

Conceptual dependency theory of four primitive conceptualizations

ACTs	actions
PPs	objects (picture producers)
AAs	modifiers of actions (action aiders)
PAs	modifiers of objects (picture aiders)

For example, all actions are assumed to reduce to one or more of the primitive ACTs. These primitives, listed below, are taken as the basic components of action, with more specific verbs being formed through their modification and combination.

ATRANS	transfer a relationship (give)
PTRANS	transfer physical location of an object (go)
PROPEL	apply physical force to an object (push)
MOVE	move body part by owner (kick)
GRASP	grab an object by an actor (grasp)
INGEST	ingest an object by an animal (eat)
EXPEL	expel from an animal's body (cry)
MTRANS	transfer mental information (tell)
MBUILD	mentally make new information (decide)
CONC	conceptualize or think about an idea (think)
SPEAK	produce sound (say)
ATTEND	focus sense organ (listen)

Fig 7.6 Conceptual dependencies (Schank and Rieger, 1974).

$PP \leftrightarrow ACT$	indicates that an actor acts.
$PP \Leftrightarrow PA$	indicates that an object has a certain attribute.
$ACT \overset{O}{\leftarrow} PP$	indicates the object of an action.
$ACT \overset{R}{\leftarrow} \begin{matrix} \rightarrow PP \\ \leftarrow PP \end{matrix}$	indicates the recipient and the donor of an object within an action.
$ACT \overset{D}{\leftarrow} \begin{matrix} \rightarrow PP \\ \leftarrow PP \end{matrix}$	indicates the direction of an object within an action.
$ACT \overset{1}{\leftarrow} \updownarrow$	indicates the instrumental conceptualization for an action.
$\begin{matrix} X \\ \updownarrow \\ Y \end{matrix}$	indicates that conceptualization X caused conceptualization Y. When written with a C this form denotes that X COULD cause Y.
$PP \Leftrightarrow \begin{matrix} \rightarrow PA2 \\ \leftarrow PA1 \end{matrix}$	indicates a state change of an object.
$PP1 \leftarrow PP2$	indicates that PP2 is either PART OF or the POSSESSOR OF PP1.

Fig 7.8 Some basic conceptual dependencies and their use in representing more complex English sentences, adapted from Schank and Colby (1973).

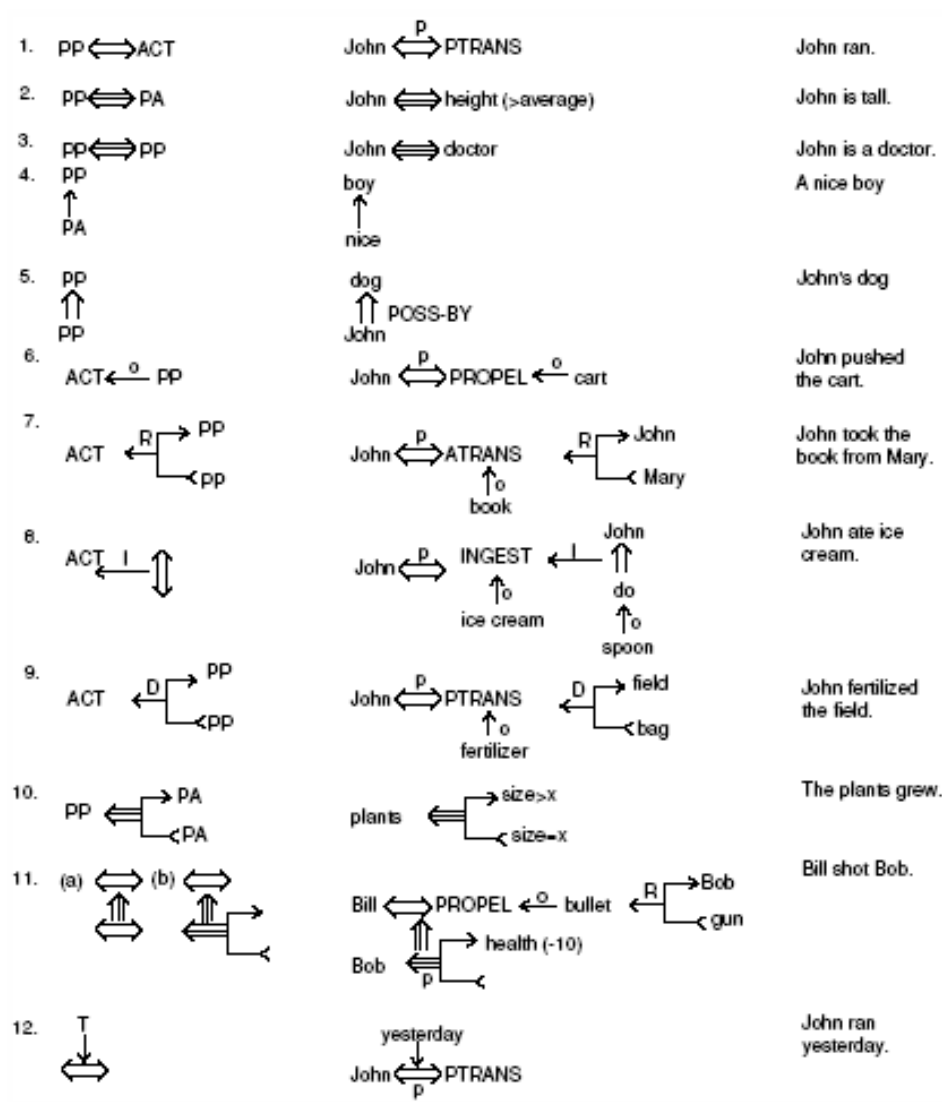


Fig 7.9

Conceptual dependency representing “John ate the egg” (Schank and Rieger 1974).

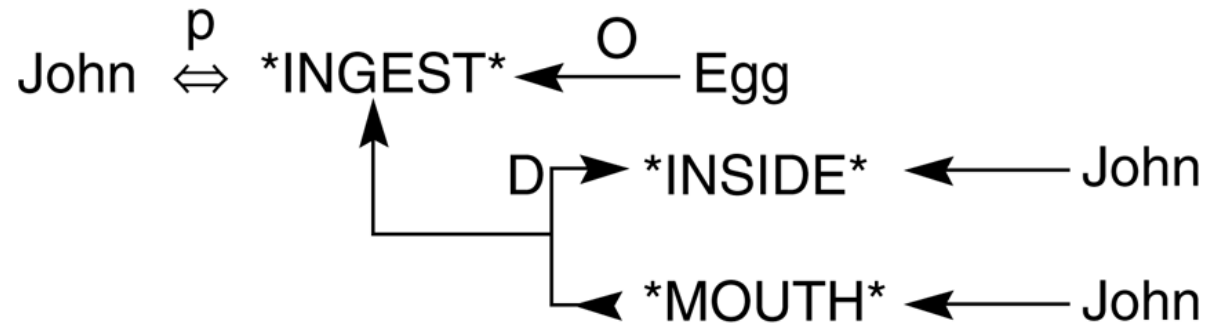


Fig 7.10

Conceptual dependency representation of the sentence “John prevented Mary from giving a book to Bill” (Schank and Rieger 1974).

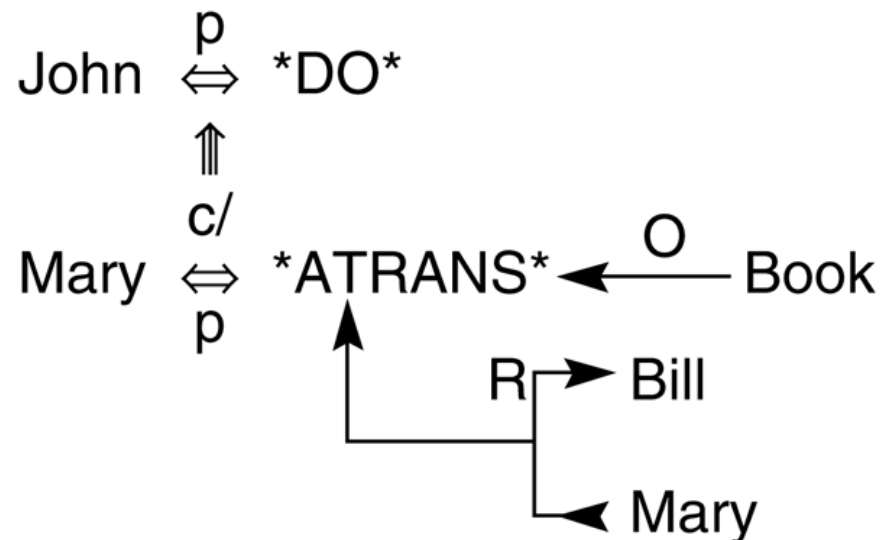


Fig 7.11 a restaurant script (Schank and Abelson, 1977).

