Integrating Information Structure into Constraint-based and Categorial Approaches

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(editor)

DYANA-2

Dynamic Interpretation of Natural Language
ESPRIT Basic Research Project 6852

Deliverable R1.3.B
September 1994

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Introduction

The work reported in this deliverable ties in with several research strands in DYANA-2, in particular with work on updating information states and presupposition on the one hand and work on grammar architecture on the other hand.

The first paper in this deliverable, *The Dynamics of Information Packaging* by Enric Vallduví, argues that dynamic approaches to meaning must take into account the focus-ground articulation of utterances as this is an important clue to what information speakers want to convey. He shows that this information packaging depends on the speaker's view of the knowledge state of the hearer and has important consequences both for what information is extracted and for the choice of linguistic realisation. He then brings up some cases which shows that real information exchange in a dialogue may very well be non-monotonic and discusses the consequence of this for theories of update. In the final section Vallduví shows the connections between this line of research and David Beaver's work on presupposition, reported in Deliverable R.2.2.A *Presupposition*. In his Introduction to this deliverable, Hans Kamp did remark that a comprehensive picture of presupposition must include notions like focus and ground. Vallduví's paper goes some way towards providing such a comprehensive framework.

Vallduví chooses to represent his knowledge states as *file cards* as first proposed by Irene Heim, augmented with Hypercard-like links. Paul Dekker and Herman Hendriks comment on Vallduví's approach in *Files in Focus* and take issue with this choice of representation. They suggest that the approach be recast in discourse representaion theory. The crucial point seems to be whether the informational primitive *link* used by Vallduví to designate the particular file card that needs to be updated is needed or not. Dekker and Hendriks argue that links can be replaced by some way of marking the salience of discourse referents, whereas Vallduví maintains that it is necessary to distinguish linkhood from saliency.

The following paper *Information packaging and grammar architecture: A constraint-based approach* by Engdahl & Vallduví is concerned with how information packaging should be integrated into a declarative grammar. The paper surveys how focus-ground articulation is realised in a representative set of languages and finds that languages vary systematically in whether they use prosody, word order, or some combination of these, to encode informational status. In order to reach a cross-linguistically perspicuous analysis, it is argued that the grammar should make use of the language independent informational primitives motivated in Vallduví's paper and include rules for realising the informational notions in different ways depending on the language. The central idea is that the structural realisation of an utterance (prosodic and/or syntactic) constrains its informational status (its update potential) and vice versa. Given that these constraints involve syntax, semantics, phonology and information packaging, Engdahl & Vallduví choose to express their analysis in HPSG which allows for a multi-dimensional representation of linguistic information. In this paper, the main emphasis is on the theoretical analysis with little heed paid to implementaional aspects. Suresh Manandhar in his comment *Encod-*

ing Information Packaging Information in HPSG proposes a slightly different analysis which may be computationally more attractive.

The final paper, *Information packaging in a categorial perspective* by Herman Hendriks develops a sign-based categorial formalism which treats the various realisations of information packaging in English and Catalan by means of a both intonationally/syntactically and semantically/informationally interpreted version of the double non-associative Lambek calculus. Due to pressure of time, this paper was unfortunately not available to me at the time of writing this Introduction, which means that a more detailed comparison of the approaches taken by Engdahl & Vallduví and Hendriks cannot be made here. Such a comparison and evaluation will undoubtedly take place within the next months as this will inform the work on integration that will take place in the third year.

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Task 1.3, subtask 1

Parametric Variation in Unification-based Perspective

The Dynamics of Information Packaging

Enric Vallduví
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Files in Focus

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Task 1.3, subtask 1

Parametric Variation in Unification-based Perspective

Information Packaging and Grammar Architecture: A constraint-based approach

Elisabet Engdahl and Enric Vallduví
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Encoding Information Packaging Information in HPSG

Suresh Manandhar
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Task 1.3, subtask 2

Parametric Variation in Categorial Perspective

Information Packaging in a Categorial Perspective

Herman Hendriks
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