

Construction Grammar

2017 LINGUISTIC INSTITUTE

INSTRUCTOR: ELAINE J. FRANCIS, PURDUE UNIVERSITY

LECTURE 1: CONSTRUCTIONIST VIEWS OF LANGUAGE

What must we know to interpret a sentence?

Example: *John told me that house has already been sold.*

As a first approximation:

- Lexical information about the phonological form, grammatical category, and meaning of each word and morpheme
 - Inflectional forms of words and what structural contexts they occur in
 - Systematic grammatical patterns and their associated principles of semantic composition
 - Discourse context and principles for interpreting meaning in context
 - Real-world knowledge
-
- All except discourse context and real-world knowledge are included as part of **linguistic knowledge**

Generative Approaches to Grammar

Starting with Chomsky's early work (1957, 1965), all generative approaches to grammar share the following basic assumptions:

- Linguistic knowledge is mentally represented
- Linguistic knowledge ('competence') underlies language use ('performance')
- Linguistic knowledge is 'generative' in allowing users to produce an infinite variety of novel utterances
- Linguistic knowledge underlies users' intuitions about the well-formedness of utterances
- Certain commonalities exist among all human languages
- Humans have a unique ability to learn and use languages

Mainstream Generative Grammar

Minimalism (Chomsky 1995, Lasnik 2003) makes the following additional assumptions:

- Syntactic operations are distinct from lexical information.
- Syntactic operations are maximally general. Idiosyncrasies are largely confined to lexical entries and 'performance' effects
- Syntactic operations are derivational. Lexical items are 'merged' sequentially into partial syntactic structures in a bottom-up fashion, resulting in binary-branching structures
- Syntax is an autonomous system which interfaces with phonology and semantics at the output of each 'phase' of a derivation
- The generative capacity of language comes from the syntax alone. Phonology and semantics are interpretive.

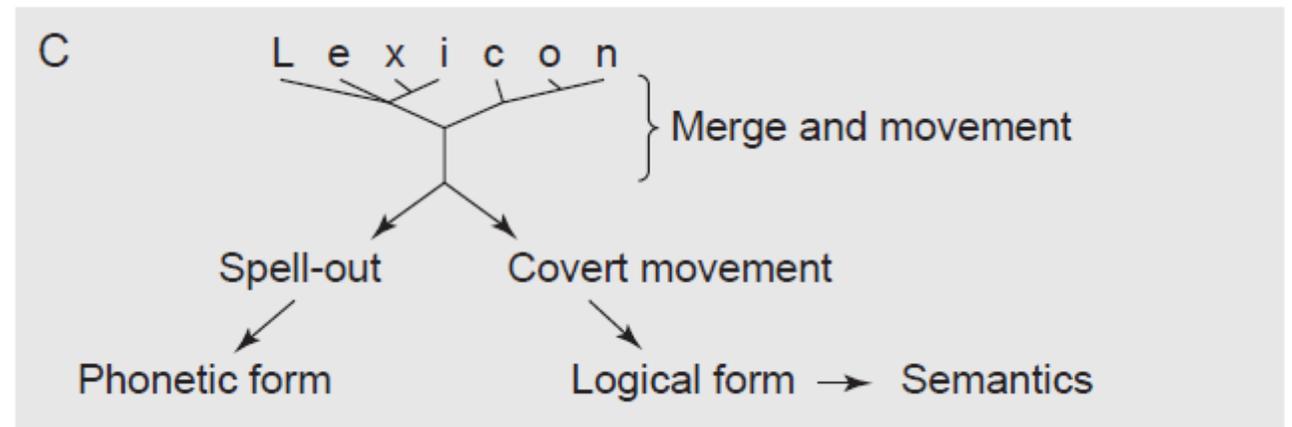
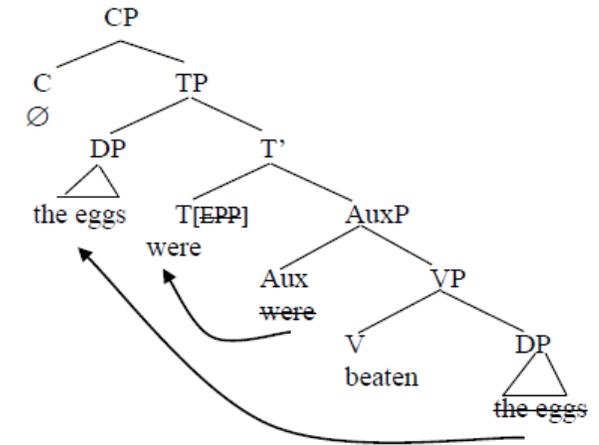
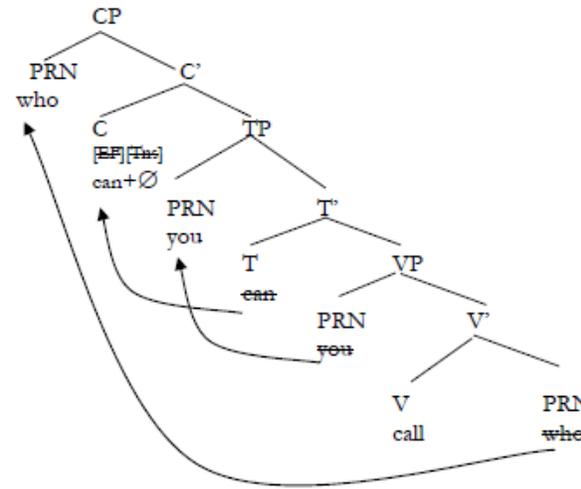


Diagram from: Jackendoff, R. (1999). Parallel constraint-based generative theories of language. *Trends in Cognitive Sciences*, 3(10), 393-400.

Mainstream Generative Grammar

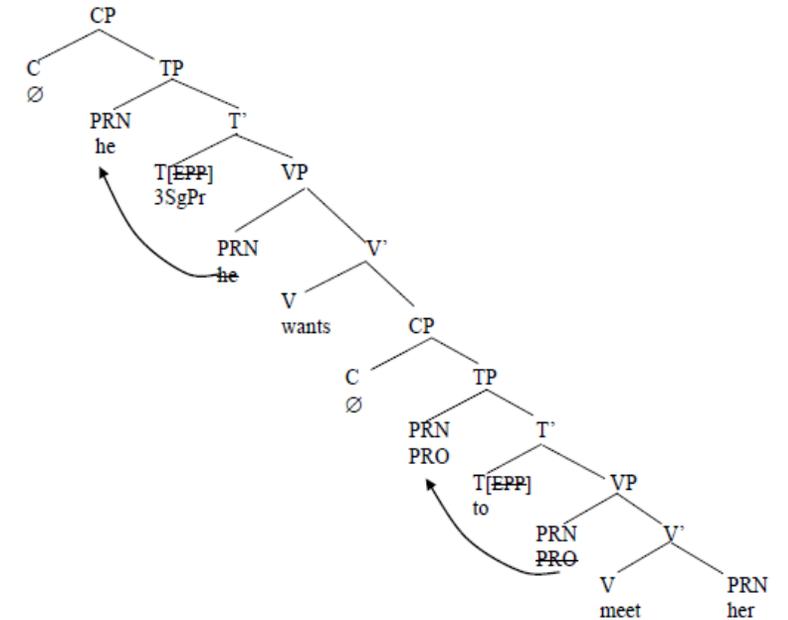
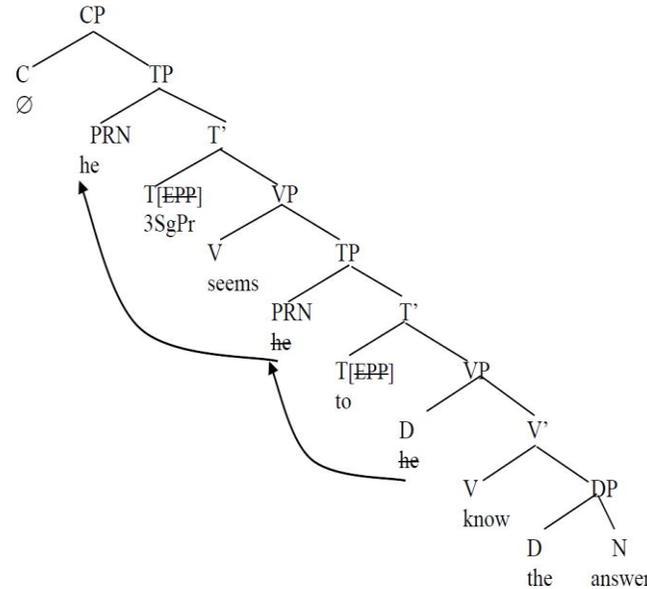
- Semantic roles are represented uniformly in syntax.
 - Semantic roles such as Agent and Theme are uniformly assigned in their canonical position
 - Deviations from the canonical ordering of semantic roles involve movement (e.g. passive sentences, wh-questions)
 - Semantic roles that are implicit but not directly expressed involve null constituents (e.g. subject-drop with “pro”, control with “PRO”)



Diagrams based on the framework in Radford, A. (2009). *Analysing English sentences: A minimalist approach*. Cambridge University Press.

Mainstream Generative Grammar

- Semantic roles are represented uniformly in syntax.
 - Semantic roles such as Agent and Theme are uniformly assigned in their canonical position
 - Deviations from the canonical ordering of semantic roles involve movement (e.g. passive sentences, wh-questions)
 - Semantic roles that are implicit but not directly expressed involve null constituents (e.g. subject-drop with “pro”, control with “PRO”)



Diagrams based on the framework in Radford, A. (2009). *Analysing English sentences: A minimalist approach*. Cambridge University Press.

Mainstream Generative Grammar

Some additional assumptions:

- Language learning depends in part on an innate Universal Grammar
- Syntactic differences among languages occur at a superficial level (strong vs. weak features, covert vs. overt movement)
- Syntactic theory should be concerned with 'core' syntactic phenomena rather than lexical idiosyncrasies or peculiarities of usage
- Acceptability judgments are the most reliable data source for revealing the nature of competence
- Bottom-up syntactic derivations bear only a an indirect relationship to real time comprehension and production

Level-mapping Approaches

Level-mapping approaches include the Parallel Architecture, Automodular Grammar, Lexical-Functional Grammar, and Role and Reference Grammar

- Phonology, syntax, and semantics are independent generative components of grammar, each of which consists of its own formation rules and units of structure
- The components are related to each other via lexical entries, constructions, and general linking rules
- Syntax consists of bits of structure stored in long-term memory. Sentences are formed not by bottom-up merger but by unification of lexical items and structures with compatible features
- Lexical items and structures are accessed and assembled during real time comprehension and production

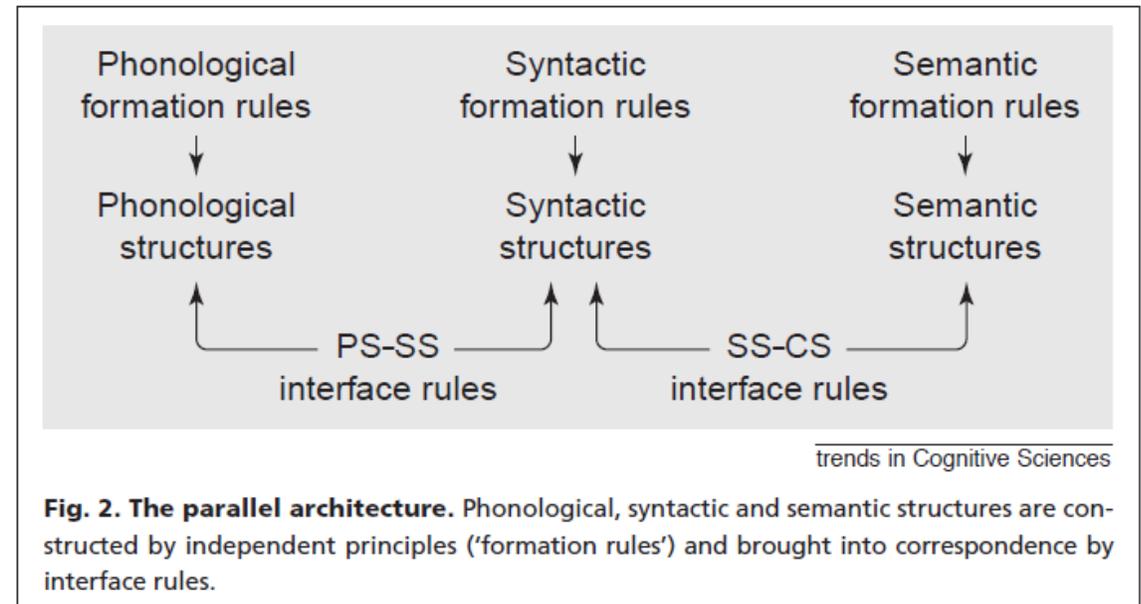
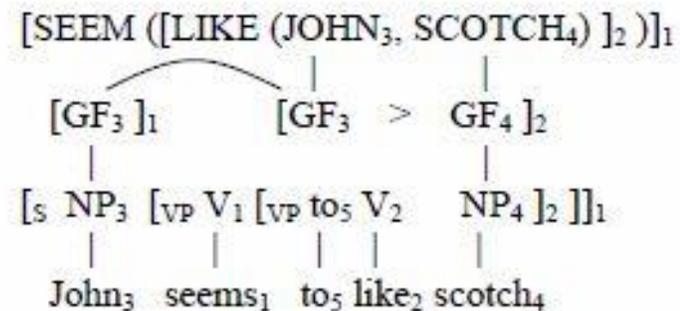


Diagram from: Jackendoff, R. (1999). Parallel constraint-based generative theories of language. *Trends in Cognitive Sciences*, 3(10), 393-400.

Level-mapping Approaches

- Simpler Syntax: semantic roles are *not* represented uniformly in syntax.
 - Semantic roles such as Agent and Theme are mapped directly to their surface syntactic position
 - There is no need for syntactic movement
 - Semantic information does not have to be linked to any syntactic constituent
 - There is no need for null constituents in syntax
 - Constituent structures are simple, while semantics and pragmatics account for many distributional facts

(3) *John seems to like scotch:*



Conceptual Structure

Grammatical Function Tier

Syntactic Structure

Phonological Structure

Diagram from: Jackendoff, R. (2010) <http://web.stanford.edu/group/cslipublications/cslipublications/LFG/15/abstracts/lfg10abs-jackedoff.html>

Constructionist Approaches

Constructionist approaches include: Berkeley CxG, Cognitive CxG, Fluid CxG, Radical CxG, Sign-based CxG, Head-Driven Phrase Structure Grammar, and Cognitive Grammar.

- Very similar to level-mapping approaches but dispense with the independent generative components
- The entirety of linguistic knowledge consists of conventional pairings of form with meaning called 'constructions'
- Constructions include morphemes, words, idioms, partially lexically filled expressions, and abstract phrasal patterns
- Linking rules of level-mapping approaches are replaced with abstract constructions
- Sentences are formed not by bottom-up merger but by unification of constructions with compatible features
- The generative capacity of language simultaneously involves composition in syntax, semantics, and phonology

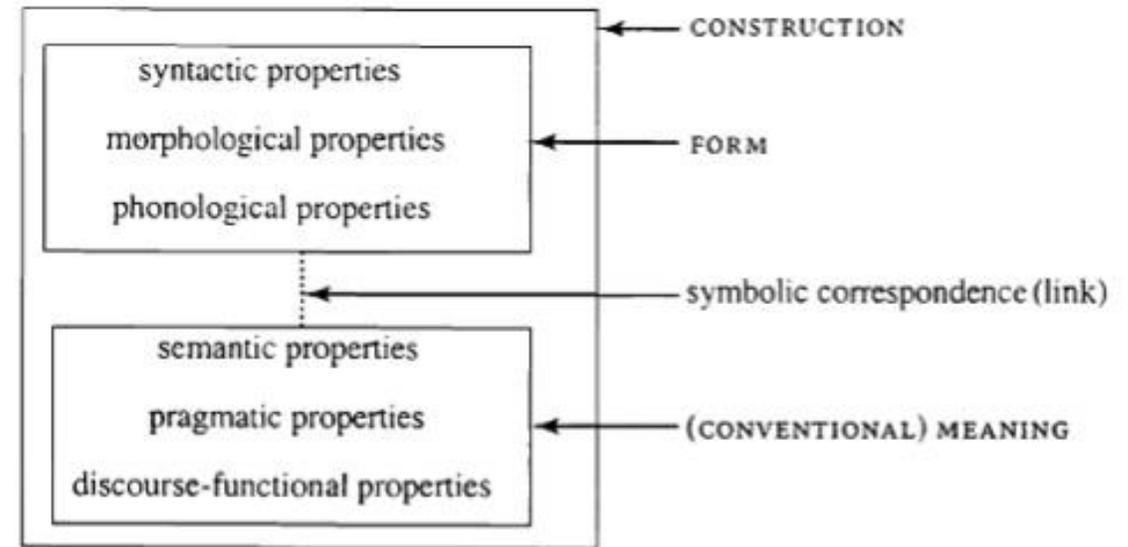


Diagram from: English Language and Linguistics online:
<http://www.ello.uni-osnabrueck.de/field.php/CognitiveApproaches/GoldbergsConstructionGrammar>

Constructionist Approaches

What is a construction? To paraphrase Goldberg (1995): a form-meaning pairing which is not completely predictable from its parts or from other existing constructions.

- Bound morpheme plural -s
- Simple word: *cat*
- Compound word: *cattail* (meaning: type of wetland plant)
- Verb-particle construction: *bring [something] up*
- Phrasal idiom: *keep tabs on [someone / something]* (meaning: “monitor”)
- Comparative correlative: *The more you practice, the better you play.*
the X-er the Y-er (meaning: increase/decrease in X linked to increase/decrease in Y)
- Sound + motion: *The old car clanked down the highway.*
NP V(sound emission) PP(path) (meaning: move along a path while clanking)
- Passive: *The car was hit by a tree.*
NP aux-be V(pp) (PP-by) (discourse function: make Theme argument topical)

Constructionist Approaches

- Simpler Syntax: semantic roles are *not* represented uniformly in syntax.
 - Semantic roles such as Agent and Theme are mapped directly to their surface syntactic position
 - There is no need for syntactic movement
 - Semantic information does not have to be linked to any syntactic constituent
 - There is no need for null constituents in syntax
 - Constituent structures are simple, while semantics and pragmatics account for many distributional facts
 - Note: we can still use trees instead of boxes to represent constituency if we want to!

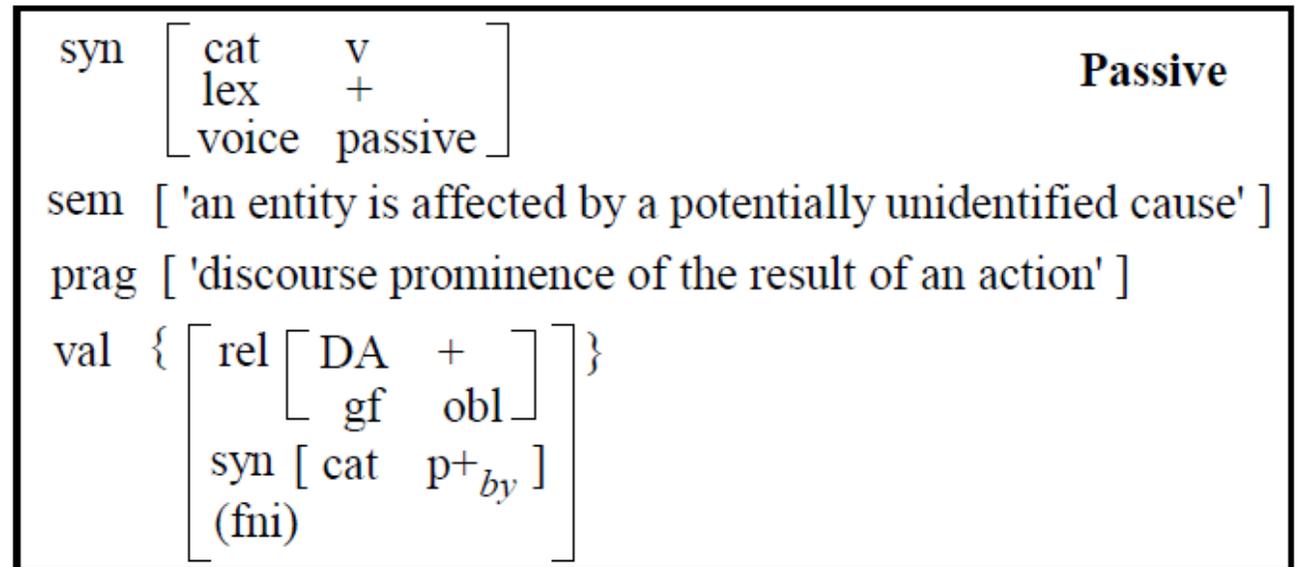


Figure 17. English Passive linking construction.

Diagram from: Fried, M. & Östman, J. 2004. A thumbnail sketch of Construction Grammar.

Constructionist Approaches

- Simpler Syntax: semantic roles are *not* represented uniformly in syntax.
 - Semantic roles such as Agent and Theme are mapped directly to their surface syntactic position
 - There is no need for syntactic movement
 - Semantic information does not have to be linked to any syntactic constituent
 - There is no need for null constituents in syntax
 - Constituent structures are simple, while semantics and pragmatics account for many distributional facts
 - Note: we can still use trees instead of boxes to represent constituency if we want to!

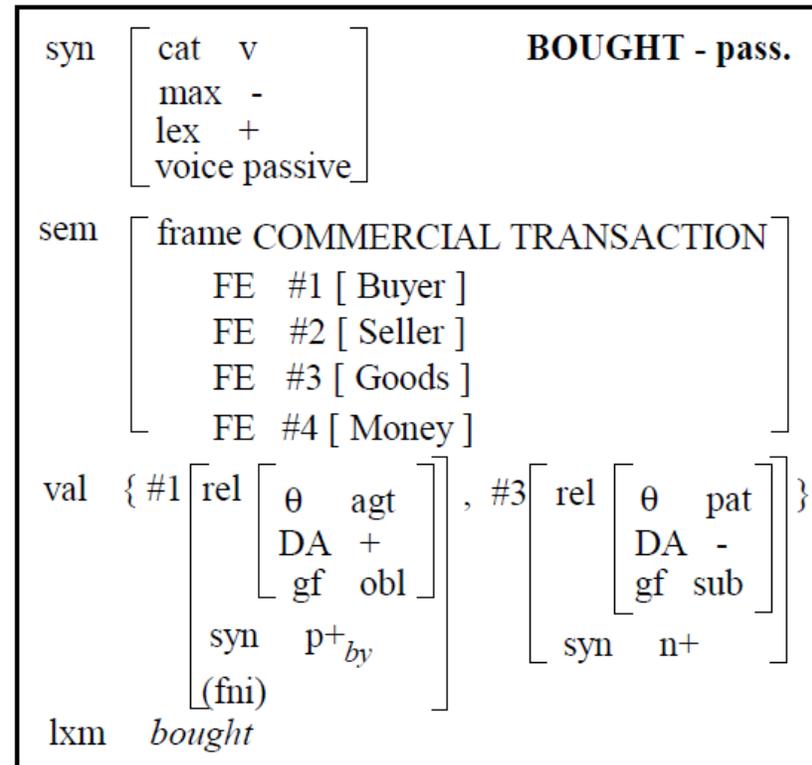


Diagram from: Fried, M. & Östman, J. 2004. A thumbnail sketch of Construction Grammar.

Constructionist Approaches

Some additional assumptions:

- Syntactic theory should be concerned with 'core' and 'periphery' at the same time
- Constructions fall along a continuum of specificity from highly idiosyncratic to highly general
- Generalizations across constructions of the same language are captured in terms of inheritance networks
- Constructions are learned on the basis of input and general cognitive abilities
- Linguistic knowledge includes knowledge of *usage* through a lifetime of experience

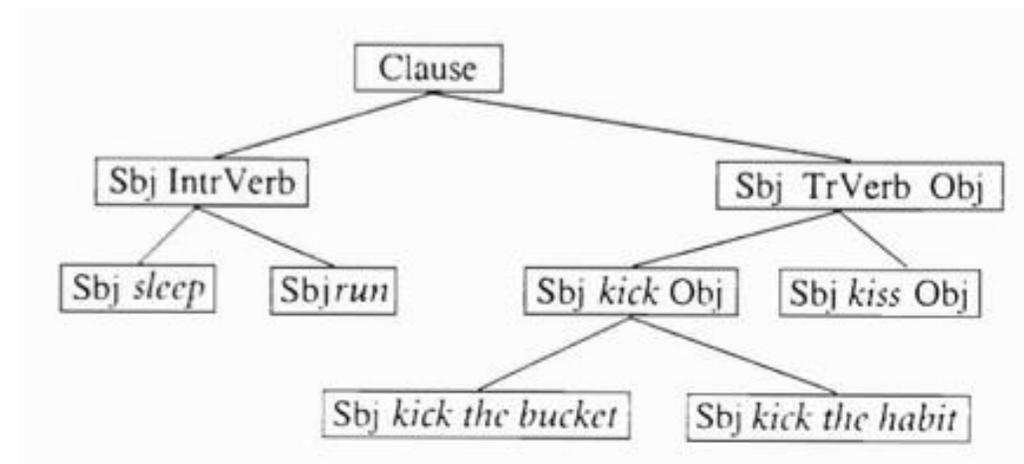


Diagram from: English Language and Linguistics online:
<http://www.ello.uni-osnabrueck.de/field.php/CognitiveApproaches/GoldbergsConstructionGrammar>

Constructionist Approaches

Some additional assumptions:

- For a fuller picture of linguistic knowledge, multiple data sources should be consulted: corpus data, judgment tasks, comprehension tasks, production tasks
- Constructions vary a great deal cross-linguistically
- Cross-linguistic similarities are the result of general cognitive abilities and similar semantic/pragmatic functions of constructions
- Constructions are accessed and assembled during real time comprehension and production

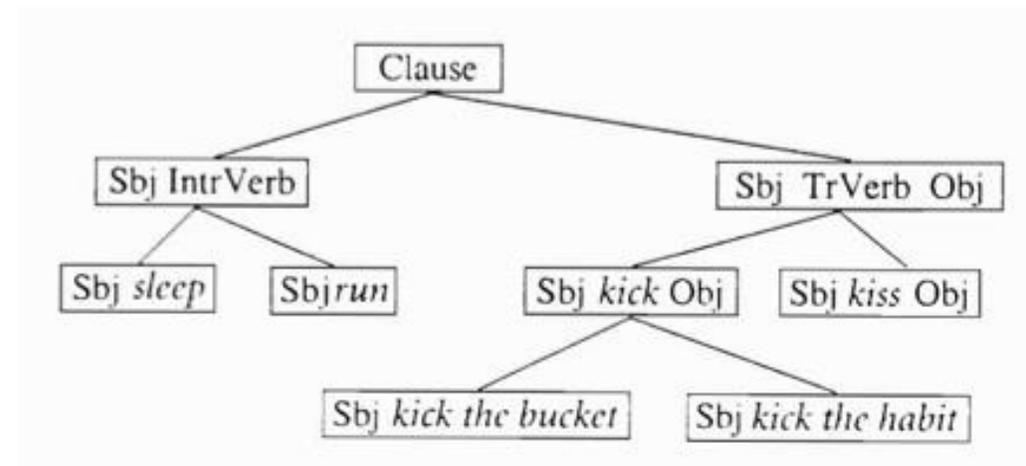


Diagram from: English Language and Linguistics online:
<http://www.ello.uni-osnabrueck.de/field.php/CognitiveApproaches/GoldbergsConstructionGrammar>

Why constructions? Some initial observations

Valence augmentation: verbs of sound emission (*cough, clank, rattle, buzz*) normally do not denote motion, but they do when combined with a path expression.

- A patient wheezed and coughed.

*A patient at the Samsung Medical Center became a “superspreader” of Middle East respiratory syndrome after a misdiagnosis, leaving him to **wheeze and cough** around the hospital. (NY Times 6/17/15)*

- If we assume that the meaning of motion+path derives from a Directed Motion construction, there is no need for valence augmentation of the verb itself.
- Goldberg (1995): Construction meaning is reconciled with verb meaning. To be compatible, lexical meaning of verb must identify a subevent (in this case sound emission) within the event structure, but need not specify all the same arguments as the construction.

Examples from: Michaelis, L. A. forthcoming. Meanings of constructions. Oxford Research Encyclopedia of Linguistics.

Why constructions? Some initial observations

Syntactically regular patterns with idiosyncratic meaning: Pseudo-imperative

Imperative sentences normally express a command or request.

- Watch the road. / Watch them go.

Pseudo-imperative evokes a humorous interpretation in which the speaker contradicts their own prediction and exposes the foolishness of tempting fate by making such a prediction.

The weather is starting to cool (at least for now—**watch it be like 90 degrees tomorrow.** smh) and the only thing about that that excites me is the layering that comes with it.

- If we assume that the humorous meaning derives from a Pseudo-imperative construction, rather than from pragmatic principles alone, this can explain the highly conventional and idiosyncratic nature of the special meaning.

Examples from: Michaelis, L. A. forthcoming. Meanings of constructions. Oxford Research Encyclopedia of Linguistics.

Why constructions? Some initial observations

Syntactically *somewhat* regular patterns with idiosyncratic meaning: Binominal NP

Many nouns can express one of their complements in the form of an *of*-PP:

- a piece of pie, a cup of sugar, a writer of fiction, a celebration of two birthdays, a reminder of the past

Binominal NPs take a similar form (Det1-N1-*of-a*-N2), but the first noun is not a complement-taking head, but instead a modifier of the second noun

- that bastard of a mic stand, a giant of a man, a skull cracker of a headache, a hell of a day (Kim and Sells 2015)

A constructional analysis derives the special meaning and some special syntactic restrictions from a Binominal NP construction. (Kim and Sells 2015)

Examples from: Michaelis, L. A. forthcoming. Meanings of constructions. Oxford Research Encyclopedia of Linguistics.

Why constructions? Some initial observations

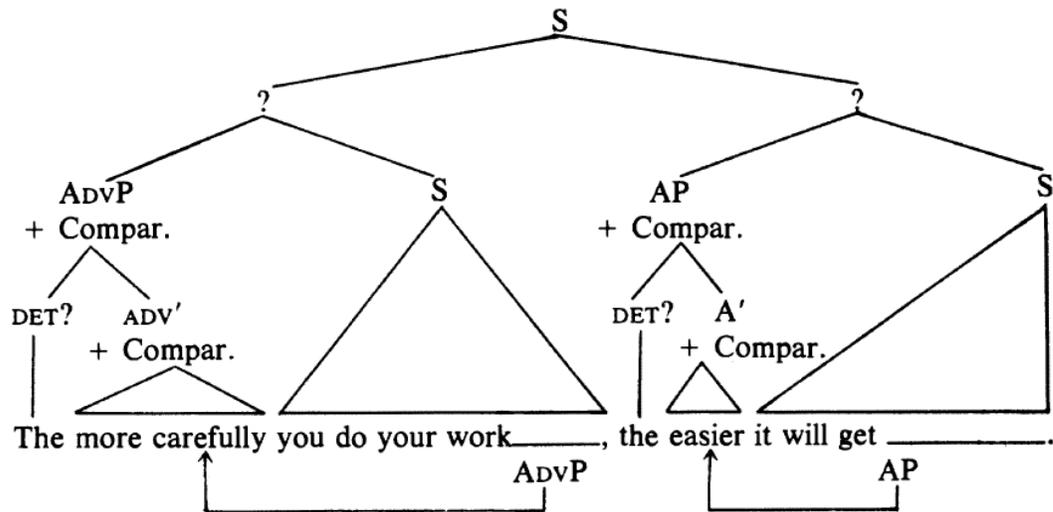


FIGURE 1.

Syntactically irregular patterns with idiosyncratic meaning:
The X-er the Y-er (Comparative Correlative)

Meaning: increase/decrease in X a condition of increase/decrease in Y (first clause semantically subordinate)

- Paraphrase: As you do your work more carefully, it will get easier.

Irregular syntax:

- the + AP What is the category of *the*?
- [the + AP] participates in long-distance dependency with gap, but comp position can still be filled by *that*
- What is the category of [the + AP + finite clause]?
- Two-part structure shows mixture of subordinate and non-subordinate properties (Culicover & Jackendoff 1999)

Constructional analysis: regular bits of syntax are inherited from other constructions, while irregular syntax and idiosyncratic meaning are directly specified

Questions we will address in this course

- How do constructionist approaches capture morphological, syntactic, semantic, and pragmatic information associated with idioms, verb-argument structure, information structure, and mixed categories?
 - Why Simpler Syntax?
 - Why constructions?
 - What sources of data can best inform our analyses?
- How do constructionist approaches capture similarities and differences among related constructions of the same language?
 - What is an inheritance network?
 - In what ways are constructions linked to each other within the network (polysemy, subpart, instance, etc.)?
 - To what extent should we recognize relationships of 'homophony' (same form, different meaning) and 'synonymy' (same meaning, different form) for phrasal constructions?

Questions we will address in this course

- How are cross-linguistic generalizations captured in constructionist approaches?
 - The role of semantic and pragmatic functions (parts of speech, argument realization)
 - The role of constraints on language comprehension and production (head ordering, adjacency, filler-gap dependencies)
- In what ways do data from child language acquisition and adult language processing support and extend constructionist approaches?
 - Evidence from comprehension and production for argument structure constructions having a meaning independent of lexical items
 - Effects on processing of frequency and semantic prototypicality of verbs in relation to a particular construction
 - Relation between factors affecting usage of a construction and factors affecting online processing

Constructionist Approaches

Table 1. Examples of constructions, varying in size and complexity; form and function are specified if not readily transparent

Construction	Form/Example	Function
Morpheme	e.g. <i>anti-, pre-, -ing</i>	
Word	e.g. <i>Avocado, anaconda, and</i>	
Complex word	e.g. <i>Daredevil, shoo-in</i>	
Idiom (filled)	e.g. <i>Going great guns</i>	
Idiom (partially filled)	e.g. <i>Jog (someone's) memory</i>	
Covariational-Conditional construction [10]	Form: The Xer the Yer (e.g. <i>The more you think about it, the less you understand</i>)	Meaning: linked independent and dependent variables
Ditransitive (double-object) construction	Form: Subj [V Obj1 Obj2] (e.g. <i>He gave her a Coke; He baked her a muffin</i>)	Meaning: transfer (intended or actual)
Passive	Form: Subj aux VPpp (PP _{by}) (e.g. <i>The armadillo was hit by a car</i>)	Discourse function: to make undergoer topical and/or actor non-topical

Diagram from: Goldberg, A. E. (2003). Constructions: a new theoretical approach to language. *Trends in Cognitive Sciences*, 7(5), 219-224.