Approaches to IS

Lecture Plan:

- Rough classification of IS theories
- Prague School origin and continuation:
- Halliday's approach in Systemic Grammar:
- Vallduví's Information Packaging approach:
- Generative Grammar-based approaches:

Basic reading:

(Steedman and Kruijff-Korbayová 2001)

Recommended further reading:

(Hajičová 1993, Sections 2.2, 2.3, 2.4),
(Kruijff 2001, Chapter 5),
(Halliday 1985, Chapters 3 and 8), (Kruijff-Korbayová, Bateman, and Kruijff prep)
(Vallduví 1992, Chapter 3),
(Jackendoff 1972), (Steedman 2000)
(Lambrecht 1994)

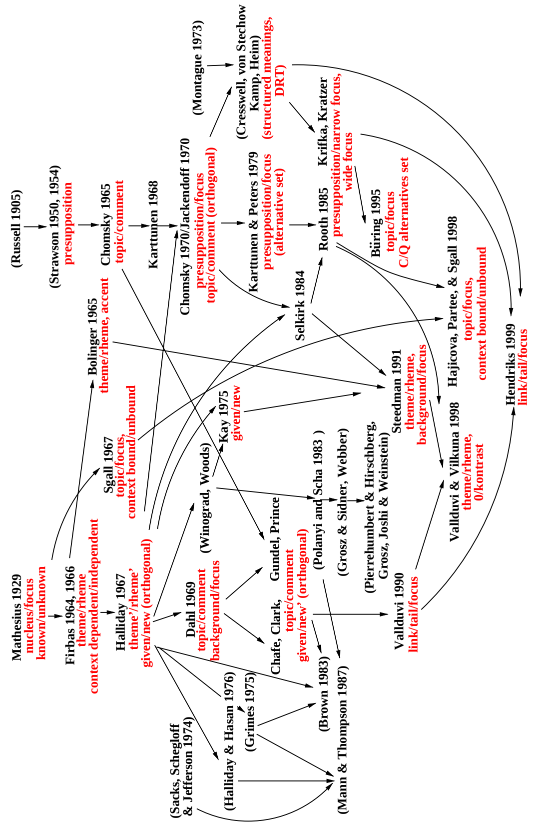
Theories of IS

Phenomena known at least since mid 19^{th} century (France, Germany); terms Thema/Rhema used (Hajičová 1993, p.30).

Since then, essentially three classes of theories concerning IS have developed:

1. IS is described purely from the viewpoint of semantics, in a "degrammatized" way —mostly theories following up on Karttunen, Cresswell, von Stechow ...
2. Only the realization of IS (syntax, intonation) is described —mostly Generative Grammar-based theories, following up on Chomsky, Bolinger ...
3. Theories that stress the integration, into a single framework, of the "semantics" of IS and its realization —such as Sgall et al., Halliday, Vallduví, Steedman, Kruijff

The following diagram displays a view presented in (Steedman and Kruijff-Korbayová 2001) of the influences and terminological dependencies in theories of IS, and links them to theories of discourse structure and discourse semantics.



Variety of IS Terminologies

- Theme/Rheme
- Topic/Focus
- Ground/Focus
- Topic/Comment
- Presupposition/Focus
- Background/Focus
- Contextually-bound/contextually-nonbound
- Given/New

Are the notions different or the same?

Are there similarities?

How to compare the various notions?

— How are they defined?
— What operational criteria are used?
— What explanations or predictions are obtained?
— Does an approach extend cross-linguistically?

A Little (Selective) Overview and Comparison

Prague School of Linguistics

Vilém Mathesius (1915, 1924, 1929, 1936)

- introduced the IS notions Theme/Rheme into PSL
  - Cz. *jádro* ('nucleus', Theme; what the utterance is about, its point of departure)
  - Cz. *ohnisko* ('focus', Rheme; what the utterance says about the nucleus)
- studied the dichotomy from the viewpoint of a structural comparison of English and Czech
- systematic attention to interplay of syntax and IS
- effects of word order variation on interpretation
- awareness of IS-importance for language as a means of communication
- in "free word-order" languages, word order tends to correspond to *communicative dynamism*, i.e., the ordering proceeds from contextually 'given'/'assumed' to contextually 'new'
- also in languages with "fixed word-order", some constructions can serve as means of IS; English: WO change accompanied by passivization

The Prague School Follow-up

Jan Firbas et al. (1957, 1966, 1975, 1992, ...)

- analyzed different factors that influence *Functional Sentence Perspective* (=IS)
  - linear modification (word order)
  - semantic factor (character of semantic content and relations involved)
  - contextual factor (retrievability of information from immediately preceding context)
- analyzed interplay of IS, syntactic structure and word order
- concludes that not only a dichotomy of *Theme-Rheme*, but a whole scale or hierarchy of *communicative dynamism* is concerned
- *degree of communicative dynamism*: the relative extent to which a linguistic element contributes towards the further development of the communication

The Prague School Follow-up

František Daneš et. al (1957, 1970, 1974, ...)

- systematic exploration of the relationship of *Theme* and *Rheme* to word order and intonation as well as to the structure of text
- thorough analysis of *thematic progressions* in text, i.e., textual patterns of thematization (typology of ways in which Themes relate to context)

The Prague School Follow-up

Petr Sgall (1967, 1979, . . .)
with Eva Hajičová (1977, 1980)
with Jarmila Panevová (1986)
also (Sgall et al. 1973) Hajičová et al (1998), etc.

- introduce IS into a formal description of syntax and sentence meaning (dependency-based functional generative approach)
- three layers of notions in the domain of IS:
  - *contextual boundness* (CB) vs. *non-boundness* (NB) as primitive notions; CB corresponds to what information the speaker treats as easily accesible in the hearer's memory (salient)
  - *Topic-Focus Articulation* (TFA): a division of sentence meaning, derived from CB/NB
    - ∗ at the sentence-level, CB elements and their dependents constitute Topic, NB elements and their dependents constitute Focus
    - ∗ special cases of Focus being "deeper embedded"
  - hierarchy of *communicative dynamism* (deep word order)

Sgall, Hajičová et al.

- studies of *systemic ordering* (SO), i.e. neutral surface word order in several languages
  (Recall question test; one can compare the ordering of elements which did not appear in the question (NB) in different languages)
- relation between TFA and WO (when "free" WO):
  - adherence of WO to SO for NB elements
  - deviation of WO from SO for CB elements

(1) John flew from Paris to London. (neutral)
(2) John flew to London from Paris.
(non-neutral; 'London' is CB)
(3) Z Lo do Pa včera letěl John.
From Lo to Pa yesterday flew John.
It was J who flew yesterday from Lo to Pa.

Včera z Lo do Pa letěl John.
Z Lo včera do Pa letěl John.
. . .

Sgall, Hajičová et al.

- TFA and scope of negation:

(4) Naše vítězství nezpůsobil HARRY.
our victory not-cause Harry_{nom}.
HARRY didn't cause our victory.
$cause(\neg harry, win(speaker_+))$

(5) Harry nezpůsobil naše VÍTĚZSTVÍ.
Harry_{nom} not-cause our victory.
Harry didn't cause our VICTORY.
$\neg cause(harry, win(speaker_+))$ or also $cause(harry, \neg win(speaker_+))$

- TFA and presupposition:
  $win(speaker_+)$ is a presupposition in (4),
  but in (5) only an allegation (?implicature?)
- Communicative dynamism and quantifier scope: "the more dynamic items take the narrower scope"

(6) Jo talked to few girls about many problems.
(7) Jo talked about many problems to few girls.

Aligning IS Terminologies

Session 1	Theme_{is} Background vs. Foreground	vs.	Rheme_{is} Background vs. Foreground
Steedman	Theme Background vs. Focus	vs.	Rheme Background vs. Focus
Mathesius, Firbas, Daneš	Theme	vs.	Rheme
Sgall et al.	Topic topic proper vs. contrastive topic	vs.	Focus focus proper (highest CD)

Notes:

At the sentence level, CB/NB not on a par with Background/Foreground, because the latter is a division confined within Theme_{is} and Rheme_{is}!!!

CB/NB is recursive; TFA is not

Semantics of TFA?

Systemic Functional Linguistics

M. A. K. Halliday (1967, 1970, 1985, . . .)

- initially inspired by the Prague School works
- two independent (though interating) dichotomies:
  - *Information Structure*: *Given-New*
  - *Thematic structure*: *Theme-Rheme*

Information Structure:

- *information unit*
  - not exactly any unit in clause grammar;
  - when boundaries overlap, it is marked
  - made of two functions/elements:
    - *Given* (optional; info presented as recoverable)
    - *New* (obligatory, marked by prominence; info presented as nonrecoverable)
  - Given typically preceds New
  - cf. CB/NB, and Background/Foreground
- Halliday discusses information structure in relation to intonation (in English)

Halliday

Thematic structure:

- Theme is the point of departure of a message;
- mainly concerned with linear ordering;
- Theme is a **textual** notion (related to global text-organization strategies; e.g., dates/places in biographies, places in geographical descriptions)

Close semantic relationship between Information- and Thematic-Structure (though they are not the same!): "[O]ther things being equal, a speaker choses the Theme from within what is Given and locate *information focus*, the climax of the New, within the Rheme."

- Thematic Structure is speaker-oriented
- Information Struture is listener-oriented

Notes:

Given/New parallels CB/NB,also Backround/Foreground (except at sentence-level)

Semantics?

Information Packaging

Chafe (1974, 1976, 1987), Vallduví (1992, 1994), Vallduví and Engdahl (1994)

- IS-partitioning into *Ground* and *Focus*;
  Ground further partitioned into *Link* and *Tail*
- partitioning defined on surface form, not on sentence meaning!
- semantics of IS in terms of operations on file-cards ("file-change" metaphor taken seriously):
  - go to (introduce) a new card
  - go to an existing card
  - access a record on a card
  - add/modify a record on a card
- four possible instruction types:
  - UPDATE-ADD for linkless all-focus sentence
  - UPDATE-REPLACE for focus-tail sentence
  - GOTO,UPDATE-ADD for link-focus sentence
  - GOTO,UPDATE-REPLACE for link-focus-tail sentence

- semantic of informations packaging in DRT (Hendriks and Dekker 1997)

Aligning IS Terminologies

We can add Vallduví's approach to the table with the proviso that his division concerns surface form, not sentence meaning.

Session 1	$Theme_{is}$ Background vs. Foreground	vs.	$Rheme_{is}$ Background vs. Foreground
Steedman	Theme Background vs. Focus	vs.	Rheme Background vs. Focus
Mathesius, Firbas, Daneš	Theme	vs.	Rheme
Sgall et al.	Topic topic proper vs. contrastive topic	vs.	Focus focus proper (highest CD)
Vallduví	Ground Tail vs. Link	vs.	Focus

Note:
Cross-linguistic extendability?

IS in Generative Grammar

Chomsky 1957, . . .

Two idependent (?interacting?) dichotomies:

Topic-Comment:

- topicalization in English
  (8) Sue, Bill did not invite.
- some languages mark topic, e.g., Chinese

Presupposition-Focus:

- *Presupposition*: info assumed by the speaker to be shared by the hearer
- *Focus*: info not assumed to be shared

(9) Is it JOHN who writes poetry?
  a. No, it is BILL who writes poetry.
  b. No, it is JOHN who writes novels.

(9a) has the same presuppotion as the question, i.e. *someone writes poetry* (so it fits), but (9b) does not, it presupposes *someone writes novels*;

IS units must correspond to traditional constituents!

IS in Generative Grammar

(10) No, it is [the man with the long HAIR $]_F$ who writes poetry.

- IS units must correspond to traditional constituents!
- location of prosodic prominence within semantic focus
- *focus projection*: How far does the semantic focus extend beyond the prosodically prominent item? (further worked out by Selkirk 1984)

IS in Generative Grammar

Jackendoff (1972)

- two types of prosodic prominence:
  - **A accent** ("answer"): "focus-hood" (cf. Steedman's "$Rheme_{is}$-tunes")
  - **B accent** ("background"): "presupposition-hood" (cf. Steedman's "$Theme_{is}$-tunes")
- (not direct mapping to Bolinger's A, B, C types!)

(11) Marcel ADMIRES_B
[the woman who DIRECTED_A the musical$]_F$.
presupposition: $\lambda x.admire(marcel, x)$

Recall:

(12) (I know that Marcel likes the man who wrote the musical. But who does he ADMIRE?)

(13)
$$\underbrace{\underbrace{\text{Marcel}}_{Background}\ \underbrace{\overset{\text{L+H*LH\%}}{\text{ADMIRES}}}_{Foreground}}_{Theme_{is}}$$
$$\underbrace{\underbrace{\text{the woman who}}_{Background}\ \underbrace{\overset{\text{H*}}{\text{DIRECTED}}}_{Foreground}\ \underbrace{\overset{\text{LL\%}}{\text{the musical}}}_{Background}}_{Rheme_{is}}$$

(two presupposed alternative sets: Theme-alt and Rheme-alt set)

IS in Generative Grammar

- discourse function of focus and presupposition
- semantics of 'only', 'even', 'not' etc. exhibits *association with focus* effects (Rooth, Krifka)

(14) John only introduced BILL to Sue.
John introduced Bill to Sue and Bill was the only one whom John introduced to Sue.

(15) Meaning:
John only introduced Bill to SUE.
John introduced Bill to Sue and
a. *Sue was the only one to whom John introduced Bill.*
("Narrow"-focus reading)
b. *John did nothing else.*
("Broad"-focus reading) .
c. *John made no other introductions.*
("Intermediate"-focus reading)

Aligning IS Terminologies

A common picture emerges:

- Theme-Rheme (Mathesius, Firbas, Daneš, Steedman)
Topic-Focus (Sgall&Hajičová et al.)
Ground-Focus (Vallduví)
Presupposition-Focus (Chomsky, Jackendoff, Karttunen, Krifka, Rooth, etc.)
(?information unit in Halliday?)
- CB-NB (Sgall&Hajičová et al.)
Given-New (Halliday)
(Presupposition-Focus at sentence level)
- Background-Focus (Steedman)
Tail-Link within Ground (Vallduví)
(?CB/NB and Given-New at sub-sentence level?)

But, be aware of differences concerning:

- level(s) at which IS distinctions are made, e.g., surface, deep, meaning ...
- flexible vs. fixed syntactic constituents, and how do IS components correspond to them
- degree of recursivity of IS notions (if at all)

Semantics-Biased Further work

Some relevant names ...

- formal account of English intonation, providing a compositional semantics for it in terms of IS: Steedman
- formal account integrating different means of IS realization within one grammar framework: Kruijff
- formal semantics of Focus:
von Stechow, Krifka, Rooth
- formal semantics of Topic (and contrast):
Büring, Hendriks and Dekker
- attempts to integrate IS within a theory of discourse interpretation (IS-sensitive discourse context updating):
Jacobs, Krifka, Vallduví, Steedman, Kruijff-Korbayová

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