

Methodological Perspectives on Second Language Prosody

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FRENCH PROSODY OF ITALIAN SPEAKERS: CHARACTERISTICS AND DIDACTIC INPUTS

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ABSTRACT

Oral production in a second language (L2) is imprinted by native language phonetic system. Nevertheless the integration of the L2 prosodic features is often overlooked at didactic level. On the basis of the verbo tonal method that proposes an interactive phonetic correction of the errors when and where they are produced, this study aimed to identify the main prosodic errors in French L2 of the Italian speakers. Another objective was to verify the effect of intonation types (declarative, interrogative, exclamatory and imperative) on these prosodic errors. A further aim was to give some didactic inputs in order to concretely help teachers of French L2 to increase the oral skills of the Italian adult native speakers.

Sixty Italian adult native speakers participated to the study and repeated verbatim 44 recorded sentences. The analysis of the repetition characteristics showed interesting effects on prosodic rhythm (i.e. central vowels added in the utterance and the transformation of the nasal vowels closed by the corresponding nasal consonants). Moreover it highlighted a strong effect of the intonation type on the presence of the error types. The observations let us consider activities mainly based on the French isosyllabic rhythm.

Keywords: French L2, Italian learners, prosodic errors, monitored repetition activities, didactic inputs.

1. INTRODUCTION

Although prosody features are fundamental for an efficient communication in native language and in Second Language (L2) [1], it is largely overlooked in L2 teaching. Methods for L2 teaching usually give some indications to increase the pronunciation of the segmental features but they are rather unwilling to be concerned by the L2 suprasegmental teaching and acquisition. One reason may be the difficulty of their teaching [7]. For French L2, a method has been developed on the bases of Guberina research [11] in order to elicit the acquisition of the suprasegmental features as a basis for the acquisition of segmental units, as it happens with the native language acquisition: the Verbo-tonal method (VTM). The VTM plans a phonetic correction of the errors immediately after they are produced by learners. We know that the native language properties influence speech perception and have an effect on a L2 production, not only at segmental level [13, 14] but also at prosodic level [15, 17]. Non-native speech contrasts are assimilated to the native categories which work like sieves [18] or like a magnet [13, 14]. This phenomenon of “phonological deafness” [9, 10] may avoid any fluent oral communication with native speakers of the L2.

One of the VTM activities is based on repetitions that are monitored by a L2 native teacher [4, 6, 8, 16, 12]. The monitored repetition activities (MRAs) allow the teachers to identify the characteristics of the student’s native language through his oral production or imitation of L2. The phonological and prosodic comparisons between the L2 concretely produced by the student and the L2 target pronunciation let the native language teacher provide phonetic models adapted to counterbalance the errors orally produced by each learner. The MRAs are proposed here with short sentences (of about 3-6 syllables) in order not to go over the capacity of the working memory. In this way, teacher and learners can focus on the rhythmic and intonational features of the sentences and suprasegmental and segmental L2 characteristics are acquired with less difficulty. The VTM has given empirical evidences of its efficiency [1, 2]. It permits to increase the quality and the promptness of both discrimination and speech production in L2 [12, 16].

This research aims to give some inputs to help teachers of French L2 with the integration of French prosody for Italian speakers. The first stage of this study was to identify and characterize Italian learners most recurrent errors that affect French L2 prosody. We also focused our research on the possible effect of the type of intonation

(declarative, interrogative, exclamatory or imperative) on the errors rates and characteristics. The indications obtained by the first parts of the study are useful for the definition of some didactic proposals adapted to the prosodic errors concretely observed in the first part of the research.

2. METHOD

2.1. Participants

Sixteen Italian adults participated to the research. They were university students (50 females) and had no hearing impairments (age $M=24,1$, $sd=3.9$). They were learning French language or they had learned it in high school or at university (French experience $M=5.6$ years; $sd=3.7$).

2.2. Material

A research paradigm was set up using the elicited imitation (EI) of 44 French short sentences (Mean: 6,1 syllables). The items had been recorded by a native French speaker. Four types of intonation had been investigated with 11 items each: declarative (e.g. *C'est un bon vin blanc*. It is a good white wine), interrogative (e.g. *C'est un bon vin blanc?* Is it a good white wine?), exclamatory (e.g. *Quel bon vin blanc!* What a good white wine!) and imperative (e.g. *Bois ce bon vin blanc!* Drink this good white wine!).

2.3. Procedure

Participants were tested singly in a silent room with computer, loudspeakers, microphone and Digital Audio Tape recorder. All the sentences were broadcasted one by one in a random order. Participants had to repeat each utterance verbatim trying to repeat the model in the most similar way, regardless of their comprehension of the meaning. Three French native speakers, experts in French phonetics and pronunciation teaching, analyzed the recorded material, focusing on: 1) identifying the different pronunciation characteristics between the model and the single repetitions of the sentences; 2) indicating the typology of the variations from model. Concerning prosodic errors experts had to indicate the typology (addition, omission or modification) of the features that had any effect on the rhythm or intonation of the French sentences. A high inter rate agreement had been verified between the three experts evaluations (Cohen's kappa coefficients = .84, .79, .85).

2.4. Data analysis

With a first analysis (see 3.1) three groups were formed for each intonation type: repetitions without any prosodic error/variation, repetitions

containing from 1 to 4 errors, repetitions with too many mistakes (5 and more) to be qualitatively analyzed.

The quantity of each identified error (see 3.1.2) has been calculated in percentage on the basis of the total number of the investigated characteristics. For example, the percentage of the central vowel added is calculated on the basis of the possible places in which this type of errors could have been added in the whole sample (i.e. between two consonants or at the end of closed syllables).

The effect of intonation types (see 3.1.3) has been verified with independent ANOVAs run on the 4 intonations for each characteristic observed.

3. RESULTS

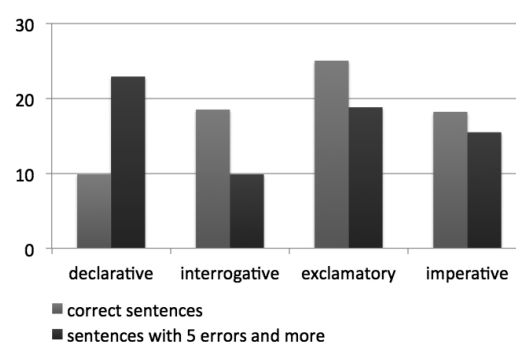
3.1. Repetition analysis

The first part of the research consisted in the analysis of the repetitions.

3.1.1. Accuracy of EI for the four intonation types.

The ANOVA run on the intonation types for the accuracy of the repetition of the whole sample (2640 sentences) shows an intonation effect on correct sentences ($F_{(3,177)}=19.656$, $p<.001$), in particular because the accuracy of the exclamatory sentences is particularly high ($M=25\%$) whereas those of the declarative sentences is low ($M=9.84\%$). An intonation effect is also verified on the percentage of sentences with 5 errors and more ($F_{(3,177)}=17.892$, $p<.001$). This effect is mostly due to the fact that interrogative sentences are less incorrect ($M=9\%$) than the other ones, in particular than declarative ones ($M=22.9\%$).

Figure 1: percentage of correct sentences and sentences with 5 errors and more for each intonation type.



3.1.2. Identification and characterization of prosodic errors

The identification and characterization of prosodic errors has been done on the 1725 sentences that were neither prosodically correct, nor too incorrect.

Thirteen types of errors that have an effect on French prosody have been identified. They are mainly due to the addition or omission of vowels and/or consonants (cf. table 1).

Interestingly, we observed a consistent introduction of central vowels between two consonants or at the end of the utterance (M=20.20% of the possible places, s.d.=3.63). These central vowels are very similar to a schwa because of their central position in the articulation but they are longer and more pronounced. The presence of this typical French feature may be explained by a hypercorrection mechanism with an excessive use of the target sound.

Table 1: errors that have a prosodic effect on French prosody, expressed in percentage (standard deviation between brackets) with the indication of the intonation effect.

	Errors characteristics	Means of errors	Effects of intonation types
Syllable	Omission	0.60 (0,14)	N.S.
	Addition	0.25 (0,10)	N.S.
Consonant	Omission	1.94 (0,20)	$p<.001$
	Addition	0.58 (0,11)	$p<.005$
	Geminate	2.73 (0,65)	N.S.
Oral vowel	Omission	0.55 (0,13)	$p<.001$
	Addition	0.42 (0,15)	N.S.
	Addition of a final vowel	0.42 (0,25)	N.S.
	Addition of a central vowel	20.20 (3,64)	$p<.001$
	Omission of a central vowel	0.85 (0,55)	N.S.
Nasal vowel	Addition of a nasal consonant	13.39 (1,39)	$p<.001$
Sentence stress	Stress placed on another syllable	3.60 (0,74)	N.S.
Prosodic disfluencies	Hesitations	4.20 (0,82)	N.S.

The second mean error concerns the nasal vowels (13.39% of nasal vowels, s.d.=1.39). In these cases, the vowel (oral or nasal) is clearly followed by a nasal consonant ([m] or [n]). The modification of the vowel tends here to consistently increase the syllable duration. In that regard, we should remember that French is a syllable stressed language and its stress, placed on the last syllable of the rhythmic group, is mostly characterized by the increase of duration. However, when Italian learners, used to their stress-timed language pattern, tend to increase the duration of an unstressed French syllables, he tends to transform it in a stressed syllable, creating then a new rhythmic boundary. This rhythmic type of modification tends thus to widely interfere with a

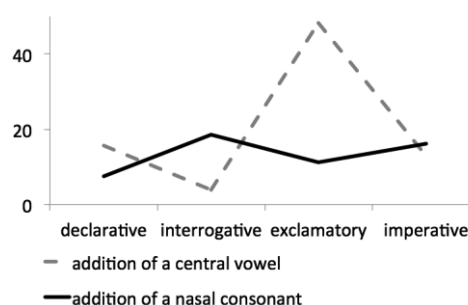
correct elaboration of the sentence. This is also the case of the stress assignment that is shifted from the last rhythmic syllable to another one, in particular to the syllable corresponding to one of the Italian corresponding lexical stress (M=3.6%, s.d.=0.74). Another type of modifications of the French model was prosodic disfluencies (in 4.20% of the sentences, sd=.082) which often indicate the lack of confidence with the sense of the sentence, although the task was to repeat verbatim even if the sense was unknown or strange. Over 2% rate errors, geminate consonants (M=2.73, s.d.=.65) have been identified for some of the transparent words (i.e [bat'taj] cf battaglia for [ba'taj]: bataille).

3.1.3. Effect of the intonation types on errors characteristics

The analysis of Variance (ANOVA) run for the 4 intonation types independently for each type of error observed shows that the intonation plays a significant part on 5 types of errors (see column 4 of tab 2). Interestingly, the two main prosodic errors observed in Italian learners are concerned by intonation effect (figure 2). The central vowel addition ($F(3,177)=18.218$, $p<.001$) is mostly due to the high rate in exclamatory sentences (48.5%), compared to interrogative sentences (3.9%).

At contrary, Nasal vowels is significantly concerned by intonation differences ($F(3,177)=16.896$, $p<.001$) because they are worst produced in interrogative (M=18.6, s.d.=12.04) and imperative (M=16.2, s.d.=13.3) contexts than in exclamatory and assertive sentences.

Figure 2: accuracy of the two main errors on the basis on their intonation context.



Considering the EI of French sentences by Italian native speakers, the main results are:

- prosodic errors are more linked to rhythmic features than to intonational ones;
- the two main errors are sensible to the intonation with which the utterances are produced.

This first part of the research shows that, in order to increase the quality of oral production in French L2, the didactic for Italian speakers has to

be based on the French syllabic features and on the intonational context.

3.2. Didactic inputs for French prosody teaching.

Our research shows that the regularity of the syllabic scansion in French is little respected in Italian. The first element of French prosody that French L2 teachers have to work on is then the isosyllabicity of French prosody. The acquisition of the syllabic regularity of French is fundamental to prevent from the addition or omission of segmental elements, like central vowels and nasal consonants. It is also useful to structure the segmental cues in the whole rhythmic and intonational context.

The acquisition of the syllabic structure can be fostered by gesture, like rhythmic handing scansion of the space. The stressed syllable is, on the contrary, represented by a horizontal movement of the hand, in order to put in evidence that accented syllable has to be longer in time and not stressed marked. The integration of French rhythmicity is fostered by MRA that let the students perceive and discriminate the L2 characteristics and integrate them in a communicative context [12].

Table 2: The most efficient types of remediation for the prosodic errors of Italian speakers in French prosody.

	Intonational context	Syllabic scansion	Progressive breakdown	Intermediary breakdown
Central vowel addition	++ (interrogative)		+	++
Vowel + nasal consonant	++ (declarative)	+	++	++
Prosodic disfluencies		+	+	
Sentence stress		++	++	
Geminate consonant		++	+	++
Consonant omission	+ (interrogative)	++	++	+

A MRA can be structured as follow: the teacher proposes a speech model (i.e. of a brief dialogue); the student repeats the model; the teacher identifies the students errors, then selects the segmental / suprasegmental remediation that puts in evidence in the most appropriate way the specific correct feature of the improper repetition, and eventually pronounces a new model to be repeated verbatim and immediately by the student. The teacher must be able to elaborate and to propose a new model as soon as the student has repeated the previous one. The proposals are modified on the basis of the accuracy of the previous repetition in order to lead

the student step by step to discriminate the difference(s) between his production and the teacher's one, and to integrate the characteristics of the L2 segmental/prosodic form.

The syllabic scansion lets the student perceive the regularity of French syllables, reducing geminates and highlighting the omitted phonemes. It is also used to slow down the tempo and therefore to help the students to perceive better the characteristics of the syllables and produce them more accurately. For our aims, two procedures based on syllabic scansion are particularly efficient: the progressive breakdown and the intermediary breakdown. For the *progressive breakdown* (figure 3), the teacher gives the first part of the utterance (i.e. the two first syllables) and adds one syllable at each repetition. This type of scansion allows the teacher to highlight vowel timbres placed in open syllables, to reinforce working memory, to put in evidence the place of the stress on the last syllable of the segment and to foster syllabic consonantal regularity in length. The *intermediary breakdown* (figure 4) is used to focus the student attention on the central part of the sentence, in particular to reduce / avoid segmental additions into the segment. For the two procedures, the MRA is structured to progressively add one or two syllables at each repetition time.

Figure 3: example of progressive breakdown for the sentence "C'est un bon vin blanc" (position and hand movement are represented by grey arrows).

Italian typical error for nasal vowels:
[se tœⁿ bɔ̃ⁿ vɛ̃ⁿ 'blɑ̃] *

Teacher proposals to be repeated verbatim:
[se tœ]
[se tœ bɔ̃]
[se tœ bɔ̃ vɛ̃]
[se tœ bɔ̃ vɛ̃ 'blɑ̃]

Figure 4: example of intermediary breakdown for the sentence "Chante encore un peu" (position and hand movement are represented by grey arrows).

Italian typical error for central vowels:
[ʃɑ̃tɑ̃kɔ̃rɑ̃œ̃pø] *

Teacher proposals to be repeated verbatim:
[ʃɑ̃ tɑ̃]
[ʃɑ̃ tɑ̃]
[kɔ̃ rœ̃]
[kɔ̃ rœ̃]
[ʃɑ̃ tɑ̃ kɔ̃ rœ̃ pø]

The errors that are influenced by the type of intonation can be used to change the intonation type as a function of the observed errors during the

MRA. For example, the central vowel addition is less fostered when included in an interrogative context. The selection of the most adapted intonation for each type of error is relevant almost for the first steps of the acquisition. The use of the others intonation types is interesting to test the correct pronunciation at a late stage of the acquisition.

4. CONCLUSION

This study on the analysis of the French prosody variations puts in evidence the strong link between intonation and rhythm and the effects they have on the apparition (or omission) of segmental elements.

In spite of the fact that French and Italian are two roman languages, the prosody characteristics of the French L2 are clearly different from the Italian. On the contrary, our research shows that a large number of errors produced by Italian speakers has an effect on French prosody, in addition to segmental errors [3].

Our research also puts in light the great role of the intonation on central vowels production and on the nasal vowel production. To our knowledge, no empirical study had verified so far the effect of the intonation type on this main error in French L2. This observation is of great interest because it confirms once again how the errors that seem linked to segmental difficulties, are actually straightly linked to the rhythmic structure and the intonational contour. A remediation based on the intonation contour or/and the rhythmic patterns is then the most suitable didactic solution in order to reach a good pronunciation in French L2 for Italian speakers [3]. More generally, this study clearly represents an additional block in showing the necessity to underline the interdependence between segmental and suprasegmental levels in scaffolding prosodic interventions in L2 didactic.

5. REFERENCES

- [1] Alazard, C., Astésano, C., Billières. M. 2010. The Implicit Prosody Hypothesis applied to Foreign Language Learning: From oral abilities to reading skills. *Proc. 5th Speech Prosody 2010* Chicago, USA. <http://www.speechprosody2010.illinois.edu/papers/100648.pdf>.
- [2] Alazard, C., Astésano, C., Billières. M. 2012. MULTIPHONIA: a MULTImodal database of PHONetics teaching methods in classroom InterActions. *Proc. 8th LREC 2012* Istanbul, Turkey. <http://www.lreconf.org/proceedings/lrec2012/index.html>
- [3] Boureux, M. 2003. Problématique verbo-tonale et notion d'italophonie, in Borrell, A. (ed.), *Cahiers du Centre Interdisciplinaire des Sciences du Langage*, Toulouse: UTM, 257-264.
- [4] Boureux, M. 2005. L'attività di ripetizione nella progressione fonetica in lingua straniera: il caso di adulti italiani. in: Così P. (ed.) *Proc. 1st AISV 2004 "Misura dei parametri"*. Padova: EDk Editore srl. - ICA, 525-538.
- [5] Boureux, M., 2012. La cognition du langage et de la musique dans l'acquisition d'une langue seconde par la méthodologie verbo-tonale. In Calvo Medina, M.V., Murillo Puyal, J. (eds), *Perception phonique et parole/Percepción fónica, habla y hablar*. Mons: CIPA.
- [6] Boureux, M., Batinti, A. 2004. La prosodia. Aspetti teorici e metodologici nell'apprendimento-insegnamento delle lingue straniere, *Proc. 14th GFS*. Roma: Esagrafica, 233-238.
- [7] Busà, M.G. 2008. Teaching prosody to Italian learners of English: Working towards a new approach. In: Taylor, C., *Ecolingua: The Role of E-corpora in Translation, Language Learning and Testing*. Trieste: EUT - Edizioni Università di Trieste, 113-126.
- [8] Di Cristo, A. 2004. La prosodie au Carrefour de la phonétique, de la phonologie et de l'articulation formes-fonctions. *Travaux Interdisciplinaires du Laboratoire Parole & Langage* 23, 67-211.
- [9] Dupoux, E., Peperkamp, S. 2002. Fossil markers of language development: phonological deafnesses in adult speech processing. In: Laks, B., Durand J. (Eds), *Phonetics, Phonology, and Cognition*. Oxford : Oxford University Press, 168-190.
- [10] Dupoux, E., Pallier, C., Sebastian, N., Mehler, J. 1997. A Destressing "Deafness" in French? *Journal of Memory and Language* 36, 406-421.
- [11] Guberina, P., 1965. La Méthode audio-visuelle structuro-globale, *Revue de Phonétique Appliquée* 1, 35-64.
- [12] Intravaia, P. 2000. Formation des professeurs de langue en phonétique corrective. Paris: Didier Erudition; Mons: CIPA.
- [13] Iverson, P., Kuhl, P.K. 1995. Mapping the perceptual magnet effect for speech using signal detection theory and multidimensional scaling. *Journal of the Acoustical Society of America* 97 (1), 553-562.
- [14] Kuhl, P. K. 1991. Human adults and human infants show a "perceptual magnet effect" for the prototypes of speech categories, monkeys do not. *Perception & Psychophysics* 50, 93-107.
- [15] Polivanov, E. 1974. The subjective nature of the perceptions of language sounds. In: Polivanov, E., *Selected Works. Articles on General Linguistics (compiled by A. Leont'ev)*, The Hague: Mouton, 223-237.
- [16] Renard, R. 1979. La méthode Verbo-Tonale de correction phonétique. Mons: Didier-Bruxelles.
- [17] Sapir, E. 1921. *Language*. New York: Harcourt Brace Jovanovich.
- [18] Trubetzkoy, N.S. 1969. *Principles of phonology*. Berkeley and Los Angeles: University of California Press.