

Prosodic consequences of being a *Beur*: French in Contact with Immigrant Languages in Paris

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1 The speech community

La Courneuve, a town of about thirty-five thousand people, is one of the poorest peripheral urban areas of the French capital. Residents of the department of Seine-Saint-Denis where the town is located (Figure 1) had the lowest annual income of all areas of greater Paris in 1990 (Soulignac 1993), a trend which, during the nineties, led to the “global impoverishment of the population” who now earn six to fifteen times less than residents of the wealthiest areas situated North-West of the capital (ORGECO 2001). Between 30 and 38% of the active population (ages 25 to 49) are regularly out of work, 59% of them for a year or longer. The picture becomes even grimmer when one considers that 23% of the town’s population are younger than 14 years old, and almost as many are children of recent immigrants.

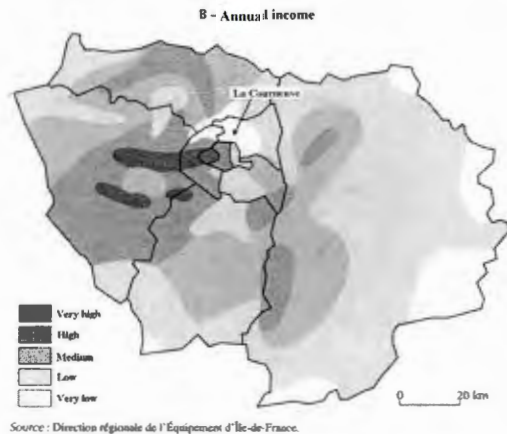


Figure 1: The town of *La Courneuve*, among the poorest working-class neighborhoods North of Paris (adapted from Soulignac 1993)

The town is known for its housing projects, among them *La Cité des Quatre-Mille*, ‘the housing project of Four-Thousand’, home to the poorest

urban poor of different ethnic origins. The majority are of African origin, and primarily Muslim. *La Cité* became infamous during the violent racial riots which shook France in the 1980s, and its residents are still often depicted in sensationalist French and foreign press reports as involved in drug dealings, clashes with the police, collective rape, and even Islamic Jihad (Le Monde 3/10/1995; NYT 10/16/2001).

The youth living in such impoverished *banlieues* ‘suburbs’ in and around big cities in France also regularly make the headlines for “inventing a new way of speaking French”. According to a series of news coverage, which has crystallized into a well-circumscribed stereotype since the late eighties (Fagyal, in press), these “movers and shakers” of language change in French would be *Beurs* (verlan¹ for *arabe* ‘Arabic’), i.e. male adolescents of North-African descent born in France. Besides being on the forefront of lexical innovation, these speakers are claimed to have a peculiar prosody which supposedly arises from “shifting the accent to a syllable other than the final [in the phrase]” (Cerquiglini 2001). This pattern would be handed down from rap music (Calvet 1994), and influence all adolescents.

2 Prosody in Contact?

2.1 Hypotheses

Although these claims strongly resemble ethnic stereotypes rather than serious hypotheses, it is more difficult to dismiss the intuitions of French sociolinguists who also point out the possibility of prosodic contact in ethnically mixed working class suburbs of large urban areas in France. On the one hand, the idea that immigrant languages could have influenced local varieties of the host language is remarkable, because it goes against what variationist sociolinguistics seems to have witnessed so far in American English:

[quantitative sociolinguistics] has been repeatedly unable to confirm the hypothesis that [...] the language of a community will be influenced when it acquires large numbers of speakers with [such] foreign language background (Labov 2001:246)

On the other hand, in at least one other heterogeneous speech community such an influence has been documented: according to Horvath (1991), immigrants and their children proved to be important agents of language change

¹*Verlan* (from *envers* ‘backwards’) is a language game, and a symbol of identity of working class youth. It is based on syllable inversion within the word.

in Australian English spoken in Sydney. This suggests that demographic, social-historical, and maybe other differences between speech communities play a role in the way immigrants are integrated in a host community.

However, the French sociolinguistic literature is also divided about the question. Billiez (1992), based on fieldwork conducted in housing projects in Grenoble, mentions for the first time a “phrasal accent falling on the penultimate and not the final syllable, as it is the rule in French” in the vernacular of adolescent male peer groups (also quoted in Calvet 1994:287). The pattern is recognized by Méla as “a word or phrase accent falling on the penultimate” (1997:27) which, she argues, is a prosodic pattern middle-class speakers tend to associate with the youth of North-African origin. Conein and Gadet (1998), reviewing linguistic features attributed to this allegedly new variety of French, refer to this pattern as “the lengthening of the penultimate”, and conclude that it is a “hereditary” feature of working class French, documented by others before (Straka 1952; Mettas 1979). As far as phoneticians are concerned, however, Duez and Casanova’s (1997) sobering conclusion is that, based on movie-sound tracks and television interviews featuring adolescents of African origin, there is no evidence of any “atypical” lengthening indicative of a phrasal accent. None of these studies illustrate their claims with acoustic data, although Conein and Gadet (1998:109-110) provide transcripts from their corpus (syllables heard as lengthened are bolded and followed by two points):

- (1) *tu t'rends: compte*
'do you realize'
- (2) *de: quoi ?*
'of what?'
- (3) *mon père il est jamais là / pi dès qu'il est là il m'fait: chier*
'my father he is never here / when he is he gets on my nerves'

These examples, however, do not yield a clear picture. Supposing that each of them occurs in one Accentual Phrase (AP), which is the prosodic domain of accent placement in French², the word *rends* in (1) is certainly in penultimate position in the AP, but it is also a monosyllabic lexical word which can be accented in any prosodic position within a larger phrase. The same is true for the word *fait* in the second part of example (3). On top of these problems with prosodic positions, *rends* in (1) contains an inherently long nasal vowel, thus lengthening of this syllable can come from at least three factors. As for

²Throughout the paper, I will follow the autosegmental-metrical model of French intonation elaborated by Jun and Fougeron (2002).

the function word *de* in (2), it is indeed usually unaccented, but it is also simultaneously the penultimate and the initial syllable of the AP. Thus the two positions should be tested separately before claiming that the lengthening of *de* is due to its occurrence in one of them. In the first part of example (3), the syllable *-mais* in *jamais* is, indeed, in penultimate position in the phrase, but it is final in the word. Since the final non-schwa syllable of any content word can bear an AP-final pitch accent, the claim between an AP-penultimate rather than an AP-final accentuation relies crucially on the absence of any, even a minor, prosodic break following *-mais* and preceding *là*. Thus, if the *il est jamais là* ‘he is never here’ portion of example (3) is *not* a single AP, the hypothesis of a “penultimate” phrase accent does not hold. In light of all these complexities, authentic speech data had to be collected from the adolescents themselves.

2.2 Data Collection

Between 2000 and 2002, I conducted six fieldwork sessions of variable length (from two weeks to two months) in a *collège* ‘middle/junior high school’ in *La Courneuve*. These adolescents’ street culture, including rituals of language use, have been previously documented in an ethnography (Le-poutre 1997) which, together with insiders’ advice about the local ways and customs, helped me when approaching a closed community where outsiders are rarely talked to by the most influential members of adolescent peer groups.

In two years, I recorded eighty-five girls and boys between 11 and 15 years of age, born and living in the community. I talked to them during breaks, before or after school, during rugby games, but never in the classroom. I also tried to distance myself from the teachers. During the first sessions, I made no recordings, but took ample ethnographic notes, and tried to become transparent. During the third fieldwork session in 2001, I asked boys and girls of different ethnic background to give an interview and to participate in a picture naming task. School officials integrated me in the school’s English curriculum as an ‘out of class’ tutor, but other than the principal, nobody knew that I was interested in the students’ pronunciation. Those who volunteered to be recorded on tape were asked to talk about their image of France and the United States, and to comment on pictures depicting everyday objects (Figure 2), and international celebrities. Students were told that these tasks represented extra-curricular activities, and had no impact on their grades. They were also told that their identities would be kept confidential.

Besides their age and gender, the students were divided into five ethnic groups, based on their reported origins and language(s) spoken at home. In

this study, I am reporting on male speakers of 12 and 14 years of age who were of *North African* (Arabic or Kabyle) or *Caucasian* (Catholic or Jewish) descent. These categories will be referred to as French-Arabic and French-French, respectively, in this paper. Only those speakers who told me about their origins, and reported speaking *Berbère* or a vernacular variety of Arabic at home were included in the first group. *Caucasian* boys had to be of white French origin, and speaking French at home for at least two generations.

2.3 Corpus

As illustrated above, intonation phonological analyses necessitate controlled speech data. Preferably all-voiced, plurisyllabic target words had to be elicited in similar prosodic positions in the two hierarchically superimposed Accentual (AP) and Intonation (IP) phrases that characterize French prosody above the word-level.



Figure 2: illustration from the picture-naming task aimed at eliciting listing intonation contours

Rather than asking the students to read sentences, I designed a picture-naming task presented as a game of free-associations: the participants first had to list what they saw on the pictures, and then tell me the ideas that came to their mind when seeing the pictures. Real-life pictures of celebrities not used for eliciting data alternated with drawings such as the one in Figure 2, which was targeting specific prosodic information. The disposition of the objects on this drawing, for instance, invites for a clockwise or counter-clockwise listing of the objects, with the four-syllable target-word *étoile de mer* 'starfish' expected to come out "last", i.e. in an Intonation Phrase-final position. With only a few exceptions, all speakers listed the three objects shown in Figure 2 clockwise: *une pelle* 'a shovel', *un seau* 'a bucket' *et une étoile de mer* 'and a starfish'. Other pictures were targeting segmental phonological variation previously shown to characterize Parisian French.

The students were caught up in the game, and to make sure that they did not find it a waste of time, they were rewarded with a pen or other small collectibles I brought from the United States. With this method, I was able to record not only peripheral, but also central figures of different peer groups in the school. I was also able to distance myself from marked discourse contexts: listing seemed to represent the most neutral, and yet natural, context comparable across speakers.

3 Results

3.1 Lengthening is Incidental

Figure 3 shows duration measurements for five four- to two-syllable target words extracted from the picture-naming task of six Arabic-French and six French-French boys³. It shows, from left to right, the total duration of the word, that of the penultimate, and the ratio of the penultimate to the total duration of the word. Ratios rather than raw durations were compared, because speakers typically speak at variable speech rates, so slow and fast speaking boys in one or both groups could have biased the group means. Speakers' Laith B and Jacob M's renditions of *animaux* 'animals' were discarded because of hesitation.

The distribution of bolded ratios for each word—exceeding the italicized group-mean values shown at the bottom of the third columns—indicates that there is no systematic difference between the two *groups* with respect to the length of the penultimate. There are greater than group-average durations measured in several target words for several speakers, but only in the word *voiture* 'car' did Arabic-French speakers have significantly longer IP-penultimate durations compared to the French-French speakers. Thus taken as groups, speakers differ little from each other.

There was, however, considerable inter-speaker variability: speaker Saleh K. in the Arabic-French group, and Basil B. in the French-French group tended to utter longer than group-average IP-penultimate syllables in all or almost all target words, while others did so less frequently. Thus in light of these—and several other—target words, one cannot conclude that speakers from a particular ethnic group would systematically lengthen the penultimate syllable, while speakers from another group would not. The decisive factor, if there is any, behind native speaker intuitions about a newly emerging prosodic pattern in working class French is very likely not duration.

³These results on duration were first published in Fagyal 2003.

speaker	4 syll étiole de mer		3 syll perroquet		3 syll animaux		2 syll voiture		2 syll collier						
	Total (ms)	%	Total (ms)	%	Total (ms)	%	Total (ms)	%	Total (ms)	%					
Arabic-French boys															
Khaïb A	907	22.1	24.36	682	135	19.79	401	143	35.66	497	203	40.84			
Lailih B	91	158	17.36	45	72	16	--	--	--	420	184	43.8			
Mansur F	937	157	16.75	463	132	28.5	456	234	51.31	452	203	44.91			
Khamil J	852	175	20.54	603	135	29.15	465	109	23.44	523	226	43.21			
Moussa B	747	160	21.42	68	192	28.23	482	184	38.17	374	156	41.71			
Saleh K	598	127	21.23	466	167	35.83	378	111	38.17	346	156	45.08			
Mean			20.28			26.35			37.35			43.61			
French-French boys															
Alain P	696	106	15.23	622	114	18.32	597	145	24.28	521	193	37.04			
Christian T	954	111	11.63	532	163	30.63	289	54	18.68	326	141	43.25			
Jacob M	599	111	18.53	467	15	32.11	--	--	--	698	173	24.78			
Karl P	71	122	17.18	602	135	22.42	438	151	34.47	322	139	43.16			
Kent L	876	152	17.35	462	116	25.1	393	94	23.91	423	148	34.98			
Basil B	909	222	24.42	745	145	19.46	455	154	33.84	262	102	38.93			
Mean			17.39			24.67			27.03			37.02			
			U = 10, p=0.2002 ^{ns}			U = 16, p=0.7488 ^m			U = 4, p=0.0758 ^m			U = 5, p=0.0374 [*]			U = 12, p=0.3367 ^{ns}

Figure 3: Duration ratios in five target words in two ethnic groups' renditions.

3.2 Early alignment of the LH* pitch accent

French intonation is characterized by a series of rising pitch movements at

the end of non-final Accentual Phrases (APs). These pitch movements have been analyzed as a LH* pitch accent in middle-class varieties of Parisian French (Jun and Fougeron, 2002). The H tone is starred, because it is always associated with the final syllable of the last content word, i.e. the primary-stressed syllable, of the AP. It is typically aligned with the final syllable, while the L tone preceding the H* is aligned with the penultimate and/or the final syllable of an AP. One such pattern is shown in Figure 4 in a French-French boy's rendition of the utterance *a(v)ec un pneu crevé* 'with a flat tire', which occurred with an IP-final rise (H%) at the end of a list in the picture-naming task.

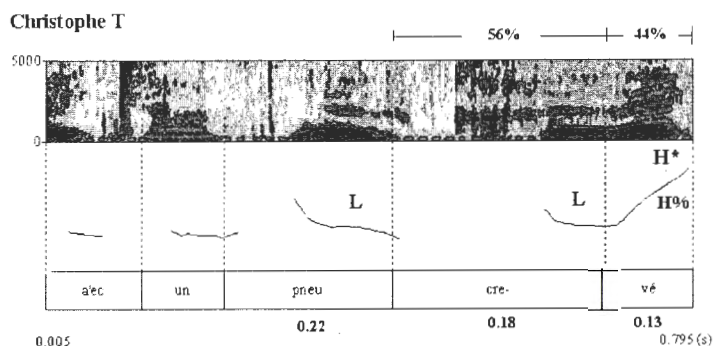


Figure 4: Standard alignment of the LH* pitch accent at the end of an IP in a French-French boy's pronunciation

The intonation pattern observed in Figure 4 is typical to standard French: the valley (L) of LH* is clearly aligned with the penultimate and the final syllables, while the H* is realized entirely on the final syllable⁴. Not so in the following rendition of the same AP by an Arabic-French boy (Figure 5). The L tones of the LH* in both *je vois une voiture* 'I can see a car' and *(el)le a l' pneu crevé* 'it has a flat tire' are aligned with the pre-penultimate syllables *une* 'one' and *pneu* 'tire'. As a result, the H* pitch movement is executed not on the final, but on the penultimate and the final syllables. Instead of an IP-final rise (H%), typical to listing patterns in standard French, we obtain a fall (L%) at the end of both APs.

⁴NB: The pitch contour is discontinuous when segments are voiceless.

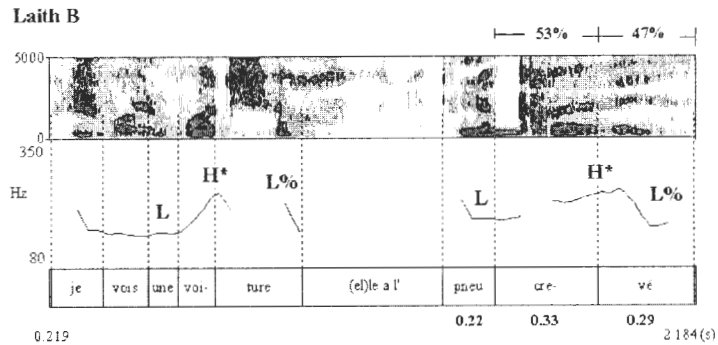


Figure 5: Early alignments of the LH* pitch accent in an Arabic-French boy's pronunciation: the L-s have been shifted to the pre-penultimate

As shown by the relative length of the penultimate and final syllables in *crevé*, the penultimate is longer (probably due to a complex onset) in both examples, while the pitch pattern is very different. Thus the lengthening of the penultimate seems incidental, while the type of pitch movement that is aligned with it is not. Thus we are not dealing primarily with a phenomenon of "lengthening", but with a complex tonal pattern, which is overwhelmingly used in lists by many speakers in the corpus: most frequently by Arabic-French, and least frequently by French-French boys.

Figure 6 shows a first approximation of the tonal inventory of the twelve male speakers presented in this study. It is based on thirty-six target words in total for each speaker⁵, patterning in five tonal configurations. The first two from the left represent early, non standard, alignments of the LH* accent in listing contexts of which the second is illustrated in *Laith B*'s speech in Figure 5. The rest of the patterns can be considered standard, among them the one in the middle, which is shown in *Christopher T*'s rendition in Figure 4.

The most interesting conclusion one can draw, however, is that in the Arabic-French boys' speech, the 'early' LH* contour is not the only type of listing intonation. As native speakers of French, these boys also have the standard 'simple rise' on the final syllable (pattern in the middle), just like their French-French classmates do. Thus similar to Queen's (1997) conclusions on the prosody of Turkish immigrants' children growing up as native speakers of German in Germany, one could argue that Arabic-French boys have a composite tonal inventory, in which potentially borrowed and com-

⁵A total count of less than thirty-six means that some the target-words had to be discarded (noise, lack of occurrence of the expected word, etc.).

monly shared ‘standard’ elements are equally present, and most importantly, are equally native.

Kharib	10/36	11/36	10/36	4/36	-
Laith	8/34	22/34	4/34	2/43	-
Mansur	8/36	10/36	16/36	2/36	-
Khamil	5/36	5/36	26/36	-	-
Mousa	?	12/32	17/32	0/32	3/32
Saleh	-	24/33	0/33	2/33	7/33
Alain	-	-	34/36	2/36	-
Christian	-	-	31/31	-	-
Jacob	-	-	30/32	2/32	-
Karl	-	-	31/36	5/36	-
Kent	-	-	31/35	4/35	-
Basil	-	-	29/36	2/36	5/36

Figure 6: Tonal inventory based on thirty-six target words elicited in listing contexts from the twelve male speakers

As to why French-French boys seem to avoid this pattern altogether, one can only speculate. A possible explanation seems to be that a pitch contour similar to the one exhibiting the early alignment of the LH* pitch accent in the Arabic-French boys’ speech also exists in middle-class varieties of Parisian French, but it has negative connotation. An utterance such as *C’est pas vrai!* ‘Can’t believe it!’ uttered as an upset exclamation typically shows an L tone on the pre-penultimate *c’est*, a rise throughout the penultimate *pas*, and a fall on the final syllable *vrai*. Thus, as often with respect to intonation, we are not dealing with a “new” tonal pattern, only with a pattern that does not usually occur in some contexts. In our case, unless the speaker is annoyed, bored or outright angry, the first two contours shown in Figure 6 are not expected to occur in listing contexts in standard French (for an overview of tonal patterns used in lists in French, see Fagyal 1997).

4 Conclusion: A Contact Feature?

As one question leads to another, one might ask: why would Arabic-French boys, native speakers of French just like their French-French classmates, would use a pitch contour with clearly negative connotations in a picture-naming task? Boredom and anger towards the fieldworker and the task safely discarded, the other hypothesis could be borrowing.

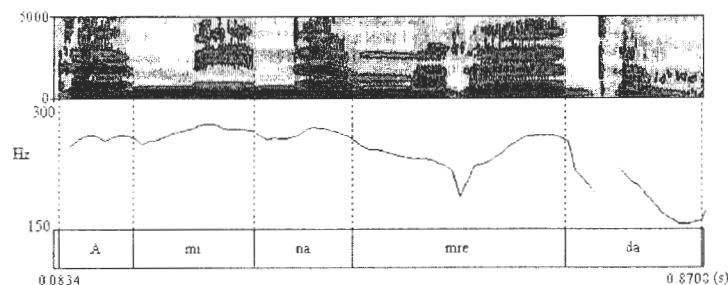


Figure 7: 'Amina is sick' uttered by a native speaker of Moroccan Arabic

Benkirane's (1989) work on the intonation of Western varieties of vernacular Arabic, such as Moroccan, for instance, shows several declarative intonation patterns similar to Laith B's intonation above (Figure 5). Thus a contour which appears to be a highly specialized, and indeed stigmatized, tonal feature in standard French might be a wide-spread, neutral way of declaring something in Arabic. One such utterance taken from Benkirane's (1989) paper, *Amina mreda* 'Amina is sick', was pronounced in the phonetics laboratory of the University of Illinois by a native speaker of Moroccan Arabic (Figure 7). It illustrates well the rising pitch movement on the vowel of penultimate syllable [e], and the final fall on the last syllable of *mreda* 'sick' discussed earlier with respect to Laith B's intonation in French. Thus it cannot be excluded that the tonal configuration shown by Arabic-French boys is a recent contact feature borrowed from spoken Arabic, especially since Benkirane's description explicitly states that the rise on the penultimate *can be* accompanied by greater length of the syllable, while the final fall—as well as the vowel with which it is aligned—are often extremely short.

Intriguingly enough, however, some kind of a lengthening of the penultimate also existed earlier in working class Parisian French. Sporadic as they are, there are earlier reports on this phenomenon that cannot be ignored. Straka (1952) describes, although gives no pitch contours or spectrograms, remarkably long penultimate syllables in working class speech in Paris, which Mettas (1979) still attributes to the same sociolect in the 1970s. And yet, in lack of empirical data on the pitch movements associated with these reportedly long penultimate syllables, one cannot tell with certainty if they are the same intonation patterns as the one exemplified in Figure 5.

To increase even further the complexity of this discussion, it should be noted that lengthening of the penultimate syllable of a prosodic phrase also

exists in other varieties of French (Carton 1967; Thibault and Ouellet 1996). Nuclear pitch accents can fall on the penultimate syllable of a phrase in several Romance languages, such as Italian, which was also one of the immigrant languages in contact with French earlier in the 20th century. And the list of possible contact languages, immigrant and indigenous, goes on... Thus without thorough phonological analysis of these varieties, it seems dangerous to pick out just one source of contact from the many successive waves of immigration that took place in the area of *La Courneuve* over the last two centuries. On the contrary, rather than looking for a “smoking gun”, it might be more fruitful to consider what is currently happening to this prosodic feature in the speech community.

The male speaker whose rendition of a longer prosodic phrase from the picture-naming task, *fourrure d'un renard, un truc comme ça* ‘fur of a fox, a thing like that’, is depicted in Figure 8 is, so to speak, an “outlier” in the corpus: he was *not* born in the community. His parents immigrated from the former Yugoslavia when Alphonse was just eight years old. Alphonse says he still speaks *monténègre*, as he calls it, at home. Therefore his L2 French, which sounded as native as it could be to me, cannot inherently have Semitic phonological features. And yet Alphonse, who is one of the leaders of a well-respected, ethnically mixed adolescent peer group in the neighborhood, has the “non standard” tonal pattern shown by Arabic-French boys in the picture-naming task.

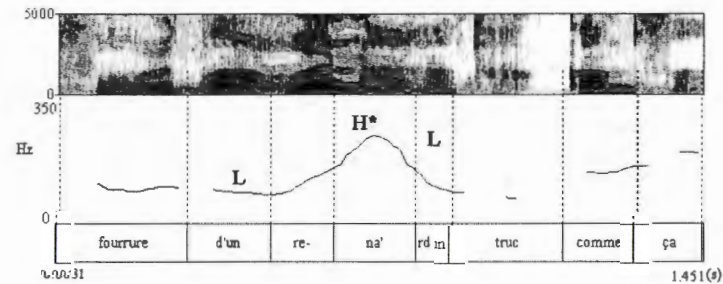


Figure 8: Early alignment of the AP-final LH* pitch accent at the end of two APs by a first-generation immigrant boy from the former Yugoslavia

Wherever it came from, the prosodic pattern acquired by Alphonse must already be part of the vernacular of adolescent peer groups to which he belongs. Thus to come back to the title of this paper, one can say that, as far as prosody is concerned, being a *Beur* matters far less than being an integral

part of the French working class in contact with immigrant languages in the past or in the present.

References

- Benkirane, Thami. 1989. Intonation in Western Arabic (Morocco). In *Intonation systems: A survey of twenty languages*, ed. D. Hirst and A. Di Cristo, 345-359. Cambridge: Cambridge University Press.
- Billiez, Jaqueline. 1992. Le parler véhiculaire interethnique de groupes d'adolescents en milieu urbain. In *Des Villes et des langues*, ed. L.-J. Calvet, 117-126. Dakar, Paris: Didier Erudition.
- Calvet, Louis-Jean. 1994. *Les voix de la ville. Introduction à la sociolinguistique urbaine*. Paris: Payot et Rivages.
- Carton, Fernand. 1967. Pente et rupture mélodique en français régional du Nord. *Proceedings of the 6th ICPHS*, Prague, 237-241.
- Carquiglini, Bernard. 2001. Le français d'aujourd'hui, ça bouge. *Construire* 7, February 13, 2001, propos recueillis par Jean-François Duval, <http://www.construire.ch/SOMMAIRE/0107/07entre.htm>.
- Conein, Bernard and Françoise Gadet. 1998. Le "français populaire" des jeunes de la banlieue parisienne entre permanence et innovation. In *Jugendsprache / Langue des jeunes / Youth language*, ed. K. Androutsopoulos and A. Scholz, 105-123. Frankfurt: Peter Lang.
- Duez, Danielle and Marie-Hélène Casanova. 1997. Quelques aspects de l'organisation temporelle du parlé des banlieues parisiennes. *Revue Parole* 1:59-73.
- Fagyal, Zsuzsanna. 1997. Chanting intonation in French. *Proceedings of the 21st Annual Penn Linguistics Colloquium, University of Pennsylvania Working Papers in Linguistics* 4(2):77-90.
- Fagyal, Zsuzsanna. 2003. The matter with the penultimate: Prosodic change in the vernacular of lower-class immigrant youth in Paris. *Proceedings of the 14th International Congress of Phonetic Sciences*, Barcelona, volume 1, 671-674.
- Fagyal, Zsuzsanna. 2004. Remarques sur l'innovation lexicale : action des médias et interactions entre jeunes dans une banlieue ouvrière de Paris. *Cahiers de Sociolinguistique* 9:41-60.
- Horvath, Barbara H. 1991. Finding a place in Sydney: migrants and language change. In *Language in Australia*, ed. S. Romaine, 304-317. Cambridge, New York, Melbourne: Cambridge University Press.
- Jun, Sun-Ah and Cécile Fougeron. 2002. Realizations of accentual phrase in French intonation. *Probus* 14 (1):147-172.
- Labov, William. 2001. *Principles of linguistic change: Social factors*. Oxford: Blackwell.
- Lepoutre, David. 1997. *Coeur de banlieue*. Paris: Odile Jacob.
- Méla, Vivian. 1997. Verlan: 2000. *Langue Française* 114:16-34.
- Mettas, Odette. 1979. *La prononciation parisienne: Aspects phonique d'un sociolecte parisien (du Faubourg Saint-Germain à la Muette)*. Paris: Editions du CNRS.

- ORGECO. 2001. *Analyse des Résultats exhaustifs du recensement INSEE pour la Ville de La Courneuve (93)*. Centre de Documentation, La Courneuve.
- Thibault, Linda and Marise Ouellet. 1996. Tonal distinctions between emphatic stress and pretonic lengthening in Quebec French. In *Proceedings of the 4th ICSLP*, volume 2, 638-641. Philadelphia.
- Queen, Robin, M. 1996. Intonation in contact: a study of Turkish-German bilingual intonation patterns. Doctoral Dissertation, University of Texas at Austin.
- Soullignac, Françoise. 1993. *La banlieue parisienne: Cent cinquante ans de transformations*. Paris: La Documentation Française.
- Straka, Georges. 1952. La prononciation parisienne, ses divers aspects et ses traits généraux. *Bulletin de la faculté des lettres de Strasbourg* 30(5-6):212-253.

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