

Syntax-Semantics Interface

Glossary

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Goals: collect relevant concepts related to the Syntax-semantics interface that might help us understand the papers we are going to discuss in the seminar.

ADJUNCTION

In transformational grammar, any procedure for inserting material into a tree. The figure below shows three different ways of adjoining the element E into a tree at the left; these are called (1) *sister-adjunction*, (2) *daughter-adjunction* and (3) *Chomsky-adjunction*. (Trask, 1997)

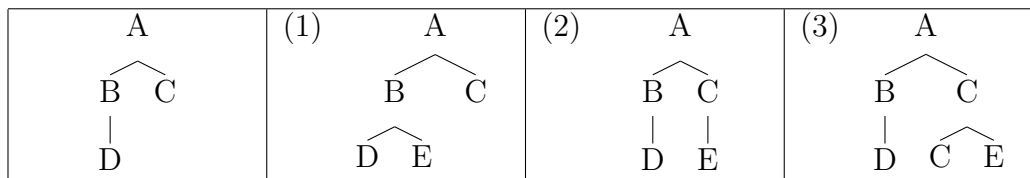


Figure 1: Adjunction types

Specifically, in terms of X-bar syntax, of an operation by which, when A is adjoined to B, the two together form a unit whose category is in turn that of B. E.g. if B is a CP, the adjunction of A will form a larger unit, [A[B]], which is also a CP. Adjunction in this sense is allowed in Government and Binding Theory only when B is a maximal projection (in this case of C); the structure that results is an adjunction structure. (Matthews, 2007)

BINDING

The relation between two coreferential noun phrases in a sentence, an anaphor and its antecedent; the anaphor is bound by its antecedent (that is, it receives the same interpretation as that antecedent). In *Janet hates herself*, *herself* must be bound by *Janet*; in *Fred asked Bill to see him*, *him* cannot be bound by *Bill* but may be bound by *Fred*. (Trask, 1997)

BOTTOM-UP

A label applied to any type of processing which begins with the smallest elements and combines them into increasingly larger elements until the whole message has been processed. The opposite is top-down. (Trask, 1997)

C-COMMAND

A particular relation which may hold between two nodes in a tree structure. A particular node A c-commands another node B if and only if you can start at A, go up the tree until you reach the *first* node from which there is a different path downward, and go down that other path until you arrive at B. In the figure below, the V node c-commands each of the four circled nodes, but nothing else, and the V node is itself c-commanded by *both* NP nodes, but not by any of the other nodes. The term was originally short for *constituent command*, but this longer form is no longer used. (Trask, 1997)

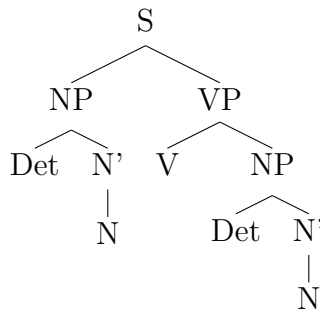


Figure 2: C-Command

COMPOSITIONALITY, PRINCIPLE OF

An important principle of semantics. It says: the meaning of a sentence is derived from the meanings of the words it contains in a completely regular way which depends only on the grammatical structure of the sentence. (Trask, 1997)

CONVERGENCE

In the Minimalist Program, a derivation is said to converge if a structural description is interpretable at the level of Phonetic Form and at the level of Logical Form. For this to happen, there should be nothing other than phonologically interpretable features in the phonetic representation (PF-Convergence) and nothing other than semantically interpretable features in the semantic representation (LF-Convergence). If these conditions are not met, the derivation is said to crash. (Crystal, 2008)

CROSSOVER

A label applied to a somewhat diverse set of facts involving the possibility of certain orderings of noun phrases in a sentence. An example is **Who_i did he_i say Jackie kissed?*, which is impossible when *who* and *he* denote the same person; compare *Who_i said Jackie kissed him_i?*, which is fine. (Trask, 1997) **STRONG CROSSOVER** Sometimes invoked in excluding the possibility that e.g. in *Who did she visit?*, both pronouns (*who* and *she*) might be taken as having the same referent. If seen in terms of *wh*-movement this would involve the second of two coreferential crossing over the first. (Matthews, 2007)

De re / de dicto DISTINCTION

A difference in the way certain expressions may be interpreted. Consider the example *Susie believes that all philosophers are eccentric*. Suppose the following is the case: of all people who really are philosophers, Susie indeed considers them eccentric, but Susie also believes (mistakenly) that the linguist Chomsky is a philosopher, and she does not consider him eccentric. So: is the example statement true or false? In the *de dicto* interpretation, it is false: if you ask Susie if the statement is true, she will reply “No – Chomsky is not eccentric.” But, in the *de re* interpretation, it is true: for every person who is a philosopher, Susie indeed believes that person to be eccentric. (Trask, 1997).

DEEP STRUCTURE

In transformational grammar, an abstract underlying representation of the grammatical structure of a sentence which is posited in order to allow the analyst certain generalizations more easily. The conception of deep structure has changed frequently and dramatically over the years, and recently the term D-structure has been preferred. Note that deep structure is an analytical artefact that is grammatical in nature, *not* semantic (though see Generative Semantics), nor do most linguists assign any kind of mental reality to it (though there are exceptions). Compare surface structure. (Trask, 1997) [...] E.g. in the surface structure of *Children are hard to please*, the subject is *children* and the infinitive *to please* is the complement is *hard*. But in its deep structure, as it is understood especially in the early 1970s, *is hard* would have as its subject a subordinate sentence in which *children* is the object of *please*: thus, in outline, _s[please children] is hard. (Matthews, 2007)

DERIVATION

... the entire series of steps by which an underlying structure (or a deep structure) is converted by rules into a surface structure. (Trask, 1997) [...] In a more restricted context, a derived structure refers to the form of an output phrase-marker, after a transformational rule has applied. (Crystal, 2008)

DONKEY SENTENCE

Any sentence which contains a pronoun which can only refer to something unidentified whose existence is not even guaranteed. The classic example is *any man who owns a donkey beats it*, in which *it* can only refer to *a donkey*, but no donkey has been identified. Such sentences present extraordinary difficulties of analysis. (Trask, 1997)

D-STRUCTURE

In Government-and-Binding theory, the name given to the abstract underlying level of representation formerly called *deep structure*. (Trask, 1997)

ECONOMY

Any of various criteria which may be invoked to evaluate a particular linguistic analysis, all of them involving a notion of ‘fewness’, such as using fewer phonemes, or using fewer rules, or requiring fewer exceptions, than other conceivable analyses. Economy is considered desirable. The opposite notion is cost. (Trask, 1997)

ELLIPSIS

The omission from an utterance of some material which is strictly required to com-

plete the sentence but which can be recovered from the context. In the exchange *Seems we have a problem. – Yes, we have*, the first utterance shows ellipsis of *it* and the second of *a problem*. (Trask, 1997)

ENTAILMENT

A possible relation between two statements. When we say “A entails B”, we mean that, if A is true, then B must be true. For example, the statement *Booth assassinated Lincoln* entails both *Somebody killed Lincoln* and *Lincoln is dead*. Entailment does not survive negation: the negated sentence *Booth did not assassinate Lincoln* does not entail either of these things. Compare presupposition, conversational implicature. (Trask, 1997)

FACTIVE VERB

A verb which presupposes the truth of what follows it, such as *realize*. The sentence *Susie realizes that Cecil is married* only makes sense if Cecil is married. (Trask, 1997)

FOCUS

Special prominence which is given to some element in a sentence to mark it as expressing the most important new information or to contrast it with something else. In English, we do this either by stressing the focused element (*I met my wife IN LONDON* or by using a cleft sentence (*It was in London that I met my wife*). Some other languages use word order for this purpose. (Trask, 1997)

FUNCTIONAL APPLICATION (FA)/ COMPOSITION (FC)

Terms used in formal linguistics in their conventional mathematical senses, and adapted in Categorical Grammar to rules which combine (a) an expression of some complex category X/Y with an expression of some category Y to form an expression of category X (functional or function application), and (b) an expression of some complex category X/Y with an expression of some complex category Y/Z to form an expression of category X/Z (functional or function composition). The terms are also used for similar rules in type-theoretic approaches to semantics. (Crystal, 2008)

GENERALIZED QUANTIFIER

Logicians’ term for an expression interpreted as representing a set of subsets. Adapted, in formal semantics, to represent the meaning of noun phrases: e.g. *some people* denotes the set of all subsets of individuals whose members are subsets of people. [...] A sentence like *Some people like formal semantics* is true if, in a given situation, a property denoted by the predicate (that of liking formal semantics) holds of, in this case, some people. If noun phrases denote generalized quantifiers, a generalized quantifier can accordingly be represented as a function from a property (such as liking formal semantics) to a truth value (true or false in given circumstances). (Matthews, 2007)

GRAMMAR

Narrowly, that part of the structure of a language which includes sentence structure (syntax) and word structure (morphology). Broadly, the entire structure of a language, including not only its syntax and morphology but also its phonology and semantics, and possibly also its pragmatics. A particular description of a language, or a book containing it. (Trask, 1997)

IMPLICATURE

Conversational implicature: A conclusion which is not asserted by a speaker but which is nevertheless drawn by the listener on the ground that, if the conclusion were not true, the speaker would have said something different. For instance, if I tell you “Not many Americans speak French”, you will draw the conclusion “A few Americans speak French” (the implicature), since, if this were not true, I would surely have said something different in the first place. Compare entailment, presupposition. (Trask, 1997)

INCLUSIVENESS CONDITION

Condition that the output of a system does not contain anything beyond its input. Proposed in (Chomsky, 1995, 225) as a condition met by the computational system of human language, and taken to imply that the interface levels contain nothing more than arrangements of lexical features. EXAMPLE: A language which meets the inclusiveness condition cannot contain traces or indices left after movement. (Lexicon of linguistics: <http://www2.let.uu.nl/UiL-OTS/Lexicon/>)

INTERFACE

In the Minimalist Program, a term describing the status of the two levels of representation recognized in the approach: Logical Form (LF) and Phonetic Form (PF). Their role is to connect linguistic representations to interpretation elsewhere: LF interfaces with the conceptual systems of cognition, and PF interfaces with an articulatory and perceptual systems of speech production/perception. (Crystal, 2008)

ISLAND CONSTRAINTS

Any of various constraints on syntactic processes or dependencies having the general form ‘No process or relation of type X may simultaneously involve elements both inside and outside a constituent of type Y’. The constituent Y is called an island. (Trask, 1993)

LAMBDA

A notion developed in mathematical logic and used as part of the conceptual apparatus underlying formal semantics. The lambda operator is a device which constructs expressions denoting functions out of other expressions (e.g. those denoting truth values) in a process called lambda abstraction. (Crystal, 2008)

LANGUAGE

The central object of study in linguistics, but one which can be approached from several points of view. The ultimate goal of the discipline is the elucidation of the human’s language faculty (Saussure’s *langage*), the cognitive and neurological facts which enable us to learn and use languages. To this end linguists have often found it necessary to distinguish between the abstract mental system of rules, principles and constraints which are shared by speakers (variously called *langue* or *competence*) and the real of utterances produced by individual speakers (*parole* or *performance*). (...) An individual language may itself be viewed either as a set of rules and principles in the minds of speakers (Chomsky’s I-language) or as a set of possible sentences (his E-language). [...] (Trask, 1997) I-LANGUAGE Chomsky’s term from the mid-1980s for the knowledge of language seen as an internalized (hence in part *I*) as a system in the minds of speakers. (Matthews, 2007)

LEFT-DISLOCATION

A construction in which a noun phrase is moved to the beginning of a sentence, with its ordinary position being filled by a pronoun, as in *Susie, I like her a lot*. Compare with topicalization. (Trask, 1997)

LOCAL DEPENDENCY

A grammatical connection between two points in a sentence which must be constrained within a single syntactic unit, such as a noun phrase, a verb phrase or a single clause. Subcategorization, agreement and government are all types of local dependency. Compare unbounded dependency. (Trask, 1997)

LOGICAL FORM (LF)

In the Government-and-Binding Theory, a level of syntactic representation in which all quantifiers and WH-words are moved to the beginning of the sentence in order to mark their scope; this is required for the sentence to receive a semantic interpretation. (Trask, 1997) One of the two essential representations in Chomsky's theory of grammar since the 1980s. Opp. Phonetic Form (PF). Defined as an interface between a grammar, or I-language, and semantic, called e.g. *conceptual* and *intentional*, performance systems. Hence directly related, in Government and Binding Theory, to the level within grammar of D-(or formerly deep) structure. (Matthews, 2007)

MERGE

In the Minimalist Program, an operation which forms larger units out of those already constructed. Specifically, merge is a recursive process which combines two lexical items, or one lexical item and a construction. In later minimalist thinking, the operation Move is regarded as a subtype of Merge, leading to a terminological reformulation: Move is called Internal Move and Merge is called External Merge. (Crystal, 2008)

MINIMALITY

Condition defined in Government and Binding Theory, formalizing the view that an element governed by one relationship will not be governed by another; in terms of a theory of barriers, nodes become barriers for an element if they immediately dominate the nearest governor of that element. Relativized minimality is the view that what counts as a governor is related to what is being governed: an element will minimally govern its trace if there is no other typical potential governor that is closer to the trace. (Crystal, 2008)

MODEL THEORY

An approach to formal semantics which involves the construction of explicit representations resembling miniature universes; the meanings of linguistic expressions are evaluated in terms of these models. (Trask, 1997) **MODEL-THEORETIC SEMANTICS** A version of truth-conditional semantics developed by Richard Montague (1930-1971) and others. A class of models is defined for each language, and rules are formulated assigning truth values to sentences relative to each model. Such notions as logical consequence and logical truth may then be defined by quantifying over the models relative to which given sentences are true. Typically, a model consists of three components: (a) a set of individuals, taken to constitute the domain of discourse; (b) an arbitrary number of

world-time pairs; and (c) an assignment of an extension for each logical item relative to each world-time pair. (Crystal, 2008)

MODULE

In some theories of grammar, any of the separate and distinct components of the theory which are posited to do different jobs. The best-known modular theory is Government-and-Binding theory. In some theories of language, or of the mind or the brain generally, any of the separate mental or neural structures which are posited as existing and performing distinct functions [...] (Trask, 1997)

MOVE

In the Minimalist Program, move is a basic operation which moves elements about in the process of tree construction. Movement is constrained in various ways. Only the shortest movements of an element are acceptable (shortest move) into the nearest relevant position (the minimal link condition). Movements should be delayed until absolutely necessary (procrastinate). And movement may satisfy the requirements of the moved element (greed). In earlier formulations of the program, move existed alongside merge; later formulations regard move as a subtype of merge. In this approach, move is called ‘internal merge’ and merge is called ‘external merge’ [...] The Minimalist Program endorses the Copy Theory of Movement: when a constituent moves, it leaves a copy of itself. A chain therefore consists of multiple copies of the moved constituent. Copy Theory replaces trace theory in Government and Binding. (Crystal, 2008)

OPERATOR

Term in logic and mathematics for a sign which represents an operation: e.g. ‘+’ as a sign for addition. Hence in linguistics, of syntactic elements seen as corresponding to an operator in some standard system of logic: e.g. quantifiers. Also generally of elements relating others: e.g. in *Jack and Jill*, the conjunction (*and*) as one relating *Jack* and *Jill*; in *Jack loves Jill*, the predicate or predicator *love* as one that relates *Jack* and *Jill* as its arguments. (Matthews, 2007) Examples: universal and existential quantifier, negation, modals.

PHASE

Applied in Chomsky’s Minimalist Program to any stage in the derivation of a sentence at which a convergence of Logical and Phonetic Forms can be computed independently of the remainder. I.e. these are forms with their own meaning [...] (Matthews, 2007)

PHONETIC FORM

One of the two essential representations of a sentence in Chomsky’s theory of grammar since the early 1980s. Opp. Logical Form (LF). Defined as the interface with phonetic, or *articulatory* and *perceptual*, performance systems. Related in Government and Binding Theory to a level of S-Structure, as the relic of earlier Surface Structure, and itself described on occasion as a *surface* representation. (Matthews, 2007)

PIED-PIPING

The construction in which a preposition is fronted along with its object, as in *To whom were you talking?* Compare *Who were you talking to?*, in which there is no pied-piping, but rather preposition stranding. (Trask, 1997)

POSSIBLE WORLD

Any state in which the world could be: a proposition, e.g. as expressed by a sentence, may accordingly be true in some *possible worlds* and false in others. (Matthews, 2007)

PRESUPPOSITION

A proposition whose truth must be taken for granted if some utterance is to be regarded as sensible. For example, the utterance *Jim's wife runs a boutique* only makes sense if Jim is married; therefore *Jim is married* is a presupposition of this utterance. Presupposition survives negation: the utterance *Jim's wife doesn't run a boutique* still presupposes *Jim is married*. Compare entailment, conversational implicature. (Trask, 1997)

QUANTIFIER

1. Any word or expression which gives relative or indefinite indication of quantity. E.g. *many* in *many children* or *few* in *the few children who came*: distinguished as such from a numeral, which gives a precise and absolute indication of quantity, e.g. in *the three children who came*. 2. An operator in logic such as the existential quantifier (\exists) and the universal quantifier (\forall). Thence, in linguistics, of a class of determiners such as *some*, *no*, *all* or *most*, characterized by ones whose meaning can be represented by expressions containing such an operator. E.g. that of *all* in *All birds can fly* can be shown by the universal quantifier in an expression $(\forall x).(\text{bird}(x) \rightarrow \text{fly}(x))$ 'For all x , if x is a bird, then x flies'; that of *no* in *No snake flies* with the existential quantifier in $\neg(\exists)(\text{snake}(x) \& \text{fly}(x))$ 'There exists no x such that x is a snake and x flies.' (Matthews, 2007) **QUANTIFIER RAISING** It is a process assumed in Government and Binding Theory which applies in the mapping from S-Structure to LF and moves a quantified NP such as *everyone* into clause initial position, giving structures similar to the assumed in logic. (Crystal, 2008)

RECONSTRUCTION

In Government and Binding Theory, a process that occurs in the mapping from S-Structure to LF, moving certain constituents back to their D-Structure positions. It allows examples like *which picture of herself did Mary buy?* to be analyzed as ordinary cases of anaphora, in which the anaphor is c-commanded by its antecedent. (Crystal, 2008)

REPRESENTATION

A term used, especially in generative linguistics, to refer to the relationship of correspondence existing between the successive levels of analysis which are recognized in generating a sentence. The data of language are represented as a configuration of elements at a given level (e.g. 'semantic/phonologic/deep-structural/systematic phonetic... representation of a sentence'), and the rules of the grammar assign structural descriptions to these representations. For example, in a phonetic representation, an utterance might be analyzed in terms of a matrix where the various rows are labeled by phonetic features and the columns are successive segments. (Crystal, 2008)

RULE

A statement expressing a linguistically significant generalization about the facts of a

language, particularly when this is formulated within the formalism of some particular theory. It is possible for a rule to have some exceptions. (Trask, 1997)

SCOPE

The part of a sentence which is affected by a quantifier or a negative contained in it. The string of words *Everybody doesn't have a car* has two readings, differing in the scope assigned to *every* and *not*: [*every* [*not* [*have a car*]]] ('Nobody has a car') and [*not* [*everybody* [*have a car*]]] ('Not everybody has a car'). (Trask, 1997)

S-STRUCTURE

The least abstract level of syntactic structure in Government and Binding Theory. Derived by successive modifications from the notion of surface structure in transformational grammars of the 1960s and 1970s [...] (Matthews, 2007)

SUBJACENCY CONDITION

In Government and Binding Theory, the principle requirement of Bounding Theory. It says: no single application of a movement rule may cross more than one bounding node. The bounding nodes in English have been usually taken to be NP and S, though NP and S-bar have been proposed for other languages and occasionally also for English. The subjacency condition was introduced by Chomsky (1973) as a way of combining some of Ross's island constraints; it has generally been regarded as a success, though it had the surprising consequence of facing what were previously regarded as unbounded movement rules, like *wh*-preposing, to be interpreted as successive cyclic rules. (Trask, 1993)

SURFACE STRUCTURE

A representation (usually a tree structure) of the structure of a sentence which is minimally abstract, which corresponds as closely as possible (within the particular theory of grammar being used) to the spoken form of the sentence. Compare deep structure. (Trask, 1997)

TOP-DOWN

A label applied to any kind of processing which begins with the largest units and successively decomposes these into ever smaller units, until the whole message has been processed. The opposite is bottom-up. (Trask, 1997)

TOPIC

A part of a sentence which is presented as already existing in a discourse and which the rest of the sentence, the comment, is in some sense 'about'. (Trask, 1997)

TOPICALIZATION

A construction in which some part of a sentence is made into a topic, usually by placing it at the beginning. In *This book I can't recommend*, the NP *this book* is topicalized; compare the ordinary (unmarked) construction *I can't read this book*. Compare left-dislocation. (Trask, 1997)

TRACE

A term introduced into transformational grammar of the mid 1970s to refer to a

formal means of marking the place a constituent once held in a derivation, before it has moved to another position by a transformational operation. The position from which the constituent was moved is known as a trace (*t* marks its place in the representation), which is said to be ‘bound’ by that constituent. The moved constituent and the empty node it leaves behind are co-indexed. For example, in a rule which ‘raises’ the subject of an embedded clause to the subject of the main clause, the trace *t* marks the position of the embedded subject; e.g. *it is certain [the man to come] ⇒ the man is certain t to come [...]* (Crystal, 2008)

TRUTH CONDITIONS

The conditions under which a sentence, or a proposition expressed by it, is true: e.g. *I have red hair* is true under the condition that the speaker has, in fact, red hair. Truth-conditional semantics is an account of the truth conditions of sentences, often one in which the meaning of a sentence is equated with them. (Matthews, 2007)

TRUTH-CONDITIONAL SEMANTICS An approach to semantics which maintains that meaning can be defined in terms of the conditions in the real world under which a sentence may be used to make a true statement. It can be distinguished from approaches which define meanings in terms of the conditions on the use of the sentences in communication, such as the function of the sentence in terms of speech acts, or the speaker’s beliefs about the sentence. (Crystal, 2008)

UNBOUNDED DEPENDENCY

A grammatical link between two points in a sentence which can be any distance apart. For example, the link between a WH-word which introduces a question and the corresponding gap is an unbounded dependency. Example: *Who_i did Alice say that Bill thought that Cynthia claimed that Dave discovered that Edna was going to marry e_i?* An unbounded dependency is the result of an extraction. Compare local dependency. (Trask, 1997)

VARIABLE

In many theories of grammar, a general symbol which can represent any of several competing possibilities, the values of that variable. For example, the symbol X” (or X-double-bar, or XP) may be used to represent ‘any phrasal category’, including such possibilities as noun phrase, verb phrase and prepositional phrase [...]. (Trask, 1997)

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