



**misheard
.me
oronym tree**

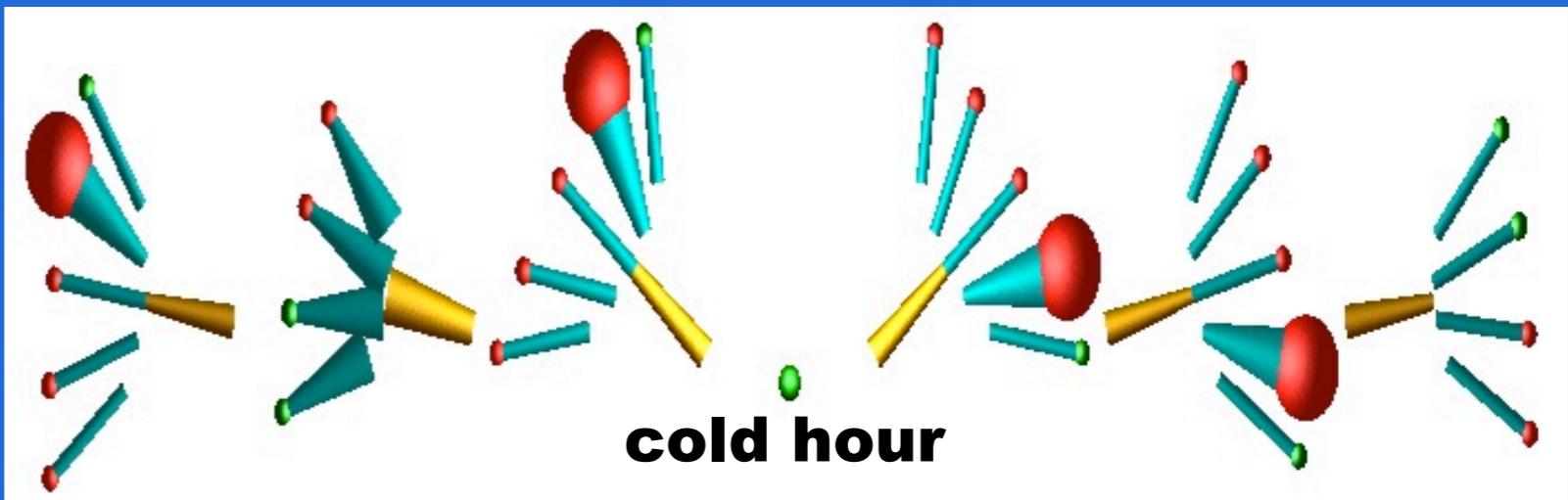
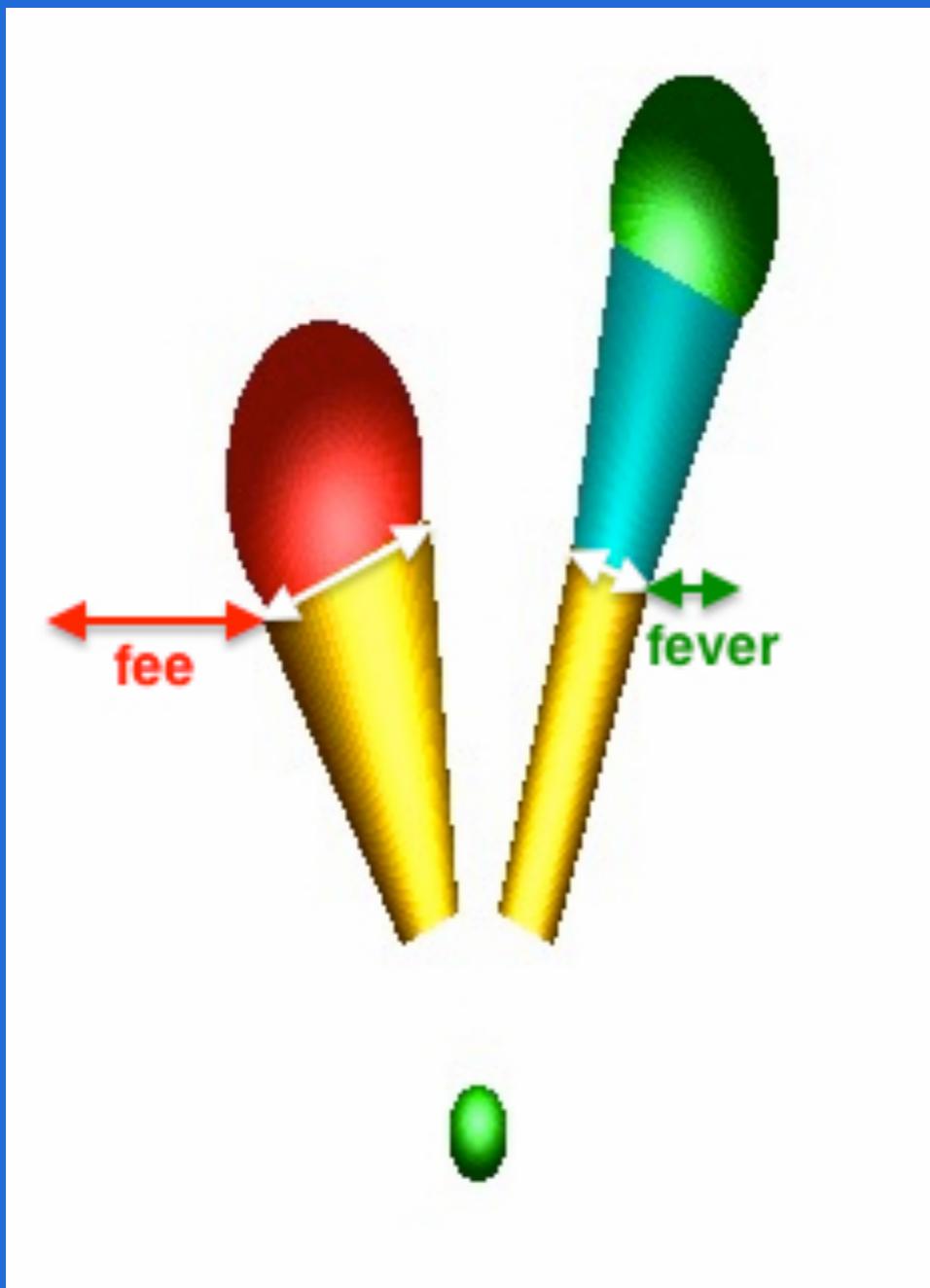
a visualization
of phonetic
ambiguity
in prose intended for
third-party performance

Jenee Hughes Thesis Defense;
2012-June-08

- Preliminary Vocab
- Introduction
- Implementation
- User Study
- Results
- Future Work
- Conclusion



a Visualization

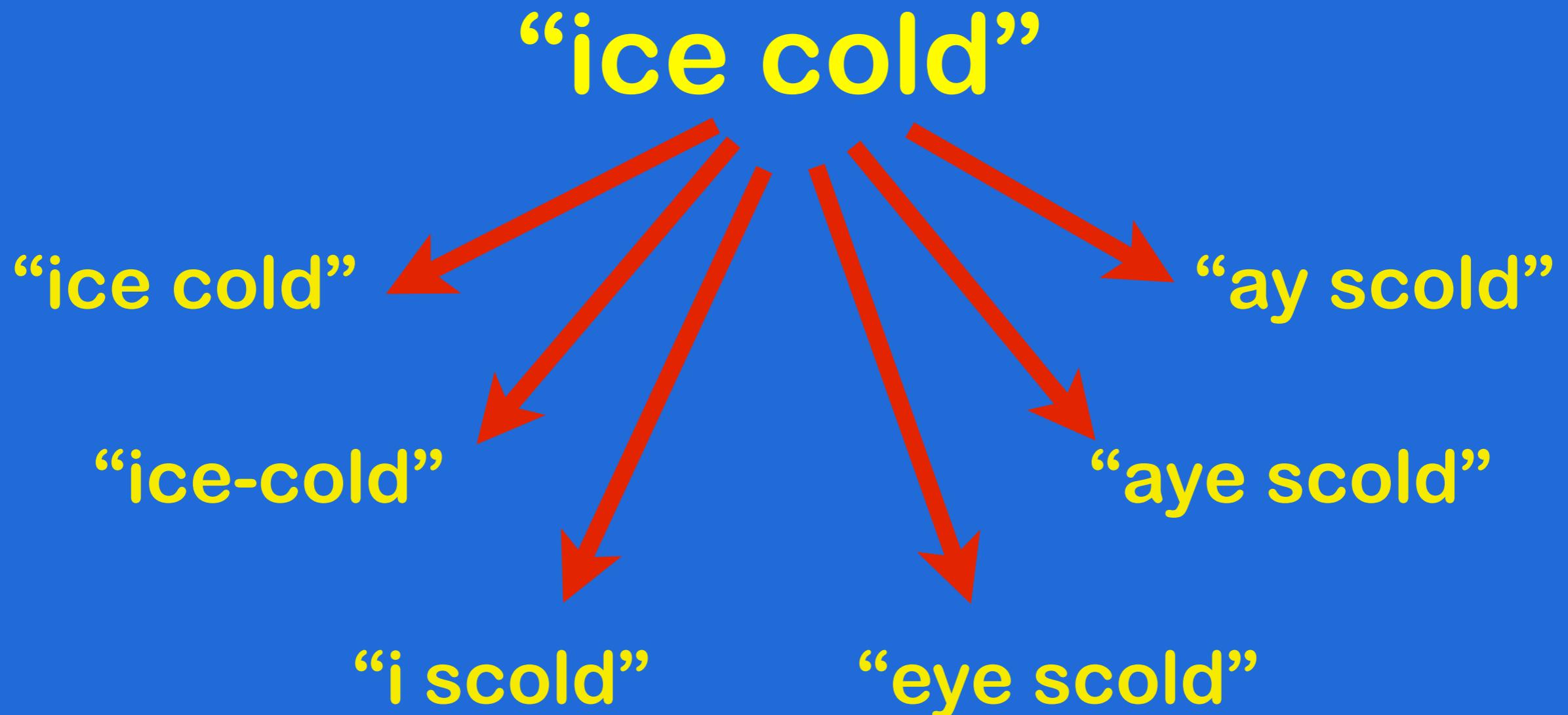


misheard
me
oronym tree

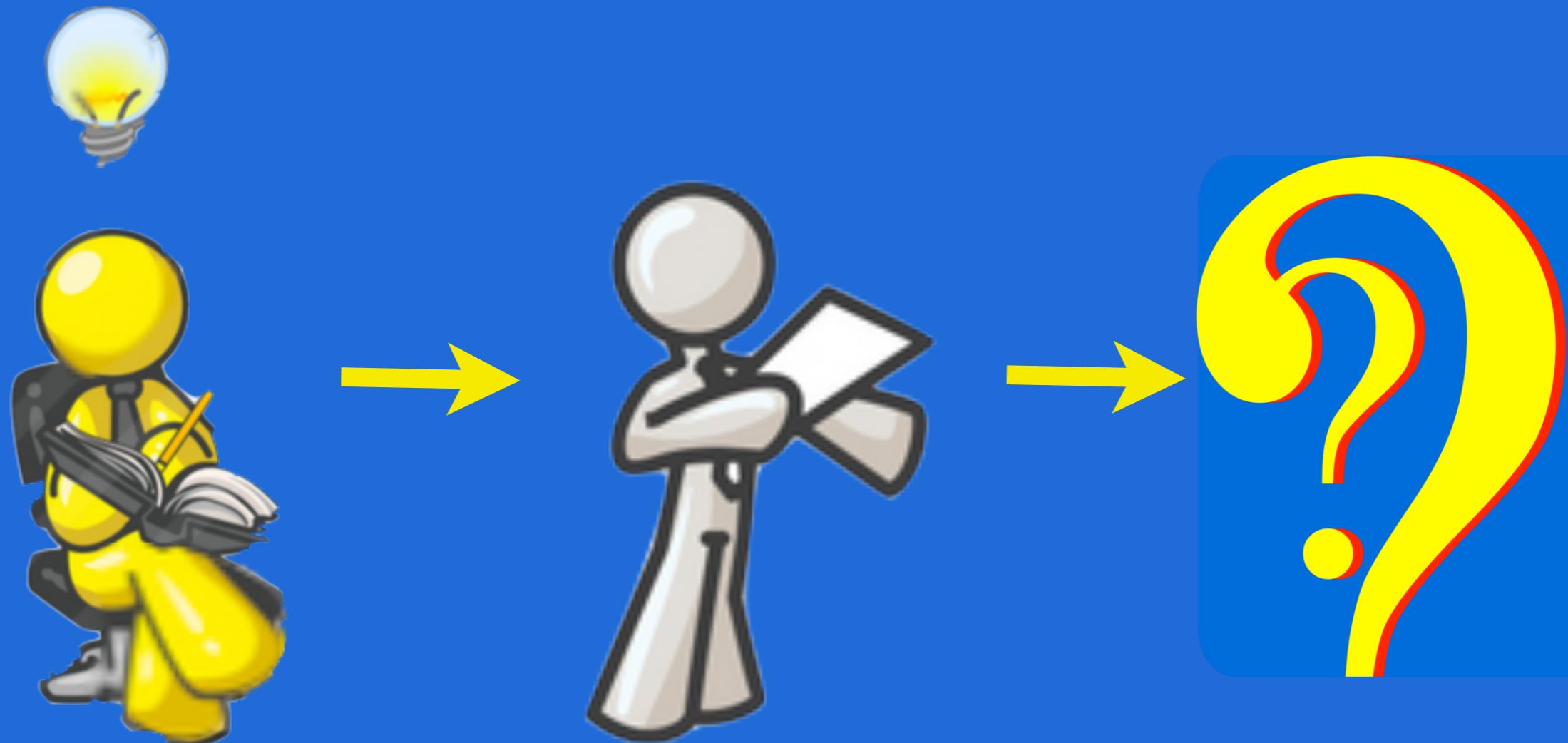
of Phonetic Ambiguity

“ice cold”

of Phonetic Ambiguity



for performance prose

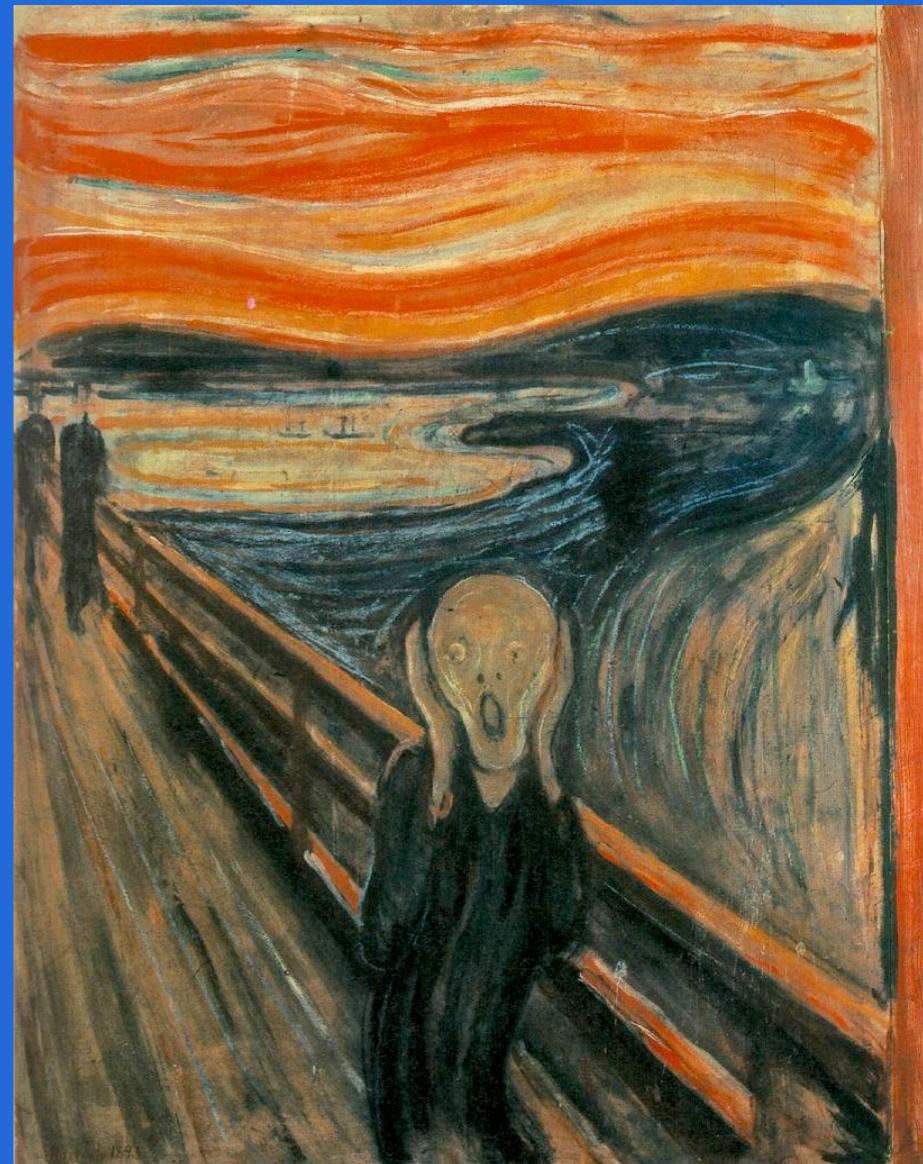


vocab

Oronyms



ice cream

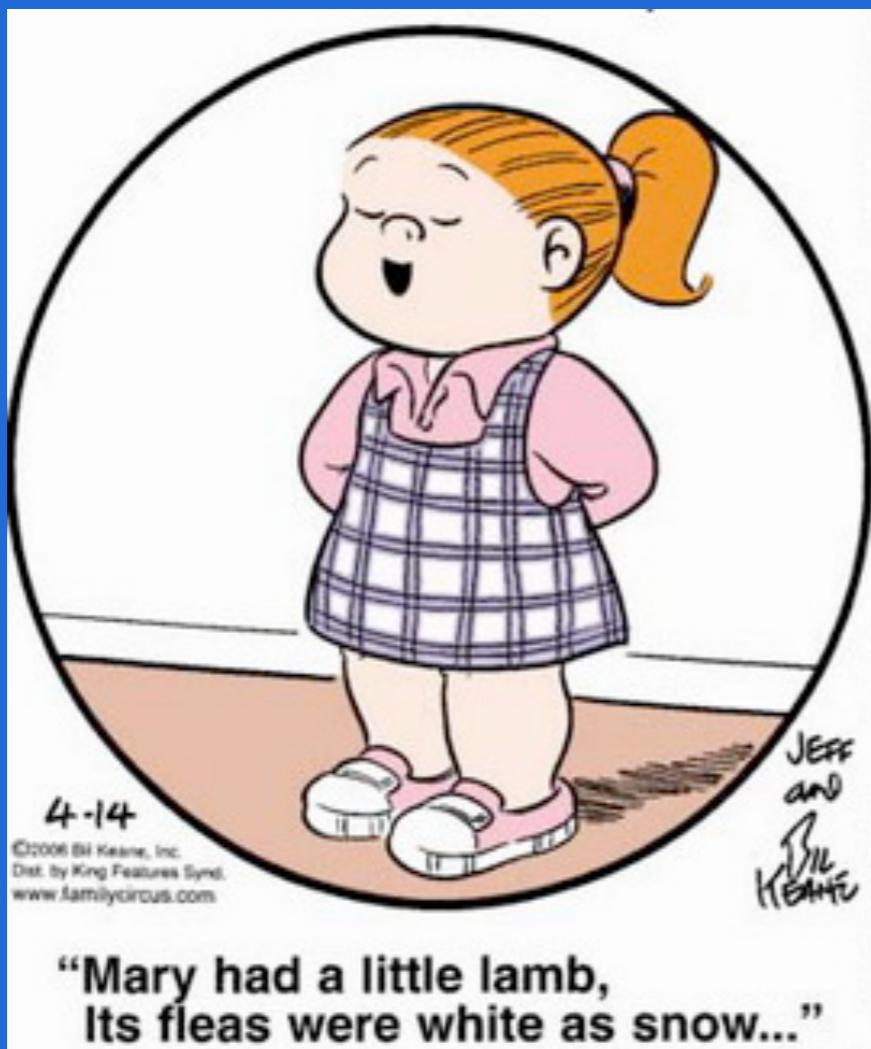


i scream

Preliminary Vocab

misheard
me
oronym tree

Oronyms



Preliminary Vocab

misheard
.me
oronym tree

Mondegreens

Ye Highlands and ye Lowlands,
Oh, where hae ye been?
They hae slain the Earl O' Moray,
And Lady Mondegreen.

Orthography

See Spot. See Spot run. Run Spot run!

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Preliminary Vocab

misheard
me
oronym tree

Phonetics & Phonology

is descriptive

uses phones

is theoretical

uses phonemes

Preliminary Vocab

misheard
me
oronym tree

Phonetics & Phonology

mail

let

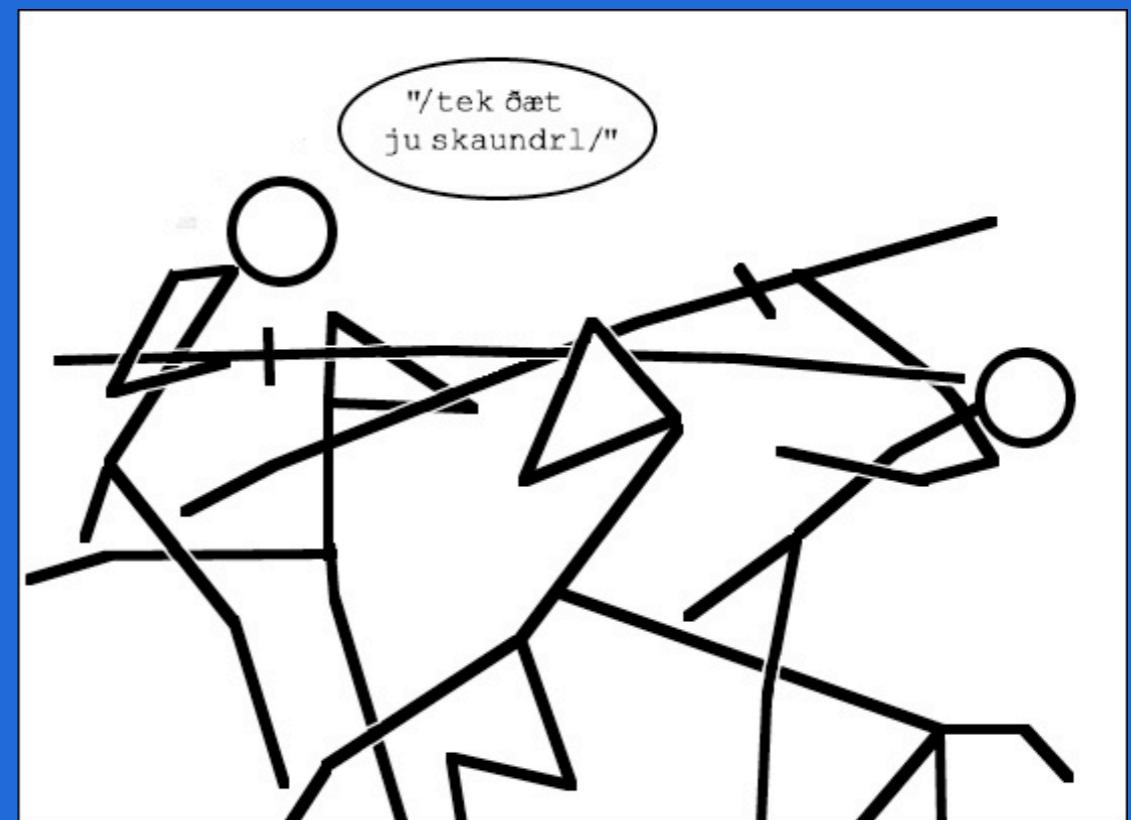
Single phoneme

Two different phones

Preliminary Vocab

misheard
me
oronym tree

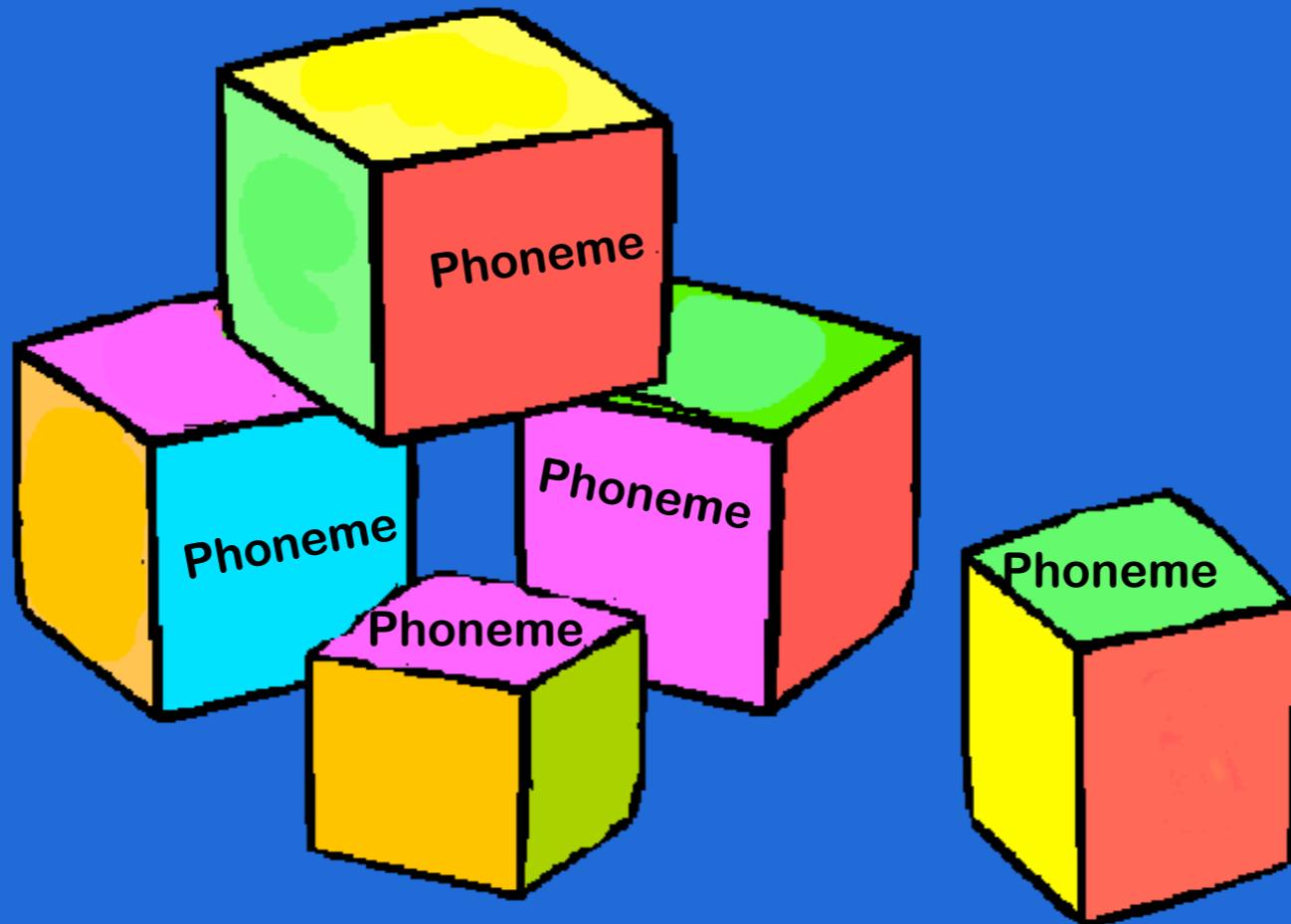
Phonetics & Phonology



Preliminary Vocab

misheard
me
oronym tree

Phonetic Alphabet



Preliminary Vocab

misheard
me
oronym tree

Phonetic Alphabet

IPA

,aIpix'eI

(International
Phonetic Alphabet)

S{mpA

(Speech Assessment
Methods Phonetic
Alphabet)

Preliminary Vocab

misheard
me
oronym tree

Phonetic Alphabet

“ice cold”



'aɪs 'kould

ais kould

Phonetic Alphabet



Preliminary Vocab

misheard
misheardme.com
oronym tree

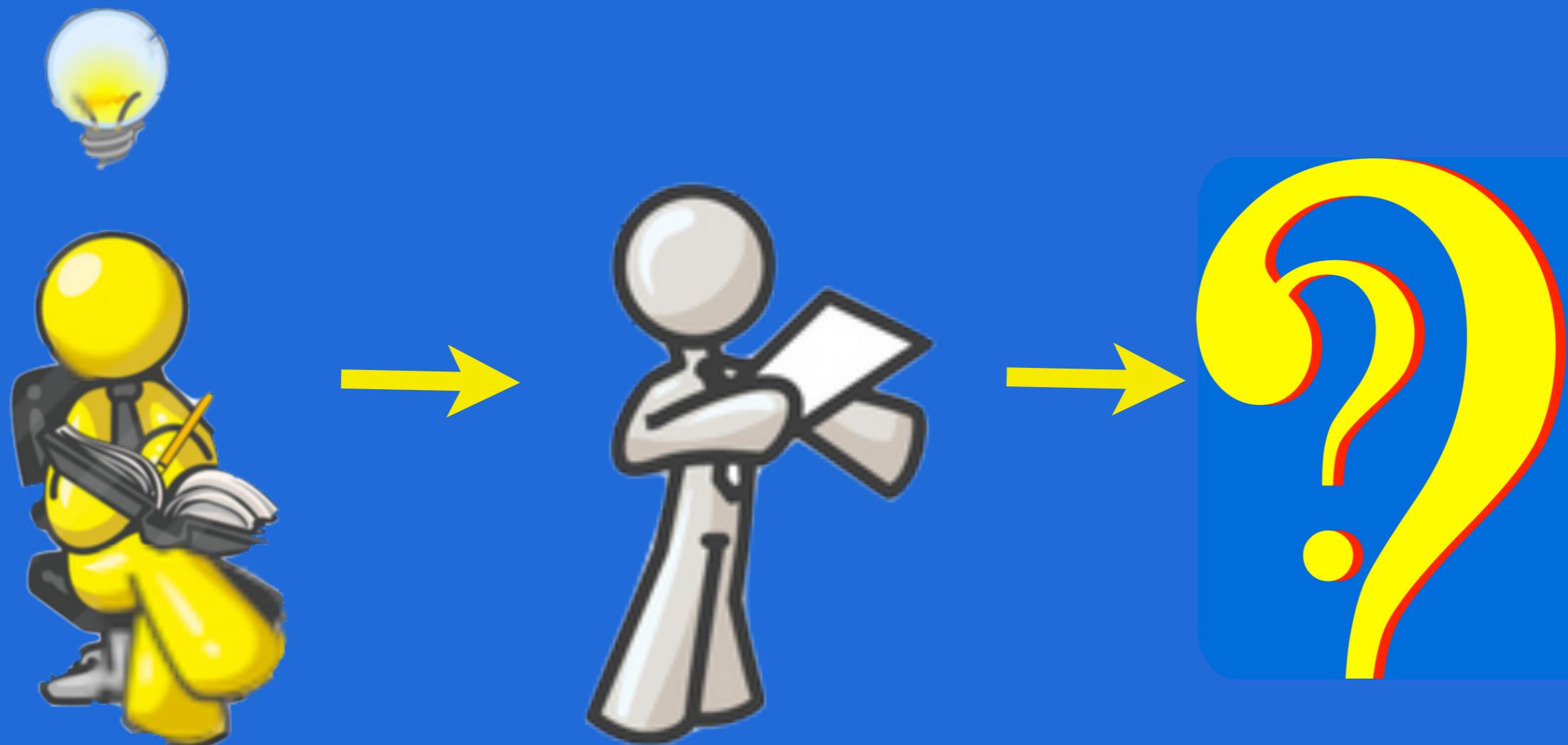
Common Mishearings



Introduction

misheard
me
oronym tree

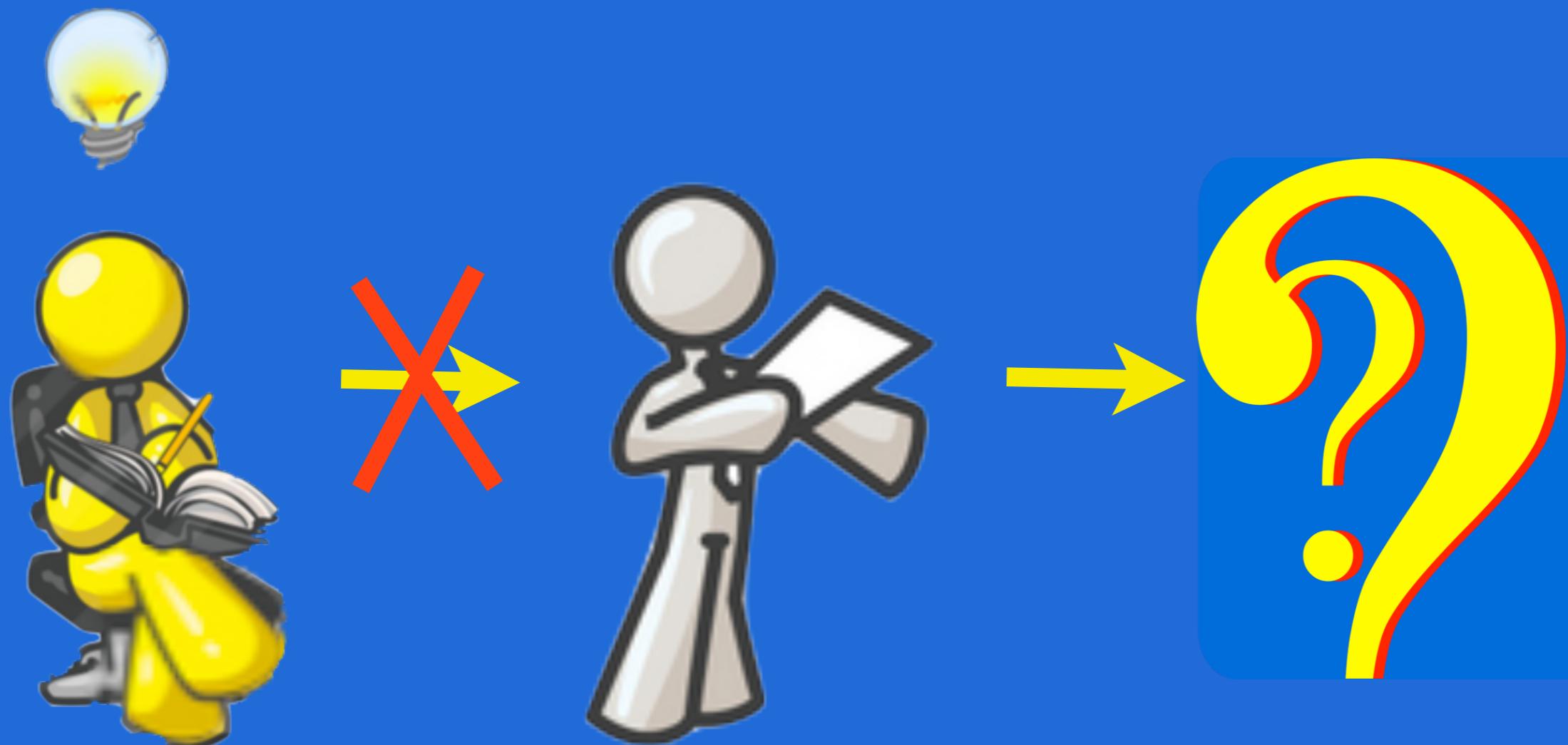
Where it breaks down



Introduction

misheard
misheard.me
oronym tree

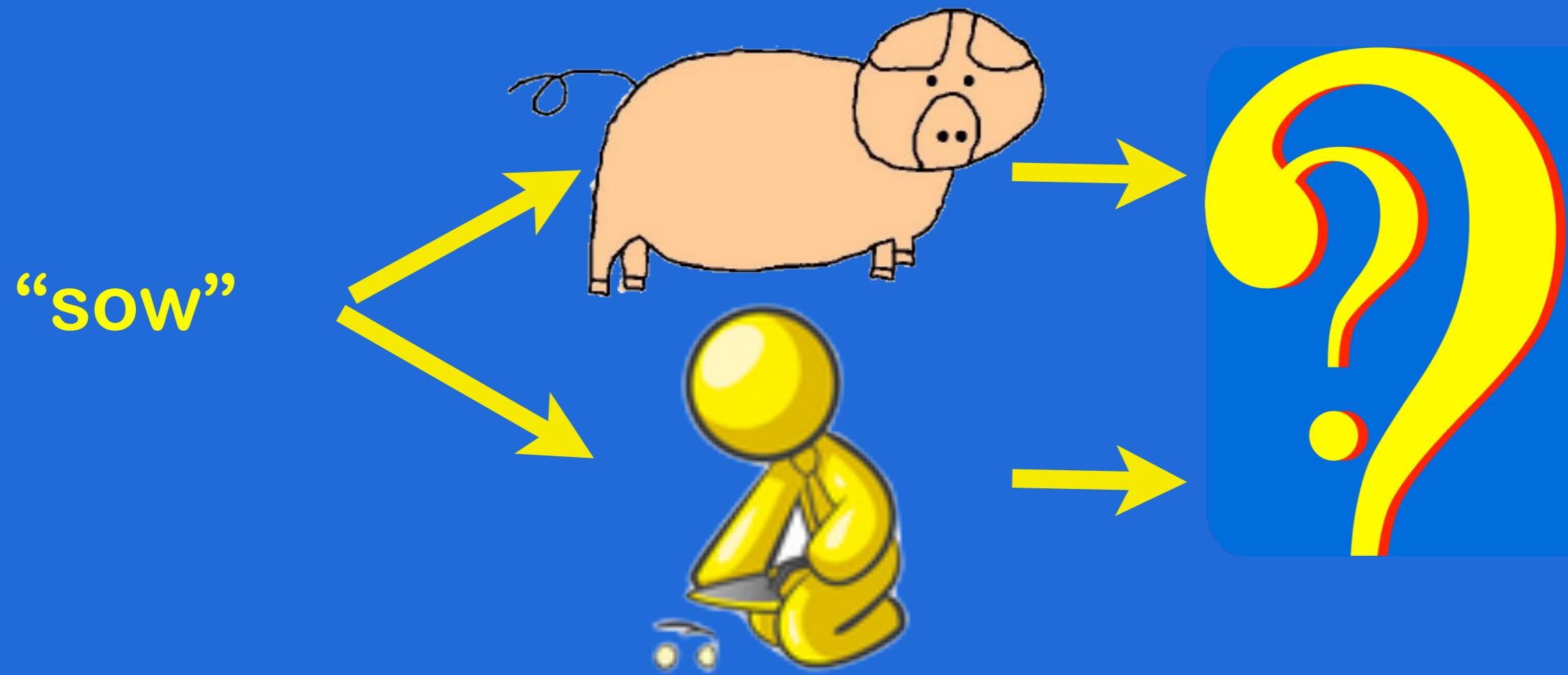
Where it breaks down



Introduction

misheard
misheard.me
oronym tree

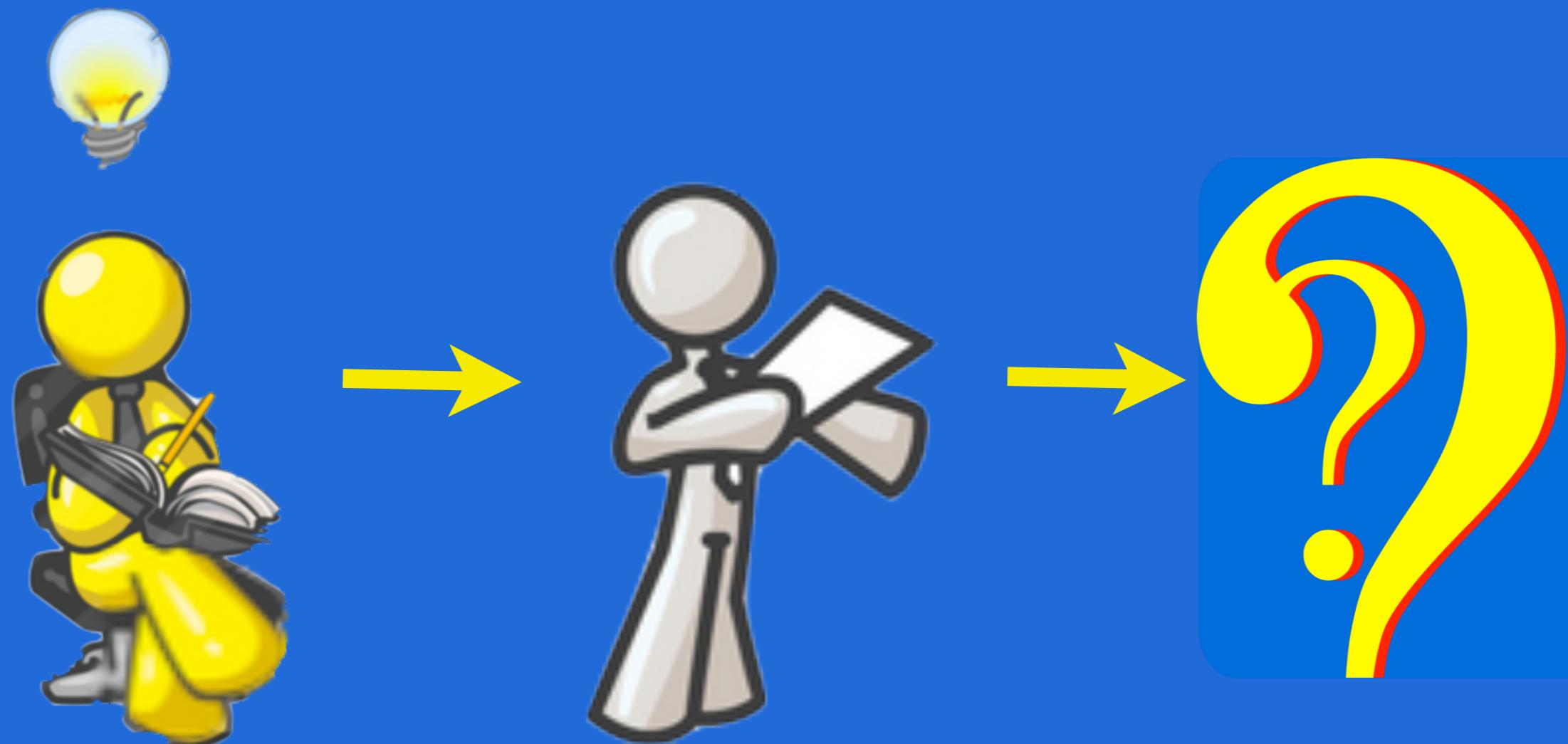
Where it breaks down



Introduction

misheard
[me](http://misheard.me)
oronym tree

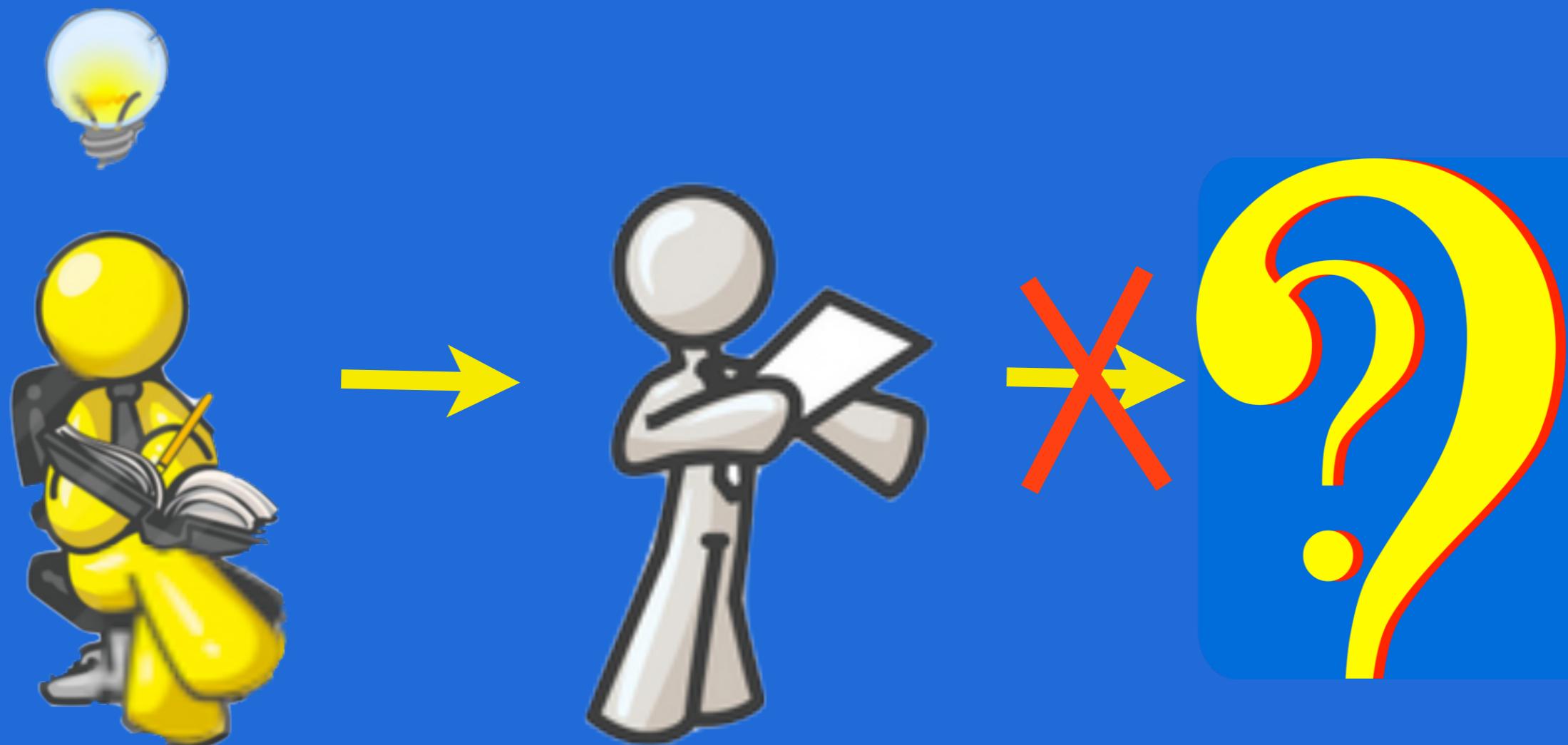
Where it breaks down



Introduction

misheard
me
oronym tree

Where it breaks down



Introduction

misheard
misheard.me
oronym tree

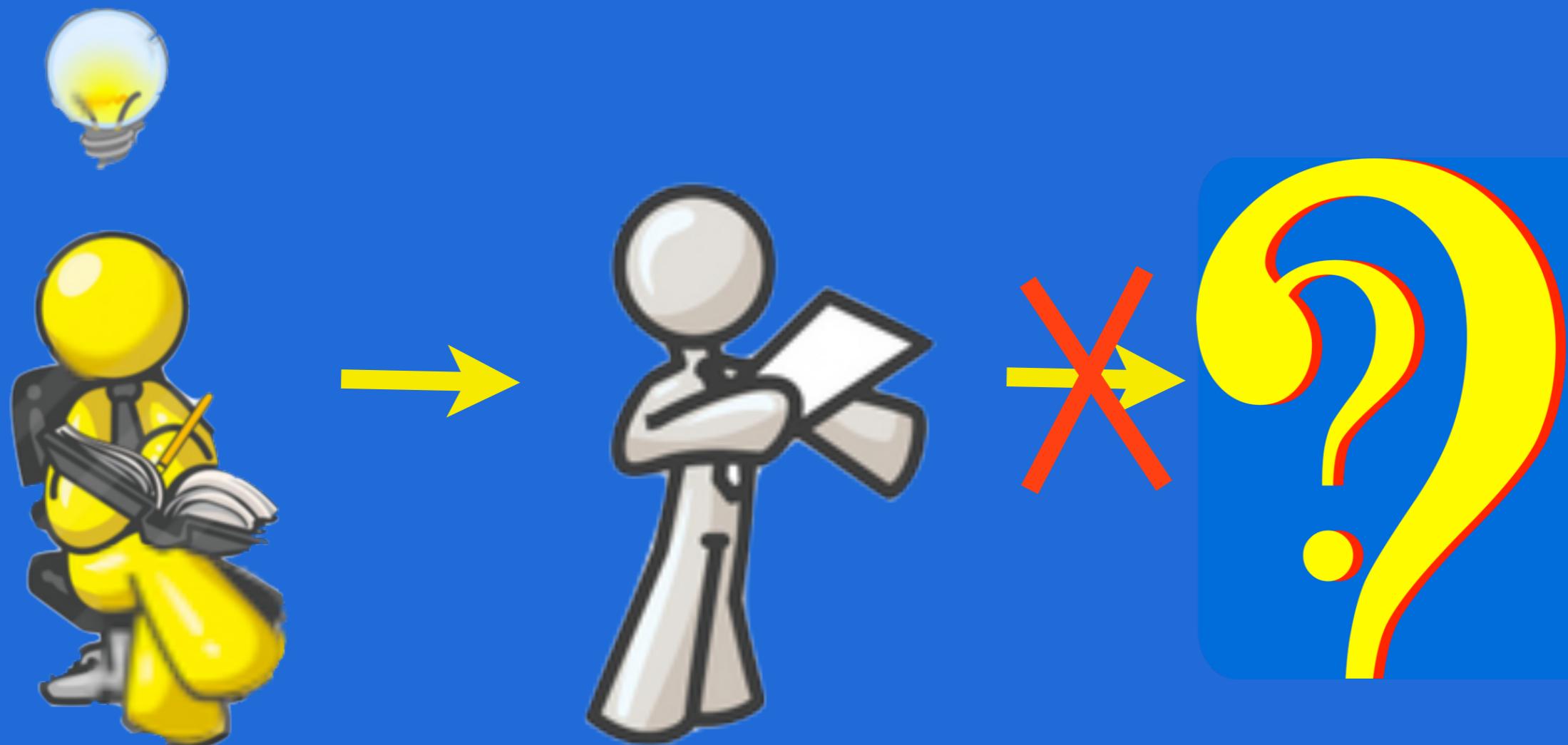
Where it breaks down



Introduction

misheard
me
oronym tree

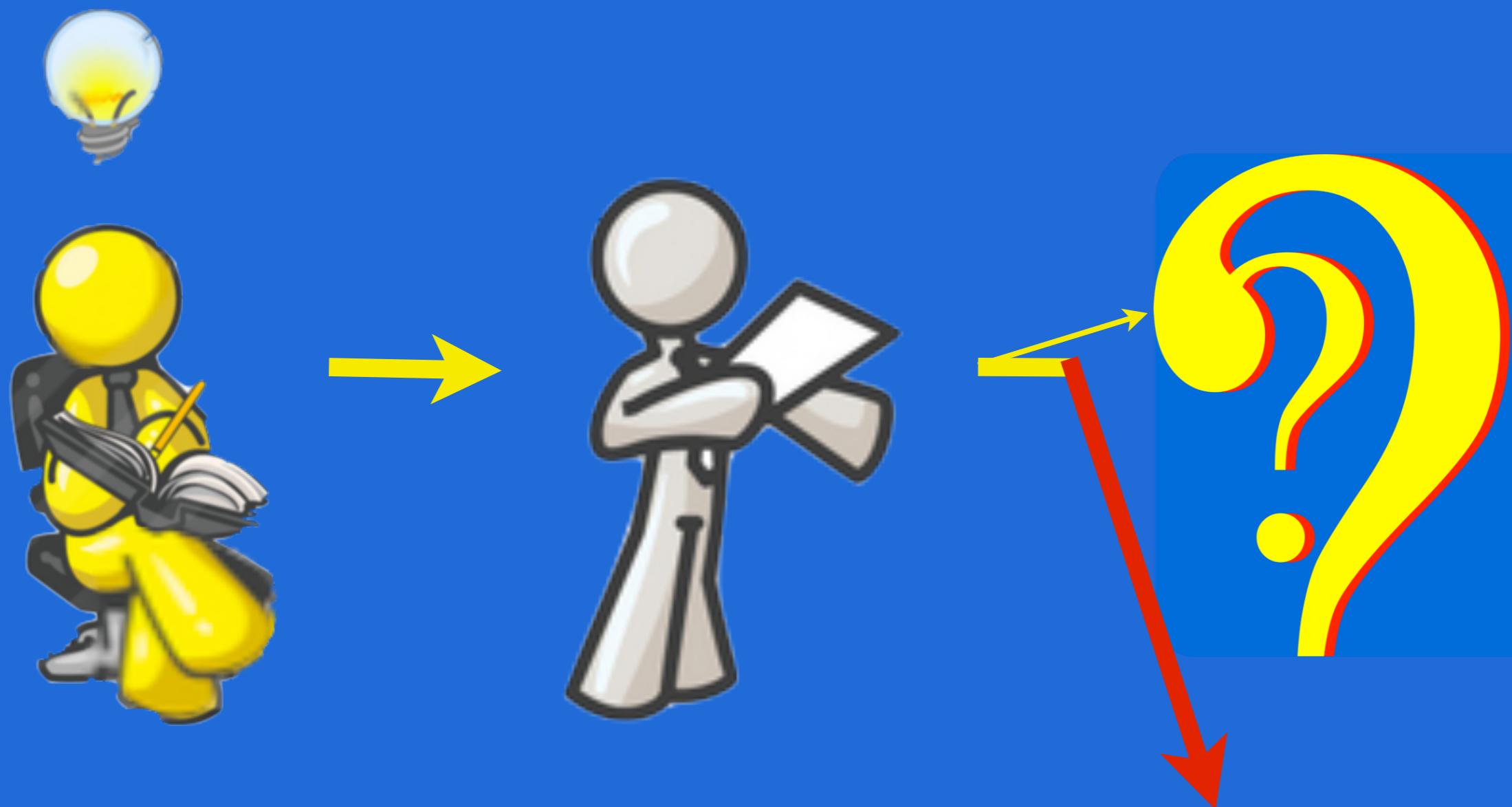
Where it breaks down



Introduction

misheard
me
oronym tree

Where it breaks down



Introduction

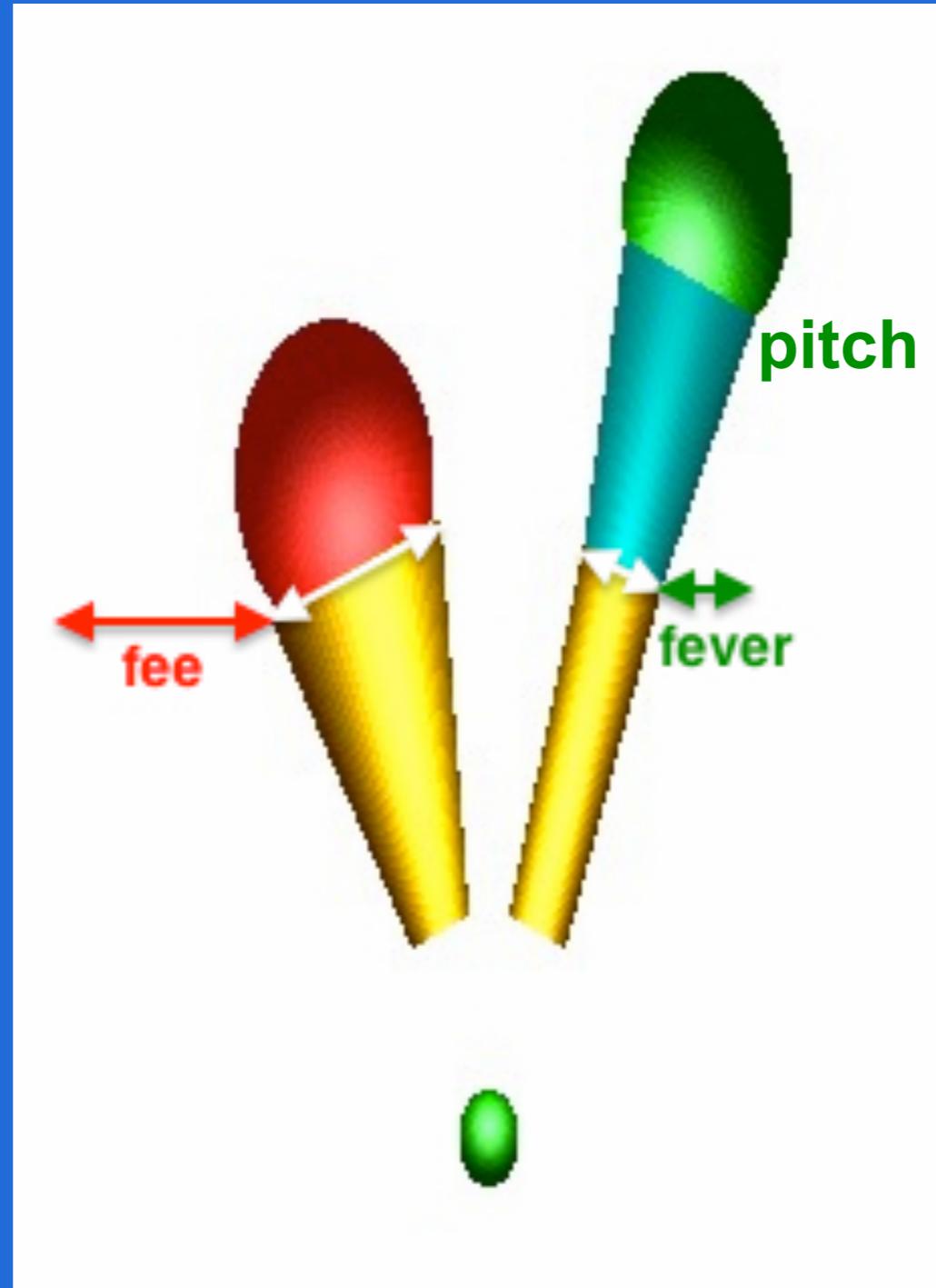
misheard
me
oronym tree

Where it breaks down

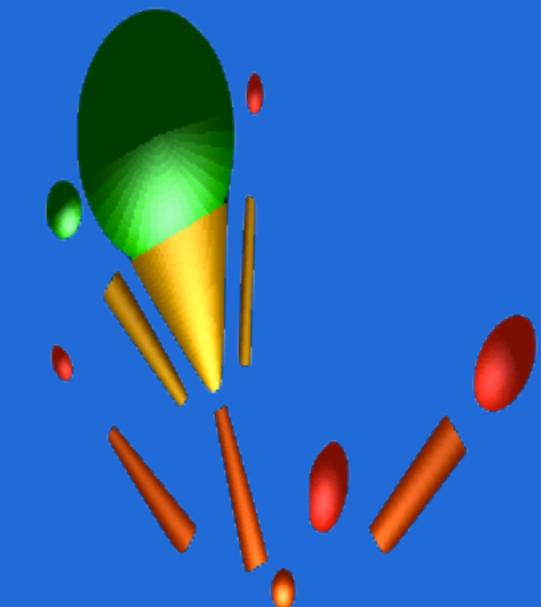
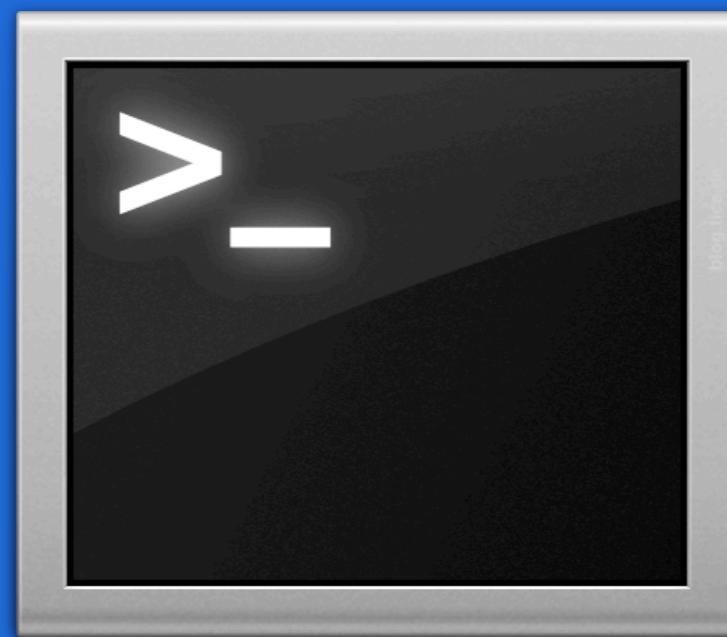


Introduction

misheard
misheard.me
oronym tree



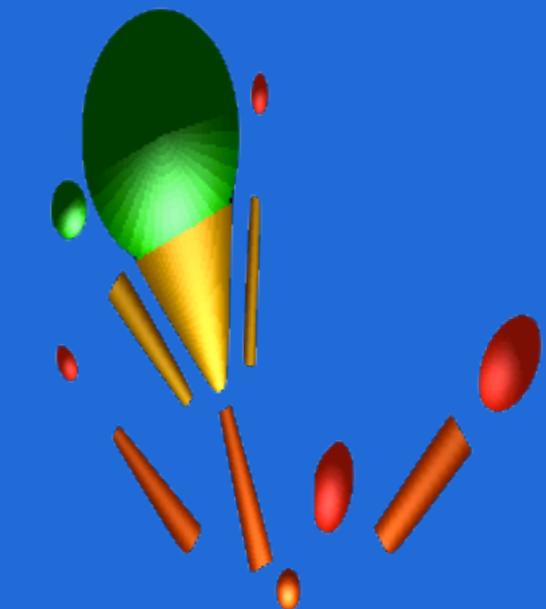
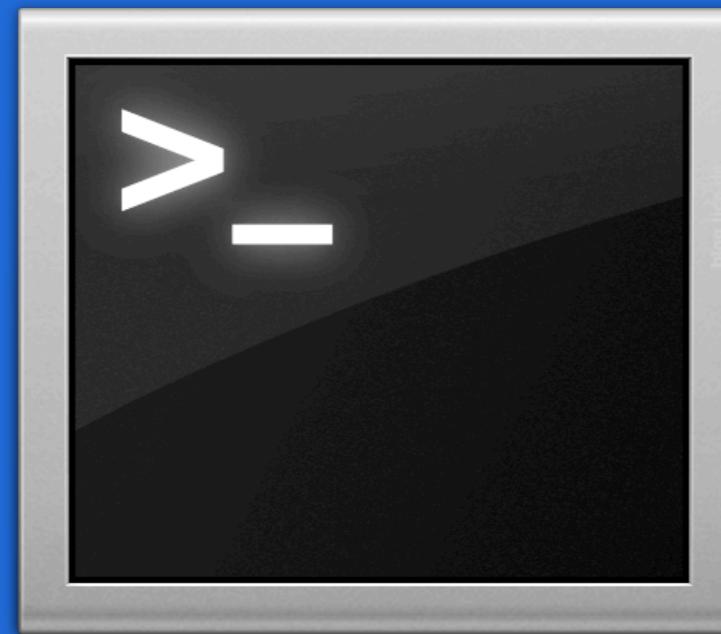
Implementation



Implementation

misheard
oronymtree.me

Implementation

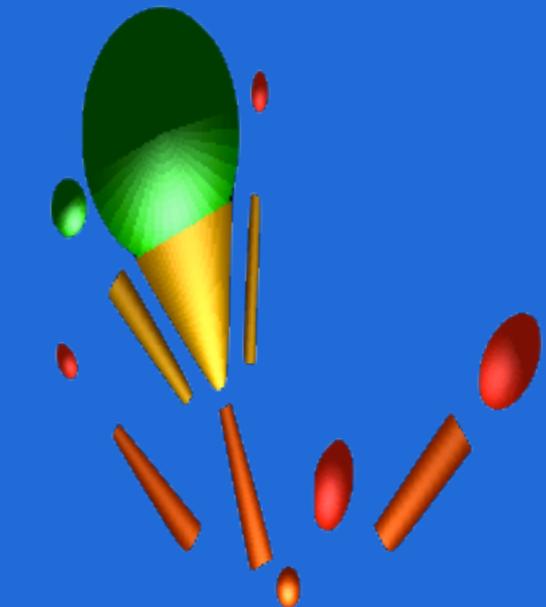
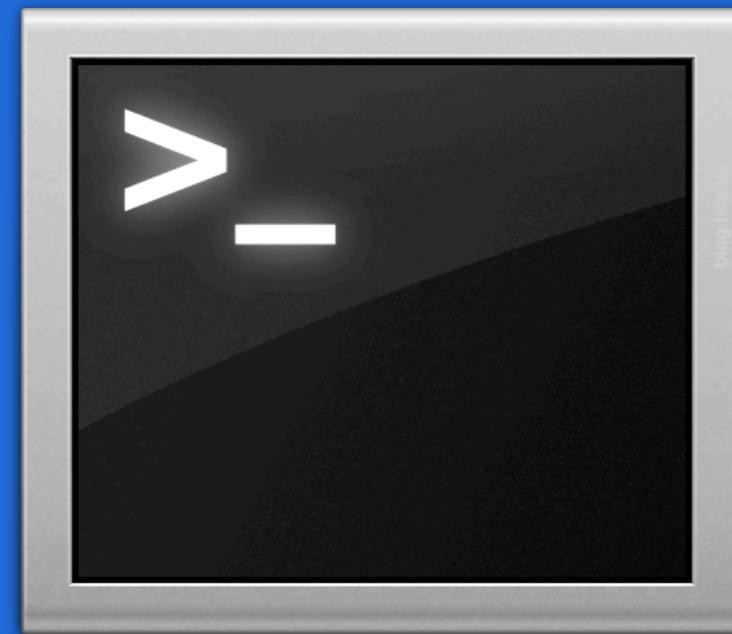


Phonetic
Dictionary

Implementation

misheard
misheard.me
oronym tree

Implementation

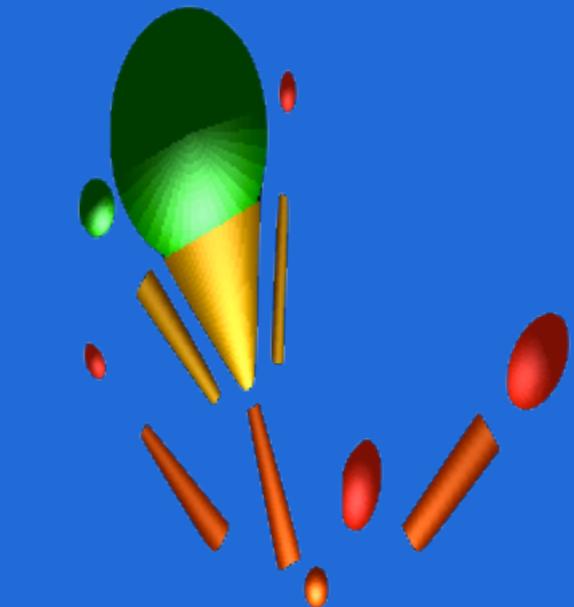
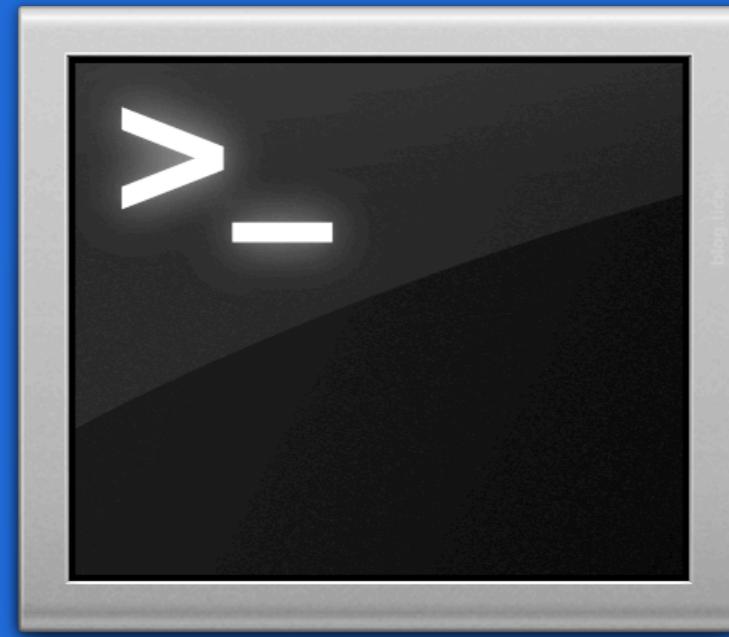


Phonetic
Dictionary
Implementation

Textual
Oronym
Generator

misheard
misheard.me
oronym tree

Implementation



Phonetic
Dictionary
Implementation

Textual
Oronym
Generator

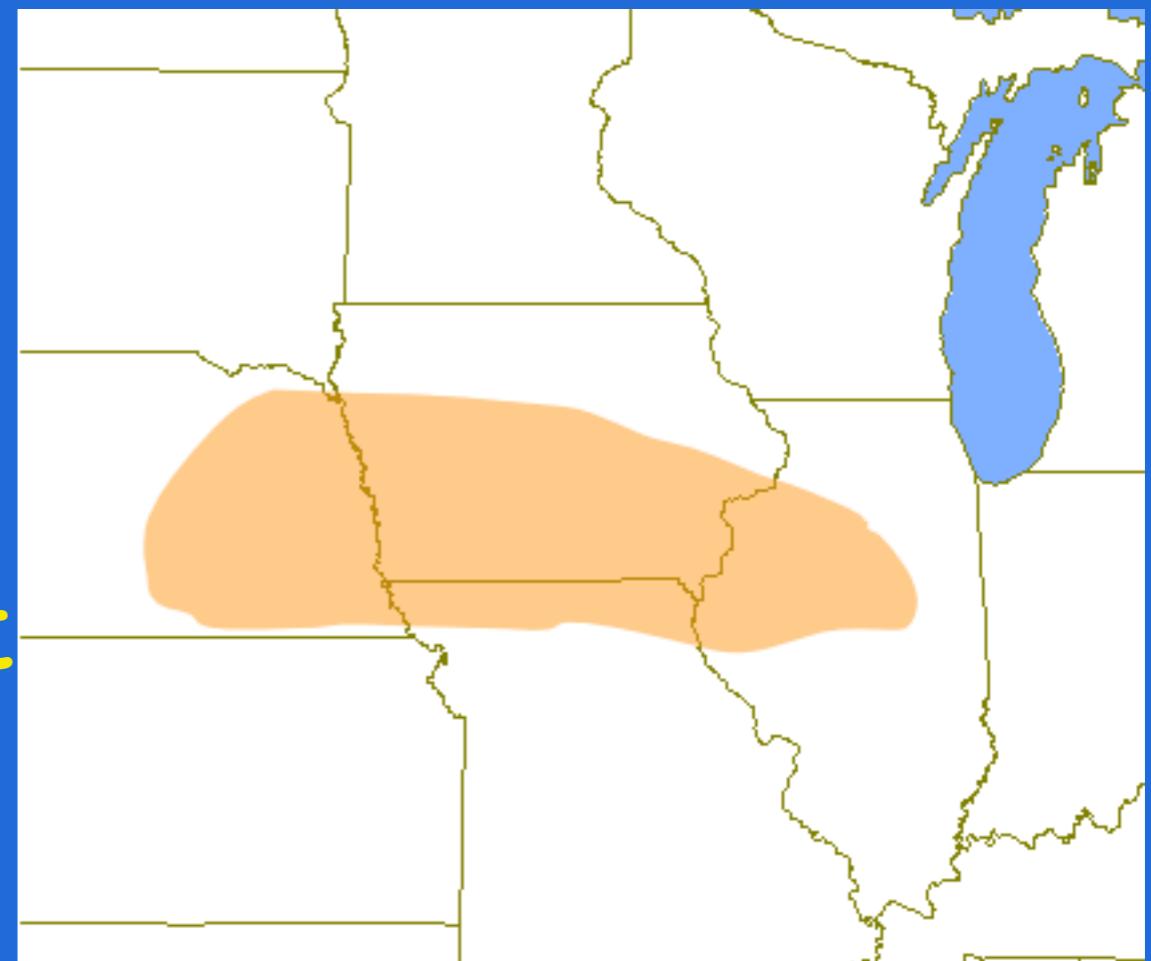
Parse-Tree
Visualization

misheard
[oronymtree](http://oronymtree.me).me

Custom Phonetic Dictionary

UNISYN Lexicon

General American Accent



Implementation

misheard
me
oronym tree

Dictionary Entry

```
<ortho>:<uniqueID>:  
<partOfSpeech>:<SAMPAspelling>:  
<SAMPANoEmph>:<extendedOrtho>:  
    <freq>
```

Example:

```
transfer:2:VB/VBP: tr{ns"f3`r :tr{nsf3`r:  
    {trans==fer}:7184
```

Implementation

misheard
me
oronym tree

Oronym Generation

“an ice cold hour”

Implementation



Oronym Generation

“an”

“ice”

“cold”

“hour”

Implementation

misheard
me
oronym tree

Oronym Generation

“an”	→	e, @, A
“ice”	→	naIs, nis
“cold”	→	kould
“hour”	→	aU`r

Implementation

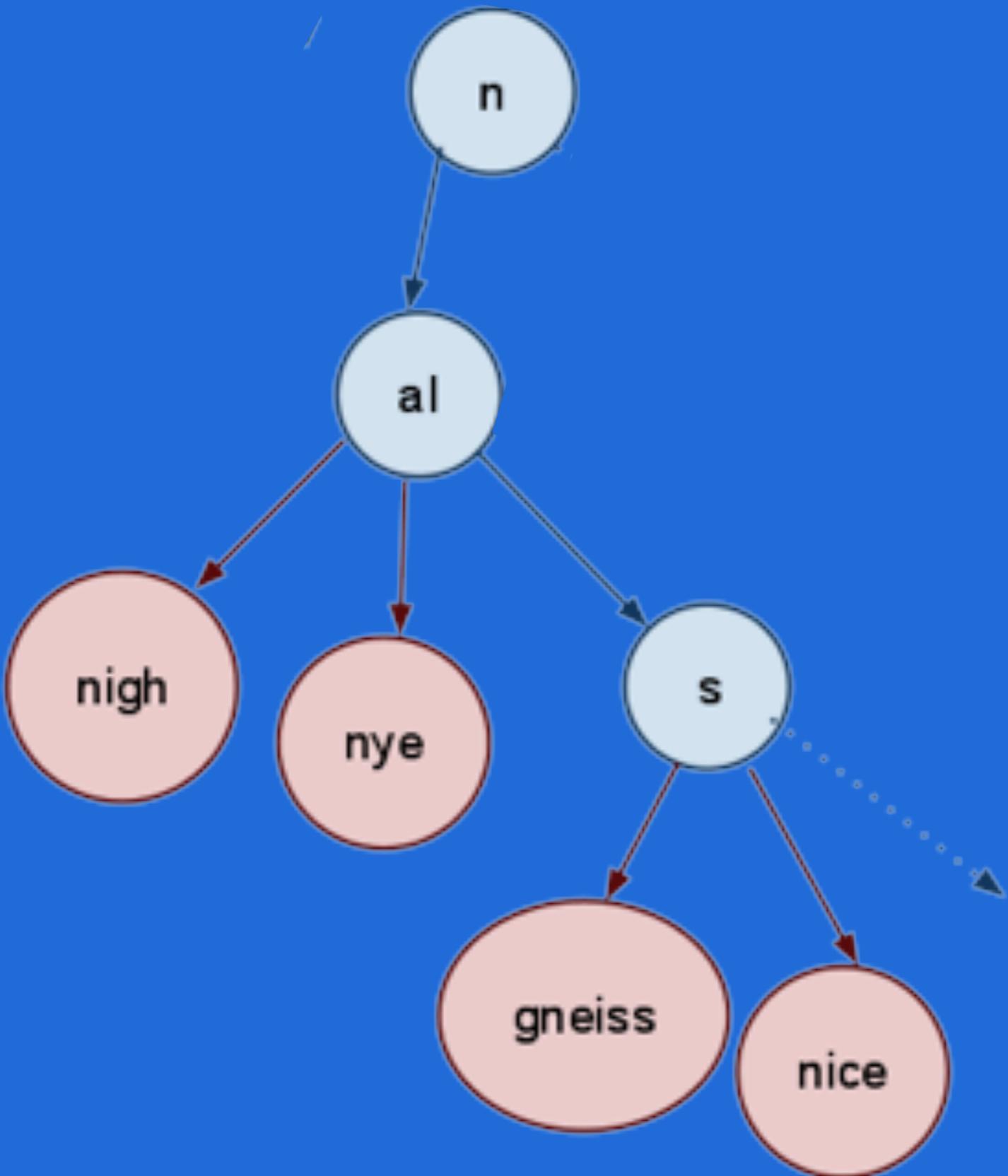
misheard
me
oronym tree

Oronym Generation

e naIs kould aU`r
@ naIs kould aU`r
A naIs kould aU`r
e nis kould aU`r
@ nis kould aU`r
A nis kould aU`r

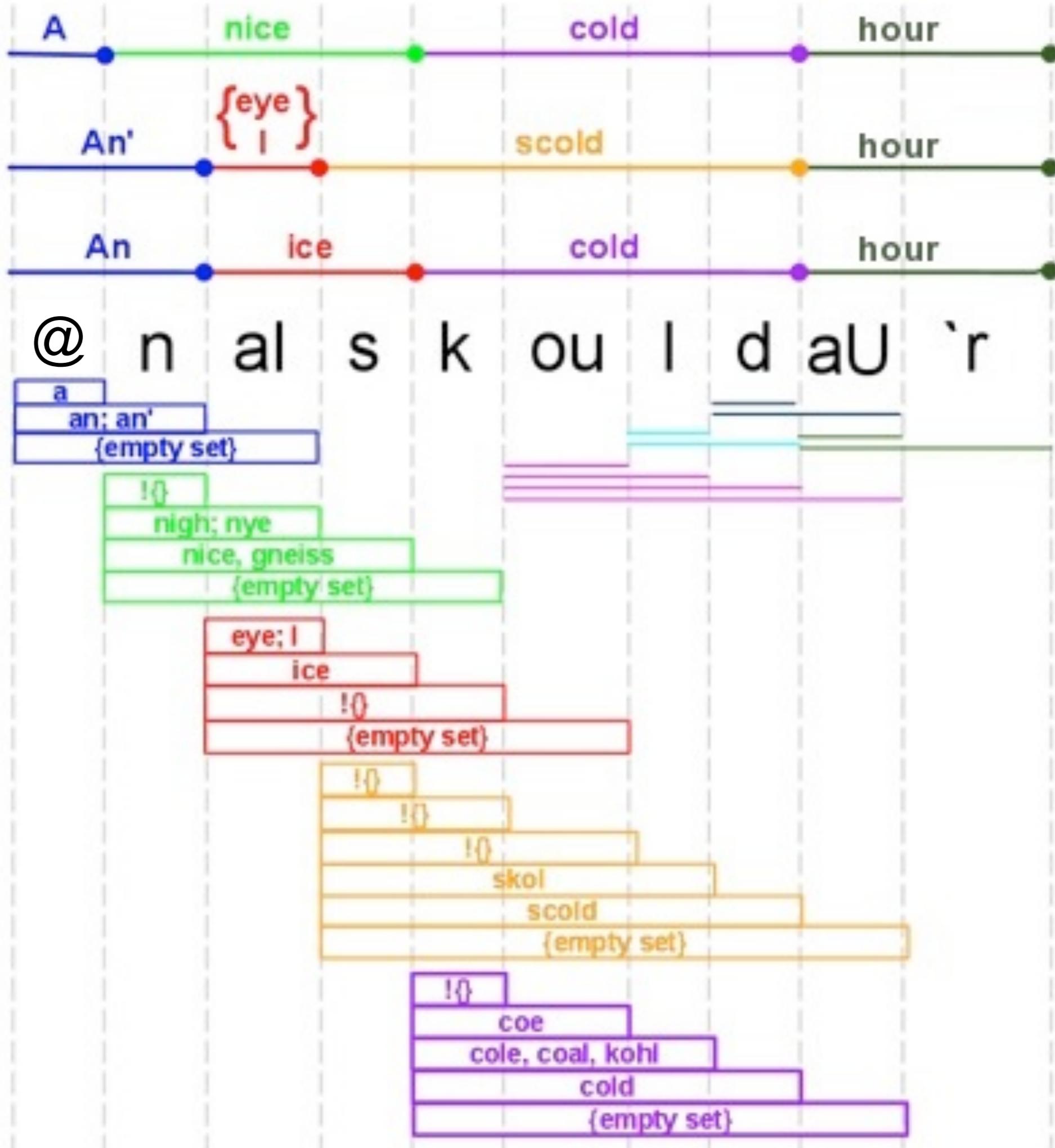
Implementation

misheard
me
oronym tree

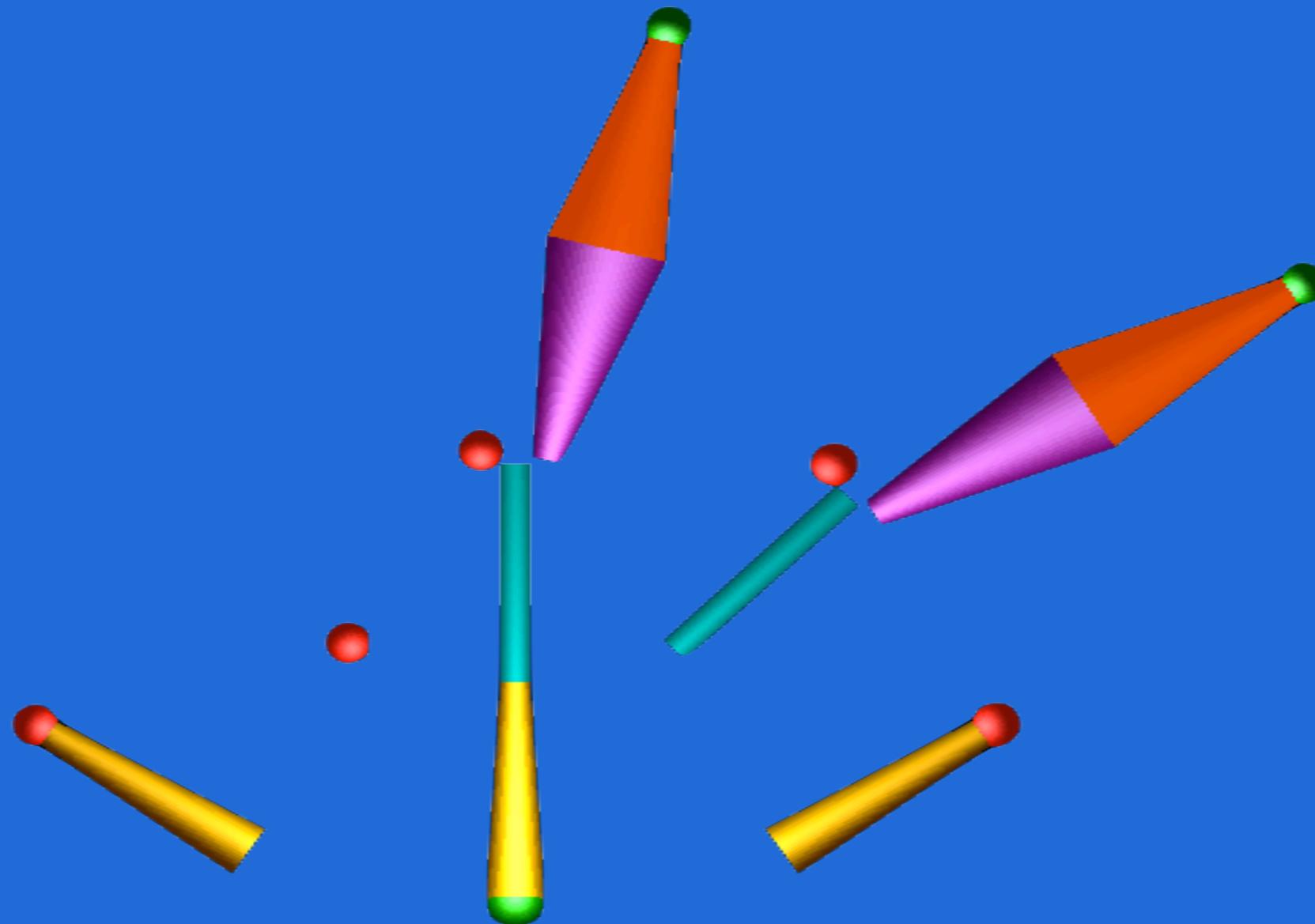


Implementation

misheard
me
oronym tree



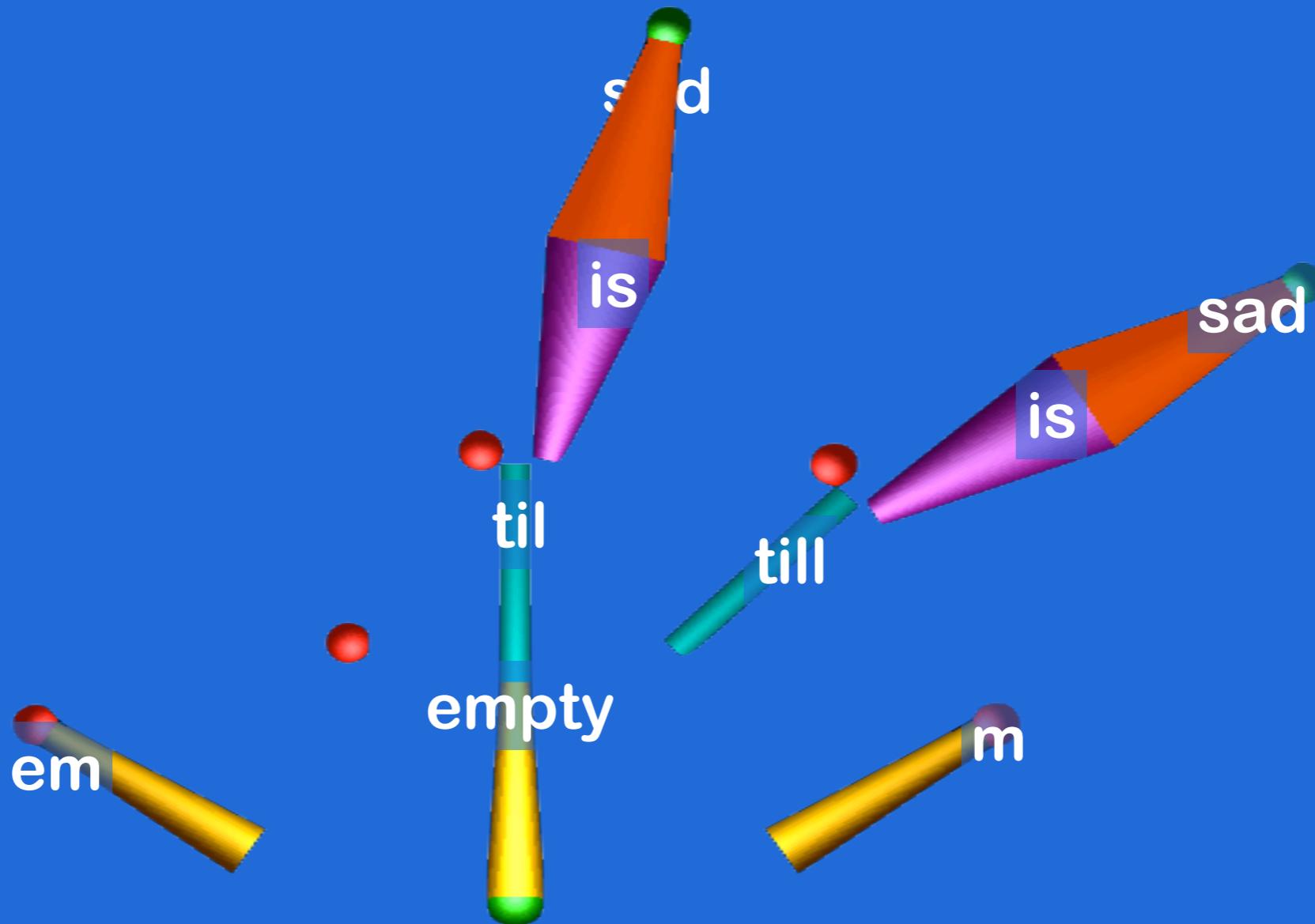
Visualization



Implementation

misheard
me
oronym tree

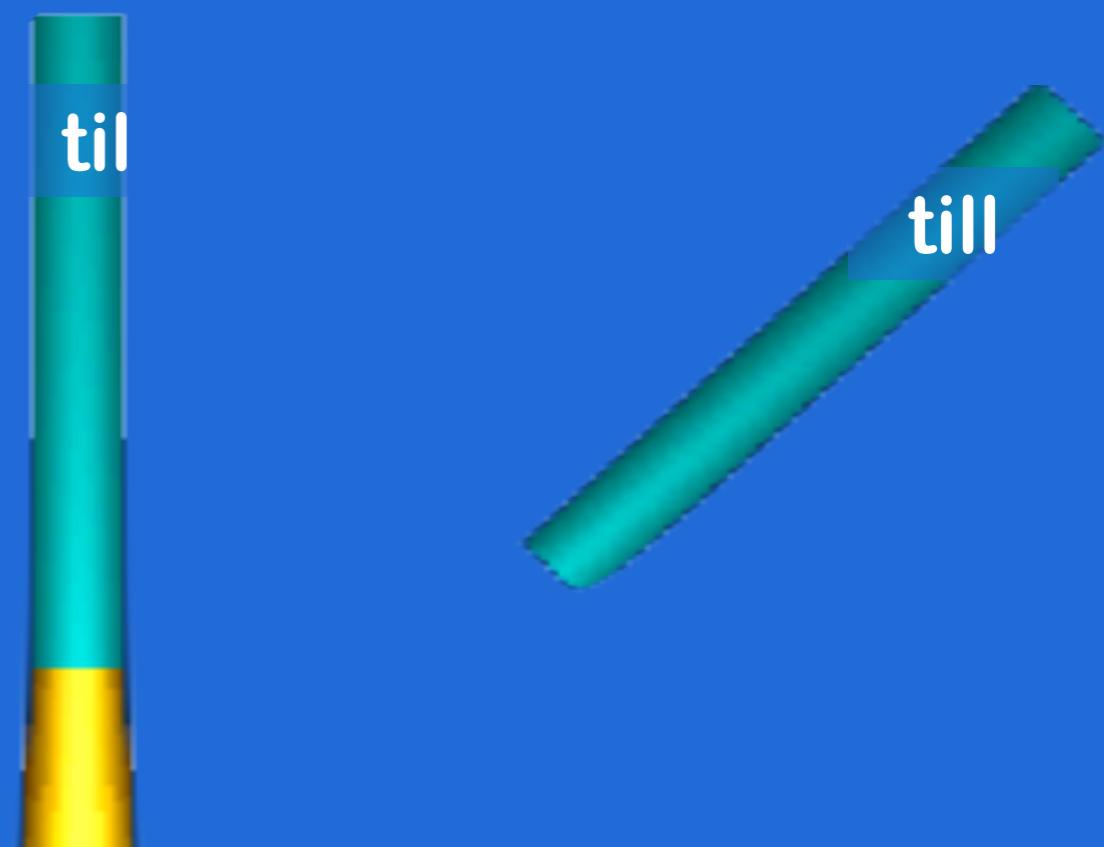
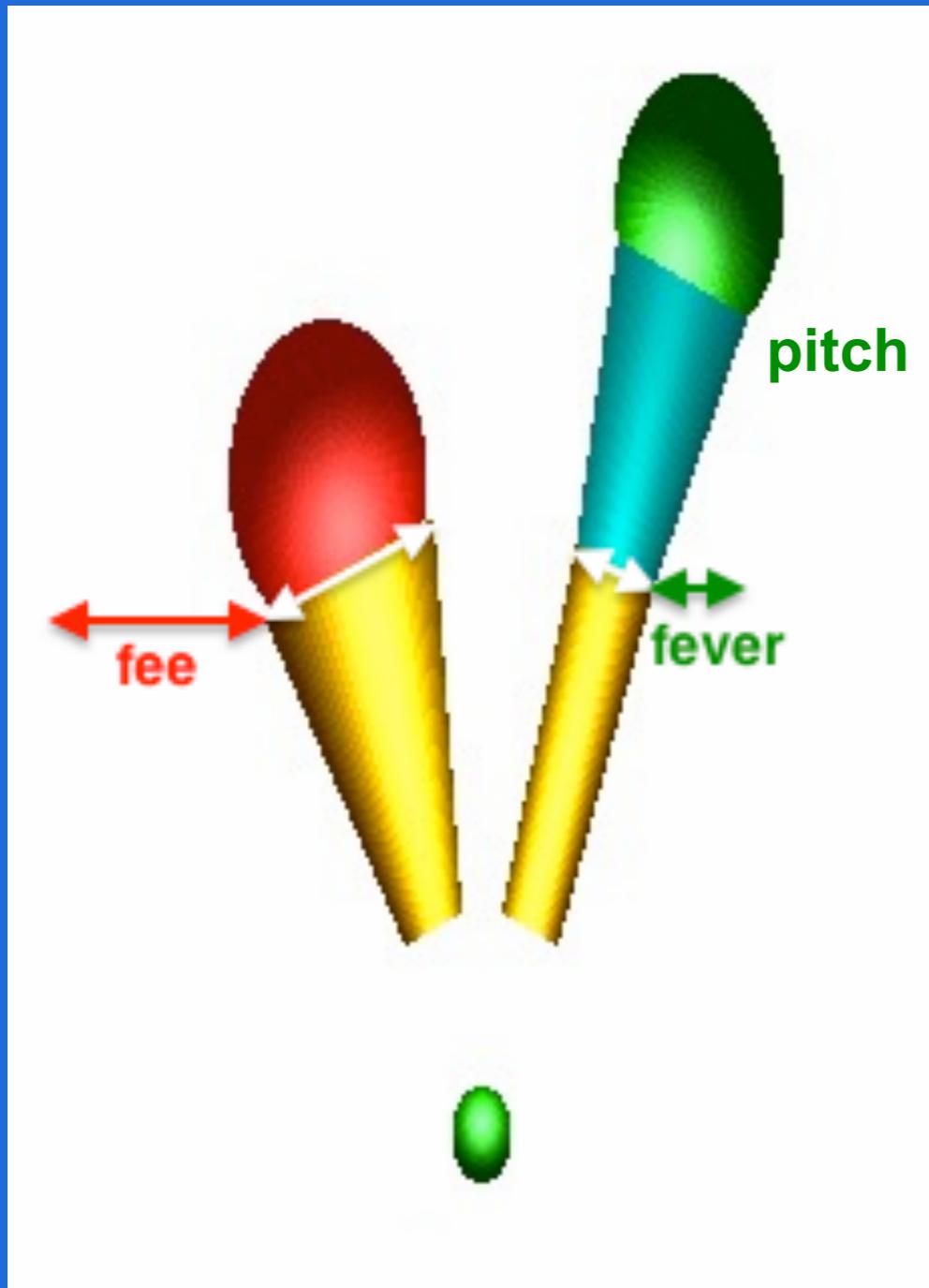
Visualization



Implementation

misheard
me
oronym tree

Frequency Scaling



Implementation

misheard
me
oronym tree

ROAD TEST

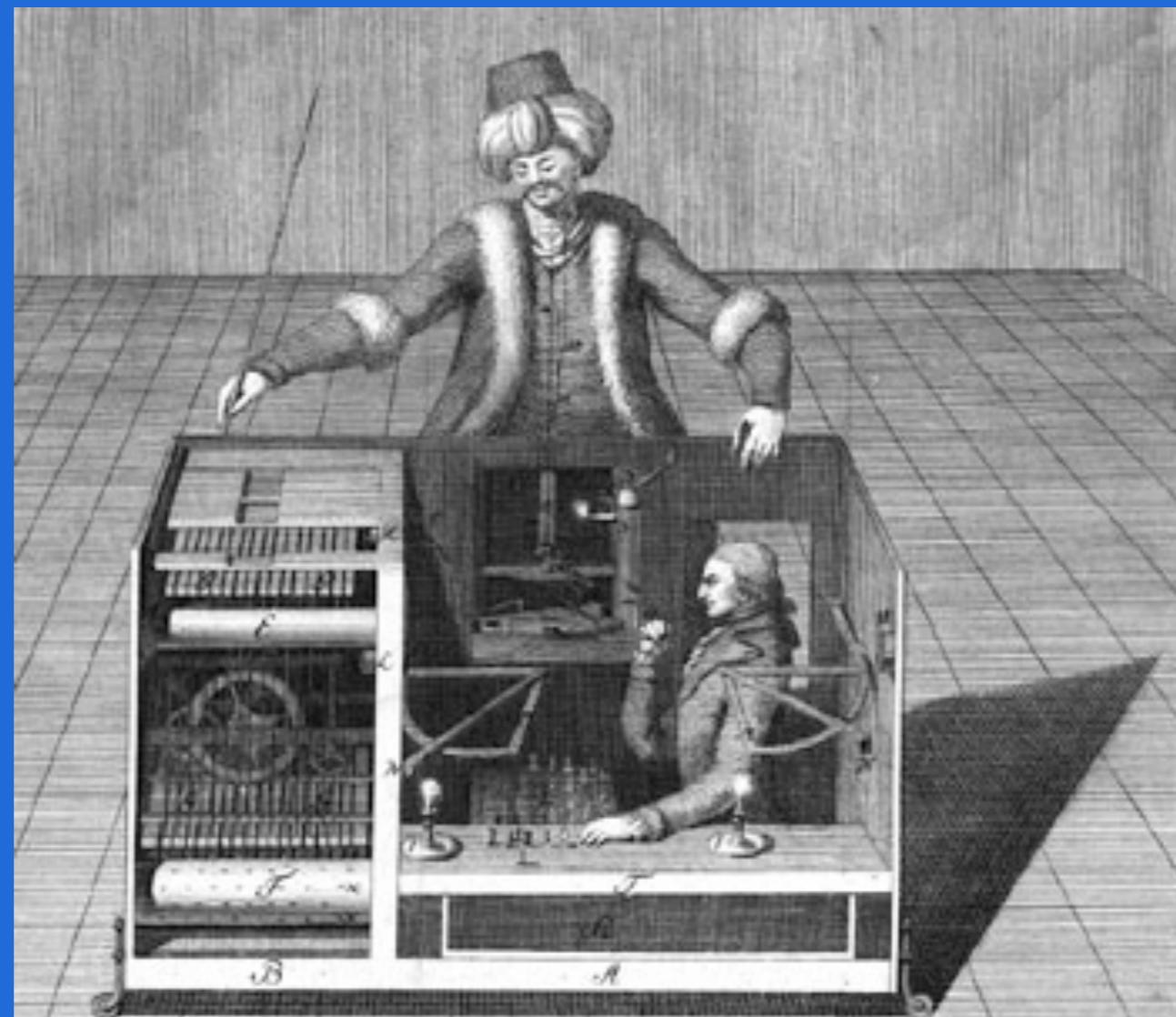
User Study

misheard
me
oronym tree

Methodology

- two-phase study
 - get recordings of oronyms
 - get transcriptions of recordings
- compare transcriptions to expected distribution from frequency metric

Sample Population



User Study

misheard
misheard.me
oronym tree

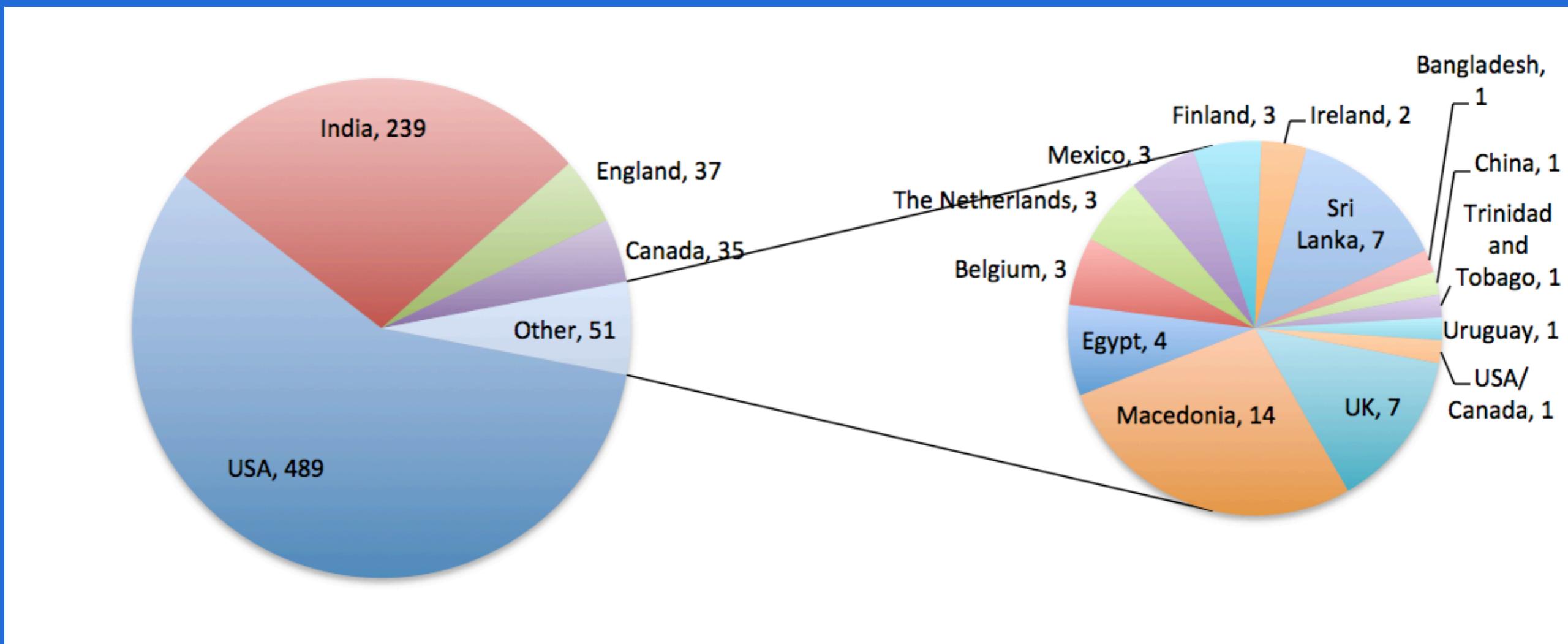
Sample Population



User Study

misheard
me
oronym tree

Responses per country



Phase 1



64 written
oronyms of
two root
phrases



12 Users



72 oronym
recordings

User Study

misheard
oronymtree.com

Phase 2



15 oronym
recordings



208 Users



851 oronym
transcriptions

User Study

misheard
[oronym tree](http://oronymtree.com)

Results: Phase 1

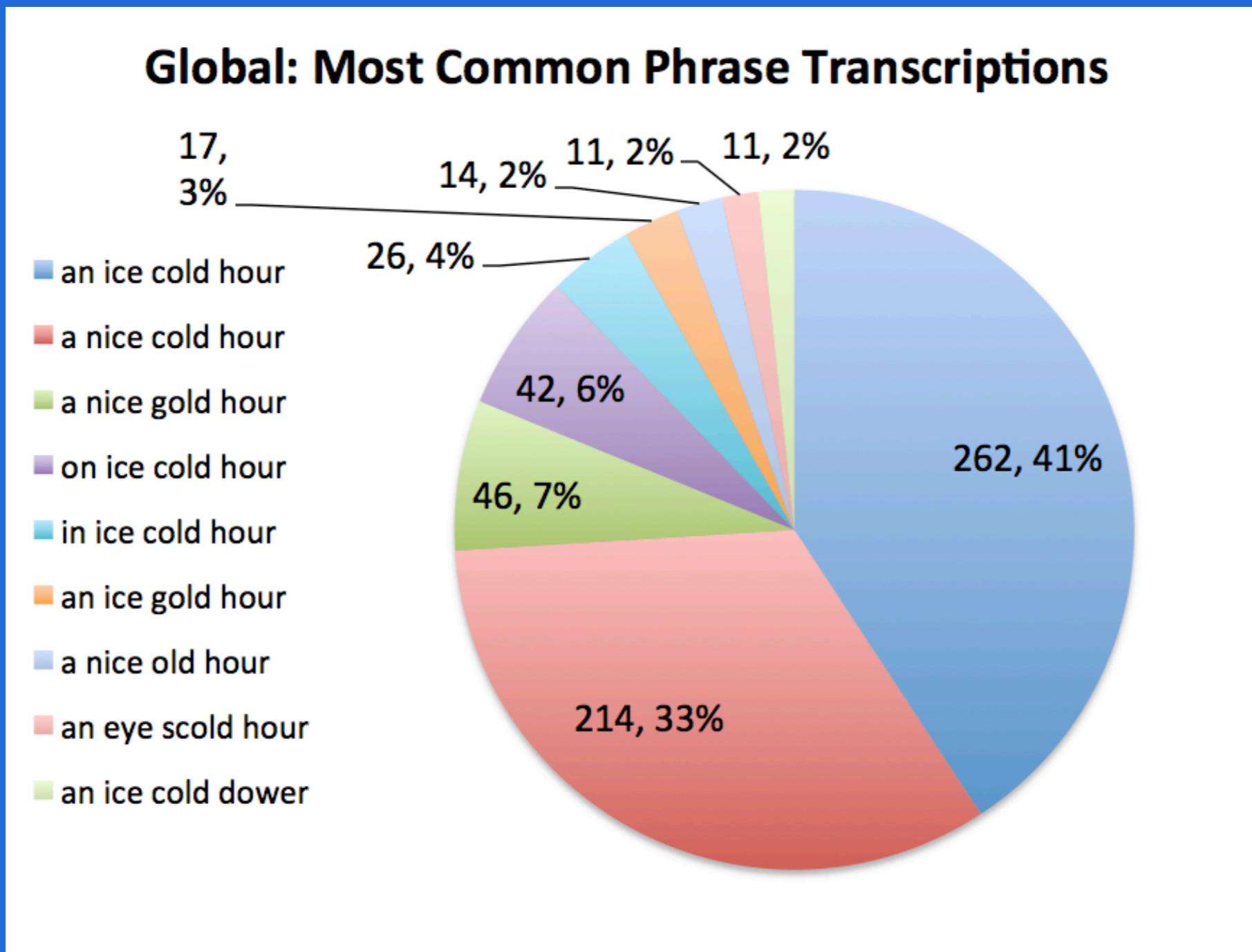


72 total
oronym
recordings



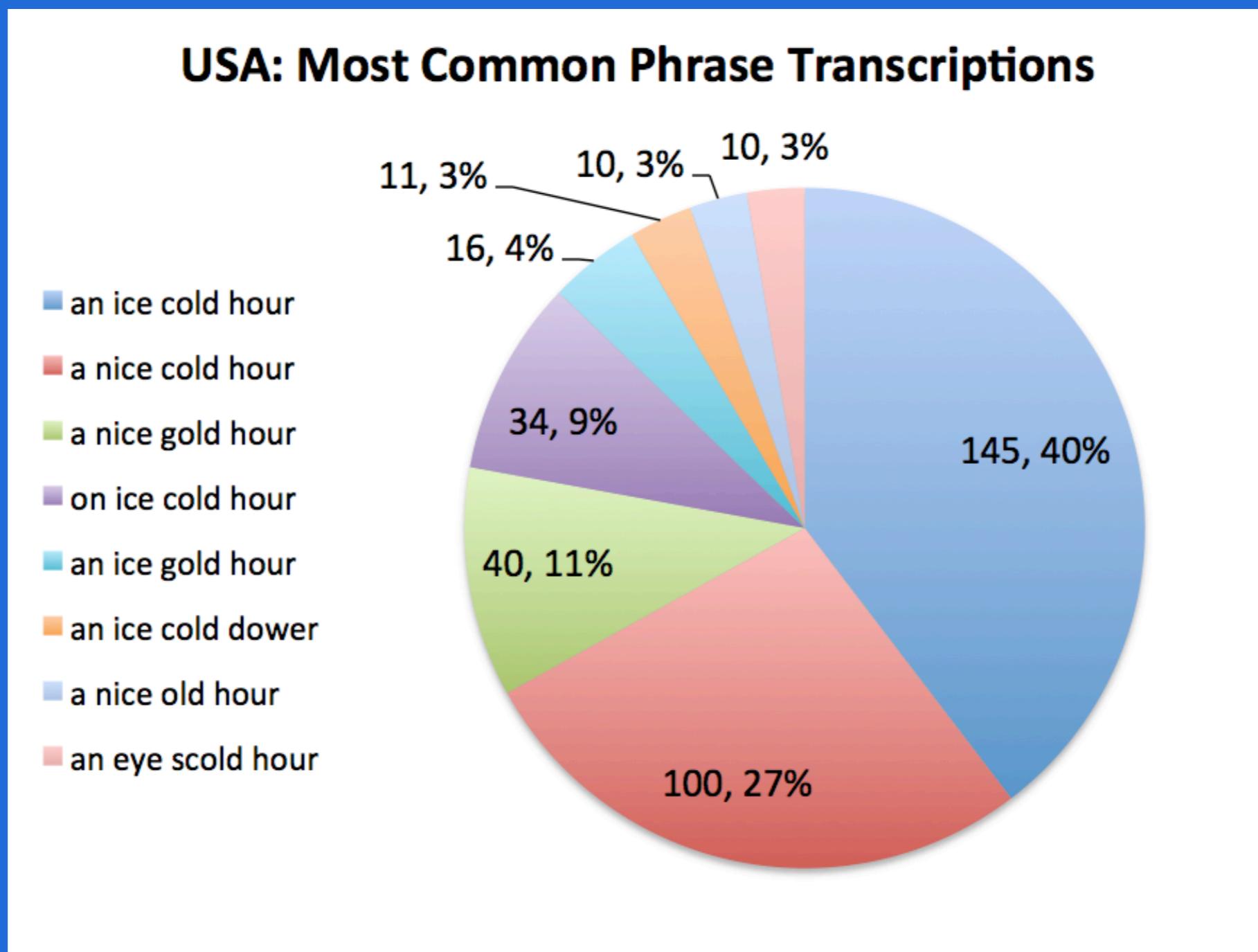
11
anomalous
oronym
recordings

Results: Phase 2



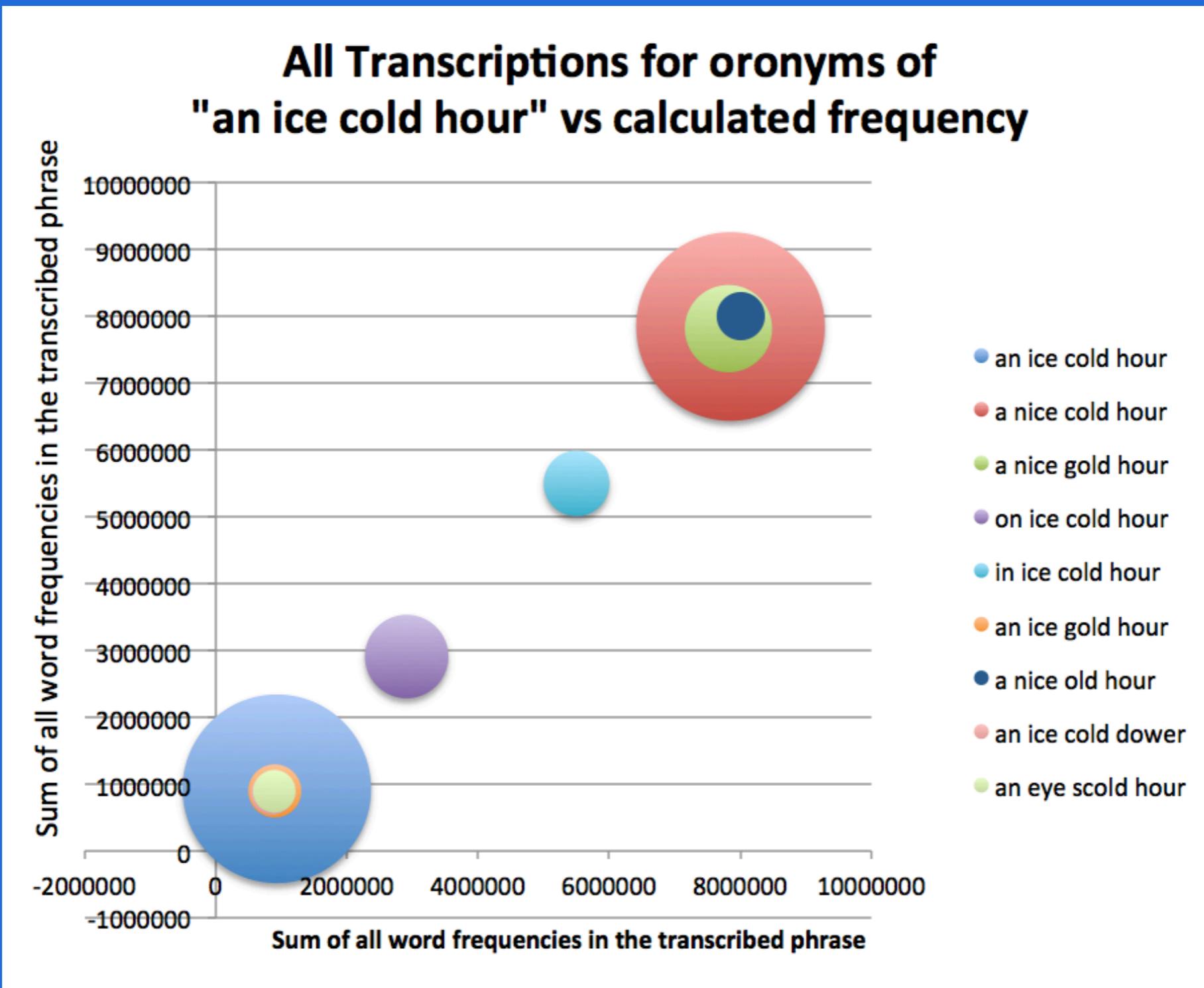
Results

Results: Phase 2



Results

Results: Frequency



Results

Future Work

future work

misheard
me
oronym tree

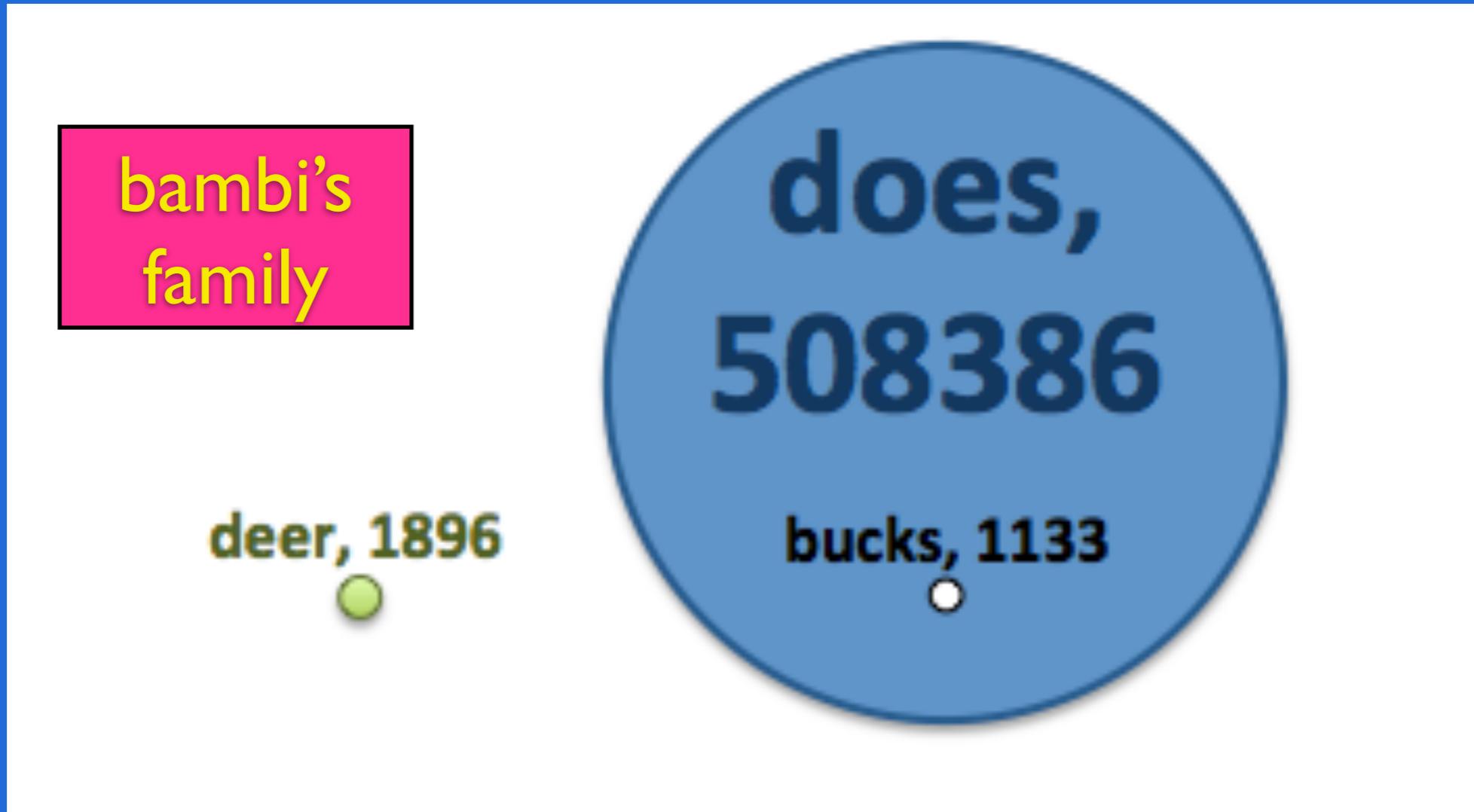
Fixing frequency

“Unfortunately there is currently **no method for distinguishing between homographs** by frequency.”

-UNISYN Lexicon website

future work

Fixing frequency



future work

misheard
me
oronym tree

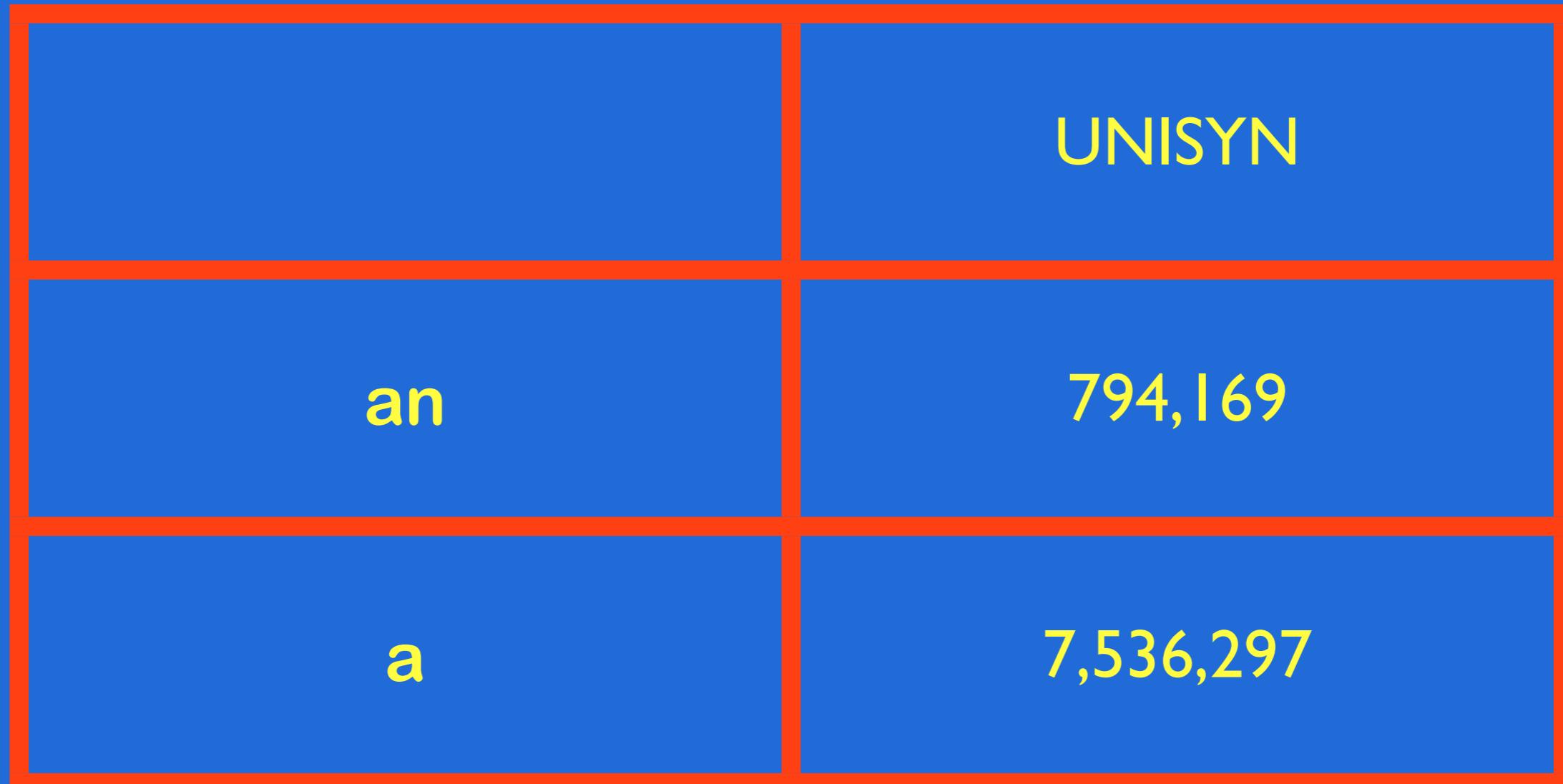
Fixing frequency

“...it should be noted that the frequency field ... **is not particularly reliable**”

-UNISYN Lexicon website

future work

Frequency anomalies



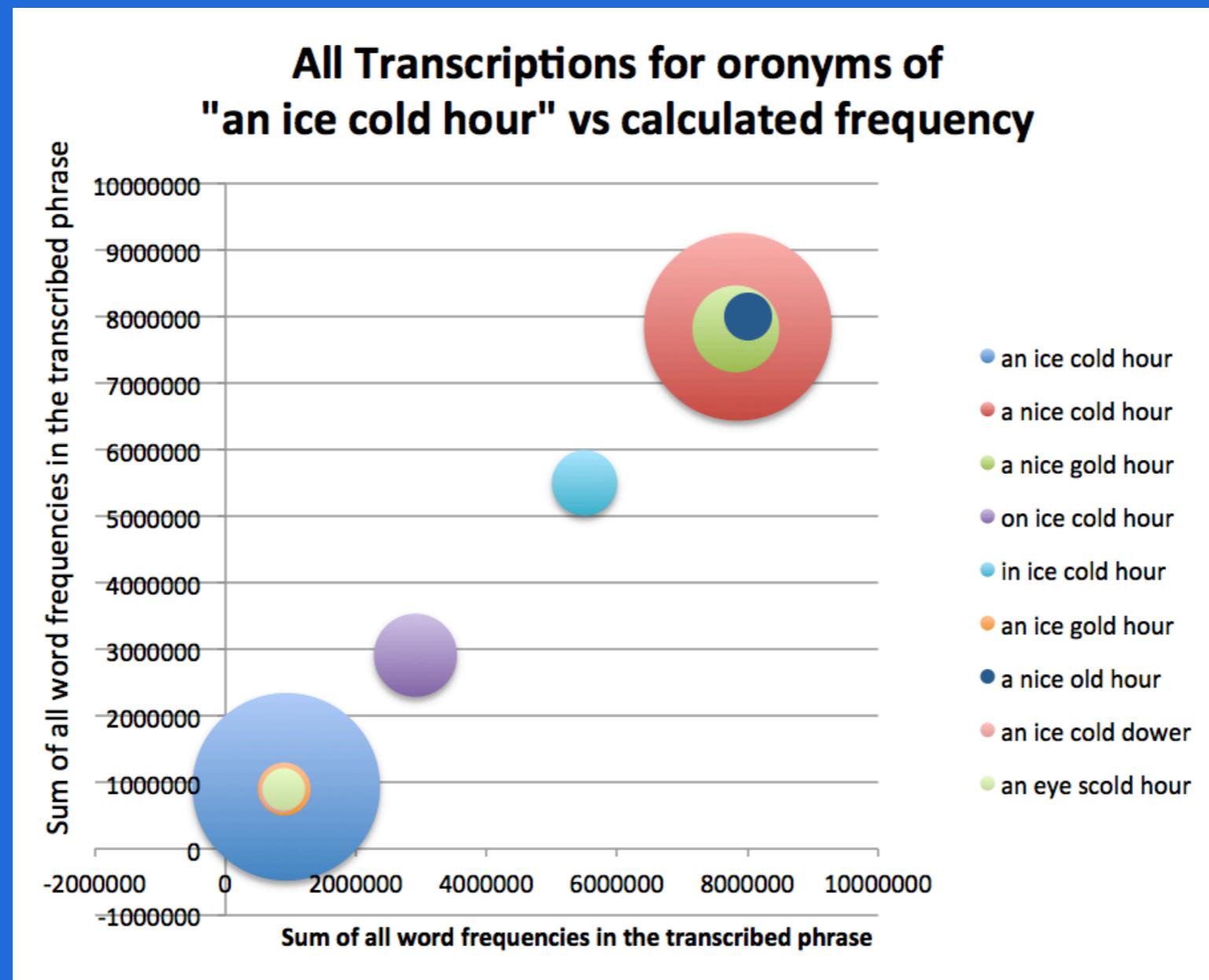
future work

Frequency anomalies

	UNISYN	COCA occurrences	COCA #texts
an	794,169	9,247,774	168,619
a	7,536,297	1,365,998	159,720

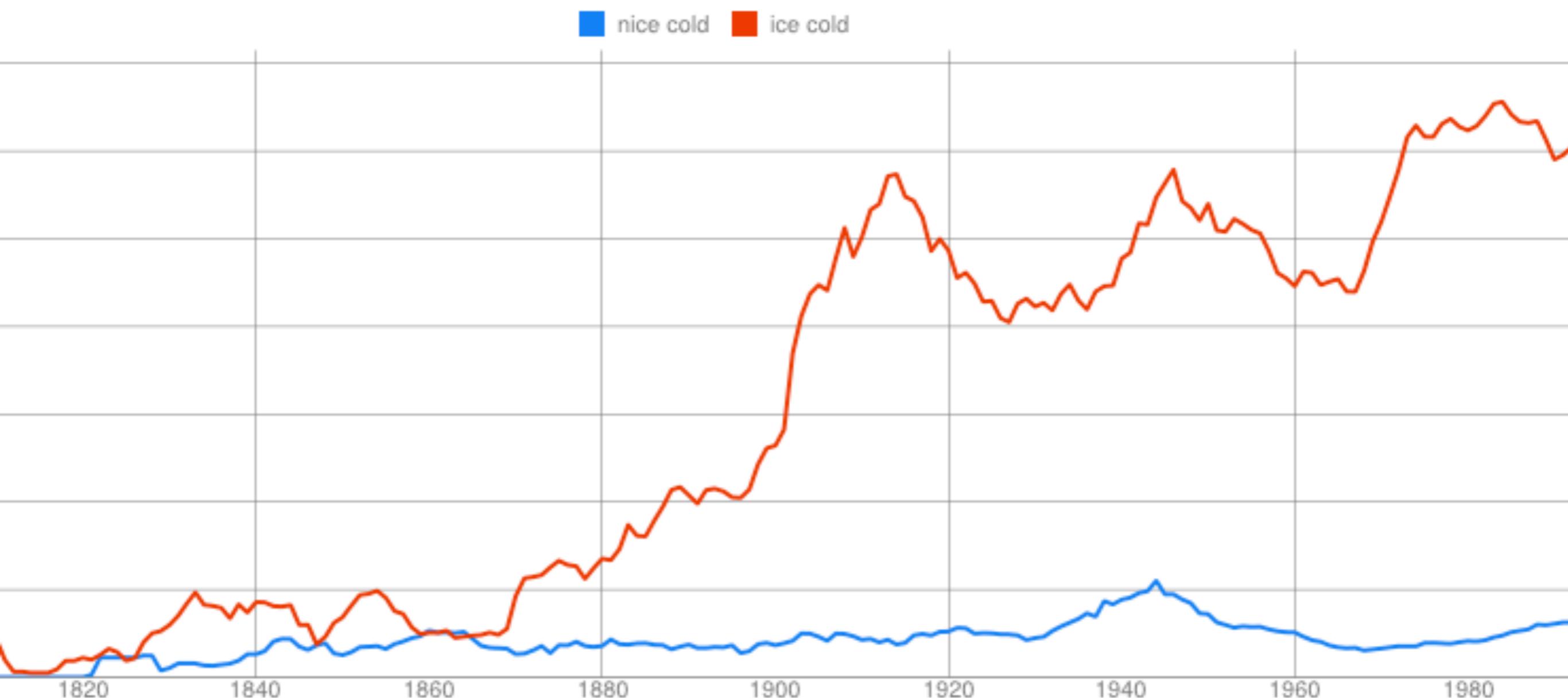
future work

Fixing Frequency



future work

Ngrams

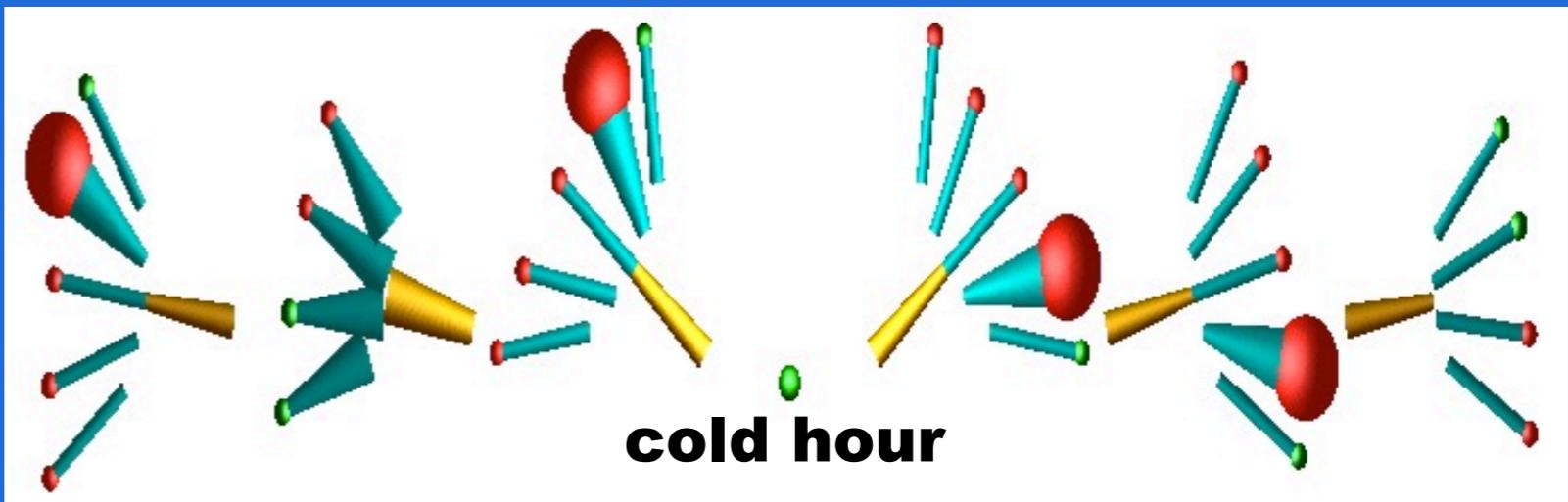
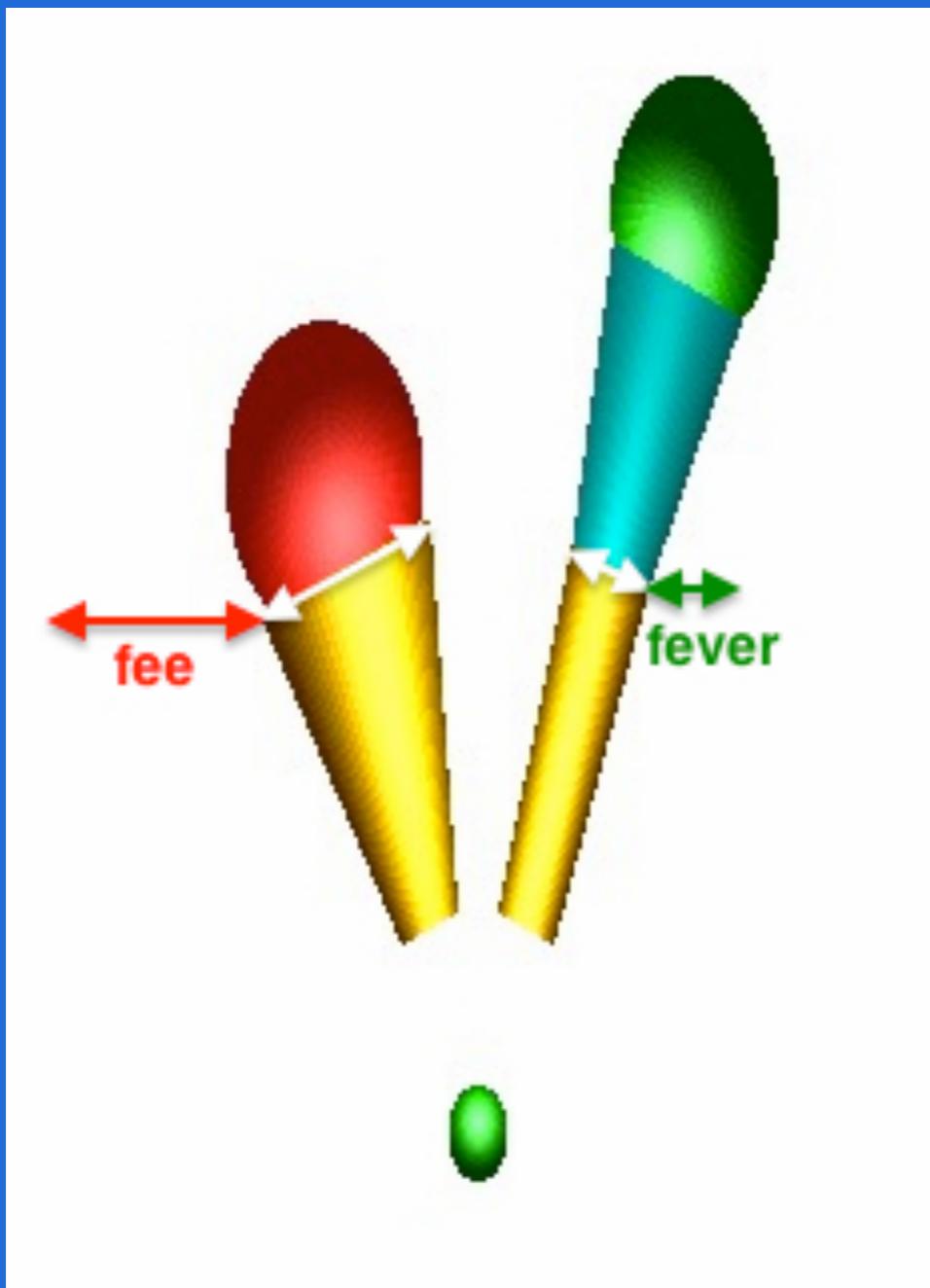


future work

misheard
me
oronym tree

We have....

a Visualization



misheard
me
oronym tree

of Phonetic Ambiguity

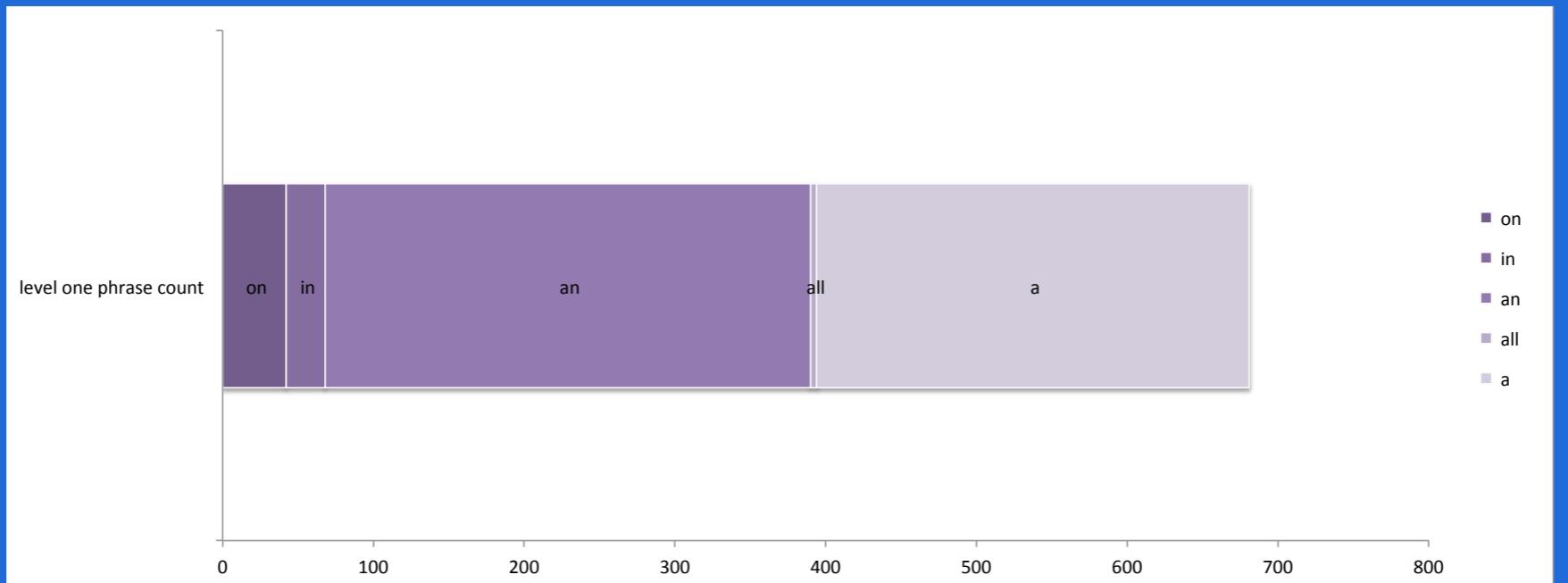
```
23: ''n' ice cold our ____SUCCESS!____'  
24: ''n' ice cole dour ____SUCCESS!____'  
25: ''n' ice cole dower Meas ____SUCCESS!____'  
26: ''n' ice kohl dour ____SUCCESS!____'  
27: ''n' ice kohl dower ____SUCCESS!____'  
28: ''n' ice-cold hour ____SUCCESS!____'  
29: ''n' ice-cold our ____SUCCESS!____'  
30: 'a gneiss coal dour ____SUCCESS!____'  
31: 'a gneiss coal dower ____SUCCESS!____'  
32: 'a gneiss cold hour ____SUCCESS!____'  
33: 'a gneiss cold our ____SUCCESS!____'  
34: 'a gneiss cole dour ____SUCCESS!____'  
35: 'a gneiss cole dower ____SUCCESS!____'  
36: 'a gneiss kohl dour ____SUCCESS!____'  
37: 'a gneiss kohl dower ____SUCCESS!____'
```

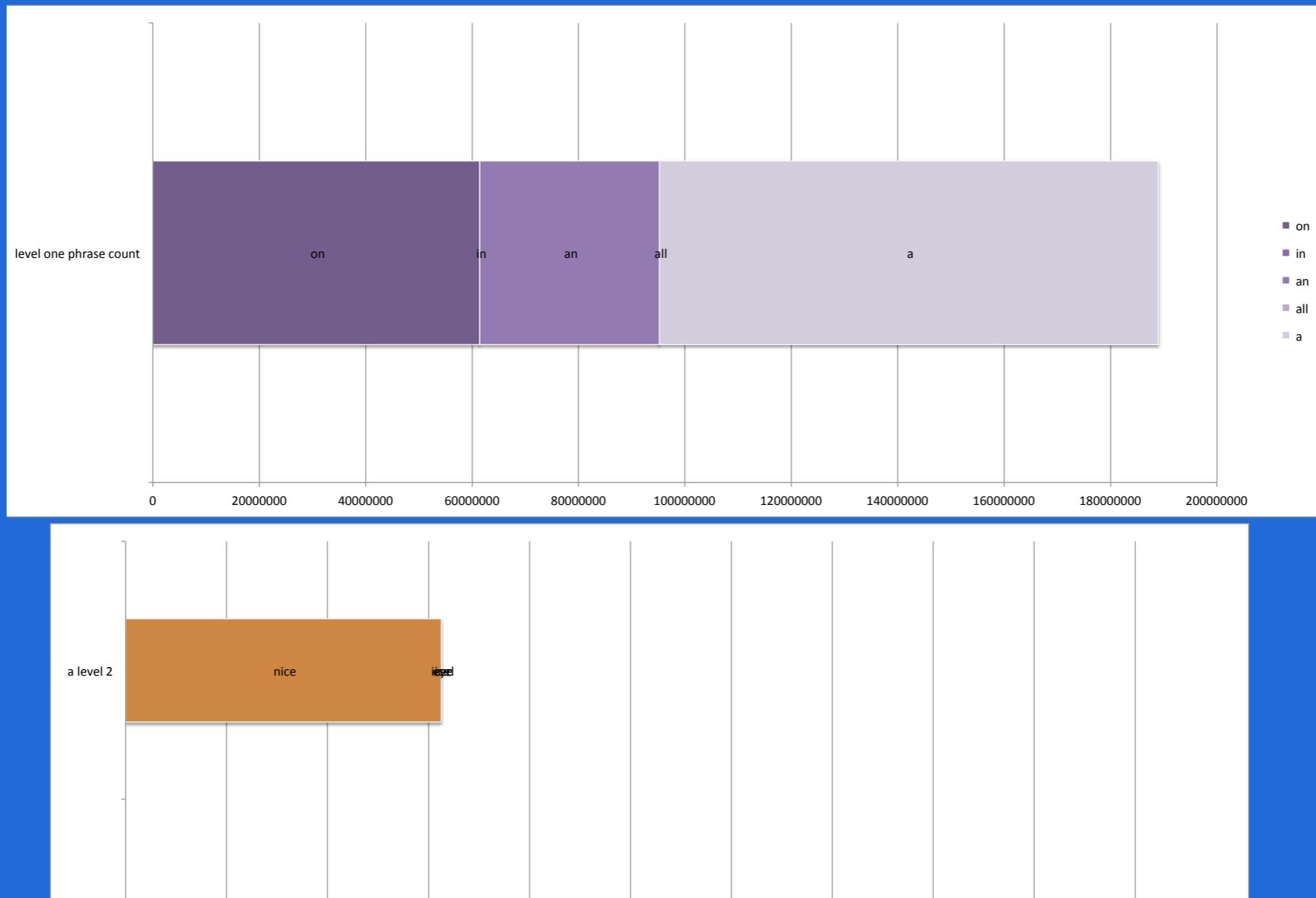


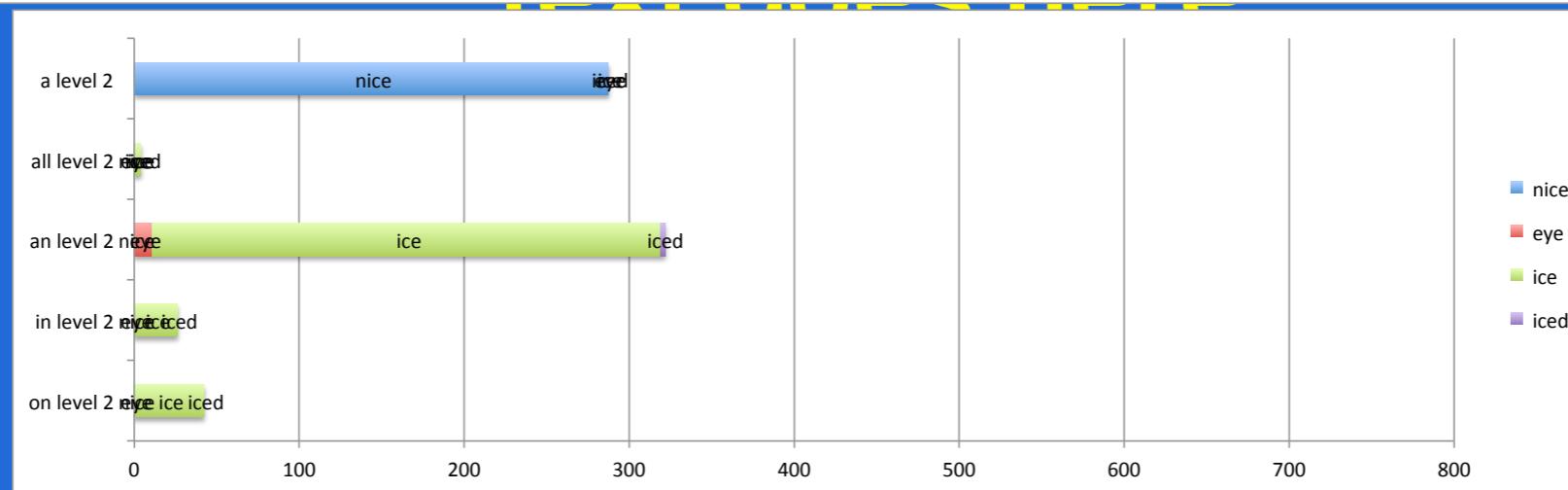
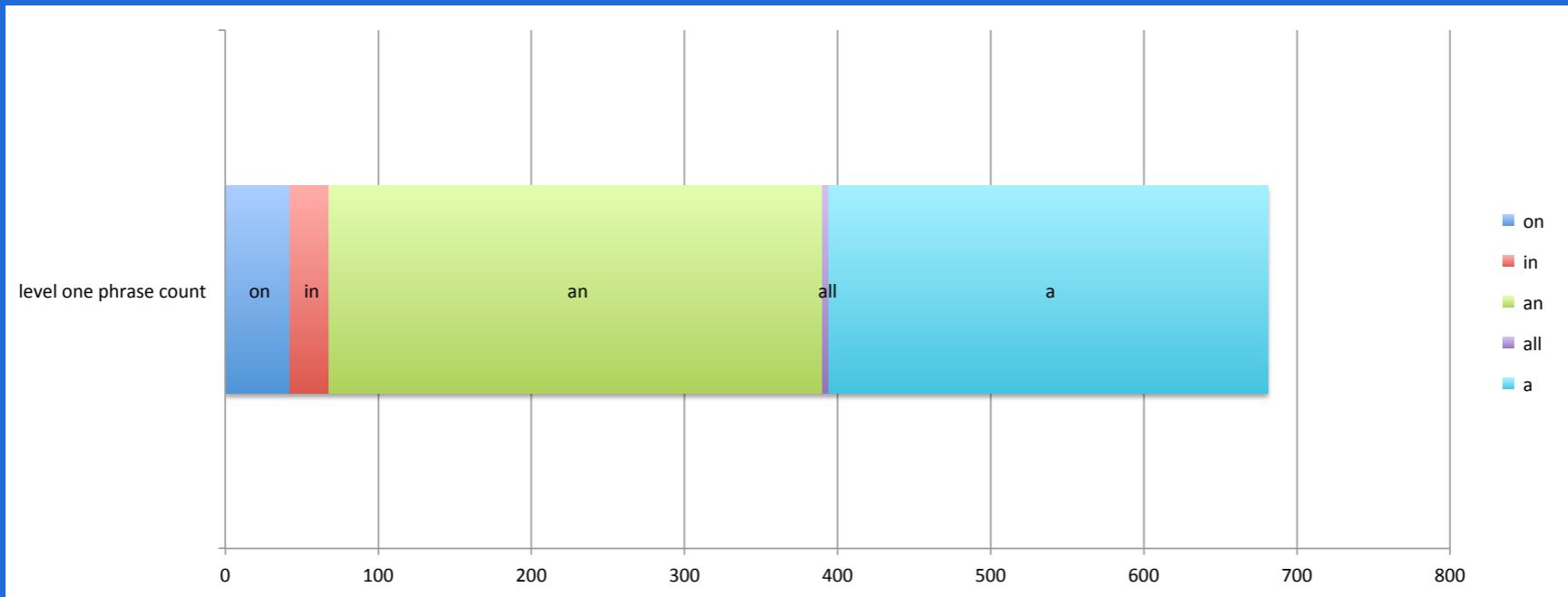
Questions?

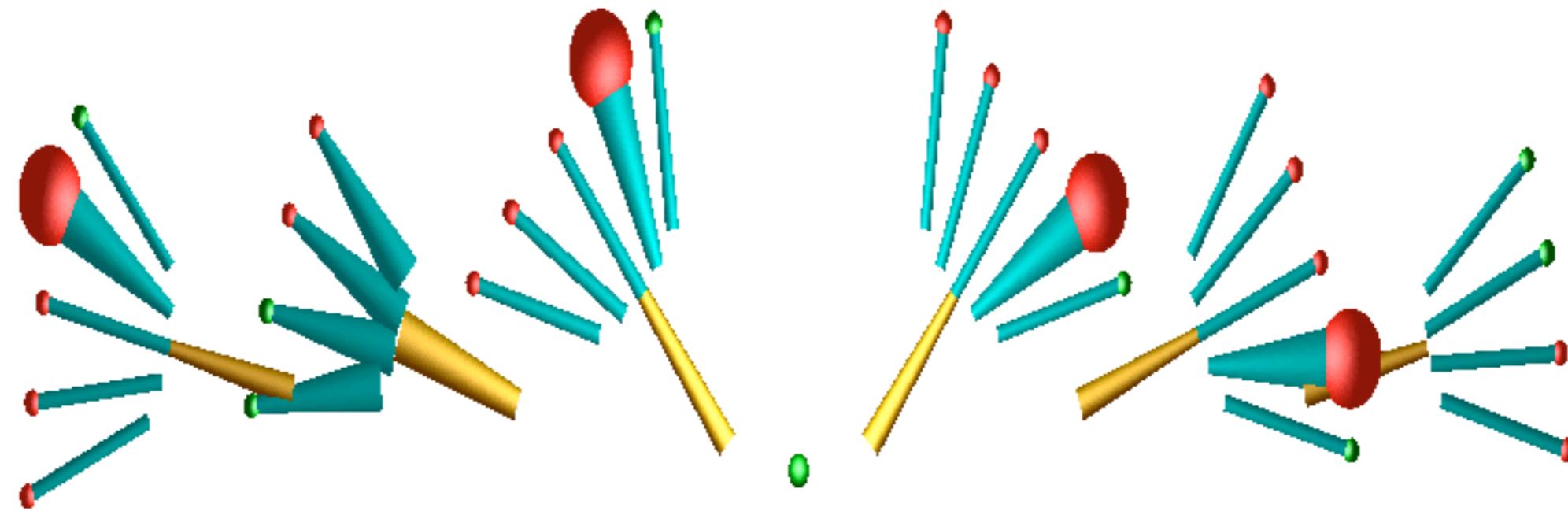
Super thanks to:

- Dr Zoe Wood
- Dr John Clements
- Dr Franz Kurfess
- My wonderful family
- James Pearson
- Chris Gibson
- Katherine Blizzard
- Elsa Reyes
- Liz Baldwin
- Bob Somers
- Paul Morales
- Amy Narevsky
- Matt Murray
- Dr Sumit Basu, MSR
- Harrison McKenzie Chapter
- Tracy Davies & Mark Gius for food today!
- Anyone and everyone who's helped me that I undoubted forgot here



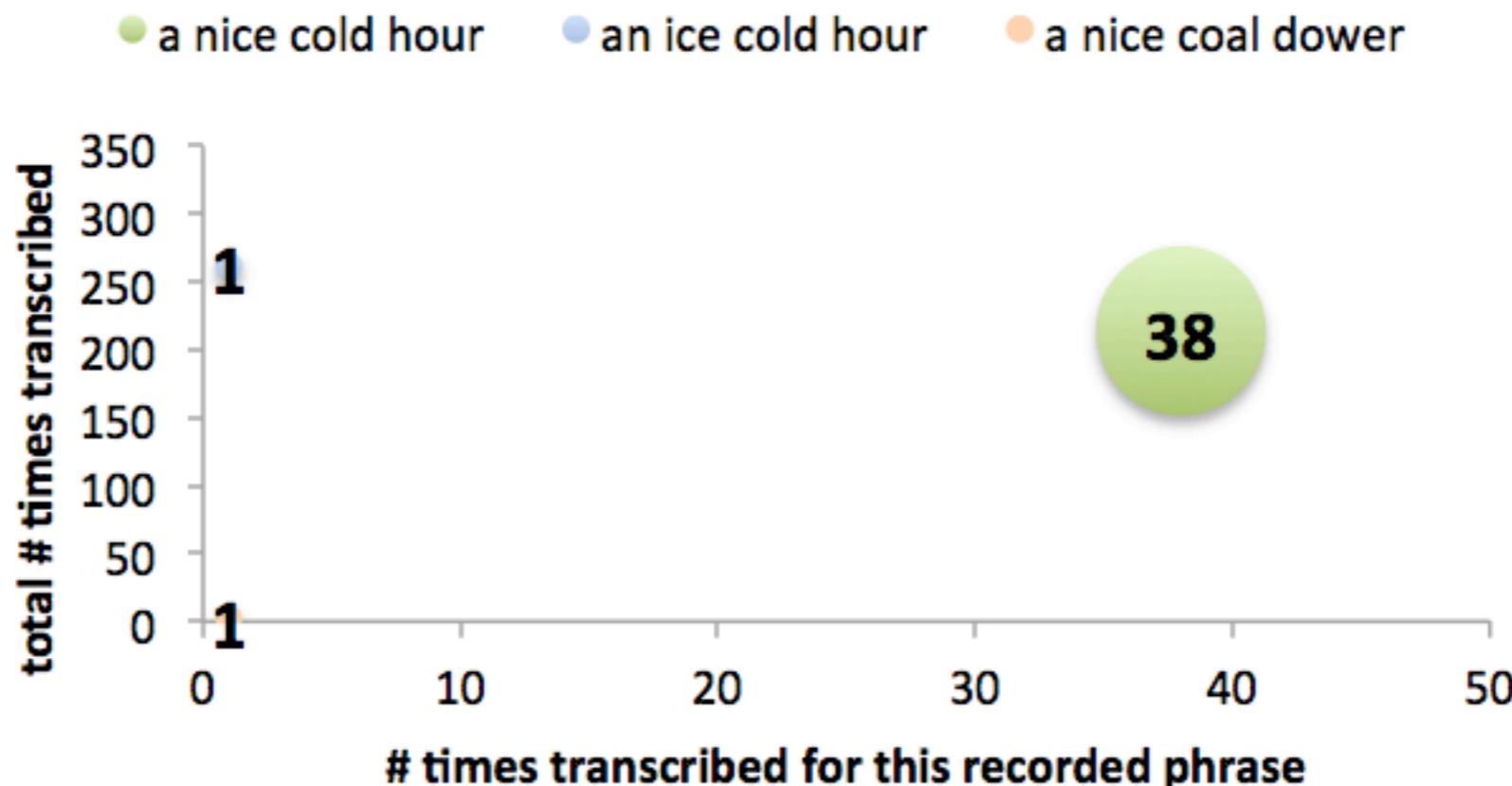




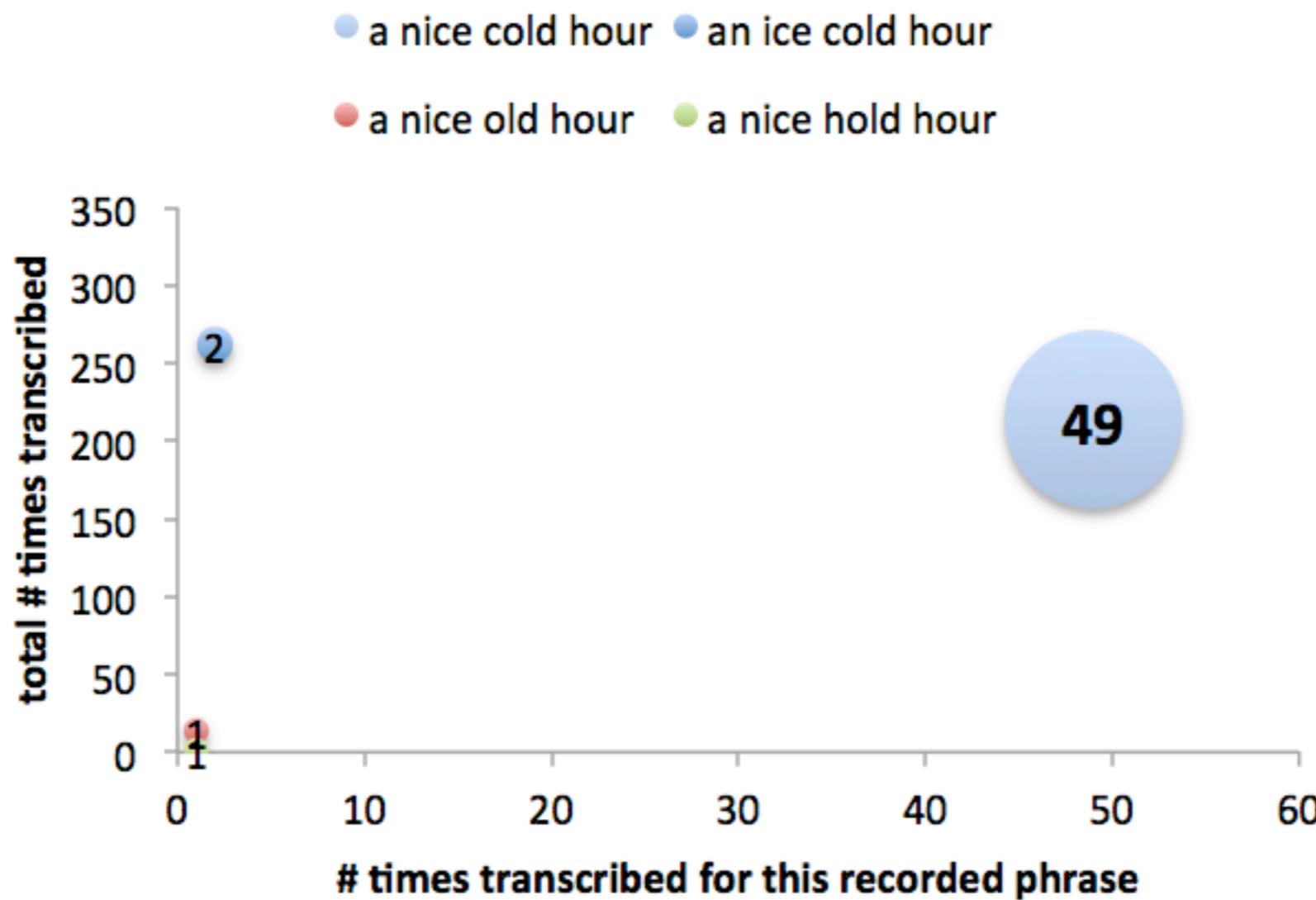


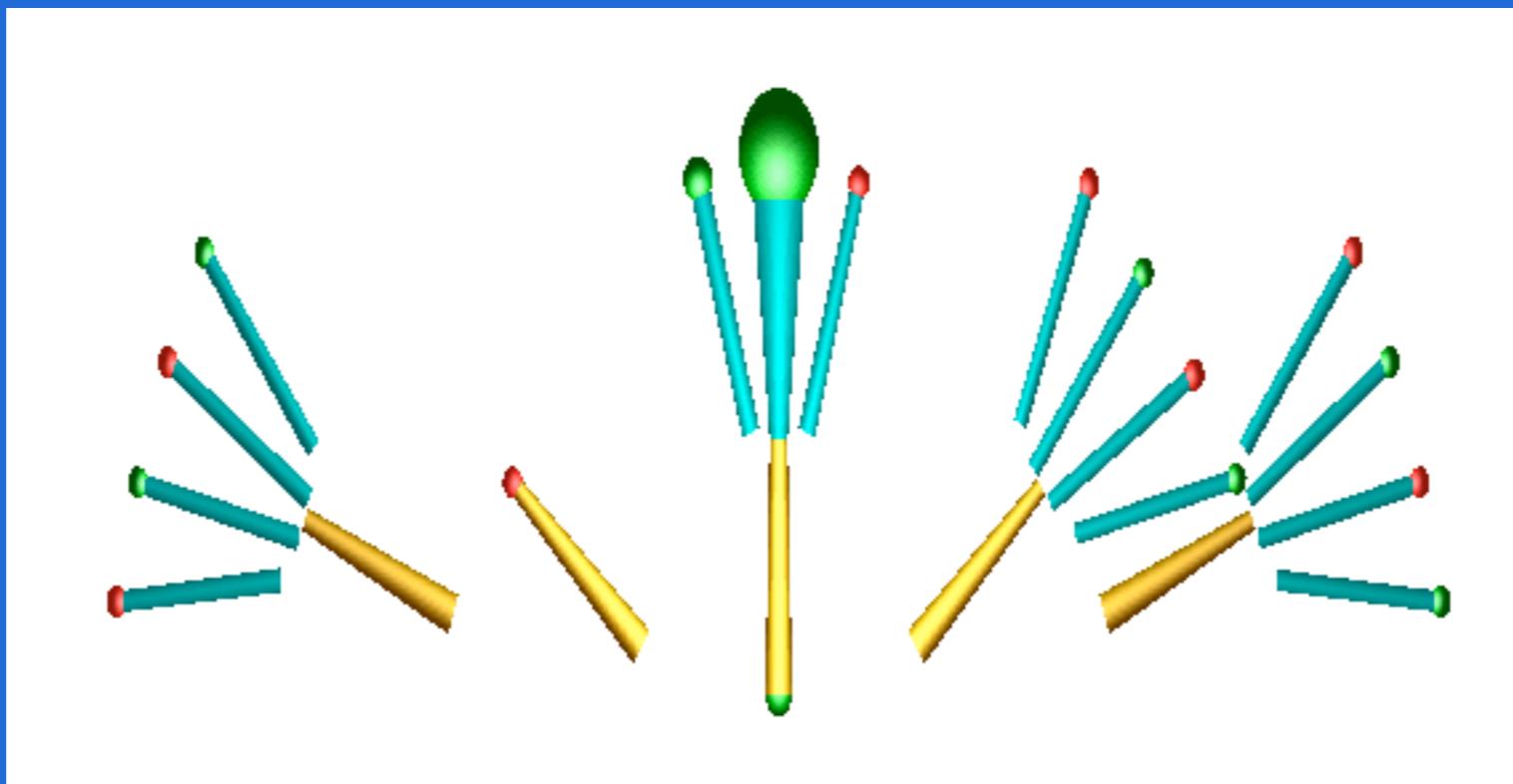
misheard
me
oronym tree

a nice coal dower



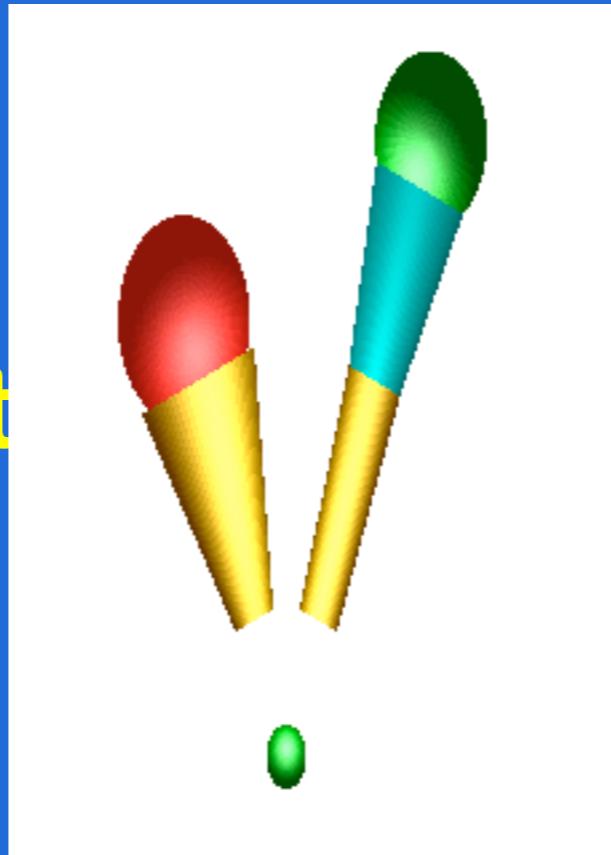
Transcriptions of "a nice cold our"

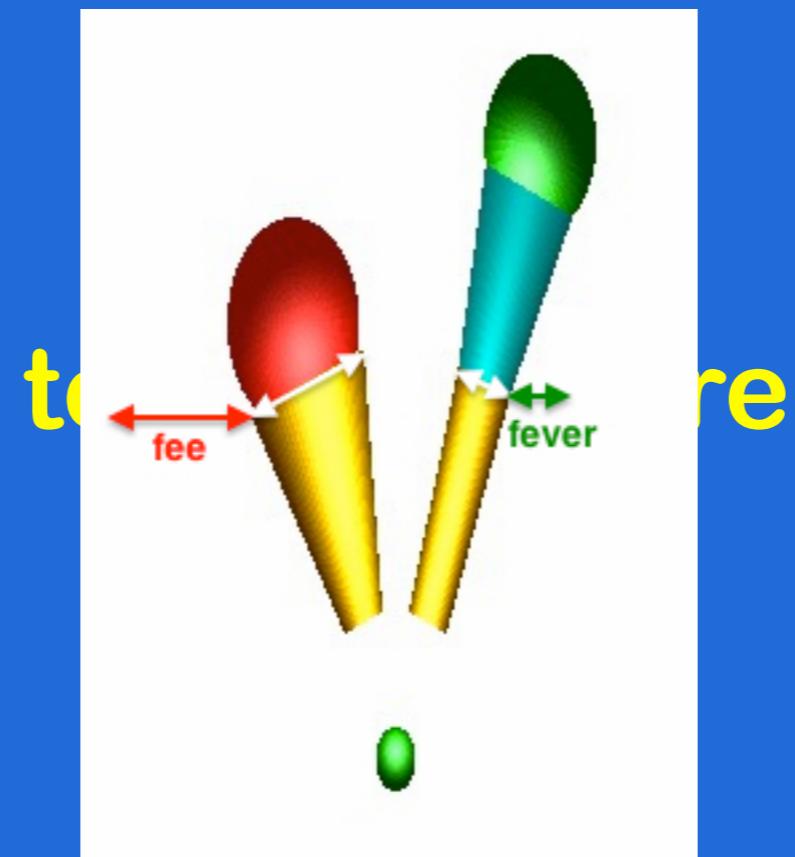


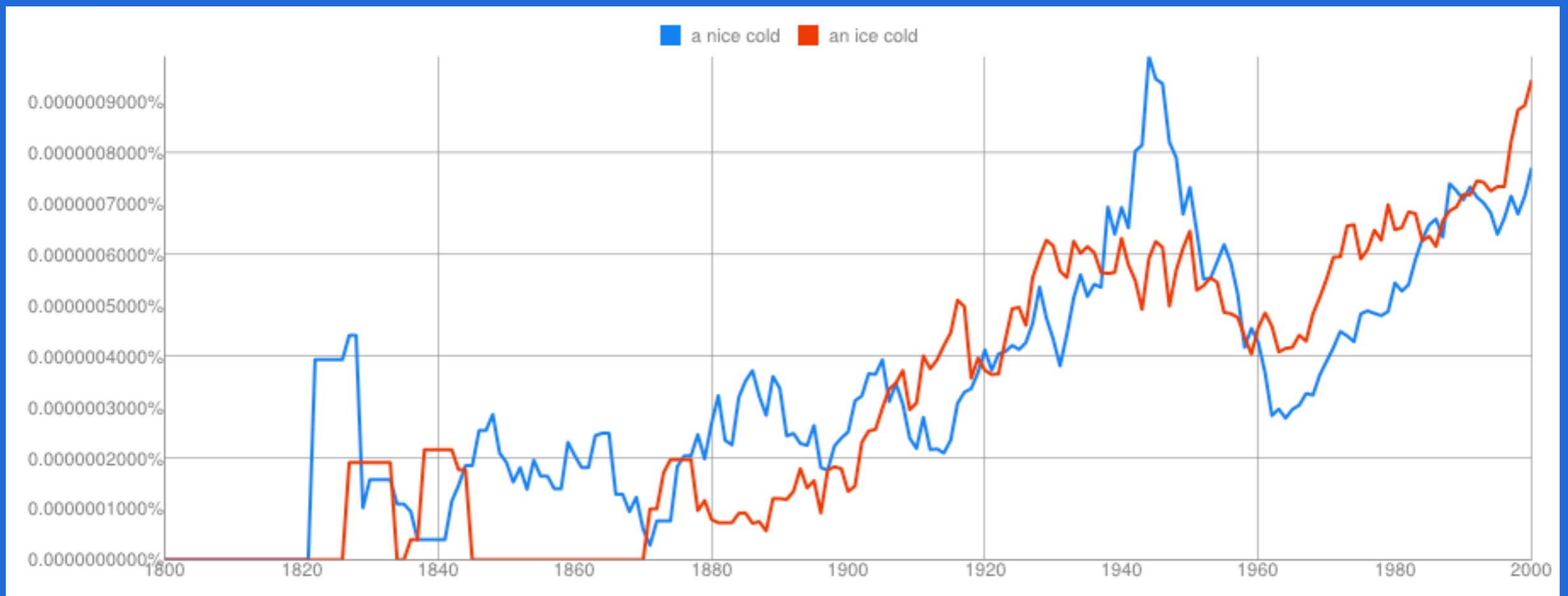


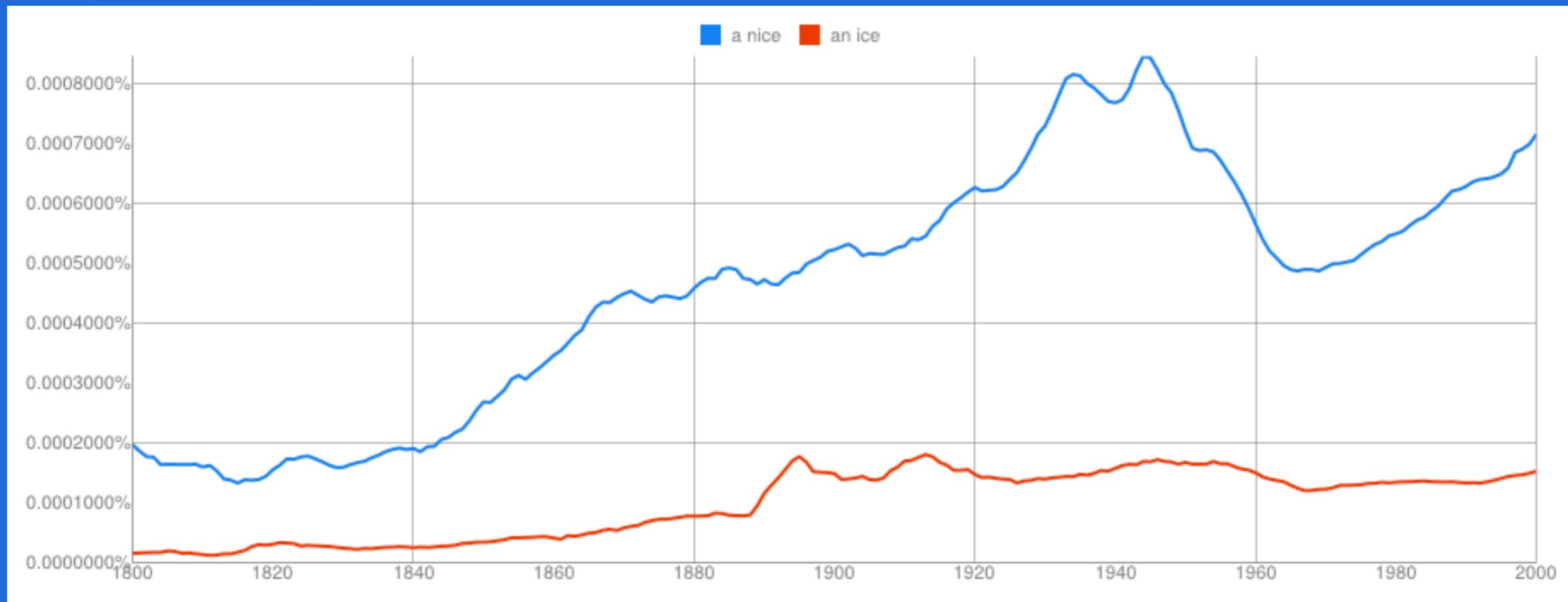
misheard
me
oronym tree

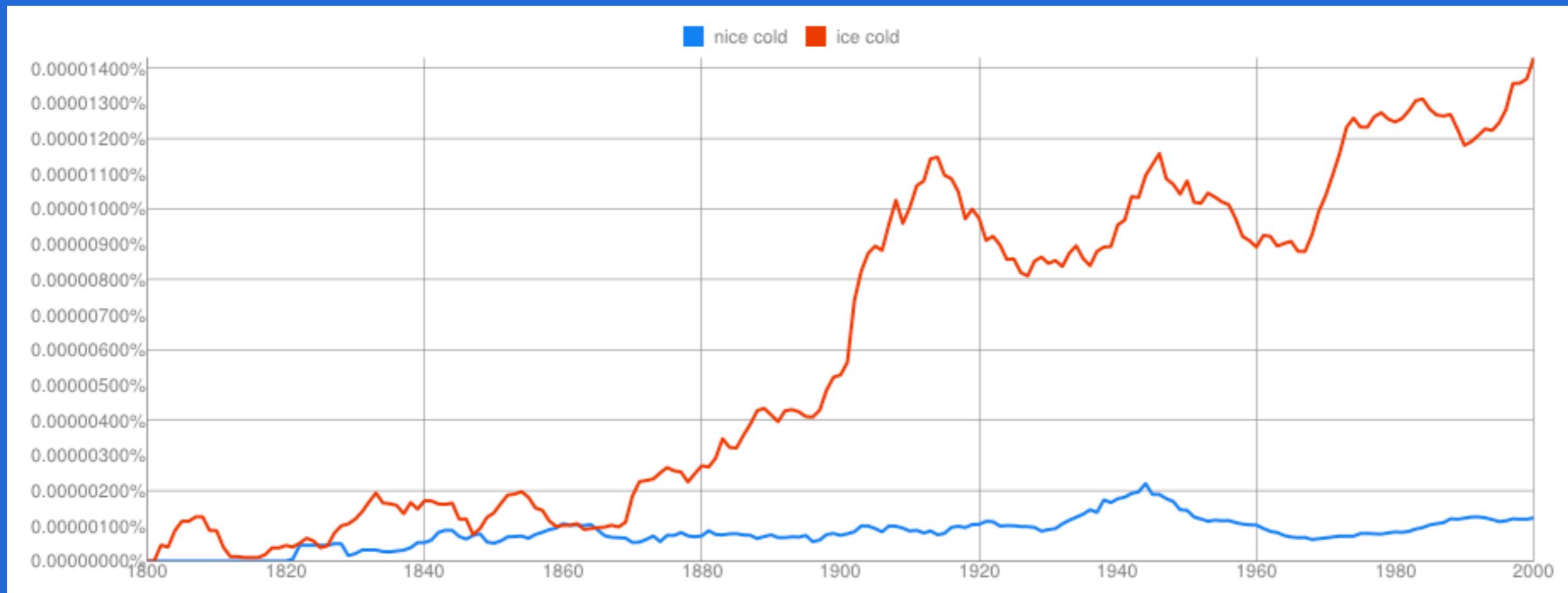
text



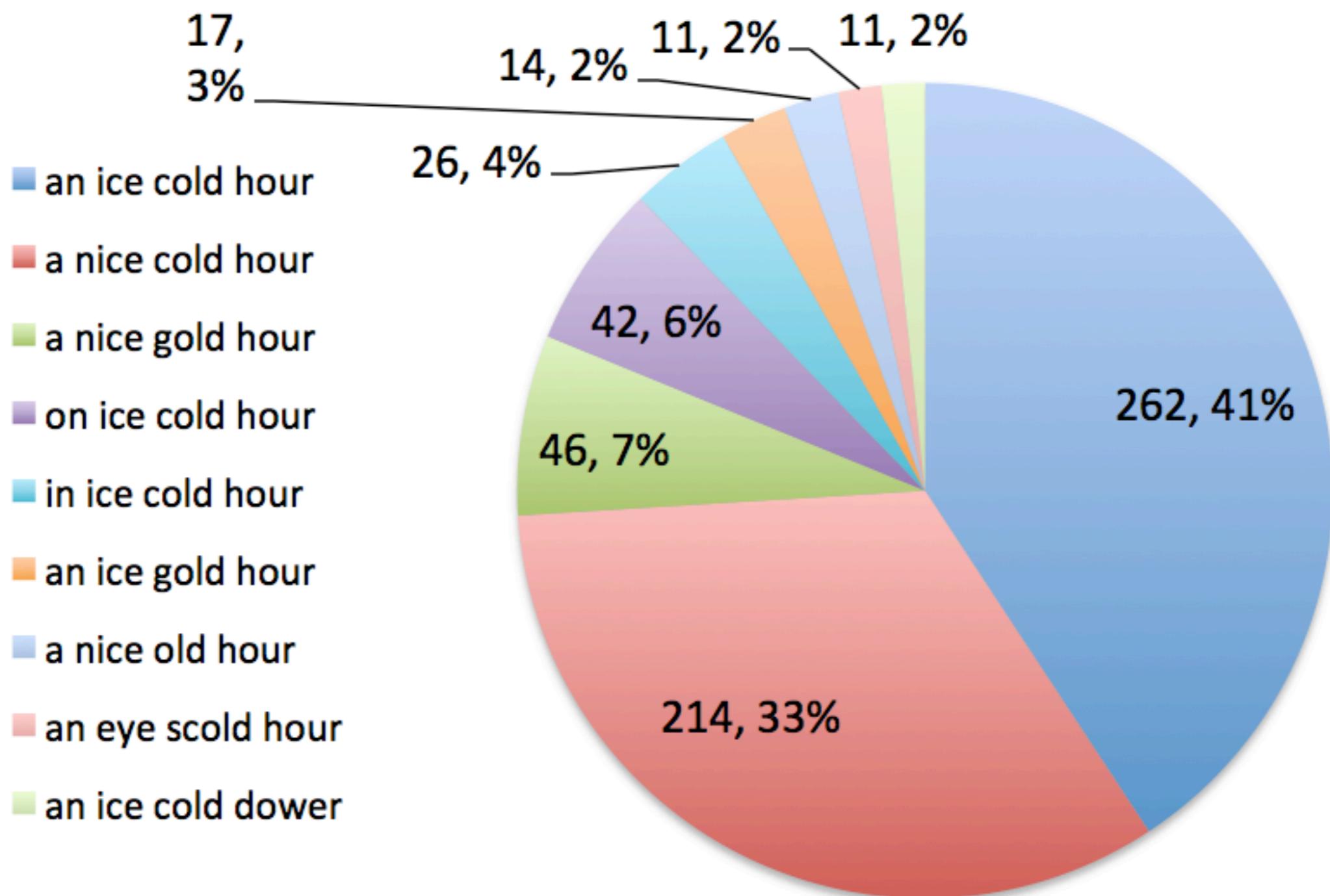




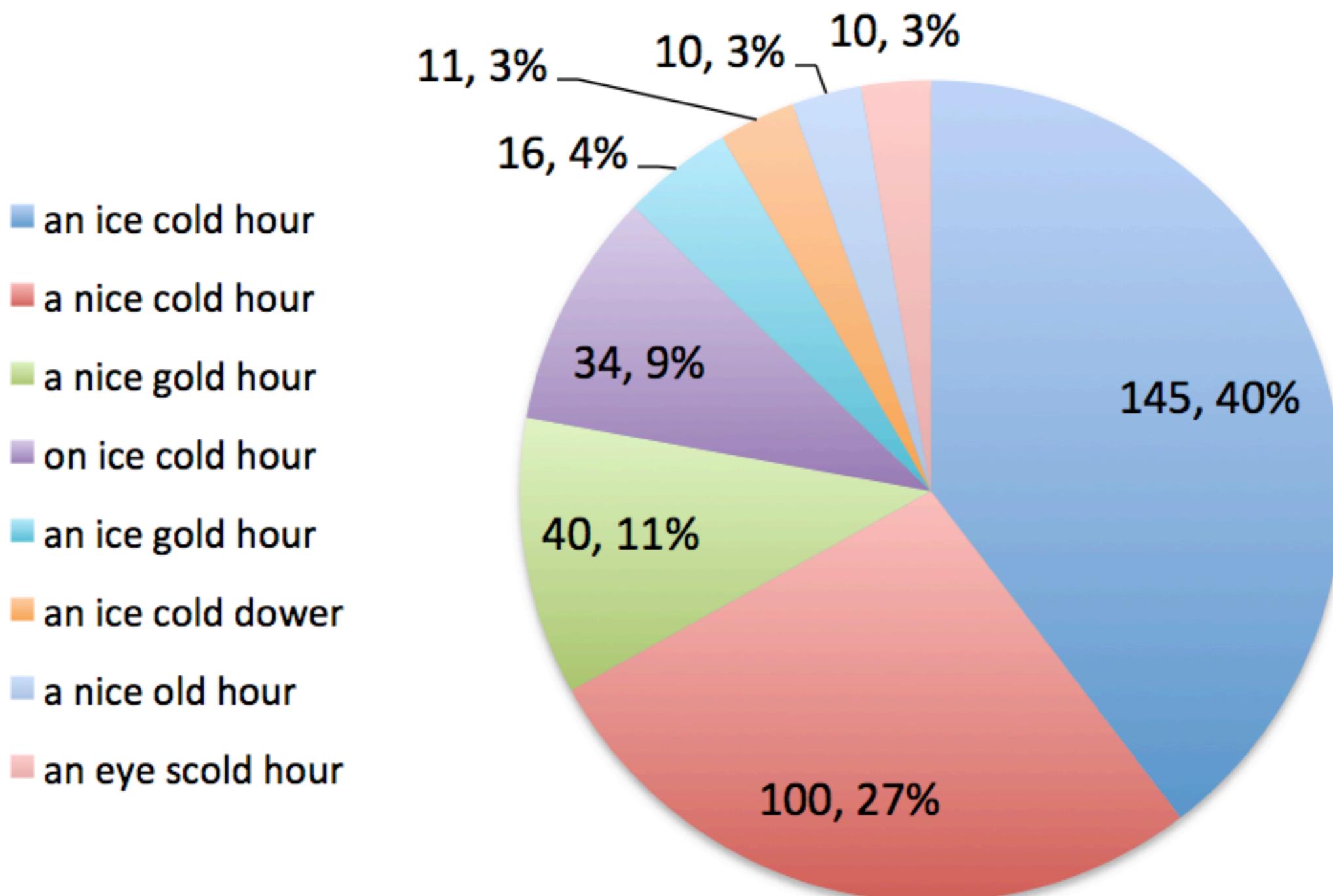


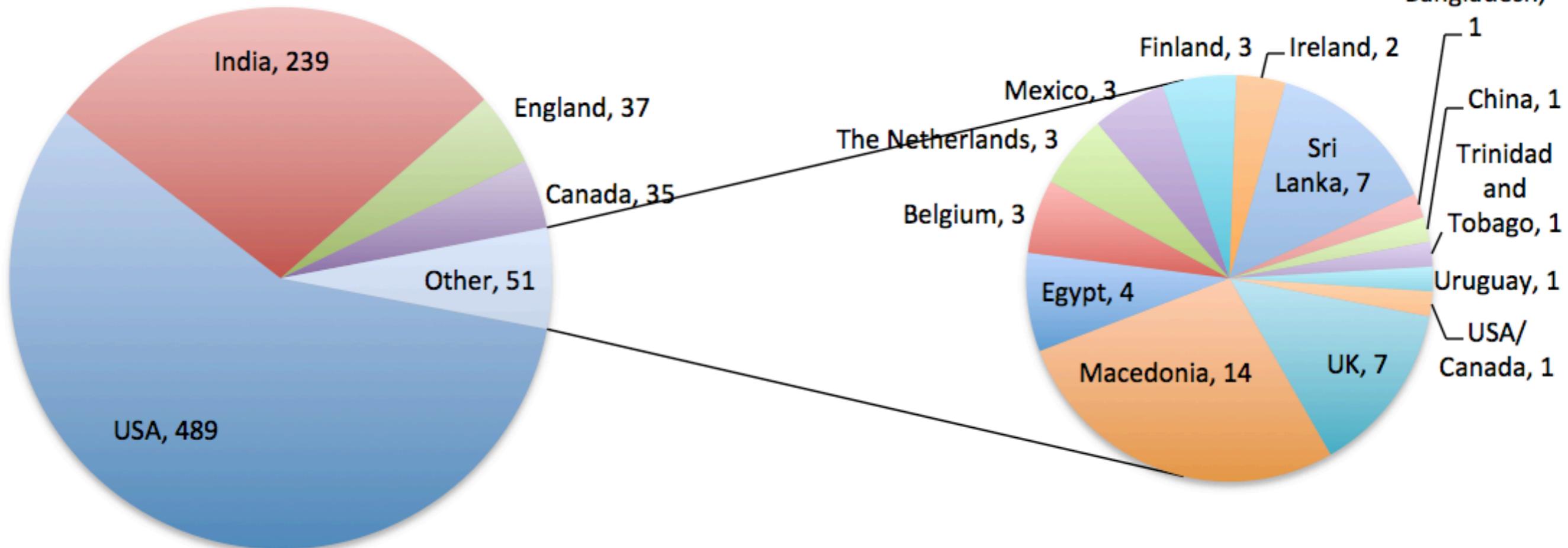


Global: Most Common Phrase Transcriptions



USA: Most Common Phrase Transcriptions





“ice cold”

aIs kould

“ice cold”

aɪs kould

“ay scold”

“ice-cold”

“aye scold”

“i scold”

“eye scold”

Business Model

- Ad-based
- Freemium mobile web app

●





Jenee Hughes
Tim Asp
Elliot Perkins
Ryan Swigler
James Pearson
Kelli de Vlught
Alexandra Danell

misheard
.me

misheard
.me

Competition

- A. Some of the well known games:
 - 1) Words with Friends
 - 2) Scrabble
 - 3) MadGag
- B. Game market across three platforms
 - 2011 iPhone-79,077
 - 2011 iPad-28,683
 - 2011 Android-46,045



Revenue

- 1) In-App purchases generate approx.- \$9-\$14 per user
- 2) Advertising costs to obtain new users- \$.75 to \$2.00
- 3) Freemium and IAP Models account for 48% of revenue



Business Model

- 1. Freemium model with web-based and iPhone app
- 2. Used as a proof of concept to larger ideas down the road
- 3. Free web-based app (played through browser on phones)



