The syntax generation module's architecture was presented. Thereby it was argued that knowledge about local dominance relations should be separated from knowledge about linear precedence. Especially for languages with a relatively free word order – like German – one should avoid during incremental verbalization building up unnecessary syntactic paraphrases resulting from ordering variations in the input.

It was demonstrated how the three expansion operations that are needed during incremental generation – known from the literature as upward expansion, insertion, downward expansion – are realized for a lexicalized TAG with unification.

I argued that in contrast to the level of descriptions, where a verb directs the creation of an elementary structure including all its arguments, processing should consider parts of those structures to ensure incremental processing. The predicate called 'local completeness' for the lexical head can be used to enforce processing of parts. In contrast to De Smedt and Kempen, I argue that the linguistic module should demand missing information from the conceptualizer: Firstly, to ensure a fast utterance (instead of waiting or using defaults immediately), secondly, to ensure grammatically well-formed utterances.

Finally I presented a preliminary idea to handle phenomena caused by conceptual addition of input elements by using auxiliary trees as modifying filter for propagated information. This was possible because of our nonmonotonic unification operation (UTAG).

<div align="center">

Implications of Tree Adjoining Grammar
for
Natural Language Generation
David McDonald, Mary Meteer
Content Technologies, Inc.
14 Brantwood Road
Arlington, MA 02174/8004, USA

</div>

Modelling a cognitive process such as the production of utterances is in large part a problem of design. There is no direct evidence to which one can appeal for the representation of grammar in the mind or the mechanisms for selecting what is to be said or how it is to be organized. Instead one must adopt guiding frameworks and employ indirect evidence, especially aesthetic principles, from other disciplines. This paper considered such a case: adopting the TAG formalism for formulating grammars, as developed in mathematical and theoretical linguistics, to the processing model implemented in the natural language generation system, Mumble.

In our work, the TAG formalism is taken as given, and thus provides a means of reducing the degrees of design freedom within the rest of the generation process to just those possibilities that are consistent with TAGs. The greatest impact of the formalism comes from the fact that it provides only a single packaging for all linguistic information, the elementary tree. This means that the text planner's

decisions can be only which trees to select; it cannot get access to smaller units of linguistic structure, and larger ones can only be formed by the combination of entire trees.

This primary fact can be leveraged for corollaries applying to incremental generation, to criteria by which trees are grouped into families, and to the relationship between the content of individual trees and the speaker's conceptual representation. One can also couple the properties of TAG with a particular approach to generation, for example message-directed processing. We can then project back from this to draw conclusions about how information may be structured in the mind, and then again forward to suggest how trees are composed through adjunction and substitution.

Features in a Lexicalized TAG for English

Sharon Cote
Department of Linguistics
University of Pennsylvania
618 Williams HALL
Philadelphia, PA 19104, USA
cote@linc.cis.upenn.edu

This talk is an overview of the current state of the English LTAG and a discussion of some issues that have arisen in designing features for this grammar.

I explore the possibility that the only types of features required in a LTAG are those that specify the properties of lexical items (Lexical feature Principal). These features are characterized as either **Anchor Features**, which are bottom features, or "**Argument**" **Features** which are top features. **Structural Features** would be used only to carry information that is relevant above the level of sentence grammar.

I also consider the special nature of the category feature and suggest that auxiliary trees do not necessarily have to be defined as trees with a root and foot node of the same, fully pre-specified category.

A TAG analysis of the Third construction in German

Anthony Kroch, Beatrice Santorini, Aravind Joshi
Department of Computer and Information Science
R-555 Moore School
University of Philadelphia
220 South Street 33rd Street
Philadelphia, PA 19104-6389, USA
kroch or beatrice or joshi@linc.cis.upenn.edu

In this paper, we consider the so-called third construction in German, illustrated in (1):

(1) Der Lehrer hat das Theorem versucht zu beweisen.
the teacher has the theorem attempted to prove