

Instructor's Manual for *Syntactic Theory: A
Formal Introduction*

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Chapter 1

Introduction

1.1 Lecture notes

Chapter One, Lecture One

I. What is a language?

- A way of talking and communicating.
- A set of conventions that pair up certain kinds of utterances with certain kinds of messages.
- A language is a system that includes words and sentences that are constructed from those words according to a set of rules.
- What do we mean by rule? You're probably all familiar with grammar rules of a certain type. For example, consider: **[Slides:1]**
 - (1) Everyone insisted that __ record was unblemished.
? What fills in the blank? *His* or *Their*?
- Rule: Pronouns that refer back to *everyone* must be singular. (Or maybe *everyone/everbody* is singular.)
- ? What grade did you learn this in? (our students say 6th grade...)
- Consider more data: **[Slides:2]**
 - (2) a. Everyone drives __ own car to work.
b. Everyone was happy because __ passed the test.
c. Everyone left the room, didn't __ ?

d. Everyone left early. ___ seemed happy to get home.

- (These examples form a scale, where the last one is most obviously **he*.)
- Teach * notation.
- Conclusion: Prescriptive rules you learned in school don't necessarily correspond to the way you really talk.

II. Prescriptive vs. Descriptive Rules.

- Consider some more data (substitute *bless* or *screw*, if you prefer):

(3) a. F*ck yourself!
b. Go f*ck yourself!

(4) a. F*ck you!
b.*Go f*ck you!

? What grade did you learn this in?

- Conclusion: Even the most casual or vernacular language is systematic or rule-governed, and it is this sense of 'rule' that linguists intend.
- Examples of prescriptive rules:
 - Don't use *ain't*.
 - Logically, two negatives make a positive, so double negatives like in *I won't tell no one* used to mean *I won't tell anyone* are illogical and should be avoided.

? What are some other examples of prescriptive rules?

- Point of clarification: not all the grammar you learned in grammar school was prescriptive. Some of it will be directly relevant to our development of descriptive grammars.

III. Different kinds of (Descriptive) Rules

- Phonology (rules governing sound patterns):

-
- Voicing means the contrast in [f] vs. [v] and [s] vs. [z] (If your class is phonetically naive, have them pronounce these with their hands on their Adam's apples.)
 - Rule: Make the voicing of the plural noun suffix match that of the last sound of the noun
 - (5) a. waifs vs. waves
 - b. bucks vs. bugs
 - c. safes vs. saves
 - The rule is productive. What is the plural of *wug*?
 - (Discuss how English spelling is misleading in this case. What we pronounce as /s/ or /z/ depending on this rule is always spelled 's'.)
 - Morphology (rules governing word formation):
 - To make a negative adjective, add *un* to a positive adjective.
 - (6) a. unhappy, unhappiness, untrue, untruth
 - b. *unbook
 - Syntax (rules governing sentence formation):
 - Rule: To make a sentence, put a verb after a noun (*Kim walks*)
 - Constraint: The verb agrees with its subject in person and number.
 - Semantics (rules governing meaning):
 - Rule: If 'A' stands for some property P, then 'un-A' stands for the absence of P.
 - (7) a. happy/unhappy
 - b. true/untrue
 - Conclusion:
 - A language is a system of conventions or RULES that determine:
 1. a set of sentences
 2. constructed from basic elements (words)
 - The sentences are constructed according to a set of grammar rules and certain constraints that must be satisfied.

- The words in turn are constructed in accordance with a set of morphological rules and are pronounced in keeping with a set of phonological rules. The meaning of a sentence is determined from the meanings of its parts according to a set of semantic rules.
 - Some rules of grammar apply to all languages (are universal). Others apply to individual languages. So languages may be different in their rules of grammar, but all human languages have grammar.
 - Possible digression if you have time:
 - Arithmetic is a language, too.
 - *3(+25) is not a well-formed sentence in arithmetic.
 - Build this up systematically, with noun phrases like (3 + 2) and 34 and sentences like (3 + 2) = 34.
 - Distinguish syntax vs. semantics, i.e. the difference between well formed and true.
- (8) a. *3(+25) = 10
b. 2 + 2 = 5
c. 2 + 2 = 4

Chapter One, Lecture Two

I. Why is grammar interesting/worth studying?

- Though languages are quite diverse, grammars for human languages have striking similarities.
 - e.g. of the six logically possible word order patterns, three are the most frequent across languages: SVO, SOV, VSO,
 - But the others are much rarer.
 - There is also a rough correlation between case (or head) marking and freedom of word order.
- ? Prepositions correlate with SVO order and postpositions correlate with SOV order. Why should this be so?
- Answer: There are phrases. [V O] [P O] go together and [O V] [O P] go together because languages tend to generalize patterns across phrases.

- **Clarification:** these are only statistical correlations, not absolute generalizations. That is, grammars that fail to produce these patterns are somehow (evolutionarily?) less optimal, but not impossible.
- Certain patterns are systematically absent from the grammars of human languages.

1. Word formation:

- Many languages mark tense with suffixes, prefixes or vowel alternations.
- Example from English: **[Slides:3]**

(9) present past
 /θro/ /θru/
 /rayd/ /rod/

- But no human language has tense systems defined by reversal of sounds: **[Slides:4]**

(10) present past
 /θro/ /orθ/
 /rayd/ /dyar/

2. Question Formation

- Languages allow statements to be ‘converted’ into questions by various means:
- For example, English does this with either word order or intonation: **[Slides:5]**

(11) statement question
 Kim will go. Will Kim go?
 Kim will go. Kim will go?

- But again no language would do this by word reversal: **[Slides:6]**

(12) statement question
 Kim will go. Go will Kim?

- Nor by inverting third word... etc.

- The way grammars are tells us (at the very least) something about the kinds of generalizations human minds form, about the kinds of symbolic systems humans learn naturally. This bears on biology,

evolution, cognitive science in general. This is why linguistics in general has been of interest to psychologists, philosophers, cognitive anthropologists, etc.

Human language may tell us even more, say if Chomsky is right that much of this intricate knowledge of language is hard wired — actually part of the human biological endowment for language.

II. On-Line (real-time) human cognitive activity. Talk about ambiguity./!

- Human communication is nothing short of miraculous, given that languages are so full of ambiguity and uncertain reference.
 - Give examples of ambiguity:
 - (13) a. Lee saw the student with the telescope.
 - b. Visiting relatives can be boring.
 - c. I know you like the back of my hand.
 - d. I forgot how good beer tastes.
 - e. I saw her duck.
- Humans resolve ambiguity by integrating world knowledge, contextual information, etc.
 - Consider the ambiguous sentence:
 - (14) I forgot how good beer tastes
 - Depending on the preceding context, one reading or the other will be preferred:
 - (15) I just got back from Teheran. I forgot how good beer tastes.
 - (16) I just got back from Munich. I forgot how good beer tastes.
- How do we integrate all this information so fast to get at the right meaning? Given that there is so much ambiguity, how is it that human's using natural language don't generally even see the unintended other meanings. This is a fascinating area of inquiry that will be one of the key foci of work in cognitive science in the next century. Understanding the linguistic constraints on meaning is a key part of understanding the larger problem of how communication proceeds.

III. Language Processing Technology.

- Though humans seem to resolve ambiguity effortlessly, trying to make a computer do that is quite another thing. Providing efficient ways of cutting through this space of ambiguity is perhaps the most significant problem facing the development of useful, robust computer language-processing technology. (Just think about it: who would design an ambiguous computer language or one with unbound variables (like pronouns) all over the place?)
- Linguistic research, together with research about how other kinds of knowledge are integrated with language and statistical methods for approximating the effects of such knowledge is already beginning to make its way into our society. As the technology gets increasingly more sophisticated, it will come to rely on grammatical precision (modulated by statistical approximation) of the sort our grammars can and do provide.

IV. An Example of a Linguistic Rule

- Go through reflexive examples in Chapter 1. [Slides:7–11]
- Gradually refine the different hypotheses in Chapter 1.
- Could mention another universal (Keenan and Comrie 1977): No language allows object control of reflexives unless it also allows subject control of reflexives.