

RESEARCH ACTIVITY

Background. Generative linguistics maintains that humans are born with an innate language faculty that structures and guides language acquisition. Researchers in this field aim at providing a cognitively accurate model of this faculty by identifying the fundamental entities and grammar constraints ultimately responsible for the linguistic expressions of any given language. Through the last 50 years linguists have been increasingly successful in identifying a finite set of primitive entities and the corresponding universal constraints governing their structural combinations. This success has led to growing attention to the ways the constraints interact with each others. In particular economy in the structural complexity of linguistic expressions has been recognised as playing a fundamental role in both phonology and syntax. This in turn has given rise to new theoretical frameworks such as Alan Prince and Paul Smolensky's Optimality Theory (OT). My research lies at the heart of these developments and concerns the investigation of the fundamental properties of OT and its potential for the unification of syntax and phonology under a single shared cognitive architecture. I am also actively involved in the further investigation of syntactic primitives as further explained below.

Formal properties of OT. One main tenet of OT is that linguistic structures compete with each other for grammatical status. This raises the issue of the associated computational load, a highly relevant aspect of any cognitive model. In collaboration with Alan Prince I have identified a set of necessary and sufficient conditions for the identification of structures that are never grammatical because always worse than other competitors. This knowledge can be exploited to avoid generating these structures and consequently ease the computational load. Our research also highlighted the functional and order-theoretic notions underlying OT, leading to a better understanding of the properties that set this theory apart from other frameworks. Our work in this area is frequently cited in the literature on the formal properties of OT.

OT-Syntax. A second important tenet of OT is that the universal constraints of grammar make conflicting demands. The different grammars found across human languages are determined by the different ways the constraints are prioritised in each language. This perspective has already been successfully applied to phonology and can also be applied to syntax, raising the interesting hypothesis that syntax and phonology share the same underlying cognitive architecture.

Most of my research has investigated the empirical evidence supporting this hypothesis, showing how paradigms of crosslinguistic variation traditionally accounted for in terms of language-specific properties actually follow from universal constraints interacting in an OT fashion. I found evidence of OT-interactions in several areas of syntax, including null-subjecthood, short and long-distance agreement, case-assignment configurations, and word-order variation.

The internal structure of thematic arguments. My interest in syntax has also led me to investigate complex predicate formation phenomena, where verbs inherit the semantic properties of their objects. Through appropriate tests applied to a specific class of complex predicates I have been able to distinguish exactly which properties were contributed by the verb, which by the object, and how they were combined together. These properties were then shown to constitute independent primitive components of all thematic arguments, providing insight into the internal structure of one of the most fundamental notions of syntactic theory. This research was published in *Natural Language and Linguistic Theory* in winter 2003 and it is likely to lead to a re-analysis of the many syntactic paradigms involving thematic transfer and predicate formation.

Focus and the prosody-syntax interface. Recent research on Romance languages has shown that the prosodic constraints governing intonation systematically affect the syntactic structure of a

clause, forcing for example focused items to occur in the position of stress, i.e. rightmost in the clause. This is exactly what expected under an optimality architecture where prosodic constraints may take precedence over syntactic ones. It is instead unexpected under alternative analyses where syntactic operations precede prosodic ones and are therefore unable to access the necessary information concerning stress and intonation. I investigated this important topic in an article that is will appear in *Natural Language and Linguistic Theory* where I showed how several syntactic and prosodic properties of focalised structures in English, Italian, French, German, and Bantu languages follow naturally when syntax and prosody interact in OT terms.

This is another research area where I expect to remain very active. An additional article on Italian right-dislocation will appear on *Lingua* in November 2004 and a third article with Caroline Féry (Potsdam) on intonation in multiple-foci sentences has just been made available for downloading at my homepage (www.homepages.ucl.ac.uk/~ucljvsl).