

# Daniel Vilinsky HWS Part 1

476-18

1. time  
Noun

Verb

time  
 $P = .2$

time  
 $P = .3$

NP

VP

Noun

Verb

time  
 $P = .2 \times .3 = .06$

time  
 $P = .3 \times .1 = .03$

S  
~~NP VP~~

Pop

~~Noun Verb~~

VP

time  
 $P = .2 \times .3 \times .1 = .006$

time  
 $P = .3 \times .1 \times .2 = .006$

flies

Noun

Verb

flies  
 $P = .4$

flies  
 $P = .5$



NP  
|  
Noun  
|  
flies  
 $p = .1 \cdot .3 = .12$

S  
|  
VP  
|  
Verb  
|  
flies  
 $p = .5 \cdot .1 \cdot .12 = .01$

like!  
Prep  
|  
like  
 $p = 1.0$

VP  
|  
V  
|  
like  
 $p = .2 \cdot .1 = .02$

TOP  
|  
VP  
|  
V  
|  
like  
 $p = .2 \cdot .1 \cdot .2 = .007$

VP  
|  
Verb  
|  
flies  
 $p = .5 \cdot .1 = .05$

TOP  
|  
S  
|  
VP  
|  
Verb  
 $p = .5 \cdot .2 \cdot .1 = .01$

V  
|  
like  
 $p = .2$

S  
|  
VP  
|  
V  
|  
like  
 $p = .2 \cdot .1 \cdot .2 = .007$



an:  
 Det  
 |  
 an  
 $P = 1.0$

arrow:  
 Noun  
 |  
 arrow  
 $P = .4$

2. time flies:

VP  
 |      |  
 Verb   NP  
 |      |  
 time   Noun  
 |  
 flies

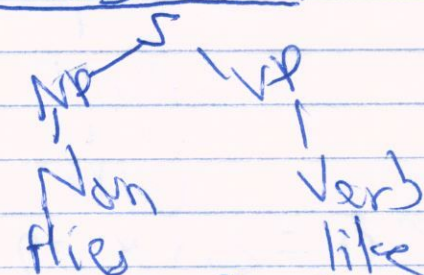
$$P = .3 \cdot .4 \cdot .3 \cdot .6 = .0216$$

VP  
 |      |  
 Verb   NP  
 |      |  
 time   Noun  
 |  
 flies

$$P = .3 \cdot .4 \cdot .3 \cdot .6 \cdot .12 = .00132$$

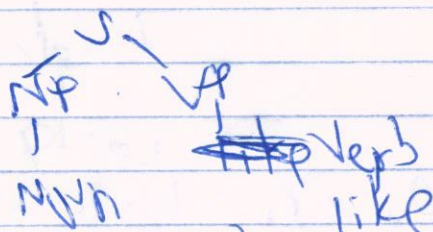


flies like:



P = .4 .3 .2 .1 .5 .0012

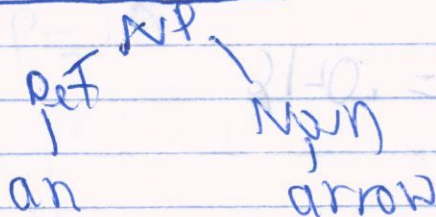
for



P = .4 .3 .2 .1 .5 .0012

like an: None

an arrow:



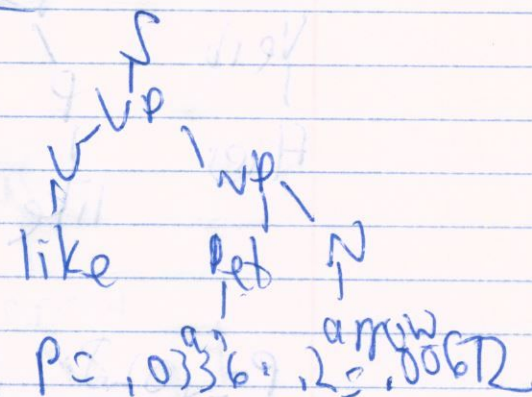
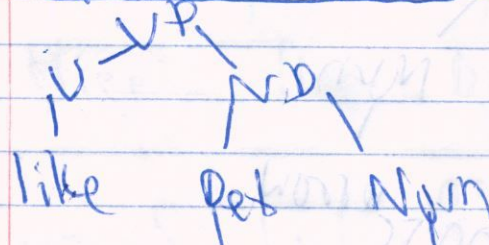
P = 1.0 .4 .7 .2



3. time flies like a tick: None

flies like an: None

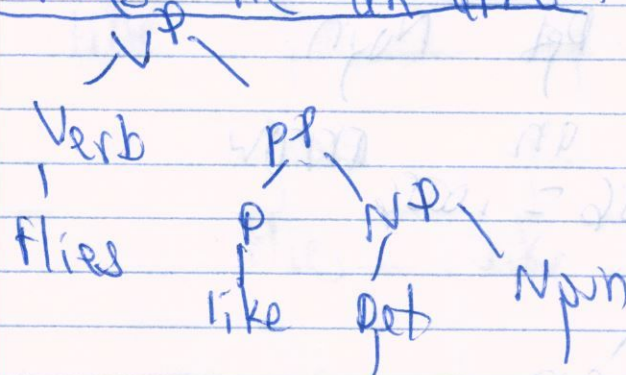
like an arrow:



$P = .2, 1.0, .7, .7, .6 = .0336$

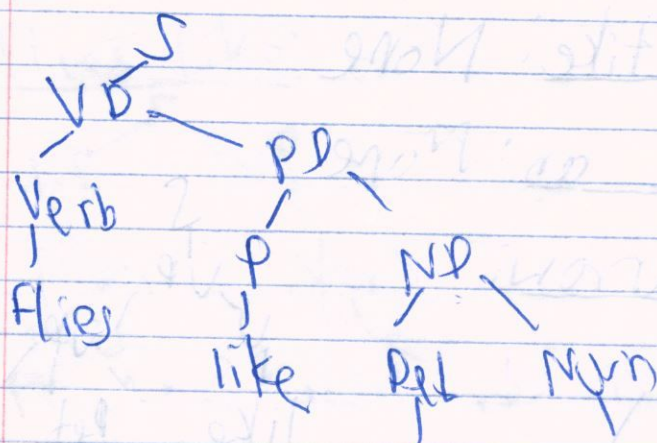
4. time flies like an: Nonp

flies like an arrow:

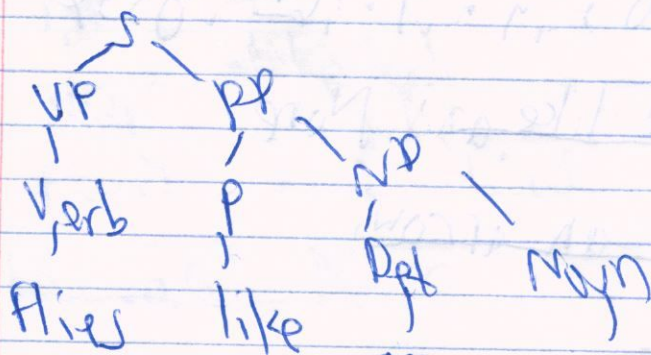


$P = .5, .2, 1, 1, 1, .7, .75 = .028$

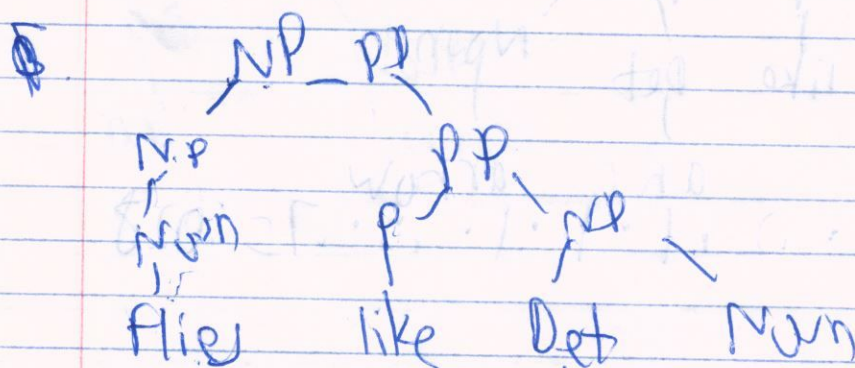




$$P = \frac{1}{1028} \cdot 2 = .0056$$

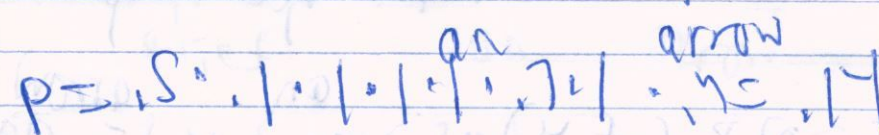


$$P = \frac{1}{1028} = .0056$$



$$P = .1 \cdot .3 \cdot 1 \cdot 1 \cdot 1 \cdot 1 \cdot .7 \cdot .4 = .0336$$



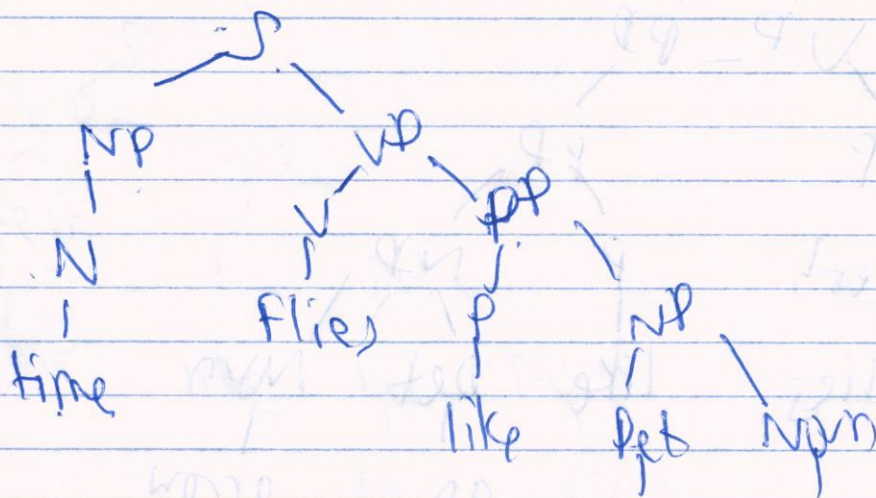


time

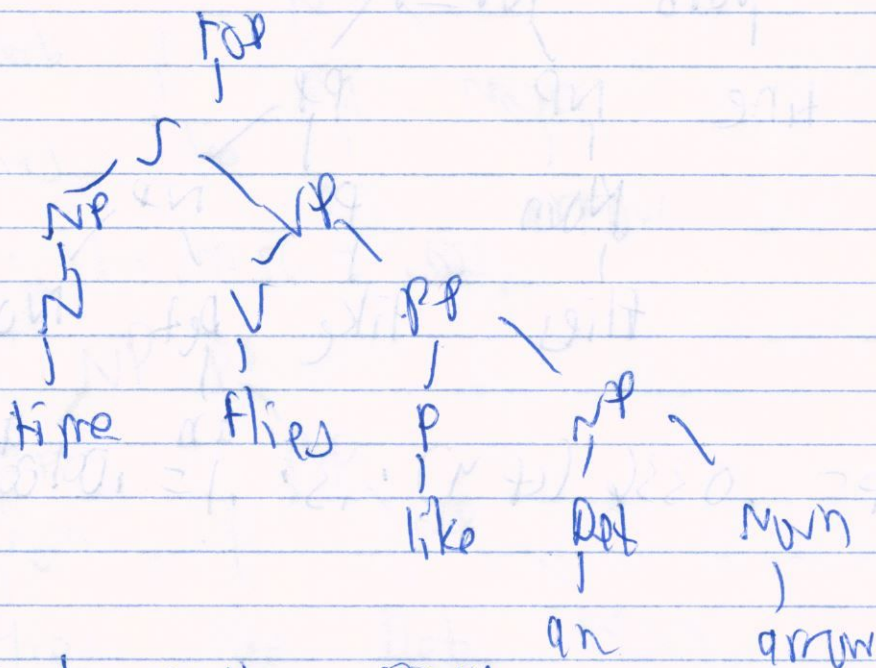
```
graph TD
    VP[VP] --> Verb[Verb]
    VP --> NP_PP[NP_PP]
    NP_PP --> NP[NP]
    NP_PP --> PP[PP]
    NP --> Noun[Noun]
    Noun --> flies[flies]
    PP --> P[P]
    P --> like[like]
    PP --> NP2[NP]
    NP2 --> Det[Det]
    Det --> the[the]
    NP2 --> Noun2[Noun]
    Noun2 --> bird[bird]
```

PC = 0336 (44) . 3' . 1 = 100/100 <sup>an arrow</sup>





$P = .028 \text{ (cf 4)} \cdot .2 \cdot .3 \cdot .5 = .00021$   
 This feels wrong, my intuition about  
 the sentence structure says it should be  
~~more~~ more probable than the previous parse



$P = 1 \cdot .00021 = .00021$



