Mikołaj Kruszewski: Theory and Vision (Part Two)

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Abstract

Although it prefigures many advances in linguistic theory, the scholarship of nineteenth century scholar Mikołaj Kruszewski is today largely forgotten. In these papers I hope to rectify this situation somewhat by introducing Kruszewski's insights to modern discourse on phonology. In addition to a detailed summary of Kruszewski's major work, *An Outline of Linguistic Science* (*Očerk Nauki O Jazyke*) (1883), I place his work in the context of subsequent (mostly post-war) approaches to language structure. Some of Kruszewski's major insights include (1) the *arbitrary* relationship between sound and meaning, (2) the *non-teleological* nature of the linguistic system, (3) the *generative* or creative character of language, (4) the *connectionist* organization of the lexicon, and (5) the *optimality-theoretic*-esque proposal that linguistic systems may be analyzed as the product of pressures and constraints in inherent conflict with one another. This, Part Two of a two-part presentation, considers the second five chapters of Kruszewski's ten-chapter book.

"Sounds and words *do not exist, but are pronounced.*" (1883:56)

Introduction

As noted in Part One of this two-part presentation, Mikołaj Kruszewski's brief career in linguistics – spanning only eight years, from 1876 to 1884, and cut short by his premature death in 1887 – sits prominently alongside the finest scholars' from any era, in terms of both the theoretic fruit it bore, and the sweep of its prescience. In this, Part Two, I conclude my summary of K's most ambitious and important work, *An Outline of the Linguistic Science* (*Očerk Nauki O Jazyke*) (1883).

1. Summary of an Outline of Linguistic Science (Continued)

1.1. CHAPTER SIX: THE DELIMITATION OF THE MORPHOLOGICAL ELEMENTS OF THE WORD AND THEIR NATURE

K now details the sorts of bonds that exist among words. Especially relevant here is the fact that words are not indivisible wholes, but instead, consist of morphological units. As words typically consist of groups of morphemes – each morpheme possessing its own system of similarity and contiguity associations – it is clear that the nesting of words is far denser than would be if words consisted of single morphemes. For example, in Russian *prinosit'* ["to bring (on foot)"], *privozit'* ["to bring (by vehicle)"], and *privodit'* ("to bring, lead"), "*each of [their] parts is connected by separate bonds of similarity with the same or almost the same part in thousands of other words*" 69). It is due exclusively to the fact that morphological elements are cycled and recycled in different contexts (with, usually, predictable semantic consequences) that they possess their morphological status as separate elements in our consciousness. More broadly, elements of the speech stream may acquire their linguistic status due solely to their use and re-use. For example, the Russian root we may designate *nos* ("to carry") (a cover designation for the various phonetic shapes it takes) consists of certain complex properties – both constant and varying; both internal and external – regardless of the context in which it is placed (for example *n'es*, *n'es'*, *n'os*, *nos*, as well as additional forms that depend on stress). Indeed, in time, such *complexity* may lead to *indeterminateness*, for example, as when a particular allomorph becomes unhinged from its associative network to become a separate form, much like speciation in biology, K notes.

K makes several observations about morpheme structure: (1) variation among final elements tends to be far greater than variation among initial elements, i.e., morpheme-initial values tend to be more stable in terms of their phonetic properties, (2) there tend to be sub-regularities in the sorts of variation we observe. For example, Russian final *g* is likely to possess allophones (which K terms "varieties") of the form *g' ž k*: "*The varieties of a root are of phonetic origin*" (71), (3) phonetic processes that are conditioned at morpheme boundaries tend to be regular in their patterning, and further, tend to involve rather "negligible" phonetic alternation, and (4) usually, alternation is not accompanied by a change in meaning (though this can take place under certain historical conditions, to be considered in Chapter 10). In general, "phonetically conditioned sound variation … does not play any role in the meaning of a word; but variation which is not conditioned phonetically, whether in and of itself … or in combination with other factors … in most cases is linked with the inner variation of the root" (72). Indeed K proposes that even if we have no knowledge of the morphological structure of a particular language, it is possible to infer, solely by the regularities of phonetic patterning, the various forms roots might take.

Under certain conditions, roots may undergo phonetic processes such that their individuation from adjacent morphemes becomes difficult or even impossible. This is the property of *indeterminacy* that may play a significant role in patterns of language change. This blurring of morpheme boundaries may lead to the reattribution, or redistribution, of phonetic material such that morphemes may take new shapes. For example, the palatalization of the suffix vowel in Russian *nesë̈š'* ["(you sg.) are carrying"] is an automatic consequence of root-final palatalization (*n'es'*+*oš̌*), but may just as readily be interpreted by listeners as inherent to the suffix itself (*n'es*+*'oš̌*), and thus may lead to folk etymologies, attested in forms like *tekë̈š'* [cf. standard *tečë̈š'*, ("(you sg.) are flowing")]. Indeed,

"just as a sound complex cannot be considered a mechanical combination of sounds, neither can a word be considered a mechanical juxtaposition of morphological elements" (73). Another example: when morphemes strictly co-occur, as in certain compounds or affix-root structures, these may be reanalyzed as monomorphemic. For example Latin *computare* ("to calculate") "changed as one whole" to French *conter*, but Latin *reficere* ("to make again") retains its morphological structure in French *re+faire*.

In general though, affixes possess genuine morphemic status (in the sense of inducing the "linguistic feeling" or intuition that they are independent functional units of the language) to the extent that (1) they alternate with their absence (for example, Russian *dom* ["house"]; *domik* ["little house"], (2) they are recycled in many lexical contexts, imparting a *predictable* semantic augmentation (for example, *-ik* may attach to many nouns, denoting a "diminutive-affectionate nuance"), and (3) they impart a *unique* semantic augmentation ("The capacity of a suffix to stand apart is inversely proportional to the breadth of its meaning and to the number of suffixes related to it in meaning" [78], for example, the Russian suffix *'onok*, which is exclusively used to designate young animals). In the absence of these three conditions, suffixes are less likely to be "felt" as such, and instead are more likely to be incorporated into the root.

Such tendencies are clearly intertwined with the observed tendency for root-suffix boundaries to be blurred even at the phonetic level of analysis. Recall that morpheme-initial values tend to be more stable, morpheme-final values less so. Indeed, K observes that root-final values tend to undergo accommodating changes to suffix-initial values far more often than vice versa, a pattern that may be rooted in both pressures on the phonetic system, and in pressures on the functional (morphological) system. Regarding the former, "preceding sounds change in order to accommodate the following sounds. The change of a following sound to accommodate a preceding sound is much rarer". Regarding the latter, "if a suffix is not rich in sounds – and this happens very often – the consequence of a change in its initial sound in one case and of invariability in another is not variation but its disappearance as a suffix" (79). In other words, due to the dearth of phonetic content among suffixes, their excessive variation may result in non-recoverability, or a loss of association among alternants (the obvious exception of "root-controlled" vowel harmony is not considered by K). We thus see how patterns present at one linguistic level may be accounted for, at least in part, by pressures acting at another.

Meanwhile, suffix- (and word-) *final* elements do indeed have a tendency to attrit. "To compensate for this, another variation is characteristic of the suffix … this is their extraordinary capacity for combining with one another and forming a compound suffix" (80). For example, a number of Russian nouns that end in *k*, a sound that, in turn, is a remnant of an Indo-European suffix *-ka*. This remnant *k* has further been incorporated into a large number of present-day Russian suffixes, among them *-k*, *-ik*, *-čik*, *-ščik*, *-ovščik*.

Erosion and accretion thus act in harmony to continually renew the linguistic system. As the posterior ends of morphemes erode, their remnants (their anterior ends) may be incorporated into pre-existing structures, a development that K notes may or may not be accompanied by semantic change.

The structure of prefixes, by contrast, seems to be protected or preserved, due to these elements' context. In particular, since prefixes may be word-initial, they are not, as a matter of course, incorporated into preceding lexical structure. Prefixes tend to be fairly stable in terms of both their phonetic properties and their functional (semantic) properties. As with suffixes, given prefixes' dearth of phonetic content, "if any significant

varieties arose, they would not resemble one another very much and would have little chance of being felt as being varieties of one morphological unit''.

1.1.1. Erosion and Accretion: The Primacy of Initial Elements

Recall that morpheme-initial sounds are far more prominent than morpheme-final ones in at least three ways: (1) initials are more resistant to loss than finals (2) initials are more stable in terms of their phonetic properties than finals, and (3) initials are more resistant to morphological reintegration than finals.

A century later, certain of these and related observations were reintroduced by Nooteboom (1981), and have even more recently been considered by Beckman (1997, 2004), who notes the ''privileged'' status of initials, expressing their character with the notational devices of optimality theory.

K presciently ascribes the privileged status of such elements to phonetic pressures on sound change: initial position is typically immediately followed by a vowel, whereas final position is typically followed by a consonant. Subsequent writing on this same topic has emphasized that consonant releases possess aerodynamic, acoustic, and auditory advantages, making them more resistant to the pressures of change and attrition (Bladon 1986; Silverman 1995, 1996, 1997; Wright 2004).

1.2. CHAPTER SEVEN: FACTORS OF A DESTRUCTIVE NATURE

The very crux – and the very zenith – of K's theorizing is presented in the opening passages of Chapter Seven. Recall that the ideal state of language – which is never achieved but is constantly ''striven for'' (in a metaphorical sense only; recall that K rejects teleology *in toto*) – involves a one-to-one correspondence between sound and meaning. In order to satisfy this one-to-one correspondence, ''a language must have one *special and unique expression* for each particular idea and each of its particular nuances'' (87) (i.e., no allomorphy; no synonymy, no homophony). If achieved, ''*a complete general and particular correspondence between the world of words and the world of ideas* would result'' (87).

Recall also that every language has means at its disposal to bind morphological units together with ''cement''. Typically, preceding sounds accommodate themselves to following sounds in assimilatory fashion. ''Thus the same morphological unit, in combination with other morphological units, does not always retain the same appearance'' (88). These are the lexical phonotactic properties of a language, the *static laws* (those operating at the synchronic level) that help delineate word boundaries and cue lexical morphological structure. For example, in Turanian (Turkic) languages, ''vowel harmony plays the role of this cement; only vowel harmony unites the individual and otherwise phonetically fixed morphological units of the Turanian word into one whole'' (87).

These pressures acting on language structure – though each functionally beneficial when considered in isolation – are in inherent conflict with each other. Clearly, the very pressures that act to bind or integrate morphological units into words serve to stymie the one-to-one correspondence between sound and meaning. And while many (perhaps most) static laws are phonetic in nature – that is, produce ''negligible (phonetic) differences'' among the sounds in alternation – ''the varieties of a given morphological unit which differ very little can, with time, develop into units which are much more different from one another, while the function which they must fulfill remains the same'' (88–9).

Imbalance, indeterminacy, and *change* are the inevitable result: "we can imagine how much chaos the phonetic degeneration of words must inevitably introduce into the ideal system of language…" (89). For example, K suggests that the Russian present tense forms of "to carry" – *noš-u*, *nos'-iš*, *nos'-it*, *nos'-im*, *nos'-it'e*, *nos'-ut* – may take the hypothetical contemporary forms *nosi–q*, *nosi–ši*, *nosit–tĭ*, *nosi–mŭ*, *nosi–te*, *nosi–nt*. In these hypothetical forms we may observe the "ideal" one-to-one correspondence between form and meaning. Inevitably though, dynamic laws will take their toll on this perfect system, inducing changes that have the added functional benefit of acting as the cement which binds the morphological units into one whole, thus cueing lexical and morphological structure. Such cementing leads, in time, to morphological instability. For example, in hypothetical *nosi–te*, "the vowel *i* has a good chance of being felt as belonging to the ending, and a form like *nosite* can now be divided into the root *nos-* and the ending *–ite*" (90); "thus, *phonetic changes provide the stimulus for a new distribution of sounds among the morphological units of a word*, i.e., they bring about a *morphological process by which a certain morphological unit degenerates into several varieties distinguished from one another by sounds but having the same function*" (91).

Frequency-of-use is an additional factor that may trigger a reintegration of morphological units. For example, if a suffix is infrequently used, its morphemic status may be jeopardized such that it merges with its neighbors. K considers the rarely-encountered Russian suffix –*d* and its relations to the especially short root *i* ("to walk"). Here, the suffix has merged with the root, inducing a verbal "disorder" such that *d* is unexpectedly present in certain inflections. While K acknowledges that the shortness of both the suffix and this particular root may have been factors here, "the extreme rarity of the suffix must also be assigned to the list of causes" (91).

Here, K introduces the extremely important distinction between word *production* and word *reproduction*, and the differing effects these two sources of spoken words have on the dynamic trajectory of languages. Words are either *produced* (generated) for the first time, or are *reproduced* (recited) from memory. Regarding produced words, due to the laws of similarity and contiguity – words' mental organization into complex nests or systems – we have the ability to effortlessly create (and understand) novel constructions. *Produced* words may thus induce disharmony in the sense of creating novel forms alongside established ones, the two forms then competing for dominance in usage. "Since the forms produced will always be similar to one of the existing types in the language … and since, of the two types serving with the same function, only one of them usually remains in the language with the passage of time, we may conclude that production introduces only a *temporary* and *relative* disorder into the linguistic system" (93).

Reproduced words have two sources: geographical ("horizontal") and historical ("vertical"). "We will always find a twofold stratification in every language: *a geographical stratification of the coexisting order, or inheritance*" (93). At the synchronic level, the *reproduction* of words takes place without regard to these forms' harmony (where harmony here refers to the ideal one-to-one correspondence between form and meaning). They are merely summoned from memory, and involve fully entrenched mental (and motor) routines. However, words from geographical strata (borrowed forms) may indeed disrupt the harmony of a system. For example, Russian has two forms in use for "sweet", one derived from the native root *solod*, and one that has entered from Old Church Slavonic, *sladkij*. Indeed, the nativization process of a loanword may not only involve an increased conformity with native phonotactic properties, but also involve an increase in the extent to which it enters into harmony with the borrowing system; an increase in the extent to

which a single correspondence is established between the loan's form and the loan's function.

Reproduction interacts with *frequency of use* in that it is the most frequently employed words that tend to be summoned from memory, and thus are more resistant to harmonizing (leveling). The *law of contiguity* also plays a role in resistance to harmony: idioms and rote expressions may retain archaisms, for example the Russian *po delom emu èto* ("it serves him right"), in which an archaic plural dative case marker is employed (*-om*).

In sum, it is the very tug-of-war among pressures on language structure that induces flux. The pressure toward increased linguistic harmony – toward a one-to-one pairing of sound and meaning – inherently conflicts with the pressure toward increased integration of morphological units. The emergent result is that lexical and morphological structure is in part cued by the very product of this conflict: morphological units are "cemented" together into words, as governed by *sound laws*. This tug-of-war establishes an inherently unstable linguistic state involving both accretion and erosion such that words degenerate both phonetically and morphologically in an ongoing process of *reintegration*, thus constantly providing language with new material. Nonetheless, remarkable systematicity remains, such that words and their morphological units are mentally organized in both semantic (internal) and phonetic (external) nests or systems, which accounts for the ease and speed of their learning, and accounts for language users' ability to effortlessly generate and understand novel forms. Still, word *production* may disrupt harmony – albeit usually only temporarily – by introducing new forms that compete with older ones. Word *reproduction* may involve disharmonic forms inherited from an earlier era, or borrowed from a different region; word *reproduction*, too, may disrupt harmony, as frequently employed archaic or foreign forms may be resistant to leveling.

1.2.1. "Cement" as Boundary Signals

Due to linguistic indeterminacy brought about by a number of factors inherent to the production-perception loop (among them, (1) the articulatory-acoustic mismatch, (2) the relevance of *sound laws* operating on the stream of speech, (3) the effects of frequency of use and disuse, and (4) the perceptual primacy of initial elements over final ones), the *reintegration* of sounds may change their phonetic properties and may gradually induce a re-association of their morphemic affiliation.

The re-association of phonetic material both at the level of sound production and morpheme affiliation thus establishes the "cement" that helps cue lexical and morphological structure. The "cementing" of phonological structure across spans of the speech stream has more recently been observed by Goldsmith (1976), though to be sure, Goldsmith's so-called "autosegmental" phonology is merely a schematic and descriptive characterization of a subset of such patterns (those present across spans), and is totally silent on such spans' functional relevance. Scholars antecedent to Goldsmith, however, were far from silent on the functional role of this "cement": both Trubetzkoy's (1939) "boundary signals" and Firth's (1948) "prosodies" reference cues to lexical and morphological structure. Most recently, Aslin and associates (for example, Aslin et al. 1998; Saffran et al. 1996) investigate the utility of "transitional probabilities" in both adult and infant learning of contrived mini-languages, finding that, indeed, statistically rare sound sequences found at word boundaries may serve to cue these boundaries.

1.3. CHAPTER EIGHT: HISTORY OF THE MORPHOLOGICAL ELEMENTS OF THE WORD

As briefly observed in Chapter Six, it is roots – not affixes – that are "distinguished by the richest variation both qualitatively and quantitatively". Consequently, "one can say that a compound word made up of a prefix, root, and suffix represents a fixed series of elements which descends with respect to definiteness of content and ascends with respect to its range of meaning". In this chapter, K explores this proposal in rather more detail.

As morphological complexes degenerate and reintegrate, there is a concomitant and ongoing process of word building. For example, Russian *objazat'* ("to oblige") is related to *vjazat'* ("to tie") and *obvjazat'* ("to tie around"), the former having lost its *v* as a consequence of its proximity to prefix *b*. This phonetic degeneration led to a reintegration such that the prefix lost its morphemic status and merged with the remainder of the root. The asymmetry in both form and function of *objazat'* and *obvjazat'* – the former having a "moral" meaning, the latter a "material" one – resides in the distinction between *production* and *reproduction*, as discussed in Chapter Seven:

> We can either produce the word *obvjazat'* from *vjazat'* or reproduce the word *objazat'* from memory. In any given case, the closer the idea which we wish to express is to the idea of the verb *vjazat'*, the better the chance for an arousal of the similarity association, i.e., the better the chance that we will be *producing* the word from [*vjazat'*], and we will surely produce *obvjazat'*. The further this idea is from the idea of "tying" (*vjazat'*), the less chance there is an arousal in our mind of the verb *vjazat'* and, consequently, the greater the chance that we will *reproduce* the word *objazat'* from memory. Thus, *little by little*, the material meaning becomes attached to the verb *obvjazat'* and the moral meaning to the verb *objazat'* (98).

Thus, the tendency to *produce* words is interconnected with the semantic function of these words' component parts: the more readily the semantics can be "read off" the morphology, the more likely a word will be *produced* in harmony with the system. By contrast, as words are *reproduced* they may undergo a reintegration of their component parts, leading to both a phonetic and semantic departure from the historical form itself: "morphological degeneration is often connected with phonetic degeneration; most often the former is called forth by the latter" (99).

Borrowed roots are commonly employed to denote abstract ideas, whereas native words tend to be more concrete – and more transparent – in terms of their lexical semantic structure. This fact is fully consistent with K's proposed distinction between *produced* and *reproduced* words. When a number of borrowings have a common historical and geographical source, they tend to display phonetic sub-regularities that suggest their common origin (sub-regularities that may be felt by native speakers), which is not to deny that they are also subject to native pressures on their phonetic form. Such forms are likely to survive in the borrowing language to the extent that they harmonize; to the extent that they come to denote a unique meaning.

Turning to suffixes, K reiterates his assertion that final elements are prone to loss, but, to the extent that suffixes are retained in a language, this erosion of final elements is accompanied by an accretion of initial ones, such that suffixes are "constantly enriched with sounds at the expense of stems" (104). Thus for example, the Russian diminutive suffix *–ik* has an irregular allomorph *–čik*, which derives from *c*-final roots. The prevalence of such roots triggered a reintegration of the root final value with the suffix, thus leading to its productive use.

The even-richer form *–ščik* evolved in a comparable fashion, due to the common co-occurrence of adjectival *–skij* and *–ik*. These contiguous elements, due to their frequency

of co-occurrence, eventually reintegrated as a single morphological unit. Thus "new suffixes arise or…old ones are enriched by tearing away sounds from stems or roots. If the same suffix tears different sounds from different stems, the result is its branching" (105).

Prefixes, by contrast, tend toward remarkable stability, which K has already attributed to the absence of lexical material preceding them (at least when initial in the word).

1.3.1. Production Versus Reproduction: The Creative or Generative Character of Language

While the scholarship of Sapir and Saussure are readily acknowledged as predecessors to the generative framework, linguists rarely observe that a generative approach to language has a legacy in K's nineteenth century scholarship.

K's proposals vis-à-vis the generative nature of linguistic knowledge center on his discussion of *production* versus *reproduction*. This rather simple and straightforward distinction prefigures quite a few assertions of the generativist program. Recall that K, like Chomsky sixty years hence, ponders (1) our ability to effortlessly create and understand an infinite number of novel linguistic structures, and (2) the remarkable speed at which the system is learned. For K, this creative or generative character of linguistic knowledge resides primarily in this distinction between language *production* and language *reproduction*. For K, while aberrant (non-regular) forms tend to be retained and *reproduced* due to their frequency-of-use (and, as especially discussed in his monograph of 1881, due to the extent that irregular alternations take on a morphological function), it is the use and re-use of the regular forms of the system – the cycling and recycling of comparably-shaped morphological units and motor routines that subserve a comparable semantic function – that account for speaker's generative capacity.

1.4. CHAPTER NINE: THE SYNTHESIS OF MORPHOLOGICAL ELEMENTS INTO A WORD AND OF WORDS INTO LANGUAGE

Here, K explores in greater detail the systematicity of the linguistic system, and the assertion that "language would not be suitable for the purpose for which it exists if systems of word types did not correspond more or less exactly to … systems of ideas" (109).

He first investigates patterns of declension and conjugation in Russian (the suffixal domain), a particularly harmonious system that nonetheless has been historically subject to disruptive pressures, in particular, the influx of forms from Old Church Slavonic. Harmony is constantly striven for due to "*our capacity for producing words* instead of reproducing them" (109). That is, it is the generative nature of our linguistic knowledge that leads to linguistic regularity.

As emphasized several times now, due to the pressures inherent in language evolution, states of imbalance inevitably arise. For example, disharmony arises when more than one stem is present for one and only one idea. In such cases, harmony is naturally restored due in part to the frequency-of-use of the forms in question, both in terms of token and type; "*how many* forms with the given stem there are in the system, and *how often* each of these forms is used" (110). K further speculates that forms that are phonetically more comparable to the system as a whole may have some sort of advantage (in terms of their likelihood of retention and survival, i.e., their *reproduction*) over forms that are phonetically anomalous. For example, in Russian, root-final velars are more frequent than are alveolars (or labials), which may have influenced historical heterogeneous forms to homogenize (level) towards velars in terms of their declensional properties.

K observes three patterns in such leveling phenomena: (1) unleveled systems, such as Ukrainian *noa* ("leg, foot"), *noɣa, noɣi, nozi, noɣu, noɣoju, u nozi* (sg., nom., gen., dat., acc., instr., prep., resp.), (2) systems in the process of leveling, in which old forms are used alongside new ones. K provides some unglossed examples from Greek ["It is clear in such cases that the old forms, not the new ones, are doomed to oblivion: the new form μείζωνος can be both *produced* and *reproduced*, while the old form μείζονς can be *only reproduced*" (112)], and (3) completely leveled systems. In general, suffixing systems, like Russian, tend to diversify in terms of the phonetic properties of their declension and conjugation systems, whereas prefixing systems, like French, tend to remain stable.

Overall, homogeneity – leveling – tends to be introduced in morphologically complex forms to the extent that we possess (1) "memory of the word type", (2) "memory of its component parts", and (3) "a feeling for the similarity between the form which we are producing and its relatives" (114): "*leveling of systems is based on the law of similarity association*" (114). Meanwhile, unleveled systems tend to persist to the extent that their terms are frequently reproduced and/or are incorporated into rote expressions, idioms, etc. (contiguity association). Such systems may indeed ultimately level, but tend to do so at a slower pace.

> Thus we see that everything which is old in language is based mainly on reproduction, or contiguity associations, while everything which is new is based on production, or similarity associations. From this point of view, the process of language development is presented as *a perpetual antagonism between the progressive force based on similarity associations and the conservative force based on contiguity associations* (116–7).

Consider an unleveled system such as the Russian plural, which includes allomorphs *i*, *ɣ*, *a*, *im*, *ëm*. Despite this rampant allomorphy, K points to an overarching systematicity to its patterning. Thus, some allomorphs are morphologically conditioned (some attach to nouns, others verbs), and some are phonetically conditioned (by the stem-final consonant). This diversity-of-form-but-uniformity-of-function is due to the model, or template, employed in the process of *production*. As diversity-in-form evolves, new associations are created, linking one exponent to similar or contiguous forms. Production itself thus diversifies due to these new and diverse associations, such that we effortlessly summon the appropriate allomorph even in novel contexts. Meanwhile, there exists an antagonistic pressure toward leveling when our memory of particular allomorphs is weaker. The weakening of such ties is no doubt due in part to frequency-of-usage, but also to the *expressiveness* of the morpheme: the more exact and/or singular the meaning of the form, the more likely allomorphy will persist. Allomorph selection further tends to be influenced by the extent to which the stem it attaches to retains uniformity across paradigms. Thus, for example, Old Polish *w bodze* (prep. sg. of *bóg* "God"), and *w wilce* (prep. sg. of *wilk* "wolf") were replaced by *w bogu* and *w wilku* (119).

Contiguity associations may also induce a leveling of sorts. Consider Latin *pinque* > *quinque* ("five"). Due to its frequent recitation in a series, *pinque* was often contiguous with *quattuor* ("four"). K suggests that it is this contiguity association that triggered the saltatory sound substitution.

Homogeneity is thus constantly being striven for, and such leveling processes are influenced by (1) frequency and memory, (2) paradigm uniformity, and (3) contiguity associations:

> Linguistic elements – sounds, morphological units, words, expressions – do not arise in a single specimen; language creates them in whole series. The element which is most appropriate to its environment, which best corresponds to its function, and which has the greatest proclivity for life supplants its rivals and becomes firmly established in a language (119–20).

1.4.1. The role of paradigm uniformity in allomorph selection

Recall K's proposal that allomorph selection may be influenced by the extent to which the stem it attaches to retains uniformity across paradigms. Such a pressure toward "paradigm uniformity" has been most recently investigated by Steriade (2000): "all surface realizations of μ, where μ is the morpheme shared by the members of paradigm x, must have identical values for property P." As Steriade observes, paradigm uniformity has been previously considered in the context of *analogy* (Kuryłowicz 1949), *cyclic rule application* (Chomsky and Halle 1968) and *output-output* correspondence (Benua 1995; Burzio 1994, 1998; Flemming 1995; Kenstowicz 1995). While most of these subsequent scenarios may be viewed as variations on K's initial proposals – ones involving "distinctive feature" identity – Steriade virtually closes the circle begun by K: Steriade, like K before her, observes that there tends to be a specifically *phonetic* correspondence among allomorphs.

1.5. CHAPTER TEN: THE HISTORY OF WORDS

Erosion and accretion, despite their opposite effect on word size, nonetheless have much in common, according to K: (1) both are due to reproduction, and never production, (2) both result in a "*facilitation of…anthropophonic operation and [a] reduction in time*" (127) (though a form may alight at an intermediate stage that is far from simple in its phonetic properties, for example, Polish *tščina* ("reed"), from *trustina*). Anthropophonic facilitation, observe, may involve a phonetic decrease (deletion), a phonetic increase (insertion), or a *sound substitution* (for example, Russian dialect lateral dissimilation: *prolub'* for *prorub'* "hole in the ice"). Loans are a good source of evidence for such simplifications. Since they are "free from production because their morphological makeup is obscure" (128), they are subject to both erosive and accretive pressures. Overall, "*the process of the disappearance, … substitution, … and appearance of new sounds lead[s] to the obscuring and leveling of the origin and make-up of a word – if we take a historical point of view – or to the integration of a word – if we take a morphological point of view*" (128).

  K observes that, although words are inevitably merely symbols of objects and ideas, they nonetheless are able to trigger in our minds the entirety of the object or idea that is symbolized. Words have their historical origins in similarity associations – that is, they are related to other words in both internal and external ways – but they acquire the full expression of their meaning due to contiguity associations; how they are embedded in varying linguistic and real–world contexts. The more familiar the word, the less necessary become its similarity associations, and hence the more likely its historical morphological structure will disappear. Thus, such words may attrit, and endure no loss of their meaning. For example, monomorphemic English *uncle* derives from bimorphemic Latin *av+unculus* ("mother's brother"). Meanwhile, as culture evolves, words may concomitantly evolve new meanings. Thus Sanskrit *piç* originally meant "to prick, stab", but has evolved to mean "embroider" in Latin, and finally, "to decorate": "*Language has an archeology of its own. The living chronicle of words reaches back to the most remote periods of antiquity when man was not yet writing his history; this chronicle recounts facts of man's inner history which cannot be obtained by any excavations or read on any papyri; this chronicle is capable of telling us the history of the human intellect*" (134).

  While some words may be subject to vast changes over time, others remain remarkably stable, or change at a much slower pace. Due in part to their advanced age, such words tend to be morphological isolates. K points to plant and animal names as examples. "Thus, *language develops a natural terminology* which is not inferior to the artificial

terminology of science but even surpasses it; this natural terminology is incomparably higher than the terminology which various peoples craft from their own linguistic material under the influence of a certain patriotism of our time, thus avoiding Greek, Latin, and foreign roots in general'' (135).

Borrowings also tend to be ''emancipated'' from relatives such that their meaning may narrow. For example, Polish *wzeł* (''knot'') has become Russian *venzel'* (''monogram''); German *Gemach* (from *machen*, originally, ''structure, N''.) has become Polish *gmach* (''a very large building''). This narrowing occurs, says K, because such words are borrowed as individual items, and so lose their embedding in the system, and are thus subject to *reproduction*, and hence *reintegration*.

Unfamiliar words – for example, rarely encountered native roots, foreign terms – are especially subject to indeterminacy in term of both their phonetic and semantic properties, and are thus readily subject to the sorts of reintegration that such reproduced forms undergo. Eventually, the reproduction-triggered variation will wither, and a single, stable form will emerge. ''In this struggle for existence the specimen with the more usual combination of sounds for the given language has a better chance of retention than a specimen with the unusual combination''. Such reproduction and reintegration, too, is relevant to the origin of *folk etymologies*. If the phonetic and semantic properties of the word are relatable to a known word (similarity associations), a folk etymology becomes possible. Contiguity associations may also trigger a folk etymology. For example, Russian *služanočka-polonjanočka* (''captive female servant'') has changed in a Russian song to *služanočka-pogonjaločka* (''driven female servant''), the change no doubt influenced by the contiguous *služanočka*. Indeed, K feels that the distinction between folk etymologies and *produced* words in general is not always easy to make. ''In every language there is a huge number of words which are completely incomprehensible on the basis of origin. This does not hinder them; on the contrary, it helps them to be the distinctive signs of the corresponding things'' (140).

Words may acquire new meanings by being applied to new, similar referents, and as words grow in terms of their number of meanings, the less ''content'' (specificity of meaning) the word possesses. In such cases, specificity may be re-introduced through, for example, compounding. In other cases, content-loss may proceed unchecked, and a root may generalize to the extent that it becomes an affix, thus, for example German *-voll* (''-ful''). Words are thus constantly shifting their usage patterns, including changing both their syntactic category and their status as content or function items: ''*One principal category is usually obtained from another, while particles are obtained from the fragments of systems of principal words; moreover, particles of lower degrees develop from particles of higher degrees*'' (143).

Consider verbs, for example. Russian *est'* (''to eat''), which has generalized to the extent that it is ''applicable to a person, animal, rust, poverty, depression, etc'' (143). It has been replaced with derived words that have more specific meanings: *zavtrakat'* (''to have breakfast''), *obedat'* (''to have dinner''), *užinat'* (''to have supper''), etc. Nouns and verbs also tend to switch their respective allegiances: new nouns are often deverbals, and new verbs are often denominals. Nouns and adjectives, too, may interact, for example, the Russian adjective *žiloj* (''residential'', itself derived from the verb *žit* ''to live'') has given rise to the noun *žilec* (''lodger''). Even whole expressions may devolve toward a purely grammatical function, for example, Russian *područnyj* (''at hand''), from *pod rukoj* (''under the hand''). Thus, despite ongoing attrition processes, there concomitantly exists a bottomless source of accretive linguistic material: ''The history of grammatical categories is reducible to their reintegration: one category develops from another'' (146).

In sum,

> We do not always produce a new word for a new thing: we often make use of an already existing word. In this way, the use of some words gradually expands. However, an impoverishment in meaning accompanies an expansion in use; the word undergoes semasiological corruption and is forgotten. Then the language uses another word or derives a new one. In this derivation nouns are obtained from verbs and verbs from nouns; more meaningful particles are obtained from fragments of the nominal and verbal systems; and particles of lower orders are obtained from more meaningful particles…A word can also arise by means of the integration of an expression of several originally independent words. Thus, the history of grammatical categories can be reduced to their perpetual reintegration" (147–8).

1.5.1. Usage-Based Phonology: Variation, Recency, and Frequency

Throughout, K's proposals relating to (1) speech variation, (2) the asymmetrical effects of recent versus remote speech acts, (3) frequency effects, and especially here in Chapter 10, (4) the limited tendency for formatives to switch their syntactic category – have been explored in more recent times by a number of scholars, including Martinet (1952), Labov (1994), and especially Bybee (2001, 2006). For example, quite a few of Bybee's 2001 proposals are not merely similar to K's, but are, in fact, completely identical, including (1) her proposal that linguistic categories and their clumping into larger units emerge as a consequence of patterns' frequency of occurrence and co-occurrence, (2) her proposal that the lexicon is fully specified with phonetic detail, and is highly structured, with interconnections among phonetically and semantically parallel structures, (3) her proposal that the greater the similarity among lexical entries, the more likely that the morphological structures of these words will emerge, and (4) her proposal that elements which frequently pattern together are likely to emerge as independent functional units of language, and (5) her proposals regarding the history of morphemes, including their tendency, under the proper conditions, to change their functional role due to their patterns of usage. Thus for K, the character of linguistic knowledge is primarily a consequence of the so-called *laws of similarity* and *laws of contiguity*. This characterization of speaker knowledge places K squarely in the modern school of usage-based and connectionist models of linguistic structure, of which Bybee is a prime exemplar.

The role of *frequency* in patterns of usage and patterns of change is not novel to K, of course. The scholarship of both Paul (1880) and Schuchardt (1885) indicates that several contemporaneous thinkers were mulling over these ideas. Nonetheless, K's proposals on the matter are far more detailed and sophisticated than those of his contemporaries, and only in the most recent times are being explored in variationist/sociophonetic models of language representation and language change (see especially Labov 1994, 2001, 2010 and the extensive references therein).

Still, K, despite his overarching focus on the psychological aspect of the linguistic system, nonetheless makes no attempt to model this component. It is tempting to think that this lacuna is principled in its presence. Steeped in the Darwinian tradition, it is only fitting that K – who clearly appreciates the fluid, organic-like nature of language structure and change – should refrain from suggesting that the system might be modeled in a way that predicts its future state. Indeed, just as no evolutionary biologist would dare predict the future state of an ecosystem or a species, linguists must likewise recognize the plethora of contingencies with respect to language change, and hence the impossibility of predicting future linguistic states.

''Hierarchies of optimality'': the linguistic system as the product of pressures and constraints in inherent conflict with each other

The term ''hierarchies of optimality'' appears in Kiparsky 1972, in a discussion of how various pressures on the linguistic system may be in inherent conflict, such that one pressure may win out under one set of conditions, whereas another may win out under other conditions, often as influenced by functional efficacy.

While Kiparsky remains suspicious of the ''unsatisfactory fuzziness'' that characterizes certain functional accounts of language change and language acquisition (indeed, he has not followed up on his 1972 proposals in subsequent scholarship), it is quite possible that K, for whom *indeterminacy* is a principle characteristic of the linguistic system − one that is the prime mover with respect to language change − would enthusiastically embrace the so-called ''fuzziness'' referenced in Kiparsky's original statement. After all, K readily acknowledges the variable nature of both the linguistic stimulus and the linguistic percept. Recall that, for K, language ''*must be unstable and capable of change;* the development of a language is explained by the nature of its elements''. Indeed, the surface-true ''fuzziness'' of the linguistic system may be accurately − ''unfuzzily'' − characterized with probabilistically-oriented cognitive models (Gallistel 1990; Goldinger 1998).

Largely jettisoning the functional component of Kiparsky's impressionistic characterization, linguists working in the ''optimality theory'' framework (Prince and Smolensky 2004) have nonetheless taken and run with the idea that the linguistic system may be the product of − and may be modeled as − inherently conflicting constraints on well-formedness.

2. Conclusion

In conclusion, though elements of convolution and circularity are certainly present in the intellectual history of phonological theory (as in every field), it is best to regard this circularity not as akin to a wheel in motion wholly suspended in space, incapable of advance, but rather, as akin to a wheel in motion making (at least intermittent) contact with the ground, such that there exists genuine progress toward some destination. The scholarship of Mikołaj Kruszewski, largely forgotten, and never really having had a direct impact on phonological theory, should certainly be regarded as one of the most ''grounded'' chapters in the history of linguistic theorizing. It has thus been the goal of these papers to introduce Kruszewski's insights to modern discourse on phonology, and perhaps, as a fringe benefit, to instill at least a modicum of humility among current scholars as they gauge the originality of their own research (again, the present author among them).

Short Biography

Daniel Silverman is the author of Phasing and Recoverability (Garland 1997), A Critical Introduction to Phonology: Of Sound, Mind, and Body (Continuum 2006), and Neutralization (Rhyme and Reason in Phonology) (Cambridge University Press 2012). He has also published widely in journals, including *Language*, *Journal of Linguistics, Phonology, Laboratory Phonology* (series), and *Phonetica*, among many others.

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Note

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