

Lecture 06: Theta-theory.

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LIN 311: Syntax

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Outline

- ① Verbs and Arguments
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 - Towards the θ -role hierarchy*

Verbs and Arguments

Categories of verbs

Reminder: verb and its arguments

- 1 argument – **intransitive**:

(1) Christmas trolls smiled.

- 2 arguments – **transitive**:

(2) Christmas trolls ate pudding.

- 3 arguments – **ditransitive**:

(3) Christmas trolls gave Andrei pudding.

Let's so far analyze **intransitive** and **transitive** verbs (**ditransitives** come later...).

X-Bar Theory

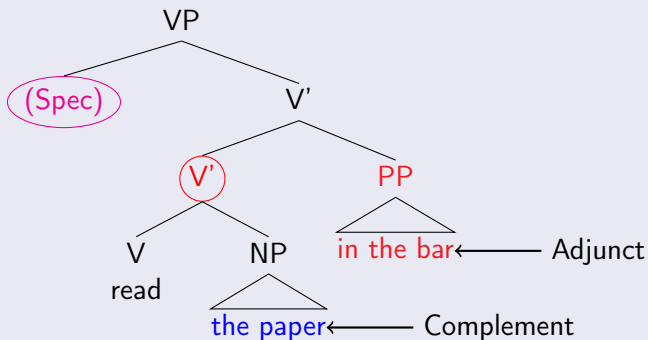
Reminder

The rules of X-Bar Theory for VP:

- **Specifier Rule:** $VP \rightarrow (\text{Spec}) V'$
 - Remember that so far we assumed that Spec position is empty!
- **Adjunct Rule:** $V' \rightarrow (\text{ZP}) V'$ or $V' \rightarrow V' (\text{ZP})$
 - ZP is some adjunct (AdvP, PP, etc.) – optional!
- **Complement Rule:** $V' \rightarrow V (\text{WP}) (\text{YP})$
 - WP and YP are arguments (usually NP, but can be PP). For intransitive verbs, there is no argument; that's why we assume that WP is optional. For ditransitive verbs we have both.

X-Bar Theory

read the paper in the bar



Problems with verbs

Overgeneralization

- So far our grammar can generate all of the following:

- (4)
- John smiled.
 - *John smiled beer.
 - *John smiled Mary beer.
- (5)
- Lisa devoured some cookies.
 - *Lisa devoured.
 - *Lisa devoured Bill some cookies.
- (6)
- Sophie gave Andrei the homework.
 - *Sophie gave Andrei.
 - *Sophie gave the homework.
 - *Sophie gave.

Bad solution

Change the rules

- We can break the verbs into three classes and change the rules:

$V_i \rightarrow \textit{smile, walk, dance, \dots}$ (intransitive)

$V_t \rightarrow \textit{buy, milk, dance, \dots}$ (transitive)

$V_d \rightarrow \textit{give, assign, \dots}$ (ditransitive)

$V' \rightarrow V_i$

$V' \rightarrow V_t \text{ NP}$

$V' \rightarrow V_d \text{ NP NP}$

Types of arguments

- **Arguments** are required by the verb.
- Sentences must minimally have a **verb and its arguments**.

- **Noun Phrases:**

- (7)
- Mary said **two words**.
 - *Mary said.
 - *Said **two words**.

- **Clauses:**

- (8)
- Mary said **that John was ill**.
 - That John was ill** bothered Mary.

- **Prepositional Phrases:**

- (9)
- John relies **on Mary**
 - *John relies.

Adverbials

Adverbials

- **Adverbials** elements which can be easily left out.
- Can be replaced by an adverb.
- Add extra information.

(10)	a.	The puppy snores.	No adverbial
	b.	The puppy snores the whole night .	NP
	c.	The puppy snores in the forest .	PP
	d.	The puppy snores loudly .	AP
	e.	The puppy snores when he is asleep .	Clause

θ-Theory

Thematic roles

Theta-theory (θ -theory) is a module of syntax responsible for a correct number of arguments.

Thematic role (or theta-role, θ -role) is a semantic relation between the verb and its argument.

Example

The verb **love** needs two arguments, so we say that it **assigns two θ -roles**.

- Classification of θ -roles coming soon. . .

Thematic roles

Example

The verb **love** needs two arguments, so we say that it **assigns two θ -roles**, **lover** and **lovee**.

- (11) a. Mary loves whisky.
 b. *Mary loves.

Questions:

- Why is (11-b) ungrammatical?
 - One of the θ -roles is not assigned!
 - Why can't both theta-roles be assigned to *Mary*, meaning *Mary loves herself*?
 - Every θ -role has to be assigned to a unique argument.

Thematic roles

Example

The verb **love** needs two arguments, so we say that it **assigns two θ -roles**, **lover** and **lovee**.

- (12) a. Mary loves whisky.
 b. *Mary loves whisky beer.

Questions:

- Why is (12-b) ungrammatical?
 - One of the arguments does not get a θ -role!
 - Every argument must receive a θ -role.

The θ -Criterion

The θ -Criterion

- Every θ -role must be assigned to a unique argument; and
- every argument must receive a θ -role.

Optional θ -roles

Example

- (13) a. Anna eats.
b. Anna eats goat-curry.
- (14) a. Peter gave a book.
b. Peter gave his boss a book.

Optional assignment of θ -roles

- Certain verbs can assign θ -roles **optionally**:
 - **eat** always assigns at least one θ -role, eater, and sometimes assigns two, eater and eatee.
 - **give** always assigns at least two θ -role, giver and given, and sometimes assigns three, giver, given, and givee.
- Which verbs can assign θ -roles optionally is arbitrary, and varies from language to language.

Agent, Causer

Example

- (15)
- Mark** cooked a banana bread.
 - The detective** interrogated the suspect.
 - The storm** broke a tree.
 - A large stone** crashed the car.

Agent

- Agent**: an animate entity who deliberately initiates the action
 - Mark** (15-a); **the detective** (15-b)

Causer

- Causer**: an entity responsible for initiating an event
 - the storm** (15-c); **a large stone** (15-d)

Patient, Theme

Example

- (16)
- The detective interrogated **the suspect**.
 - A rock hit **Bob**.
 - Mark cooked **a banana bread**.
 - Dan played **guitar**.

Patient

- Patient**: animate undergoer of an action
 - the suspect** (16-a); **Bob** (16-b)

Theme

- Theme**: inanimate object undergoing an action
 - a banana bread** (16-c); **guitar** (16-d)

Patient, Theme

Patient vs. Theme

- Distinction between **Patient** and **Theme** is purely semantic (animacy).
- Often both of these θ -roles are referred to as **Theme**
- Some verbs can assign either:

- (17)
- | | | | |
|----|-------|-----|-----------|
| a. | Mary | hit | the car. |
| | Agent | | Theme |
| b. | Mary | hit | her boss. |
| | Agent | | Patient |

Experiencer

Example

- (18)
- Aniello** likes sushi.
 - Syntax frightens **the students**.
 - Richard** saw the eclipse.

Experiencer

- **Experiencer**: an animate entity that experiences or perceives the event.
- Usually associated with a verb of emotion, perception, or cognition.
 - **Aniello** (18-a); **the students** (18-b); **Richard** (18-c)

Goal, Recipient

Example

- (19)
- Andrei gave **students** an assignment.
 - Fred send a package to **Russia**.

Recipient

- Recipient**: animate entity that the event done to or for
 - students** (19-a)

Goal

- Goal**: animate entity that the event done to or for
 - Russia** (19-b)

Goal vs. Recipient

Goal and Recipient behave differently:

- (20) a. Don sent money to Stephanie.
 b. Don sent Stephanie money.
- (21) a. Melania sent money to Slovenia.
 b. *Melania sent Slovenia money.

Apparent counterexamples?

- (22) a. The European Union gave London something to worry about.
 b. The President sent North Korea an ultimatum.

London and North Korea represent not locations, but national authorities, i.e. human beings.

Animate vs. inanimate θ -roles

Goal vs. Recipient

So far we noticed that Goal and Recipient θ -roles behave different syntactically:

- (23) a. John send **Mary** the letter.
b. *John send **Moscow** the letter.

Are there any other **animate/inanimate** syntactic phenomena?

Animate vs. inanimate θ -roles

Theme vs. Patient

(24) Spanish

a. Juan besó **a** **Maria**.

Juan kissed TO Maria

'Juan kissed Mary.'

b. Juan besó (***a**) **un retrato**.

Juan kissed (TO) a portrait

'Juan kissed a portrait.'

Differential Object Marking: In Spanish, **animate** objects (patients) must be marked with a preposition **a**, while **inanimate** objects (themes) do not allow such preposition.

- The asterisk * in parentheses means that having whatever is in parentheses is ungrammatical.

Animate vs. inanimate θ -roles

Agent vs. Causer

(25) Russian

- a. **Veter** razbil okno. Causer
 wind broke window
 'The wind broke the window.'
- b. **Ivan** razbil okno. Agent
 Ivan broke window
 'Ivan broke the window.'
- c. Okno razbilo **vetrom**. Causer, Impersonal
 window was.broken wind_{INSTR}
 'The window was broken by the wind.'
- d. *Okno razbilo **Ivanom**. Agent, Impersonal
 window was.broken Ivan_{INSTR}
 'The window was broken by Ivan.'

Animate vs. inanimate θ -roles

Russian impersonal constructions

- In Russian, there is a special construction, **Impersonal construction**, in some way similar to English passives.
- This construction is impossible, if the action is done **deliberately** by a human.
- Note, there is a weird reading of (25-d), where Ivan (or Ivan's body) was used to break the window (i.e. *the wind lifted Ivan and broke the window by throwing Ivan into it*), but it was not his deliberate action.

Examples of θ -roles

verb	sentence	θ -roles
<i>to rain</i>	It rained.	no θ -roles
<i>to snore</i>	John snores.	Agent
<i>to break</i>	John broke the vase.	Agent, Theme
<i>to break</i>	The vase broke.	Theme
<i>to fall</i>	John fell.	Patient
<i>to like</i>	John likes cookies.	Exp, Patient/Theme
<i>to kick</i>	John kicked Bill.	Agent, Patient/Theme
<i>to eat</i>	John eats (soup).	Agent, (Theme)
<i>to give</i>	John gave Mary a book.	Agent, Rec, Theme
<i>to send</i>	John send \$100 to NY.	Agent, Theme, Goal

Ungrammaticality

θ -roles and ungrammaticality

Example

(26) Mary loves whisky.

θ -roles	Experiencer	Theme
<i>love</i>	<i>Mary</i>	<i>whisky</i>

(27) *Mary loves.

θ -roles	Experiencer	Theme
<i>love</i>	<i>Mary</i>	\times

(28) *Mary loves whisky beer.

θ -roles	Experiencer	Theme	\times
<i>love</i>	<i>Mary</i>	<i>whisky</i>	<i>beer</i>

Causes of ungrammaticality: structural violations

Structural violations

Some ungrammaticality is due **violation of phrase-structure rules**.

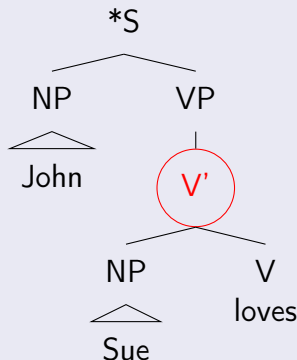
(29) *John Sue loves.

Sentence in (29) cannot be derived by the grammar: in English complements always come after verbs:

$V' \rightarrow V NP$, and not

$V' \rightarrow NP V$

Note: other languages might have different rules!



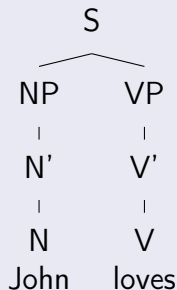
Causes of ungrammaticality: θ -role violations

θ -role violations

(30) *John loves.

Sentence in (30) on the other hand is ok structurally, but ungrammatical due to the θ -criterion violation:

θ -roles	Experiencer	Theme
<i>love</i>	<i>John</i>	X



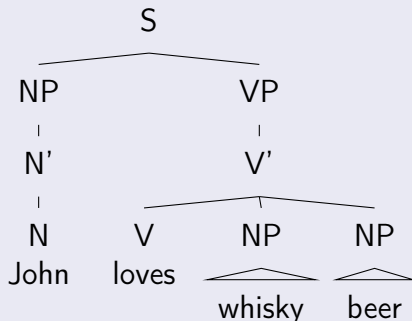
Causes of ungrammaticality: θ -role violations

θ -role violations

(31) *John loves whisky beer.

Same is true for (31): our grammar must allow two objects (like in *John gave Mary a book.*), but there is no θ -role to assign to *beer*.

θ -roles	Exp	Theme	\times
<i>love</i>	<i>John</i>	<i>whisky</i>	<i>beer</i>



Summary

We have examined two modules of the grammar:

- X-bar Theory
- θ -Theory

Interaction of these two modules allows us to explain the ungrammatical status of a large class of sentences. And, by the way, more modules are coming soon!

Neither of these two modules is enough by itself!

Additional Topics

Verbs with no θ -roles*

Some verbs lack θ -roles at all.

- to rain
- to be likely (only has a θ -role going to proposition, see (33))

We still need *it* to make sentences grammatical

- | | | | |
|------|--------------|------|--------------------------------------|
| (32) | a. *Rain. | (33) | a. *Is likely (that John is dumb). |
| | b. It rains. | | b. It is likely (that John is dumb). |

Verbs with no θ -roles*

- (34) a. *Rain. (35) a. *Is likely (that John is dumb).
 b. It rains. b. It is likely (that John is dumb).

- It does not receive any θ -roles, however it is still needed to make sentence grammatical. Why?
- Reason is **EPP**: Sentences need subjects.
- Such “dummy” elements that inserted when no θ -role available are called **expletives**.
- There are two type of **it** in English:
 - **Pronoun *it***
 (36) It crawled into my bed.
 - **Expletive *it***
 (37) It rains.
- More later...

Agent and Patient/Theme*

Verbs with Agent and Patient/Theme

Let's look at verbs with both **Agent** and **Patient/Theme** θ -roles.

- (38) a. **Don** caressed **the donkey**.
 b. **The professor** eats **a sandwich**.

Generalization: For such verbs, **Subjects** are always **Agents** and **Objects** are always **Themes/Patients**.

Note that in general, subjects can be **Themes/Patients**:

- (39) a. **The tree** fell.
 b. **Syntax** frightens Mary.

θ-role hierarchy*

- If there is a subject and an object; and
- If the verbs assigns Agent and Theme/Patient θ-roles; then
- **Subject** is an **Agent** and **Object** is a **Theme/Patient**.

θ-role hierarchy

(40) Agent > Theme/Patient

θ-role hierarchy*

- The relative order of other θ-roles is a question of big debate in modern linguistics.
- Where is the **Goal/Recipient**?
 - Agent > Theme/Patient > **Goal/Recipient** or
 - Agent > **Goal/Recipient** > Theme/Patient

Which one is more basic?

- (41)
- a. John gave **Mary** a book.
 Agent **Recipient** Theme
- b. John gave a book **to Mary**?
 Agent Theme **Recipient**