Early Acquisition of Sociolinguistic Variation: Bringing Together Social and Cognitive Issues

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Summary

1/ Social approach to cognition and cognitive approach to social dimensions

2/ Cognitive Sociolinguistics, Sociolinguistic Cognition, Acquisition of Sociolinguistic Variation

3/ The (old) question of the social determinism of linguistic usages: a reformulation

4/ Schemas, exemplars and acquisition of variation: Toward an integrative model
Social approach to cognition and cognitive approach to social dimensions

The objects of Social and Cognitive Sciences:

Social science: collective human groups and their relationship to behaviours and representations.


The distinction is not so clear....
Social approach to cognition and cognitive approach to social dimensions

One strand of cognitive science studies social aspects: **Social Cognition**

How people process, encode, store retrieve social information and implement it in social situations.

The conception of the social dimension is characterized by psychological reductionism

- Social facts limited to discontinuous and limited interactions between individuals
- Interactions are described in terms of mental mechanisms responsible for the processing of social information
Social approach to cognition and cognitive approach to social dimensions

This conception of the social dimension is typical of Cognitive Science.

Social aspects are perceived as a capability of the mind
- "as it functions within the individual"
- at the time of the interaction.

Morgan & Schwalbe, 1990
Social approach to cognition and cognitive approach to social dimensions

Social science uses concepts which refer to mental entities: ideologies, collective representations, subjective experience

- mental states shared by the members of a community
- manifest themselves "outside of the individual" through the habits and regularities of social life

Kaufman & Clément, 2011

Example of trusting
Social approach to cognition and cognitive approach to social dimensions

As seen by social science, social phenomena
- have a long temporal dimension.
- are anchored in a more extensive narrative, linked to a collective story

Lahire and Rosental, 2008; Molénat, 2012
Social approach to cognition and cognitive approach to social dimensions

Social science possesses a conception of mind and science of mind possesses a conception of social dimension.

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<thead>
<tr>
<th>Social Science</th>
<th>Conception of social dimensions</th>
<th>Conception of mind</th>
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<td></td>
<td>Long-term timescale Anchored in an extensive narrative, linked to a collective story</td>
<td>In the community</td>
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<tr>
<td>Cognitive Science</td>
<td>Short-term timescale Linked to the moment of interaction</td>
<td>Within the individual</td>
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Social approach to cognition and cognitive approach to social dimensions

Points of convergence

Cognitive Sociology
Cicourel, 1979; Kaufman, 2011

Social Cognitive Neuroscience
Blakemore et al., 2004
Social approaches to cognition and cognitive approach to social dimensions

These convergences can be summarized as two tendencies

Kaufman & Clément, 2011

<table>
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<tr>
<td><strong>Starting point</strong></td>
<td>The social world</td>
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<tr>
<td><strong>Question</strong></td>
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# Social approach to cognition and cognitive approach to social dimensions

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Kaufman & Clément, 2011

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<td>Properties of a community</td>
<td>Automatic cognitive processes or rational decision-making processes</td>
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Cognitive Sociolinguistics and Sociolinguistic Cognition

Social Science

Sociolinguistics

Relations between language and society

Linguistics

Organization of the system of linguistic knowledge

Cognitive Science
Cognitive Sociolinguistics and Sociolinguistic Cognition

Integrating the functional levels: knowledge, language, society

Relationships
variation / regularity
chance / necessity
empirical heterogeneity / coherent theorization
Cognitive Sociolinguistics and Sociolinguistic Cognition

Points of convergence

Cognitive Sociolinguistic
Kristiansen & Dirven, 2008

Sociolinguistic Cognition
Campbell-Kibler, 2010
Loudermilk, to appear.

Social Science
Cognitive Science
Sociolinguistics
Linguistics
Cognitive Sociolinguistics and Sociolinguistic Cognition

Cognitive Sociolinguistic

1/ explores language-internal or cross-linguistic variation linked to social dimensions
2/ draws on the theoretical framework of Cognitive Linguistics
3/ builds on solid empirical methods

Kristiansen & Dirven, 2008

Cognitive Linguistics

- studies the relations between language and cognition

Three working hypotheses: a criticism of generative grammar
1/ The faculty of language is not autonomous
2/ Grammar is a conceptualization of the world
3/ Grammar results from an emergent conventionalization of usage
Cognitive Sociolinguistics and Sociolinguistic Cognition

Cognitive Sociolinguistic accepts the framework of Cognitive Linguistics …

Languages are spaces of variation linked to both cultural and social dimensions.

The 15 contributions to Kristiansen & Dirven's landmark book

1/ Sociolinguistic variation as a function of social factors. Cognitive concepts as intermediate elements

2/ Relation between cultural or political models and conceptions of language policies or attitudes

3/ How discourse constructs a representation of social and cultural entities
Cognitive Sociolinguistics and Sociolinguistic Cognition

Common characteristics to the contributions: typical of sociolinguistics

1/ Linguistic knowledge and way of thinking are properties shared by communities
2/ Communities are heterogeneous and situated
3/ The preferred methodology consists of corpus studies
Cognitive Sociolinguistics and Sociolinguistic Cognition

Points of convergence

Social Science

Sociolinguistics

Cognitive Sociolinguistics

Social approaches to cognition

Cognitive Science

Linguistics
Cognitive Sociolinguistics and Sociolinguistic Cognition

Sociolinguistic Cognition
- What cognitive and cerebral mechanisms underpin the ability to produce sociolinguistic variation and to process it during language reception?
- Rooted in the sociophonetic studies

Four recent avenues of investigation

1/ Encoding of phonological variants: abstract rules vs. exemplars
2/ Influence of social knowledge on the online processing of variation
3/ Retrieval of social information during the online processing of variation
4/ Study of the cerebral mechanisms that underpin the processing of indexical information.
Cognitive Sociolinguistics and Sociolinguistic Cognition

Most striking results of Sociolinguistic Cognition

1/ Neither abstractionist nor exemplar-based models account for all the data
   Ernestus, in press

2/ Sociolinguistic variants are activated by various kinds of social information, whether implicit or explicit
   Hay et al., 2006a; Hay et al., 2006b; Hay & Drager, 2010; Drager, 2010

3/ The influence of social knowledge on the processing of variations does not only concern phonetic variation, but also morphosyntactic variation
   Squires, 2011

4/ Social knowledge acts at the heart of the cognitive mechanisms that process language
   Staum Casasanto, 2009; 2008; Squires, 2011
Cognitive Sociolinguistics and Sociolinguistic Cognition

4/ The brain response to the speaker’s social identity

- appears as early as 200-300 ms after the beginning of a critical spoken word
- is manifested via the same electrophysiological activity as when constructing sentence meaning based on words (increase in the N400 wave)
- involves brain regions overlapping the processing of sentence meaning

ERP and IRMf studies: Van Berkum et al., 2008; Tesink et al., 2009; Loudermilk et al., 2011, submitted
Cognitive Sociolinguistics and Sociolinguistic Cognition

Points of convergence

Social Science

Cognitive Science

Sociolinguistics

Psycholinguistics

Social approaches to cognition

Cognitive approaches to the social

Cognitive Sociolinguistics

Sociolinguistic Cognition
Acquisition of variation lies at the intersection of two traditions:

- Social Science
  - Social approaches to cognition
  - Sociolinguistics
  - Linguistic knowledge: properties shared by communities
  - Attention to the diversity of the situations of dialect or language contact

- Cognitive Science
  - Cognitive approaches to the social
  - Psycholinguistics
  - Cognitive mechanisms involved in the acquisition of variation and the associated social meaning

Acquisition of variation in the new scientific landscape:
Acquisition of variation in the new scientific landscape

Acquisition of variation lies at the intersection of two traditions

Social Science

Social approaches to cognition

Psycholinguistics

Cognitive approaches to the social

Sociolinguistics

The most important approach in the available studies

Linguistics
Acquisition of variation lies at the intersection of two traditions: Linguistics and Cognitive Science. Social approaches to cognition and Cognitive approaches to the social are connected with Acquisition of Variation. To develop and couple with social approach, Sociolinguistics and Psycholinguistics are integrated.
Acquisition of variation in the new scientific landscape

Review of the studies over 40 years reveals 4 topics
Nardy, Ghimenton, Chevrot, Buson & Barbu, Iclave 2011
Nardy, Chevrot & Barbu, in revision

**Topic 1** - The appearance of adult-like sociolinguistic patterns during development
→ At what age do they appear? In what order? How do they evolve?

**Topic 2** - The relationship between the linguistic environment – family, peers, teacher – and the acquisition of sociolinguistic variation
→ Does exposure to input count? What input does count and at what age? How do these multiple influences combine?
Acquisition of variation in the new scientific landscape

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**Topic 3** - The motor for acquisition

→ Is acquisition guided by the awareness of social issues such as norms or identity? Or is it based on the statistical learning of implicit patterns? Both?

**Topic 4** - The cognitive nature of the mechanisms responsible for the acquisition of variation

→ Do children learn a symbolic mechanism as variable rules including social constraints? Or do they construct more concrete schemas, linking together social and linguistic information through exemplar-based learning?
Acquisition of variation in the new scientific landscape

Focus on topic 3 on the basis of an "old" issue in sociolinguistics: the social determinism of linguistic usages

**Topic 3 - The motor for acquisition**

→ Is acquisition guided by the awareness of social issues such as norms or identity? Or is it based on the statistical learning of implicit patterns? Both?
The (old) question of the social determinism of linguistic usages: a reformulation

Two opposing tendencies have divided the sociolinguistic approaches to variation:

1/ The interactional approach appears to assume that speakers are free to manipulate variants in order to achieve communicative aims.

2/ The variationist approach could give the impression that speakers' behaviour is determined by internal and external factors (Dittmar, 1983)

How can this debate be updated in the acquisition field?
The (old) question of the social determinism of linguistic usages: a reformulation

First question
Do the social differences observed in children's productions result from an early process of transmission in their environment? Or are these differences constructed through the gradual learning of differentiated social roles linked to social identity?

7 studies have observed social differences in children; children aged 3-10

All the studies point toward the same direction: in informal speech from the age of 3, the higher the social status, the more standard variants the child produces

The (old) question of the social determinism of linguistic usages: a reformulation

Another study has observed a relationship between the use of non-standard Scottish variants in 29 children aged 2 to 4 and their caretakers Above the age of 3, there was a significant correlation between the children's non-standard scores and those of their mothers

Smith, Durham & Richards, to appear

These results echo the psycholinguistic studies that have shown that the frequent units and linguistic constructions are acquired earlier

Gülzo & Gargarina, 2007; Diessel, 2007

Early age and automatic nature of this frequency effect

→ Statistical learning based on the implicit ability to recognize patterns in the environment
The (old) question of the social determinism of linguistic usages: a reformulation

Second question

How much does the utilization of the variants depend on knowledge of their social value?

Selecting variants on the basis of their social value can make children independent of earlier implicit learning.

Necessary to observe the relation between evaluation and production during acquisition.
The (old) question of the social determinism of linguistic usages: a reformulation

One study has been designed to observe this relation in children aged less than 6 years

Barbu, Nardy, Chevrot & Barbu, to appear

- Variable liaison, a sociolinguistic variable in French phonology
- Very clear social and stylistic stratification in adults

**Methodology**
- 180 children divided between four age groups, contrasting social backgrounds based on the SES of the two parents (workers vs managers)
- Production: Picture naming task
- Evaluation: The children had to indicate which puppet they thought was speaking more correctly
The (old) question of the social determinism of linguistic usages: a reformulation

Mean scores
- Production of the standard variant on the left
- Judgement in favour of the standard variant on the right

Production

Evaluation
The (old) question of the social determinism of linguistic usages: a reformulation

**Production of the standard variants**

Social difference increased between the ages of 2 and 6 years

---

**Judgements of the standard variants**

- Responses did not differ from chance level before the age of 5-6 years
- At 5-6 years, the higher-SES children judged the standard variants more favourably
The (old) question of the social determinism of linguistic usages: a reformulation

Between 4 and 6 years, positive correlation between children’s evaluations and productions.

Whatever their SES, the 4 to 6-year-olds who more correctly judged the liaisons also produced them more frequently.

This pattern does not support the idea that prior awareness of the social value of the variants favours the later emergence of the production capacities.

Another model of the relations between linguistic knowledge and social knowledge.
The (old) question of the social determinism of linguistic usages: a reformulation

The results again support the idea that continuous exposure to the input and the frequency of the variants play a central role.

Children of each SES progressively adjust the availability of the variants to their frequency in the input.
The (old) question of the social determinism of linguistic usages: a reformulation

Judgement task includes a metalinguistic component

The ability of individuals to make their existing knowledge more explicit and conscious: a process of
Representational Redescription

Karmiloff-Smith, 1992

Cognitive representations
- transformed into a mental code that is accessible to discourse
- verbalizable
- less dependent on the form they had at the time of their acquisition

One of the factors that trigger the Representational Redescription
- The degree of prior practical mastery (skill)
The (old) question of the social determinism of linguistic usages: a reformulation

This relationship between practical skill and Redescription accounts for
1/ the correlation between judgment and production
2/ the pattern of social differences

Higher-SES children
Mastery of the production $\rightarrow$ Redescription $\rightarrow$ Mastery of judgment

The same frequency dependant base of knowledge

Practical skill to select variants in production
Ability to judge them
The (old) question of the social determinism of linguistic usages: a reformulation

Third question
Are children "blocked" by the early influence of the environment? Are their usages rigid or sufficiently flexible to adapt to interactions?

10 studies have observed stylistic abilities in children aged 3-10

All the studies but one point toward the same direction: children use the standard variants more frequently in formal contexts

Reid, 1978; Macaulay, 1977; Chevrot et al., 2000; Romaine, 1984; Patterson, 1992; Roberts, 1994, variable (ing); Roberts, 1994/1997, variable (t,d); Díaz-Campos, 2005; Martin, 2005; Smith, Durham & Fortune, 2007; Smith, Durham & Richards, to appear

True in very young children, aged from 3-4

Smith, Durham & Richards, to appear
The (old) question of the social determinism of linguistic usages: a reformulation

Children's use of variants is not “blocked” by the early influence of the family environment.

Further support from another study: at a slightly later age, children adapt the variants use to the peers at school.

Nardy, 2008; Nardy, Chevrot & Barbu, in progress
The (old) question of the social determinism of linguistic usages: a reformulation

11 children, same nursery school class
   6 children from SES+
     • 3 girls & 3 boys
   5 children from SES-
     • 2 girls & 3 boys

2 observation periods
P1: mean age: 4;7 – May-June, 2nd year of nursery school
P2: mean age: 5;7 – May-June, 3rd year of nursery school

SES index:
   - based on both parents’ occupations
   - strong correlation with the social judgments of the teachers regarding the legitimacy of the families’ “cultural and linguistic” practices.
The (old) question of the social determinism of linguistic usages: a reformulation

Three types of data

1/ Phonological data concerning the use of sociolinguistic variables
   - Informal situation: interactions within the group of children
   - Formal situation: individual narrative with the interviewer

2/ Data regarding social relationships
   - Ethological approach: quantified observation of nature & frequency
     of interactions (*scan sampling*)
   - Sociometric approach: Preferences & prestige within the group

3/ Judgments regarding the acceptability of sociolinguistic variants
The (old) question of the social determinism of linguistic usages: a reformulation

The range of standard scores narrowed between the two periods in the non formal situation

First result
The (old) question of the social determinism of linguistic usages: a reformulation

The group average did not move towards that of the teacher, but towards non-standard usage.

This type of convergence was not observed in the formal situation.
The (old) question of the social determinism of linguistic usages: a reformulation

Second result

We calculated:
- a "language distance" between each pair of children
- the correlation between this distance and the number of interactions for each pair

The children who frequently interacted had a greater tendency to use variants in the same way.

The individuals addressed most often by others were the most frequent to use non-standard variants.

No findings of this kind were observed at P2 or in the formal situations.
The (old) question of the social determinism of linguistic usages: a reformulation

Third result

Whatever the statistical analyses, the period or the situation, no relationship was observed between the children's usages and sociometric tests and the judgments.
The (old) question of the social determinism of linguistic usages: a reformulation

Influence of exposure to the frequency of the variants occurs through the network of interactions between children

These frequency-related influences are not immutable properties of individuals.
Flexible: in non-formal situations only

A model of cognitive functioning that accounts for:
- these frequency-related influences
- their flexibility
- the construction of the link between linguistic and social knowledge

Theory of exemplars proposed by sociophonetics and Tomasello's usage-based theory of language acquisition
Pierrehumbert, 2006; Docherty & Foulkes, 2006, Tomasello, 2003
Schemas, exemplars and acquisition of variation: Toward an integrative model

Modeling of the acquisition of French variable liaison between adjective and noun

Nardy, 2008; Nardy, Chevrot & Barbu, in revision

1/ Liaison appears between two words when the second word start with a vowel when pronounced in isolation.
   In the adjective-noun sequence *gros arbre* ‘big tree’, the liaison /z/ can be realized ([ɡʁɔzabʁ]) or not realized ([ɡʁɔaʁbʁ]).

2/ The liaison consonant forms a syllable with the initial vowel of the following word.

3/ The preceding word determines whether the liaison consonant is realized and which liaison is realized:
   /z/ liaison after the adjective *gros* ‘big’
   /t/ after *petit* ‘small/little’
   no liaison at all after *joli* ‘pretty’.
The liaison consonant is encoded at an early age at the start of the variants of the nouns that follows.


The noun *arbre* exists in three forms in the child's lexicon:

- /nɑʁbʁ/
- /zaʁbʁ/
- /taʁbʁ/.

+ a vowel-initial variant: /aʁbʁ/
Schemas, exemplars and acquisition of variation: Toward an integrative model

An initial working hypothesis of the usage-based account: children memorize "concrete pieces of language" or chunks

Phonological forms matched to meaning, communicative intentions, socio-indexical information, extracted from the interactions

An adult word or sequence of words memorized as a whole.

Children memorize certain frequent chunks including an adjective and a noun

Some of these will contain a liaison:
/gəozərə̂k/, /gəozelefə̂/ ‘big tree’, ‘big computer’

Others will not:
/gəordinatə̂k/, /gəozelefə̂/ ‘big computer’, ‘big elephant’
A second working hypothesis of the usage-based account: acquisition proceeds through successive re-elaborations of this basic material (chunks).

The interconnections between chunks make it possible for productive schemas to emerge.

\[
gros + /zX/ \]

i.e. the adjective gros should be followed by the variant beginning with /z/
Schemas, exemplars and acquisition of variation: Toward an integrative model

1/ $X$: free slot where new elements can be inserted
2/ A convenient way of describing the pattern which connects memorized traces of language experiences

$\text{gros} + /zX/$
The child establishes a relation between the sequences which do not contain a liaison.

\[
\text{grocours} \quad \text{gros + /VX/}
\]

It permits the non-realization of the liaison.
Schemas, exemplars and acquisition of variation: Toward an integrative model

Competition between the two schemas determines the scores of realized liaison

gros + /zX/ ↔ gros + /VX/

Both types of schema can be elaborated further, leading to more abstract generalizations.
The process by which socio-indexical knowledge is elaborated is identical.

Nursery school teachers realize variable liaisons more frequently compared to parents speaking to their children.

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<tr>
<th>Group</th>
<th>Percentage</th>
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<tr>
<td>Nursery school teachers</td>
<td>18 %</td>
</tr>
<tr>
<td>(Nardy, 2008)</td>
<td></td>
</tr>
<tr>
<td>Parents speaking to their children</td>
<td>13 %</td>
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<td>(Liégeois et al., 2011)</td>
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Children may associate memorized chunks containing a liaison associated with socio-indexical information: e.g. image of their teacher.
Schemas, exemplars and acquisition of variation: Toward an integrative model

Relations between chunks

Social schemas are linked to the linguistic schemas

/grozebr/  "speech out of home"

/tropidjo/

The process of schema formation takes place in parallel at both the linguistic and the socio-indexical levels

Munson, 2010
Schemas, exemplars and acquisition of variation: Toward an integrative model

This theoretical framework attempts to integrate social, linguistic and cognitive aspects

= Cognitive approach to the social dimension that is open to the social approaches to cognition
Schemas, exemplars and acquisition of variation: Toward an integrative model

Two different ways of linking the representations 'within the mind' with those that are "shared by the community"

- Frequency effects through the networks of interactions
- Automatic social influences below the level of consciousness
- The most abstract levels of schemas become verbalizable
- Transmission of socio-indexical knowledge through discourse and education.
Schemas, exemplars and acquisition of variation: Toward an integrative model

Many aspects of this theoretical framework still need to be detailed.

Its main benefit: its ability to "shed greater light on how socio-indexical phonetic properties are integrated within speech production, perception and acquisition."

Docherty & Foulkes, in press

Testing a framework of this type would enable sociolinguistics to claim a central position in current attempts to integrate the linguistic, cognitive and social aspects of human functioning.
Thank you for your attention....

(And thank you, Gunther & Matthias, for having organized this workshop...)

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