

Introduction

Syntax: How Words Pattern Together

Examining the structure of phrases and sentences

Fixed word order ————— Case marking

Sequence vs. Grouping

Mouse on house



House on mouse



Mouse: wenchiawang/iStock/Getty Images; House: wenchiawang/iStock/Thinkstock

Syntax: How Words Pattern Together

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Mouse: wenchiawang/iStock/Getty Images; House: wenchiawang/iStock/Thinkstock

Syntax: How Words Pattern Together

Examining the structure of phrases and sentences

Fixed word order ————— Case marking

Sequence vs. Grouping

The big mouse on the little house



House on mouse



Mouse: wenchiawang/iStock/Getty Images; House: wenchiawang/iStock/Thinkstock

Analytical Basis for Understanding Syntax

The Unit



Lexicology
(the Word)



Morphology
(the Morpheme)



Phonology
(the Phoneme)



Phonetics
(the Phone)



Syntax
(the Sentence)



Semantics
(the Proposition)

Icons: University of Waterloo

Analytical Basis for Understanding Syntax

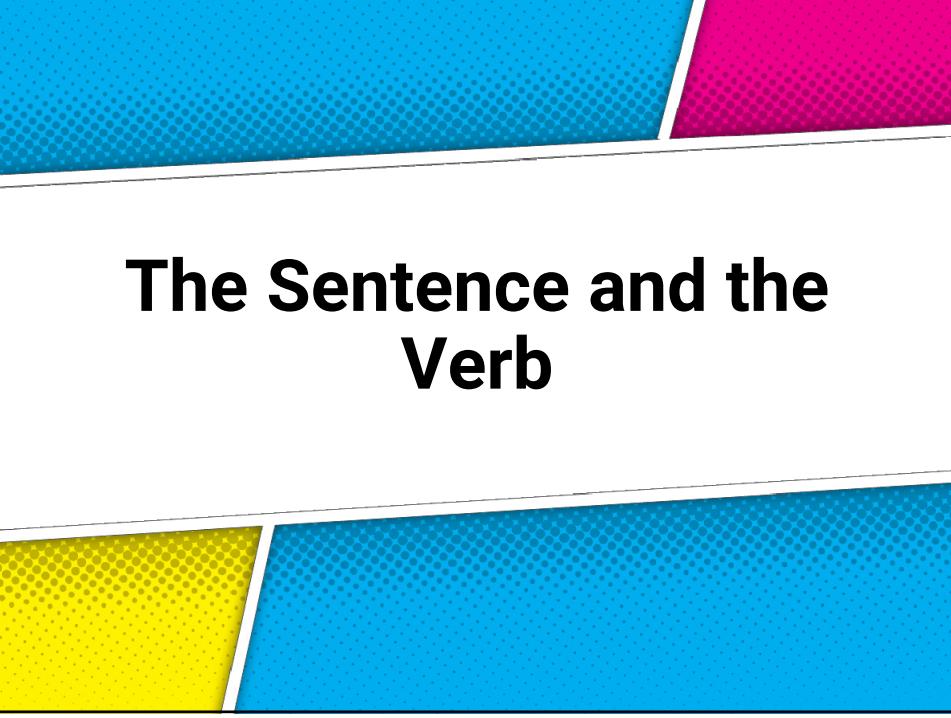
The primary concepts

- Grammatical roles (subject, object, ...)
- Predication
- Event schemas
- Phrase structure



This table is flat.

Table: wenchiaiwang/iStock/Thinkstock



The Sentence and the Verb

What is a Sentence?

"The grammatically complete expression of a single thought."

Shorter Oxford English Dictionary

"A word, clause, or phrase or a group of clauses or phrases forming a syntactic unit which expresses an assertion, a question, a command, a wish, an exclamation, or the performance of an action, that in writing usually begins with a capital letter and concludes with appropriate end punctuation, and that in speaking is distinguished by characteristic patterns of stress, pitch, and pauses."

Merriam-Webster

Grammatical relationship ← [syntax](#)

Agreement, grammatical role, coordination, subordination, ...

The thought ← [semantics; pragmatics](#)

- A predication
- A proposition

Might be implicated, rather than directly expressed (as in a question)

Verbs: the Sentential Heavyweight

The true definition of a sentence:

What the verb says it will be



Gorilla: University of Waterloo; Hand: Noedelhap/iStock/Thinkstock

Verbs: the Sentential Heavyweight

The true definition of a sentence:

What the verb says it will be

- Grammatical roles
- Predication
- Event scheme
- (Phrase structure)

e.g., **John kicked the ball.**

kicked (John, the ball)

e.g., **John threw the ball to the dog.**

threw (John, the ball, to the dog)



Gorilla: University of Waterloo; Hand: Noedelhap/iStock/Thinkstock

Example 1: 'Preen'

Preen

Grammatical role: subject

Homer is an argument of 'preen'.

Predication

The entity designated 'Homer' grooms self.

Event schema

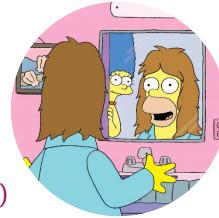
Preen! (Implied argument: 2nd person singular "You")

Event schema: doing

V₁: intransitive verb, one argument (a preener)

We are going to talk about verbs as:

- (V₁) intransitive
- (V₂) transitive
- (V₃) ditransitive



Homer preens.

verb

Homer preens: Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2015, August 15). *Flashback Friday-*. [Facebook, Timeline Photos]

Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10153107665293697/>.

Example 2: 'Love'

Loves

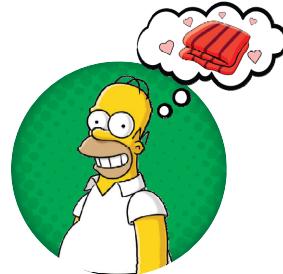
Grammatical role:

- subject ← Homer
- object ← his blanket

Predication:

The entity designated 'Homer' loves the owned-by-him object, blanket.

Event schema



Homer loves his blanket.

verb

V₂: transitive verb, two arguments (a lover, a loved).

Homer: Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2015, January 25). [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10152968458033697/>; Blanket: AptitudeAgency/iStock/Thinkstock

Example 3: 'Give'

Give

Grammatical role:

- subject ← Homer
- direct object ← Kiss
- indirect object ← Mindy

Predication:

The entity designated 'Homer' gives the (metaphorical) object, a kiss, to the entity designated 'Mindy'.

Event schema:

Transferring



Homer gives Mindy a kiss.

verb

Homer on pink: Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2015, July 13). How to get someone out of bed on a Monday morning. [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10153037696063697>.

Intransitive, Transitive, and Ditransitive verbs

Eat



Homer eats.
 verb

V₁: intransitive verb, one argument (the eater).

Give



Homer eats crap.
 verb

V₂: transitive verb, two arguments (the eater, the eaten).



Homer gives Mindy a kiss.
 verb

V₃: ditransitive verb, three arguments (the giver, the given, the recipient).

Homer eats: Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2015, January 25). TONIGHT: Elon Musk arrives in Springfield. Be there at 8/7c. [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/1015267735098697>; Homer & donut: Fox Flash (2006) "Homer Simpson". Wikimedia Commons.; Homer on pink: Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2015, July 13). How to get someone out of bed on a Monday morning. [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10153037696063697>.

The Subject and the Predicate

Sentences

Sentences

- Homer preens.
- Homer loves his blanket.
- Homer eats.
- Homer eats crap.
- The fat bald guy eats crap.
- The fat bald guy eats vast quantities of artery-hardening crap.
- The fat bald guy throws the dog a bone.
verb

Sentences encode meaning through predication.

Something is said (predicated) about the subject.

Predication Examples



Homer eats.
subject predicate



Homer eats crap.
verb
argument

Homer eats: Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2015, January 25). TONIGHT: Elon Musk arrives in Springfield. Be there at 8/7c. [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10152677735098697/>; Homer & donut: Fox Flash (2006) "Homer Simpson". Wikimedia Commons.

Predication Examples



Homer eats.
subject predicate



Homer eats crap.
subject predicate

Homer eats: Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2015, January 25). TONIGHT: Elon Musk arrives in Springfield. Be there at 8/7c. [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10152677735098697/>; Homer & donut: Fox Flash (2006) "Homer Simpson". Wikimedia Commons.

Predication Examples



Homer eats.
subject predicate



Homer eats lots of crap.
subject predicate

Homer eats: Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2015, January 25). TONIGHT: Elon Musk arrives in Springfield. Be there at 8/7c. [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10152677735098697/>; Homer & donut: Fox Flash (2006) "Homer Simpson". Wikimedia Commons.

Predication Examples



Homer eats.
subject predicate



Homer eats lots of crap.
subject noun noun
preposition

Homer eats: Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2015, January 25). TONIGHT: Elon Musk arrives in Springfield. Be there at 8/7c. [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10152677735098697/>; Homer & donut: Fox Flash (2006) "Homer Simpson". Wikimedia Commons.

Predication Examples



Homer eats.
subject predicate



The fat bald guy eats lots of crap.
subject noun phrase predicate

Homer eats: Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2015, January 25). TONIGHT: Elon Musk arrives in Springfield. Be there at 8/7c. [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10152677735098697/>; Homer & donut: Fox Flash (2006) "Homer Simpson". Wikimedia Commons.

Predication Examples



Homer eats.
subject predicate

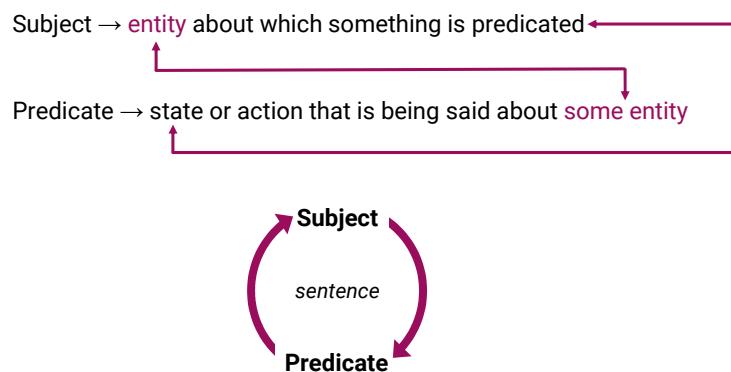


The fat bald guy eats lots of crap.
central noun predicate

Homer eats: Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2015, January 25). TONIGHT: Elon Musk arrives in Springfield. Be there at 8/7c. [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10152677735098697/>; Homer & donut: Fox Flash (2006) "Homer Simpson". Wikimedia Commons.

A Closer Look at the Subject and Predicate

Circular Definition



A Closer Look at the Subject and Predicate



The fat bald guy.



Eats lots of crap.

Homer: Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2015, January 25). [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10152968458033697/>; Homer & donut: Fox Flash (2006) "Homer Simpson". Wikimedia Commons.; Fast food: seamartini/iStock/Getty Images

A Closer Look at the Subject and Predicate



The fat bald guy eats lots of crap.

subject

The Noun Phrase about
which the sentence
predicates something

Homer: Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2015, January 25). [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10152968458033697/>; Homer & donut: Fox Flash (2006) "Homer Simpson". Wikimedia Commons.; Fast food: seamartini/iStock/Getty Images

Subject/Object Morphology



He is after me. Jim is after him.
subject object

He is after I.

Can we
replace me
with I?

Jim is after he.

Bull: Tigatelu/iStock/Getty Images; Runners: Vasilyevalara/iStock/Getty Images; Hand: Noedelhap/iStock/Thinkstock

Subject/Object Morphology



He is after me.
subject object

Jim is after him.

Him is after me.

Jim is after he.

Can we
replace **He**
with **Him**?

Bull: Tigatelu/iStock/Getty Images; Runners: Vasilyevalara/iStock/Getty Images; Hand: Noedelhap/iStock/Thinkstock

Predicate



Can we
replace **The
fat bald guy**
with **Him**?



The fat bald guy eats lots of crap.
predicate

The Verb Phrase that predicates
something about the subject

The Verb Phrase is sometimes
called "the predicate phrase"

Homer: Fox Flash (2006) "Homer Simpson". Wikimedia Commons.; Hand: Noedelhap/iStock/Thinkstock

Predicate

Can we
replace **The
fat bald guy**
with **He**?



The fat bald guy eats lots of crap.

predicate

The Verb Phrase that predicates
something about the subject

The Verb Phrase is sometimes
called "the predicate phrase"

Homer: Fox Flash (2006) "Homer Simpson". Wikimedia Commons.; Hand: Noedelhap/iStock/Thinkstock

Predicate

Predicate (V₁)



Homer preens.

- Simple predication
- Intransitive
- No Noun Phrase is implicated by the verb other than the subject.

Predicate (V₂)



Homer loves his blanket.

- Transitive predication
- One other Noun Phrase is implicated by the verb besides the subject; usually the (direct) object.

Predicate (V₃)



Homer gives Mindy a kiss.

- Ditransitive predication
- Two other Noun Phrases are implicated by the verb besides the subject; usually the direct object and the indirect (or oblique) object.

Homer preens: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015; Homer smiles: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015; Blanket: AptitudeAgency/iStock/Thinkstock; Homer kiss: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.

A Closer Look at the Subject and Predicate

Intransitive (V_1)



Homer preens.

One argument
subject

Transitive

subject → object



Homer loves his blanket.

- subject
- (direct object)

Ditransitive

subject ↘ object
object



Homer gives Mindy a kiss.

- subject
- direct object
- indirect/oblique object

Homer preens: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.; Homer smiles: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015; Blanket: AptitudeAgency/iStock/Thinkstock; Homer kiss: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.

References

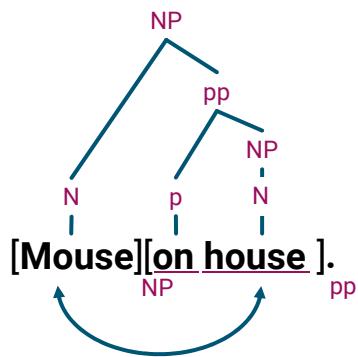
Slide 8: Homer preens: Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2015, August 15). *Flashback Friday*. [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10153107665293697/>; Homer smiles: Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2015, January 25). [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10152968458033697/>; Blanket: AptitudeAgency/iStock/Thinkstock; Homer kiss: Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2015, July 13). *How to get someone out of bed on a Monday morning*. [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10153037696063697/>.

Slide 9: Homer preens: Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2015, August 15). *Flashback Friday*. [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10153107665293697/>; Homer smiles: Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2015, January 25). [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10152968458033697/>; Blanket: AptitudeAgency/iStock/Thinkstock; Homer kiss: Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2015, July 13). *How to get someone out of bed on a Monday morning*. [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10153037696063697/>.

Immediate Dominance and Linear Precedence, Part 1

Introduction to Phrase Structure Analysis

Phrase Structure Tree



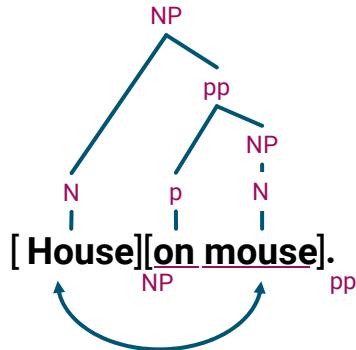
Mouse on house.



Mouse: wenchiawang/iStock/Getty Images; House: wenchiawang/iStock/Thinkstock

Introduction to Phrase Structure Analysis

Phrase Structure Tree



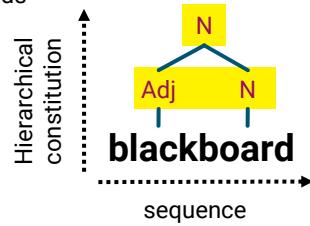
House on mouse.



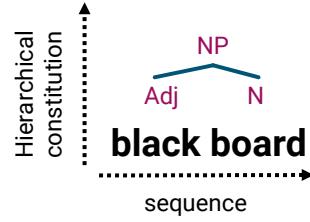
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Analyzing Phrase Structures with Linear Precedence and Immediate Dominance

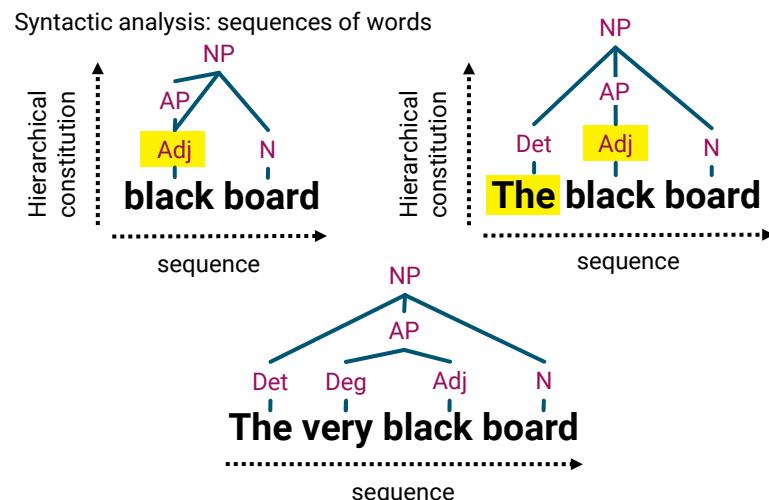
Recall morphological analysis: compounds



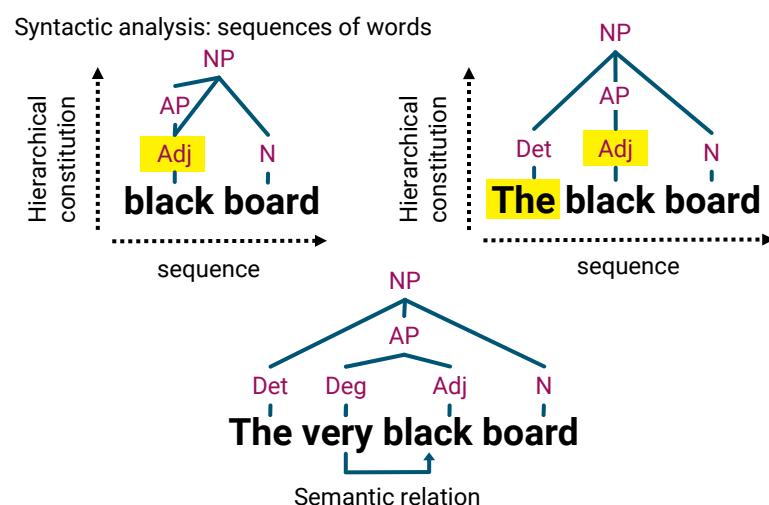
Syntactic analysis: sequences of words



Analyzing Phrase Structures with Linear Precedence and Immediate Dominance



Analyzing Phrase Structures with Linear Precedence and Immediate Dominance



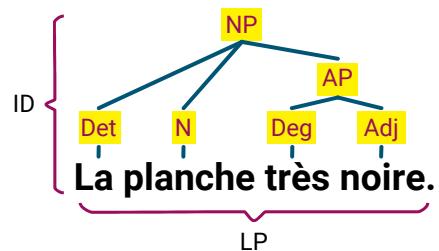
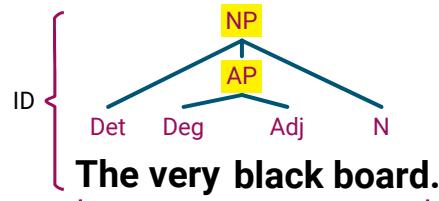
Analyzing Phrase Structures with Linear Precedence and Immediate Dominance

Immediate Dominance (ID)

- Hierarchy
- Constituency

Linear Precedence (LP)

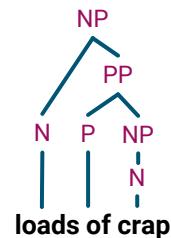
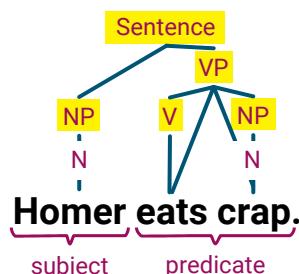
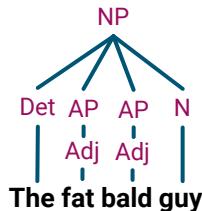
- Word order
- Grammatical sequence



Sentential Analysis with ID & LP

Immediate Dominance (ID)

- Hierarchy
- Constituency



Sentential Analysis with ID & LP

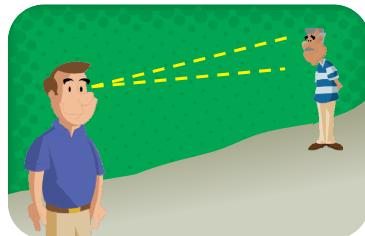
Linear Precedence (LP)

Word order

Grammatical sequence



I saw the man from the store.

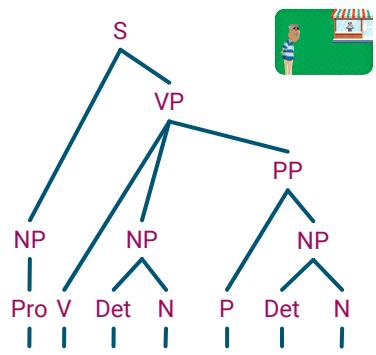


I saw the man from the store.

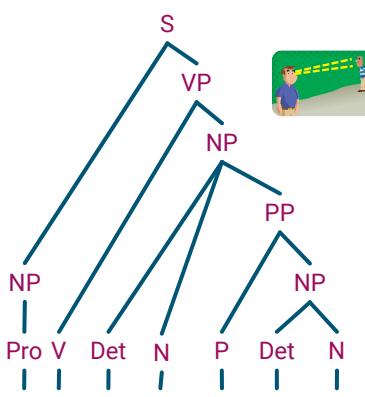
Store: karnoff/iStock/Getty Images; Peeking man: yusak_p/iStock/Getty Images; People: denis_pc/iStock/Thinkstock

Sentential Analysis with ID & LP

LP same; ID different



Linear Precedence

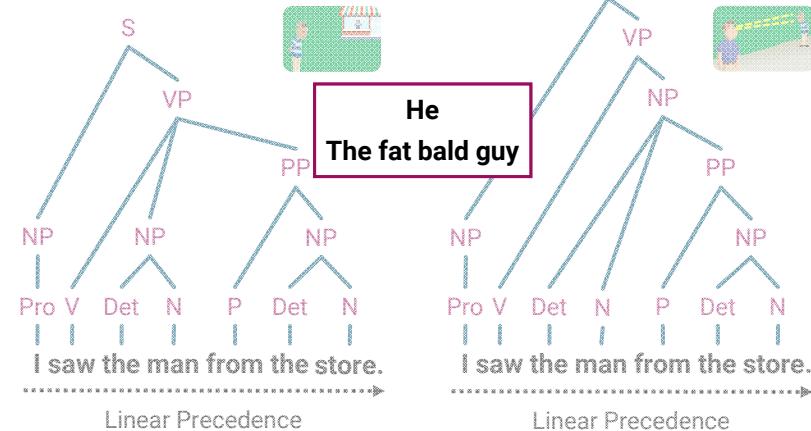


Linear Precedence

Store: karnoff/iStock/Getty Images; Peeking man: yusak_p/iStock/Getty Images; People: denis_pc/iStock/Thinkstock

Sentential Analysis with ID & LP

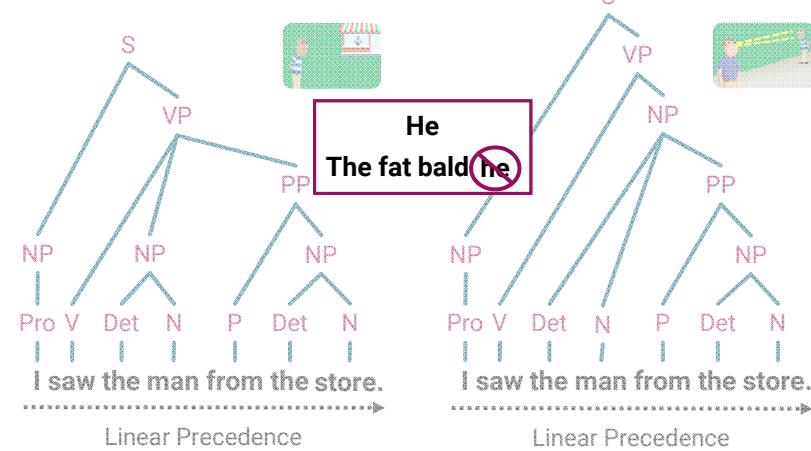
LP same; ID different



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Sentential Analysis with ID & LP

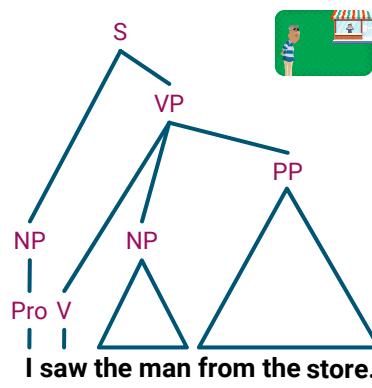
LP same; ID different



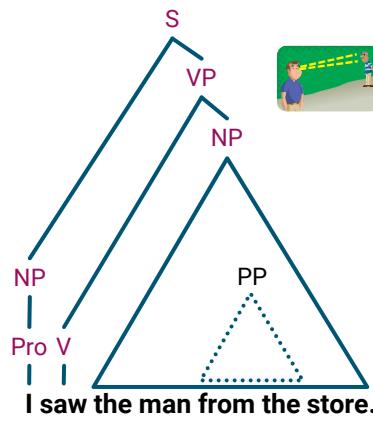
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Sentential Analysis with ID & LP

LP same; ID different



Linear Precedence

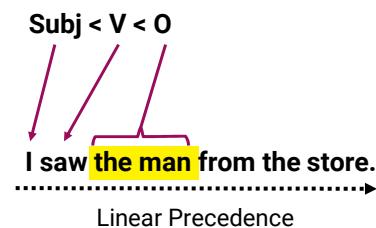


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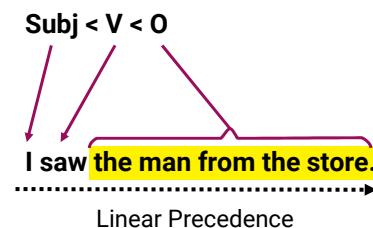
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Sentential Analysis with ID & LP

LP same; ID different

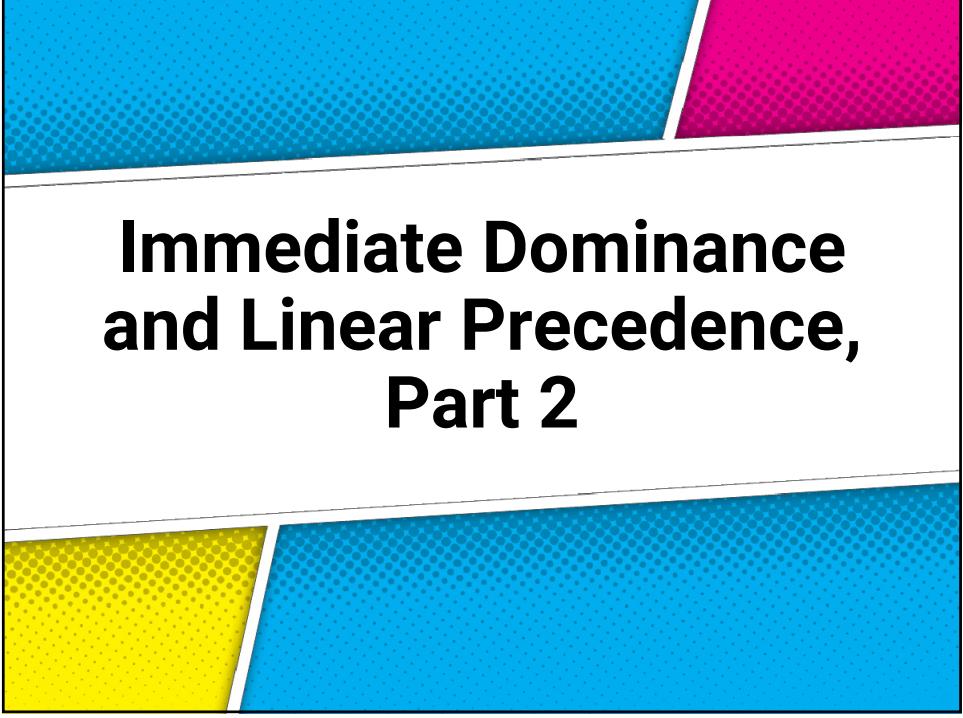


Linear Precedence



Linear Precedence

Store: karnoff/iStock/Getty Images; Peeking man: yusak_p/iStock/Getty Images; People: denis_pc/iStock/Thinkstock



Immediate Dominance and Linear Precedence, Part 2

More Sentential Analysis with ID & LP

Sentences

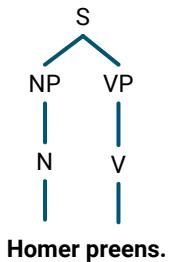
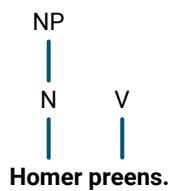
- Homer **preens**.
- Homer **loves his blanket**.
- Homer **eats**.
- Homer **eats crap**.
- The fat bald guy **eats crap**.
- The fat bald guy **eats vast quantities of artery-hardening crap**.
- The fat bald guy **throws the dog a bone**.

Example 1: The Preening Homer



Linear Precedence → Immediate Dominance ↑

Subject < Verb



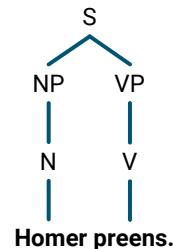
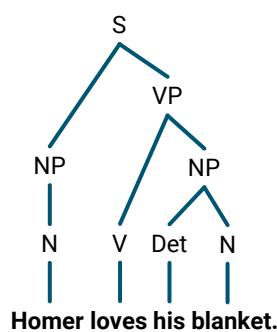
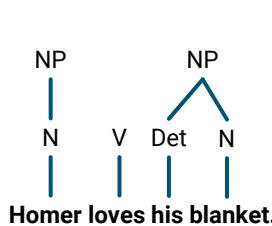
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Example 2: The Loving Homer



Linear Precedence → Immediate Dominance ↑

Subject < Verb < Object



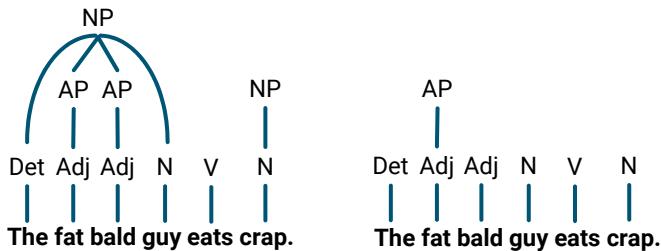
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Example 3: Homer's Eating Habits



Linear Precedence → Immediate Dominance ↑

Subject < Verb < Object



Substitution Test

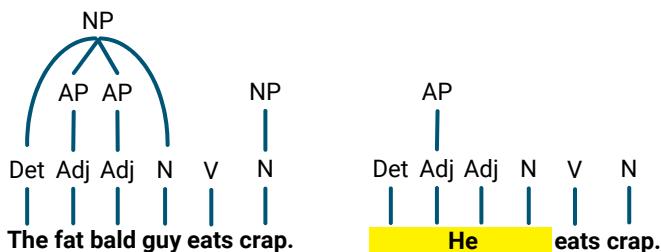
Homer: Fox Flash (2006) "Homer Simpson". Wikimedia Commons.; Hand: Noedelhap/iStock/Thinkstock

Example 3: Homer's Eating Habits



Linear Precedence → Immediate Dominance ↑

Subject < Verb < Object



• Substitution Test

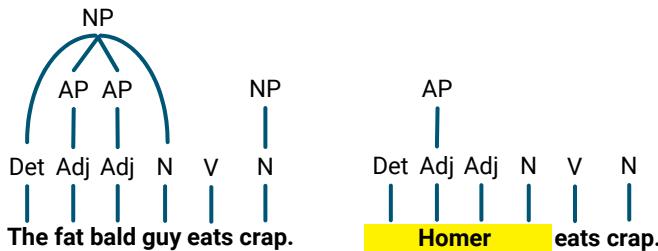
Homer: Fox Flash (2006) "Homer Simpson". Wikimedia Commons.; Hand: Noedelhap/iStock/Thinkstock

Example 3: Homer's Eating Habits



Linear Precedence → Immediate Dominance ↑

Subject < Verb < Object



• Substitution Test

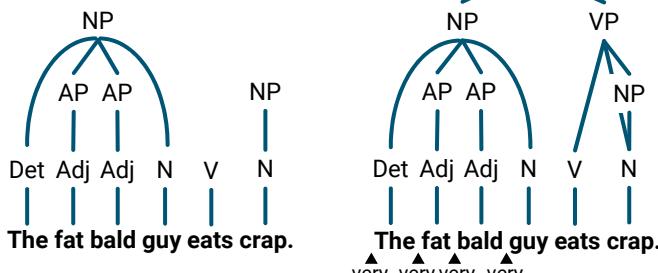
Homer: Fox Flash (2006) "Homer Simpson". Wikimedia Commons.; Hand: Noedelhap/Stock/Thinkstock

Example 3: Homer's Eating Habits



Linear Precedence → Immediate Dominance ↑

Subject < Verb < Object



Substitution Test

• Addition Test

Permutation Test

Homer: Fox Flash (2006) "Homer Simpson". Wikimedia Commons.; Hand: Noedelhap/Stock/Thinkstock

Phrase Structure Rules: NP Rule

$NP = (\text{Det}) (\text{AP})^* \text{ N } (\text{PP})$

Det AP N PP

Example:

$XY = (Y)^* X$

= → "is a", "rewrite as"

$XY \rightarrow X$ precedes Y

$(X) \rightarrow X$ is optional

$(X)^* \rightarrow$ Kleene star

Hand: Noedelhap/iStock/Thinkstock

Phrase Structure Rules: NP Rule

$NP = (\text{Det}) (\text{AP})^* \text{ N } (\text{PP})$

The fat guy in the kitchen

Example:

$XY = (Y)^* X$

= → "is a", "rewrite as"

$XY \rightarrow X$ precedes Y

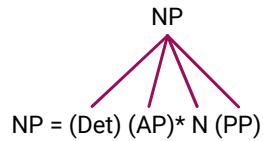
$(X) \rightarrow X$ is optional

$(X)^* \rightarrow$ Kleene star

Hand: Noedelhap/iStock/Thinkstock

Phrase Structure Rules: NP Rule

Immediate Dominance



Example:

$XY = (Y)^* X$

= → "is a", "rewrite as"

$XY \rightarrow X$ precedes Y

$(X) \rightarrow X$ is optional

$(X)^* \rightarrow$ Kleene star

Hand: Noedelhap/iStock/Thinkstock

Phrase Structure Rules: NP Rule

Linear Precedence

$\overbrace{NP = (Det) (AP)^* N (PP)}$

Example:

$XY = (Y)^* X$

= → "is a", "rewrite as"

$XY \rightarrow X$ precedes Y

$(X) \rightarrow X$ is optional

$(X)^* \rightarrow$ Kleene star

Hand: Noedelhap/iStock/Thinkstock

Phrase Structure Rules

English basic phrase structure

$S = NP VP$

- $NP = (Det) (AP)^* N (PP)$
- $AP = (Deg) A$
- $PP = P NP$
- $VP = (Aux) V (NP) (NP) (PP) (AdvP)$

$AdvP = AdV$

= → "is a", "rewrite as"

$XY \rightarrow X$ precedes Y

$(X) \rightarrow X$ is optional

$(X)^* \rightarrow X$ iterates: $\emptyset - \infty Xs$

Hand: Noedelhap/iStock/Thinkstock

Phrase Structure Rules

English basic phrase structure

$S = NP VP$

- $NP = (Det) \underline{(AP)}^* N \underline{(PP)}$
- $AP = (Deg) A$
- $PP = P \underline{NP}$
- $VP = (Aux) V \underline{(NP)} \underline{(NP)} \underline{(PP)} (AdvP)$

$AdvP = AdV$

The very fat guy in the kitchen

has thrown his dog a bone in the park repeatedly.

Hand: Noedelhap/iStock/Thinkstock

Phrase Structure Rules

English basic phrase structure

$S = NP\ VP$

$NP = (Det)\ (AP)^*\ N\ (PP)$

$AP = (Deg)\ A$

$PP = P\ NP$

$VP = (Aux)\ V\ (NP)\ (NP)\ (PP)\ (AdvP)$

$AdvP = AdV$

Det AP AP AP N
The big ... big stupid dog

Hand: Noedelhap/iStock/Thinkstock

Phrase Structure Rules

English basic phrase structure

$S = NP\ VP$

$NP = (Det)\ (AP)^*\ N\ (PP)$

$AP = (Deg)\ A$

$PP = P\ NP$

$VP = (Aux)\ V\ (NP)\ (NP)\ (PP)\ (AdvP)$

$AdvP = AdV$

Det AP AP AP AP AP N
The big fat stupid annoying loud dog

Hand: Noedelhap/iStock/Thinkstock

Phrase Structure Rules

English basic phrase structure

S = NP VP

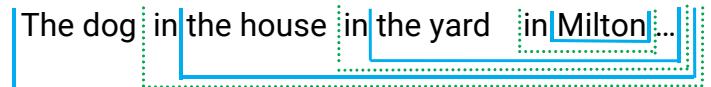
NP = (Det) (AP)* N (PP)

AP = (Deg) A

PP = P NP

VP = (Aux) V (NP) (NP) (PP) (AdvP)

AdvP = AdV



Hand: Noedelhap/iStock/Thinkstock

English Basic Sentence Patterns

English basic sentence patterns

V_{COP}

Subject < Verb < Complement

V₁

Subject < Verb

Intransitive

V₂

Subject < Verb < Object

Transitive

V₃

Indirect Object

Subject < Verb < I-Object < D-Object

Ditransitive

3 types of verbs:

• Intransitive

• Transitive

• Ditransitive

Preens: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.; Smiling: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.;
Blanket: AptitudeAgency/iStock/Thinkstock; Santa's Little Helper: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.;
Scale: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2014.

English Basic Sentence Patterns

English basic sentence patterns

V_{COP}

Subject < Verb < Complement

V₁

Subject < Verb

Intransitive



V₁ - Homer preens.

V₂

Subject < Verb < Object

Transitive



V₂ – Homer loves his blanket.

V₃

Indirect Object

Subject < Verb < I-Object < D-Object

Ditransitive

Direct Object

V₃ – Homer threw the dog a bone.

V_{COP} – Homer is large.

adjective

Preening: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.; Smiling: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.; Blanket: AptitudeAgency/iStock/Thinkstock; Santa's Little Helper: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.; Scale: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2014.

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Slide 10: Preen: Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2015, August 15). Flashback Friday. [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10153107665293697/>; Smiling: Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2015, January 25). [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10152968458033697/>; Blanket: AptitudeAgency/iStock/Thinkstock; Santa's Little Helper: Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2015, November 8). West Coast- Santa's Little Helper is begging you to watch an all-new episode of The Simpsons, right now! [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10153263218318697/>; Scale: Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2014, June 16). Doh! [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10152196533828697/>.

Event Schemas, Part 1: Simplex

Preview of Event Schemas

The Doing schema

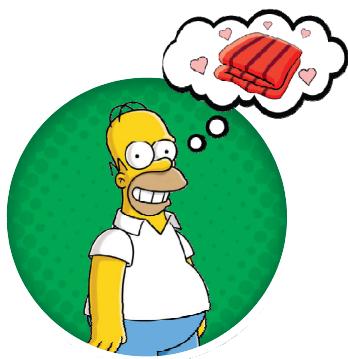


Agent
↓
Homer preens.

Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2015, August 15). Flashback Friday- [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10153107665293697/>.

Preview of Event Schemas

The Experiencing schema



Experiencer
↓
Homer loves his blanket.

Smiling: Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2015, January 25). [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10152968458033697/>; Blanket: AptitudeAgency/iStock/Thinkstock

Preview of Event Schemas

The Doing schema



Agent
↓
NP
↑
Patient
↓
The fat bald guy eats crap.

Homer: Fox Flash (2006) "Homer Simpson". Wikimedia Commons.

Preview of Event Schemas

Event schemas we'll be looking at:

- Being
- Happening



Scale: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.; Headgear: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2014.; Brushing teeth: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2016.; Barrel head: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2016.; Pool with six-pack: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.

Preview of Event Schemas

Event schemas we'll be looking at:

- Being
- Happening



Scale: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.; Headgear: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2014.; Brushing teeth: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2016.; Barrel head: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2016.; Pool with six-pack: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.

Preview of Event Schemas

Event schemas we'll be looking at:

- Being
- Happening
- Doing



Scale: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.; Headgear: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2014.; Brushing teeth: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2016.; Barrel head: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2016.; Pool with six-pack: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.

Preview of Event Schemas

Event schemas we'll be looking at:

- Being
- Happening
- Doing
- Experiencing



Scale: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.; Headgear: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2014.; Brushing teeth: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2016.; Barrel head: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2016.; Pool with six-pack: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.

Preview of Event Schemas

Event schemas we'll be looking at:

- Being
- Happening
- Doing
- Experiencing
- Having



Scal: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.; Headgear: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2014.; Brushing teeth: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2016.; Barrel head: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2016.; Pool with six-pack: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.

Preview of Event Schemas

Event schemas we'll be looking at:

- Being
- Happening
- Doing
- Experiencing
- Having
- Moving
- Transferring

} Simple event schemas
} Complex event schemas

Scal: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.; Headgear: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2014.; Barrel head: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2016.; Pool with six-pack: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.

Being

Event schemas we'll be looking at:

- Being
- Happening
- Doing
- Experiencing
- Having

E.g.:

- Homer is large.

What is the Subject (like)?



Large: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.; Safety inspector: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.; Homer in kitchen: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.

Being

Event schemas we'll be looking at:

- Being
- Happening
- Doing
- Experiencing
- Having

E.g.:

- Homer is large.
- Homer is a safety inspector.

What is the Subject (like)?



Large: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.; Safety inspector: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.; Homer in kitchen: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.

Being

Event schemas we'll be looking at:

- Being
- Happening
- Doing
- Experiencing
- Having

E.g.:

- Homer is large.
- Homer is a safety inspector.
- Homer is in the kitchen.



What is the Subject (like)?

Large: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.; Safety inspector: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.; Homer in kitchen: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.

Being

Event schemas we'll be looking at:

- Being
- Happening
- Doing
- Experiencing
- Having

E.g.:

- Homer is large.
- Homer is a safety inspector.
- Homer is in the kitchen.



What is the Subject (like)?

● Subject NP = Patient

Large: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.; Safety inspector: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.; Homer in kitchen: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.

Being

Forms of the English Verb 'be'

| | | Agreement | | | |
|---------|-----------------------------------|-----------|------|---------|------|
| | | Singular | | Plural | |
| | | Present | Past | Present | Past |
| Person | 1 st (I/We) | am | was | are | were |
| | 2 nd (You) | are | were | are | were |
| | 3 rd (He, She It/They) | is | was | are | were |
| Special | Infinitive | (to) be | | | |
| | Present Participle | being | | | |
| | Past Participle | been | | | |

Large: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.; Safety inspector: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.; Homer in kitchen: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.

Being

Event schemas we'll be looking at:

- Being
- Happening
- Doing
- Experiencing
- Having

E.g.:

- Complements
- Homer is large.
 - Homer is a safety inspector.
 - Homer is in the kitchen.
 - Homer is going to Nigeria

What is the Subject (like)?

Subject NP

- (Secondary NP) = Essive)

Large: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.; Safety inspector: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.; Homer in kitchen: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.

Happening

Event schemas we'll be looking at:

- Being
- Happening
- Doing
- Experiencing
- Having

E.g.:

- Homer fell asleep.



What is happening to the Subject?

Subject NP = Patient

(Secondary NP = Patient)

Asleep: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2016.; Hair: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.

Happening

Event schemas we'll be looking at:

- Being
- Happening
- Doing
- Experiencing
- Having

E.g.:

- Homer fell asleep.
- Homer is aging.
- Homer became the mascot.



What is happening to the Subject?

Subject NP = Patient

(Secondary NP = Patient)

Asleep: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2016.; Hair: Brooks, J. L., Groening, M., & Simon, S./Facebook, 2015.

Doing

Event schemas we'll be looking at:

- Being
- Happening
- Doing
- Experiencing
- Having

E.g.:

- Homer eats.
- Homer throttles his son.



What is the Subject doing?

Subject NP = Agent

(Secondary NP = Patient)

Fox Flash (2006) "Homer Simpson". Wikimedia Commons.

Experiencing

Event schemas we'll be looking at:

- Being
- Happening
- Doing
- Experiencing
- Having

E.g.:

- V_1 • Homer laments.
 V_2 • Homer loathes Flanders.
• Homer saw Chief Wiggins.



What is the Subject experiencing?

Subject NP = Experiencer

Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2015, July 31). "The only monster here is the gambling monster that has enslaved your mother, and I call him Gambol!" - Homer. [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10153076549938697>

Having

Event schemas we'll be looking at:

- Being
- Happening
- Doing
- Experiencing
- Having

E.g.:

- Homer has three kids.
- Homer owns a dog.
- Homer possesses a keen sense of smell.
- Homer has chicken pox.

What does the Subject have?

Subject NP = Possessor

Secondary NP = Patient



Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2015, November 8). West Coast- Santa's Little Helper is begging you to watch an all-new episode of The Simpsons, right now! [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10153263218318697/>

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Slide 5: Scale: Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2015, July 2). See you in San Diego! fox.com/comic-con [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10152196533828697/>; Headgear: Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2014, June 16). Doh! [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10153015319373697/>; Brushing teeth: Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2016, July 27). Getting for the day like... [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10153821410968697/>; Barrel head: Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2016, March 17). Have a fantastic St. Patrick's Day! Homer sure is. [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10153519329943697/>; Pool with six-pack: Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2015, July 23). Like if you would vacation with The Simpsons! [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10153058551608697/>

Slide 6: Homer large: Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2015, July 2). See you in San Diego! fox.com/comic-con [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10152196533828697/>; Safety inspector: Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2015, November 30). How to fool your boss after coming back from Thanksgiving weekend... [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10153297576573697/>; Homer in kitchen: Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2015, May 3). Get ready for some family bonding. West Coast! The Simpsons is on right now! [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10152879985263697/>

Slide 7: Asleep: Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2016, May 1). We're off tonight! Homer's probably preparing for Homer Live. Save the date- May 15 on FOX! [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10153634900068697/>; Hair: Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2015, April 7). And you thought you were having a bad hair day. [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10152823747178697/>

Event Schemas, Part 2: Complex

Moving

Simplex Event Schemas:

- Being
- Happening
- Doing
- Experiencing
- Having



Complex Event Schemas:

- Moving

Combination of other event schemas.

Involve a change of location.

Imply an origination for the change in location.

- Transferring

Imply a way to get from the origination to the end point.

Moving

Simplex Event Schemas:

- Being
 - Happening
 - Doing
 - Experiencing
 - Having
- Where does the Subject go?
Subj NP = Agent (doing)
= Patient (happening)
 2^{nd} NP = Patient (doing)
 3^{rd} NP(s) = source, path, goal

Complex Event Schemas:

- Moving
 - Happening + source/path/goal
 - Doing + source/path/goal
- Transferring

Moving

Moving

- Happening + source/path/goal

patient goal source path source
↓ ↓ ↓ ↓ ↓
Homer stumbled home.
Homer stumbled home from Apu's.
Homer stumbled home, down the sidewalk from Apu's.



Moving

Moving

- Happening + source/path/goal
- Doing + source/path/goal

agent path source goal
Homer climbed out the window.
Homer climbed up Mount Splashmore from base camp to the summit.
Homer ran screaming across the back yard to Flander's.

Complex Event Schemata

Transferring = Having + Moving {
Moving_{Happening}
Moving_{Doing}
A complex schema already
Having or Doing + source/path/goal

Transferring

Transferring = Having + Moving_{Happening}

V_2 Homer won \$1.76.

V_{T-COMP} Homer won \$1.76 from the Springfield Lottery Corporation.



Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2014, October 7). That moment when "Somewhere Over the Dwayne Bowe" takes the fantasy football top spot. [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10152433680383697>

Transferring

Transferring = Having + Moving_{Doing}

V_2 Homer sold the dog.

V_3 Homer sold Moe the dog.

V_{T-COMP} Homer sold the dog to Moe.



Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2016, May 4). Have a great Wednesday! [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10153640929278697>

Transferring



Transferring = Having + Moving_{Happening}

Homer won \$1.76 from the Springfield Lottery Corporation.

Having: possessor patient possessor

Moving: goal patient source

Happening: receiver patient patient

Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2014, October 7). *That moment when "Somewhere Over the Dwayne Bowe" takes the fantasy football top spot.* [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413896.246070.29534858696/10152433680383697>

Transferring



Transferring = Having + Moving_{Doing}

Homer sold the dog.

Having: possessor patient

Moving: source patient

Doing: agent patient

Fox Flash (2009). "Santa's Little Helper". Wikimedia Commons.

Transferring



Transferring = Having + Moving_{Doing}

Homer sold the dog to Moe.

Having: possessor patient possessor

Moving: source patient goal

Doing: agent patient receiver

Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2016, May 4). Have a great Wednesday! [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10153640929278697>

Transferring



Transferring = Having + Moving_{Doing}

Homer sold Moe the dog.

Having: possessor possessor patient

Moving: source goal patient

Doing: agent receiver patient

Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2016, May 4). Have a great Wednesday! [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10153640929278697>

Transferring

Transferring = Having + Moving_{Doing}

Homer told his wife a story.

Having: possessor possessor patient

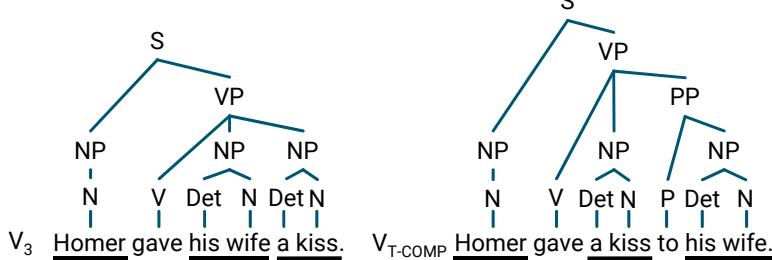
Moving: source goal patient

Doing: agent receiver patient



Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2016, March 12). Homer suggests a devious strategy to help Marge change Lisa's mind tomorrow on The Simpsons! [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10153505893803697>

Transferring



Grammatical Relations

Subject I-Object D-Object

Subject D-Object Comp

Semantic Roles

Having: possessor possessor patient

possessor patient possessor

Moving: source goal patient

source patient goal

Doing: agent receiver patient

agent patient receiver

Brooks, J. L., Groening, M., & Simon, S. (Executive Producers). (2015, November 14). True love. [Facebook, Timeline Photos] Retrieved from <https://www.facebook.com/TheSimpsons/photos/a.473850413696.246070.29534858696/10153272202683697>

Arguments

Arguments and Roles

Argument:

- Noun Phrases that are governed by a predicate.
- Must serve both grammatical roles and semantic/participant roles.

Semasiological
Concern Form

Grammatical role:

- The grammatical job arguments assume.

Semantic/participant role:

- The conceptual job arguments assume.

Onomasiological
Concern Meaning

Hand: Noedelhap/iStock/Thinkstock

Arguments and Roles

Argument:

- Noun Phrases that are governed by a predicate.
- Must serve both grammatical roles and semantic/participant roles.
- Form of the sentence.
- Number and order of Noun phrases.

Grammatical role:

- The grammatical job arguments assume.
- Form of the words.
- Order of the words.

E.g.:

We run to the store.

He runs to the store.

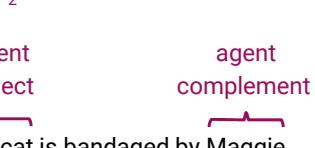
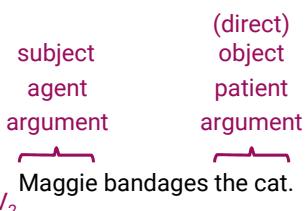
Semantic/participant role:

- The conceptual job arguments assume.
- How the arguments are related via the action or state.

Arguments and Roles

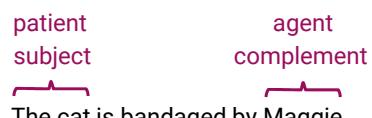
Argument:

- Noun Phrases that are governed by a predicate.
- Must serve both grammatical roles and semantic/participant roles.
- Form of the sentence.
- Number and order of Noun phrases.



Grammatical role:

- The grammatical job arguments assume.
- Form of the words.
- Order of the words.



Semantic/participant role: (a.k.a. Thematic roles, Theta roles, O-roles)

- The conceptual job arguments assume.
- How the arguments are related via the action or state.

Review

Review

The sentence

- The verb and its arguments.

The subject and the predicate.

Phrase Structure

- Immediate Dominance
- Linear Precedence

Event Schemas

- Simplex
- Complex (simplex + relocation)