

## *Personal Preface*

Let us inspect the lyre, and weigh the stress  
Of every chord, and see what may be gain'd  
By ear industrious, and attention meet;  
Keats, "On the Sonnet", ll. 7-9<sup>1</sup>

This book has a twenty-six-year history. I worked out my perception-oriented theory of metre, including the theory of the rhythmical performance of poetry, in the years 1971-1973, though it was published only in 1977. This work was speculative, though occasionally I relied on experimental work by others, in cognitive psychology and speech research. But I felt the need to find empirical support for my speculative theory. This, however, proved to be no trivial matter at all, and it took me twenty-five years of agonizing search to find a route into the instrumental investigation of the rhythmical performance of poetry. The reasons for this difficulty will become clear in Chapter 3. Some empirical work, which I consider today rather marginal, was done already in 1980; but the great breakthrough occurred only two years ago, and most of the empirical work presented here was done during the past two years.

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The present book fuses my earlier theoretical work with my recent empirical research. In all the chapters the theoretical material is copied and pasted from my 1977 book (scanned into the computer), most of the time literally, with minor adjustments. The empirical work is taken from the instrumental research I conducted during the past two years. It was reassuring to find that I can still endorse the views I propounded twenty five years ago, and that I had already written answers to most of the theoretical questions I have encountered during my recent inquiry.

I had much more material than what could be squeezed into a book. In the act of synthesis I had to make some very painful decisions. The need to cut down my book to a manageable length compelled me to leave out issues which I consider very important. Chapter 3 of my 1977 book, "Some Remarks on the Nature of Trochees and Iambs and their Relationship to Other Metres" attempts to offer a cognitive so-

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<sup>1</sup> I am indebted to Doron Narkis, who suggested that these lines of Keats express an idea that is central to my approach to versification: it makes greater than usual effort to "see what may be gain'd / By ear industrious"; and insists that the rhythmical performance of poetry would "weigh the stress / Of every chord"—with strong emphasis on *weigh*, both in the sense of "consider carefully" and "make heavy".

lution to the riddle why the trochee and the ternary metres are felt to be more rigid than the iambic by critics in several languages and periods, and even different metric systems, from Aristotle through Horace to Zhirmunsky and the generative metrists. Yehosheva Bentov and myself recently made an adventurous attempt (1996) to account for intuitive metric preferences of eleventh-century Hebrew poets in Spain (in a very different metric system), relying on the cognitive mechanisms used to account for the perceptual difference between the iambic and the other metres. Nothing of these two issues has entered the present book. Likewise, central to my poetic theory is a distinction between convergent and divergent styles. I consider it a very effective means for the integration of metric style with syntactic and semantic information in a poem. As I argue in other works, divergent structure underlies emotional qualities in poetry, whereas convergent structure may underlie, in different well-defined circumstances, witty qualities on the one hand, and hypnotic or ecstatic qualities on the other (Tsur, 1972; 1977: 175-189; 1978; 1985; 1992a: 84-91, 100-104, 146-153 and *passim*). Here I could refer to this distinction only very briefly in Chapters 1 and 3. In Chapter 7, though, I felt it was necessary to analyze excerpts 7-8 and 15 at considerable length. This gave me an opportunity to give a rough idea of how the divergent passage works in Milton's poetry. As for the contribution of regular metre to a hypnotic or ecstatic quality in poetry, what I call "obtrusive rhythms", I have elsewhere discussed it at considerable length (Tsur, 1985; 1987; 1992a: 431-454). From my recent empirical study, too, only a selection of cases could be presented here.

In my 1977 book I made long syntactic analyses going into great delicacies, being rather eclectic in my use of syntactic theories. I thought that after the publication of Richard Cureton's 1992 book these parts of my book could not be reproduced without rigorous re-thinking, although they were acknowledged by Cureton himself. So this aspect of my work was an obvious candidate for abridgement. My original work quite faithfully reflected the dialogue I conducted in my thought with Wimsatt and Beardsley, Halle and Keyser, Chatman, and Roger Fowler. Some of this dialogue is reflected in the present book too; but to my great dismay, Roger Fowler is almost absent; my dialogue with him seems not to fit into the scheme of the present book.

The purpose of this book is to say what I have to say on metrics: to recapitulate my older theory and to put forward my recent attempts to find empirical support for it. I do not presume to summarize the state of the art as I found it; this has been recently done extremely well by Richard Cureton (1992) and, on a smaller scale, by Derek Attridge (1982). I think I have far-reaching disagreements with most generative metrists after Halle and Keyser. Here, however, I shall not carry on the dispute with them. In the course of the book I have alluded to this discord. I have not yet worked out its details. At any rate, Bruce Hayes (1989) can safely profess that he has accounted for many of the effects I claim to have accounted for. But I cannot accept his claim that virtually all significant distinctions in metre come straight out of processes in language, even if he can, eventually, account for all the phenomena to

be accounted for. After all, poetic rhythm is not merely a linguistic, but also an aesthetic phenomenon. To describe this aesthetic aspect I have used the formula “the elegant solution of a problem” (adopted from Dewey, Pepita Haezrahi, and Kris and Kaplan). Though Halle and Keyser did it for a different purpose, by determining the stress pattern and linguistic pattern independently of each other, they provide powerful means for the instantiation of this conception, that is, for describing the “problem” to be solved by a pattern of performance. As I argue throughout the present study, the performer may accommodate the conflicting patterns of stress and versification in patterns of performance. This he may do by having recourse to patterns of stress and intonation that are *not* purely linguistic, but result from an interaction of the patterns required by language and versification units. Not in vain does Chatman rebuke Katherine Loesch’s proposal of “non-disambiguating” intonation patterns with the question: “Has Mrs. Loesch ever heard these intonations or anything really resembling them in the flow of ordinary conversation?” (see Chapter 7). By tracking all significant distinctions in metre to processes in language, some generative metrists miss this aesthetic nature of poetic rhythm.

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My professional training was in traditional literary criticism, and am a late comer to instrumental phonetics. I could not master this esoteric discipline, were it not for the personal computer revolution. In 1980, at the Haskins Laboratories, I had to work on the mainframe computer at nights and on weekends, since I had no research funds. Seven years later, in Paris, I had virtually unlimited access to speech-research equipment; but on this equipment one could look at the graphs, without hearing the speech. So, I had to ask persons highly experienced in instrumental phonetics to decode spectrograms and pitch extracts; and they too felt sometimes quite uneasy about the task. With the advent of the desk-top computer a radically different perspective was opened up. One can do the job on one’s own desktop, isolate any portion of the graphic output and listen to the stretch of speech from which it has been extracted. A veritable paradise for aging new-comers.

Some colleagues of mine in literary studies (and perhaps in other disciplines too) look up to the computer with great reverence. To them I say that the computer cannot turn literary research into an exact science. In the present research, the computer can *prove* nothing; it can, at best, “strongly support” or fail to support our intuitions when listening to the rhythmical performance of poems. So, I wish to end this preface with a serious caveat concerning the reliability of the measurements done by the computer. During Gorbachov’s last days the following joke was in circulation: The Queen of England has 100 guards; one of them is a killer, but unfortunately one cannot know which one. The US President has 100 cooks; one of them is a poisoner, but unfortunately one cannot know which one. President Gorbachov has 100 advisers; one of them is right, but unfortunately one cannot know which one.

During my enquiry I felt many times like Gorbachov. The computer can make very precise measurements; but cannot make sure that the data it measures are accurate. This is most true with reference to pitch extracts. Extracting a pitch contour from a stretch of speech is by no means a trivial matter. There is no objective correlative to the pitch of speech, out there in the world. It must be inferred in all sorts of roundabout ways from a variety of data selected from the sound information in a variety of ways. Manufacturers of pitch trackers must make some arbitrary decisions about these matters; and not surprisingly, different manufacturers make different decisions. Consequently, one may obtain quite different pitch contours from the same stretch of speech on different machines. One of them is perhaps correct, but unfortunately one cannot know which one. There is, for instance, the so-called factor-of-two error that results from incorrectly identifying a secondary peak in each pitch cycle as the start of a new cycle. As a result, one may receive on the screen a pitch that is exactly half or twice the frequency of the sound in reality. This occurs in most applications. Specifying a pitch range helps to guide the pitch tracker. A narrow pitch range can prevent a tracker from making gross errors. A pitch range that is too narrow, however, may fail to accommodate the speaker's range. So, the application I have been working with provides default pitch ranges for use with typical male and female adult voices. The instructions encourage the user to experiment with pitch ranges other than the default male and female ranges to obtain more accurate  $f_0$  plots. I soon discovered, however, that when I changed the acceptable pitch periods, some other portions of the pitch extract, that had nothing to do with the range limits, also changed in an unpredictable way. So I could obtain, from the same stretch of speech, with the same application, a wide variety of pitch contours. One of them was doubtless correct, but again unfortunately I could not know which one. When I complained about this to the technical support department of the manufacturer, I received the answer that I was the only end-user they knew who changed the settings. To this rebuttal I gave the following two answers: First, that I was working with recordings of such professional actors as John Gielgud whose voice range reached up from below the lowest pitch of the typical male voice to almost the whole range of the typical female voice. When, however, I analysed speech of ordinary mortals, I had to adjust the settings to their more limited pitch range, otherwise I ended up with so much junk. I assumed that most users of the application used it with the voice of speakers of the latter kind. Second, if a user does not change the settings it does not mean that he can be sure he obtains the correct pitch contours, only that he is unaware that he may have a problem. This argument seems to have placed me into the category of trouble-makers, and the technical support department discontinued all contact with me. Even telling the joke about Gorbachov didn't help.

After much experimentation I decided that setting the display range at 60-180 Hz, and the acceptable pitch periods at 60-170 Hz yielded the most plausible results. And so did setting the option "Reject all peaks with a > X% variation in adjacent pitch periods" at 10 % (the application default is 40 %). I was using the "peak-picking"

method. I tried to keep these settings constant as much as possible. But when I encountered a reciter with a wider pitch range, or when vital spectral information was missing, I had to change these settings, and sometimes also had recourse to the autocorrelation method of pitch extraction. I can only hope that my integrity was always on guard making sure that I chose the most plausible contour, not the one that best confirmed my expectations.

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My grappling with the instrumental research of the rhythmical performance of poetry could not bear fruit without the sustained support and assistance of many innocent people. It was Al Liberman who gave me, most generously, an unhopd-for opportunity to test my theory on the Haskins Laboratories equipment, and Terry Halwes who initiated me into the mysteries of speech research. Later, Iván Fónagy and Georges Boulakia in Paris gave me invaluable support. Eventually, the big breakthrough in my quest occurred when Mick Short invited me to Lancaster University, where I was exposed to Gerry Knowles's stimulating work in phonetics and insightful help. There I also benefited from Tom Barney's experience. I planned to spend a whole Sabbatical year in Lancaster which, alas, had to be cut short for health reasons. Finally, when back in Israel I was compelled to work on my own, my research assistant Galit Adam saved me many times from losing bearings in this terra incognita; at the same time, she was my most relentless critic too. If I have had some success, I couldn't achieve it without the help of these people; if I failed, the failure is all mine.