}) --> OTC>. %1.00;0.81%

OUT: <(\*,throat-spray,{{John-Doe}}) --> OTC>. %1.00;0.81%

INPUT:

(1)

IN: <{John-Doe} --> [sore-throat]>.

IN: <{John-Doe} --> [fever]>.

OUT: <{John-Doe} --> [fever,sore-throat]>. %1.00;0.81% {68 : 1;2}

(2)

IN: <{John-Doe} --> [fever,sore-throat]>. %1.00;0.81% {68 : 1;2}

IN: <{John-Doe} --> (/, temperature, \_, 102, degrees-Fahrenheit)>.

IN: <<#x --> [fever]> ==> <(\*, #x, 100) --> temperature-above>>.

OUT: <<{John-Doe} --> (/,temperature,\_,102,degrees-Fahrenheit)> <=> <{John-Doe} --> [fever, sore-throat]>>. %1.00;0.42%

(3)

IN: <<{John-Doe} --> (/,temperature,\_,102,degrees-Fahrenheit)> <=> <{John-Doe} --> [fever, sore-throat]>>. %1.00;0.42%

IN: <[over-the-counter] --> treatment>.

IN: <<#x --> [sore-throat]> ==> <(\*, gargle, {#x}) --> OTC>>.

IN: <<#x --> [sore-throat]> ==> <(\*, lozenges, {#x}) --> OTC>>.

IN: <<#x --> [sore-throat]> ==> <(\*, throat-spray, {#x}) --> OTC>>.

OUT: <(&&,<(\*,gargle,{John-Doe}) --> OTC>,<(\*,throat-spray,{John-Doe}) --> OTC>) <=> <(\*,lozenges,{John-Doe }) --> OTC>>. %1.00;0.47%