

Overview:

From last time: Interest in modeling variation in and across grammars

Today:

- Variability is embedded in the grammar, but probability is not.
- Model variability and categoricity
- Combinatorial mechanisms that create structure → non-deterministic choice of form: How are variants produced (e.g., *We was/were*, *The boys is/are*)?
- (How) is variability acquired?
...Children must be able to acquire language on the basis of adults whose grammars exemplify different parameter settings. They do not necessarily select a grammar which covers all the data they hear; thus the language learning task seems to be, not to hypothesize or select the grammar which covers all the data, but to select, from among the small range of possibilities offered by UG, the parameter setting which best fits most of the data. Language learning must be strongly internally driven, with internally generated possibilities being tested against the data, rather than with the data driving the acquisition of grammar. (Henry 2005).

1. Three Variable Systems (Singular Concord)

1. 1. **Buckie**

I was	We was/were
You was/were	You (ones) was/were
He/She/It was	They were

I am	We are
You are	You are
He/She/It is	They are
The boy is	The boys is/are

1. 2. **Alabama English**¹

Invariable <i>was</i>				
<i>There</i> + NP plural	<i>you</i>	<i>we</i>	NP pl	<i>they</i>
92.7	87.9	71.1	63.2	60.0
(115/124)	(51/58)	(163/229)	(143/226)	(147/245)

¹Feagin reports data from 'urban' and 'rural' groups. The numbers here are for the urban group.

Invariable <i>is</i>	<i>they</i>	NP pl	<i>there's</i> + NP pl
Girls	0 (0/40)	37.2 (16/43)	84.3 (27/32)
Boys	0 (0/21)	25 (3/12)	90 (19/21)
Women	3 (1/33)	77.7 (49/63)	86.2 (25/29)
Men	6.2 (2/32)	51.2 (21/41)	85.1 (40/47)

“...It appears that, except for invariable *was* and *is*, pronouns demand rigorous agreement, while NP plural does not” (Feagin 1979, p. 207).

1. 3. **Belfast English**

Singular concord: Singular subject V-s (V-Ø)

1. These cars go/goes very fast. (cf. *They goes very fast.)
2. The eggs are/is cracked. (cf. *They is cracked.)
3. *The car go very fast.
4. *This egg are cracked.
5. Us and them is always arguing.
6. Him and me goes there every week.
7. Her and her mother works there.
8. *We and they is always arguing.
9. *He and I goes there every week.
10. *She and her mother works there.
11. These is cracked.
12. Them is no good.
13. Usuns was late.
14. Themuns has no idea.
15. The children really likes pizza.
16. These books probably costs a lot.
17. The children really are late.
18. *The children really is late.

2. Accounting for the data: Variable rules
- Variable rules are intended to achieve a higher level of accountability than unconstrained free variation will allow.
 - Make it “possible to enlarge our current notion of the “linguistic competence.”

$X \rightarrow (Y) / A _ B$

Contraction: $\emptyset \rightarrow (\emptyset) / \# \# [_ , +T] C_{0,1} \# \#$

- 2.1. Principle of accountability (in analysis of linguistic behavior)
- Any variable form (a member of a set of alternative ways of “saying the same thing”) should be reported with the proportion of cases in which the form did occur in the relevant environment, compared to the total number of cases in which it might have occurred. Unless the principle is followed, it is possible to prove any theoretical preconception by citing isolated instances of what individuals have been heard saying... The principle of accountability is motivated by a conviction that the aim of linguistic analysis is to describe the regular patterns of the speech community, rather than the idiosyncrasies of any given individual. (Labov 1972, p. 94)
- 2.2. Each variable rule is associated with a specific quantity ϕ which denotes the probability of the rule applying.
- Predicts the ratio of frequency with which rule actually applies to total population of utterances in which the rule would apply in specified environment if it were a categorical rule
 - Not the output of frequency which is part of the rule; probability is function of linguistic factors
 - The probability ϕ ranges over 0 and 1; for categorical rules $\phi = 1$
 - A variable rule is an optional rule that includes consideration of more “>” and less “<” linguistically significant. (See example: Labov 1972, pp. 96-99)

3. Accounting for the data: Combinatorial variability

3.1 Lexical items and features

Lexical items are built up of combinations of features in unstructured sets.

- Bivalent features
- Learner has access to Conceptual Structure of human thought, which provides a range of possible features that have to be semantically motivated, such as number, participant in the discourse, etc. in pronouns.
- Forms of lexical items in the input tell the learner which available contrasts are marked in the language.

3.2 Pronouns

Features that make up personal pronouns

[± singular]

[± participant]

[± author]

Feature Co-occurrence Restriction: A lexical item is specified for [± author] if and only if it is specified for [+participant]. As such, 3rd person pronouns do not need to specify [± author].

singular: +
participant: +
author: +

I

singular: -
participant: +
author: +

we

singular: +
participant: +
author: -

you

singular: -
participant: +
author: -

you

singular: +
participant: -

he/she/it

singular: -
participant: -

they

Certain lexical items carry features that are purely formal in nature. These uninterpretable features (marked *uF*) establish syntactic dependencies. In *He was tired*, the person features [± singular], [± participant], [± author] are interpretable on the pronoun. They value then check the uninterpretable features on the verb in an agreement chain.

3.3. Agreement chain

singular: +
participant: +
author: +

...

*u*singular: +
*u*participant: +
*u*author: +

Schematic overview

$LI_1 \{F_1, F_2, F_3\} \dots LI_2 \{uF_1\} \rightarrow PF(LI_2) = x$

$LI_3 \{uF_2\} \rightarrow PF(LI_3) = y$

$LI_3 \{uF_2\} \rightarrow PF(LI_4) = z$

How the system predicts frequencies

LI ₁ {F ₁ , F ₂ , F ₃ } ... LI ₂ {uF ₁ }	→	PF (LI ₂) = x
	LI ₃ {uF ₂ }	→ PF (LI ₃) = x
	LI ₃ {uF ₂ }	→ PF (LI ₄) = y

How variability arises

singular: + participant: + author: +	<i>was</i>	singular: - participant: + author: +	<i>was/were</i>
singular: + participant: + author: -	<i>was/were</i>	singular: - participant: + author: -	<i>was/were</i>
singular: + participant: -	<i>was</i>	singular: - participant: -	<i>were</i>

Homonymy and missed generalizations

- [*usingular: +*] was
 - [*usingular: -*] were
 - [*uparticipant: +*] was
 - [*uparticipant: -*] were
 - [*u author: +*] was
 - [*u author: -*]
-
- [*usingular: +*] was
 - [*usingular: -*] were
 - [*uparticipant: +*] was
 - *[*uparticipant: -*] was/were
 - [*u author: -*] was
 - [*u author: -*] were
 - [*u author: +*] was

Generalizations are based on the premise that lexical items with fewest features are best, but there are additional filter.

- Reject Optionality (an LI is kept if there is always a matching form)
- Reject Synonymy (an LI is kept if it does not create synonyms)
- Minimize the size of the Lexicon

References

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