Lexical Semantics 10/1

English Verb Classes and Alternations

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Introduction:
The Theoretical Perspective
The Nature of Lexical Knowledge
The Nature of Lexical Knowledge

❖ Bloomfield (1933)
  ❖ “The lexicon is really an appendix of the grammar, a list of basic irregularities” (p.274)

❖ B. Levin (1985b, in prep.)
  ❖ Native speakers can make extremely subtle judgments concerning the occurrence of verbs with a range of possible combination of arguments and adjuncts in various syntactic expressions
The Nature of Lexical Knowledge

- *Diathesis alternation*—*locative alternation*
  - (1) a. Sharon sprayed water on the plants.
  
  b. Sharon sprayed the plants with water.
  
  - (2) a. The farmer loaded apples into the cart.
  
  b. The farmer loaded the cart with apples.
The Nature of Lexical Knowledge

❖ (3) a. *Monica covered a blanket over the baby.
   b. Monica covered the baby with a blanket.

❖ (5) a. Carla poured lemonade into the pitcher.
   b. *Carla poured the picture with lemonade.
The Nature of Lexical Knowledge

- *Diathesis alternation*—*transitive alternation*
  - (7) a. The window broke. (inchoative variant)
    b. The little boy broke the window. (causative variant)
  - (8) a. A rabbit appeared out of the magician’s hat.
    b. *The magician appeared a rabbit out of his hat.*
The Nature of Lexical Knowledge

❖ **Summary**

❖ A speaker’s knowledge of the properties of a verb goes well BEYOND an awareness of the simple expression of its arguments.

❖ Speaker’s ability to make subtle judgments about verbs indicates that the speaker’s lexical knowledge of a verb may not be included exhaustively in a lexical entry.
Verb Meaning: a Key to Verb behavior
Verb Meaning: a Key to Verb behavior

- Hale and Keyser (1987) – What enables a speaker to determine the behavior of a verb is meaning (*gally*).

  - **See**
    
    *Whales see easily*  (*Whales gally easily*)

  - **Frighten**
    
    *Whales frighten easily*  (*Whales gally easily*)
A More Complex Example
A More Complex Example

- Syntactic behavior of verbs is tied to their meanings
- The relation can be demonstrated with an investigation of the verbs *break, cut, hit* and *touch*.
A More Complex Example

- Similarity
  - The four verbs are all transitive

- Differences
  - Their participation in diathesis alternations
    - Middle alternation
      - (13) a. The bread cuts easily.
        - b. Crystal vases break easily.
        - d. *Cats touch easily.
        - e. *Door frames hit easily.
A More Complex Example

❖ Conative alternation

❖ (14) a. Margaret cut at the bread.

b. *Janet broke at the vase.

c. *Terry touched at the cut.

d. Carla hit at the door.
A More Complex Example

- Body-part possessor ascension alternation
  - (15) a. Margaret cut Bill’s arm.
    - b. Margaret cut Bill on the arm.
  - (16) a. Janet broke Bill’s finger.
    - b. *Janet broke Bill on the finger.
  - (17) a. Terry touched Bill’s shoulder.
    - b. Terry touched Bill on the shoulder.
  - (18) a. Carla hit Bill’s back
    - b. Carla hit Bill on the back
A More Complex Example

- Different pattern of behavior with respect to these three verbs, as summarized.

<table>
<thead>
<tr>
<th></th>
<th>touch</th>
<th>hit</th>
<th>cut</th>
<th>break</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conative</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Body-part Processor Ascension</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Middle</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

- Once the shared behavior in diathesis alternation is recognized, what about their semantic properties?
A More Complex Example

❖ Body-part possessor ascension alternation

❖ Meaning component contact differentiates *break* from *cut, touch and hit*

❖ (15) a. Margaret cut Bill’s arm.
   b. Margaret cut Bill on the arm.

❖ (16) a. Janet broke Bill’s finger.
   b. *Janet broke Bill on the finger.

❖ (17) a. Terry touched Bill’s shoulder.
   b. Terry touched Bill on the shoulder.

❖ (18) a. Carla hit Bill’s back
   b. Carla hit Bill on the back
A More Complex Example

❖ Conative alternation

❖ Meaning components both motion and contact further separate touch from cut and hit (Guerssel et al. 1995).

❖ (14) a. Margaret cut at the bread.
   
   b. *Janet broke at the vase.

   c. *Terry touched at the cut.

   d. Carla hit at the door.
A More Complex Example

- Middle alternation
  - Meaning component of causing change of state differentiates cut and break from hit and touch

(13) a. The bread cuts easily.
    b. Crystal vases break easily.
    d. *Cats touch easily.
    e. *Door frames hit easily.
A More Complex Example

- *Cut vs. break* – both are verbs of change of state
  - *Cut*
    - Involves notions of contact and motion
    - Bringing about a change of state by means of contact through motion
  - *Break*
    - Pure change of state verb
Summary

The four verbs discussed differ as follows:

- **Touch** – a pure verb of contact
- **Hit** – a verb of contact by motion
- **Cut** – a verb of causing a change of state by moving something into contact with the entity that changes state
- **Break** – a pure verb of change of state
A More Complex Example

- The existence of ties is manifested across languages
  - Australian language Warlpiri
    - Show conative alternation as in English
The Larger Context
The Larger Context

- Bloomfield (1993) : “…is all the more evident if meanings are taken into consideration, since the meaning of each morpheme belongs to it by an arbitrary tradition” (p. 274).
- Chomsky (1986) : only the meaning of a verb needs to be learned.
- Pinker (1989) : semantic bootstrapping models of children language acquisition are built on the assumption that a word’s syntactic properties are predictable from its meaning.
Challenges
Challenges

❖ If the hypothesis that syntactic properties are semantically determined, then the task is to determine:

❖ To what extent the meaning of a verb determines its behavior
❖ To what extent the syntactic behavior is predictable
❖ What kind of lexical representation of verb meaning is necessary?
❖ Why are certain phenomena sensitive to certain meaning components?
The Underlying Research Methodology
The Underlying Research Methodology

- Look at subcategorization frame of a verb
- Examine a wider constellation of properties, particularly a verb’s diathesis alternation patterns
- Find morphological properties
- Figure out extended meanings
The Scope of this Book
The Scope of this Book

- This book offers the results of a preliminary large-scale investigation of the behavior of English verbs.
- The book provides clustering of verbs that should further the isolation of meaning components.
- NOT a definitive and exhaustive classification of the verb inventory in English.
- This book is intended to set the stage for the necessary next steps.
Alternation Involving Argument Within the VP

- **Dative Alternation**
  - Jack gives a book **to Mary** vs. Jack gives **Mary** a book

- **Alternating Verbs**
  - **Give Verbs** (signify acts of giving): *feed, give, pass, sell*
  - **Verbs of Future Having** (commitments that a person will have something at some later point): *assign, guarantee, leave*

- You guarantee a car **to me** vs. You guarantee **me** a car
- **Bring and Take**
  - I will bring some coffee **to you** vs. I will bring **you** some coffee

- **Send verbs**: forward, mail, send
  - Jack sent a mail **to Mary** vs. Jack sent **Mary** a mail

- **Slide Verbs**: roll, slide
  - Jack rolled a ball **to Mary** vs. Jack rolled **Mary** a ball

- **Carry Verbs** (verbs of continuous causation of accompanied motion in some manner): carry, pull, push, tow
  - Tom carried a cake **to me** vs. Tom carried **me** a cake

- **Drive Verbs**: bus, drive, fly
Verbs of Throwing (instantaneously causing ballistic motion): bat, hit, pitch, throw

- Tom throws a ball to Jerry vs. Tom throws Jerry a ball

Verbs of Transfer of a Massage: ask, read, show, tell

- He told a story to me vs. He told me a story

Verbs of Instrument of Communication: fax, modem, telephone

- I will fax the form to you vs. I will fax you the form
“NP1 V NP2 to NP3” vs. “NP1 V NP3 NP2”

- No intransitive counterpart
- Verbs of change of possession, where possession is rather broadly construed.
- Transfer of something: substances, non-substances
- Construction and Verbal meaning
Two restrictions

- Latinate restriction
- Animacy restriction: the nature of the goal phrase
  - Bill sent a package to Tom/London
  - Bill sent Tom/*London a package
  - The terrorists sent London a message via metonymy
Dative Alternation in Mandarin

- 給 seems to be must-needed
  - 張三給李四一隻筆 vs. 張三給一隻筆李四
  - 張三寄一封信給李四 vs. *張三寄李四一封信 vs. 張三寄給李四一封信
  - 給 mark the meaning of transferring

- 把 construction
  - 張三丟一顆球給李四 vs. 張三把一顆球丟給李四 vs. *張三把李四丟一顆球
  - 把 construction is not unique for dative alternation
    - 張三把一顆球丟給李四 vs. 張三把李四臭罵一頓
Alternations Involving Post-verbal “Subjects”

- The subject of the verb occurs after the verb
- Locative Inversion
  - 時鐘掛在牆上 vs. 牆上掛著時鐘
- With the verb *be*
  - A flowering plant is on the windowsill
  - On the windowsill is a flowering plant
Verbs of Existence: exist, live, remain, spread

Verbs of Spatial Configuration: hang, lean, sit

Meander Verbs: go, meander, run

Verbs of Appearance: appear, develop, occur

Verbs of Disappearance: die, disappear

Verbs of Inherently Directed Motion: arrive, ascend, descend

An old woman lives in the woods (locative PP)

In the woods lives an old woman
Verbs of Manner of Motion (Run and Roll Verbs): climb, jump, roll, swim

- Manner and direction of motion specified:
  - A cat jumped onto the table (directional PP)
  - Onto the table jumped a cat

- Manner of motion specified but direction not specified
  - A cat jumped on the table (locative PP)
  - *On the table jumped a cat
Extended Uses of Certain Verbs as Verb of Existence

- **Run Verbs**
- **Verbs of Body-Internal**: flap, flutter
- **Verbs of Sound Emission**: beat, ring
- **Verbs of Sound Existence**: echo, sound
- **Verbs of Light Emission**: flash, shine
- **Verbs of Substance Existence**: belch, puff
- **Other Verbs**: doze, sing, sleep

A choir sang **in the church** (locative PP)

**In the church** sang a choir
Transitive Verbs Used in the Passive

- **Verbs of Perception**: hear, see
- **Verbs of Image Creation**: inscribe, paint
- **Verbs of Putting**: hang, place
- **Tape Verbs**: hook, pin
- **Other Verbs**: add, create

An ancient treasure trove was found in this cave

In this cave was found an ancient treasure trove
 ❖ **Transitive Verbs** (very few): take (place/shape)
  ❖ A violent demonstration took place **in the main square**
  ❖ *In the main square* took place a violent demonstration

❖ **Change of State Verbs**
  ❖ A lot of snow melted **in the street of Chicago**
  ❖ *In the street of Chicago* melted a lot of snow
Locative Inversion in Mandarin

- Deletion of the preposition
  - 一個老太太住在樹林裡
  - (在)樹林裡住了/著一個老太太

- Aspectual marker
  - 鐘掛在牆上 vs. 牆上掛了/著鐘 vs. ??(在)牆上掛鐘

- Manner and direction of motion specified
  - 貓跳上桌子 vs. *上桌子貓跳 —— related to VR compound?

- Topic chain
  - 地下室老鼠出沒，沒有人敢久留
Psych- Verbs

- Typically take two arguments: Experiencer and Stimulus
- Four classes

Diagram:
- Psych-Verbs
  - Transitive
    - Amuse Verbs
    - Admire Verbs
  - Intransitive
    - Marvel Verbs
    - Appeal Verbs
Amuse Verbs

- Members: affect, amaze, amuse, charm, disgust, offend, wow…
- Properties:
  - The clown amused the children
  - *Causative Alternations
    - *The children amused (at the clown)
  - Middle Alternation
    - Little children amuse easily
  - PRO-Arb Object Alternation
    - That joke never fails to amuse little children
    - That joke never fails to amuse
Possessor Subject Possessor-Attribute Factoring Alternation
- The clown amused the children with his antics
- The clown’s antics amused the children

Extraposition of sentential complements
- That the clown had a red nose amused the children
- It amused the children that the clown had a red nose

Choice of prepositions in the “passive” depends on the verb
- The children were amused at/by/with the clown

Resultative Phrase
- That movie bored me silly/to tears
- The clown was amusing to the children
- An amusing joke
- Derived nominal has “passive” interpretation only
  - The children’s amusement (at the clown)
  - *The clown’s amusement of the children
- -er Nominal
  - disturber, enchanter, *depresser, *disguser
- -able Adjectives
  - excitable, irritable, *amusable, *surprisable
These are transitive verbs whose **object is the experiencer** of the emotion and whose **subject is the cause of the change in psychological state**

- **Sub-classes**
  - Some verbs allow the subject/stimulus argument to receive an agentive interpretation
  - Some verbs are used in a physical action sense
    - The carpenter depressed the lever
Admire Verbs

- Members: admire, love, miss, trust, worship / dislike, envy, hate

- Properties
  - The tourists admired the painting
  - *Middle Alternation
    - *Painting admire easily
  - Possessor Object Possessor-Attribute Factoring Alternation
    - I admire his honesty
    - I admire him for his honesty
- **Attribute Object Possessor-Attribute Factoring Alternation**
  - I admire his honesty
  - I admire the honesty in him
- **As alternation**
  - I admire him as a teacher
  - *I admire him a teacher*
- **Sentential Complement**
  - The children liked that the clown had a red nose
- **Extraposition of Sentential Complement**
  - The children liked it that the clown had a red nose
 Derived nominal has “active” interpretation only
  • The children’s enjoyment of the movie
  • *The movie’s enjoyment by the children

-able Adjective
  • enjoyable, hatable

-er Nominal
  • dog-hater, music-lover
- These are transitive verbs with an **experiencer subject**
- Sub-classes
  - Whether they allow sentential complement and, if so, which types ➔ some allow extrapostion
Marvel Verbs

- Intransitive verbs

- Members
  - about: bother, care, mind
  - for: fear, feel
  - in: delight, glory
  - on: groove
  - to: react, thrill
  - at: marvel, thrill
  - from: hurt, suffer
  - of: approve, tire
  - over: anger, puzzle
Properties

- Megan marveled at the beauty of the Grand Canyon

Passive

- The beauty of the Grand Canyon has been marveled over by countless tourists

Take an experiencer subject

- Expresses the stimulus in a PP

Some of these verbs are used transitively as *amuse* verbs
Appeal Verbs

❖ Members
    ❖ at: niggle
    ❖ on: grate, jar
    ❖ to: appeal, matter

❖ Properties
    ❖ This painting appeals to Malinda
    ❖ *Passive
      ❖ *Malinda is appealed to (by the painting)
- The smallest subclass of the psych- verbs.
- Take a stimulus subject
- Express the experiencer in a PP
Verbs of Putting

- Put verbs
- Verbs of putting in a spatial configuration
- Verbs of putting with a specified direction
- Funnel verbs
- Pour verbs
- Coil verbs
- Spray/Load verbs
- Fill verbs
- Butter verbs
- Pocket verbs
Put Verbs

❖ Members: arrange, place, position, put, set…
❖ Putting an entity at some location (via a PP)
  - I put the book on/under/near the table.
  - *I put the books.
❖ Properties:
  ❖ a. *I put the book to Sally.
  b. *I put the book from Edna.
❖ *Locative Alternation
  - *I put the table with (the) books.
*Causative Alternation
- *The books put on the table.

Nominals (some verbs)
- a position, a lodge
Verbs of putting in a spatial configuration

- Members: hang, lay, lean, sit, stand…
- Putting an entity at some location (via a PP), specifying the particular spatial configuration that the placed entity ends up in with respect to the location

- Cheryl stood the books on the shelf/next to the magazine.
- *Cheryl stood the books.

- Properties:
  - *Cheryl stood the books to/from Sarah.
  - *Locative Alternation
    - *Cheryl stood the shelf with (the) books.
- Causative Alternation (most verbs)
  - a. Cheryl stood the books on the table.
  - b. The books stood on the table.
- Nominals (some verbs)
  - a perch, a stand, *a hang
    (The noun stand names what one stands something on.)
Verbs of Spatial Configuration

- Members: bend, nestle, rest, swing, sit, stand…

- Specifying the spatial configuration of an entity with respect to some location

  - A statue stood on the corner/next to the building.

- Properties:
  - There-Insertion
    - There stood on the corner a statue of Jefferson.
  - Locative Alternation
    - a. A statue of Jefferson stood on the corner of the two boulevards.
    - b. On the corner of the two boulevards stood a statue of Jefferson.
❖ Causative Alternation (some verbs)
   - a. They stood the statue on the pedestal.
   - b. The statue stood on the pedestal.

❖ the hanging gardens
   the leaning tower

❖ *Adjectival perfect participle
   - *hung gardens
Verbs of putting with a specified direction

- Members: drop, hoist, lift, lower, raise
- Putting an entity somewhere, typically by moving it in a specific direction. The action involves exerting a force against the action of gravity.
  - I lifted the book onto the table/out of the box.
  - I lifted the books.

Properties:
- *I lifted the book on the table.
- I lifted the books from the floor to the table. (a trajectory of motion)
- *Locative Alternation
  - *I lifted the table with the books.
*Causative Alternation

- *The book lifted onto the table.

*Dative Alternation

- a. I lifted the books (up) to him.
- b. *I lifted him (up) the books.

Nominal (some verbs)

- a lift, a hoist

  (instruments used to carry out the actions named by the verbs.)
Funnel Verbs

- Members: dip, dump, spoon, funnel...
- Putting an entity in some location in some manner
  - I funneled the mixture into the bottle.
  - *I funneled the mixture.
- Properties:
  - *I funneled the mixture in the bottle.
  - *I funneled the mixture to Rina.
- *Locative Alternation
  - *I put the bottle with the mixture.
❖ *Causative Alternation
   - *The mixture funnels.
❖ Nominal (some verbs)
   - a funnel (instrument)
   - a wad (result)(a quantity of stuff that is inserted into the location)
Pour Verbs

❖ Members: dribble, drip, pour, slop, slosh, spill…
❖ Putting things typically liquids on surfaces or in containers

- Tamara poured water into the bowl/over the flowers.
❖ Properties:
❖ Tamara poured water from/out of the pitcher.
❖ *Locative Alternation

- *Tamara poured the bowl with water.
Causative Alternation

- a. Tamara poured water onto the plants.
- b. Water poured onto the plants.

Coreferential interpretation of pronouns possible
- Tamara poured the water over her.

Nominal (few verbs)
- a spill
Coil Verbs

❖ Members: coil, curl, loop, roll, twist…

❖ Putting something around something else
  - Cora coiled the rope around the post.

❖ Properties:
  ❖ *Locative Alternation
    - *Cora coiled the post with the rope.
- Causative Alternation
  - a. Cora coiled the rope *around* the post.
  - b. The rope coiled around the post.
- Coreferential interpretation of pronouns possible
  - *Cora* twisted the scarf around *her*.
- Nominal (few verbs)
  - a coil, a twist
Spray/Load Verbs

❖ Members: crowd, load, pack, spray, spread, stock…
❖ Covering surfaces and putting things into containers
  - a. Jessica loaded boxes onto/into/under the wagon.
  - b. Jessica sprayed paint onto/under/over the table.
Properties:

❖ Locative Alternation

"holistic" or "affected"

a. Jessica sprayed paint the wall.
   Jessica sprayed the wall with paint.

b. Jessica loaded boxes on the wagon.
   Jessica loaded the wagon with boxes.
• Causative Alternation
  - b. Paint sprayed on the wall.

• *Causative Alternation
  - a. Jessica sprayed the wall with paint.
  - b. *The wall sprayed with paint.

• Coreferential interpretation of pronouns possible
  - Jessica rubbed the lotion on her.

• Nominal (some verbs)
  - a spray
Fill Verbs

❖ Members: fill, flood, soak, staff, suffuse…

❖ Similar to the spray/load verbs in meaning which describing the resulting state of a location as a consequence of putting something on it or in it

- Leslie staffed the store with employees.

❖ Properties:

❖ *Locative Alternation

- *Leslie staffed employees in the store.

❖ *Causative Alternation

- *The store staffed with employees.

“holistic”
Locatum Subject Alternation

- a. Leslie staffed the store with employees.

- b. The employees staffed the store.

With alternates with in (some verbs)

a. - Leigh swaddled the baby with blankets.

   - Leigh swaddled the baby in blankets.

b. - Leigh staffed the store with employees.

   - *Leigh staffed the store in employees.
Butter Verbs

- Members: flour, paper, salt, butter…

- **Lora buttered the toast.** (Lora put butter on the toast.)

- Properties:
  - Cognate *with* phrase "holistic"
    - Lora buttered the toast with unsalted butter.
    - ? Lora buttered the toast with butter.
  - *Locative Alternation
    - *Lora buttered unsalted butter on the toast.
❖ *Causative Alternation

- a. Lora buttered the toast (with unsalted butter).
- b. *The toast buttered (with unsalted butter).

❖ Nominal (all verbs)

- The meaning of nominal can be paraphrased as
  “put X on/in (something),” where X is the noun that the verb
takes its name from.
Pocket Verbs

- Members: bag, box, file, house, pocket…

- Lydia pocketed the change.

  (Lydia put the change in her pocket.)

- Properties:

  - *Cognate Location phrase

    - *Lydia pocketed the change in her pocket.

    - ?? Lydia pocketed the change in her left front jacket pocket.

  - *Locative Alternation

    - *Lydia pocketed her pocket with the change.
- *Causative Alternation
  - a. Lydia pocketed the change.
  - b. *The change pocketed.
- Nominal (all verbs)
  - A location where things can be put