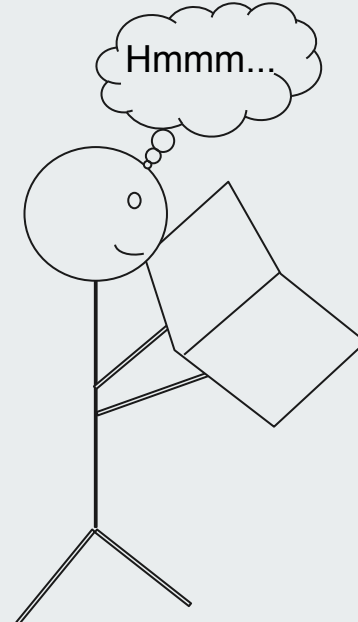




# In a Manner of Speaking...

An Intro to Linguistics





**WELCOME!!!!**



# WELCOME!!!!



Julia Gong // [jxgong@stanford.edu](mailto:jxgong@stanford.edu)



Ben Newman // [blnewman@stanford.edu](mailto:blnewman@stanford.edu)

We like CS and linguistics!!



**WELCOME!!!!**

This class comes to you in two parts:



# **WELCOME!!!!**

This class comes to you in two parts:

1. **CRASH COURSE Linguistics**



# **WELCOME!!!!**

This class comes to you in two parts:

1. **CRASH COURSE Linguistics**
2. **Discussions**

---

# Overview of Linguistics:

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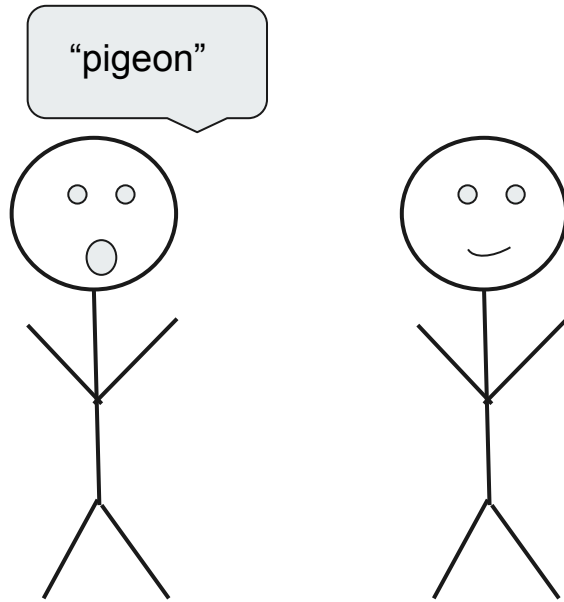
# Overview





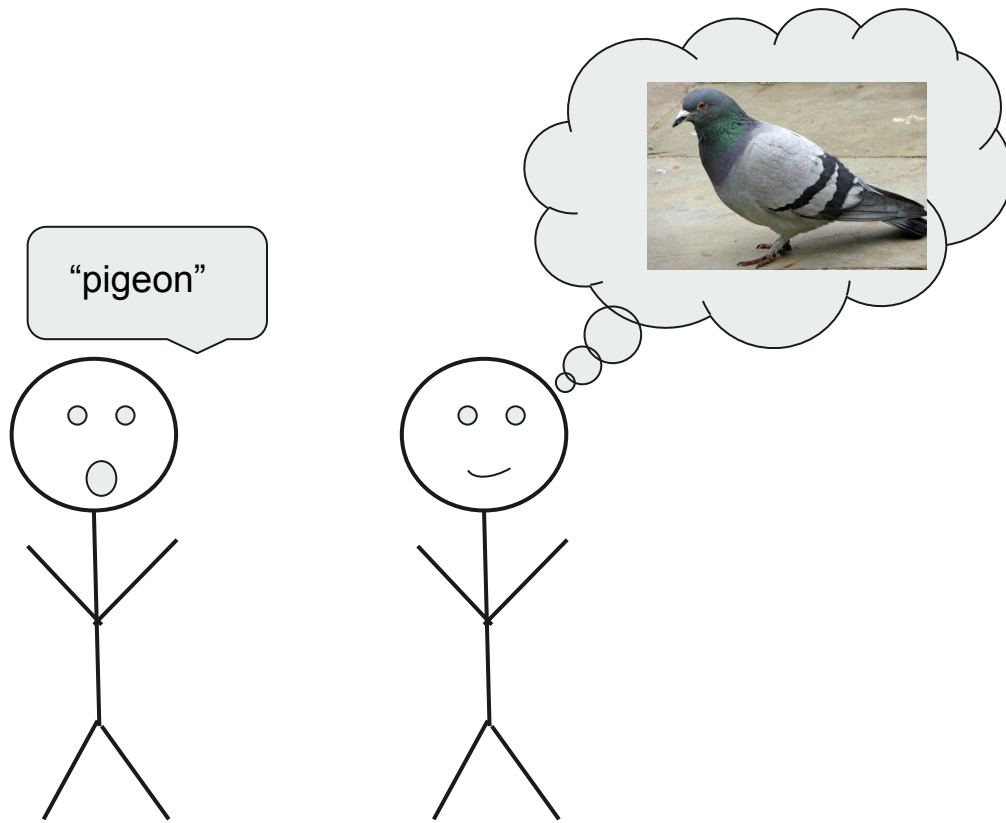


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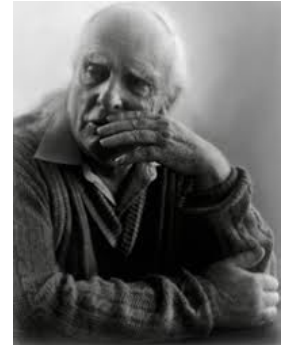
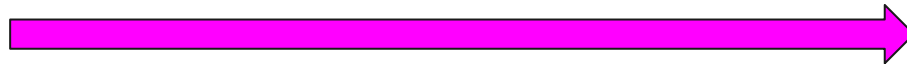
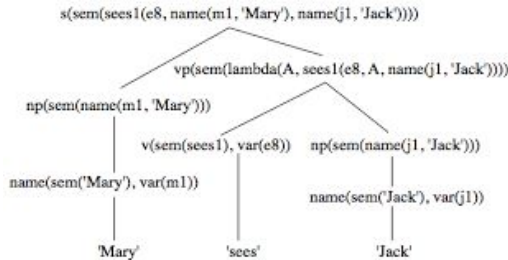
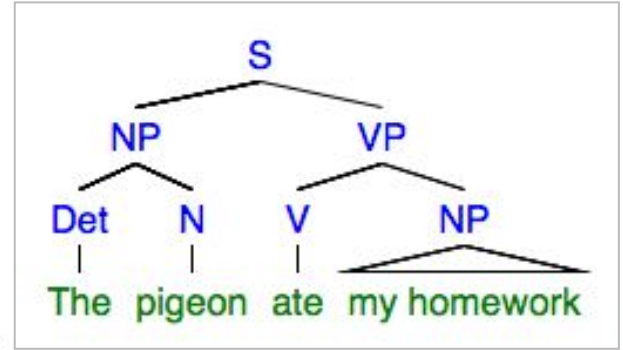
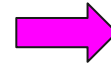
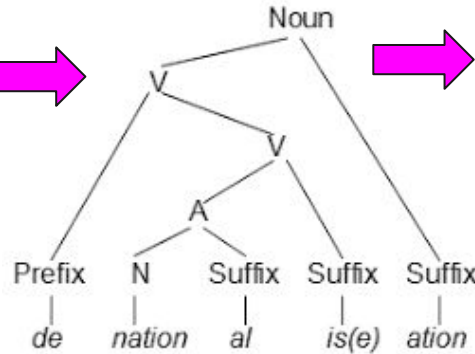
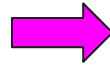
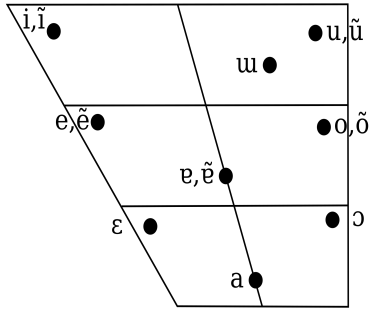
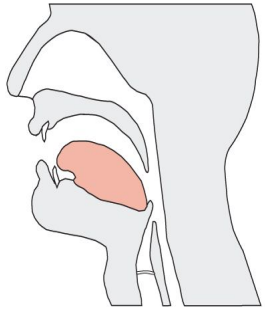




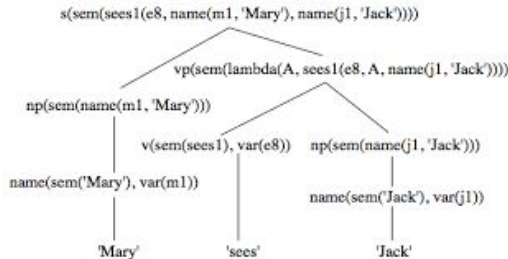
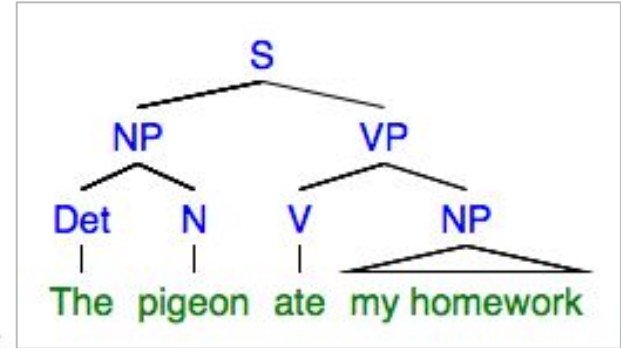
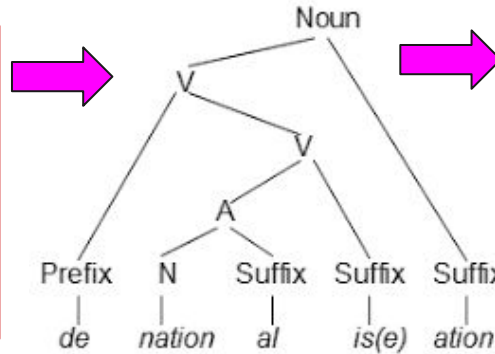
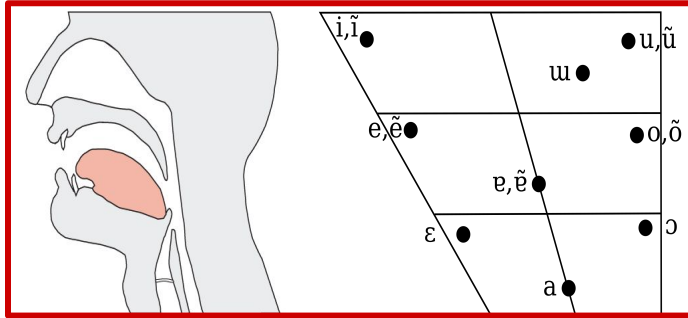
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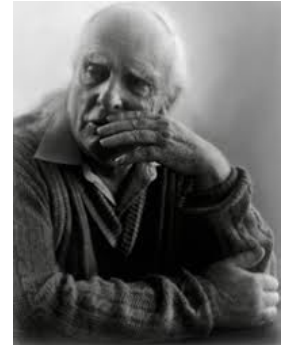
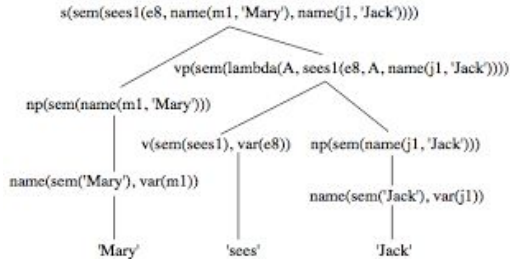
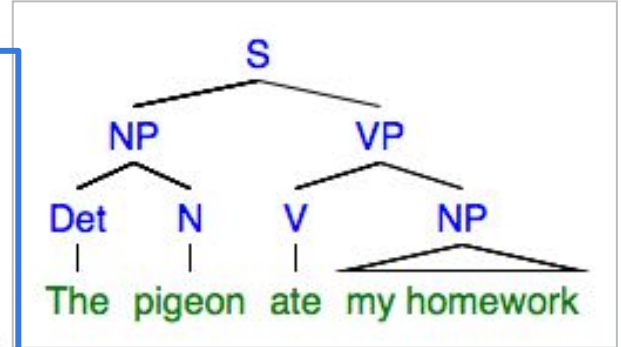
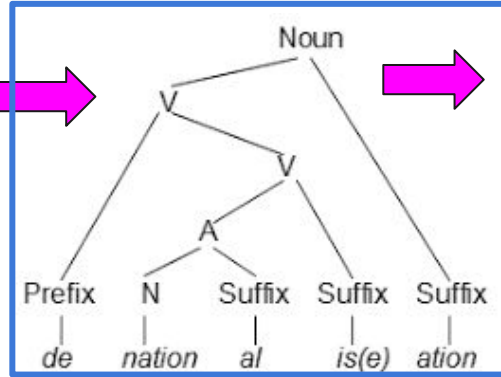
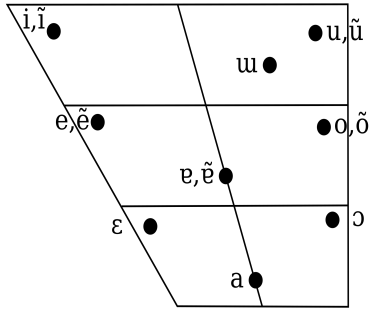
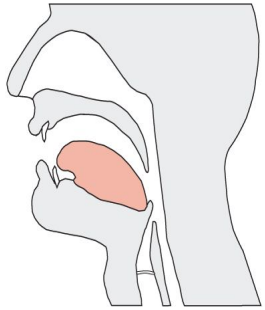
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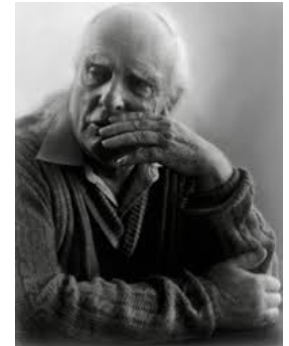
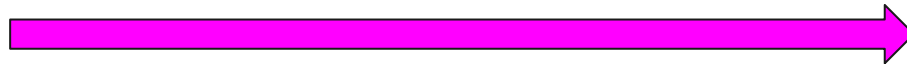
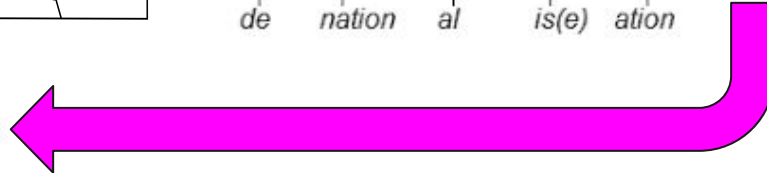
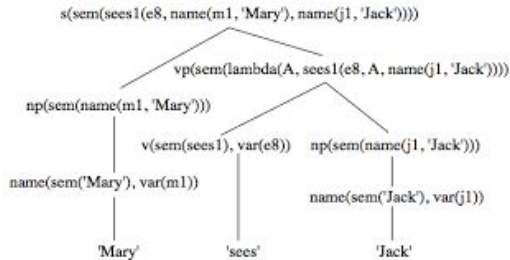
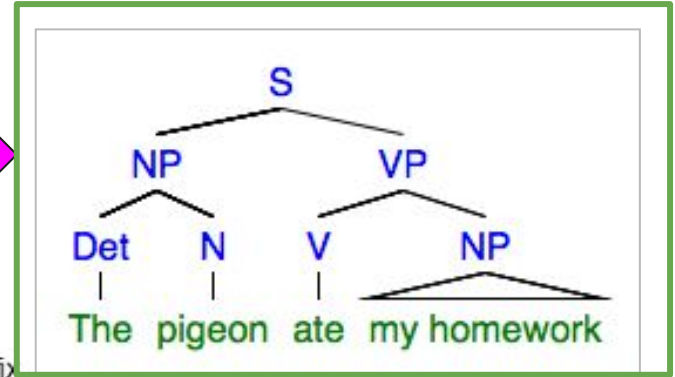
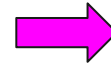
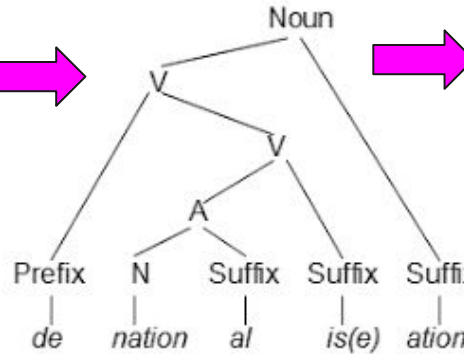
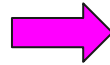
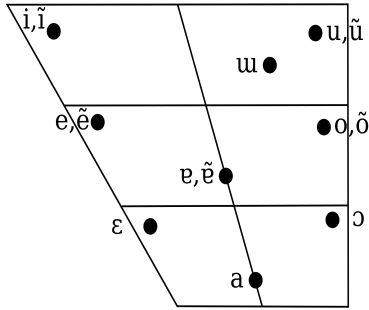
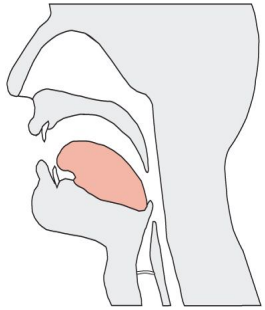
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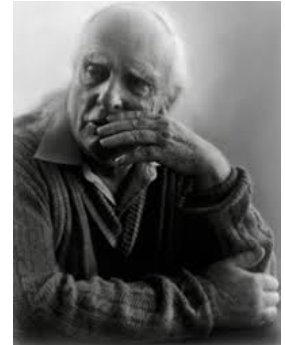
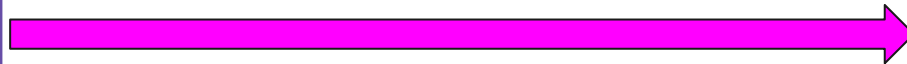
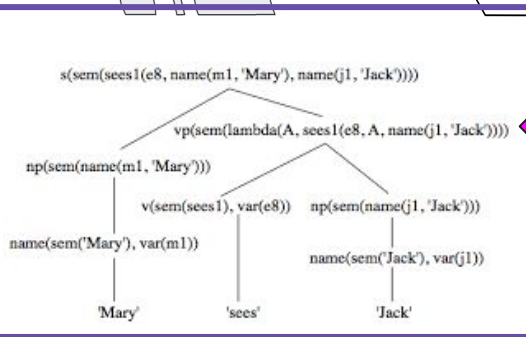
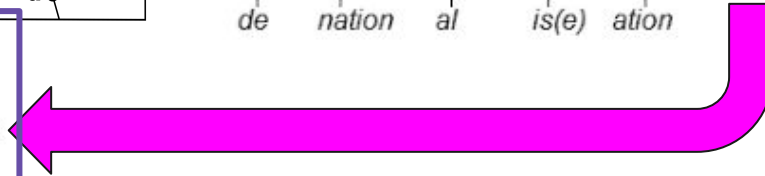
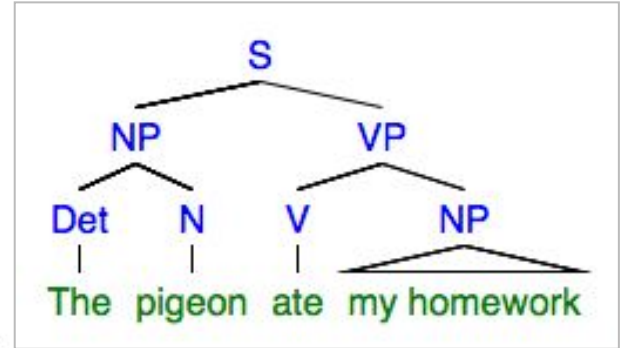
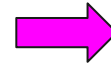
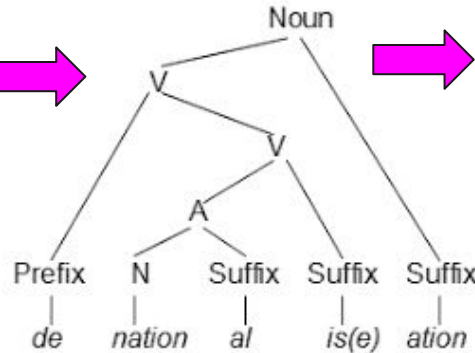
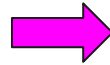
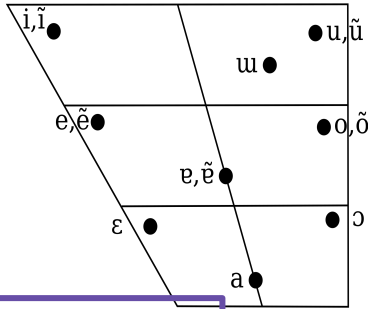
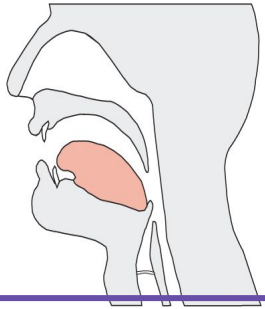
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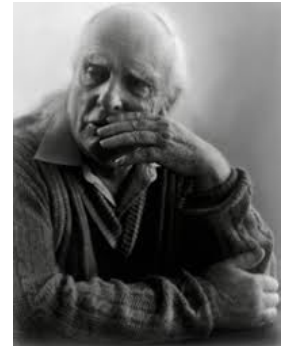
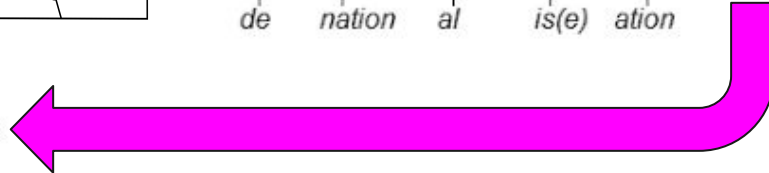
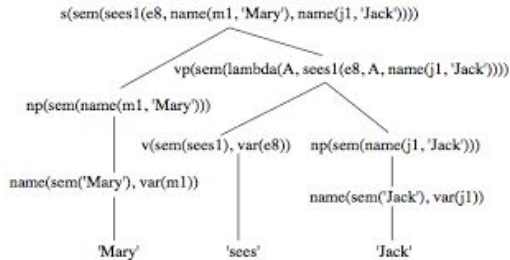
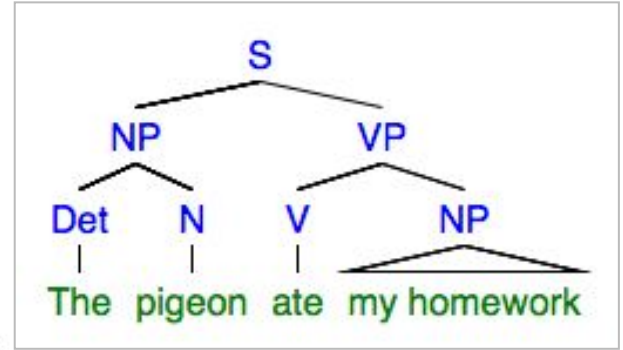
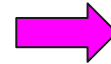
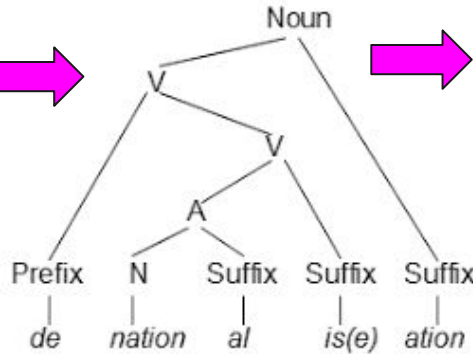
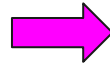
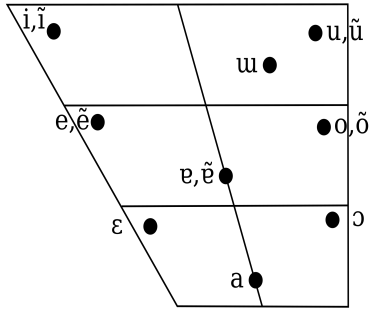
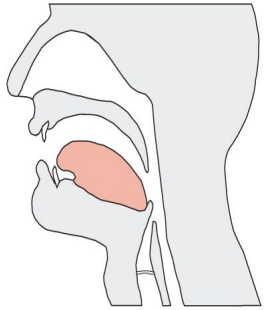
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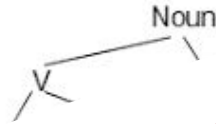
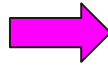
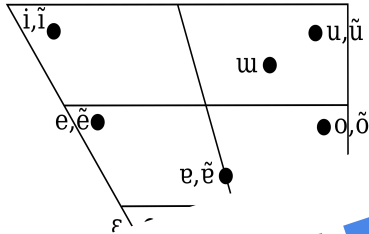
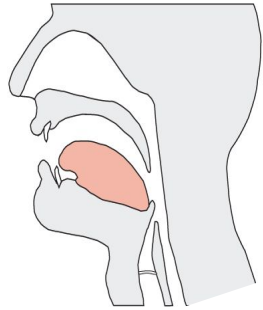


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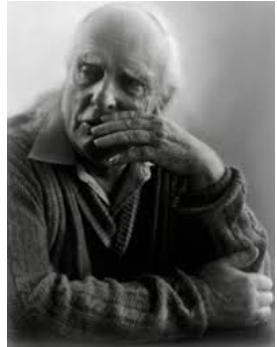
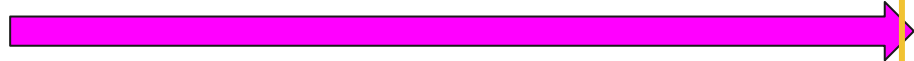
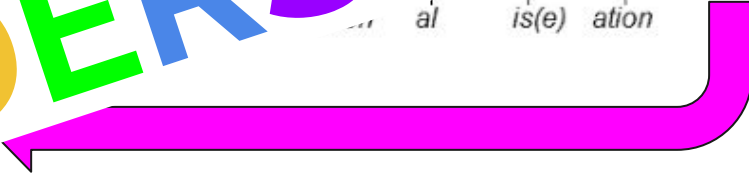
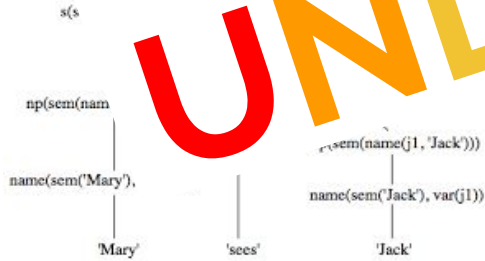


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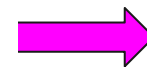
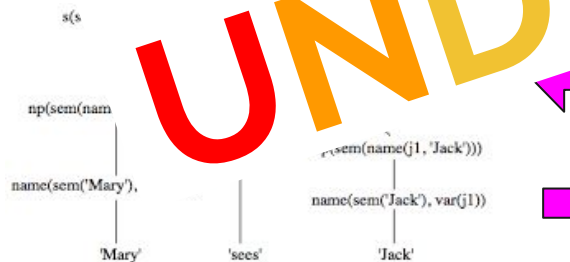
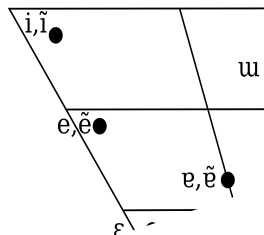
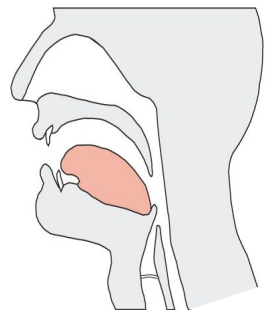


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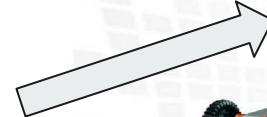
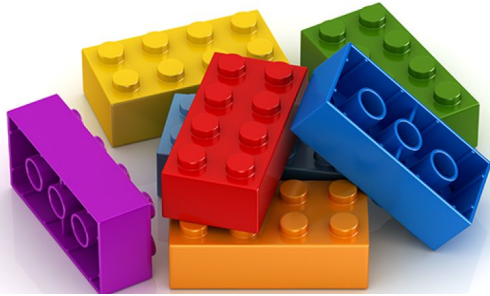
UNDERSTANDING



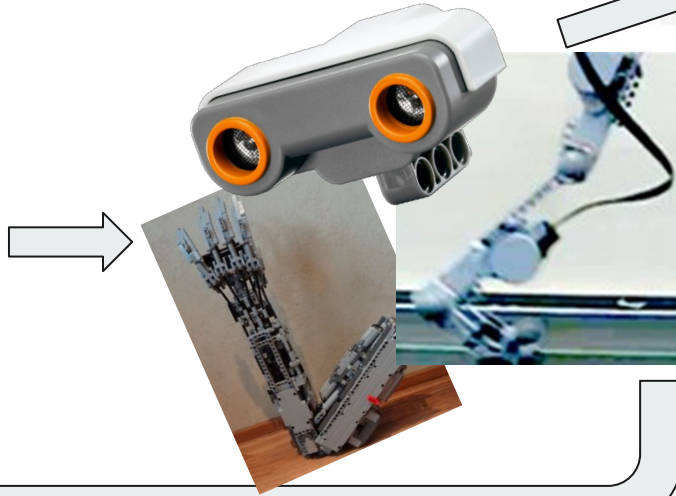
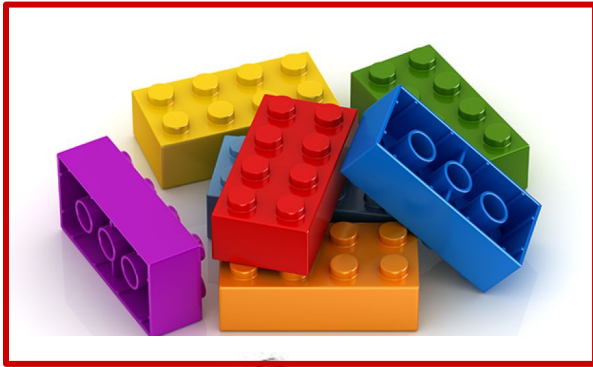
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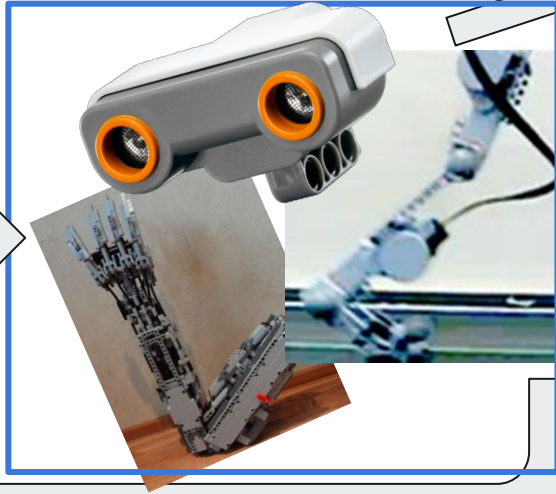
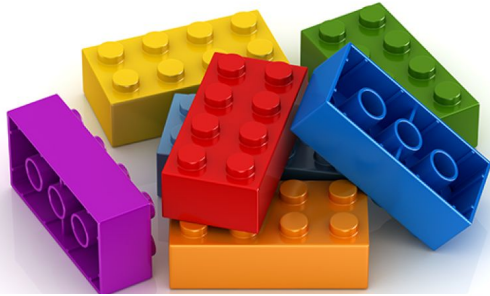
Let's talk Lego instead



Let's talk Lego instead

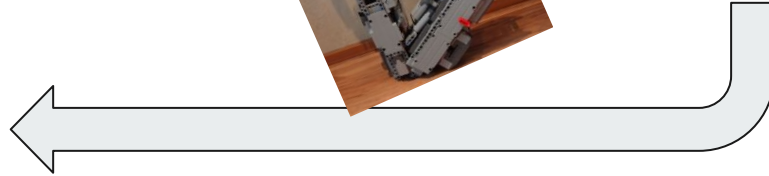


Let's talk Lego instead

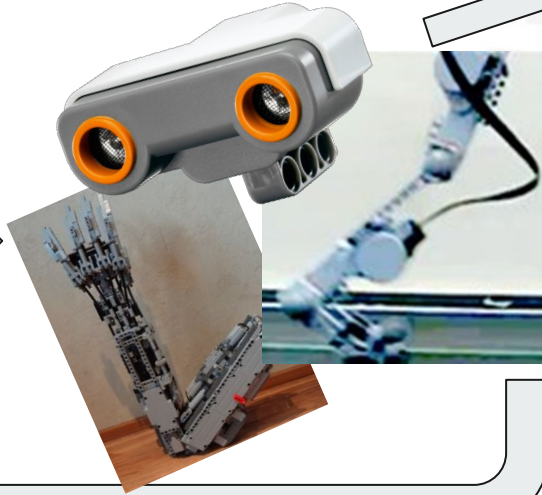




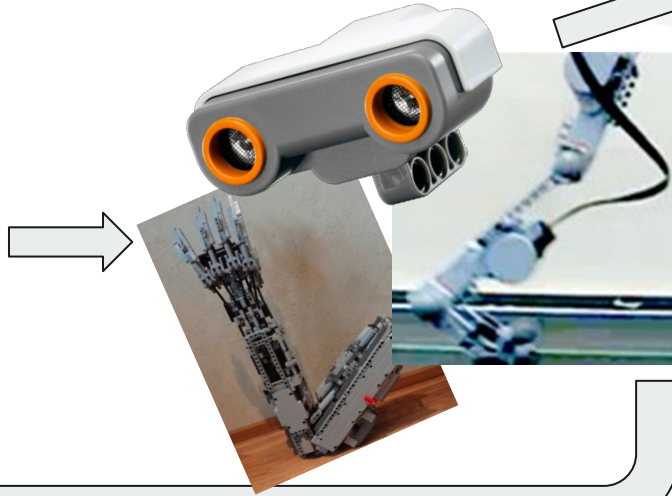
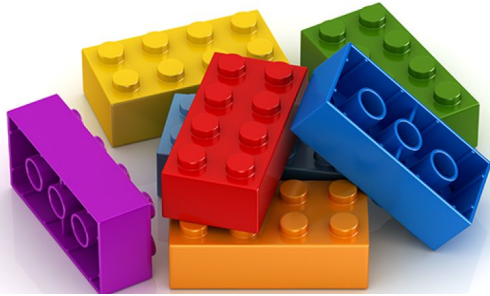
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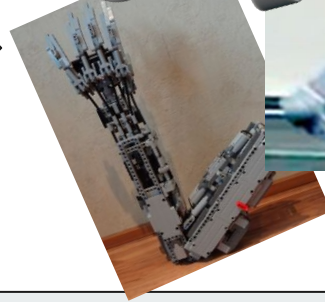


Let's talk Lego instead

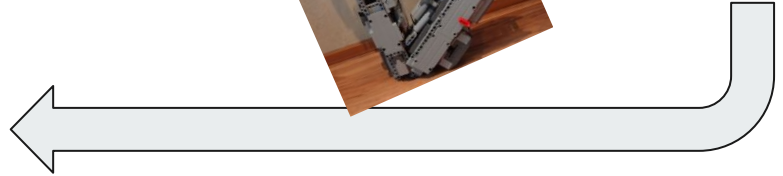
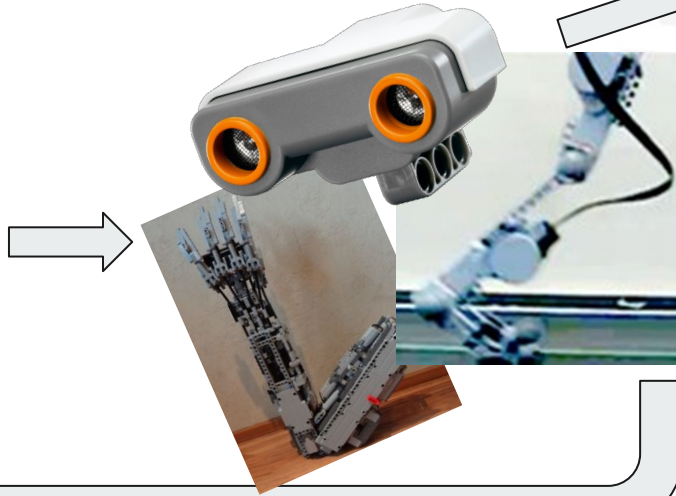
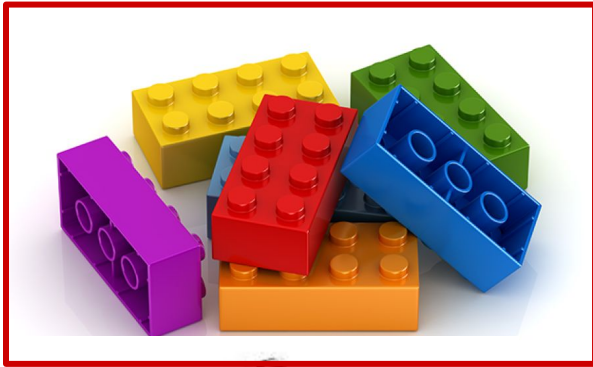




Let's talk Lego instead

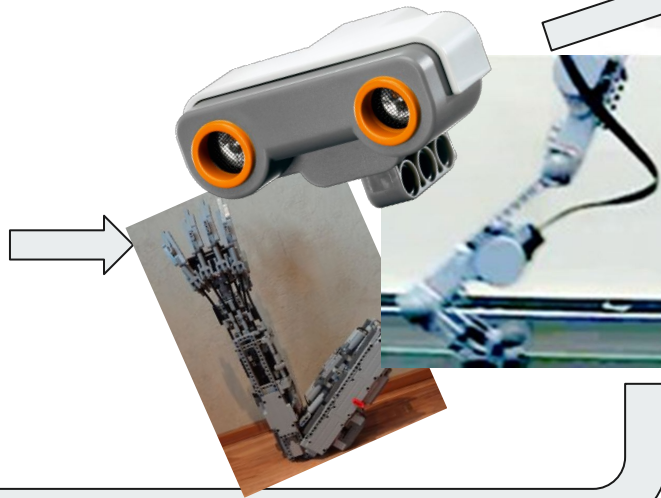


Let's talk Lego instead



Let's talk Lego instead

PHONOLOGY





# Phonology



# Phonology - The Sounds We Make



## Phonology - The Sounds We Make

- Phonemes - individual sounds that make up the words we have

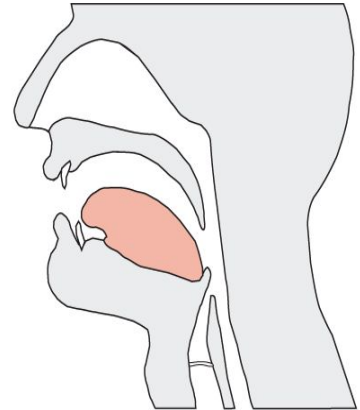


## Phonology - The Sounds We Make

- Phonemes - individual sounds that make up the words we have
- Phonemes vary between languages

# Phonology - The Sounds We Make

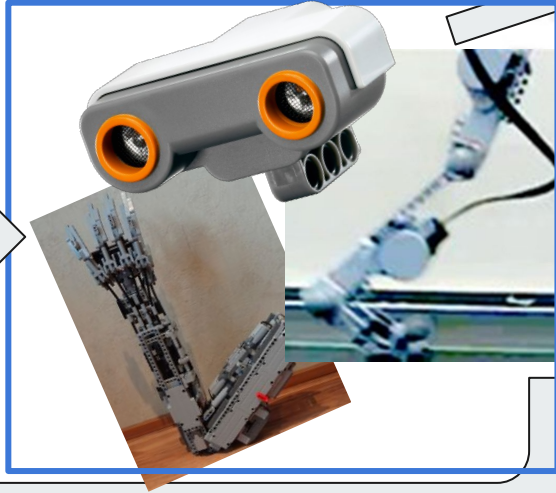
- Phonemes - individual sounds that make up the words we have
- Phonemes vary between languages





Let's talk Lego instead

PHONOLOGY



Let's talk Lego instead

PHONOLOGY

MORPHOLOGY





# Morphology - How Words Form



## Morphology - How Words Form

- Morphemes - Parts of words
  - Stem/Root
  - Suffix
  - Prefix
  - Plural



## Morphology - How Words Form

- Morphemes - Parts of words

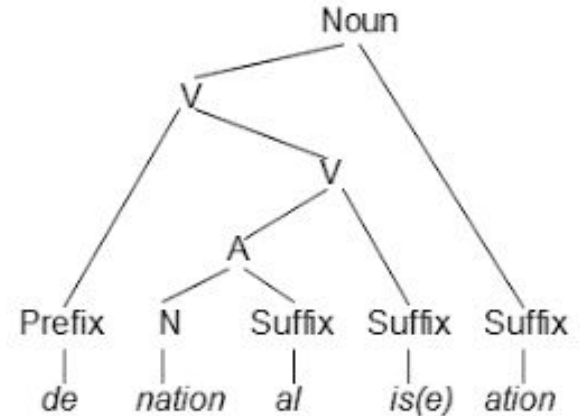
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**DOG + S = DOGS**

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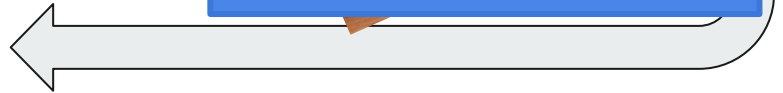


Let's talk Lego instead

PHONOLOGY



MORPHOLOGY



Let's talk Lego instead

**PHONOLOGY**

**MORPHOLOGY**

**SYNTAX**







# Syntax



# Syntax - How Words are Organized

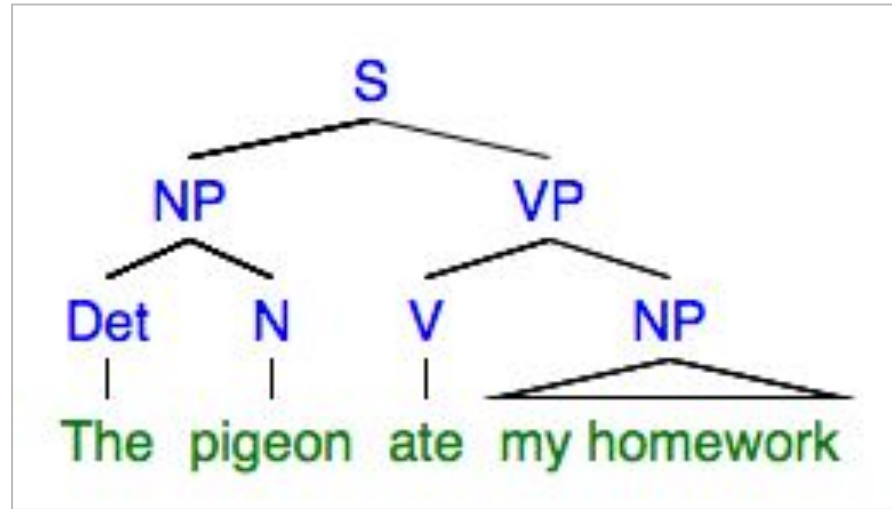


## Syntax - How Words are Organized

- Grammar
- Syntactic trees

## Syntax - How Words are Organized

- Grammar
- Syntactic trees



Let's talk Lego instead

**PHONOLOGY**

**MORPHOLOGY**

**SYNTAX**



Let's talk Lego instead

PHONOLOGY

MORPHOLOGY

SYNTAX

SEMANTICS





# Semantics



# Semantics - Organization Leads to Meaning



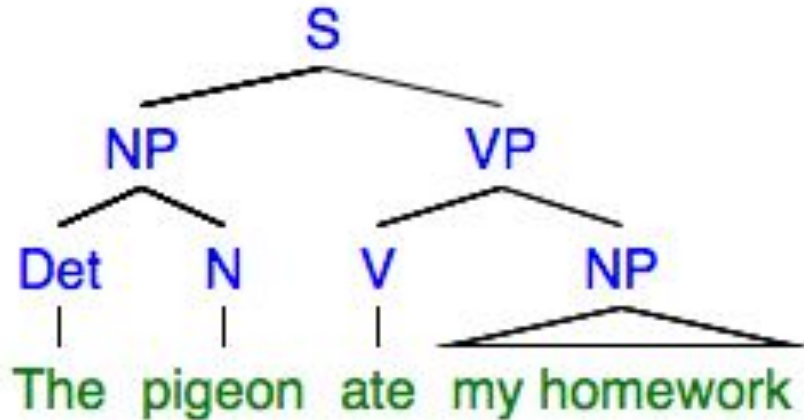


## Semantics - Organization Leads to Meaning

- Follow meanings up the tree:

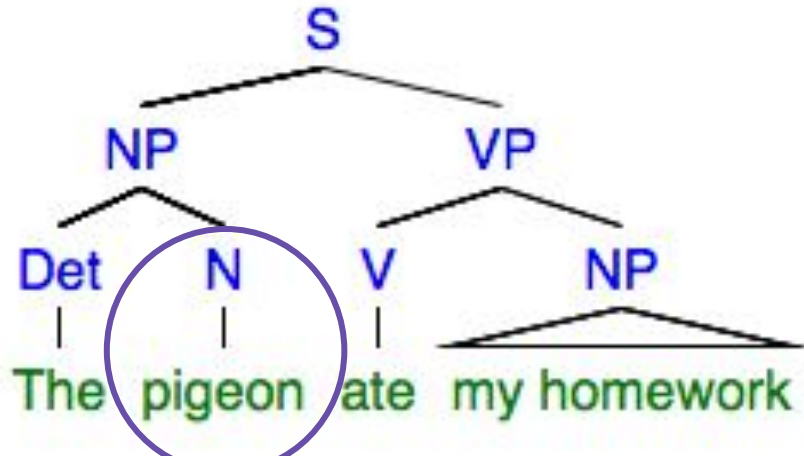
## Semantics - Organization Leads to Meaning

- Follow meanings up the tree:



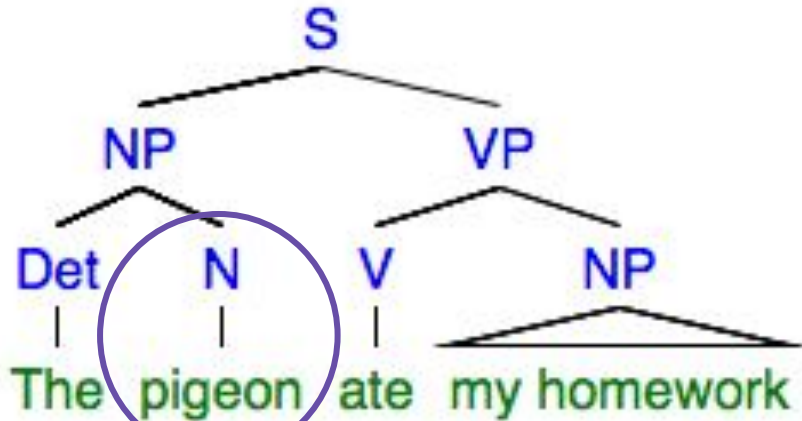
## Semantics - Organization Leads to Meaning

- Follow meanings up the tree:



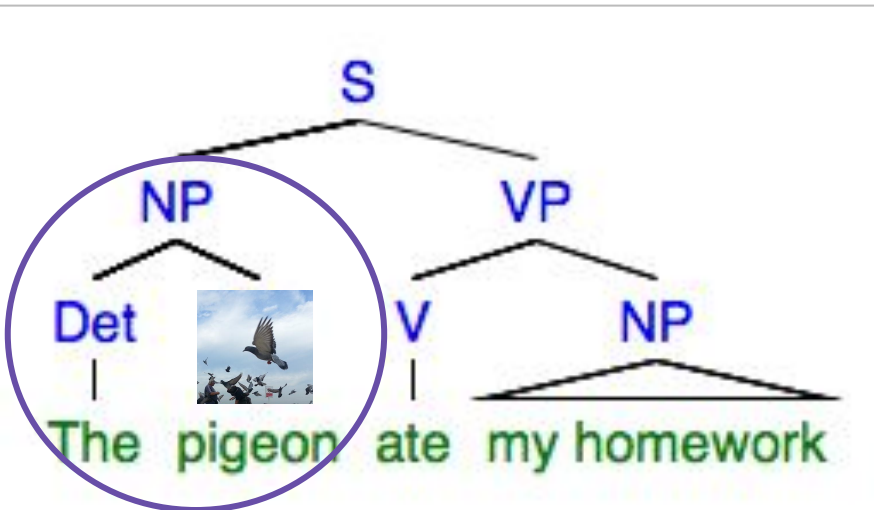
## Semantics - Organization Leads to Meaning

- Follow meanings up the tree:



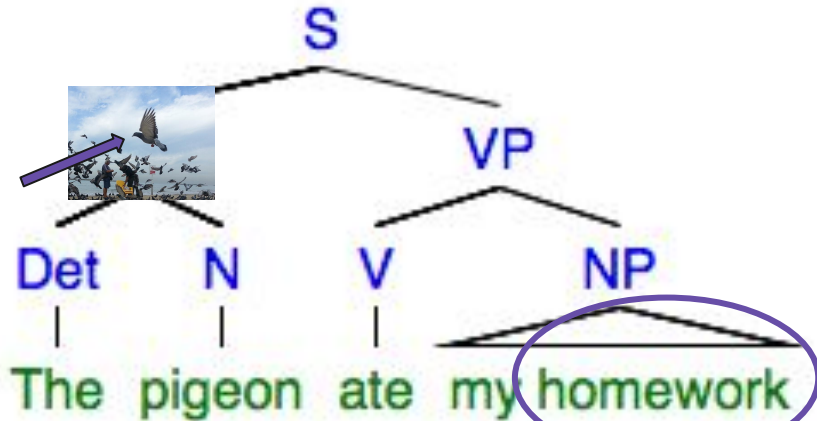
# Semantics - Organization Leads to Meaning

- Follow meanings up the tree:



## Semantics - Organization Leads to Meaning

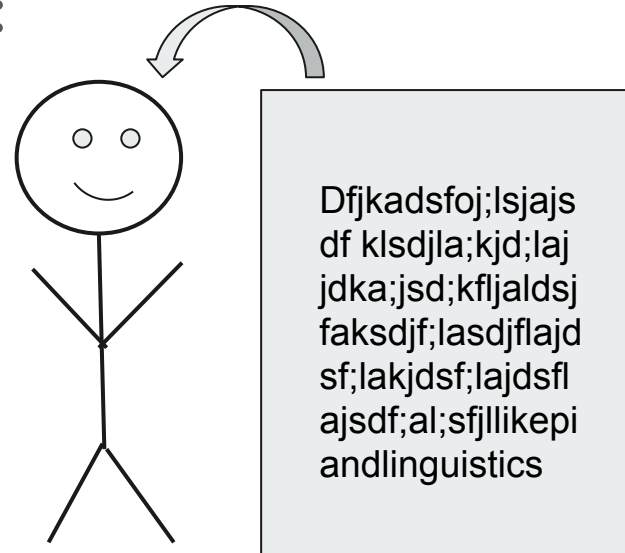
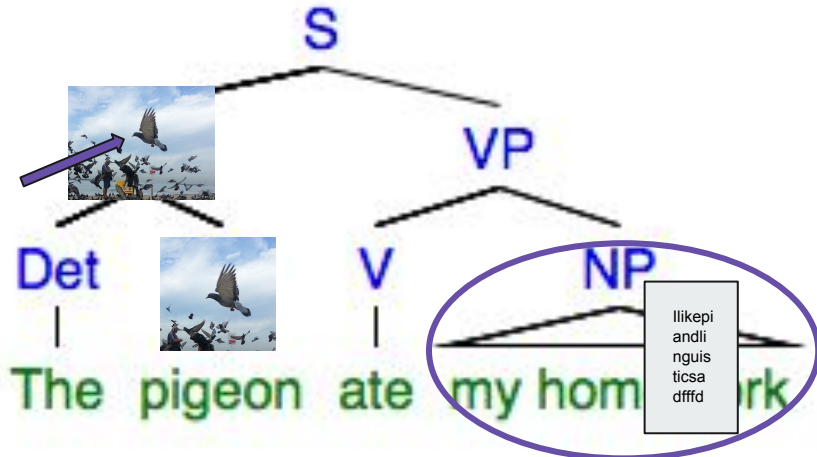
- Follow meanings up the tree:



Dfjkadsfoj;lsjajs  
df klstdjla;kjd;laj  
jdka;jsd;kfljaldsj  
faksdjf;lajdsflajd  
sf;lakjdsf;lajdsfl  
ajdsf;al;sfjllikepi  
andlinguistics

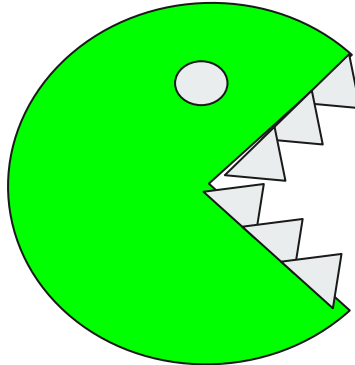
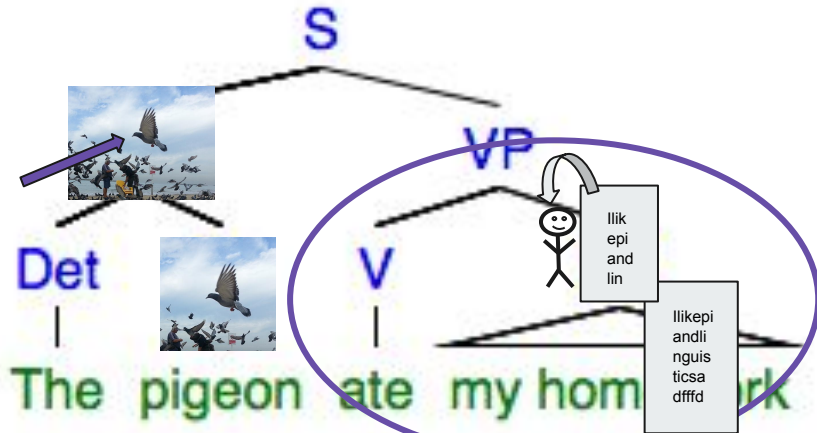
# Semantics - Organization Leads to Meaning

- Follow meanings up the tree:



# Semantics - Organization Leads to Meaning

- Follow meanings up the tree:

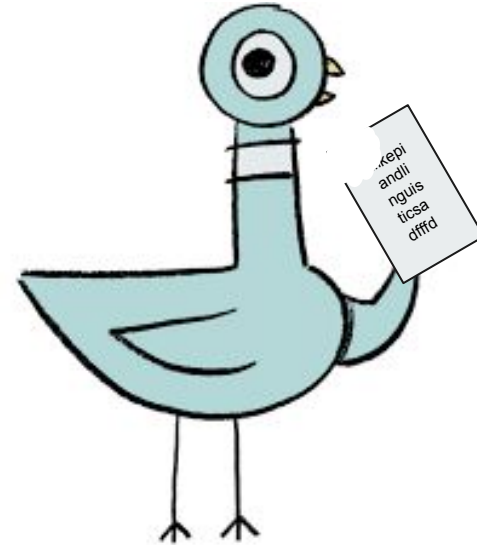
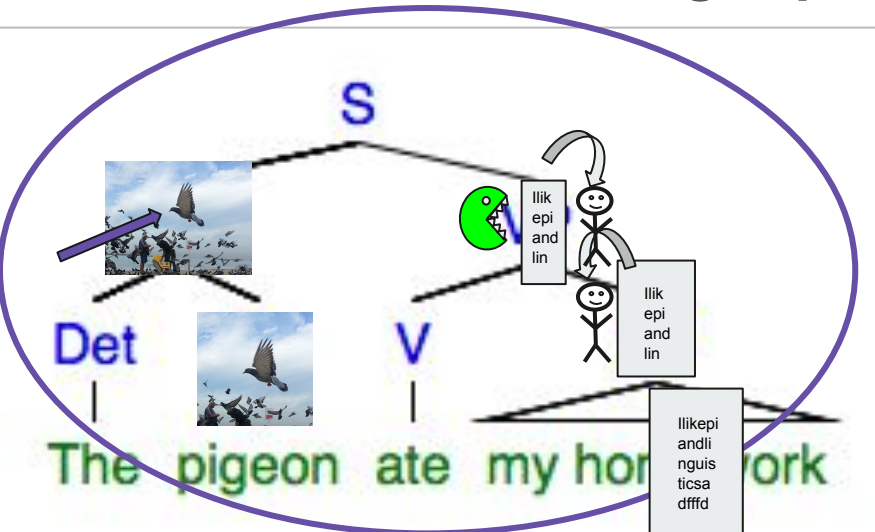


Dfjkadsfoj;lsjajs  
df klstdjla;kjd;laj  
jdka;jsd;kfljaldsj  
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ajdsf;al;sfjllikepi  
andlinguistics



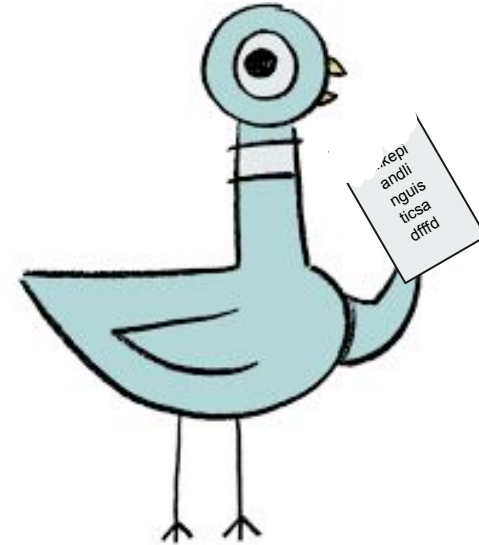
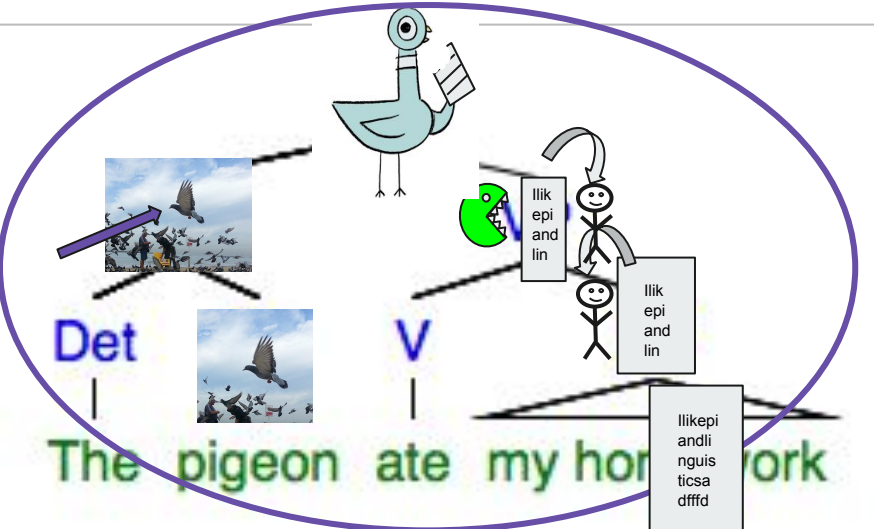


- **Follow meanings up the tree:**



# Semantics - Organization Leads to Meaning

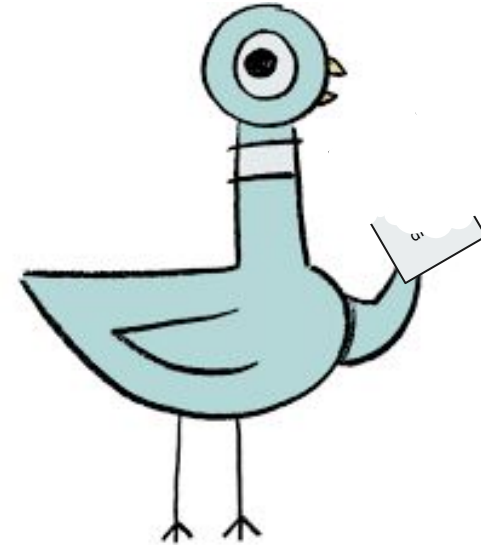
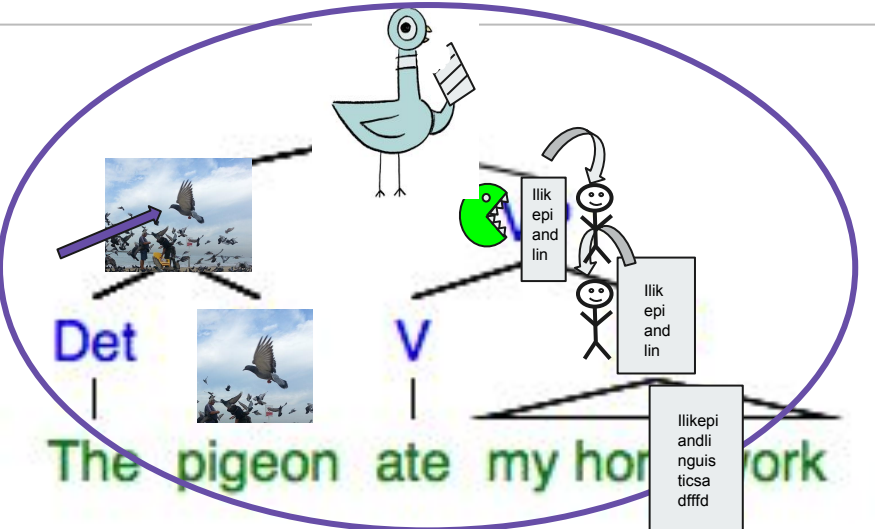
- Follow meanings up the tree:





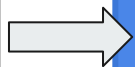


- **Follow meanings up the tree:**



Let's talk Lego instead

**PHONOLOGY**

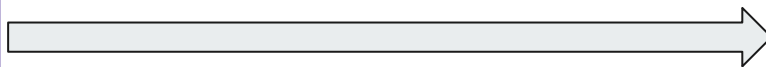


**MORPHOLOGY**



**SYNTAX**

**SEMANTICS**



Let's talk Lego instead

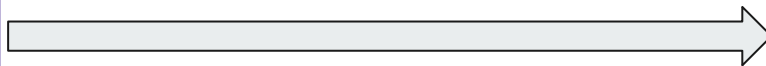
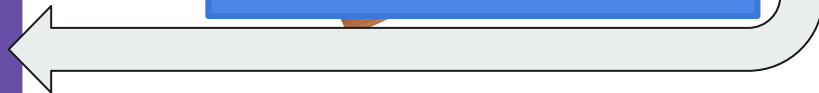
**PHONOLOGY**

**MORPHOLOGY**

**SYNTAX**

**SEMANTICS**

**PRAGMATICS**





# PRAGMATICS





# PRAGMATICS - Context Matters

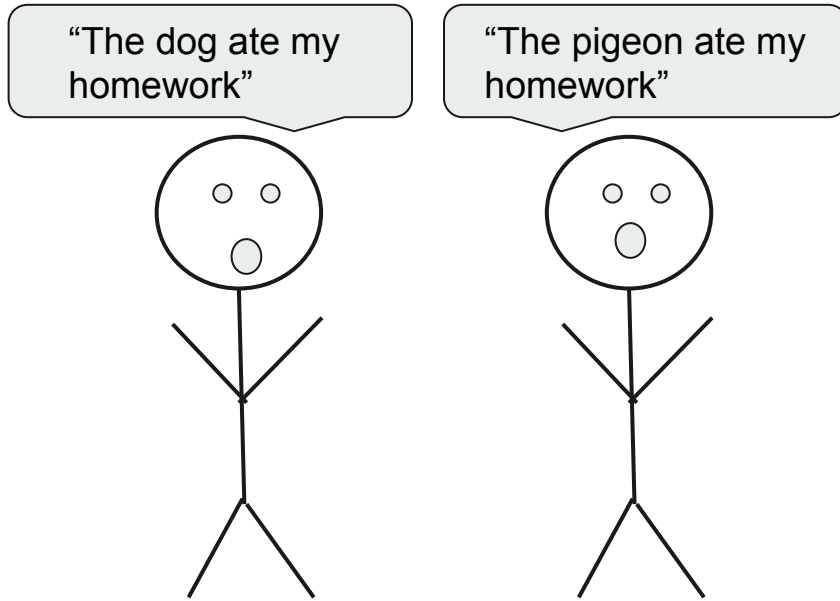


## PRAGMATICS - Context Matters

- The same sentence can have different meanings:

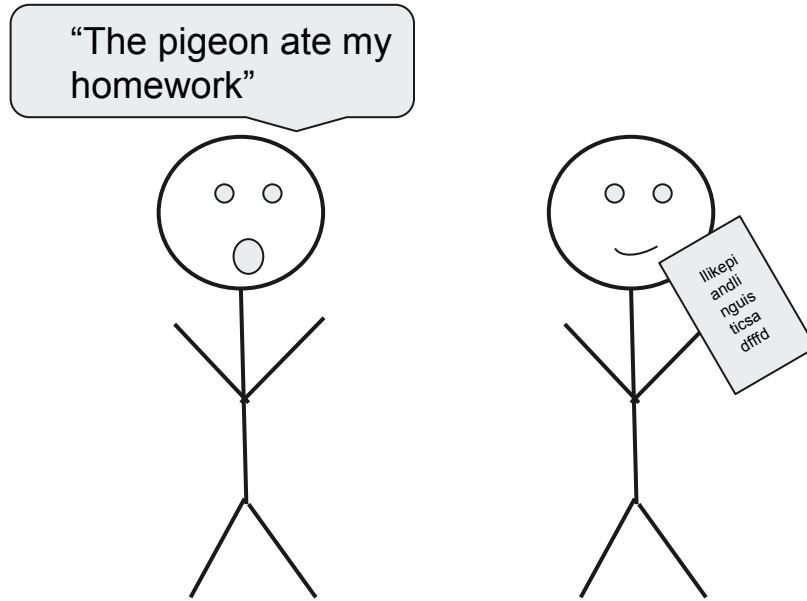
## PRAGMATICS - Context Matters

- The same sentence can have different meanings:



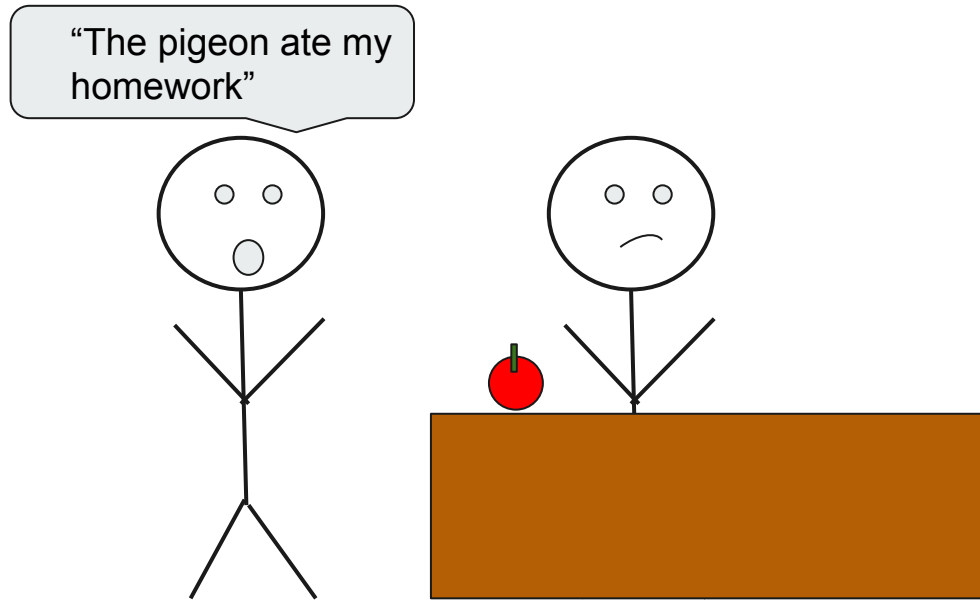
## PRAGMATICS - Context Matters

- The same sentence can have different meanings:



## PRAGMATICS - Context Matters

- The same sentence can have different meanings:



## PRAGMATICS - Context Matters



Let's talk Lego instead

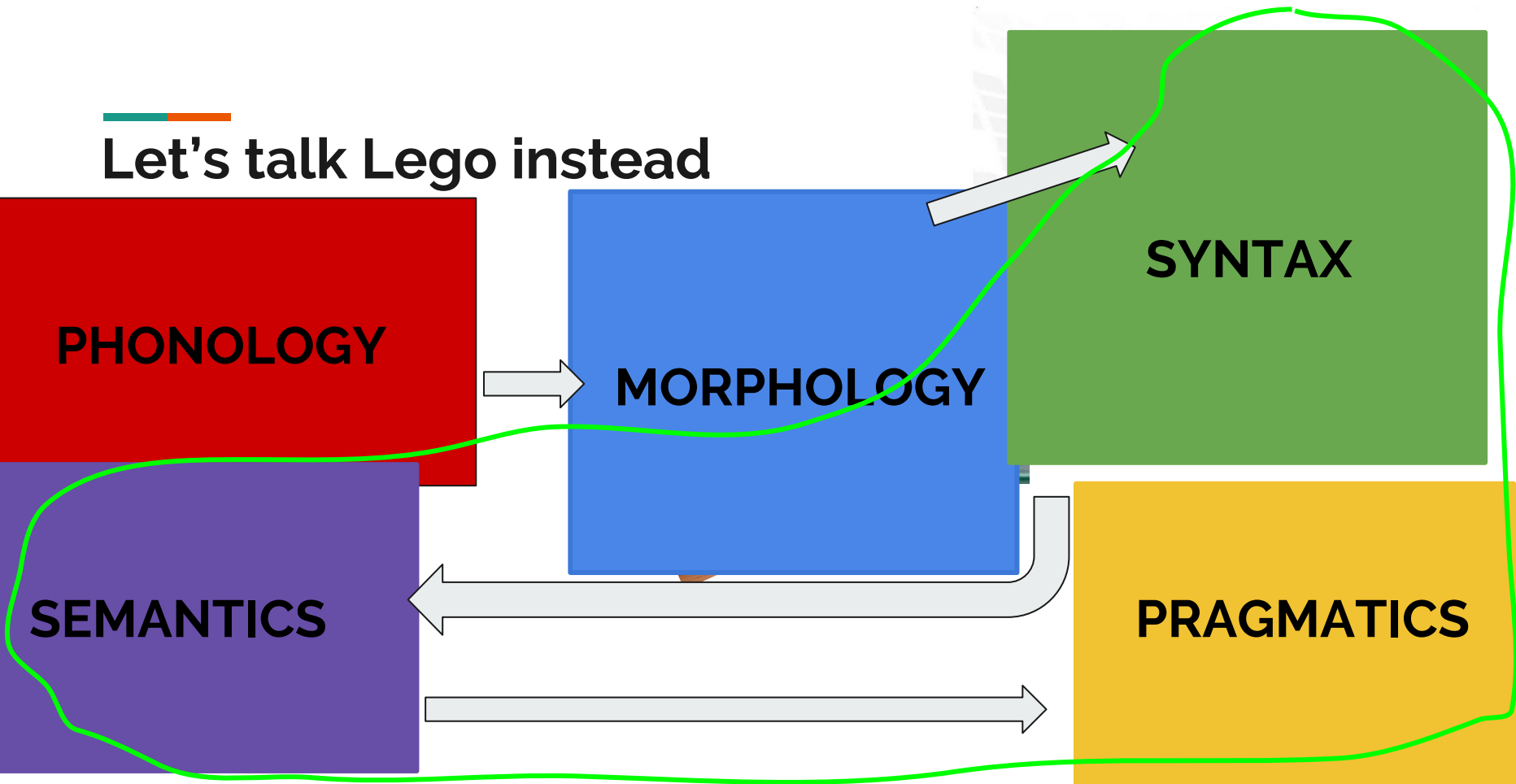
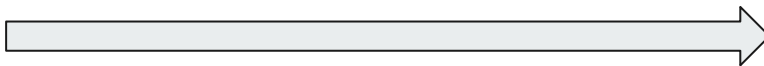
**PHONOLOGY**

**MORPHOLOGY**

**SYNTAX**

**SEMANTICS**

**PRAGMATICS**



---

**Discussion Time!**





**But First**

  
**But First - Mind the Penguin!**



CHIBIRD CHIBIRD CHIBIRD



**And Also**



**And Also**

**THERE ARE NO RIGHT ANSWERS!!!!!!!**



**And Also**

**THERE ARE NO RIGHT ANSWERS!!!!!!!**

**(Seriously)**



**OK, Let's go**

---

# Syntactic Ambiguities



1. They mentioned the secret village in the forest.
2. The monkey ate the book on the table in the cage.
3. We didn't eat in San Francisco because the restaurants there are expensive.



---

# Crash Blossoms



# 1. “Violinist Linked to JAL Crash Blossoms”



1. “Violinist Linked to JAL Crash Blossoms”
2. “Gator attacks puzzle experts”



1. “Violinist Linked to JAL Crash Blossoms”
2. “Gator attacks puzzle experts”
3. “North Carolina Police kill unarmed deaf man using sign language”



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1. “Violinist Linked to JAL Crash Blossoms”
2. “Gator attacks puzzle experts”
3. “North Carolina Police kill unarmed deaf man using sign language”
4. “Police find jaguars running back asleep inside car sinking into pond”
5. “Eighth Army Push Bottles Up Germans”



1. “McDonald’s Fries the Holy Grail for Potato Farmers”
2. “British Left Waffles on Falklands.”
3. “Squad Helps Dog Bite Victim”
4. “Red Tape Holds Up New Bridge”
5. “Trump Doctor: No heart, cognitive issues found”

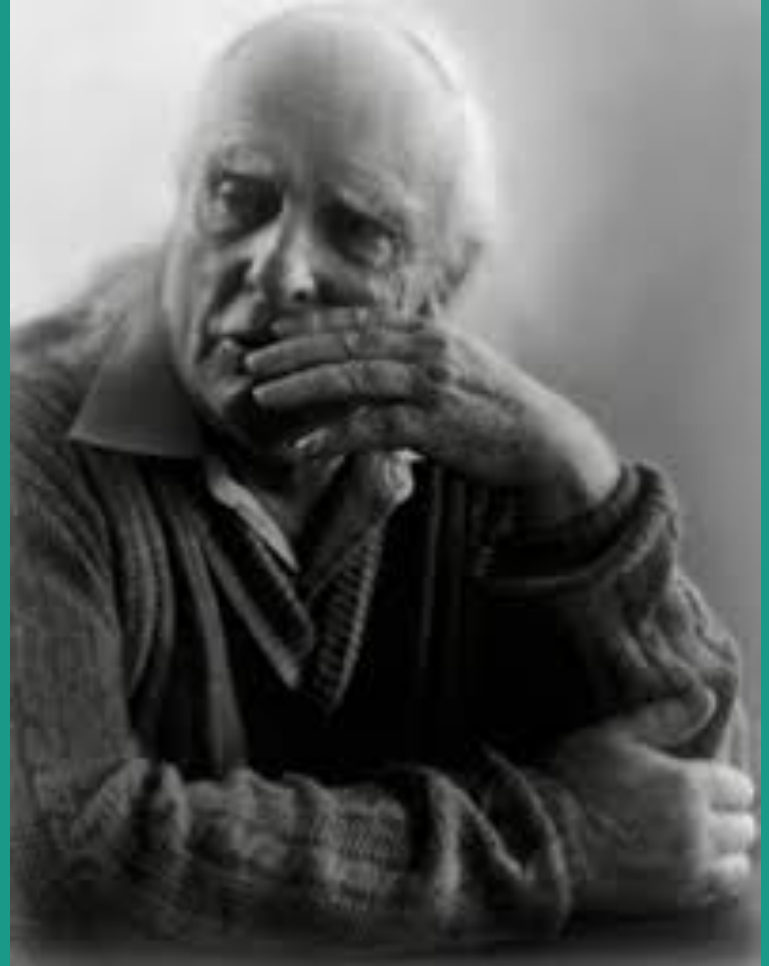
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# Gricean Maxims



---

# Gricean Maxims





## How to Converse Cooperatively

- Quality: Say what is true
- Quantity: Say enough to be informative
- Relevance: Don't give unnecessary information
- Manner: "Avoid unnecessary prolixity"



## How to Con

- Qual: Say true
  - Qual: Say enough information
  - Relevance: Don't give unnecessary information
  - Manner: Avoid unnecessary
- 



## How to Converse Cooperatively - Quality

- “Yeah, well that’s just great”
- “You’ll win a Nobel Prize — in your dreams!”



## How to Converse Cooperatively - Quality

- “Yeah, well that’s just great”
- “You’ll win a Nobel Prize — in your dreams!”

When is it ok to not tell the literal truth?



## How to Converse Cooperatively - Quantity

A: “Can you pass the salt?”

B: “Yes.”



## How to Converse Cooperatively - Quantity

A: “Can you pass the salt?”

B: “Yes.”

Is this ever an ok response? When or why not?



## How to Converse Cooperatively - Relevance

Police: “Have you seen the criminal”

B: “Yes. He went that way. My brother is having a BBQ tomorrow”





## How to Converse Cooperatively - Relevance

Police: “Have you seen the criminal”

B: “Yes. He went that way. My brother is having a BBQ tomorrow”

What’s wrong with this?



## How to Converse Cooperatively - Manner

“The opera singer produced a series of sounds closely corresponding closely with the notes of the aria”



## How to Converse Cooperatively - Manner

“The opera singer produced a series of sounds closely corresponding closely with the notes of the aria”

What does this say about the opera singer?

---

# Irony and Sarcasm



1. The movie was so good!
2. The movie was soooooo good.
3. The movie was so good. □



1. The movie was so good!
2. The movie was soooooo good.
3. The movie was so good. □

How are these different? Why does this work?

---

# Classification of Adjectives



## Types of Adjectives

**SKILLFUL  
SPY**

**VS.**

**FAKE  
SPY**





## Types of Adjectives

**SKILLFUL  
SPY**

**VS.**

**BLUE  
SPY**



## Types of Adjectives

**ALLEGED**  
**SPY???**



## Types of Adjectives

**LARGE  
LION**

**vs.**

**STONE  
LION**



## Types of Adjectives

**FAKE**      **vs.**      **TOY**      **vs.**      **WATER**  
**GUN**                      **GUN**                      **GUN**



## Types of Adjectives

- Intersective (ex: Blue)
  - Subsective (ex: Skillful)
- 
- Nonsubsective (ex: Alleged)
  - Privative (ex: Fake?)

---

# Presuppositions



## Mind the presup...

- “Do you want to go swimming? We do, too.”
- “Have you done your homework yet?”
- “Did you know your home is at risk?”



## Mind the \*different\* presups...

- “My dog ate my homework.”
- “My aardvark ate my homework.”
- “My dad ate my homework.”



---

# Speech Acts



# Types of Sentences

- Declarative — Statements



# Types of Sentences

- Declarative — Statements
- Interrogative — Questions



# Types of Sentences

- Declarative — Statements
- Interrogative — Questions
- Imperative — Commands



## Types of Sentences - Declarative

- I am a pigeon.
- I hope you have a good time.
- I was wondering if you might be able to do me a favor.



## Types of Sentences - Interrogative

- Can you pass me the salt?
- Do you want to get ice cream?
- Would you mind doing me a favor?



## Types of Sentences - Imperative

- Do your homework!
- Get well soon!
- Please rain today!

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# A Closing Note: Cheeseburgers





**German:**

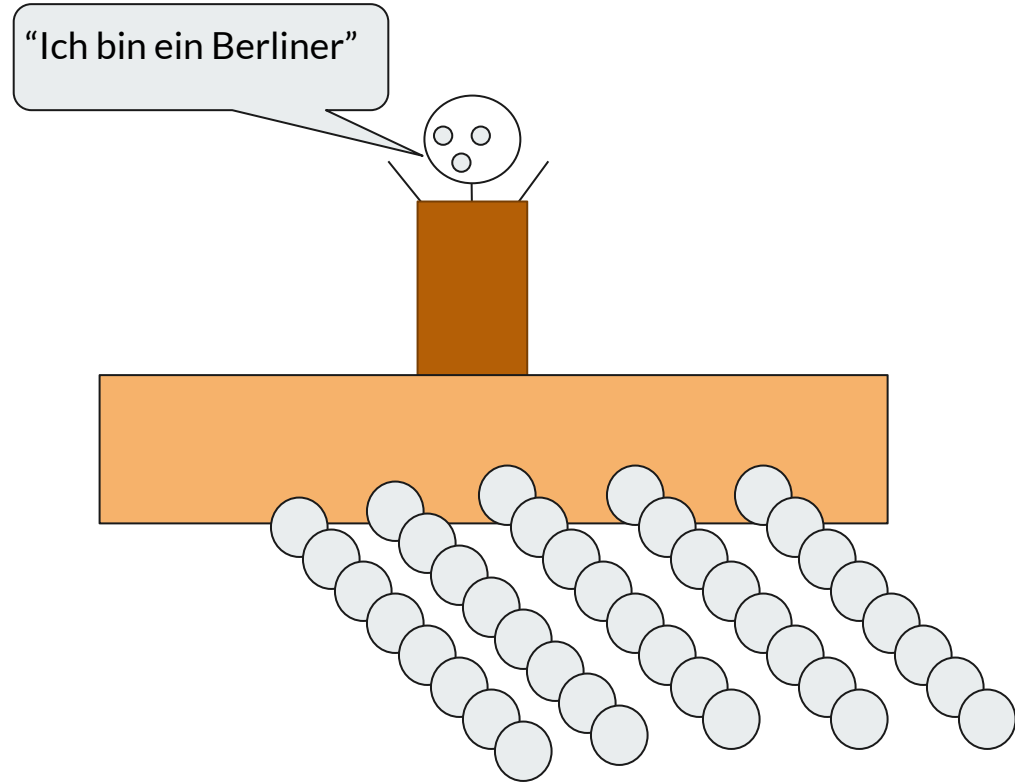


German:

“-er” = Sandwich from

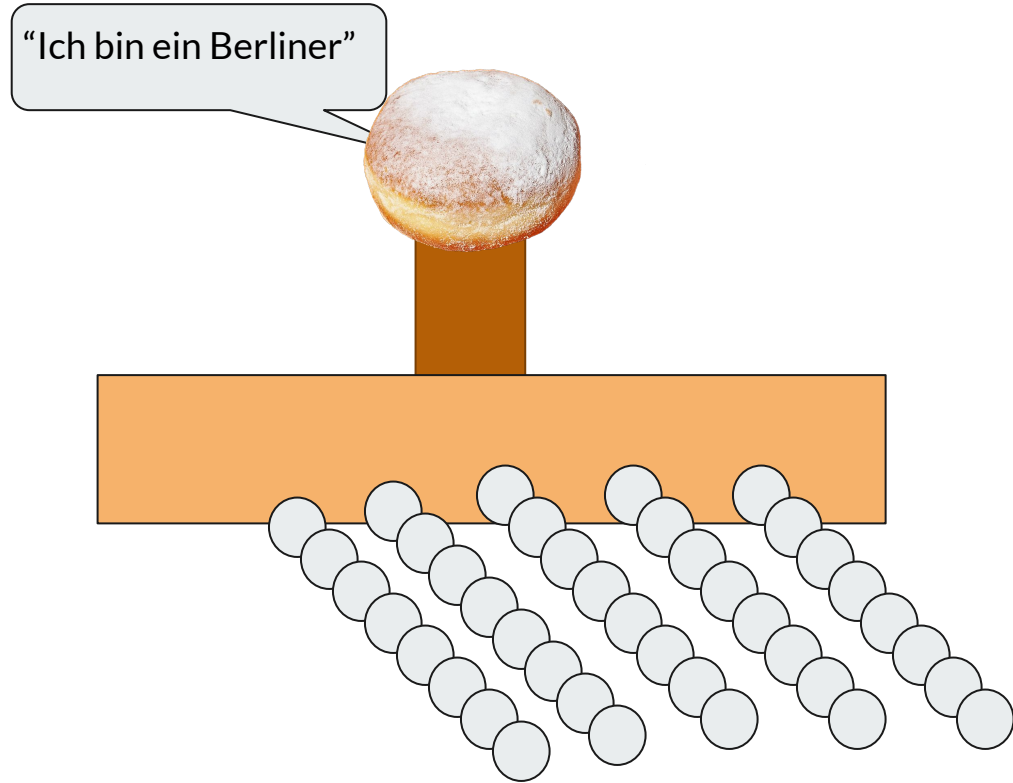
  
**German:**

“-er” = Sandwich from



 German:

“-er” = Sandwich from





German: “Berliner” =

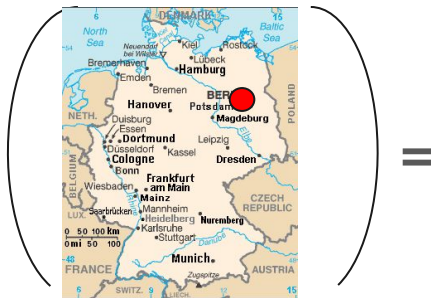


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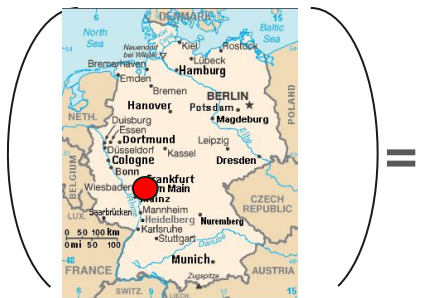




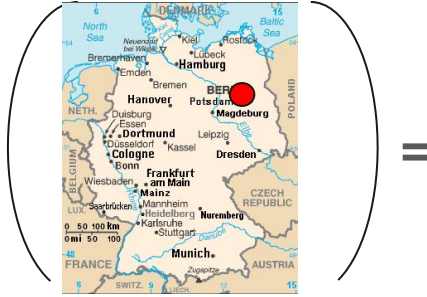
German: “Berliner” =



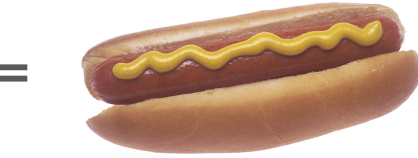
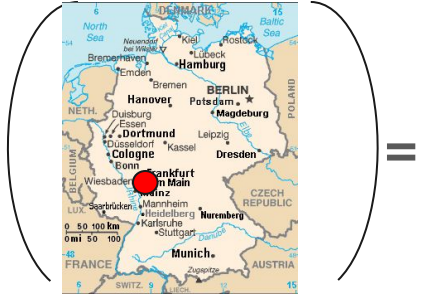
“Frankfurter” =



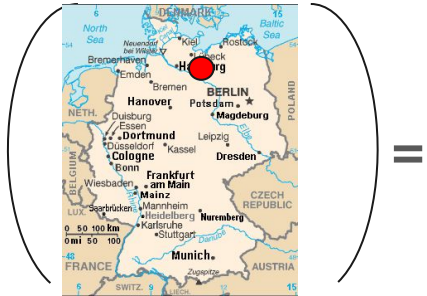
 German: “Berliner” =



“Frankfurter” =



“Hamburger” =



English:



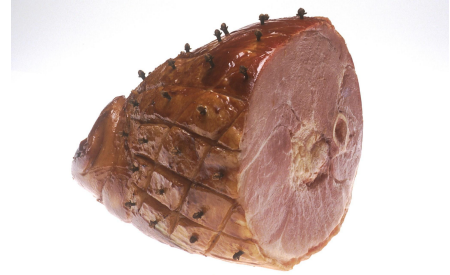
“ham” = MEAT



# English:

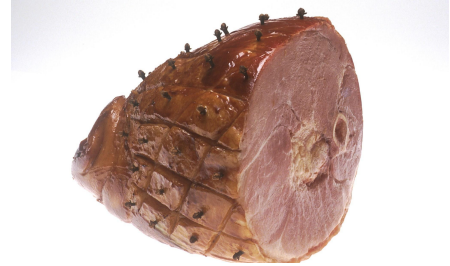
---

“**ham**” = MEAT



English:

“ham” = MEAT

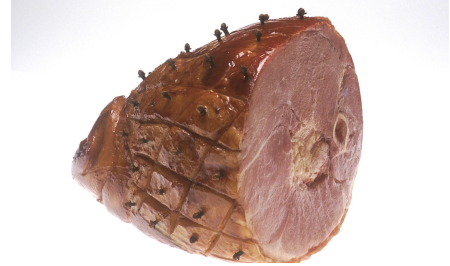


ham-burger = MEAT-burger



English:

“ham” = MEAT

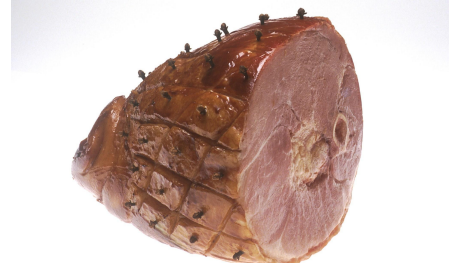


ham-burger = MEAT-burger



English:

“ham” = MEAT



ham-burger = MEAT-burger



“burger” = type of sandwich  
(type of burger goes before)

English:

“ham” = MEAT



ham-burger = MEAT-burger

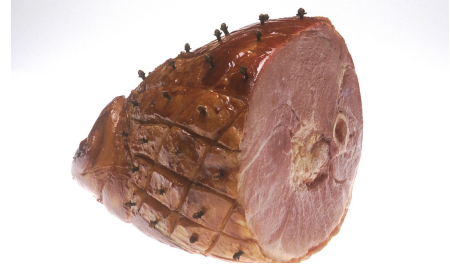


“burger” = type of sandwich  
(type of burger goes before)

cheeseburger = “type of sandwich” with cheese

English:

“ham” = MEAT



ham-burger = MEAT-burger



“burger” = type of sandwich  
(type of burger goes before)

cheeseburger = “type of sandwich” with cheese





English: cheeseburger =





English: cheeseburger =



German: cheeseburger =







**Wait**



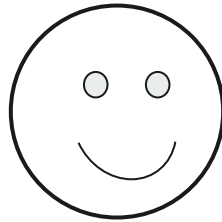
**Wait**

**It Gets Better...**



**Wait**

**It Gets Better...**



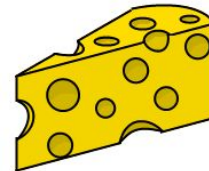
Portuguese: “X” = “xis”



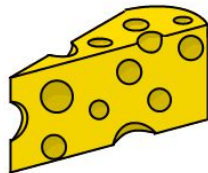
# Portuguese:



“**X**” = “xis” sounds like



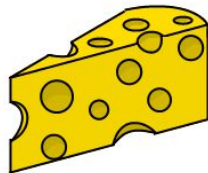
Portuguese: “X” = “xis” sounds like



Cheeseburger = X-burger



Portuguese: “X” = “xis” sounds like

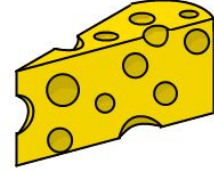


Cheeseburger = X-burger



(type of thing goes *after*)

Portuguese: “X” = “xis” sounds like



Cheeseburger = X-burger

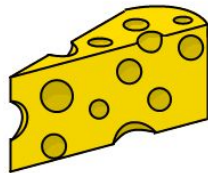


(type of thing goes *after*)

Baconburger



Portuguese: “X” = “xis” sounds like



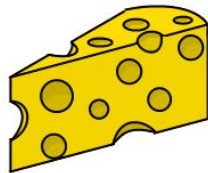
Cheeseburger = X-burger



(type of thing goes *after*)

Baconburger = X-bacon

Portuguese: “X” = “xis” sounds like



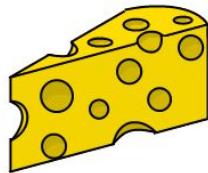
Cheeseburger = X-burger



(type of thing goes *after*)

Baconburger = X-bacon  
“Everything”burger

Portuguese: “X” = “xis” sounds like



Cheeseburger = X-burger

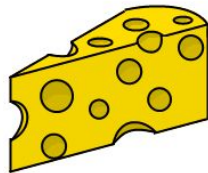


(type of thing goes *after*)

Baconburger = X-bacon

“Everything”burger = X-tudo

Portuguese: “X” = “xis” sounds like



Cheeseburger = X-burger



(type of thing goes *after*)

Baconburger = X-bacon



“Everything”burger = X-tudo



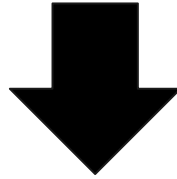


German:           hamburger =





German:           hamburger =



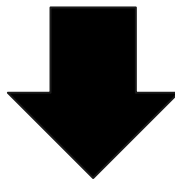
Portuguese:       X-tudo =





German:           hamburger =

???



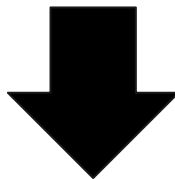
Portuguese:       X-tudo =





German: hamburger =

???



Portuguese: X-tudo =







German:

hamburger

???

Portuguese:



Germany

Portugal



Ger

Port





**And with that...**

---

Lunchtime!!!