

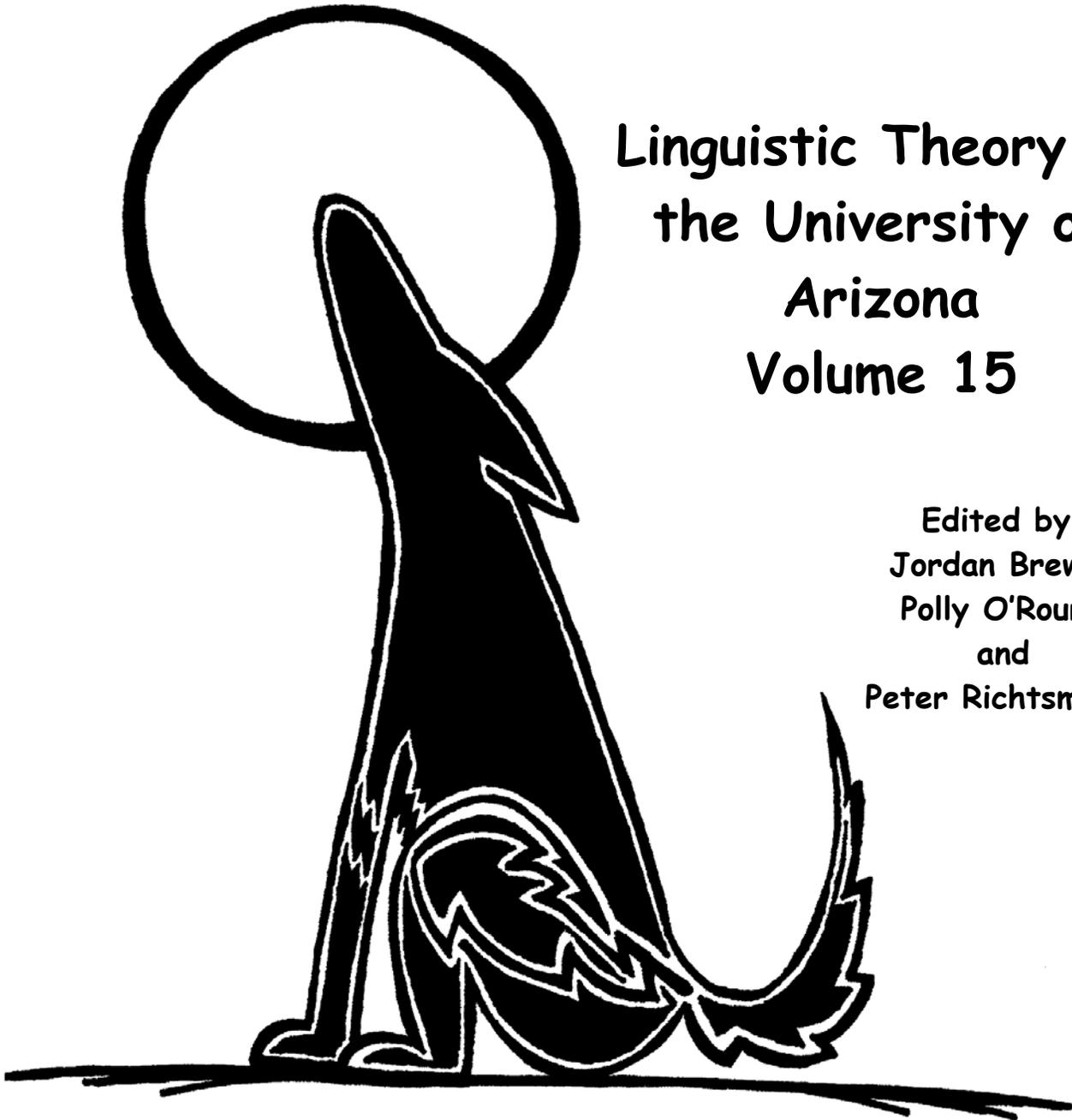
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Preface

In the tradition of previous editions of Coyote Papers focusing on language in cognitive science (Vol. 12), this fifteenth volume of Coyote Papers “Psycholinguistic and Computational Perspectives” integrates research from various disciplines related to linguistics. In particular, this edition showcases experimental and computational approaches to language.

This focus reflects changes we believe to be running through all linguistics, changes that are rapidly altering the research landscape. Over the past 40 years, psycholinguists have become increasingly adept at addressing questions about the nature of linguistic processing. Two papers included herein expand our understanding of the lexicon and how words are stored and accessed in real time. Xin Wang’s research shows that the bilingual lexicon is constrained in interesting ways. Although semantic relations have been shown between words of the different languages, Wang shows that L1 words do not prime semantically related primes in L2 in a masked priming paradigm, providing evidence for a two lexicon model. Rong Liu’s research on repetition priming shows us that priming experiments may not always access the lexicon, and so researchers studying lexical access must be careful in how they design their experiments.

Polly O’Rourke’s paper picks up on a series of experiments on the processing of grammatical gender. In corroboration with previous findings, O’Rourke found that Spanish shows no gender congruency effect for noun phrase production. Parting from previous findings, however, she also shows that Spanish, unlike Italian, does not show a gender congruency effect for bare nouns, suggesting that gender is not processed equivalently in all Romance languages.

Alongside the advances in psycholinguistics stand equally impressive gains in computational modeling of linguistic phenomena. Three papers featured here approach language from a computational perspective. Briner, McCarthy, and McNamara present the beginnings of a major thrust in computational linguistics with *AutoProp*, a program designed to calculate the proposition, or deep semantics, of a sentence. An equally ambitious goal is set for *Coh-Matrix*, which analyzes written texts on a variety of levels, including “cohesion relations, world knowledge, together with language and discourse characteristics”. Hall, McCarthy, Lewis, Lee, and McNamara show that the analytic indices of *Coh-Matrix* successfully distinguish dialects of English in the relatively homogenous domain of legal writing. Finally, the essay by Ginsburg and Fong exemplifies the influence on traditional formal linguistics of advances made outside of the field. These authors show how a formal account of various Japanese *wh*-constructions can be successfully modeled with a multilingual parser constructed in the Principles and Parameters framework. This exemplary use of technology

highlights the changing state of the field: as claims are made in one domain, they must be justified in related domains.

In sum, these papers are a diverse group, representing a variety of interests and concentrations. More broadly, however, they represent the future of linguistic study. As experiments become more sensitive and computational models more lifelike, cognitive science will continue to uncover the inner workings and incredible complexity of human language. In pursuit of this worthy goal, we offer you this fifteenth edition of Coyote Papers: “Psycholinguistic and Computational Perspectives”.

We gratefully acknowledge many important people who contributed to the development of this edition of Coyote Papers. Firstly, we would like to thank everyone who submitted a paper. We received fifteen submissions, more than we could publish, and so we were left with the enviable task of choosing the best. Secondly, we would like to thank our publisher, Benjamin Tucker. We make no claims of timeliness in publishing this edition, but it is largely Ben’s persistence that got us to this point. Finally, we would like to thank the linguistics community of the University of Arizona. Your support and interest has been crucial.

Jordan Brewer
Polly O’Rourke
Peter Richtsmeier
December 8, 2006

***AUTOPROP*: A TOOL TO AUTOMATE THE CONSTRUCTION OF PSYCHOLOGICAL PROPOSITIONS**

Stephen W. Briner, Philip M. McCarthy, and Danielle S. McNamara
Department of Psychology, University of Memphis

A prototype of an automated tool to construct a propositional textbase, *AutoProp*, is described and qualitatively assessed. The tool is specifically designed to propositionalize texts for experimental studies that collect and analyze participants' recall of text. The procedure for creating the propositionalized text is explained, followed by a descriptive analysis of the tool's propositions as compared to 29 hand-coded propositions. In initial testing, all of *AutoProp*'s propositions differed from the hand-coded propositions at a superficial level; however, no differences deemed *uncorrectable* were encountered. Based on the success of these initial results, we conclude that *AutoProp* is a viable tool worthy of continued examination and development. Limitations of the tool, along with future developmental plans and requirements addressing these limitations are also discussed.

MODELING Q-FEATURE MOVEMENT IN JAPANESE

Jason Ginsburg and Sandiway Fong
University of Arizona

We discuss how we use the Japanese version of PAPPi, a multilingual parsing engine in the Principles-and-Parameters framework (Chomsky 1981), to computationally model a theory that accounts for the grammaticality of certain Japanese *wh*-constructions. In this theory, a Q-feature is base generated within a *wh*-phrase and raises to C, where it checks an uninterpretable Q-feature. Q-feature movement can be blocked by an intervening quantificational head; an effect due to the Minimal Link Condition (Chomsky 1995). Furthermore, certain multiple *wh*-questions in which Q-feature movement is not subject to the Minimal Link Condition are accounted for in terms of the Principle of Minimal Compliance (Richards 2001), which is basically the notion that once a constraint is satisfied it may be subsequently ignored. In this paper, we describe modifications to the parsing engine of PAPPi necessary to implement this Q-feature movement theory.

USING *COH-METRIX* TO ASSESS DIFFERENCES BETWEEN ENGLISH LANGUAGE VARIETIES.

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This study examined differences between the written, national language varieties of the United States and Great Britain, specifically in texts regarding the topic of Law. The few previous studies that have dealt with differences between the dialects of the United States and Great Britain have focused on shallow-level features, such as lexis, subject-verb agreement, and even orthography. In contrast, this study uses the computational tool, *Coh-Metrix*, to distinguish British from American discourse features within one highly similar genre, Anglo-American legal cases. We conducted a discriminant function analysis along five indices of cohesion on a specially constructed corpus to show those differences in over 400 American and English/Welsh legal cases. Our results suggest substantial differences between the language varieties, casting doubt on previous generalizations about British and American writing that predict that the national varieties would vary more by genre than by language variety. Our results also offer guidance to materials developers of legal English for international purposes (such as in the E.U.) and drafters of international legal documents toward producing effective and appropriate materials.

IS REPETITION PRIMING ACCESSING THE SAME LEXICAL ENTRY TWICE?

Rong Liu
University of Arizona

Is repetition priming accessing the same lexical entry twice? The answer to the question is crucial to lexical models. Using masked lexical decision tasks, Forster and Davis (1984) concluded that the repetition effect is not just accessing the same lexical entry twice. However, they suggested more evidence needed to show whether context items can produce long term, frequency sensitive effect whether masked or unmasked. The present study, using the MAZE task, is a follow-up of their study. The specific question tested is: Will there be repetition priming in the MAZE task if ungrammatical alternatives later appeared as grammatical alternatives? Results showed that repetition priming was statistically significant if the target words are correct alternatives in a later sentence again but was not significant if ungrammatical alternatives later appeared as grammatical alternatives. This suggests repetition priming shouldn't be automatically taken as accessing the same lexical entry twice.

THE GENDER CONGRUENCY EFFECT IN BARE NOUN PRODUCTION IN SPANISH

Polly O'Rourke
University of Arizona

Previous research in syntactic gender congruency effects has indicated that German and Dutch speakers exhibited priming effects in the production of noun phrases (La Heij, Mak, Sander & Willeboordse 1998; Schriefers 1993; Schriefers & Teruel 2000), whereas speakers of Spanish and Italian showed no such effects (Miozzo & Caramazza 1999; Costa, Sebastián-Gallés, Miozzo & Caramazza 1999). Until recently, the production of bare nouns had only been examined in Dutch (La Heij, et al. 1998) and no effect was found. It was concluded that gender information is only accessed when specifically required for the selection of agreement morphemes. Cubelli, Lotto, Paolieri, Girelli, and Job (2005), however, found an inhibitory gender congruency effect for bare noun production in Italian. The goal of the current experiment was to determine if such an effect could be elicited in Spanish. The current experiment examined the production of bare nouns and noun phrases (NPs) by native Spanish speakers within the picture-word interference paradigm, in which subjects named a picture accompanied by a distractor word which was either gender congruent or incongruent with the target. Congruency effects were determined by naming latencies. An analysis of the data showed that there was no gender congruency effect in bare noun production. Naming latencies in the two conditions were virtually identical ($f(1,15) = 0.017, p < 0.90$). In addition, separate analyses were performed on target words of each gender (masculine and feminine) and no gender specific effect was found. As predicted, there were no congruency effects for NP production. The fact that, in bare noun production, Spanish behaves like Dutch rather than Italian indicates that there is a critical difference between Spanish and Italian relating to gender access.

**DOES SEMANTIC ACTIVATION SPREAD ACROSS LANGUAGES?
---AN EXPERIMENTAL STUDY WITH CHINESE-ENGLISH BILINGUALS**

Xin Wang
University of Arizona

It has been well documented in the literature that translation equivalents have special status in bilinguals' lexical system and can be treated as synonymy across languages. It has been claimed that translation equivalents are overlapped at the conceptual level across languages with different orthographic and phonological forms. Evidence to support this claim comes from cross-language priming studies in which subjects respond to L2 targets faster if targets are preceded by their translation equivalents (translation primes), compared to unrelated primes in lexical decision. Evidence observed in the masked priming paradigm is more convincing in the sense that subjects are not aware of the existence of primes but still produce priming effects from L1 to L2 in lexical decision. In order to have a complete understanding of the semantic organization of bilinguals' lexical system, a question worthwhile to ask is whether cross-language word pairs that are semantically related but not translation-equivalents bear any relation with each other at the conceptual level. Previous studies have shown even semantically related cross-language word pairs can generate priming from L1 to L2 when the primes are visible. However, visible primes usually involve strategic processing, which cannot be taken as evidence to support the argument that semantically related cross-language word pairs are conceptually-mediated. This study attempts to investigate whether an L1 prime could generate a more 'general' level of semantic priming to enhance the processing of the L2 target under the masked priming condition. This will test the hypothesis of whether semantically related cross-language word pairs are conceptually-mediated by using the lexical decision task. The results show strong priming from L1 to L2 for translation equivalents, but not for semantically-related word pairs. It is suggested that cross-language processing is specific and priming is unique to translation equivalents. In conclusion, it can be argued that semantically-related cross-language word pairs do not conceptually overlap and their mental representations could be very separate.