

Social Meaning, Sociolinguistic Variation and Game-Theoretic Pragmatics: Introduction

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Welcome to ESSLLI 2017!

Course website

<https://www.irit.fr/esslli2017/courses/6>

Apéro socio (ApSo)

Picnic to talk about social meaning (and other things...)

Thursday Evening 20h15

- ▶ After evening lecture: *Logic, Information, and Computational Social Choice*.

Port de la Daurade (in front of the Place de la Daurade)
BYOB (and food)



This course

Main goal

To explore how recent developments in formal pragmatics, particularly **game theoretic** pragmatics, can be used to develop a framework for the formal analysis of **social meaning** and **sociolinguistic variation**.

What is social meaning?

A first definition. . .

Information encoded in pronunciations, morphemes, words or constructions that expresses aspects of the speakers' properties, stances and identities.

First examples: Expressives

- (1) T-V distinction
- a. Je peux **vous** aider?
 - b. Je peux **t'**aider?
'Can I help you?' (also honorifics)
- (2) Swear words
- a. Mike Tyson won another fight. (McCready, 2012)
 - b. **Fucking** Mike Tyson won another fight. He's wonderful.
 - c. **Fucking** Mike Tyson got arrested again for domestic violence.

First examples: Discourse particles

(3) Terms of address

- a. What are we doing tonight? (Kiesling, 2004)
- b. **Dude**, what are we doing tonight?
- c. **Babe**, what are we doing tonight?

(4) Discourse *like*

- a. What are we doing tonight?
- b. **Like**, what are we doing tonight?

Functional categories

- (5) Optional determiners (Acton, 2014)
- a. Americans love cars.
 - b. **The** Americans love cars.
- (6) Grammatical gender (Burnett and Bonami, 2017)
- a. La parole est à Madame **le** ministre. Masculine
 - b. La parole est à Madame **la** ministre. Feminine
- (7) Intensifiers (Beltrama and Staum Casasanto, 2017)
- a. John is **really** tall.
 - b. John is **totally** tall.

First examples: Sociophonetic variables

(8) (ING)

- a. I'm work**ing** on my paper. [iŋ]
b. I'm work**in'** on my paper. [in]

(9) /t/ release

- a. We should mee**[tʰ]**. released 't'
b. We should mee**[t]**. unreleased 't'

(10) Creaky voice

- a. Oh my god. modal voice
b. **Oh my god...** creak

Social meaning has been extensively studied:

- ▶ In linguistic anthropology and socio-cultural linguistics (see Bucholtz and Hall, 2005, 2008, for reviews).
- ▶ In variationist (quantitative) sociolinguistics (Labov, 1963), especially within the [Third Wave](#) approach (Eckert, 2000, 2012).
- ▶ In formal semantics/pragmatics (Kaplan, 1999; Potts, 2005; McCready, 2004; Smith et al., 2010; Acton, 2014; Beltrama, 2016; Burnett, 2017) (also: the papers at the IASM workshop next week!).

Social meaning has been extensively studied:

- ▶ In linguistic anthropology and socio-cultural linguistics, more generally (see Bucholtz and Hall, 2005, 2008, for reviews).
- ▶ In variationist (quantitative) sociolinguistics (Labov, 1963), especially within the **Third Wave** approach (Eckert, 2000, 2012).
- ▶ In formal semantics/pragmatics (Kaplan, 1999; Potts, 2005; McCready, 2004; Smith et al., 2010; Acton, 2014; Beltrama, 2016; Burnett, 2017) (also: the papers at the IASM workshop!).

This course contributes to the research programme bringing these different subfields together.

Questions explored in this course

1. Is social meaning a unified phenomenon?
2. Are the inferences triggered by socially meaningful expressions significantly different from other kinds of pragmatic inferences?
3. What are appropriate formal frameworks for modelling social meaning and its relationship to sociolinguistic variation, scalar implicatures?

Questions explored in this course

1. Is social meaning a unified phenomenon?
 - ▶ **Hypothesis:** Inferences about speaker properties/identities/stances can be triggered by aspects of the truth-conditional, expressive and indexical meaning of their utterance.
2. Are the inferences triggered by socially meaningful expressions significantly different from other kinds of pragmatic inferences?
3. What are appropriate formal frameworks for modelling social meaning and its relationship to sociolinguistic variation, scalar implicatures?

Questions explored in this course

1. Is social meaning a unified phenomenon?
2. Are the inferences triggered by socially meaningful expressions significantly different from other kinds of pragmatic inferences?
 - ▶ **Hypothesis:** Social implicatures are generated by the same general mechanisms as other kinds of pragmatic inferences (interactive, rational, informativity-based reasoning).
3. What are appropriate formal frameworks for modelling social meaning and its relationship to sociolinguistic variation, scalar implicatures?

Questions explored in this course

1. Is social meaning a unified phenomenon?
2. Are the inferences triggered by socially meaningful expressions significantly different from other kinds of pragmatic inferences?
3. What are appropriate formal frameworks for modelling social meaning and its relationship to sociolinguistic variation, scalar implicatures?
 - ▶ **Hypothesis:** Game theory will give us a mathematical and computational framework for bringing social meaning and sociolinguistic variation into the scope of formal pragmatics.
 - ▶ This framework will be articulated using **Iterated Best Response signalling game** models (Franke, 2009; Frank and Goodman, 2012; Franke and Jäger, 2016, a.o.).

Plan

Introduction

Diagnosing social meaning: sounds

- Sociophonetic interpretation
- Sociophonetic variation

Diagnosing social meaning: beyond sounds

- Code switching
- Morpho-syntax & lexicon

Introduction to Game Theory

- Architecture
- Nash equilibrium
- Modelling of code switching example

Social Meaning as Pragmatic Enrichment

(11) (ING)

- a. I'm working on my paper. [ɪŋ]
b. I'm workin' on my paper. [ɪn]

- ▶ From (11-a), we conclude the speaker is working on their paper.
 - ▶ We infer something additional. . .
- ▶ From (11-b), we conclude the speaker is working on their paper.
 - ▶ We infer something additional. . .

Diagnosing social meaning

Two ways of diagnosing a social meaning difference between alternatives:

1. **Interpretation:** Judgments or interpretation experiments.
2. **Variation:** Socially conditioned patterns of use.

Matched Guise Technique

Matched Guise Technique (Lambert, 1967, et seq.)

An experimental method widely used in social psychology and variationist sociolinguistics to assess listeners' implicit attitudes towards speakers of different linguistic varieties.

- ▶ Participants listen to samples of recorded speech that have been designed to differ in specific and controlled ways.
- ▶ They hear one of two recordings (**guises**) which differ only in the alternation studied.
- ▶ After hearing a recording, participants' attitudes towards the recorded speaker are assessed (via interviews/focus groups and/or questionnaire/survey).

Campbell-Kibler (2006, 2007): A MGT study with stimuli formed from the speech of 8 speakers.

Sample results

1. Speakers were rated as significantly more **educated** and more **articulate** in their *-ing* guises than in their *-in'* guises.
2. Speakers were significantly more likely to be described as a **redneck** in their *-in'* guises than in their *-ing* guises.
3. One male speaker (Jason) is significantly more likely to be described as **gay** in his *-ing* guise.

Podesva et al. (2015): A MGT study with stimuli formed from the speech of 6 American politicians (Obama, Edwards, Pelosi, W. Bush, H. Clinton, Rice).

Sample results

- ▶ John Edwards is rated as significantly more **articulate**, more **authoritative** and less **Southern** in his released /t/ guise than in his flapped guise.
- ▶ Articulateness has been associated with released /t/ in other studies (Bunin Benor, 2001; Bucholtz, 1996; Podesva, 2006; Eckert, 2008).
- ▶ Nancy Pelosi is rated as significantly more **sincere** and **friendly** in her non-released/flapped guise than in her released /t/ guise.

Diagnosing social meaning: variation

We can also observe social meaning differences through studies of socially conditioned variation:

1. **Style shifting:** Intra-speaker differences in use based on social situation.
2. **Social stratification:** Inter-speaker differences in use based on social group.

If we find differences in how people in different social contexts and of different social groups use variants, there must be some (possibly slight) meaning difference between them that makes speakers in one context/social group to prefer one variant over another.

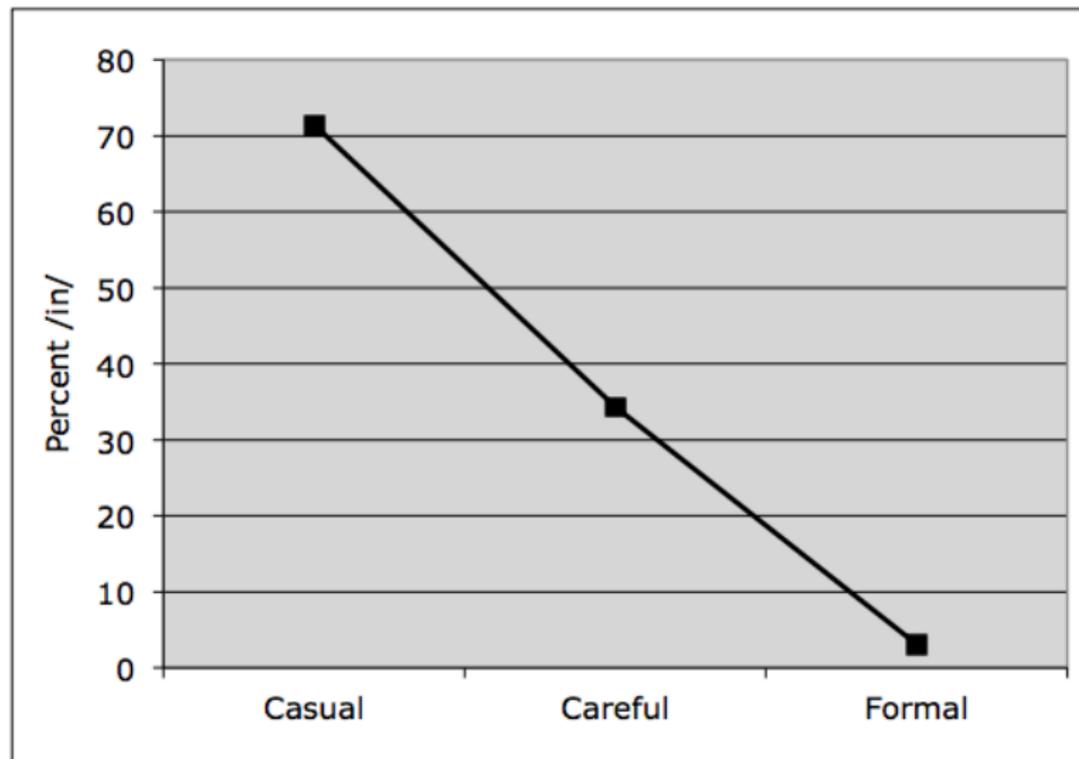
Style Shifting (Intra-Speaker Variation)

(Labov, 2012, 22) finds significant differences in President Obama's use of (ING) across three contexts.

- ▶ **Casual:** BBQing at a Father's Day BBQ on the White House lawn (72% -in').
- ▶ **Careful:** Answering political questions after the BBQ (33% -in').
- ▶ **Formal:** Scripted acceptance speech at the DNC (3% -in').

Obama's Use of (ING) (Labov, 2012)

Figure 3. President Obama's use of (ING) in three contextual styles.



Convention

Why this pattern?

Labov (2012): As a community, we have **conventionally** associated meanings with *-in'* and *-ing*, which allow us to communicate extra information to each other through phonetic variation.

- ▶ *This consensus is publicly available and in one sense, understood by all. In the classroom, or on the pulpit, people will attribute the use of the **-in'** form to laziness, ignorance, or just plain rascality.*
- ▶ *Yet the high value we put on the **-in'** norm in other contexts is not hidden from public view. When we see the large illuminated sign, DUNKIN' DONUTS, we recognize the claim that **dunkin'** doughnuts taste better than **dunking** doughnuts. . .*
- ▶ *A Philadelphia travel agency is named with an electric sign spelling out CRUSIN'. We understand this as an advertisement that we will have a better time **cruisin'** than we would **cruising**. (Labov, 2012, 22)*

Beyond Obama

Style shifting is widespread.

- ▶ Podesva (2004) (cited in Eckert (2005)) finds significant differences in a medical student's use of /t/ release in a clinic setting and when he is at a BBQ.
- ▶ More and more studies of private citizens (Cheshire, 1982; Podesva, 2007; Kiesling, 2009; Gratton, 2015; van Hofwegen, 2017, among others).

Social Stratification (Inter-Speaker Variation)

Labov (1963)'s study of /aw/, /ay/ centralization.

- ▶ 69 sociolinguistic interviews on Martha's Vineyard, an island south of Cape Cod in Massachusetts.
- ▶ The main industries on the Vineyard were in the process of moving from whaling and fishing to tourism, creating significant hardships for islanders who had built their lives around the fishing industry.
- ▶ Labov's participants were divided with respect to how they viewed these changes, having reactions "varying from a fiercely defensive contempt for outsiders to enthusiastic plans for furthering the tourist economy" (Labov, 1963, 28).

Social meaning on Martha's Vineyard

Observation

Rather than being conditioned by gender, age or other similar categories, centralization on Martha's Vineyard was best predicted through looking at speakers' orientations towards or away from the island and the old way of life.

- ▶ More locally oriented individuals show much higher degrees of centralization (Labov, 1963, 30).

	Speaker 1	Speaker 2
Down-island, leaving	00-40	00-00
Up-island, staying	90-100	113-119

Table: Centralization indexes for four 15 year old students

Style at Belten High (Eckert, 2000)

Eckert (1989, 2000)'s studies of **styles** (collections of variables/other semiotic resources) in Belten High, a high school in a middle class suburb of Detroit.

- ▶ Within the high school, there was a high degree of inter-speaker variation, polarized largely around two social groups in the school: the *jocks* and the *burnouts*.
- ▶ Members of these two groups distinguished themselves through their actions, their attitudes, their ways of dressing.
- ▶ Members of these two groups also distinguished themselves through their use of sociophonetic variables.

We are what we do

In the whole population, use of variants was best predicted by students' urban/suburban orientation and/or institutional engagement.

- ▶ Urban orientation measured by activities like **cruising**.
- ▶ Institutional engagement measured by participation in (school's) **extra-curricular activities**.

Variable		+Cruising	-Cruising	Input	Sig.
(^) backing	Girls	.563	.458	.422	.000
	Boys	.530	.460	.447	.014
(e) backing	Girls	.544	.464	.331	.029
	Boys	.557	.437	.368	.001
(ay) raising	Girls	.765	.381	.011	.000
	Boys	.636	.295	.009	.004
...

Table: Factor weights for cruising at Belten High (Eckert, 2000, 151)

Beyond sounds (code switching)

Woolard (1989, 2009); Woolard and Gahng (1990)

The social meaning of Catalan vs Castilian in Barcelona (1983-2007).

- ▶ Under Franco, the Catalan language was repressed in Catalonia, with Castilian being the sole language of government and education.
- ▶ After Franco's death, Catalonia became autonomous and officially bilingual.
- ▶ Aggressive policies making Catalan the language of government and education.

Why are Castilian speakers resisting Catalan?

Age group	Catalonia-born	Speak Catalan frequently
15-20	87%	43%
21-30	68%	49%
31-40	48%	44%
41-50	45%	46%
51-60	53%	58%

Table: Linguistic profile of Adults in BCN in 1983, based on (Woolard and Gahng, 1990, 64)

- ▶ Young WC native Castilian speakers are particularly resistant to Catalan.

Social meaning differences: Catalan vs Castilian

Woolard (1989): A MGT experiment in 1980 with young Catalan and Castilian speakers (and native Catalan and Castilian guises).

- ▶ (Non)native Catalan guises were rated significantly higher on **status** properties (intelligent, cultured, hardworking. . .) by everyone.
- ▶ Non-native Catalan guises were rated very low on **solidarity/friendliness** properties (likeable, amusing, attractive. . .) by native Castilian speakers.
- ▶ Native Castilian guises were rated very high on **solidarity/friendliness** properties by native Castilian speakers.

If you are Castilian:

- ▶ If you speak in Catalan, you may sound more intelligent, but you may also sound unfriendly.
- ▶ If you speak Castilian, you may sound friendlier, but you may also sound less intelligent.

Speakers who value solidarity over status should choose Castilian.

Socio-semantic change

Woolard (2009, 2016): Same MGT experiment in 2007.

- ▶ Catalan guises were rated significantly higher on status properties by everyone.
- ▶ No difference on solidarity/friendliness properties for any speakers and any guises.

Speakers who value solidarity over status should not necessarily choose Castilian.

Change in meaning correlates with change in use

- ▶ Habitual use of Catalan by native born Catalonians rises to 65.3% in 2012 (Gov. Catalonia, 2013).
- ▶ Much more use by young native Castilian speakers (Woolard, 2009, 2016).
- ▶ 'Severing' of the link between language and ethnicity in Catalonia.

Question

Can we apply these same social meaning diagnostics to phenomena more commonly studied in formal semantics and pragmatics?

Intensifiers with open scale adjectives

- (12) a. John is **very** tall.
b. John is **really** tall.
c. John is **totally** tall.

Many formal semantic analyses of intensifiers within degree (free) approaches. . .

Contribution to identity construction

- ▶ Beltrama and Staum Casasanto (2017): In a MGT experiment, speakers using *totally* (12-c) are rated as significantly more friendly, outgoing and cool.
- ▶ Speakers using *totally* are rated as significantly less intelligent, mature and articulate.

Optional determiners

- (13) a. Americans love cars.
b. **The** Americans love cars.

Many formal semantic analyses of definites and bare plurals. . .

Contribution to identity construction (Acton, 2014, 110)

- ▶ Expressing social relations between group members.

Party	<i>Dem the-%</i>	<i>Rep the-%</i>	<i>Dem N</i>	<i>Rep N</i>
Democrats	30.4%	54.4%	11,352	18,992
Republicans	53.3%	26.1%	13,007	11,042

Summary

- ▶ Listeners draw inferences about the properties that characterize the speaker based on their language use.
 - ▶ These inferences play a role in determining which variants speakers' chose.
- ▶ Phonological variants have identity constructing functions.
 - ▶ Morpho-syntactic and lexical variants also have identity constructing functions.

Summary

- ▶ Listeners draw inferences about the properties that characterize the speaker based on their language use.
 - ▶ These inferences play a role in determining which variants speakers' chose.
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Rest of this course

Develop a formal account of social implicatures and the identity construction process using the tools from [game-theoretic pragmatics](#).

What is Game Theory?

Game theory is a mathematical formalism for describing situations of **strategic interaction**.

- ▶ *Since at least the late 1970s it has been possible to say with confidence that game theory is the most important and useful tool in the analyst's kit whenever she confronts situations in which what counts as one agent's best action (for her) depends on expectations about what one or more other agents [might] do, and what counts as their best actions (for them) similarly depend on expectations about her.*

Ross, Don. (2016, Winter update) "Game Theory." *The Stanford Encyclopedia of Philosophy*. Edward N. Zalta (ed.)
<http://plato.stanford.edu/entries/game-theory/>.

Game Theory Basics

Basic components of a game (see Osborne and Rubinstein, 1994)

- ▶ There are (at least) two players.
- ▶ The players interact and the interaction results in a particular outcome.
- ▶ The outcome of the interaction depends on the choice of strategy of each player.
- ▶ Each player has a preference ordering over outcomes.
 - ▶ Preferences are usually encoded as numerical values (utilities or payoffs) that are assigned to possible outcomes (u).

Strategic game (with ordinal preferences)

1. a set of players ($N = \{p_1, \dots, p_n\}$).
2. for each player, a set of actions ($\langle A_1, \dots, A_n \rangle$).
3. for each player, preferences over the set of action profiles ($A_1 \times \dots \times A_n$).

Action profiles

Tuples of all possible combinations of individual choices.

- ▶ For two players i, j , with two sets of actions A_i, A_j , this game's action profiles are $A_i \times A_j$.
- ▶ So $u(\langle a_i, a_j \rangle) = n$ for some $n \in \mathbb{N}$.

Prisoner's dilemma

- ▶ Two suspects in a major crime are held in separate cells. There is enough evidence to convict each of them of a minor offense, but not enough evidence to convict either of them of the major crime unless one of them acts as an informer against the other (**confess**).
- ▶ If they both stay quiet (**deny**), each will be convicted of the minor offense and spend one year in prison.
- ▶ If one and only one of them confesses, she will be freed and used as a witness against the other, who will spend four years in prison. If they both confess, each will spend three years in prison.

Strategic game

- ▶ Players: $N = \{\text{player 1, player 2}\}$
- ▶ $A = \{\text{confess, deny}\}$
- ▶ Preferences over action profiles: $\{u_1, u_2\}$

(16) Constraints on us

- $u_1(\text{confess, deny}) > u_1(\text{deny, deny}) > u_1(\text{confess, confess}) > u_1(\text{deny, confess})$
- $u_2(\text{deny, confess}) > u_2(\text{deny, deny}) > u_2(\text{confess, confess}) > u_2(\text{confess, deny})$

	<i>c</i>	<i>d</i>
<i>c</i>	2,2	0,3
<i>d</i>	3,0	1,1

Figure 1.1: The prisoner's dilemma

Solution Concept

This game is really just a model of the situation and does not specify what the agents in fact do, (or should do, if we are being prescriptive).

Solution concept

An algorithm that specifies how the game is/should be played.

- ▶ Specifies the idealized behavior of agents in the situation that is modelled by the game.

Nash equilibrium

An action profile a^* with the property that no player i can do better by choosing an action different from a_i^* , given that every other player j adheres to a_j^* .

(17) an action profile a^* such that for all $i \in N$ there is no $a_i \in A_i$ for which

$$(a_{-i}^*, a_i) \prec_i a^*$$

(a_{-i}^*, a_i) is the tuple that results from replacing the i -th component of a^* with a_i .

Prisoner's Dilemma

The action pair (confess, confess) is a Nash equilibrium because

- ▶ given that player 2 chooses confess, player 1 is better off choosing confess than deny.
- ▶ given that player 1 chooses confess, player 2 is better off choosing confess than deny.

No other action profile is a Nash equilibrium.

Social meaning and code-switching

(Woolard and Gahng, 1990): Ethnically (bilingual) Castilian speakers in 1980s Catalonia.

- ▶ Players = {Castilian speaker 1, Castilian speaker 2}
- ▶ A = {speak Castilian, speak Catalan}
- ▶ Preferences over action profiles = $\{u_1, u_2\}$

Payoff functions for 1980s Catalonia

For Castilian speakers speaking to Castilian speakers:

- ▶ Speaking Catalan makes you sound more intelligent, competent etc. than speaking Castilian.
 - ▶ +1 for Catalan; -1 for Castilian.
- ▶ Speaking Catalan makes you sound less likeable, attractive etc. than speaking Castilian.
 - ▶ -1 for Catalan; +1 for Castilian.

Sample payoff functions

	Catalan	Castilian
Catalan	0,0	0,0
Castilian	0,0	0,0

4 equilibria

If you grew up speaking Castilian, there is no motivation to change.

Payoff functions for 2000s Catalonia

For Castilian speakers speaking to Castilian speakers:

- ▶ Speaking Catalan makes you sound more intelligent, competent etc. than speaking Castilian.
 - ▶ +1 for Catalan; -1 for Castilian.
- ▶ No difference in solidarity/likeability for speaking Castilian/Catalan.

Sample payoff functions

	Catalan	Castilian
Catalan	1,1	1,0
Castilian	0,1	0,0

1 equilibrium: Catalan

Switching to Catalan is always the best strategy.

- ▶ Beginning of a meaning-based model of the spread of Catalan in Barcelona.

Looking ahead...

Class 2

Phenomena with analyses in both sociolinguistics and semantics/pragmatics: discourse particles, politeness, and honorifics.

- ▶ **Formal tools:** Signalling games.

Classes 3 and 4

A formal semantics/pragmatics for sociophonetic variation. Style shifting and social stratification.

- ▶ **Formal tools:** Iterated Best Response models.

Class 5

Socio-semantic change.

- ▶ **Formal tools:** Evolutionary game theory.

References I

- Acton, E. K. (2014). *Pragmatics and the social meaning of determiners*. PhD thesis, Stanford University.
- Beltrama, A. (2016). *Bridging the gap. Intensifiers between semantic and social meaning*. PhD thesis, University of Chicago.
- Beltrama, A. and Staum Casasanto, L. (2017). Totally tall sounds totally younger: Intensification at the socio-semantics interface. *Journal of Sociolinguistics*, 21(2):154–182.
- Bucholtz, M. (1996). Geek the girl: Language, femininity, and female nerds. *Gender and belief systems*, pages 119–132.
- Bucholtz, M. and Hall, K. (2005). Identity and interaction: A sociocultural linguistic approach. *Discourse studies*, 7(4-5):585–614.
- Bucholtz, M. and Hall, K. (2008). All of the above: New coalitions in sociocultural linguistics. *Journal of Sociolinguistics*, 12(4):401–431.
- Bunin Benor, S. (2001). The learned /t/: phonological variation in orthodox jewish english. *University of Pennsylvania Working Papers in Linguistics*, 7(3):2.
- Burnett, H. (2017). Sociolinguistic interaction and identity construction: The view from game-theoretic pragmatics. *Journal of Sociolinguistics*, 21(2):238–271.
- Burnett, H. and Bonami, O. (2017). Madame le/la ministre: Variation and change in grammatical gender in the Assemblée Nationale. *Under review*.
- Campbell-Kibler, K. (2006). *Listener perceptions of sociolinguistic variables: The case of (ING)*. PhD thesis, Stanford University.
- Campbell-Kibler, K. (2007). Accent,(ing), and the social logic of listener perceptions. *American speech*, 82(1):32–64.
- Cheshire, J. (1982). Variation in an english dialect: A sociolinguistic study. *Cambridge Studies in Linguistics London*, 37.
- D'Arcy, A. F. (2005). *Like: Syntax and development*. PhD thesis, University of Toronto.
- Eckert, P. (1989). The whole woman: Sex and gender differences in variation. *Language variation and change*, 1(03):245–267.

References II

- Eckert, P. (2000). *Language variation as social practice: The linguistic construction of identity in Belten High*. Wiley-Blackwell.
- Eckert, P. (2005). Variation, convention, and social meaning. In *Annual Meeting of the Linguistic Society of America*. Oakland CA, volume 7.
- Eckert, P. (2008). Variation and the indexical field. *Journal of sociolinguistics*, 12(4):453–476.
- Eckert, P. (2012). Three waves of variation study: The emergence of meaning in the study of sociolinguistic variation. *Annual review of Anthropology*, 41:87–100.
- Frank, M. C. and Goodman, N. D. (2012). Predicting pragmatic reasoning in language games. *Science*, 336(6084):998–998.
- Franke, M. (2009). *Signal to act: Game theory in pragmatics*. PhD thesis, Institute for Logic, Language and Computation.
- Franke, M. and Jäger, G. (2016). Probabilistic pragmatics, or why bayes' rule is probably important for pragmatics. *Zeitschrift für Sprachwissenschaft*, 35:3–44.
- Gov. Catalonia (2013). *Language Use of the Population of Catalonia*. Catalonia Ministry of culture.
- Gratton, C. (2015). Indexin' gender: variable (ING) and the creation of non-binary trans identities. *New Ways of Analyzing Variation*, 44.
- Kaplan, D. (1999). The meaning of ouch and oops: Explorations in the theory of meaning as use. *Manuscript, UCLA*.
- Kiesling, S. F. (2004). Dude. *American Speech*, 79(3):281–305.
- Kiesling, S. F. (2009). Style as stance. *Stance: sociolinguistic perspectives*, 171.
- Labov, W. (1963). The social motivation of a sound change. *Word*, 19(3):273–309.
- Labov, W. (2012). *Dialect diversity in America: The politics of language change*. University of Virginia Press.
- Lambert, W. E. (1967). A social psychology of bilingualism. *Journal of social issues*, 23(2):91–109.
- Lasersohn, P. (1999). Pragmatic halos. *Language*, pages 522–551.
- Maddeaux, R. and Dinkin, A. (2017). Is like like like?: Evaluating the same variant across multiple variables. *Linguistics Vanguard*, 3(1).

References III

- McCready, E. (2004). Two Japanese adverbials and expressive content. In *Semantics and Linguistic Theory*, volume 14, pages 163–178.
- McCready, E. (2012). Emotive equilibria. *Linguistics and Philosophy*, pages 1–41.
- Osborne, M. J. and Rubinstein, A. (1994). *A course in game theory*. MIT press.
- Podesva, R. (2004). On constructing social meaning with stop release bursts. In *Sociolinguistics Symposium*, volume 15.
- Podesva, R. (2006). *Phonetic detail in sociolinguistic variation: Its linguistic significance and role in the construction of social meaning*. PhD thesis, Stanford University.
- Podesva, R. (2007). Phonation type as a stylistic variable: The use of falsetto in constructing a persona. *Journal of Sociolinguistics*, 11(4):478–504.
- Podesva, R. J., Reynolds, J., Callier, P., and Baptiste, J. (2015). Constraints on the social meaning of released/t: A production and perception study of US politicians. *Language Variation and Change*, 27(01):59–87.
- Potts, C. (2005). The logic of conventional implicatures.
- Siegel, M. E. (2002). Like: The discourse particle and semantics. *Journal of Semantics*, 19(1):35–71.
- Smith, E., Hall, K. C., and Munson, B. (2010). Bringing semantics to sociophonetics: Social variables and secondary entailments. *Laboratory Phonology*, 1(1):121–155.
- van Hofwegen, J. (2017). *Everyday styles: Investigating the full scope of variation in the life of an individual speaker*. PhD thesis, Stanford University.
- Woolard, K. A. (1989). *Double talk: Bilingualism and the politics of ethnicity in Catalonia*. Stanford University Press.
- Woolard, K. A. (2009). Linguistic consciousness among adolescents in Catalonia: A case study from the Barcelona urban area in longitudinal perspective. *Zeitschrift für Katalanistik*, 22.
- Woolard, K. A. (2016). *Singular and plural: Ideologies of linguistic authority in 21st century Catalonia*. Oxford University Press.
- Woolard, K. A. and Gahng, T.-J. (1990). Changing language policies and attitudes in autonomous Catalonia. *Language in Society*, 19(3):311–330.