

ON WRITING AND ITS IMPORTANCE IN THE HISTORY OF PHONETICS*

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Phonetics is a relatively young science, but thinking about speech, speech sound, and perception is much older. The demarcation points in the history of phonetics, defined as the study of the process of speech and hearing, here limited to Western European culture, might be given in the following way:

- Speech as the evanescent word (the period of speech being a primary tool)
- The fixing of speech in writing (the period of writing solely as a codification of the spoken word)
- From regulation to registration (beginning with the invention of printing)
- From registration (of movements and sound to electronic measurements and analysis)
- Analysis and synthesis

In giving a title to some eras in the development of 'phonetic thinking', I am aware that these eras do not necessarily coincide with those which might be distinguished in other scientific domains to which phonetics are linked. These are, among others, medicine, physics, mathematics and linguistics. Some lines will be drawn along which 'phonetic' considerations might have developed. However, while confining our view to Western European culture the opinion might be expressed that the eras recognized can be generalized to other cultures as well. The examples were chosen in the Low Countries in the first place, thus bringing to light some texts which are not well-

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known internationally. Some constraining factors will be considered in the eras indicated which hampered thinking about speech. When considering historical events one is led to the conviction that modern speech research should be met with a sound amount of suspicion.

Symbols were originally not merely symbols, but they were that which they stood for. The symbol designates something, but is at the same time that which it designates. This magical bond which existed in early speaking and singing, remained in the earliest forms of writing. Even nowadays there are instances in which a magical bond might still be recognized.

The earlier forms of writing came partly into existence by a functional need (cf. a.o. Bernal, 1969). In counting and primitive trade there arose a necessity for symbols, but economical needs were still undivided from religious needs. Childe, (1979) states that the administration of revenues of deities by priests required the invention of writing. This invention took place in Mesopotamia perhaps shortly after 3500 BC. Some regard it a transition of barbarism into civilization. However, this description as a beginning of civilization is more suited when describing the 'invention' of speech itself. (cf. a.o. Bernal, 1969; Dampier, 1968). It is therefore understandable that in a large eight volume history of technology (Singer a.o., 1954-1978) one of the first chapters (Sommerfelt) deals with speech and language as a tool. Whereas speech is fundamental to the transfer of culture, writing could fulfill this function even more. The use of speech as a tool asked for the appliance of certain mnemotechnics. These consisted, as might be inferred from early poetry, in formulae and must have influenced thought enormously. Thinking about speech occurred in some way when writing began. And the invention of writing caused a mental leap in thinking processes. One should not underestimate the size of the mental leap necessary to develop from an oral to a literate culture. As long as reading and writing however are the preserve of an elite section of society making this mental leap is confined to a small section of this society. This is one of the reasons that remnants of an older oral culture were preserved. The

radical change of thinking which heralded the invention of writing became only very slowly the property of everybody. Therefore, one of the great turning points in history must have been the invention of printing and papermaking and, later on, cheaper printing methods. Today many literate persons with knowledge or an experience with oral cultures feel strongly the chasm between oral and literate cultures. This is due to the fact modalities such as a promise and a response do not mean the same thing in an oral culture as in a literate one. (Ong, 1982). Ong states furthermore that who can read in some subcultures show still that they are operating in a basically oral framework: more performance oriented than information oriented. "Oral formulaic thought and expression ride deep in consciousness and the unconscious, and they do not vanish as one used to them takes pen in hand." (p. 171). As said before examples might be found in old poetry, especially epic poetry, where formulae are standardized and grouped around standardized themes. In old poetry the set phrase is greatly valued, it gives expression to the expected qualifier. In this context we could speak of a semi-intentional redundancy. Speech can be seen as transferring information. As such it is a transformation of intended actions or intentions into substitute symbolic acts. This transformation is not complete. Certain losses occur. Hence misunderstandings. Formulaic expression may be a means of cutting down the losses which might appear. At the same time formulaic expression and a circular thinking processes associated with them work as a mnemotechnical device. These mnemotechnics are essential in the form thinking takes consequently. Hence the mental leap which is moreover repeated with every enlargement of the group of the population that is made conversant with the use of 'written speech'. Consecutive to this development is a change in thinking processes, which through history take a more linear shape.

Literacy however, opens a host of possibilities to the word and to human existence. Most developments, scientific, technological as well as agricultural and economical, have been affected, often at a greater depth than we assume, by shifting from an oral to a literate culture. (a.o. Bernal, 1969; Dampier, 1968; Singer, 1954; Ong, 1982). Writing is fundamentally a transformation of speech into signs. The

process of transforming is repeated again and again in history and has led in our Western European culture to the alphabet. Not always when adjustments in the way of writing were made was there a direct reference to speech. But we may reasonably assume that some reference was always at the background.

Two main streams of transformations were generated. One of speech into writing. This at different points in history in the context of historical events and not quite independent of the existing way of writing. The other of one system of writing into another system. Again influenced by the context of historical events and not quite independent of growing insight into the speaking process.

Because of the interdependence of the two streams an enumeration of a number of turning points is called for.

In the second mentioned stream man strove for more accurate writing as a conveyance for expressing thought. Significance became its first concern. With time greater precision was achieved and losses were accounted for. Parallel and intertwined were endeavours for normalization of spelling.

The first stream mentioned however, shows that every transformation resulted in a number of losses, which were repaired partly with every next transformation. The net result is that writing as a transformation of speech still presents us with a number of losses, partly artefacts. Whereas precision in writing as a self-contained system increased with time showing a decreasing number of losses.

In the history of writing we discern the first transformation of the spoken word into the pictorial sign. The loss appears in the first place when only meaning is registered and not sound. In order to overcome this loss a greater precision was called for. This precision was achieved by adding determinatives to lexical elements, which acquired a purely functional character as in Sumerian. (cf. Childe, 1954).

The number of word signs tend to expand phenomenally when a written language consists of pictorial signs only. A solution along what proved to be the line of development for writing, was to make the picture signs represent sound without regard to meaning. This process was possibly first suggested by the existence, both in Egyptian and in Sume-

rian of homonyms. The range of expression of pictorial signs increased enormously. Unfortunately it also meant an increase in their ambiguity and moreover its use is limited by the comparatively small number of homonyms.

Nevertheless, a use of homonyms to increase the range of the utility of a single sign points to the main line of development along which early writing was destined to progress, namely the divorce of sound from meaning. The fact that the Sumerian vocabulary was mainly monosyllabic aided the progress. (Hooke, 1954).

Furthermore the signs had to be arranged in the order in which the words would be read or spoken. In short: there are two elements in the pictorial signs:

- a reference to meaning and
- the possible evocation of the sound picture of the word designated by it.

The Egyptians of the Old Kingdom had already discovered the principle of expressing a single sound, whether consonant or vowel by a single sign. Owing however, to their intense conservatism, they did not fully use it. (Hooke, p. 762). The development of syllabic signs reduced the number of current signs in use. We might view this development as a number of transformations of one writing system into another system. Every further step reduced the possible losses.

It is evident at the same time, that these transformations cannot be made without referring back to the origin, viz. to speech. The question arises how far the use of written language starts to influence the oral use of language.

Which inference can we draw when viewing the subsequent series of transformations, namely

- from speech to pictorial sign
- from speech to syllabic sign
- from speech to alphabetic sign.

The increasing precision of the written language and the way in which the art of writing was acquired must at least have suggested an increasingly accurate one to one relationship between speech and writing.

The need to register and to count gave rise in the first place to the invention of writing. The increasing precision of this art must have evoked the importance of putting things in a row, one after the other. When putting signs in a row a time series is suggested, writing suggest a time series of speech registration.

In Western European culture writing develops more or less in this way, the signs being borrowed from the Latin tradition. The assumed precision of Latin writing must have had its influence on use of Latin *litterae* for the vernacular languages.

Erasmus, (1528) is one of the first in the Low Countries to prepare and annotate, among others, editions of the classical writers, of the church fathers, and of the New Testament. In this context he busied himself with the pronunciation of Greek and he compares certain pronunciations in Dutch with those in a number of other languages. He has a good ear, we take it, for variability in speech. His attention is focussed on the 'lettersign' without forgetting its background in speech.

The early grammarians of the vernacular in Western Europe focussed their attention mainly on the written sign. Later readers were led, wrongly, to the suggestion that these grammarians had confused sign and sound.

Writing had been their main concern, but they maintained an awareness of the priority of speech. This is proved among others by the fact that we find indications in their writings of variability in speech of an individual and dialect nature. This variability was the main obstruction for the art of writing 'correctly' as it were. The variety of pronunciation of identical signs had not escaped them either.

In the 17th century we observe a shift of focus towards articulation in the book by the first Dutch phonetician: Petrus Montanus, published in 1635. His careful scrutiny of the art of writing causes him to shift his attention to articulation. In his opinion it is essential to have a thorough knowledge of articulation in order to learn to read and to write.

This change of focus is another effort to confine one's losses. To

this end he conceived a phonetic spelling. The increasing precision of the written use of language makes the differences between speech and writing all the more clear.

The effort made by Lambert ten Kate, linguist in the latter part of C17, to create a partly an-alphabetic notation must have been inspired by his awareness of this distinction and variability of speech.

Lambert ten Kate (1723), focussed his attention on comparison of dialects and languages, also little known ones, as Gothic and Icelandic. He was, as far as I know, the first to include acoustic considerations on phonetic phenomena. There are reasons to assume that Ten Kate attributed variability to resonance phenomena.

Similar considerations on resonance can be found in the work of Isaac Beeckman (1602) in the beginning of C17 and J.C. Amman (1697, 1700) at the end of the same century.

All these authors seem to be aware of the losses occurring when speech is transformed into writing, even if they do not mention this explicitly.

Van Helmont (1697), moves in another direction. He assumed that in the Hebraic alphabet the separate signs gave an indication of their articulation.

We must also consider that the art of printing itself and the image of it, namely separate lettersigns in a row, must have left its imprint on thinking about the process of speech and hearing.

One can only guess at what would have happened if the system of composing, I mean, letter setting of John Walter had found favour. In 1785 he had evolved a system of making logotypes, which consisted of a number of letters cemented together, providing useful syllables or terminations to words. To this end he had reduced the 90.000 words of the English languages to less than 5000. He used his system in a paper, which later became The Times. Because the compositors objected his system of logotypes was soon dropped.

A later way of printing in which bigrams were used and were recognizable as such for the reader might have led to the recognition of basic diphones. It was used sparingly, however. (John Lewis, 1970).

We encountered however, a somewhat paradoxical situation. On the one hand there was an increasing precision in writing and the printed form of it. The invention itself strove for more precision. On the other hand, while writing grew into greater precision in its own right, the relation with speech became more and more loose. There was of course a realization of a bond between speaking and writing. This led to the phenomenon that sometimes the view was focussed on lettersigns, then again on speech. Yet whatever the history of the development of writing towards alphabetic writing may show, writing might be seen on the whole as a transformation of speech.

Thus going from speech to pictorial writing, from speech to syllabic writing, from speech to alphabetic writing can be seen as a string of interrelated transformations of speech. Every succeeding transformation tries to overcome the losses of the earlier ones. The final solution up to now, including phonetical transcription, seems to produce only minor losses when we exclude those languages where spelling and pronunciation have drifted apart too far.

Letter signs seems to be seemingly observable facts. I inferred that this is questionable, albeit that focus is changed in history, especially in phonetics, from speech to sign, sign to speech, sign to articulatory movements, from sign to acoustical and articulatory events, from sign to perception whereby the quality of the written sign takes a more and more central position.

The question is now; how we can count our losses in modern phonetic research where we are almost unable to withdraw from written signs and the 'suggestion' supposed by them.

However, a new turning-point arose, which might induce quite another mental leap. Perhaps parallel intertwined linear thinking might come into being, now that we might speak about the digitalization of the world picture. (referring implicitly to the title of Dijksterhuis' famous boek, 1961).

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