

Phonology and the Dutch-Polish connection: a personal memoir .

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1. Introduction

The historiography of a scientific discipline is aimed at providing an adequate ‘history of ideas’ for a certain domain of scientific inquiry. This history of ideas can be reconstructed by studying the relevant scientific publications. In addition, it is often illuminating to also study personal documents written by scientists, such as letters and personal memoirs. When we want to investigate how progress in science is made, such more personal sources might be very revealing. We know that scientific debates never take place in isolation, but always in the context of specific societies and among scientists with specific personal backgrounds. Studying these dimensions will help us to understand the nature of a discipline, the theoretical issues involved, and how debates are conducted and progress is made.

This awareness of the importance of individuals for a proper description of the history of a discipline is reflected by some linguists publishing personal memoirs. A nice example is (Dixon 1984). Other sources are the prefaces in monographs and dissertations, and the first footnotes of articles in journals, obituaries, personal stories on *Linguist List*, biographies in Festschriften, and interviews in papers and journals.

In this article I would like to contribute to the historiography of linguistics by giving a brief personal memoir of my cooperation with prof. Jerzy Rubach. Professor Rubach, my dear colleague and friend whom I would like to honour by means of this article, is one of the world’s leading experts in the domain of the interaction between morphology and phonology (both segmental and prosodic phonology), with a focus on Slavic languages. These languages form an ideal testing ground for theoretical analyses in this domain, given the challenging and complicated phenomena that they exhibit when this interaction is at stake. In this article I will reflect on some developments in phonological theory during Rubach’s and my scientific career, and on his own contribution to these theoretical developments. In the eighties and

nineties of the previous century we did a lot of work together, and this article is also meant to celebrate our wonderful cooperation in those years.

This article is conceived primarily as a small contribution to the historiography of linguistics, and in particular phonology. It is interesting to see how intellectual exchange and cooperation between linguists from different countries took place, what the preconditions were, and how this played a role in scientific progress. Personal memoirs of this type provide information about the history of a discipline that otherwise might get lost.

My work with Rubach started thanks to the intervention of dr. Wolfgang U. Dressler, professor of General Linguistics in Vienna. Prof. Dressler organized phonology conferences in Vienna, the city that had a pivotal role in the communication between Western Europe and the East-European countries behind the Iron Curtain, also for linguists. My first conference in Vienna was in September 1976 (the Dritte Internationale Phonologie-Tagung, *Phonologica 1976*), and this is how I got to know prof. Dressler. I have visited many of these *Phonologica*-conferences ever since. In 1982, Dressler sent me a letter in which he asked me if I could arrange a scholarship for Rubach, who, due to the difficult political situation in Poland, in particular the enforcement of martial law, did not have the proper facilities for doing linguistic research at his own university. I therefore applied for a scholarship for Rubach at the Dutch National Science Foundation (NWO), and I got it. So Rubach arrived in Amsterdam in 1983, and started working in my department, the department of General Linguistics at the Vrije Universiteit Amsterdam where I had been appointed as a full professor of General Linguistics in 1981. At this stage of my career I had done some work on the phonology of Dutch, and I was also interested in the theory of Lexical Phonology. I had given a talk on this topic in Vienna (Booij 1981), whereas Rubach had worked on this topic for his dissertation on Polish, written at MIT under the supervision of Morris Halle and Paul Kiparsky. Kiparsky was also present at the 1980 *Phonologica* conference, gave me very positive feedback on my lecture given there, and encouraged me to further work in this framework. I attended Kiparsky's lectures on Lexical Phonology in the spring of 1982 in Paris, and this also stimulated me to continue working on this theory. Rubach knew Kiparsky's ideas very well thanks to his stay at the Department of Linguistics at MIT in Cambridge (Mass.). Rubach therefore appeared to be an excellent partner for this project.

This Dutch-Polish cooperation of ours can be seen as the revival of an old tradition. The famous Dutch slavist Nicolaas van Wijk (1880-1941), a professor in Leiden, received and supported many refugees from Eastern Europe in the interbellum period when that part of the world was in political upheaval (Hinrichs 2005). After the Second World War,

cooperation between the countries behind the Iron Curtain and Western Europe was not that easy, but still possible. Several linguists from the USA and the UK went to Poland as university professors supported by programs such as the Fulbright scholarships. Some Polish linguists managed to study abroad for some time, but there were limitations of various sorts, including political ones. So it was great that the Dutch National Science Foundation provided support for a Polish linguist to come to the Netherlands.

2. Lexical Phonology

This is how our cooperation started, and it turned out to be very fruitful. I was quite happy to learn more about the intricacies of Slavic phonology, and Rubach found in me a good sparring partner for discussions about the proper modeling of the interaction between morphology and phonology. In the meantime, I also learned some Polish words, and Rubach told me about the Dutch loanwords in Polish such as *rolmops* ‘herring’ and *boja* ‘buoy’. Many Dutch/Low-German words have been copied in Polish, thanks to the Hanseatic links between Poland and the Netherlands.

The theory of Lexical Phonology formed a good framework for studying how the architecture of the grammar and the morphological structure of words determine the phonetic form of words, within a derivational approach to phonology. The basic assumption was that each morpheme of a language has an underlying phonological representation, and that the phonetic form of morphemes is computed by an ordered set of phonological rules that apply at more than one level (Booij 2000; Rubach 2008). It was in Amsterdam that Rubach prepared the publication of his dissertation as a book: *Cyclic and Lexical Phonology. The Structure of Polish* at Foris Publications in Dordrecht, The Netherlands, 1984. At that time, there were many generative linguistics active in the Netherlands, including generative phonologists, and Foris Publications, a small publishing house owned by Henk La Porte, played an important role in publishing studies on generative phonology. When the book appeared, the first copy was presented to Rubach at the Vrije Universiteit by the publisher on September 24, 1984, and we had a festive lunch with La Porte and the dean, prof. dr. Bernard Al, to celebrate this success. Thus, Rubach’s trips to the Netherlands boosted the visibility of his ideas and the spreading of knowledge about Polish phonology.

Many linguists contributed to the theory of Lexical Phonology. An excellent survey of the debate on various issues, in which our common work is mentioned, can be found in (Kaisse & McMahon 2011).

3. Prosodic phonology

A second important theoretical development that guided the research that Rubach and I did in the last two decades of the 20th century was that of prosodic phonology. The insight that prosodic constituents such as the syllable, the foot, and the prosodic word are essential for phonological analysis is referred to as prosodic phonology. This was an important development given that these prosodic categories are completely absent in what at that time was the standard theoretical framework in generative phonology, *The Sound Pattern of English* (Chomsky & Halle 1968). This is a remarkable absence, also because the syllable was studied before the advent of generative phonology, in particular in Poland, where Jerzy Kuryłowicz wrote his famous article ‘Contribution á la théorie de la syllable’ (*Biuletyn Polskiego Towarzystwa Jezykoznawczego* 8 (1948), 80-114) which showed the necessity of the syllable as a phonological constituent. In the Netherlands, a number of phonologists worked on topics like syllable structure of Dutch, and its relation to morphological structure. An example is my dissertation (Booij 1977) which discussed among other things the influence of morphological structure on syllabification patterns. In the Netherlands we had at that time a very active group of phonologists working together in various ways, among them Harry van der Hulst and Colin Ewen (University of Leiden), Marina Nespó, Irene Vogel, and Norval Smith (University of Amsterdam), and Carlos Gussenhoven (University of Nijmegen). The widely accepted theory of prosodic categories was further developed in the Netherlands at the University of Amsterdam by Marina Nespó, an Italian phonologist, now a professor in Ferrara, Italy, and Irene Vogel, an American Italianist, now a professor at the University of Delaware. A summary of the ideas of prosodic phonology was published as (Nespó & Vogel 1986), a very influential and much quoted monograph. So Amsterdam was a great place for linguists working on prosodic phonology.

Our first co-authored article is (Booij & Rubach 1984). It appeared as the opening article of a new publication, the *Yearbook of Phonology*, edited by Colin Ewen and John Anderson, which later changed its name into *Phonology*, still the leading international journal in the area of phonology. In this article, we argued that the theory of Lexical Phonology which claims that the morphological structure of complex words determines the way in which phonological rules apply to these words, although basically correct, seems to make wrong predictions in certain cases, both for English and Polish. We showed that phonological rules

may apply in prosodic domains that are not isomorphic to morphological domains. In particular, some English (e.g. *un-*) and Polish (e.g. *roz-*) prefixes form phonological words of their own, even though they are bound morphemes. Since phonological rules may be defined to apply in particular prosodic domains, this solved certain problems in the cyclic application to prefixed words. This insight as to the non-isomorphy of phonological and prosodic domains has been confirmed time and again in studies of many languages, and the article has been cited many times. According to Google Scholar it has 196 citations (accessed January 23, 2017). We sent a draft of this paper to Morris Halle, the godfather of generative phonology, and the most important teacher of Rubach when he studied at MIT as a Ph. D. student. In those days communication between scholars was not that fast, as there was no e-mail yet (I started using e-mail in 1991). Halle reacted in a letter dated December 23, 1983, which is still in my personal archive, and wrote the following:

“Dear Jurek and Geert,
[...]

I like all but one aspect of your paper. I think that the treatment of the Polish *yer* is exemplary, and there is no doubt in my mind that the phonological rules have to be applied in the order in which you give them in the paper, and that the prefixes in Polish – as apparently in many other Indo-European language[s], as well – are the outermost constituents of the words, at least for the application of the phonological rules. I am, alas, a lot less convinced about the correctness of the solution you propose, namely to set the prefixes up as separate words. This is, of course, not an altogether wild idea. The dividing line between prefixes and prepositions is a fairly thin one, and if prepositions are to be treated as separate words, then why not prepositions [clearly Halle meant to write *prefixes* here, GB]?

There seem to me, however, to be good reasons for drawing a sharp distinction between the two classes. They differ in that prepositions are really words syntactically; e.g. they are moved about freely by “move alpha” many languages like other words. Their only peculiarity is that they are cliticized onto adjacent words, and that is a perfectly well known process in present day language study. Prefixes, by contrast, are affixes, and should be treated on a par with suffixes, rather than with words. I am, therefore, not happy with a solution that appears to permit us to eliminate the distinction between words and affixes at will.

I do not have a very good idea of how this problem is to be solved. [...]

(Halle then mentions the solution proposed for the proper application of phonological rules to the English word *ungrammaticality* by Pesetsky, in which the phonology applies to the structure [*un* [[*grammatical*]*ity*]], and then transformed into [[*un*[*grammatical*]]*ity*] for its proper semantic interpretation at LF (Pesetsky 1985)).

It is not clear to me whether and how this approach can be adapted to the Polish case, and so far Pesetsky has not come up with a really convincing treatment.

I suppose this leaves matters pretty much where they were before I read your paper. The paradox you discuss is a very real one. Unfortunately, I have nothing definitive to contribute towards its solution.

With best wishes for the New Year,
(signed) Morris Halle”

Rubach and I did not agree with Halle’s criticism as phrased in the letter above. In our paper, the relevant prefixes were not considered words in the morpho-syntactic sense, but only in the phonological or prosodic sense: they are prosodic words. Apparently, Halle had not yet fully grasped or accepted the idea that there are good reasons for an independent prosodic structure besides morpho-syntactic structure. Halle’s observation that prefixes often derive historically from prepositions is correct and very relevant: prefixes may betray this historical origin through their phonological status as independent phonological words. Another example of this type of historical change (grammaticalization) is that Dutch prefixed verbs often derive from particle verbs. The morpho-syntactic status of such morphemes has changed, but phonologically they behave still like words (Los et al. 2012). By now this insight concerning the possible non-isomorphy of morphological and prosodic constituents is generally accepted.

In later work with Rochelle Lieber of the University of New Hampshire, also a visitor at my department in the Vrije Universiteit Amsterdam, I developed the argument that the morphological structure and the prosodic structure of words have to be co-present, they are simultaneous structures (Booij & Lieber 1993). In present-day terms we would phrase this as the ‘parallel architecture’ of the grammar (Booij & Audring 2017; Jackendoff 2002).

During Rubach’s various stays in my department in the 1980s we worked intensively on the theory of syllable structure, a central topic for prosodic phonology, and on stress phenomena. As to word stress, we published a much cited paper on stress in Polish (Rubach

& Booij 1985). An important point of that paper was that the location of secondary stresses in long words is determined by a rhythmic principle. I recall that at first Morris Halle was not convinced that we gave the right analysis, but later on he referred to this article in a positive way in an article co-authored with Jean-Roger Vergnaud on ‘Stress and the cycle’ in *Linguistic Inquiry* 18 (1987), 45-84.

Slavic languages provide very challenging data as to syllable structure, and one of the findings Rubach and I presented was that a phonological word consists of one or more well formed syllables, but that in various languages (prosodic) word edges allow for extra consonants (Booij 1983), which, in the case of Polish, allows for word-initial consonant clusters (as in *ptak* ‘bird’ and *rtęć* ‘mercury’) that seemingly violate general conditions on syllable structure such as the Sonority Hierarchy Constraint (Rubach & Booij 1990a). A related topic was our investigation of how syllable structure is assigned to words, and which role morphological structure plays in this assignment (Rubach & Booij 1990b).

4. Word phonology and sentence phonology

The second paper that Rubach and I wrote together in the first years of our cooperation was a contribution to the debate on the role of level ordering in Lexical Phonology (Booij & Rubach 1987). In this article we argued that some phonological rules do not apply cyclically, but neither postlexically. Therefore, there must be a postcyclic level of application for phonological rules in between the cyclic and the post-lexical level. A classic example of such a rule is the Dutch rule of syllable-final devoicing of obstruent consonants that must apply after all morphological operations have been performed, but before phrasal, i.e. postlexical phonology applies. Again, this article met with a lot of approval by the phonological community, and is in fact my most cited article in Google Scholar (348 times on December 15, 2016).

The model of Lexical Phonology that we proposed in this article incorporates a fundamental insight of structuralist phonology, the distinction between word phonology and sentence phonology made by, among others, Nikolaj Trubetzkoy and Nicolaas Van Wijk (Van Wijk 1939). It was also defended in an early paper by Rubach (Rubach 1985).

This distinction survived when phonologists gave up rule-based phonology, and opted for a constraint-based approach to phonology, the framework of Optimality Theory (OT). In the original version of this theory, the distinction between two successive steps of phonological derivation, word phonology and sentence phonology, was abolished, because

OT is non-derivational. However, Rubach argued in a number of papers that this distinction must be maintained, and is the default situation (Rubach 2000). This position is referred to by Rubach as Derivational Optimality Theory (DOT):

“Level Minimalism assigns cost to postulating intermediate levels. There is one exception, though: word level and postlexical (sentence) level should be regarded as available at no cost. These two levels are robustly substantiated by the languages considered in this article, which is not surprising because word phonology and sentence phonology have been viewed as distinct from time immemorial. I conclude that the word level and the sentence level are an integral part of the DOT model but additional levels require motivation.” (Rubach 2000: 313)

The same theoretical point was made by me at a conference on Optimality Theory organized by Jacques Durand in the Abbey of Royaumont, France, and at a conference on competing theories of phonology, derivational versus constraint-based approaches, at the University of Essex (Booij 1997), an article that Rubach (2000) refers to, and Rubach has shown this position to be correct in a substantial number of papers in international journals. A survey of the range of arguments is given by Kiparsky (Kiparsky 2015). This shows once more the fruitfulness of our cooperation.

5. Allomorphy and OT

After this period of intensive cooperation in the 1980's and the beginning of the 1990's the cooperation between Rubach and me became less intense because he accepted a position at the University of Iowa besides his chair of English linguistics in Warsaw, which meant that he could not travel that much to Amsterdam anymore. Moreover, I got heavily involved in academic management, which left less time for research. I was the dean of the Faculty of Arts of the Vrije Universiteit Amsterdam from 1988-1991 and from 1998-2002. In addition, I was a member, and later chairman of the Dutch Research Council for the Humanities, from 1977-2004. Another relevant development was that I spent more time on morphology, another important area of interest of mine. I had written my dissertation on the morphology of Dutch in the 1970s (Booij 1977), and wrote a textbook on Dutch morphology with a Leiden colleague, Ariane van Santen (Booij & van Santen 2017), the 3rd edition of which will appear

in 2017. However, Rubach and I still had an area of common interest strongly related to morphology: how to deal with allomorphy? I discuss this issue in more detail in section 6.

6. Allomorphy and the architecture of grammar

The variation in phonetic shape of morphemes, i.e. allomorphy, is one of the core topics of phonology. The selection of allomorphs is only partially a matter of phonology anyway, and may also be governed by morphological or lexical factors (Booij 2012). In some cases, the selection of allomorphs is governed by phonological conditions. In the latter case, the traditional generative approach was to derive all phonetic forms of a morpheme from a common underlying representation, by means of a set of rules. However, this led in some cases to a very abstract analysis, with a complicated rule machinery. This issue was known as the abstractness problem, and has been debated intensively, also among Polish phonologists such as Rubach and Gussmann. Polish, and other Slavic languages formed an important battlefield for this issue, because of the widespread allomorphy in their morphology. This is mainly due to the various synchronic traces, that is, allomorphic variation, of the old Slavic yer (Rowicka 1999; Szpyra 1989). This yer was assumed to be present in various forms in underlying representations. It was supposed to trigger phonological rules before it was deleted at the end of a derivation.

Optimality Theory offered an interesting alternative to these abstract derivations with ghost vowels in underlying representations: the allomorphs of a morpheme can all be listed, and the choice between the different forms can be performed by a set of ranked output conditions that choose the optimal phonetic form of a morpheme, embedded in a morphologically complex word. We need this approach anyway for cases in which two morphemes compete that cannot be derived from a common underlying form. For instance, Dutch has two competing plural suffixes for nouns, *-s /s/* and *-en /ən/* which cannot be derived from a common underlying form in an independently motivated way. The choice between these two suffixes is governed by considerations of optimality: a plural noun ends preferably in a trochee, that is a foot in which a stressed syllable is followed by an unstressed one. Hence, we see the following types of plural nouns:

- | | | | |
|-----|---------------------------------|-------|--------------------|
| (1) | nouns with final stress: -en | kanón | kanonn-en ‘gun(s)’ |
| | nouns with pre-final stress: -s | cánon | canon-s ‘canon(s)’ |

The plural forms of these nouns end in a trochaic foot, of which the second syllable is weak, as it is headed by the unstressable vowel /ə/. It is therefore a prosodic output condition that determines the choice of the right plural suffix (Booij 1998).

This idea was taken up in a study of Polish allomorphy that Rubach and I did at the end of the previous century. The basic idea was that allomorphy having to do with Polish iotation should be accounted for by a set of ranked output constraints that select the optimal phonetic form from a set of candidates with the different allomorphs (Rubach & Booij 2001). Later on, when I moved to the University of Leiden in 2005, I wrote a similar analysis on the mobile diphthongs of Italian, together with Bart van der Veer. It took years before that article was finally published (Booij & Van der Veer 2015), in a very interesting volume on the analysis of allomorphy.

Rubach & Booij (2001) was the last article that we co-authored (written in the 20th century). Rubach continued his work on the phonology of Slavic languages, whereas I moved almost completely to the field of morphology, in particular word formation. The model I developed since 2002 is called Construction Morphology, and in 2010 I published a monograph on this model (Booij 2010). This work prompted me to think again about how to deal with phonology, in particular morphologically conditioned phonology, the main empirical domain of our common research. From my present perspective, our work can be reinterpreted as ‘construction phonology’, that is, the phonology of morphological and syntactic constructions.

7. Construction phonology

An important argument for a constructional approach to morphology is the observation that a morphological construction may have holistic properties, that is, properties that do not derive from its constituents. This applies, for instance, to the semantics of morphological constructions. Interestingly, and as expected in a constructional approach, morphological constructions may also have holistic phonological properties, that is, properties that do not follow from the phonology of their constituents. For instance, Dutch nominal compounds always carry main stress on the modifier constituent. Hence, the stress pattern is a property of the nominal compound construction as a whole. In this and other instances, phonological properties of complex words depend on the morphological properties of these words, and hence they are a case of morphology-conditioned phonology.

In a number of recent studies of the interface between morphology and phonology, Sharon Inkelas, another specialist in the morphology-phonology interface, came to the same conclusion: “[...] each individual morphological construction is associated with its own phonological subgrammar ” (Inkelas 2014) (p. 45). Let me illustrate this by the way in which inalienable nouns are pluralized in Ngiti, a Central-Sudanic language spoken in Congo: “Even though the singular forms have different tonal patterns, all plural forms have a Mid-high tone pattern, the Mid tone being realized on the initial V-syllable and the High tone on the root syllable” (Kutsch Lojenga 1994)(p. 135):

(2)	<i>singular</i>	<i>plural</i>	
	àba-du	abá-du	‘my father(s)’
	abhú-du	abhú-du	‘my grandfather(s)’
	adhà-du	adhá-du	‘my cowife/cowives’

The Ngiti plural (inalienable) nouns in (2) have a tone pattern Mid-High, whatever the tone pattern of the corresponding singular nouns. Hence, there is a construction-specific correspondence between morphological (plural) and phonological (tone Mid-High) properties. In other words, our efforts to try to restrict the application of phonological processes by means of level ordering in morphology may be ill-conceived, because the application of phonological processes may be dependent on very specific morphological constructions. In a Parallel Architecture conception of grammar, this dependence of phonology on morphology can be very well expressed, as discussed in more detail in a recent paper that I wrote together with my former student Jenny Audring in honour of Ray Jackendoff, the originator of this model of grammar (Booij & Audring 2017).

The relevant issues are also broached in (Inkelas 2014). Chapter 2 of this book, with the title ‘Morphologically conditioned phonology’, deals with the various types of morphological information that phonological patterns may be sensitive to. Inkelas points out which problems the theory of Lexical Phonology faces, and mentions her own Cophonology approach as a possible alternative. In particular, she gives examples of phonological patterns that are characteristic of specific morphological constructions (p. 29ff). “In Cophonology Theory, each individual morphological construction is associated with its own phonological subgrammar or “cophonology” ” (Inkelas 2014: 45). This approach is in line with the theory of Construction Morphology (Booij 2010), because constructions may have holistic properties, on the semantic level, on the phonological level, or on both (Booij 2015). A

variant of the Cophonology approach is the Indexed Constraint approach in which the ranking of constraints (as used in Optimality Theory) can be different for different sets of words, but Inkelas gave arguments for preferring the first option (Inkelas & Zoll 2007).

8. Conclusions

The primary aim of this article was to reflect on some aspects of the linguistic research that Rubach did in a long and fruitful career. I also wanted the article to be a personal reflection on how Rubach and I worked together and what we achieved, and on how we tried to unravel some of the intricacies of the interaction between morphology and phonology. Thus, the article may be a small contribution to linguistic historiography. As for me, it was a great experience to work with Rubach. Apart from working together as colleagues, we also became friends. We had a lot of fun, and I will never forget Rubach's humour and stories about Poland and its rich history and culture.

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