Proper names constants: john = j, bill=b, mary=m, ...

Definite NPs (the ..) the hurricane = h, the coast = c, ...

**The hurricane struck the coast yesterday**

strike(h,c)

**Bill sent Sue the letter**

Predicate? send

Arguments? 3 b, s, l

send(b,s,l) X

send(b,l,s)

**Bill sent the letter to Sue**

send(b,l,s)

**The letter was sent to Sue by Bill**

send(b,l,s)

**The letter was sent to Bill by Sue**

~~send(b,l,s) X~~

send(s,l, b)

**The Senator spoke to the Congresswoman**

~~speak(s)~~

speak-to(s,c)

The man saw the girl on Tuesday [[ the man ]] = m; [[the girl]] = g

see(m,g)

The girl saw the man on Tuesday

see(g,m)

The girl was seen by the man on Wednesday

see(m,g)

The man was seen by the girl last night.

see(g,m)

**Examples that involve translating Nouns ("Some" "A")**

**Fido is a dog**

**Dog(f)**

A dog barks [Intransitive Verb]

∃ x [dog(x) & bark(x)]

A beagle is happy. [Predicate adjective]

∃ x [beagle(x) & happy(x)]

A happy dog barks [Intransitive verb + Attributive Adjective]

∃ x [dog(x) & happy(x) & bark(x)]

A hungry dog is unhappy.

E x [ hungry(x) & dog(x) & unhappy(x) ]

An unhappy dog is hungry.

E x [ unhappy(x) & dog(x) & hungry(x) ]

Lulu owns Fido.

own(l, f)

A woman owns Fido.

E x [woman(x) & own( x , f) ]

Lulu owns a dog.

E x [ dog(x) & own(l, x) ]

Lulu owns a happy dog.

E x [dog(x) & happy(x) & own(l, x)]

**A woman owns a dog**.

**E x, E y [ woman(x) & dog(y) & own(x, y) ]**

E x woman(x) x owns a dog

E y dog(y) x owns y

own(x,y)

E x [woman(x) & E y [ dog(y) & own(x, y)]]

**A woman owns a happy dog.**

**E x, E y [ woman(x) & dog(y) & happy( y) & own(x, y) ]**

An unhappy woman owns a happy dog.

**E x, E y [ woman(x) & unhappy(x) & dog(y) & happy( y) & own(x, y) ]**

A happy woman owns an unhappy dog.

**E x, E y [ woman(x) & happy(x) & dog(y) & unhappy( y) & own(x, y) ]**

**Examples with a preposition modifying a noun**

**Fido is from Spain** [[from]] = from( , ). For example: from(f, S)

**from(f,S)**

A woman from Spain owns Fido

E x [woman(x) & from(x, S) & own(x, f)]

Paris is in France. [[in]] = in( , )

in(P,F)

A box in the corner is blue.

E x [ box(x) & in(x,c) & blue(x)]

A box is blue.

E x [ box(x) & blue(x)]

The troll is under the bridge. [[the troll] = t; [[the bridge]] =b

under(t, b)

A troll under the bridge is unhappy.

E x [ troll (x) & under(x,b) & unhappy(x) ]

An unhappy troll is under the bridge

E x [ troll (x) & unhappy(x) & under(x,b) ]

A man who speaks French is happy.

??