# HG4041 Theories of Grammar

# Sign-Based Construction Grammar

Francis Bond

**Division of Linguistics and Multilingual Studies**

http://www3.ntu.edu.sg/home/fcbond/

bond@ieee.org

Lecture 16
Location: LHN-TR+36

# Overview

➤ Chapter 16 framework (same analyses, different underlying system)

➤ General wrap up

# Construction Grammar (CxG)

➢ A family of grammars based on the idea that

  ➢ Knowledge of a language comes from form and function pairings
  ➢ **function** includes meaning, content, or intent (both semantics and pragmatics)
  ➢ **form** includes phonology, syntax, orthography

➢ CxG grew out of generative semantics and cognitive linguistics, by researchers such as Charles Fillmore, Paul Kay and George Lakoff

➢ Instead of language as a grammar+lexicon, think of it as a structured network of families of constructions

# Construction Grammars

➤ **Sign-based-Construction Grammar** (Berkeley Construction Grammar)
unification-based framework (with computational implementation)

➤ **Goldbergian/Lakovian Construction Grammar**
psychologically plausible

➤ **Radical Construction Grammar**
syntactic categories, roles, and relations are not universal:
they are not only language-specific, but also construction specific

➤ **Embodied Construction Grammar**
relates constructions to embodiment and sensorimotor experience

➤ **Fluid Construction Grammar**
learns grammars from the environment (with computational implementation)

# Overview of Differences (SBCG vs HPSG)

➤ Multiple Inheritance

➤ Signs

➤ Grammar rules form a hierarchy — many more rules

➤ Every tree node has its own phonology

➤ Many principles become constraints on grammar rules

➤ The definition of well-formedness is simplified

# Wrap Up

# HPSG
## Head-driven Phrase Structure Grammar

➢ Describes a set of strings

➢ Associates semantic representations (and trees) with well-formed strings

   ➢ Is stated in terms of declarative constraints
   ... which are order-independent
   ➢ Locates most constraints 'in the lexicon'
   ➢ Is stated in a precise fashion

# Parts of our model

➢ Type hierarchy (lexical types, other types)

➢ Phrase structure rules

➢ Lexical rules

➢ Lexical entries

➢ Grammatical principles

➢ Initial symbol

# Universals in our model

➢ SHAC

➢ Binding theory

➢ Head-complement/-specifier/-modifier

➢ Head Feature Principle

➢ Valence Principle

➢ Semantic Compositionality Principle

➢ ...

# Design Goals of our Model

➤ Precise

➤ Robust

➤ Psychologically Plausible

➤ Computationally Tractable

# Course overview

➤ Survey of some phenomena central to syntactic theory

➤ Introduction to the HPSG framework

➤ Process over product: How to build a grammar fragment

➤ Value of precise formulation (and of getting a computer to do the tedious part for you!)

# Reflection

➢ What was the most surprising thing in this class?

➢ What do you think is most likely wrong?

➢ What do you think is the coolest result?

➢ What do you think you're most likely to remember?

➢ How do you think this course will influence your work as a (computational) linguist?

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