

Argument Inheritance in Derivation: Nominalization

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Argument Structure (AS)

- "Argument structure is an interface between the semantics and syntax of predicators (which we may take to be verbs in the general case)" (Bresnan 1996)
- Two aspects: the syntactic subcategorization of a V/A/P and the semantic arguments of the corresp. predicate:

- | | | | |
|-----|--------------|---------------|-------------------------|
| (1) | kill | <NP _ NP> | (Subject – Object) |
| | | (x kill y) | (Agent – Theme/Patient) |
| (2) | keen | <NP _ PP> | |
| | | (x keen on y) | |
| (3) | under | <NP _ NP> | |
| | | (x under y) | |

General Issues on Argument Structure

- **Argument alternations:** different patterns that some verbs/verb classes may display as to their realization of argument structure
- **Argument linking/realization:** corresponding rules between the semantic – syntactic mapping between arguments
- **The licensing of argument structure:** how AS comes about (lexicon or syntax); its interaction with the event structure of the predicate: nominalizations

Outline

- AS and argument alternations
- Argument linking/realization: aims, challenges, trends
- The lexicon vs. syntax debate on AS: Nominalizations

Argument Alternations

- Arguments may be added to or suppressed from the lexical entry of a verb, which amounts to many 'argument alternations'
- Levin (1993) lists about 80 alternations with English verbs
- Among the most productive and widely discussed are:
 - Causative alternation
 - Dative alternation
 - Benefactive alternation
 - Locative alternation
 - Passive formation
 - Middles

The Causative Alternation

- Transitive (causative) – intransitive (inchoative) pairs of verbs, where the transitive V can be interpreted as 'cause to V-intransitive':

(4) **The door** opened.
John opened **the door**.
Margaret cut **the bread**.
***The bread** cut.

- Causativization: some intransitive verbs may develop a causative form (induced action):

(5) I worked hard.
The boss worked **me** hard.
The horse jumped over the fence.
Sylvia jumped **the horse** (over the fence).

The Dative & the Benefactive Alternations

- Verbs of giving/transfer that can realize an object with a the goal preposition *to* or a (dative) NP:

(6) John gave/sent the book **to Mary**.
John gave/sent **Mary** the book.
John sent the package **to London**.
*John sent **London** the package.

- It appears with verbs of creation, which may additionally involve the benefactive *for*-PP or a dative:

(7) Mary carved a toy.
Mary carved a toy **for the baby**.
Mary carved **the baby** a toy.
The architect selected a house **for the couple**.
*The architect selected **the couple** a house.

The Locative Alternation

- It concerns verbs that involve putting/removing something (a locatum) to/from a location;
- (8) John sprayed **paint** on the wall.
John sprayed the wall **with paint**.
Mary covered the baby **with a blanket**.
*Mary covered **a blanket** over the baby.
- (9) Henry cleared **the dishes** from the table.
Henry cleared the table **of dishes**.
The thief stole **the painting** from the museum.
*The thief stole the museum **of the painting**.
- (10) **Bees** are swarming in the garden.
The garden is swarming **with bees**.
People are seething in the square.
*The square is seething **with people**. (cf. German)

Passives and Middles

- Both involve suppression of the external argument
- In the passive it may be added by means of the *by*-phrase

(11) **John** killed the bear.
The bear was killed (**by John**).

(12) **You** can read this book easily.
This book reads easily.

- Prepositional passive:

(13) **G. Washington** slept in this bed.
This bed was slept in **by G. Washington**.

Argument Alternations: Conclusions

- There are many semantic and syntactic differences between the cognates of such alternations and there is a wide intra- and crosslinguistic variety wrt their instantiation
- Long debates as to the right identification of the source and the characterization of the main lexical semantic and syntactic properties of these alternations

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Argument Linking

- It concerns the question of how semantic arguments, in particular, thematic roles, are 'linked' to syntactic positions
- Ideally, there should be a clear mapping: e.g. Agents are subjects, Themes are direct objects, but there are many challenges:
 - There are many more thematic roles as such than syntactic positions
 - In verbs with alternations, the syntactic realization of the same semantic argument varies
 - Some (e.g. psych) predicates have different syntactic realizations

Main Challenges for a Theory of Argument Realization (Levin & Rappaport Hovav 2005)

1. Taking lexical semantic representations seriously
2. Identifying grammatically relevant facets of meaning
3. The cross-classification of verbs and the status of verb classes
4. Verb meanings represent construals of events
5. Uniformity and variation in argument realization
6. When subjects are not agents and objects are not patients

1. Lexical Semantic Representations

- Common assumption in syntactic theories: the syntactic realization of arguments is predictable from the meaning of the verbs (see Uniformity of Theta-Assignment Hypothesis)
- We need both a good theory of the lexical semantic representation of the verbs and a theory of argument linking (the mapping between semantic and syntactic arguments)

(14) Terry gave a watch **to Sam**
Terry gave **Sam** a watch

- In (14) the question of whether the two VP-internal semantic arguments have the same thematic role is central to analyzing the alternation

2. Grammatically Relevant Facets of Meaning

- Word meaning is very complex and it is hard to describe it in a structured lexical semantic representation (LSR) as a basis for argument realization
- What is relevant for the LSR?
- Color is cognitively salient, but there are no grammatical processes about argument realization with verbs concerning color: paint, color, bleach, redden, stain
- Similarly, the difference between verbs of loud (bellow, holler, shout) or soft speech (murmur, whisper) is irrelevant to syntax;
- But the difference between verbs of manner of speaking (holler, whisper) and verbs of content of speaking (say, propose) is relevant [Pesetsky 1995]

3. Verb Classes

- There are semantically coherent verb classes
- Overlappings between classes: manner/content of speaking Vs

(15) Evelyn screamed (to Marilyn) to go.
Evelyn said (to Marilyn) to go.

(16) Claudia screamed about the new management.
*Claudia said about the new management.

- Other verbs like *complain*, *speak*, *talk* allow *about*-PPs => *about*-PPs are not typical of manner of speaking Vs

3. Verb Classes

- Verbs of putting: the locative alternation:

- (17) Pat sprayed paint on the wall.
Pat sprayed the wall with paint.
- (18) Pat put paint on the wall.
*Pat put the wall with paint.
- (19) *Pat covered paint on the wall.
Pat covered the wall with paint.

4. Verb Meanings as Construals of Events

- We may have different construals of the same happenings: e.g. *fear* (a psychological state) vs. *frighten* (the bringing about of a psych state in the experiencer)
 - Verbs like *buy* and *sell*: some present them as different viewpoints: from buyer or seller;
 - But *sell* is often derived from *buy*: German *ver-kaufen*; i.e., *sell* is the causative version of *buy*; whatever the condition on the *sell*'s subjects it is independent of the oblique argument of *buy*:
- (20) Chris bought a pack of cigarettes from the vending machine
*The vending machine sold Chris a pack of cigarettes

5. Uniformity and Variation in Argument Realization

- E.g.: Psych verbs in Italian and English

(21) Gianni teme questo.

'Gianni fears this' (=En)

(22) Questo piace a Gianni.

'This pleases Gianni' (≠En)

(23) This appeals to Gianni.

- There is plenty of variety among different languages wrt various verb classes and their argument realization

6. Non-agent Subjects

- (Non-agentive) Causer subjects and the causative alternation:

(24) Pneumonia killed his uncle.
His uncle died from/of pneumonia.

(25) The sun melted the chocolate.
The chocolate melted in the sun.

(26) Brutus killed Caesar.
*Caesar died from/of Brutus.

(27) I melted the chocolate.
*The chocolate melted in/from me.

6. Non-Patient Objects

- Similar issues appear with objects:

(28) The engineer cracked the bridge. (patient)
The engineer painted the bridge (incremental theme)
The engineer moved the bridge (theme)
The engineer built the bridge (effected object)
The engineer crossed the bridge (path)
The engineer reached the bridge (goal)
The engineer left the bridge (source)
The engineer saw the bridge (stimulus)

One Attempt: Thematic Hierarchies

(29) Actor < Patient/Beneficiary < Theme < Goal/Source/Location
[Jackendoff 1990]

Agent/Causer < Experiencer < Goal/Source/Location < Theme
[Grimshaw 1990]

- Linking to syntax (various attempts):
 - The highest argument is realized as a subject
 - The lowest is realized as a direct object
 - The next lowest is realized as an indirect object
- Prediction: a single argument will be a subject

(30) John_{Agent} broke the vase_{Patient}.
The vase_{Patient} broke.
Mary_{Recipient} received a letter_{Theme}.
Sue_{Theme} left.

The Uniformity of Theta Assignment Hypothesis

- UTAH (Baker 1988): If two expressions have the same theta role in different sentences, then they must have originated in the same position (say, at D-Structure).
- Challenge: Some predicates realize their arguments interchangeably: e.g. psych predicates
- Alternating Subject/Object Experiencer verbs:

(31) a. The news_{Theme} worried/angered Bill_{Experiencer}.
b. Bill_{Experiencer} worried about/angry with the news_{Theme}.

- One possible solution: positing different thematic roles: e.g. Causer in (31a) but Theme in (31b); Causers are higher than Exp.

Problems with Thematic Hierarchies

- Opinions vary a lot wrt thematic hierarchies (cf. (29))
- They seem to rather represent empirical descriptions than some universal
- There are no precise grammatical means to distinguish the different thematic roles
- How general and how specific should thematic roles be?

(32) a. hit (Hitt-er, Hitt-ee)
b. (Agent, Patient)

- (32a) is not very informative; (32b) raises the question of the core properties of the general thematic roles => Dowty (1991) defines properties for Proto(typical)-Agents and Proto-Patients

Two Possible Solutions

1. Generalized thematic roles: Decomposing thematic roles into thematic features and representing them as bundles of such features (Dowty 1991, Van Valin)
2. Predicate decomposition and event structures: Levin & Rappaport, Jackendoff, Parsons, von Stechow, syntactic approaches like Distributed Morphology

Predicate Decomposition and Event Structures

- An approach mainly developed in work by Levin & Rappaport Hovav and many others following their intuition
- A distinction between a root (a constant) and the event structure type/the template in which it appears;
- Roots belong to particular ontological types (**state**, **stuff**, **thing**, **place**, **manner**, **instrument**) that determine what kind of templates they can appear with
- E.g.: causative change of state verbs:
(33) **dry**: [[x act] cause [y become <DRY>]] (~ open, shorten)

Roots and Templates: Levin & Rappaport Hovav

- Most roots have a single ontological type, but some may often be ambiguous
- Roots are taken to specify a kind of complement or modifier relation
- Externally caused **state** vs. **place** introduced by a state/place root as a complement:

(34) [[x act] cause [y become <STATE>]] (to dry)
 [[x act] cause [y become in <PLACE>]] (to bottle)

- **Manner** roots usually act as modifiers of the *act* sub-event

(35) jog: [x act_{<JOG>}] (a modifier root)

Distributed Morphology

- DM basically implements the L&RH approach in terms of event structure in the syntax
- Identify which sub-events are syntactically relevant and should be represented in the syntactic template in which a root is placed (are *act*, *cause*, *become* all motivated in the syntax?)
- Identify the syntactic positions a root can occupy in a syntactic template: e.g. manner roots are adjuncts, state roots are complements (as results)

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Linguistic (Framework) Debates on AS

- As an interface construction, AS has given rise to long debates on where it is located, i.e. where the rules for its realization should be constructed: lexicon or syntax
- While L&RH propose a mainly **lexicalist approach**, they embrace the idea that there is **an internal structure of these events**, which syntacticians in DM also try to implement
- Nominalizations represented the starting point of this debate between lexicalist and syntactic approaches, due to Chomsky's (1970) *Remarks on Nominalization*

What are nominalizations?

- The word formation process nominalization, as an instance of derivation
- The output of this process (a.k.a. deverbal/ deadjektival nominal)

Deverbal nominalizations

- (1) to read - reading
- to destroy- destruction
- to attach - attachment
- to perform - performance
- to arrive - arrival
- to grow - growth
- to play - play
- to employ - employer, employee

Other types

- **Deadjectival**

- (2) able - ability
clever - cleverness
decent - decency

- **Denominal**

- (3) child- childhood
king- kingdom
kin - kinship

Mixed categories

- Some nominalizations present properties that are related to the lexical category of both the source and the output of the derivation
- Deverbal and deadjectival nominals

Nominalizations and lexical categories

- Nominalizations mix verbal and nominal properties:

(4) (Verbal) Gerunds

John's criticizing the book (possessive; arguments; accusative)

John criticized the book.

(5) Derived nominals

The barbarians' destruction of the city (poss; arg; of-genitive)

The barbarians destroyed the city.

(6) Mixed Nominalizations (Nominal/Ing-of gerunds)

Belushi's mixing of drugs led to his demise (poss; arg; of-genitive)

Belushi mixed drugs.

Questions

- How close are nominalizations to sentences?
 - Transformationalists/generative semanticists: Lees (1960), Lakoff (1965)
 - Vendler (1968): semantics
- How close are they to (common) nouns?
 - Chomsky (1970) => Lexicalism
- How close are they to verbs?
 - Grimshaw (1990), Zucchi (1993)

Nominalizations in Generative Semantics

- In the '60s all nominalizations were derived from the corresponding sentence (Lees 1960, Lakoff 1965)
- This sometimes involve very complex and otherwise unmotivated transformations/rules
- Chomsky 1970 points at the ad hoc nature of these rules and the need to introduce some structure in the lexicon to account for selectional restrictions and other subtle phenomena that seem to be beyond the scope of syntactic transformations

Gerundive nominals – Derived nominals

- (7) a. John is eager to please.
b. John has refused the offer.
c. John criticized the book.
- (8) a. John's being eager to please
b. John's refusing the offer
c. John's criticizing the book
- (9) a. John's eagerness to please
b. John's refusal of the offer
c. John's criticism of the book

Differences as to:

- Productivity of the process
- Generality of the relation nominal-sentence (interpretation)
- Internal structure of the nominal

Gerundives

- Productivity:
 - Freely formed from any sentences
- Generality of the relation nominal-sentence:
 - Regular meaning relation
- Internal structure of the nominal:
 - Lack of nominal internal structure: no determiners/adjectives

- (10) a. John's/***the**/***that** sincerely/***sincere** being eager to please
b. John's/***the**/***that** immediately/***immediate** refusing the offer
c. John's/***the**/***that** strongly/***strong** criticizing the book

=> Gerundive nominalization involves a syntactic transformation from an underlying sentence-like structure

Productivity in derived nominals

- The use of transformations/syntax correlates with productivity

(11) a. John is easy (difficult) to please.
b. John is certain (likely) to win the prize.
c. John amused (interested) the children with his stories.

(12)a. John's **being easy** (difficult) to please
b. John's **being certain** (likely) to win the prize
c. John's **amusing** (interesting) the children with his stories

(13) a. *John's **easiness** (difficulty) to please
b. *John's **certainty** (likelihood) to win the prize
e. *John's **amusement** (interest) of the children with his stories

=> Unlike gerundives, derived nominals are not productive

Meaning relation nominal-verb

Derived nominals acquire slightly different interpretations:

laughter, marriage, construction, actions, activities, revolution, belief, doubt, conversion, permutation, trial, residence, qualifications, specifications

=> the range of variation and its rather accidental character are typical of lexical structure.

Internal structure of derived nominals

- *Determiners:*

(14) **the** proof of the theorem vs. ***the** proving the theorem

- *Adjectives:*

(15) John's **unmotivated** criticism of the book
vs. *John's **unmotivated** criticizing the book

- *No aspect (verbal category):*

(16) John's **having** criticized the book
vs. John's (***have**) criticism

- *Plural marking:*

(17) John's three **proofs** of the theorem

=> a lexicalist approach!

Derived nominals in grammar

- **Productivity**: restricted
- Meaning **relation nominal-proposition**: idiosyncratic
- **Internal structure** of nominals: yes

=> They raise *the question of whether the derived nominals are transformationally/syntactically related to the associated propositions.*

- The **lexicalist** position:
 - extend the base rules to accommodate the derived nominal; simplify the transformational component
- The **transformationalist/syntactic** position:
 - simplify the base structures, excluding these forms, and derive them by some extension of the transformational apparatus

Grimshaw (1990) and Zucchi (1993)

- They shift the focus from the relation [nominalization – sentence] to [nominalization – base verb/event]
- How close/different is the nominalization to/from the verb?
- Grimshaw argues that some nominalizations have verbal event structure, while others don't
- Importantly, the nominalizations that realize AS have event structure => AS realization is correlated with presence of event structure (cf. L&RH)

Ambiguity of derived nominals: Grimshaw 1990

- Concrete entity vs. Event:

(18) a. The **examination**/exam was **long/on the table**.

b. The **examination**/*exam of the patients **took a long time**/***was on the table**.

=> **Complex event nominals** (CENs or Argument-Supporting Nominals - ASNs): have an event structure, i.e. the make-up of an event usually contributed by verbs

Result nominals: denote entities/objects

Simple event nominals: denote events without the event structure (e.g. war, movie, ceremony denote simple events, but they are underived and have no event structure)

Frequent/Constant for disambiguation

- With singular CENs: they require AS:

(19) a. The expression is desirable. (result noun)

b. * The **frequent** expression is desirable.

c. The **frequent** expression **of one's feelings** is desirable.

d. We express *(our feelings).

(20) a. The assignment is to be avoided. (result noun)

b. *The **constant** assignment is to be avoided.

c. The **constant** assignment **of unsolvable problems** is to be avoided.

d. We constantly assign *(unsolvable problems).

- With plural result nouns (RNs): no AS:

(21) The **constant assignments** were avoided by students.

Differences between CENs and RNs

- Only RNs are flexible in taking determiners:

(22) a. They studied **the/an/one/that** assignment.

b. They observed **the/*an/*one/*that** assignment **of the problem**.

c. The assignment of that problem too early in the course always causes problems.

- Only RNs realize plural:

(23) a. The **assignments** were long

b. * The **assignments of the problems** took a long time.

c. **Assignment of difficult problems** always causes problems.

[These two claims have been challenged later]

- Only RNs appear in the predicative position:

(24)a. **That was** the/an assignment.

b. ***That was** the/an assignment **of the problem**.

Syntactic Approaches as in DM

- Try to identify the different kinds of event templates that different nominalizations can instantiate
- A focus on ASNs/CENs since they exhibit mixed properties
- There is a scale of nominal and verbal properties that they may embed and these differ as to different patterns of nominalizations in different languages
- Two general structures that have different instantiations in different nominalizations across languages

- (25)a. [DP [Verbal FP ... [Root]] verbal
- b. [DP [Nominal FP ... [Verbal FP ... [Root]]]] nominal

[Alexiadou, Iordachioaia & Schäfer 2011]

A scale of verbal/nominal properties

Nominative Case subject

Auxiliaries

Accusative Case object

Aspect

Argument Structure

Genitive Case subject

Genitive Case object

Plural Marking

Determiners



upwards increasingly verbal

downwards increasingly nominal

Conclusion

- Argument Structure realization is a topic that cuts across several inter- and intra-framework debates
- It also involves the syntax-semantics interface, which makes it all the more complex
- Nominalizations are often seen as a kind of argument alternation: similar to passives, given the suppression of the external argument (see *by*-phrases and possessives)

References

- Alexiadou, A, G. Iordachioaia & F. Schäfer. 2011. Scaling the variation in Romance and Germanic nominalizations. P. Sleeman & H. Perridon, *The Noun Phrase in Romance and Germanic*. Amsterdam, John Benjamins.
- Baker, M.C: 1988. *Incorporation: A Theory of Grammatical Function Changing*. University of Chicago Press, Chicago, IL.
- Bresnan, J. 1996. "Lexicality and Argument Structure." Invited paper given at the Paris Syntax and Semantics Conference, October 12-14, 1995.
- Chomsky, N. 1970. Remarks on nominalization. In R. A. Jacobs & P. S. Rosenbaum, (eds.), *Readings in English Transformational Grammar*, 184–221. Waltham, MA: Ginn.
- Dowty, D. 1991. Thematic Proto-Roles and Argument Selection. *Language* 67:547-619.
- Grimshaw, J. 1990. *Argument Structure*. MIT Press.
- Jackendoff, R. 1990. *Semantic structures*. Cambridge, MA: MIT Press.
- Lakoff, G. 1965/1970. *Irregularity in Syntax*, Holt, Rinehart, and Winston, New York.
- Lees, R.B. 1960. *The Grammar of English Nominalizations*. The Hague: Mouton.
- Levin, B. 1993. *English verb classes and alternations*. Chicago: University of Chicago Press.
- Levin, B. & M. Rappaport Hovav. 2005. *Argument Realization*. Cambridge University Press, Cambridge.
- Pesetsky, D. 1995. *Zero Syntax*. MIT Press, Cambridge, MA.
- Van Valin R.D.Jr. & R.J. LaPolla. 1997. *Syntax. Structure, meaning and function*. Cambridge University Press.
- Vendler, Z. 1968. *Adjectives and Nominalizations*. Mouton, The Hague/Paris.
- Zucchi, A. 1993. *The Language of Propositions and Events: Issues in the Syntax and Semantics of Nominalization*. Amsterdam, Kluwer Academic Publishers.