IMPERIAL ENGLISH IN THE BIOCYBERNETIC REVOLUTION
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The ways of serendipity often prove more decisive than the best of one's designs. Looking back on the ten months I spent at the Wissenschaftskolleg zu Berlin, I am struck, once again, by the openness of this general state of things in life. Like the other Fellows, I had brought several research projects with me, fully intending to focus on one of them. My original plan was to investigate an earlier phase of globalization when international trade introduced Asia's porcelain to Europe, which subsequently led to the discovery of *kaolin* and important experimental work on heat measurements in the 18th century. Soon after I arrived at Wiko, however, I was drawn into very different kinds of conversation at

Tuesday's colloquia as well as at lunch, dinner, public lectures, and in our German language classes. These conversations ranged across the subjects of visuality, politics, language, knowledge, and contemporary science, etc. By coincidence, I was also working for some time on a related project concerning Claude Shannon's 27-letter English alphabet and its implications for literary theory. The constellation of diverse, cross-disciplinary expertise, and research interests at Wiko turned out to be more conducive to the development of my second project entitled "Literary Theory in the Biocybernetic Revolution" than of the 18th-century project. Almost in spite of myself, I began to shift my attention to the question of science and the phonetic alphabet and made significant progress on this project over the past months. The skillful assistance of our exemplary library staff was crucial to the development of my ideas, and I would like to take this opportunity to report my findings to Wiko with a note of gratitude to your generous support.

The kinds of interaction between structural linguistics and information theory are well known. But when Roman Jakobson applied Claude Shannon's theory to the study of language and poetics, he introduced a curious slippage between the "syllable" and the "signal" and an isomorphism between "meter" and "frequency", and so on. In contrast, the mathematician Shannon himself had chosen to work on the letters of "printed English" in the course of preparing his path-breaking mathematical theory of communication. Using statistical rather than phonemic parameters, his work involved the calculation and comparison of redundancy and entropy rates of letters and words in Basic English as well as those in James Joyce's *Finnegans Wake* and other written works. Did Shannon and Jakobson conceive of the phonetic alphabet and its relationship to language differently?

To account for the conceptual gaps between the disciplines and understand what has happened to alphabetical writing since information theory, we would do well by reexamining our preconceived ideas about phonetic articulation and printed English in light of the confluences between literature and biocybernetics. "Printed English", also termed "statistical English" by Claude Shannon, does not refer to any printed form of the English language. This cybernetic concept should be rigorously distinguished from the written English word reproduced with the help of the printing press or other means of mechanical reproduction. In other words, the birth of printed English has less to do with mechanical reproduction or the visible print we normally associate with book making than it does with mathematics. For Shannon, this English consists of an ideographical alphabet with a definable statistical structure that presumes a symbolic correspondence between the 27 letters (the 27th letter being the "space" symbol) and their numeral counterpart in lieu of the

commonsense mapping of letters onto phonemic units in the spoken language. The alpha-numerical correspondence not only facilitates the encoding of messages in information systems but also entails a rethinking of the idea of communication. In everyday usage, information is usually regarded as having some sort of bearing on the semantics of a message. But the linguistic definition of "meaning" or even "message" is irrelevant to communication theory. For Shannon, information exists insofar as there is a choice of alternative messages or alternative sequences of letters. If there existed only one possible message (a letter sequence or character string), there would be no information and no need for a transmission system because that message would be on record at the receiving point. From the standpoint of mathematics, information is related primarily to the factor of uncertainty. If a given message is overwhelmingly probable, the amount of information or the *a priori* uncertainty will be small. The 100-letter sequence in the opening page of *Finnegans Wake,* for instance, can be statistically demonstrated to be overwhelmingly improbable in English and, therefore, the amount of information or uncertainty it carries is great, although such information has nothing to do with semantics. For Joyce, the 100-letter sequence "bababadalgharaghtakammin arronnkonnbronntonnerronntuonnthunn trovarrhounawn-skawntoohoohoordenenthurnuk" visually performs the tumbling that the sequence describes in the narrative whereas for Shannon it would probably spell out the statistical structure of the information where no "space" occurs inside the unusual character string between *b* and *k*. In neither case does the information of the letter sequence correspond to a meaningful linguistic unit known as the "word". Joyce's intuition about the letter sequence as a *nonword* is borne out by Shannon's assumption that anyone who speaks a language possesses an enormous, implicit knowledge of the statistical structure of that language. Not surprisingly, Shannon included *Finnegans Wake* in his stochastic analysis of information toward a mathematical theory of communication. Norbert Wiener suggests in *Cybernetics* that Shannon, R. A. Fisher, and he himself began at about the same time to approach the message as "a discrete or continuous sequence of measurable events distributed in time – precisely what is called a time series by the statisticians" and that "the unit amount of information was that transmitted as a single decision between equally probable alternatives." He draws attention to the fact that the statistical definition of "message" was relatively a latecomer in communication engineering after statistical mechanics had exerted an impact upon nearly every branch of science for more than a century.

Wiener's claims of priority notwithstanding, neither he nor Shannon was the first theorist to develop a systematic approach to the English language as a statistical system. When

C. K. Ogden designed Basic English in the early twentieth century, his reduced vocabulary of 850 words was intended to provide a sound statistical basis for a universal and international language. Interestingly, the movement for Basic received enthusiastic endorsements from the official establishment of Britain and the United States. Winston Churchill wrote to his Secretary of the War Cabinet, Sir Edward Bridges, on July 11, 1943: "I am very interested in the question of Basic English. The widespread use of this would be a gain to us far more durable and fruitful than the annexation of great provinces. It would also fit in with my ideas of closer union with the United States by making it even more worthwhile to belong to the English-speaking club." The British prime minister became a good-will ambassador for Basic when he delivered a speech at Harvard University in the same year in which he urged Americans to understand that "The empires of the future are the empires of the mind." In the midst of running a war with Hitler's Germany, Churchill exhibited a shrewd understanding of the value of language for empire building, and he was not disappointed. Among the enthusiastic academic champions of Basic was the prominent literary critic and Harvard English Professor I. A. Richards. Not only did Richards co-author *The Meaning of Meaning* with Ogden, he also took the cause of Basic to Beijing (then called Peiping), one of the remote frontiers of empire.

The imperial agenda of Basic is spelled out in the acronym itself which is taken to mean British, American, Scientific, International, and Commercial. To its architect, however, the hegemony of imperial English and the practicality of simplified language learning for international commerce and politics are some of the reasons, but not the only ones, for promoting Basic, for Ogden viewed the scientific advances in a number of statistical domains as the immediate theoretical impetus for his project. These are the system of numbers, the metric system, the measurement of latitude and longitude, mathematical symbols, chemical formulae, time and the calendar, and notation in music. "The two main reasons for making English the basis of a universal language," Ogden argues, "are (1) the statistical considerations set forth above, and (2) the fact that English is the only major language in which the analytical tendency has gone far enough for purposes of simplification." This view has become familiar knowledge after Shannon and Wiener, but was a novel idea when Ogden first constructed Basic to reduce the total English vocabulary to 850 words. What is new here is not his imagining of a universal language, which may be traced as far back as the seventeenth century if not earlier, but rather a conception of English as a statistical system. By no accident did Ogden become the English translator of Ludwig Wittgenstein's *Tractatus Logico-Philosophicus* and an admirer of James Joyce.

At Wiko, we were all struck by the fact that English was the hegemonic medium of communication. English asserted itself even in the midst of our painful deliberations on whether we should adopt German or English at Tuesday's colloquia. Most of us made sincere efforts to improve our knowledge of German but, at the end of the day, English persisted as the common medium of scholarly exchange. Perhaps the real choice is not between German and English, which is merely a local manifestation of a much larger problem, but one between anyone's mother tongue (Arabic, French, Persian, Mandarin, Hebrew, Romanian, Swedish, German, etc.) and imperial English. Was I free to choose between German and English at Wiko when my mother tongue was Arabic or Mandarin? After English has imposed itself on the world as a universal language on behalf of Anglo-American imperialism, our language choice often entails a decision between silences and communication.

The good news is that our day-to-day interactions need not be confined to these impasses of language. The amazing thing is that our small international community had so much to share with one another and lived our differences and linguistic gaps with so much grace. I also consider myself lucky for having had the support of many women scholars this year, especially that of the Globalization Girls. For me, one high point of the Tuesday colloquia was our spontaneous session on "Feminism and Epistemology " in which the Fellows had an animated and sustained exchange about the social construction of knowledge across the disciplines. I wish we had had more integrated discussions like "Feminism and Epistemology" which included the humanists and scientists in a direct dialogue about knowledge, ethics, humanity, and the value of academic work. But as with other good things in life, time was never enough … and we must all return to our respective home institutions. Before leaving Berlin, I knew that the time I had spent at Wiko would always stay in my memory as a life-transforming experience.