

## What is CD?

### *Jan Firbas on CD*

Communicative dynamism is “[t]he element toward which a sentence or subclause is oriented [and] conveys the information that completes the development of the communication taking place within the sentence or subclause. It contributes most to this development and is therefore the most dynamic element ...” (Firbas p. 6). And later “... the degree of CD carried by a linguistic element is the relative informational (communicative) value the element acquires in the development of the communication. ... [I]mportance can, of course, be judged from various viewpoints. ... [Here it is] the place an element takes up in the development of the communication, the completion of this development coinciding with the fulfillment of the communicative purpose. The closer an element comes to this completion, the greater its informational (communicative) value or importance.” (p. 103).

In general, then, a linguistic element has CD in proportion to how far it goes to meeting the purposes of the utterance. Ways to index this are described later.

### *In the growth point view of things*

The idea unit in a GP, being a point of differentiation from a background, must be realized in a surface position consistent with its communicative dynamism. For Firbas, linguistic elements of different kinds have intrinsic communicative potentials. However, GPs or their spoken realizations may not coincide with describable linguistic elements (cf. “it down” was the maximum point of communicative potential), and in general are not tied to elements synchronically specified in advance. In migrating from the static dimension, which is where Firbas seems largely to have thought of it, to the dynamic, CD acquires a somewhat different guise.

### *How to index CD.*

In any case, the importance of utterance bits in context must be gauged in some manner. Here are the criteria we have thought of.

- CD in the ‘relative informational (communicative) value’ sense is reflected in/created by both gesture and linguistic form.
- CD declines with recurrence, jointly or separately.
- CD increases with complexity, jointly or separately.

These are linked to the CD concept in two ways: a) linguistic/gestural marking follows the rule that more = more; b) high CD manifests communicative effort or pressure, and this pressure balloons the communicative resources, linguistic and gestural.

An enrichment is that CD apparently can be renewed after a bout of recurrence by shifting the discourse level either up or down (object to meta or para for example).

More detailed criteria are still possible. The following can be employed up to your personal headache level:

1. *Reference maintenance versus new reference*: This coding picks up the relation of the current NP to preceding NPs (noun phrases); it is done both within the speaker's own speech and across-speakers, these being coded as separate lines (based on coding innovations by Elena Levy, see Levy & McNeill 1992, McNeill & Levy 1993, Levy 1982 and 1984.)

This approach refers to obligatory features and is, in this sense, not dependent on speaker choice. Reference maintenance and reference introduction is an important structural principle in tracking the movement of information within a discourse. In both the speaker and the interlocutor lines, each NP referring form is coded as one of the following:

*Immediate parallel coreferential*: captures immediately repeated NPs in the same sentence slot; such an NP is a maintained reference. For example,

right, ok THIS ONE actually wasn't a Bugs Bunny cartoon  
IT was one of the\* the series

The "it" in the second line is the immediate, parallel, and coreferential NP to the "this one" in the first line; the slot formed by the existential "be" is the parallel in the two occurrences. Clearly, the two NPs ("it" and "this one") are coreferential.

*Immediate non-parallel coreferential*: captures immediately repeated NPs in different slots; the second NP is also maintained, but somewhat less strongly than above. For example,

have you seen any of the <uh> THE BUGS BUNNY CARTOONS  
right, ok THIS ONE actually wasn't a Bugs Bunny cartoon

The "this one", in line 2, is coreferential with "the Bugs Bunny cartoons", in line 1, but is not in a parallel slot. Reference is maintained but not as strongly as in the first example.

*Immediate parallel noncoreferential*: this captures intruder NPs into the same slot with a different reference; such NPs contrast with the target, and thus imply a reference shift. For example,

so HE'S looking through binoculars  
and TWEETY'S looking back at him through binoculars

The pronoun "he" in the first line is coreferential with Sylvester (introduced by name at an earlier point). The NP "Tweety" in the second line is a new reference in the parallel slot ("NP is looking").

*Immediate non-parallel noncoreferential*: this captures all other NPs and such NPs can be either new or co-referential.

In all these cases, systematic shifts in the speech signal embody different degrees of reference maintenance.

2. *Complexity of the referring form*: This coding registers degrees of explicitness/elaboration of the NP referring form. It is used in combination with reference maintenance coding and picks up a different dimension of this aspect of discourse. We have seen examples of complexity variation already – in the immediate parallel noncoreferential example above, the Sylvester reference was less complex (a pronoun) than the new Tweety reference (a proper name). More elaborate forms correspond to greater discontinuity/novelty in the discourse. ‘Ø’ is a zero NP as in “he ran and got a bowling ball and Ø dropped it down the pipe”, where the subject slot of the second clause is strongly indicated as a maintained reference. Such references imply high continuity/predictability of the information (Givón 1985). A full clause reference implies the opposite – for example, “the next main topic she mentioned was”, where everything before “was” is an NP referring form, and implies a substantial break of continuity (not only in the choice of words but in the form of the referring term itself). Accompanying gestures also tend to vary along the continuity/predictability continuum in a parallel way, ranging from simple gestures at the ‘Ø’ end to multiple gestures and complex two-handed gestures with superimposed beats at the clause end (McNeill 1992).

Most Continuous/Predictable	----->			Least Continuous/Predictable
Ø	Unstressed Pronoun	Noun Phrase	Modified Noun Phrase	Clause or Verb Phrase

A comparable continuum of gesture complexity also exists. It’s misleading to align it one-for-one with the above linguistic continuum, but gestures do run from simple to complex with the degree of continuity/predictability (exact ordering debatable):

nil	beats, points	one-handed iconic OVPTs	two-handed iconic OVPTs w subordinate hand for context	two-handed iconic OVPTs w complex image	one- or two- handed iconic CVPTs
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3. *Outline level*: This coding classifies references as either a) the starting point of a discourse segment, b) the main outline of a segment, c) a dependent outline of a segment (dependent on and subordinate to the main outline), or d) detailed description. For example, a series of clauses in one speaker’s discourse stepped down through 3 levels successively:

*Level 1 Starting Point*: “okay what we need to do”

*Level 2 Main Outline*: “uhm / get off at the train station”

*Level 3 Dependent Outline*: “uhm / we’ll be getting off at the right”

*Level 4 Detailed description* (not present in this example)

Each level marks a new discourse boundary. The more embedded the level, the less the discontinuity with the rest of the outline, hence the less contribution to CD.

4. *Purpose hierarchies*. Nakatani et al (1995) devised a procedure for recovering discourse purposes from transcribed text. The method consists of a set of questions with which to guide analysis and to uncover the speaker's goals in producing each successive line of text. For 'lines' we break the discourse into intonation units (Chafe 1994). The procedure generates a hierarchy, and thus a picture of the depth of discourse boundaries in terms of discourse goals. Again, more embedded implies distance from purposes and less contribution to CD.

5. *Discourse markers*: This coding seeks lexical words and non-lexical interjections that imply discourse boundaries. Schiffrin (1987) analyzed a number of lexical discourse markers and we have added non-lexical markers. In one discourse we observed differentiation of discourse markers according to the outline level:

*Level 1 starting point: only lexical: okay, and so, etc.*

*Level 2 main outline: mix of lexical and filled pauses.*

*Level 3 dependent outline: only filled pauses: uhm, ah, uh.*

*Level 4 detail: no markers.*

Again, the more embedded the level, the less the implied discontinuity of the discourse.

#### *Limits*

Overall, 1) reference maintenance and 2) complexity provide the most detailed indexing. However, they are limited to nominal references. 3) outline, 4) purposes and 5) discourse markers are also limited – to a few levels in 3) and 4), albeit different ones, and to the roster of markers in 5). Further, 3) outline and 4) purposes apply only to whole intonation units, and cannot be parsed for the CD of the constituent bits. 5) also applies to the whole utterance but individual discourse markers can be linked to the specific bits they exactly come before. Obviously, some combined score needs to be worked out but this has not been attempted.

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