

# AMemorableFancy

## Results:

- Number of Sentences in Test File: 7
- Number of Total Tokens: 138
- Number of Unique Words (Vocabulary Size): 73
- Top 10 Unigrams with Highest Frequencies:

("the")	16	0.11594202898550725
(",")	7	0.050724637681159424
("</s>")	7	0.050724637681159424
("<s>")	7	0.050724637681159424
("and")	6	0.043478260869565216
("a")	6	0.043478260869565216
("cat")	5	0.036231884057971016
("bird")	5	0.036231884057971016
("puppy")	3	0.021739130434782608
("to")	3	0.021739130434782608
- Top 10 Bigrams with Highest Frequencies:

(bird,the)	4	0.25
(cat,the)	4	0.25
(the,,)	4	0.5714285714285714
(a,of)	3	1.0
(puppy,the)	2	0.125
(the,<s>)	2	0.2857142857142857
(the,on)	2	0.6666666666666666
(on,pounced)	2	1.0
(</s>,tree)	2	1.0
(</s>,away)	1	1.0
- After UNK addition and Smoothing Operations:
  - Top 10 Bigrams with Highest Frequencies:

(bird,the)	4	0.05056179775280899
(cat,the)	4	0.05056179775280899
(the,,)	4	0.05625
(a,of)	3	0.046052631578947366
(puppy,the)	2	0.028089887640449437
(the,<s>)	2	0.03125
(the,on)	2	0.03289473684210526
(on,pounced)	2	0.03333333333333333
(</s>,tree)	2	0.03333333333333333
(</s>,away)	1	0.02027027027027027
  - Top 10 Bigrams with UNK:

(bird,the)	0.05172413793103448	0.05172413793103448
(cat,the)	0.05172413793103448	0.05172413793103448
(the,,)	0.057692307692307696	0.057692307692307696
(a,of)	0.0472972972972973	0.0472972972972973
(puppy,the)	0.028735632183908046	0.028735632183908046
(the,<s>)	0.03205128205128205	0.03205128205128205
(the,on)	0.033783783783783786	0.033783783783783786
(on,pounced)	0.03424657534246575	0.03424657534246575
(</s>,tree)	0.03424657534246575	0.03424657534246575
(unk,unk)	0.033783783783783786	0.033783783783783786

### Sentences:

- a bird was singing while perched on a branch of a tree
- this caught the attention of a cat nearby who climbed onto the roof of a house near the tree
- stealthily, the cat moved closer, then pounced on the limb and attempted to sink its teeth into the bird's throat
- the bird struggled and managed to break free and fluttered to the ground below
- quickly, the cat pounced on the bird again, but as it did, the bird turned into a puppy, who began growing and growling
- the cat redoubled the attack but the puppy had become stronger and so shook off the cat
- and looking around in its glistening youth, the puppy walked away

### Frequency List:

("was": 1), ("singing": 1), ("while": 1), ("perched": 1), ("branch": 1), ("this": 1), ("caught": 1), ("attention": 1),  
("nearby": 1), ("climbed": 1), ("onto": 1), ("roof": 1), ("house": 1), ("near": 1), ("stealthily": 1), ("moved": 1),  
("closer": 1), ("then": 1), ("limb": 1), ("attempted": 1), ("sink": 1), ("teeth": 1), ("s": 1), ("throat": 1),  
("struggled": 1), ("managed": 1), ("break": 1), ("free": 1), ("fluttered": 1), ("ground": 1), ("below": 1), ("quickly": 1),  
("again": 1), ("as": 1), ("it": 1), ("did": 1), ("turned": 1), ("began": 1), ("growing": 1), ("growling": 1),  
("redoubled": 1), ("attack": 1), ("had": 1), ("become": 1), ("stronger": 1), ("so": 1), ("shook": 1), ("off": 1),  
("looking": 1), ("around": 1), ("in": 1), ("glistening": 1), ("youth": 1), ("walked": 1), ("away": 1), ("tree": 2),  
("who": 2), ("pounced": 2), ("its": 2), ("into": 2), ("but": 2), ("on": 3), ("of": 3), ("to": 3),  
("puppy": 3), ("bird": 5), ("cat": 5), ("a": 6), ("and": 6), ("<s>": 7), ("</s>": 7), (" ": 7),  
("the": 16),

### Bigram Frequency List:

(a,<s>) =1	(bird,a) =1	(was,bird) =1	(singing,was) =1	(while,singing) =1
(perched,while) =1	(on,perched) =1	(a,on) =1	(branch,a) =1	(of,branch) =1
(tree,a) =1	(this,<s>) =1	(caught,this) =1	(the,caught) =1	(attention,the) =1
(of,attention) =1	(cat,a) =1	(nearby,cat) =1	(who,nearby) =1	(climbed,who) =1
(onto,climbed) =1	(the,onto) =1	(roof,the) =1	(of,roof) =1	(house,a) =1
(near,house) =1	(the,near) =1	(tree,the) =1	(stealthily,<s>) =1	(,,stealthily) =1
(moved,cat) =1	(closer,moved) =1	(,,closer) =1	(then,,) =1	(pounced,then) =1
(limb,the) =1	(and,limb) =1	(attempted,and) =1	(to,attempted) =1	(sink,to) =1
(its,sink) =1	(teeth,its) =1	(into,teeth) =1	(the,into) =1	('s,bird) =1
(throat,s) =1	(</s>,throat) =1	(struggled,bird) =1	(and,struggled) =1	(managed,and) =1
(to,managed) =1	(break,to) =1	(free,break) =1	(and,free) =1	(fluttered,and) =1
(to,fluttered) =1	(the,to) =1	(ground,the) =1	(below,ground) =1	(</s>,below) =1
(quickly,<s>) =1	(,,quickly) =1	(pounced,cat) =1	(again,bird) =1	(,,again) =1
(but,,) =1	(as,but) =1	(it,as) =1	(did,it) =1	(,,did) =1
(turned,bird) =1	(into,turned) =1	(a,into) =1	(puppy,a) =1	(,,puppy) =1
(who,,) =1	(began,who) =1	(growing,began) =1	(and,growing) =1	(growling,and) =1
(</s>,growling) =1	(redoubled,cat) =1	(the,redoubled) =1	(attack,the) =1	(but,attack) =1
(the,but) =1	(had,puppy) =1	(become,had) =1	(stronger,become) =1	(and,stronger) =1
(so,and) =1	(shook,so) =1	(off,shook) =1	(the,off) =1	(</s>,cat) =1
(and,<s>) =1	(looking,and) =1	(around,looking) =1	(in,around) =1	(its,in) =1
(glistening,its) =1	(youth,glistening) =1	(,,youth) =1	(walked,puppy) =1	(away,walked) =1
(</s>,away) =1	(</s>,tree) =2	(on,pounced) =2	(the,on) =2	(the,<s>) =2
(puppy,the) =2	(a,of) =3	(the,,) =4	(cat,the) =4	(bird,the) =4

### Unigram Probability List:

("was")= 0.00725                      ("singing")= 0.00725                      ("while")= 0.00725                      ("perched")= 0.00725

("this")= 0.00725	("caught")= 0.00725	("attention")= 0.00725	("nearby")= 0.00725
("onto")= 0.00725	("roof")= 0.00725	("house")= 0.00725	("near")= 0.00725
("moved")= 0.00725	("closer")= 0.00725	("then")= 0.00725	("limb")= 0.00725
("sink")= 0.00725	("teeth")= 0.00725	("s")= 0.00725	("throat")= 0.00725
("managed")= 0.00725	("break")= 0.00725	("free")= 0.00725	("fluttered")= 0.00725
("below")= 0.00725	("quickly")= 0.00725	("again")= 0.00725	("as")= 0.00725
("did")= 0.00725	("turned")= 0.00725	("began")= 0.00725	("growing")= 0.00725
("redoubled")= 0.00725	("attack")= 0.00725	("had")= 0.00725	("become")= 0.00725
("so")= 0.00725	("shook")= 0.00725	("off")= 0.00725	("looking")= 0.00725
("in")= 0.00725	("glistening")= 0.00725	("youth")= 0.00725	("walked")= 0.00725
("tree")= 0.01449	("who")= 0.01449	("pounced")= 0.01449	("its")= 0.01449
("but")= 0.01449	("on")= 0.02174	("of")= 0.02174	("to")= 0.02174
("bird")= 0.03623	("cat")= 0.03623	("a")= 0.04348	("and")= 0.04348
("</s>")= 0.05072	(",")= 0.05072	("the")= 0.11594	

#### Bigram Probability List:

(a,<s>)= 0.143	(bird,a)= 0.167	(was,bird)= 0.2	(singing,was)= 1.0
(perched,while)= 1.0	(on,perched)= 1.0	(a,on)= 0.333	(branch,a)= 0.167
(tree,a)= 0.167	(this,<s>)= 0.143	(caught,this)= 1.0	(the,caught)= 1.0
(of,attention)= 1.0	(cat,a)= 0.167	(nearby,cat)= 0.2	(who,nearby)= 1.0
(onto,climbed)= 1.0	(the,onto)= 1.0	(roof,the)= 0.062	(of,roof)= 1.0
(near,house)= 1.0	(the,near)= 1.0	(tree,the)= 0.062	(stealthily,<s>)= 0.143
(moved,cat)= 0.2	(closer,moved)= 1.0	(,,closer)= 1.0	(then,,)= 0.143
(limb,the)= 0.062	(and,limb)= 1.0	(attempted,and)= 0.167	(to,attempted)= 1.0
(its,sink)= 1.0	(teeth,its)= 0.5	(into,teeth)= 1.0	(the,into)= 0.5
(throat,s)= 1.0	(</s>,throat)= 1.0	(struggled,bird)= 0.2	(and,struggled)= 1.0
(to,managed)= 1.0	(break,to)= 0.333	(free,break)= 1.0	(and,free)= 1.0
(to,fluttered)= 1.0	(the,to)= 0.333	(ground,the)= 0.062	(below,ground)= 1.0
(quickly,<s>)= 0.143	(,,quickly)= 1.0	(pounced,cat)= 0.2	(again,bird)= 0.2
(but,,)= 0.143	(as,but)= 0.5	(it,as)= 1.0	(did,it)= 1.0
(turned,bird)= 0.2	(into,turned)= 1.0	(a,into)= 0.5	(puppy,a)= 0.167
(who,,)= 0.143	(began,who)= 0.5	(growing,began)= 1.0	(and,growing)= 1.0
(</s>,growling)= 1.0	(redoubled,cat)= 0.2	(the,redoubled)= 1.0	(attack,the)= 0.062
(the,but)= 0.5	(had,puppy)= 0.333	(become,had)= 1.0	(stronger,become)= 1.0
(so,and)= 0.167	(shook,so)= 1.0	(off,shook)= 1.0	(the,off)= 1.0
(and,<s>)= 0.143	(looking,and)= 0.167	(around,looking)= 1.0	(in,around)= 1.0
(glistening,its)= 0.5	(youth,glistening)= 1.0	(,,youth)= 1.0	(walked,puppy)= 0.333
(</s>,away)= 1.0	(</s>,tree)= 1.0	(on,pounced)= 1.0	(the,on)= 0.667
(puppy,the)= 0.125	(a,of)= 1.0	(the,,)= 0.571	(cat,the)= 0.25

#### Sentences After Replace With UNK:

- <s> a bird unk unk unk perched on a branch of a tree </s>
- <s> this caught the attention of a cat nearby who climbed onto the roof of a house near the tree </s>
- <s> stealthily , the cat moved closer , then pounced on the limb and attempted to sink its teeth into the bird 's throat </s>
- <s> the bird struggled and managed to break free and fluttered to the ground below </s>
- <s> quickly , the cat pounced on the bird again , but as it did , the bird turned into a puppy , who began growing and growling </s>
- <s> the cat redoubled the attack but the puppy had become stronger and so shook off the cat </s>
- <s> and looking around in its glistening youth , the puppy walked away </s>

## Frequency List After Replace with UNK:

("perched": 1), ("branch": 1), ("this": 1), ("caught": 1), ("attention": 1), ("nearby": 1), ("climbed": 1), ("onto": 1),  
 ("roof": 1), ("house": 1), ("near": 1), ("stealthily": 1), ("moved": 1), ("closer": 1), ("then": 1), ("limb": 1),  
 ("attempted": 1), ("sink": 1), ("teeth": 1), ("s": 1), ("throat": 1), ("struggled": 1), ("managed": 1), ("break": 1),  
 ("free": 1), ("fluttered": 1), ("ground": 1), ("below": 1), ("quickly": 1), ("again": 1), ("as": 1), ("it": 1),  
 ("did": 1), ("turned": 1), ("began": 1), ("growing": 1), ("growling": 1), ("redoubled": 1), ("attack": 1), ("had": 1),  
 ("become": 1), ("stronger": 1), ("so": 1), ("shook": 1), ("off": 1), ("looking": 1), ("around": 1), ("in": 1),  
 ("glistening": 1), ("youth": 1), ("walked": 1), ("away": 1), ("tree": 2), ("who": 2), ("pounced": 2), ("its": 2),  
 ("into": 2), ("but": 2), ("unk": 3), ("on": 3), ("of": 3), ("to": 3), ("puppy": 3), ("bird": 5),  
 ("cat": 5), ("a": 6), ("and": 6), ("<s>": 7), ("</s>": 7), (","": 7), ("the": 16),

## Bigram Frequency List After Replace with UNK:

(a,<s>)=1	(bird,a)=1	(unk,bird)=1	(perched,unk)=1	(on,perched)=1
(a,on)=1	(branch,a)=1	(of,branch)=1	(tree,a)=1	(this,<s>)=1
(caught,this)=1	(the,caught)=1	(attention,the)=1	(of,attention)=1	(cat,a)=1
(nearby,cat)=1	(who,nearby)=1	(climbed,who)=1	(onto,climbed)=1	(the,onto)=1
(roof,the)=1	(of,roof)=1	(house,a)=1	(near,house)=1	(the,near)=1
(tree,the)=1	(stealthily,<s>)=1	(,stealthily)=1	(moved,cat)=1	(closer,moved)=1
(,closer)=1	(then,,)=1	(pounced,then)=1	(limb,the)=1	(and,limb)=1
(attempted,and)=1	(to,attempted)=1	(sink,to)=1	(its,sink)=1	(teeth,its)=1
(into,teeth)=1	(the,into)=1	('s,bird)=1	(throat,'s)=1	(</s>,throat)=1
(struggled,bird)=1	(and,struggled)=1	(managed,and)=1	(to,managed)=1	(break,to)=1
(free,break)=1	(and,free)=1	(fluttered,and)=1	(to,fluttered)=1	(the,to)=1
(ground,the)=1	(below,ground)=1	(</s>,below)=1	(quickly,<s>)=1	(,quickly)=1
(pounced,cat)=1	(again,bird)=1	(,again)=1	(but,,)=1	(as,but)=1
(it,as)=1	(did,it)=1	(,did)=1	(turned,bird)=1	(into,turned)=1
(a,into)=1	(puppy,a)=1	(,puppy)=1	(who,,)=1	(began,who)=1
(growing,began)=1	(and,growing)=1	(growling,and)=1	(</s>,growling)=1	(redoubled,cat)=1
(the,redoubled)=1	(attack,the)=1	(but,attack)=1	(the,but)=1	(had,puppy)=1
(become,had)=1	(stronger,become)=1	(and,stronger)=1	(so,and)=1	(shook,so)=1
(off,shook)=1	(the,off)=1	(</s>,cat)=1	(and,<s>)=1	(looking,and)=1
(around,looking)=1	(in,around)=1	(its,in)=1	(glistening,its)=1	(youth,glistening)=1
(,youth)=1	(walked,puppy)=1	(away,walked)=1	(</s>,away)=1	(unk,unk)=2
(</s>,tree)=2	(on,pounced)=2	(the,on)=2	(the,<s>)=2	(puppy,the)=2
(a,of)=3	(the,,)=4	(cat,the)=4	(bird,the)=4	

## Bigram Probability List After Replace with UNK and Smoothing:

(a,<s>)= 0.019	(bird,a)= 0.019	(unk,bird)= 0.02	(perched,unk)= 0.02
(a,on)= 0.02	(branch,a)= 0.019	(of,branch)= 0.021	(tree,a)= 0.019
(caught,this)= 0.021	(the,caught)= 0.021	(attention,the)= 0.017	(of,attention)= 0.021
(nearby,cat)= 0.02	(who,nearby)= 0.021	(climbed,who)= 0.021	(onto,climbed)= 0.021
(roof,the)= 0.017	(of,roof)= 0.021	(house,a)= 0.019	(near,house)= 0.021
(tree,the)= 0.017	(stealthily,<s>)= 0.019	(,stealthily)= 0.021	(moved,cat)= 0.02
(,closer)= 0.021	(then,,)= 0.019	(pounced,then)= 0.021	(limb,the)= 0.017
(attempted,and)= 0.019	(to,attempted)= 0.021	(sink,to)= 0.02	(its,sink)= 0.021
(into,teeth)= 0.021	(the,into)= 0.021	('s,bird)= 0.02	(throat,'s)= 0.021
(struggled,bird)= 0.02	(and,struggled)= 0.021	(managed,and)= 0.019	(to,managed)= 0.021
(free,break)= 0.021	(and,free)= 0.021	(fluttered,and)= 0.019	(to,fluttered)= 0.021
(ground,the)= 0.017	(below,ground)= 0.021	(</s>,below)= 0.021	(quickly,<s>)= 0.019
(pounced,cat)= 0.02	(again,bird)= 0.02	(,again)= 0.021	(but,,)= 0.019
(it,as)= 0.021	(did,it)= 0.021	(,did)= 0.021	(turned,bird)= 0.02
(a,into)= 0.021	(puppy,a)= 0.019	(,puppy)= 0.02	(who,,)= 0.019
(growing,began)= 0.021	(and,growing)= 0.021	(growling,and)= 0.019	(</s>,growling)= 0.021

(the,redoubled)= 0.021  
(become,had)= 0.021  
(off,shook)= 0.021  
(around,looking)= 0.021  
(,,youth)= 0.021  
(</s>,tree)= 0.034  
(a,of)= 0.047

(attack,the)= 0.017  
(stronger,become)= 0.021  
(the,off)= 0.021  
(in,around)= 0.021  
(walked,puppy)= 0.02  
(on,pounced)= 0.034  
(the,,)= 0.058

(but,attack)= 0.021  
(and,stronger)= 0.021  
(</s>,cat)= 0.02  
(its,in)= 0.021  
(away,walked)= 0.021  
(the,on)= 0.034  
(cat,the)= 0.052

(the,but)= 0.021  
(so,and)= 0.019  
(and,<s>)= 0.019  
(glistening,its)= 0.021  
(</s>,away)= 0.021  
(the,<s>)= 0.032  
(bird,the)= 0.052