

Prosodic influence in bilingual phonological development: Evidence from a Portuguese-French first language learner

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Theoretical debate in bilingual acquisition:

Are the grammars of bilinguals inter-dependent or autonomous?

- Autonomous development (e.g. Keshavarsz & Ingram 2002; Brulard & Carr 2003; Lleó 2006)
- Inter-dependent development (Johnson & Lancaster 1998; Paradis 2001; Kehoe 2002; Kehoe & Lleó 2003a; Lleó et al. 2003)

Hypotheses about the effect of interaction (Paradis & Genesee, 1996)

- Transfer (e.g. Paradis 2001, Keshavarsz & Ingram 2003, Lleó & Rakow 2006)
- Acceleration (e.g. Johnson & Lancaster 1998; Lleó et al. 2003)
- Delay (e.g. Lleó 2002, Kehoe 2002)

Which factors may yield interaction when attested?

- External factors: Language dominance (e.g. Paradis 2001)
- Internal factors: Grammatical complexity (e.g. Lleó 2002)

Goal of poster: Examine the patterns of interaction (if attested) between French and Portuguese in the bilingual case study under investigation and to determine which factors may yield interaction.

Data and Methods

- Longitudinal spontaneous speech of a French-Portuguese bilingual child, video-recorded fortnightly at home in a naturalistic setting
- Each language independently recorded in separate, 30-min sessions
- Child born in Portugal and exposed to both languages from birth
 - Upbringing follows the "one person, one language" setting
 - Daily environment dominated by EP
 - Initial language preference for EP
- 55 sessions analyzed for each language, from 1;00 to 3;10
- No evidence of across-the-board grammatical dominance

Results: singleton onsets

- Close inventory of French and EP singleton onset consonants:
- [ʎ] and [r] are exclusive to EP

	Labial	Alveolar	Palatal	Velar	Uvular
Plosive	p, b	t, d		k, g	
Fricative	f, v	s, z	ʃ, ʒ		
Nasal	m	n	ɲ		
Lateral		l	ʎ		
Rhotic		r			R

French

Features	FCC	Consonantal inventory	Age
1. [labial], [dorsal]	1. [son] > [nas]	[p, b, k, g, m]	1;04
2. [coronal], [continuant]	ii. [cont] > [lab]	[p, b, k, g, m, n, d, t, dʒ]	1;08
3. [nasal]		[p, b, k, g, m, n, d, t, dʒ, v, ʒ]	1;11
4. [posterior]	iii. [post] > [nas]	[p, b, k, g, m, n, d, t, dʒ, v, ʒ, ŋ]	2;10
5. [uvular]		[p, b, k, g, m, n, d, t, dʒ, v, ʒ, ŋ, R]	3;01
6. [uvular]		[p, b, k, g, m, n, d, t, dʒ, v, ʒ, ŋ, R]	3;02

EP

Features	FCC	Consonantal inventory	Age
1. [labial], [dorsal], [nasal], [continuant], [coronal]	1. [son] > [nas]	[p, b, k, g, m, n]	1;04
2. [continuant]	ii. [cont] > [lab]	[p, b, k, g, m, n, dʒ]	1;08
3. [uvular]		[p, b, k, g, m, n, dʒ, R]	2;03
4. [posterior]	iii. [post] > [cont]	[p, b, k, g, m, n, dʒ, v, ʒ, ŋ]	2;07
5. [nasal]	iv. [nas, post]	[p, b, k, g, m, n, dʒ, v, ʒ, ŋ]	2;09
6. [uvular]		[p, b, k, g, m, n, dʒ, v, ʒ, ŋ, R]	3;01
6. [uvular]		[p, b, k, g, m, n, dʒ, v, ʒ, ŋ, R]	3;03

Results: word-medial codas

French: virtually unrestricted: all Cs allowed (Dell 1995)

[ɔbʒe] 'object' [aspɛʁin] 'aspirine' [pɔʁte] 'to wear' [kalke] 'to copy'

EP: only three segments in this position (Mateus & Andrade 2000)

[ˈfɛʃte] 'party' [ˈaftu] 'tall' [ˈkorvu] 'crow'

Word-medial codas acquisition in French and EP

• French: all consonants in one stage (Rose 2000; dos Santos 2007)

coccinelle [kɔksinɛl] → [kɔksi nɛl] 'ladybug'
escabeau [ɛskabo] → [ɛska bo] 'stool'
serpent [sɛʁpɑ̃] → [sɛʁ pɑ̃] 'snake' (Théo: 3;7)

• EP: fricative codas emerge before liquids (Freitas 1997)

testa [ˈtɛʃte] → [ˈtɛʃtɛ] 'forehead'
urso [ˈursu] → [ˈu_ʁu] 'bear'
calças [ˈkaʃɛʃ] → [ˈka_ʃɛ] 'pants' (Laura: 2;2)

Barbara's word-medial codas development

• French: Fricatives (2;04) > Liquids (2;09) > Plosives (3;01)

• EP: Fricatives (2;04) > Liquids (2;09)

Examples (French):

biscuit [bisˈkɥi] → [isˈkɥi] 2;10 'biscuit'
pourquoi [pɔʁˈkwa] → [pɔʁ kwa] 2;09 'why'
coccinelle [kɔksi nɛl] → [kɔsiˈɛlø] 2;10 'ladybird'

Discussion: word-medial codas

- Development of French codas regulated by same constraints in EP
- EP: Fricatives >> Liquids vs. French: all at once
- EP-Fr: Fricatives >> Liquids, Plosives

Delay in the development of codas in French

Discussion: singleton onsets

Summary of observations:

- Full inventory at 3;02 in French vs. incomplete in EP (miss [ʎ])
- Acquisition of 7 features in French vs. 8 features in EP
- 3 feature co-occurrence constraints in French vs. 4 in EP

Generalizations:

- Different numbers of features acquired
- Different systems of feature co-occurrence restrictions
- 'Same' Cs at different ages (e.g. [ɲ]: 2;10 in French; 3;03 in EP)

Autonomous development

Results: branching onsets

- Both systems allow 4 combinations of obstruent+liquid branching onsets (Dell 1995 for French; Mateus & d'Andrade 2000 for EP)

Patterns of acquisition in monolingual EP

- Reduction to C1 (Freitas 1997)
crème [ˈkʁɛmi] → [ˈkɛ] 'cream' [Inês 1;05.11]
- Epenthesis, then target production (Freitas 2003)
grande [ˈɡʁɛdi] → [ˈkirɛdi] 'big' [Luís 2;05.27]
- CrV develop before CIV (Almeida & Freitas 2010)
- No influence of C1 PoA (Almeida & Freitas 2010)
bleu [blø] → [blø] 'blue' [Marilyn 2;00.12]

Barbara's French branching onsets

- CIV > CrV
bleu [ˈblø] → [ˈβle] 2;06.28 'blue'
bruit [ˈbʁɥi] → [ˈβe] 2;07.11 'noise'
- C1 labial > C1 dorsal > C1 coronal
cloche [ˈkloʃ] → [ˈka] 2;10.10 'bell'
- Very few cases of epenthesis

Patterns of acquisition in monolingual French

- Reduction to C1 (Rose 2000)
pleure [pløʁ] → [pø:] 'he) cries' [Clara 1;07.27]
- No stage of epenthesis before target production
[ˈkʁɛdi] → [ˈkirɛdi] 'big' [Luís 2;05.27]
- CIV develop before CrV (Kehoe et al. 2008)
- C1Labial develop first (dos Santos 2007)
cloche [ˈkloʃ] → [ˈkak] 'bell' [Marilyn 2;00.12]

Barbara's EP branching onsets

- CIV > CrV
Pluto [ˈplutʉ] → [ˈplutu] 2;07.11 'proper name'
abrir [ɛˈbʁiʁ] → [ɛˈpiʁi] 2;07.11 'to open'
- C1 labial > C1 dorsal > C1 coronal
bicicleta [ˈbisiˈkɛtɛ] → [ˈbisiˈtɛtɛ] 2;07.11 'bike'
- Very few cases of epenthesis

	French	EP	gloss
plosive+rhotic	[tʁ]jois	[tʁ]ɛs	three
plosive+lateral	[pl]at	[pl]ano	straight
fricative+rhotic	[fʁ]oid	[fʁ]io	cold
fricative+lateral	[fʁ]eur	[fʁ]or	flower

Discussion: branching onsets

- Same development in both languages
- CIV > CrV = mono French learners
- C1 Labial first = mono French learners
- Crucially, Barbara skips the stage of epenthesis, well attested for monolingual EP learners

Accelerated acquisition of branching onsets in EP

General Discussion

Summary of observations:

- Simple onsets: Autonomous development
- Branching onsets: Acceleration (French-like pattern)
- Word-medial codas: Delay (EP-like pattern)

(No segmental transfer attested)

Autonomy vs Interaction:

- Autonomous development in prosodically 'strong' positions (singleton onsets)
- Interaction in prosodically 'weak' constituents (branching onsets and codas)

Prosodically-driven interactions

Language dominance vs grammatical factors:

- The data contradict predictions based on possible language dominance:
- Bidirectional EP ↔ French influence over a single developmental period (2;03 - 3;01)

Grammatical factors