

## SEMANTIC DATA AND THE COMPUTATIONAL SYSTEM

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- (1) Autonomy of Syntax: The rules (principles, constraints, etc.) that determine the combinatorial possibilities of the formal elements of a language make no reference to constructs from meaning, discourse, or language use.

Chomsky's motivations for the Autonomy of Syntax:

(A) Methodological caution. The nature of the form-meaning interface is one of the most difficult problems in linguistics. The worst thing, therefore, would be to *presuppose* a semantic basis for syntax.

(B) The *empirical evidence* points to a purely formal system (consider the auxiliary rules in *Syntactic Structures*).

Subordination markers in Japanese (Yuasa 2005; Yuasa and Francis 2003):

- (2) [Benri da-kara] kore-o kai-masyoo  
convenient is-because this-Acc buy-shall  
'Because this is convenient, let's buy this one'

Syntactically the members of this class are postpositions, but semantically they are predicates.

- (3) [Uchi-ni i-ru toki-ni] odenwa kudasai  
home-at be-Pres time-at/when phone please  
'Please call me when I am at home'

Syntactically the members of this class are nouns, but semantically they are arguments.

- (4) [Uchi-o de-ta totan-ni] ame-ga fut-te ki-ta  
house-Acc leave-Past instance-at rain-Nom fall-Ger come-Past  
'It started raining right after/as soon as I left home'

Syntactically the members of this class are nouns, but semantically they are predicates.

(5)

	Class 1 ('kara', 'keredo')	Class 3 ('totan', 'toori')	Class 2 ('toki', 'uchi')
Syntax	Postposition	Noun	
Semantics	Predicate		Argument

(C) We can use form to get at meaning: 'In general, as syntactic description becomes deeper, what appear to be semantic questions fall increasingly within its scope...' (Chomsky 1964: 936).

For example, Chomsky motivated the passive transformation *purely* on its formal properties (the occurrence of the morpheme *be+en*, its limitation to transitive verbs, and so on). The rough paraphrase relation between actives and passives was *not* one of Chomsky's motivations.

A later example of deeper syntactic description encompassing what has traditionally been called 'semantics':

(6) A highly constrained theory of movement rules > Specified Subject Condition and Tensed-S Condition > trace theory of movement rules > surface interpretation of meaning (Chomsky 1973) > capturing certain aspects of quantifier scope structurally (May 1977)

(7) Autonomy of Syntax (Methodological Counterpart): Semantic judgments (i.e., judgments of paraphrase, ambiguity, scope, nuances of aspect and the nature of events, etc.) should not in general be used as data in the construction of a syntactic theory.

For the moment, I see no reason to modify the view, expressed in Chomsky (1957) and elsewhere, that although, obviously, semantic considerations are relevant to the construction of general linguistic theory ... there is, at present, no way to show that semantic considerations play a role in the choice of the syntactic or phonological component of a grammar or that semantic features (in any significant sense of this term) play a role in the functioning of the syntactic or phonological rules. (Chomsky 1965: 226)

(8) Examples of the theoretical and/or methodological weakening of the Autonomy of Syntax in mainstream generative syntax:

a. The Theta-Criterion (Chomsky 1981), which demands that the syntax 'know' which syntactic elements bear  $\Theta$ -roles and which do not.

b. The idea that 'c-selection' (essentially, subcategorization) is derivable from 's-selection' (essentially, the thematic properties of the items involved) (Chomsky 1986).

c. Uniformity of Theta Assignment Hypothesis (UTAH) (Baker 1988). Identical thematic relationships between items are represented by identical structural relationships between those items at the level of D-structure.

d. Lexical decomposition, which derives semantically complex predicates via syntactic movement operations (Baker 1988, Baker 1993; Hale and Keyser 1993, Hale and Keyser 1997; Borer 2003)

e. The cartography program (Rizzi 1997; Cinque 1999), which appeals in part to semantic motivation for syntactic projections:

In fact, a restrictive theory should force a one-to-one relation between position and interpretation (p. 20) ... each projection has a specific semantic interpretation. (p. 132) (Cinque 1999)

f. The triggering of movement (and/or the licensing of configurations) by semantic properties of heads (Rizzi 1991/1996; Haegeman 1995):

Syntactic movement ... must be triggered by the satisfaction of certain quasi-morphological requirements of heads. ... [*S*]uch features have an interpretive import (*Wh, Neg, Top, Foc, ...*): they determine the interpretation of the category bearing them and of its immediate constituents ..., function as scope markers for phrases with the relevant quantificational force in a local configuration, etc.... (Rizzi 1997: 282; emphasis added)

[The Negative Criterion appeals to] the semantic-syntactic feature NEG. (Haegeman 1997: 116)

(8a-f) don't illustrate pushing back the frontiers of syntax and thereby encompassing aspects of meaning. They illustrate grafting semantic notions directly into the syntax. There are negative consequences, as we will see.

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(9) Structural generalizations involving the English modal auxiliary (for details, see Huddleston and Pullum 2002):

a. They occur before all other auxiliaries (*must have gone; \*have must gone*)

b. They do not occur in sequence (in Standard English) (*\*might could*)

c. They take neither the infinitive marker nor inflection (*\*to would; \*she woulded*)

d. They must be followed by non-finite form of the verb or auxiliary (*\*I must had gone*)

e. They invert in questions and are followed by the negative morpheme (*could she run?; she could not run*)

f. (!!!) All of (9a-e) apply to modals both in their root and epistemic senses:

i. Root *must* = obligation; epistemic *must* = consequence

ii. Root *may* = permission; epistemic *may* = possibility

iii. Root *can* = ability; epistemic *can* = possibility

Much current work (Stowell 2004; Zagana forthcoming-a;b) is directed to representing the subtle scopal differences between root and epistemic modals structurally. The downside is that (9a-f) become more difficult to capture.

(10)

(A) PHENOMENA THAT ARE CLEARLY SYNTACTIC	(B) AMBIGUOUSLY SYNTACTIC OR SEMANTIC (OR PART OF A SYSTEM INTERFACING THE TWO)	(C) PHENOMENA THAT ARE CLEARLY SEMANTIC
<i>*John has must go(ne)</i> is an ungrammatical sentence of English	Tense can take scope over root modals but not over epistemic modals	<i>John will go</i> entails <i>John can go</i>

- (11) Methodological principle: Any adequate model of the computational system of a language has the obligation to account for (A) before (B). That is, a model of the CS that accounts for (B), while rendering an account of (A) more difficult, is inadequate.

English derived nominals (DNs):

- (12) refusal, height, aggression, sanity, help, righteousness, worker

**Chomsky 1970 argued that derived nominals are simply ordinary noun heads of ordinary NPs in underlying syntactic structure. Two purely syntactic arguments:**

**A. Simple nouns and DNs have identical structures in relevant respects:**

- (13) a. Mary's three boring books about tennis  
b. Mary's three unexpected refusals of the offer

The containing phrase can contain determiners, prenominal adjectives, and prepositional phrase complements, but not adverbs, negation, aspect, nor tense:

- (14) a. the stupid refusal of the offer  
b. \*the refusal stupidly of the offer  
c. \*the not refusal of the offer  
d. \*the have refusal of the offer

**B. DNs occur in DPs corresponding to base structures, but not to transformationally derived structures:**

- (15) a. Harry was certain to win the prize.  
b. \*Harry's certainty to win the prize (no Raising within DP)
- (16) a. Mary gave Peter the book.  
b. \*Mary's gift of Peter of the book (no Dative Movement within DP)
- (17) a. There appeared to be no hope.  
b. \*there's appearance to be no hope (no There-Insertion within DP)
- (18) a. I believed Bill to be a fool.  
b. \*my belief of Bill to be a fool (no Raising-to-Object within DP)
- (19) a. John interested the children with his stories.  
b. \*John's interest of the children with his stories (no Psych-

Movement within DP)

- (20) a. Lee is easy to please.

- (21)
  - a. Mary looked the information up.
  - b. \*Lee's easiness to please (no Tough-Movement within DP)
  - b. \*Mary's looking of the information up (no Particle Movement within DP)

The data in (15-21) follow automatically from the treatment of DNs as deep structure nouns. If the domain of movement is S, but not DP, then the ungrammatical (b) phrases are simply underivable.

These profound formal generalizations are all but ignored in a lot of current work. Instead, the goal has become to capture subtle — and mostly nonexistent — semantic generalizations structurally.

Argument-Structure Nominals and Referential Nominals (Grimshaw 1990). The former have full argument and event readings; the latter do not:

- (22) Arg-S-Nominals
  - a. the instructor's (intentional) examination of the student
  - b. the frequent collection of mushrooms (by students)
  - c. the monitoring of wild flowers to document their disappearance
  - d. the destruction of Rome in a day
- (23) Ref-Nominals
  - a. the instructor's examination/exam
  - b. John's collections
  - c. these frequent destructions

Borer 2003, Alexiadou 2001 and others opt for a syntactic account of the semantic differences between the two types of DNs.

Borer's derivation of Arg-S-Nominals:

- (24)
  - a. Kim's destruction of the vase
  - b. [<sub>NP</sub> *-tion*<sub>NOM</sub> [<sub>EP</sub> *Kim* [<sub>Arg-SPQ</sub> *the vase* [<sub>VP</sub> *destroy*]]]]

Borer claims that Ref-Nominals project only nominalizing functional structure.

Neither of the profound structural generalizations pertaining to DNs follow from this account. It's just an accident, given (24b), that Arg-S-Nominals and Ref-Nominals have the same surface properties.

- (25) Supposed morphosyntactic differences between Arg-S-Nominals and Ref-Nominals supporting a deverbal analysis of the former (Grimshaw, Borer):
  - a. Arg-S-Nominals have obligatory arguments; Ref-Nominals do not.
  - b. Arg-S-Nominals always contain affixes attached to verbal or adjectival stems.
  - c. Zero-derivation nominals can be Ref-Nominals, but not Arg-S-Nominals.
  - d. Arg-S-Nominals are mass nouns, Ref-Nominals are count nouns.
  - e. Arg-S-Nominals allow internal 'verbal' modification; Ref-Nominals do not.

(25a-e) are wrong from beginning to end:

(26) Examples of Arg-S-Nominals that do not have obligatory arguments (Williams 1985: 301; Law 1997: 43):

- a. Dr. Krankheit's operation (on Billy) took three hours .
- b. John submitted himself to her scrutiny.
- c. Human rights in third world countries are subject to constant repression.
- d. The poor are susceptible to constant repression by the rich.
- e. A very strong will for survival helped the villagers sustain such heavy bombardment.
- f. Political dissidents in the ex-USSR were under constant surveillance by the KGB.
- g. The sea water was sent to the plant for desalination.
- h. The analysis needs further refinement.
- i. The UN officials appeared to be in constant negotiation.
- j. Constant exposure to the sun is harmful to the skin.

(27) Examples of suffixless nouns that behave like Arg-S-Nominals (Newmeyer to appear-a):

- a. Mary's metamorphosis of the house (made it unrecognizable)
- b. the IRS's scrutiny of dubious looking tax forms
- c. my lab assistant's culture of new forms of bacteria
- d. the anathema by the church of those taking part in satanic rituals
- e. America's moratorium on helping to support UNESCO
- f. Iraq's frequent changeover of its currency (has left its people confused)
- g. the constant mischief by the boy
- h. Laval's ongoing treason (kept France under the Nazi yoke)
- i. the frequent recourse to long discredited methods
- j. my impulse to be daring
- k. Yahoo's homicide of AltaVista and AllTheWeb
- l. Pope's and Swift's persiflage of the Grub Street hacks

(28) Examples of zero-derivation Arg-S-Nominals (Newmeyer to appear-a).

- a. my constant change of mentors from 1992-1997
- b. the frequent release of the prisoners by the governor
- c. the frequent use of sharp tools by underage children
- d. an officer's too frequent discharge of a firearm (could lead to disciplinary action)
- e. the ancient Greeks' practice of infanticide
- f. my constant need for approval
- g. the student's conscious endeavor to improve her grades
- h. the constant abuse of prisoners by their guards
- i. Smith's consent to accept the nomination
- j. Mary's resolve to be more assertive
- k. access to the mainframe by qualified users (will be permitted)
- l. France's test of nuclear weapons in the South Pacific

(29) Examples of Arg-S-Nominals that are count nouns:

- a. Mary's constant refusals of the committee's offer
  - b. Paul and Frank's many discussions of modern jazz
  - c. your interpretations of the new rules
  - d. the apostle Peter's three denials of Jesus
  - e. the custom officials' inspections of suspicious baggage
  - f. (I can't take anymore) rejections of my submissions by the journal
- Linguistics Illustrated*
- g. Sam's constant attentions toward Susan (were not welcomed)
  - h. Coca Cola's twelve interruptions of the Super Bowl game
  - i. Mary's incessant arguments against the theory of Goofy Grammar

Fu, Roeper, and Borer 2001 attempt to motivate an internal VP for Arg-S-Nominals by giving examples of where they occur with *do so* (presumptively a VP anaphor) and adverbs:

- (30) John's destruction of the city and Bill's doing so too
- (31) a. While the removal of evidence *purposefully* (is a crime), the removal of evidence *unintentionally* (is not).
- b. His explanation of the problem *thoroughly* to the tenants (did not prevent a riot).
- c. Protection of children *completely* from bad influence (is unrealistic).
- d. His resignation so *suddenly* gave rise to wild speculation.

If (30) argues for a VP node with Arg-S-Nominals, then the equal acceptability (or lack of it) of (32) should argue for a VP node with bare pluralized nominalizations:

- (32) America's attacks on Iraq were even less justified than the latter's doing so to Kuwait.

(31a-c) are totally marginal and they seem no better or no worse than (33a-c), where it is claimed that there *is no* internal VP node.

- (33) a. I must deplore the recourse all too frequently to underhanded tactics.
- b. The use — I must say somewhat frighteningly — of mercury to cure gastric ulcers has been condemned by the AMA.
- c. Could we arrange for the prisoners' release more gradually than has been the practice?
- d. With a heart so pure he will never go astray.

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Crosslinguistically we also find the positing of semantically-based projections that render the purely formal generalization all but impossible to capture. Take the Neg Phrase projection. The default assumption now is that where we have semantic negation we have NegP (see especially Ouhalla 1991).

Negation is *almost never* overtly phrasal. Even worse, NegP obscures the *formal* similarities between negatives in a particular language and other categories with the same formal properties (different for different languages). Negation can be a:

**A. Complement-taking verb:** Tongan (Churchward 1953: 56; Payne 1985: 208)

- (34) a. Na'e 'alu 'a Siale  
 ASP go ABSOLUTE Charlie  
 'Charlie went'
- b. Na'e 'ikai [s ke 'alu 'a Siale]  
 ASP NEG ASP go ABSOLUTE Charlie  
 'Charlie did not go'

'ikai behaves like a verb in the *seem* class (we know there is a complement because *ke* occurs only in embedded clauses)

**B. Auxiliary:** Estonian (Blevins 2007)

- (35) Negative forms pattern with perfects, which are based on a form of the copula OLEMA

Property		Auxiliary/Particle	Main Verb Form
NEG(ATIVE)	NONPAST	<i>ei</i>	(UNINFLECTED) STEM
	PAST		PARTICIPLE
PERFECT		OLEMA	

**C. Derivational affix:** Turkish (Payne 1985: 227)

- (36) V + Refl + Recip + Cause + Pass + Neg + Possible + Tense/Mood + Person/Number

**D. Noun:** Evenki (Tungus) (Payne 1985: 228)

- (37) a. nuṅan ācin 'he is not here'  
 b. nuṅartin ācir 'they are not here'
- (ācin has a plural form and takes case endings like ordinary nouns)

**E. Adverb:** English: *not* is an adverb in the same class as *never*, *always*, *just*, *barely* (Jackendoff 1972; Baker 1991; Ernst 1992; Kim 2000; Newmeyer 2006)

*Not*, along with other adverbs of its class, occurs in the auxiliary, but not in pre-subject position set off by comma intonation, nor in post-verbal position or post-object position:

- (38) a. Mary has not / never / barely begun the assignment.  
 b. \*Not, / \*Never, / \*Barely, Mary has begun the assignment.  
 c. Mary left \*not / \*never / \*barely.  
 d. Mary has begun the assignment \*not / \*never / \*barely.

*Not*, like other adverbs of its class, functions as a modifier of an adjective, adverbial element, and prepositional phrase:

- (39) a. This is a not unattractive doll in some ways.
- b. Harvey was a rarely helpful service employee.
- (40) a. Not surprisingly, he is on a diet.
- b. She often behaved incompetently, but rarely helplessly.
- (41) a. It is hot. But not in your apartment.
- b. I've looked in a lot of places for my keys. But never in your apartment.

However, unlike adverbs, *not* triggers the obligatory appearance of *do*-supported tense in the absence of an auxiliary verb:

- (42) a. John never opened the book.
- b. \*John not opened the book.
- c. John did not open the book.

Also, *not* cannot precede a finite verb:

- (43) a. Mary never left.
- b. \*Mary not left.

What's illustrated in (42) and (43) are typically considered two separate distinctive properties of *not*. But if tensed forms of the auxiliary *do* are generated in English in non-negative and non-interrogative contexts, then (42) and (43) reduce to one property. (44) is fully grammatical:

- (44) John did leave.

Filter (45) accounts for the ungrammaticality of (42b) and (43b), while not blocking grammatical (42c):

- (45) \**not* before a finite verb

The filter also accounts for the fact that *not* does not occur in fronted position with the inversion of the auxiliary:

- (46) a. Never has Mary tackled such assignments.
- b. \*Not has Mary tackled such assignments.

Sentences like (47b) are often claimed to be bad, but seem fine, as do (48a-b):

- (47) a. Tom has written a novel, but Peter has not.
- b. (\*)Tom has written a novel, but Peter has never.
- (48) a. I'll cut corners wherever I can, but Mary will rarely.
- b. Tom arrived hours ago, but Mary has just.

In summary, *not* is an adverb. There is no semantically-motivated Neg Phrase.

For arguments against covert TopicP and FocusP projections, see Newmeyer to appear-b. One central problem with such projections is that *anything* can be in focus. So movement to these projections violates island constraints:

Focused NPs in ungoverned islands (Reinhart 1991; Horvath 1999):

- (49) a. [<sub>IP</sub> [<sub>CP</sub> That Linda argued with THE CHAIRMAN] is surprising].  
b. [<sub>IP</sub> [<sub>NP</sub> Even the paper that LUCIE submitted to our journal] was weak].
- (50) Q. Do people wonder where Mary was last night?  
A. No, people wonder where [Mary's BOYFRIEND] was last night.
- (51) Q. Have you shown Bill the book that I gave you for your birthday?  
A. No, I have (only) shown him the book that you gave me for CHRISTMAS.

Foc and Top projections create even more problems than the NegP projection.

(52) An interface approach to topic, focus, and discourse anaphoricity:  
Vallduví 1992; Costa 2004; Reinhart 2006; Neeleman and van de Koot 2007

It is not the case that categories are necessarily defined semantically:

- (53) Baker 2003 on Noun and Verb:  
a. X is a verb if and only if X is a lexical category and X has a specifier.  
b. X is a noun if and only if X is a lexical category and X bears a referential index.

All languages have a formal class of adjectives (Baker 2003; Dixon 2004)

- (54) Some syntactic phenomena that have been attributed to PF:  
a. extraposition and scrambling (Chomsky 1995)  
b. object shift (Holmberg 1999; Erteschik-Shir 2005)  
c. head movements (Boeckx and Stjepanovic 2001)  
d. the movement deriving V2 order (Chomsky 2001)  
e. linearization (i.e. VO vs. OV) (Chomsky 1995; Takano 1996; Fukui and Takano 1998; Uriagereka 1999)  
f. *Wh*-movement (Erteschik-Shir 2005)

**Is it really true that 'as syntactic description becomes deeper, what appear to be semantic questions fall increasingly within its scope...?'**

Maybe yes, maybe no.

In GB, the key principles of the theory handled hard-core syntactic facts and facts about construal at the same time.

Examples from GB (Chomsky 1981) of 'deep syntax' encompassing construal:

- (55) a. The binding theory (BT) accounted both for constraints on movement and constraints on anaphora.  
b. The Empty Category Principle (ECP) accounted for both purely structural facts (eg *that*-trace, the order of elements in incorporation structures,

constraints on the extraction of adjuncts, etc.) and facts about (semantic) scope.

Neither of these generalizations obviously hold today:

(A) The locality of movement follows from the nature of Merge, but probably not the locality of anaphor binding. In any event, long-distance anaphors (LDA) appear to be the norm in language, not the exception. Within the framework of Optimality Theory Moon (1995) argued that the thematic role of the antecedent and anaphor in Korean is the major factor determining binding possibilities. The purely structural c-command relation is a distant fourth:

- (56) Ranked constraints in the binding of Korean long distance anaphors:
- a. Thematic Hierarchy Constraint (LDA must be bound by a thematically higher NP)
  - b. Larger Domain Preference Constraint (Given potential antecedents for LDA in different domains, the more distant the domain, the stronger the preference)
  - c. Subject-Orientation Constraint (LDA must be bound by a subject NP)
  - d. C-Command Constraint (LDA must be bound by a c-commanding NP)
  - e. Discourse Binding Constraint (LDA must be bound by a prominent discourse NP if no sentential antecedent is available)

(B) The ECP is not even expressible, given minimalist assumptions.

Hornstein 2001 does argue that movement and construal are intimately linked, but there is no longer a consensus on the question.

**The anti-autonomist trend threatens the foundations of generative grammar.**

The 'specialness' of syntax is at the root of the theory of Universal Grammar. If you give up the Autonomy of Syntax, then the arguments for innateness disappear. Opponents of generative grammar claim that the arguments for UG fall through because Chomsky and his associates don't realize how isomorphic syntax is to semantics (see, for example, Van Valin 1998).

The blurring of the distinction between form and meaning gives a huge opening wedge to opponents of generative grammar. Contrast the Chomsky quote with the one right after it:

In a perfectly designed language, each feature would be semantic or phonetic, not merely a device to create a position or to facilitate computation. (Chomsky 2000: 109)

The core similarities across languages have their origin in two sources: physiological constraints on the sound system and conceptual constraints on the semantics. (Evans and Levinson 2007: np)

Peace, harmony, and convergence are good things, if you don't have to give up too much to achieve them. Giving up the Autonomy of Syntax is giving up too much!

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