Prosodic transfer from L1 to L2. Theoretical and methodological issues

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Résumé/Abstract

Much research on the acquisition of phonological skills in a second/foreign language has hitherto been concerned with the phonemes of the target language, thereby disregarding suprasegmentals. The first part of this paper reviews past research on the acquisition of prosody, with special emphasis on the role of the mother tongue in the learning process. Then we set out to examine the methods and tools that were used in order to investigate prosodic transfer. The discussion leads us to propose an alternative method combining text-based contrastive analysis, system-based contrastive analysis and contrastive interlanguage analysis. This method is put to the test in a study of (pitch) accent in L2 Dutch and L2 French.

1.   Introduction

The significance of cross-linguistic influence/L1 transfer, i.e. the carry over of linguistic patterns from the mother tongue (L1) to the second/foreign language (L2), has long been a controversial issue in applied linguistics, L2 acquisition research and language teaching (Ellis 1994, Odlin 1989). Despite the myriad of transfer studies that have been conducted over the past four decades, there still remains a surprising level of confusion and uncertainty in the field concerning when, where, in what form(s), and to what extent L1 influence manifests itself in the L2 learners' use of the target language (Jarvis 2000).

This paper examines the role of the L1 in the L2 acquisition of suprasegmentals/prosody, i.e. a combination of tonal, temporal and dynamic features associated with such suprasegmental aspects of phonology as stress, accent, tone, rhythm, intonation, and pauses. More specifically, we discuss both past research results as well as methods of data collection and analysis. We also propose a methodological path for the study of prosodic transfer. This method is finally put to the test in a study of the L2 acquisition of pitch accent in Dutch and French.

2.   L1 transfer in L2 acquisition: theory and description

In the 1950's, behaviourist psychology regarded L2 learning as a process of linguistic habit formation that was systematically influenced by the learners' L1. It was thought that L1 transfer enhanced L2 acquisition when the same linguistic elements were present in both the first and the second language (i.e. positive transfer), but that it had an interfering effect when there was a difference between the two languages (i.e. negative transfer/interference). Contrastive analyses (CA) had to be conducted in order to make predictions about the linguistic structures an L2 learner would have difficulty with (Lado 1957). One such example of contrastive analysis of prosody is a study by Debrock & Jouret (1970) in which the authors compared the prosodic characteristics of Dutch and French and then used the results of their comparison to predict intonation errors of French-speaking learners of Dutch.

In the 1970's, the emergence of mentalist models of L2 acquisition as well as the results of error analyses (Corder 1981) brought CA as a research tool into a period of disfavour. One of the common arguments was that predictive CA was blind to the nature of acquisition and could not provide a qualitative account of the actual acquisition process. Contrary to Lado's hypothesis, an L2 feature may be new to the learner, and yet easy to acquire. Conversely, an L2 item may prove resistant to acquisition despite its similarity with L1 forms. These findings suggest that CA predictions should be checked against samples of authentic learner language (explanatory value) – a point already made by Lado himself (Lado 1957: 72). Results of analyses of actual learner errors showed that the importance of interference in the L2 acquisition process had been largely overestimated, and as a consequence transfer became regarded by many as only a minor aspect of L2 acquisition (Dulay & Burt 1974, Felix 1980).

One of the problems with error analyses (EA) is that examining learner errors proved not to be sufficient to account for the whole L2 acquisition process. In this respect, it appeared that correct L2 forms could also reveal interesting facts about the L2 acquisition process. In other words, by focussing on errors, researchers were denied access to the whole picture (Richards 1974), and it soon became clear that a more wide-ranging approach to learner language was needed. This insight laid the foundations for the "Interlanguage Hypothesis" (Selinker 1972) and gave rise to new research methods in which erroneous as well as correct L2 forms were to be taken into account. Such performance analyses lead researchers to recognise that the L1 does play a part in the L2 learning process but that its influence can take other forms than positive and negative transfer, e.g. overuse, under-representation (Gass & Selinker 1983, Odlin 1989). The interest in

these new forms of transfer has lead to a renewed interest in CA and transfer phenomena (James 1994).

Perhaps the only area where the influence of the learner's L1 on his/her L2 linguistic habits has never really been called into question is phonology. Indeed, the notions of "transfer" and "contrast" play a central part in most theoretical models of phonological acquisition, e.g. Native Language Magnet Theory (Kuhl & Iverson 1995), Speech Learning Model (Flege & Hillenbrand 1984, Flege & Eefting 1987, Flege 1992, 1995), Perceptual Assimilation Model (Best 1995, Best & Strange 1992). Unfortunately, little research has been done so far on interference effects upon the acquisition of L2 prosodic characteristics (De Bot 1986, Lepetit 1989, McGory 1997, Mennen 2004, White 1981), as most research on the L2 acquisition of phonology deals with the production and perception of individual vowels and consonants (Flege 1995, Flege & Eefting 1987, Flege & Port 1987, James 1988, Lea- ther & James 1991). Yet a solid description of prosodic transfer phenomena is necessary if we are to validly assess how L1 charac- teristics affect the learning process of L2 pronunciation.

3.   L1 transfer and L2 acquisition of prosody

3.1.   *Past research on the L2 acquisition of prosody*

Much research on the L2 acquisition of prosody is linked with the no- tions of "pronunciation errors" and "foreign accent". Generally spea- king, this research focuses on the respective contribution of segmental and suprasegmental errors to the perception of a foreign accent (i.e. the perception of general and discrete deviations from the generally accepted norm of pronunciation of a language that are reminiscent of another language; Flege 1987: 162, Jilka 2000, Van den Doel 2006) and on their impact on the communication. Research results clearly indi- cate that segmental errors have a less detrimental effect on listeners' judgements of comprehensibility and accentedness of L2 speech than prosodic errors (Anderson-Hsieh et.al. 1992, Johansson 1978, Nash 1972, Munro & Derwing 1995, Trofimovitch & Baker 2006) – thereby showing the importance of prosodic characteristics for L2 learning and use. The next step should then be to examine the actual prosodic performance of L2 learners with various L1/L2 backgrounds in order to determine what they are doing wrong and why. As far as prosodic errors are concerned, L2 learners have been shown to have difficulty with the following dimensions of prosody:

1) The manipulation of the components of the L2's prosodic phonology. This type of errors has to do with the inappropriate use of e.g. intonation, stress, accent, rhythm, pauses and the use of

phonological tones (type of pitch accent and boundary tone) in the wrong context (Adams 1979, Andrews 1984, Archibald 1992, 1997, Backman 1979, Broselow 1988, Broselow et.al. 1987; Fokes & Steinberg 1983, Caspers & Van Santen 2006, Chiang 1979, Grosser 1993, Guion 2005, Heiderscheidt & Hiligsmann 2000, Jenner 1976, Mairs 1989, Pürschel 1975, Rasier 2006, Roberge 1982, Shen 1990, Wenk 1985, Wennerstrom 1998, Wieden 1993, Willems 1982).

2) The way phonological entities are implemented in the speech signal. This category encompasses errors relative to the phonetic realisation of e.g. intonation, tone, stress, accent (Adams & Munro 1978, Barlow 1998, Buysschaert 1990, Flege & Bohn 1989, Flege & Hillenbrand 1984, Fry 1972, Fokes & Bond 1989, Grosser 1993, Kelm 1987, Lepetit 1989, McGory 1997, Mennen 1999, 2004, 2006, Missaglia 1999, Ueyama 2000, Ueyama & Jun 1997, Wieden 1993).

3) The expression and/or perception of linguistic and paralinguistic meaning using prosodic cues (Chen 2005, Cruz-Ferreira 1984, 1987, Hewings 1995, Hickmann & Hendriks 2007, Pickering 2001, Ramirez Verdugo 2002, Rintell 1984, Wennerstrom 1994, 2007).

As prosodic systems have been shown to significantly differ from one another at the three levels (Hirst & Di Cristo 1998), it is not surprising that most studies of L2 prosody conclude that L1 transfer is an important factor in L2 prosody learning. Interestingly, this seems to hold true for both the production and the perception of L2 prosodic characteristics. According to Mennen (2006: 4), prosodic transfer can take the form of both phonological and phonetic interference. In her view, phonological influence results from differences in the inventory of phonological tones, their form, and the meaning assigned to them. A phonetic influence, by contrast, stems from a difference in the phonetic realisation of an identical phonological tone.

Also, L2 learners with a variety of L1 backgrounds appear to make the same kind of errors, leading to the assumption that there may be universal patterns in acquiring the prosodic system of an L2. Yet, it should be noted that comparison of the aforementioned findings is not an easy task as the studies differ considerably with respect to the L2 learners' level of proficiency, the number of subjects, the theoretical framework, and the methodology used in the study. In this respect, some studies lack a control group of native speakers of the target language as well as control data in the learner's L1. Furthermore, most results concern the learning of English as a second language, which suggests that the observed errors may actually be due to idiosyncrasies of the English prosodic system. In the following section, we outline a research paradigm that can be used to assess prosodic transfer at both the phonological and the phonetic level.

3.2.   Towards a research design for the study of prosodic transfer

As Selinker (1992: 171) points out, L2 acquisition is a complex process that cannot be accounted for by just describing the learners' L1, L2, and/or interlanguage (IL). To account for the L2 acquisition process, you first need to describe all linguistic systems involved, and then to compare them with each other. James (1994: 182) summarizes the necessary steps in a transfer study as follows:

> "IL study is concerned with describing learner language, prior to explaining it. Once you want to explain IL, you have to refer to L1 and L2 comparatively. Some features of IL are explained by comparing L1 with L2: this is predictive CA. Others are identified by comparing IL with L1: this is Transfer Analysis, of what Wardbaugh (1972) called the weak, diagnostic form of CA."

What is missing in this approach, is a comparison of the L2 learners' interlanguage with comparable control data in the target language as well as a comparison of different learner language varieties. The first type of comparison is needed in order to determine what the learners are doing right or wrong respective to native norm. The second type of comparison (i.e. IL-IL comparison) makes it possible to disentangle universal from language-specific factors in the L2 acquisition process as well to get insight into the various forms of transfer in the L2 speech of learners with a variety of L1 backgrounds.

Our approach to IL prosody integrates all the aforementioned dimensions, and consists of a combination of L1-L1 comparisons, L1-L2 comparisons, and L2-L2 comparisons. We outline our "Integrated Contrastive Model" as it will be applied in the study of pitch accent assignment which we report on in the second part of this paper:
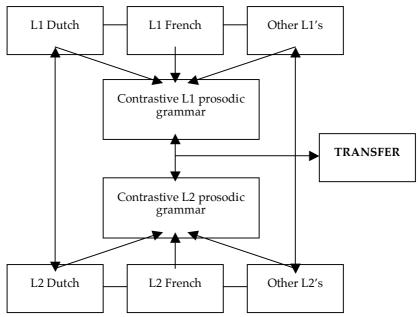
Figure 1. The "Integrated Contrastive Model"

The first step in the model consists of a contrastive analysis of comparable data in the L2 learners' mother tongue and target language ("text-based CA"). As prosodic phenomena have been shown to be highly sensitive to contextual effects (Jilka 2000 for an overview), it is important that the prosodic data in both languages be gathered in comparable experimental conditions. In this stage, the L1 Dutch and L1 French are also related to prosodic information about other typologically (un)related languages so that the typological distance between the languages under investigation can be determined ("system-based CA"). This constitutes an important primary step to the study of transfer as "markedness", defined as the typological distance between languages (Haspelmath 2005), has been shown to influence the (non-)occurrence of transfer. This contrastive study of prosodic systems results in a so-called "contrastive L1 prosodic grammar" that has both a predictive and an explanatory value for IL facts.

After comparing the L1 data with each other, we set out to describe the interlanguage data on prosody. For comparison's sake, it is important that the interlanguage data be described within the same theoretical framework as the control data of the native speaker group. The analysis of interlanguage data consists of three steps. Following Selinker (1972, 1992), we first describe the learners' IL independently.

Then, we relate them to control data in the target language so that we can determine what the L2 learners are doing right or wrong when using the L2. Finally, the IL data are related to comparable data in other IL varieties, resulting in a so-called "contrastive L2 prosodic grammar".

There exist different types of IL-IL comparisons. Some authors (e.g. Granger 1996) use comparisons of different groups of L2 learners of the same target language in order to arrive at what James (1994: 187) has called "a quantificational contrastive typology of a number of (…) interlanguages". The problem with this approach is that what is claimed to be the result of L1 influence could in fact be simple idiosyncrasies of the target language under investigation. Therefore we prefer comparing interlanguage data from L2 learners of different target languages. More specifically, we compare learners in a given learning situation (i.e. French-speaking learners of Dutch) with learners in the reverse learning situation (i.e. Dutch-speaking learners of French), and then relate the IL data to prosodic data from other categories of learners. To guarantee the validity of the comparison, care must be taken that the learners have comparable profiles.

In the final step of the model, we compare the contrastive L2 prosodic grammar to the contrastive L1 prosodic grammar so that we can sort out the respective influence of language-specific and universal factors in the learning process of prosody. Contrastively analyzing the two grammars also makes it possible to get insight into the various forms of prosodic transfer in the IL data.

4.   Case study: pitch accent in L2 prosody

4.1.   *Past research on the L2 acquisition of pitch accent*

When learning an L2, non-native speakers have to learn how to assign and phonetically produce pitch accents in the appropriate way. They also have to learn what phonological type(s) of accent(s) can be used in a given context in order to convey a given meaning. Looking at past research on interlanguage prosody, it appears that the acquisition of pitch accent in an L2 has received limited attention so far. Also, research findings are sometimes inconclusive or even contradictory. In this section, we focus on the studies of L2 pitch accent assignment.

Generally speaking, past research on L2 accentuation has shown that L2 learners tend to overuse accents in their L2 speech. In two longitudinal studies of the acquisition of English pitch accent by German learners at different levels of L2 proficiency, Grosser (1993) and Wieden (1993) found that this overuse is typical of the early stages of the learning process. Interestingly, this overproduction of pitch accents in

L2 speech has been observed in a wide range of interlanguage varieties, e.g. Archibald (1997) who examined the L2 English speech of Polish and Hungarian learners, Hiligsmann & Rasier (2002) and Rasier (2003) who studied French-speaking learners of Dutch, Backman (1979) and Ramirez-Verdugo (2002) who did a study on Spanish learners of English, Jenner (1976) and Willems (1982) who examined the L2 English of Dutch learners, Rasier (2006) who looked at the L2 speech of Belgian-French learners of Dutch and Dutch-speaking learners of French. Also, it should be noted that a tendency to overuse pitch accents in L2 speech has also been observed in some studies involving L2 learners at a (quite) high level of L2 proficiency (Hiligsmann & Rasier 2002, Rasier 2003, 2006).

In fact, L2 learners seem to have much difficulty distinguishing between old and new information and therefore tend to emphasize nearly each word in the utterance. Counterevidence is provided by Barlow (1998) who reports that his Spanish, Italian, and Chinese learners of English at different levels of L2 proficiency did not make any mistake when assigning pitch accent in the target language. This holds true for both normal/non-contrastive contexts with a nuclear accent in default right-most position and contrastive contexts in which the L2 learners had to shift the nuclear accent from its right-most position onto a non-final word. Besides, Barlow (1998) did not find any significant L1 influence on the learners' accentuation strategies.

In later stages, L2 learners restructure their interlanguage so that it progressively comes closer to the L2 norm. During these stages, the cross-linguistic influence of the L1 and the overgeneralization of accentuation rules can be noticed (Archibald 1997, Hiligsmann & Rasier 2002, Ramirez Verdugo 2002, Rasier 2003, 2006). Regarding overgeneralization, Grosser (1993) and Wieden (1993) report that this process first affected the L2's main accentuation rule in the English deliveries of their German learners. In a subsequent stage, however, overgeneralization would also occur with respect to the L2 rule for contrastive accentuation.

This finding suggests that there is a qualitative difference in terms of learning process between the "marked" and the "unmarked" accentuation rules of a given language. There is also some evidence available that this qualitative difference between marked and unmarked accent patterns is reflected in the extent to which they can be transferred from the learner's L1 to his/her L2 phonology (Rasier 2003, 2006).

The general picture that emerges from the scientific literature is that accent is a difficult prosodic phenomenon to acquire, and this seems to hold true for quite diverse categories of L2 learners. In L2 Dutch and L2 French, we have little data on the distribution of accent.

We have investigated this issue using the "Integrated Contrastive Model" outlined in section 3 as a methodological framework and Eckmann's "Markedness Differential Hypothesis" (Eckmann 1987) as a theoretical framework for the description of the L2 data on accent.

4.2. Methodology

Contrastive research on prosody indicates that there are (quite) large differences between languages as far as their patterns of utterance-level accentuation are concerned. This is especially true for Germanic (e.g. Dutch, English, German) and Romance languages (e.g. French, Italian, Spanish) (Hirst & Di Cristo 1998, Ladd 1996, Vallduvi 1991). In a recent study, Swerts et.al. (2002) experimentally investigated accentuation in Dutch and Italian and found that there is a close relationship between accentuation, deaccentuation and information value in Dutch, whereas the distribution of pitch accents did not vary according to the information value of the words in Italian. These findings are compatible with the idea of Vallduvi (1991) that accentuation in Dutch – and in fact in most Germanic languages – is "plastic" whereas it is "non-plastic" in Italian – and in most other Romance languages as well. In this respect, Ladd (1996: 294) suggests that Catalan and French are typical examples of Romance languages with "non-plastic" accentuation, and with a view on studying the accent placement strategies of L2 learners we might expect such typological contrasts to have an impact on the L2 learners' accentuation strategies. So our research questions are the following:

1. To what extent do the L2 learners of Dutch and French master the accentuation rules of the target language?

2. Do the contrasts/similarities between Dutch and French have an influence on the L2 learners' accentuation strategies?

3. What do the L2 data tell us about prosodic transfer?

Our material consists of elicited noun phrases of the type "indefinite article + adjective + noun" (Dutch data) and "indefinite article + noun + adjective" (French data). The data were gathered with a picture description task in which 20 advanced French-speaking learners of Dutch and 20 advanced Dutch-speaking learners of French (10 from the Netherlands and 10 from Flanders) were asked to describe geometrical figures (a circle, a triangle, a star, a square) appearing on a computer screen in different colours (red, yellow, blue, green). Using situational contrasts (see Swerts et.al. 2002 for a similar technique), the information value of the words was varied in four conditions: New/New (NN), Given/Contrastive (GC), Contrastive/Given (CG), Contrastive/Contrastive (CC). A property is defined as "new" when it has not yet been used in the discourse. It is called "given" when it has

already been mentioned in the preceding context. When a property differs from the preceding utterance, it is called "contrastive".

All informants were second-year students of economics who had been learning the L2 for 10 years in a similar institutional setting. They took the test in their L1 and L2 so that we had comparable data in both varieties at our disposal.

The data were transcribed by the two authors independently. Transcriptions were then compared with each other. In cases of disagreement, the data were discussed until agreement was reached. As the accent distributions sounded clear in the vast majority of the cases, it was not felt necessary to cross-check the transcriptions using acoustic techniques (e.g. inspection of the F_0). All target descriptions were used for a distributional analysis involving L1-L1 comparisons, L1-L2 comparisons, and L2-L2 comparisons (see section 3).

4.3.   *Accent placement in L1 Dutch and L1 French*

Accentuation has been claimed to be used in many languages as a pointer to words of special importance or newsworthiness, whereas deaccentuation signals old information or information that can be expected in the discourse (Bolinger 1972, Chafe 1974). Experimental support for the claim that accentuation is primarily governed by pragmatic (i.e. discourse) factors in Dutch has been provided by a.o. Nooteboom & Kruyt (1987), Terken (1984), Terken & Nooteboom (1987), Van Donselaar (1995) and more recently by Swerts et.al. (2002).

Our L1 Dutch data confirm the view that in Dutch contextually new and/or important words are nearly always accented, whereas given information is deaccented. This results in a quite high association between news value and accentuation (Cramers' V = 0,878; Chi^2 = 319,107; df = 1; p < 0,001). Table 2 gives an overview of the accent patterns that were produced by the L1 speakers of Dutch in the four conditions. Accent patterns are ranked according to their frequency, with the most frequent one being displayed in bold characters and capitals indicating accented words:

Exp.Con.	L1 Dutch	N (%)
NN	[Context: start of the game] **een RODE DRIEHOEK** een RODE driehoek	**18 (90%)** 2 (10%)
GC	[Context: een gele driehoek] **een geel VIERKANT** een GEEL VIERKANT accent on each word	**20 (50%)** 18 (45%) 2 (5%)
CG	[Context: een rode driehoek] **een GELE driehoek** een GELE DRIEHOEK	**38 (95%)** 2 (5%)
CC	[Context: een geel vierkant] **een GROENE STER** een groene STER	**38 (95%)** 2 (5%)

Table 1. Accent patterns in L1 Dutch

No significant difference was found between the Dutch and Flemish informants. Therefore we will not differentiate between the two varieties. The NN and CC conditions contain two contextually important words, and as shown in table 1, both of them are accented in the vast majority of the cases. In the GC and CG condition, by contrast, there is only one contextually important piece of information. But in both cases, the native speakers of Dutch tend to produce a single accent on the contextually contrastive entity – although it should be noted that a pattern with a pre-nuclear accent is also possible in the GC condition (see also Terken & Hirschberg 1994, Swerts et.al. 2002), whereas post-nuclear accentuation is quite infrequent in the CG condition.

When we look at accentuation in French, a quite different picture emerges. According to classic descriptions (e.g. Garde 1968), French has a fixed primary accent ("*accent primaire*") in phrase-final position that is independent of the news value of the words in the utterance. This explains why Vallduvi (1991) and Ladd (1996) consider French as a language with non-plastic accentuation. Table 2 gives an overview of the accent patterns that were produced by our L1 French speakers:

Exp.Con.	L1 French	N (%)
NN	[Context: start of the game] **un CERCLE ROUGE** UN cercle ROUGE un cercle ROUGE	 **12 (60%)** 6 (30%) 2 (10%)
GC	[Context: un cercle rouge] **un CERCLE BLEU** UN cercle BLEU un cercle BLEU accent on each word	 **24 (60%)** 12 (30%) 2 (5%) 2 (5%)
CG	[Context: un cercle bleu] **un TRIANGLE BLEU** un TRIANGLE bleu un triangle BLEU accent on each word	 **40 (67%)** 18 (30%) 1 (1,5%) 1 (1,5%)
CC	[Context: un triangle bleu] **une ETOILE JAUNE** UNE étoile JAUNE une étoile JAUNE Une ETOILE jaune	 **50 (83,5%)** 4 (6,6%) 4 (6,6%) 2 (3,3%)

Table 2. Accent patterns in L1 French

First of all, we find the same basic accent pattern in all conditions. Interestingly, this pattern does not correspond to what could be expected from classic descriptions of French prosody (e.g. Garde 1968). Instead of a fixed primary accent ("*accent primaire*") in phrase-final position, the L1 French data show a strong tendency to produce a bridge accent ("*arc accentuel*", Di Cristo 1999), i.e. a pattern in which the first and the last full syllable in a phrase are accented. A second difference with the L1 Dutch data is that old information does not always undergo deaccentuation, which points to the "non-plastic" character of accentuation in French. Yet it should be noted that, contrary to the Italian data presented in Swerts et.al. (2002) and the informal claims in Ladd (1996), deaccentuation does occur in the L1 French data, e.g. in the CG condition: "*un TRIANGLE bleu*" where a narrow focus ("*accent de focalisation*"; Rossi 1999) on "*triangle*" makes it possible to deaccent the contextually known colour adjective '*bleu*'. But deaccentuation is much less frequent than in Dutch, which is reflected statistically in a moderate association between news value and accentuation (Cramer's $V = 0,615$; Chi$^2 = 204,185$; df $= 1$; $p < 0,001$).

Concluding on L1 Dutch and L1 French, the data suggest that structural constraints on accentuation outweigh pragmatic information in French, while it is the opposite in Dutch. If we relate this finding to other contrastive data (a.o. Hirst & Di Cristo 1998), it appears that many languages have structural constraints on accentuation,

whereas pragmatic factors are not necessarily involved. More precisely, although the distribution of pitch accents is governed structurally in non-plastic languages, many languages rely on both structural and pragmatic information in their accent placement strategies, albeit in a different order of preference. But there seems to be no language where structural constraints are totally absent:
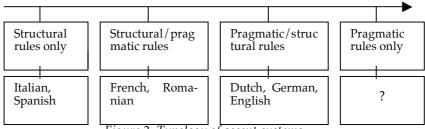
Structural rules only	Structural/pragmatic rules	Pragmatic/structural rules	Pragmatic rules only
Italian, Spanish	French, Romanian	Dutch, German, English	?

Figure 2. Typology of accent systems

4.4.   Markedness Differential Hypothesis

Such contrasts may influence the learning process of accentuation in an L2, especially the (non-)occurrence of L1 transfer. In this respect, Eckmann's *Markedness Differential Hypothesis* (Eckmann 1987) offers an interesting theoretical framework for the analysis of prosodic transfer.

According to Eckmann (1987), a phenomenon A in some language is more marked than B if the presence of A implies the presence of B; but the presence of B does *not* imply the presence of A. In prosodic terms, this means that structural accentuation rules constitute the unmarked case because their existence does not imply the occurrence of pragmatic rules in the language, whereas their pragmatically motivated counterparts are more marked as their existence in the language necessitates the presence of structural rules. Eckmann (1987) also predicts that the more marked a rule, the more difficult it is to learn. Pragmatic accentuation rules should therefore be more difficult than structural ones. In other words, it should be easier for Dutch-speaking learners of French to learn the essentially structural accentuation rules of French than for French-speaking learners of Dutch to acquire the Dutch accentuation rules that are pragmatic in essence.

Eckmann's *Markedness Differential Hypothesis* also predicts that (i) marked L2 patterns are more difficult to learn than unmarked ones, (ii) marked L2 patterns that are less marked than the patterns of the mother tongue are not difficult to learn, and (iii) marked L1 patterns are less likely to be transferred than unmarked ones. Figure 3 gives an overview of the respective degree of markedness of the accent patterns in L1 Dutch and L1 French. In this respect, we still assume

that accent patterns resulting from the application of structural rules are less marked than accent distributions that are motivated pragmatically:
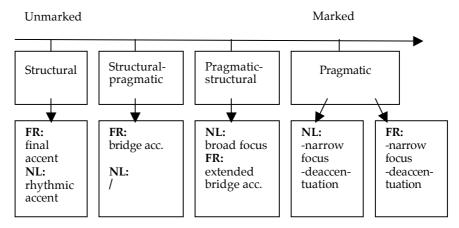
Unmarked   Marked

Figure 3. Typology of accent patterns in L1 Dutch and L1 French

4.5. Accentuation in L2 Dutch and L2 French

4.5.1. General results

The first question we will pay attention to is to what extent the accent patterns of the non-native speakers are similar to or different from the ones produced by the native speakers of Dutch and French. Table 3 gives an overview of the results. Accent patterns produced by L2 speakers are considered as "correct" when they correspond to what the native speakers do in the same context. When non-native patterns do not correspond to native production, they are regarded as "wrong". Finally, some patterns are labelled "acceptable" because the accent distribution is similar to native production but these cases also contain a pause in the accentual phrase. As this hardly ever occurred in the speech of the L1 speakers, it was felt that a distinction should be made between these patterns with a domain-internal pause and the correct cases without pauses.

	Accent patterns			
	Wrong	Acceptable	Correct	Total
L2 Dutch	48 (34,3%)	26 (18,6%)	66 (47,1%)	140 (100%)
L2 French	24 (14%)	20 (11,7%)	127 (74,3%)	171 (100%)
Total	72 (23,2%)	46 (14,8%)	193 (62,1%)	311 (100%)

Table 3. Acceptability of the accent patterns in L2 Dutch and L2 French

Relying on Eckmann's hypothesis we predicted that it would be more difficult for the L2 Dutch subjects to learn the (primarily pragmatic) accent placement rules of Dutch than it would be for the L2 French learners to master the accentuation principles of the target language that are structural in essence. In other words, it should be easier to shift from a language with plastic accentuation (like Dutch) to a language with fixed or non-plastic accentuation (like French) than the other way round. The L2 data support this view. The Dutch-speaking learners of French have significantly higher scores, i.e. 74% correct patterns, than the French-speaking learners of Dutch who produced only 47% correct accent patterns (Chi^2 = 25,223; df = 2; p < 0,001). We explain this finding by the fact that, from a psycholinguistic point of view, the parameter resetting involved in a shift from a non-plastic, i.e. structurally regular, to a plastic, i.e. structurally irregular, accent system (French→Dutch) may be more demanding than the movement in the other direction (Dutch→French), which leads to more learning difficulties in the first case than in the second one.

4.5.2. *Accentuation in L2 Dutch*

Table 4 gives an overview of the accent patterns in L2 Dutch. For comparison's sake they are displayed with their counterparts in L1 Dutch:

Exp.con.	L2 Dutch	N (%)	L1 Dutch - N (%)
NN	[Context: start of the game] **een RODE DRIEHOEK** een rode DRIEHOEK een RODE driehoek accent on each word	**12 (60%)** 1 (5%) 1 (5%) 6 (30%)	**18 (90%)** 0 (0%) 2 (10%) 0 (0%)
GC	[Context: een gele driehoek] **een GEEL VIERKANT** een geel VIERKANT accent on each word	**28 (70%)** 2 (5%) 10 (25%)	18 (45%) **20 (50%)** 2 (5%)
CG	[Context: een rode driehoek] **een GELE DRIEHOEK** een GELE driehoek accent on each word	**20 (50%)** 14 (35%) 6 (15%)	2 (5%) **38 (95%)** 0 (0%)
CC	[Context: een geel vierkant] **een GROENE STER** een groene STER accent on each word	**33 (82,5%)** 0 (0%) 7 (17,5%)	**38 (95%)** 2 (5%) 0 (0%)

Table 4. Accent patterns in L2 Dutch and their counterparts in L1 Dutch

It was shown in section 4.3 that there is a (quite) close association between news value and accentuation in L1 Dutch (Cramer's V = 0,878). In L2 Dutch, by contrast, the association between the two variables is

much lower (Cramer's V = 0,615; Chi^2 = 204,185, df = 1, p < 0,001). This is due to the fact that the L2 learners of Dutch produced the same basic pattern in all experimental conditions, thereby falling back on the accent pattern of their L1 (cf. table 2 in section 4.3). This basic accent pattern consists in an accent bridge ("*arc accentuel*"), i.e. an unmarked L1 pattern (cf. figure 3 in section 4.4). This pattern with two accented words in the phrase can also be used as a basic accent pattern in L1 Dutch, but it is only the case when there are two contextually important words in the utterance. In L2 Dutch, this pattern is overused and this results in the underuse of the pattern with a single accent on the contrastive entity in the GC and CG condition. This kind of narrow focus on the contextually contrastive entity entails the deaccentuation of another element in the phrase, and is relatively marked in French (see figure 3 in section 4.4). This explains why it is significantly less frequent in L2 Dutch than in L1 Dutch (Chi^2 = 34,321; df = 1; p < 0,001):

	Language variety		N (%)
	L1 Dutch	L2 Dutch	
[+ accent]	20 (25,6%)	48 (75%)	68 (100%)
[- accent]	58 (74,4´)	16 (25%)	74 (100%)
Total	78 (100%)	64 (100%)	142 (100%)

Table 5. Deaccentuation of given information in L1 Dutch and L2 Dutch

Another marked L1 pattern which is resistant to transfer is the extended bridge accent ("*arc accentuel étendu*"; Di Cristo 1999), i.e. a pattern with an accent on the phrase-initial function word and on the word in phrase-final position (e.g. "*UN cercle ROUGE*").

4.5.3. Accentuation in L2 French

Table 6 gives an overview of the accent patterns in L2 French. For comparison's sake they are displayed with their counterparts in L1 French:

Exp.con.	L2 French	N (%)	L1 French – N (%)
NN	[Context: start of the game]		
	un CERCLE ROUGE	**14 (73,5%)**	**12 (60%)**
	UN cercle ROUGE	3 (16%)	6 (30%)
	un cercle ROUGE	0 (0%)	2 (10%)
	accent on each word	2 (10,5%)	0 (0%)
GC	[Context: un cercle rouge]		
	un CERCLE BLEU	**22 (59%)**	**24 (60%)**
	UN cercle BLEU	2 (5%)	12 (30%)
	un cercle BLEU	7 (18%)	2 (5%)
	accent on each word	7 (18%)	2 (5%)
CG	[Context: un cercle bleu]		
	un TRIANGLE bleu	**32 (56%)**	18 (30%)
	un TRIANGLE BLEU	22 (38,5%)	**40 (67%)**
	un triangle BLEU	0 (0%)	1 (1,5%)
	accent on each word	3 (5,5%)	1 (1,5%)
CC	[Context: un triangle bleu]		
	une ETOILE JAUNE	**43 (75,4%)**	**50 (83,5%)**
	UNE étoile JAUNE	8 (14,1%)	4 (6,6%)
	une étoile JAUNE	0 (0%)	4 (6,6%)
	Une ETOILE jaune	0 (0%)	2 (3,3%)
	accent on each word	6 (10,5%)	0 (0%)

Table 6. Accent patterns in L2 French and their counterparts in L1 French

As far as the most frequent accent distribution in the four experimental conditions is concerned, the L2 speakers display nearly the same behaviour as the control group in three out of the four conditions. Indeed, both groups use a bridge accent ("*arc accentuel*") in the NN, CC and GC condition. As could be expected on the basis of the *Markedness Differential Hypothesis*, the Dutch-speaking learners of French do not find it difficult to produce this unmarked L2 pattern. In this respect, the formal similarity with the L1 Dutch pattern in those three conditions may also have had a facilitating effect on the production of the French pattern. The main difference between the L1 and the L2 speakers of French can be found in the CG condition in which the L2 learners deaccent the contextually given piece of information more often than the L1 speakers, thereby falling back on the Dutch intonation pattern in which deaccentuation is less marked than in French.

Although the Dutch-speaking learners of French use essentially the same accent patterns as the native speakers, it should be noted that there are some differences between both groups of informants regarding the frequency of the various accent patterns. Two patterns are overused in L2 French. The first one is the pattern with narrow focus ("*accent de focalisation*") on the contextually important piece of information (GC and CG condition) (Chi^2 = 9,817; df = 1; p < 0,01). This leads to the deaccentuation of another element in the phrase, and

recalls the main Dutch accentuation strategy in the GC and CG condition. Deaccentuation is less marked in Dutch than in French, and this explains according to Eckmann (1987) why L2 learners do not have much difficulty with this marked L2 pattern. Another pattern which is more frequent in L2 than in L1 speech is the distribution with an accent on every word in the utterance (see section 4.5.4).

These forms of overuse lead to the overall underrepresentation of the bridge accent ("*arc accentuel*") and the extended bridge accent ("*arc accentuel étendu*"). Yet, the difference between the L1 and L2 speakers of French is not significant (Chi^2 = 0,666; df = 2; p > 0,05). Despite the marked character of these two French patterns, the L2 learners use them in a contextually adequate fashion. In fact, both patterns are less marked than the accent patterns of the mother tongue, and this explains why the Dutch informants produce them in the right context. Finally, it should be emphasized that the pattern with a single phrase-final primary accent, despite its unmarked character, was not found in the L2 data of the Dutch-speaking informants.

4.5.4. Accentuation and the erroneous use of pauses

As we saw in the preceding sections, the L2 Dutch and the L2 French corpora contain accent distributions consisting of the simultaneous accentuation of all the words in the phrase. Closer inspection of these data reveals that this pattern occurs when speech pauses have been added erroneously between the various items in the utterance:

 *(1) [Context: een gele driehoek] *EEN euh GEEL // VIERkant*

 *(2) [Context: un cercle bleu] *UN // TRIanGLE // euh: BLEU*

Similarly, the presence of a single pause between the adjective and the noun leads in most cases to the simultaneous accentuation of both items. And this holds true for the two L2 varieties under investigation:

 (3) [Context: start of the game] een ROde ehm // DRIEhoek

 *(4) [Context: een rode driehoek] *een GEle // DRIEhoek*

 (5) [Context: un cercle rouge] un CERcle // BLEU

As opposed to native speakers who are able to hesitate without producing extra accents (see e.g. utterances like "een ROde euh cirkel"), speech pauses seem to favour the production of contextually inadequate – or at least contextually less adequate – accent patterns (see also Trofimovitch & Baker 2006). In fact, a (relatively) strong positive correlation can be observed in both L2 varieties between the presence/absence of domain-internal pauses and the degree of correctness of the accent distribution (L2 Dutch: r = 0,915, p < 0,001, N = 20; L2 French: r = 0,679, p < 0,001, N = 19). So, the better the use of pauses in the utterance, the better the accentuation. However, the overall effect of the correlation between pausing and accentuation is

stronger in L2 Dutch ($r^2 = 0,838$; i.e. 84% explained variation) than in L2 French ($r^2 = 0,4692$; i.e. 47% explained variation).

5. Conclusions

In this article, we have reviewed past research on the L2 acquisition of prosody, with special emphasis on the role of the L2 learners' L1 in the acquisition process. We have also examined past research methods in the description of (prosodic) transfer, and proposed a method combining text-based contrastive analysis, system-based contrastive analysis, and contrastive interlanguage analysis. This method was finally put to the test in a comparative study of accentuation strategies in L2 Dutch and L2 French.

The results show that there are considerable differences between Dutch and French as far as accent placement is concerned, and that the contrasts between the two languages influence the acquisition process of accentuation. More specifically, our study provides experimental support for Eckmann's view that markedness is an important factor in predicting and explaining learning difficulties, especially the cases of prosodic transfer between the learners' L1 and L2. Also we have established a link between pausing errors and accentuation errors, which suggests that prosodic errors – or pronunciation errors in general – are cumulative (see also Nash 1972 for a similar point).

Future research will investigate the phonetics and phonology of accent in L2 speech, as well as the use of prosody and syntax as linguistic markers of the information structure of spoken utterances.

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