Saussure and structural phonology

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10. Saussure and Structural Phonology

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1. Introduction

Ferdinand de Saussure (1857–1913) had a shaping impact on modern phonology with two books. The \textit{Mémoire sur le système primitif des voyelles dans les langues indo-européennes} (Memoir on the primitive system of vowels in the Indo-European languages, 1879), which appeared in December 1878, shortly after his twenty-first birthday, was hastily composed in a compressed and jejune style that has always limited its readership. The \textit{Cours de linguistique générale} (Course in general linguistics, 1916) was produced posthumously, and has found a vast audience. While faithful to his teaching, it retains certain paradoxes he would have wanted to resolve, and is silent on matters he would likely have filled in. In addition, he published some twenty articles, several of which had an impact with regard to specific issues, but nothing like the \textit{Mémoire} and the \textit{Cours}.

2. The \textit{Mémoire} (1879) and its impact on phonology

In 1875–6 Saussure studied linguistics at the University of Geneva with a \textit{Privatdozent} who helped him to work his way through recent volumes of the main linguistics journals, where the cutting-edge questions of the day were about the phonology of the Indo-European mother language, particularly the vowels.\textsuperscript{1} In the autumn of 1876 the eighteen-year-old Saussure went to Leipzig to study for a doctorate. By his later account, which cannot be taken strictly at face value, he was shocked at the low level of linguistic knowledge he found in younger lecturers such as Karl Brugmann (1849–1919; see Chapter 8 above), and it bothered him they were being credited with discoveries that to him seemed...
self-evident. He claims to have decided to work independently, attending lectures desultorily at best; however, his student notebooks show that he was in fact a devoted and attentive student. It is beyond doubt though that, starting in his second year at Leipzig, he did an extraordinary amount of independent work that culminated in the Mémoire.

For decades the IE mother tongue was presumed to have had three vowels, \(i, a\) and \(u\), like the three-vowel systems of Sanskrit and Gothic. The mid-vowels \(e\) and \(o\) had at first been thought to have come from the ‘breaking’ of the high vowels, but by mid-century evidence accumulated to persuade linguists that they had instead developed from the low vowel \(a\). The principal evidence came from ablaut in the European languages, where \(e, o\) and \(a\) alternate within verbal roots to give different tense and aspect forms. It appeared that, at an early stage of PIE, \(a\) had split into fronted and backed variants, for which Brugmann introduced the notations \(a_1\) and \(a_2\).

Saussure pushed the envelope further. Latching onto a proposal by Amelung (1871) that the European branch of the IE family had \(e\) as its only non-high vowel, Saussure saw no reason why this could not apply to the Asian branch as well. He argued moreover that \(i\) and \(u\) were not originally vowels at all, but the semi-consonants of diphthongs from which the vowel \((a_1\) or \(a_2\)) had been dropped. Putting these together, his suggestion was that the IE source language originally had just one vowel – more or less what Brugmann called \(a_1\), originally an \(a\) that at an early stage fronted to be sounded as [e]. “The phoneme \(a_1\) is the radical vowel of all roots. It can form the vocalic element of the root by itself, or it can be followed by a second sonant which we have termed the sonant coefficient” (Saussure 1879: 135, my translation, as are all that follow).

“Sonant coefficient” is a cover term for the semi-vowels \((i, u)\) and the sonant consonants \((m, n, r)\) that could follow \(a_1\). Saussure treats them less as sounds than as
hypothetical units that operate in tandem with the vowel (hence “co-efficient”). Its one essential phonetic quality is that it must be a sonant, capable of forming the nucleus of a syllable, but also of beginning or ending it.

In certain conditions which are not understood, $a_1$ is replaced by $a_2$; in others, better understood, it is dropped.

When $a_1$ is dropped, the root remains without a vowel if it contains no sonant coefficient. If it does contain one, then the sonant coefficient appears by itself [...] and becomes the vowel of the root (ibid.).

A root from which $a_1$ has been dropped is termed the “reduced” form; later linguists would use the term “zero grade” for the dropped vowel, “e grade” for $a_1$ and “o grade” for $a_2$.

Saussure however does not want his readers to attach much importance to the sound quality of the sonant coefficients, particular since, while most of them correspond to actual sounds familiar from the attested Indo-European languages, two have no attested reflex. Indicated as $\lambda$ and $\varrho$, their prehistoric existence is simply deduced from the putative effect they had on the preceding vowel, “contracting” with it to form a long vowel ($\ddot{e}$, $\ddot{o}$ or $\ddot{a}$).

Saussure was drawn to ablaut in Greek present and aorist verb forms such as $\lambda e\dot{I}p\ddot{o}$ : $\ddot{e}\lambda\pi\nu\nu$, where it looks as though the diphthong $ei$ has changed to $i$; $h\acute{i}st\ddot{a}m\ddot{i}$ : $st\acute{a}t\ddot{\omega}s$, where the long vowel has shortened; and $(s)\acute{e}kh\ddot{\omega}$ : $\acute{e}skh\ddot{\nu}$, where the $e$ between $s$ and $kh$ in the first form has dropped out (the $e$ at the start of $\acute{e}skh\ddot{\nu}$ is a separate aorist marker, like the one at the start of $\lambda e\dot{I}p\ddot{o}$). He saw the possibility of explaining these three seemingly diverse changes by a single change: the reduction of an original $a_1$ to its zero grade in the aorist.

Thus:

$$\begin{align*}
(s)\acute{e}kh\ddot{\omega} & \leftrightarrow -sa_1kh- \quad (a_1 \text{ in e grade}) \\
\acute{e}skh\ddot{\nu} & \leftrightarrow -sa_1kh- \quad (a_1 \text{ in zero grade})
\end{align*}$$
Saussure gives the following table showing all the possible combinations of vowel + sonant coefficient in the primitive Indo-European roots:

<table>
<thead>
<tr>
<th>Full root</th>
<th>Reduced root</th>
</tr>
</thead>
<tbody>
<tr>
<td>a₁</td>
<td>a₂</td>
</tr>
<tr>
<td>a₂</td>
<td>aᵢ</td>
</tr>
</tbody>
</table>

In proposing the existence of things in PIE that could not be found in any of the Indo-European languages, Saussure established what would later become known as the method of “internal reconstruction”. The list above shows the entire inventory of the PIE vowel system as Saussure reconstructed it, apart from one item. A small set of words, including some of high frequency, in particular the IE words for “father” – Skt pîtr versus Gk patēr and Lat. pater – showed a pattern across languages that did not match those of the vast majority of words. In Saussure’s system, Skt pîtr might presumably have come from a root pa₁it−, which reduced to pit−. But then Greek and Latin should have pit− as the root as well. Instead, the agreement of the European languages on a here argued strongly for some sort of a as the origin of this set. Looking for a “cost-free” way to explain cases like pîtr using resources already included in his system, Saussure saw that he had posited a special type of a which was not derived from a₁, and so could naturally have undergone a different evolutionary path. The sound in question was the sonant coefficient A. Insofar as it was
semi-vocalic in nature, yet, like the other sonant coefficients, original to the system rather
than derived from \( \alpha_1 \), it would be logical to expect it, like \( \alpha_1 \), to have a reduced form.

Saussure hypothesised that \( \lambda \) did indeed have such a reduced form that occurred only
in unstressed syllables, and that, unlike the reduced form of \( \alpha_1 \), it was not a “zero” grade,
but a weakened sound which he symbolised as \( \lambda^* \). This \( \lambda^* \) was not a sonant coefficient but a
vowel. “We are thus led to conclude the diversity, if not completely original, at least
proethnic, of the phoneme \( \lambda \) and the vowel that gave rise to Indo-Iranian \( \ddot{i} \). [...] We shall
designate the indeterminate vowel by an \( \lambda^* \) placed above the line” (ibid. pp. 178–9).\(^4\) Its
effect on a preceding vowel was entirely different from that of sonant coefficient \( \lambda \).

Whereas \( \alpha_1 \lambda \) contracted to \( \ddot{e} \) or \( \ddot{a} \), \( \alpha_1 \lambda^* \) raised to \( \ddot{i} \) in the Asian branch. In the European
branch, the \( \lambda^* \) sometimes disappeared, sometimes became confused with \( \lambda \) or \( \varphi \), and
sometimes survived, with various outcomes depending on the language and whether it
occurred in the first or second syllable of a word. In Latin, \( \alpha_1 \lambda^* \) normally gave \( a \) when in a
word’s first syllable, \( e \) when in the second. Thus the root of “father” would have had the
form \( pa_1 \lambda^* \), giving Indo-Iranian \( pi- \) and Latin \( pa- \) (the latter also being the Greek form in this
instance, though in general the Greek outcomes of \( \lambda^* \) were less predictable than the Latin).

Saussure saw that, for perfect consistency in his system, \( \varphi \) too should have a reduced
form. He suggested that \( \lambda^* \) was the reduced form of both \( \lambda \) and \( \varphi \). Unusually, given his
tendency to avoid phonetic specifications, he added: “We believe that this vowel was a type
of mute \( e \), deriving from an alteration of the phonemes \( \lambda \) and \( \varphi \)”. The mute \( e \) is the French
unstressed [œ] that occurs for example in the \( de \) of Ferdinand de Saussure.\(^5\) Surprisingly, he
describes the origin of \( \lambda^* \) as a \( \text{dégénérescence} \), a degeneration, the sort of term that he
otherwise avoids.

5
[T]his indeterminate vowel was a degeneration of the vowels \( A \) and \( o̊ \) – we add by hypothesis: *only* from these vowels – and not, as might be thought, a phoneme originally distinct from every other [...].

*Phoneme* was another novel term used by Saussure: not his own creation, but the precise use he made of it was, and it was mainly through the influence of the *Mémoire* that it became part of the modern linguistic lexicon. The word *phonème* had been introduced by Antoni Dufrique-Desgenettes (1804–1878) in a paper to the Société de Linguistique de Paris in 1873, to indicate a unit of sound occurring regularly in a language, the phonetic equivalent of “letter”.

For Saussure, however, it took on a different value. He uses it almost from the beginning of the *Mémoire*, whenever he is talking about \( A \). The reason is that it allows him to delay any discussion of what exactly \( A \) is until he is ready to introduce the notion of the sonant coefficient. He might have chosen *son* “sound” as his neutral term to cover \( A \), but he wanted to designate very precisely what it represented to him: a “coefficient” corresponding to no known Indo-European sound, having as its essential function to co-effect the evolution of the vowel system from the original \( a₁ \). “Phoneme” filled the bill because, apart from apparently having something to do with sound, no one was quite sure what it meant. Dufriche-Desgenettes had not provided a definition, and neither did Saussure.

In the *Mémoire*, the phoneme is not conceived as a sound as such, but a unit within a system. Phonemes will find their material substance in sound, but that is not their essence. The essential thing is how they function relative to the other units in the same system. Whatever their exact sound happens to be is accidental, contingent. It was from the *Mémoire* that the term phoneme was picked up by the Polish linguist Jan Baudouin de
Courtenay (1845–1929; see Chapter 9 above). He and Saussure would get to know each other personally in Paris in 1881. Together with his student Mikofai Kruszewski (1851–1887), Baudouin de Courtenay gave the concept of the phoneme its modern form, as the smallest unit of sound capable of being used to distinguish units of meaning in a language. Although just described as a “unit of sound”, again what is essential to the phoneme is not sound but how it functions. It is first of all a psychological and functional unit, having to do with what speakers recognise as meaningfully different. Although the phoneme is not defined in the Mémoire, this is effectively how it works in Saussure’s analysis, and it provided Baudouin de Courtenay and Kruszewski with a crucial conceptual leap. In turn, their work would later help Saussure to refine his own understanding of phonology.

3. Saussure’s work in phonology in the 1880s and 1890s

After completing his Leipzig doctorate in 1881, Saussure relocated to Paris, intending to do a second, French doctorate. He was however soon hired to lecture on Gothic and Old High German at the École Pratique des Hautes Études. He wrote out his first lecture, which fills the first of five notebooks on phonology; the others consist of sketchier notes from probably 1883, apparently for a paper he hoped to give but never completed. In the 1960s these notebooks came to the attention of Roman Jakobson (1896–1982), who arranged for them to be acquired by the Harvard University Library, and in 1969 he published a substantial article on them. The notebooks were eventually published in full (Saussure 1995), but continue to await the full attention they merit.

The first notebook starts by inquiring into what ought to be the most basic of phonological problems, but is hardly ever thought of as problematic: the opposition between sonant and consonant. The Mémoire’s sonant coefficients are able to switch
between the two, which suggests that they are “roles” played by phonemes, rather than intrinsic properties. The standard way of defining them is based on syllable structure, but this poses a problem of circularity:

The essential thing is not to let intervene in any way the question of the syllabic division, which has always sown a hopeless confusion within the question of the sonant. Thus, to mention just one point, one usually speaks not of the consonants and sonants of a word, but of the sonant of each syllable, all the syllable’s other phonemes being consonants. This is begging half the question one is seeking to answer. If with regard to two phonemes \(rn\) one asks which will be the sonant of the syllable, one is excluding from the start the alternations \(rn\) (two syllables) and \(rn\) (zero syllable) […]

(Saussure 1995: 5)

Saussure explores articulatory rules that might determine the phonological roles, and comes up with a tentative set, which he then dismisses as “infallible in practice, valueless in theory” (ibid., p. 8). He sets out to determine what makes a phoneme appear in one or the other of two forms, which he calls “fixations” and “explosions”, following the terminology of Sievers (1881) to designate unreleased and released stops respectively. Although we do not have detailed information on the lectures that followed, the second to fifth phonology notebooks develop the issues raised in the first. The essential problem, as Saussure states it in the second notebook, is that

Sievers has studied, on the one hand, the physiological phoneme, and on the other, the phonetic chain, but very little the phoneme in the phonetic chain.

The study of the phoneme in the PHONETIC CHAIN. By this we mean the regime to which phonemes are subjected by the fact that they have to link themselves <group themselves> to one another. (Saussure 1995: 28)
Here Saussure articulates for the first time one of the cardinal principles of his understanding of language, which in his late lectures on general linguistics he will call **linearity**. In the first phonology notebook he was working toward it when asking what makes the same phoneme appear as a fixation or an explosion. The answer lies in what precedes or follows it.

The idea that consonant and vowel are not classes of sounds, but functions that any sound can fulfil, is redeveloped from the ground up. It is a mistake, he says, to imagine that a sound’s most frequent function defines its essential nature, nor should the set of vowels be limited, as in Sievers, to sounds meeting some arbitrary threshold of physiological sonority. Saussure rejects Sievers’s contention that in any cluster of sonorants occurring “in the same syllable, the physiologically most fully sonorant one becomes a consonant. Absolutely no Skt wṛ, yu and wi” (ibid., pp. 29–30). Following on from his earlier concern about the circularity of basing the analysis of sonants and syllables on one another, Saussure concludes that all these terms are analytical artefacts created by linguists, with no independent existence as far as speakers are concerned (ibid., p. 36).

The plan set out in the second notebook reconfigures phonology based, not on a classification of sounds (“‘phonemes’ as we know them”), but on the “times or moments” of implosion and explosion, the relative closure and opening of the vocal passage (ibid., pp. 33–4, 37).² Saussure hypothesises that all sounds are composed of times or moments when they occur in continuous speech. When we refer to the phoneme /p/, we think we are referring to an articulatory unit, but in fact, /p/ ambiguously covers three quite different articulatory acts:

1. a state in which the lips are closed and immobile, blocking the passage of air and with no acoustic effect (**stasis**),
2. the moment when the closure of the lips creates that state, producing a particular sound (*implosion*)

3. the moment when the lips open, allowing the flow of air to resume with a different particular sound (*explosion*). (ibid., pp. 34–5)

He drops the term “fixation”, which failed to distinguish between 1 and 2, and draws the following conclusion about the nature of the phoneme:

An implosion is a phoneme, an explosion is a phoneme, a stasis is a phoneme, provided that I do not consider them <absolutely> as parts of the chain, which would put all the implosions on an equal footing, but with regard to their specific differences. (ibid., p. 71)

The reality of phonemes is defined by their “specific differences” from each other, something altogether distinct from what happens when they come together in continuous speech. Saussure has here laid out for the first time the fundamental outlook on language that he would not articulate publicly until his courses on general linguistics.9 Phonemes as differences are the reality of *langue*, the language system. Their coming together in continuous speech is the reality of *parole*. Through the remaining notebooks he explores what this view implies about the nature of language and its component parts and the historical development of the IE sound system. Toward the end of the fifth notebook he says:

Nevertheless everything in language which is a fact of consciousness, that is to say the relationship between the sound and the idea, the semiological value of the phoneme, can and must be studied outside of all historical preoccupation: the study on the same plane of a state of the language is perfectly justified (and even necessary although
neglected and misunderstood) when it has to do with semiological facts. (ibid., pp. 224–5)

Here is most of Saussurean linguistics in a single sentence from circa 1883: the linguistic sign (the relationship between the sound and the idea), semiology, value, the phoneme, the need to study a single “state of the language” (état de langue) outside of historical considerations. Still, he insists that only historical evidence can validate a theoretical proposition: “The rule of syllabification would be justified only if it were historical. We can take it only in its result” (ibid.). And yet, “It is legitimate to say that the divergence between y and i was for the Ario-Europeans without semiological value, without examining the origin of this phonological divergence” (ibid.). In effect, Saussure’s conception of semiological value, along with all the other general linguistic considerations just outlined, took shape in his questioning of what is a consonant and what is a vowel in primitive Indo-European.

In 1897 Saussure was asked to contribute lectures to a summer vacation course. He expanded on his notes from the 1880s, continuing to look for an explanation of the syllable based on a combination of “the aperture of various phonological types” and the “implosive or explosive forms that individual phonological types may always have, whatever their degree of aperture” (Saussure 2006 [2002: 169]. “Only i u currently have an alphabetic notation distinguishing implosive forms (i u) from explosive forms (j w). [...] We propose to extend it to all types, using capitals for implosive T, N, R etc.”. For consistency, the usual i u had to be replaced with I U, and – confusingly – the usual j w with i u. As for aperture, all sounds are assigned to a place on a seven-point scale (ibid.):

<table>
<thead>
<tr>
<th>Aperture</th>
<th>p t k; b d g</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>m</td>
</tr>
</tbody>
</table>

11
The theory of the syllable is based on the effects produced by particular combinations of explosives. Any explosive can be joined to an implosive without consideration of the aperture, but if explosives are combined, there is a difference if the sequence involves increasing or decreasing aperture. If the latter, some combinations may be impossible without the explosive changing to an implosive. Actually, Saussure avoids saying that anything is impossible, or even that a particular sequence might be more difficult or more natural than another. He strives to keep the discussion to one of “effects” – articulatory, expiratory or acoustic – being the same or different.

Let us imagine that we propose articulating two or more consecutive explosions stipulating that they must produce a single, uninterrupted effect on the ear.

However we may try, we will find this impossible if any one of the explosions corresponds to a lesser aperture than the preceding one. It might thus be ‘possible’ to pronounce *ksrj, tlm*, but not to pronounce these elements and produce a single effect on the ear. That is because the aperture is 0.2.1.3. (ibid., pp. 170–1)\(^\text{10}\)

This sounds promising. Yet once again, as fifteen years before, the notes begin breaking off and finally lead nowhere, apart from whatever ideas he was able to put across from them orally in his lectures.
4. The lectures on general linguistics (1907–1911) and the *Cours de linguistique générale* (1916)

In December 1906 Saussure was tasked with adding the University of Geneva’s course in general linguistics to his other teaching. The lectures began in January 1907, and he would give the course twice more, in 1908–9 and 1910–11. He took it over from an ailing colleague out of a sense of duty, fretted considerably about what a general linguistics ought to consist of, and redeveloped the course substantially on each iteration.

Although his original attempt at a comprehensive treatment of phonology had failed to produce a coherent book, he never stopped thinking about the topic. Aspects of it figured in every course he gave in Paris and Geneva. If he appears to be groping his way forward at the start of the first course on general linguistics, when he gets to “Principles of phonology” he is sure-footed. No sooner does he open the section than he starts detailing why “The method followed in general in phonology manuals is not good” (Saussure 1996: 12). They focus exclusively on how a speaker articulates the sounds of language, and entirely neglect (or simply take for granted) the acoustic side. In actual fact, Saussure insists, what comes first is not the muscular movements but “the <acoustic>, mental impression” (ibid.). He does not dwell on the point, and will allude to it briefly only once more in this course. But in later courses it will develop into a cornerstone of Saussurean linguistics, the view that the ultimate reality of language lies not in sounds but in the mental impressions, the acoustic images, the semiological values, which the sounds evoke.

The second crucial point the phonetic manuals forget is that “<what> is first given to us is not isolated sounds but expanses, chains of sounds” (ibid.). The first work which the mind of the speaker must unconsciously undertake is to segment that chain into isolated
consonants and vowels, just as the Greeks did when creating their alphabet. Saussure points to the “truly brilliant” feature which the Greeks were the first to discover: denoting a long consonant with a double letter, e.g. abba, where the b is actually a single consonant, with the lips closing just once, not twice, but being held closed for twice the length of the vowel a. The concept which this notation captured is called by Saussure the “homogeneous time-segment”. It is this combination of sound and time that makes up the phonetic act.

These remarks are a considerable refinement on Saussure’s notebooks of the 1880s. The idea of time defining the phoneme is present there, but now he also uses the term duration, especially when presenting time as conceived in a linear extension, or when referring to the length of sounds relative to one another. The 1880s material shows no attempt to work out the implications of defining the role of time within language. Possibly the 1907 lectures have some echoes of Bergson’s (1907) notions of “homogenous time and concrete duration”.

Saussure defines the phonic unit using the term phonème familiar from the Mémoire, where it was not defined. The phoneme, he now says, is to be understood as a conjunction of an acoustic time-section (designated as F) with an articulatory time-section (designated as f) (Saussure 1996: 13):

\[ F \quad \text{phoneme} \quad = \quad \text{the sum of acoustic impressions and the articulatory acts,} \]
\[ \quad \text{the unit heard and spoken, the one conditioning the other} \]
\[ f \]

One conditions the other in the sense that our experiences of hearing and speaking jointly produce our ability to analyse the units that make up the language. After “analyzing hundreds of spoken chains”, the speaker is equipped to hear an “indefinite” number of new
chains and classify their units “by abstracting them”, that is, according to how they correspond to “different ‘phonological types’ that I consider in an abstract way, as possible varieties” (ibid.). This analysis is “abstract” for Saussure because it considers the sounds strictly in terms of articulation, abstracting them out of the “concrete viewpoint”, which would have to “recognize their quality of filling a time segment in the spoken chain” (ibid.). Further on he says that with the analysis of a double consonant we move from the abstract to the concrete because “we have reached the true time-segments used in speech and now we can unite them in spoken chains” (ibid., p. 22).

Here Saussure takes the position that the sounds of language need to be analysed simultaneously in their articulatory and acoustic dimensions, with the latter particularly important for the insight it affords into the mental impressions which allow speakers to classify, and therefore understand, the sounds they hear. Yet this process of classification represents an abstracting away from the concrete reality of language as sounds produced in time, in a spoken chain. So it seems that what is in the mind of a speaker is knowledge abstracted from the experience of processing hundreds of utterances, utterances that are themselves the true reality. In time he will come to conceive of language in the opposite terms to what he proposed in this first course.

Saussure introduces his students to the vocal organs and their role in sound production, with considerable detail when it comes to voicing and resonance (buccal and nasal). After this classical presentation, he shifts to a topic that is wholly Saussurean: “breaking the phonemes down into their differentiating elements”.

Classifying phonemes is less a matter of knowing what they consist of than how they differ from one another. Thus, many negative factors have greater importance for classification than positive ones. (ibid., p. 15)
It would be several decades before the idea of classifying phonemes by their differentiating elements entered mainstream phonology, under Saussure’s posthumous influence. The example Saussure uses to illustrate the point does not actually show negative factors having more importance than positive ones, just equal importance: “for example, expiration (+) is not a differentiating element, while the absence of nasal or laryngeal resonance (−) is a differentiating element just as much as is the presence of resonance (+)” (ibid.). Although ingressives occur in many languages, there is no clearly documented case of an egressive-ingressive phonemic contrast, so for expiration neither (+) nor (−) is a distinctive feature. By contrast, with voicing (“laryngeal resonance”), the absence of the feature is just as distinctive as its presence. Saussure thus analyses the stop phonemes as follows (ibid., p. 16):

<table>
<thead>
<tr>
<th>Phoneme</th>
<th>m</th>
<th>b</th>
<th>p</th>
<th>N</th>
<th>d</th>
<th>T</th>
<th>η</th>
<th>G</th>
<th>k</th>
</tr>
</thead>
<tbody>
<tr>
<td>Articulation</td>
<td>α</td>
<td>α</td>
<td>α</td>
<td>α’</td>
<td>α’</td>
<td>α’</td>
<td>α”</td>
<td>α”</td>
<td>α”</td>
</tr>
<tr>
<td>Voiced sound</td>
<td>~~</td>
<td>~~</td>
<td>[ ]</td>
<td>~~</td>
<td>~~</td>
<td>[ ]</td>
<td>~~</td>
<td>~~</td>
<td>[ ]</td>
</tr>
<tr>
<td>Nasal resonance</td>
<td>...</td>
<td>[ ]</td>
<td>[ ]</td>
<td>...</td>
<td>[ ]</td>
<td>[ ]</td>
<td>...</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

In this system, α indicates that a phoneme belongs to the family of stops (while β indicates fricatives, and so on), and the number of primes shows how far back from the mouth opening the stop occurs. The symbol ~~ indicates voicing, and nasality is shown by “…”.

Using this system, each of the sounds could be identified algebraically from its distinctive features: t as [α’], m as [α ~~ …] and so on.

After reviewing the rest of the sounds common to the European languages, Saussure notes that “Up to now we have not spoken of vowels or consonants, the difference between which is rather hard to determine” (ibid., pp. 18–19). He does not dwell on the point; a bit
further on he will give examples of sonant consonants functioning as the nucleus of a
syllable, but without any mention of how this was at the base of the original insights into IE
linguistics of his Mémoire.

The Third Course (1910–11) includes a discussion of Lautphysiologie, the physiology of
speech sounds, the growing prominence of which was, he acknowledged, leading to a
confusion between the established senses of the French terms phonétique and phonologie.
Saussure used phonétique to mean what would now usually be called phonology, and
phonologie to mean what would now be called phonetics, of which Lautphysiologie was a
component part. Explaining why it falls outside linguistics, he comes up with the intriguing
metaphor of a tapestry:

Combinations of tones form the play of the tapestry; and it makes no difference to
know how the dyer created the mixture. <What matters is the series of visual
impressions, not knowing how the threads have been dyed etc.> <So what matters is
the acoustic impression, not the means of producing them> The different forms that
make up a language represent diverse combinations by means of acoustic impressions.
It is their opposition that creates the whole game of the language. The contrasts
between them provide the whole linguistic apparatus. [...] So Lautphysiologie is not
part of linguistics. (Saussure 2005: 154)

Yet phonology as a whole is part of linguistics, or more precisely overlaps with it in such a
way that the part of it that does not intersect with linguistics is Lautphysiologie. The study of
sounds in language “must always start from the acoustic impression”, without which “we
cannot even distinguish the units” (ibid.). And, of course, finding the units is the beginning
of all linguistic analysis, as well as most of its middle and end.
Saussure was concerned with ensuring that a course in general linguistics would be genuinely general, inculcating principles that apply to all languages and cover all levels of structure. When he gave the courses again, the time devoted to phonology was much reduced. When possible he recast the conclusions reached in his own phonological studies in terms of language generally, sometimes as situated within a projected science of semiology, the study of signs. These included the need to:

- focus on the language (langue) as a socially shared system, rather than on actually realised individual speech (parole);
- replace historical analysis with a diachronic method that, instead of tracing individual elements through time, compares an entire état de langue with another état de langue;
- start from a synchronic analysis of the language as a system of values, generated purely by the differences among elements in the system, from the level of phonemes up through morphology (including lexicon) and those aspects of syntax that are determined by the grammar of the language;
- see the values that constitute the language as occupying two planes, both mental: one of acoustic image (the signifier), the other of the concept denoted by the acoustic image (the signified), and with the two bound inseparably – and arbitrarily – to one another.

We have observed these ideas emerging in Saussure’s early phonological work, and they are the ideas that shaped the direction phonology took in the twentieth century. Historical phonology was also shaped by the legacy of the Mémoire, both in the specifics of the PIE vowel system, and more generally by its method of reconstruction.
After Saussure’s death, his colleagues Charles Bally (1865–1947) and Albert Sechehaye (1870–1946) gathered up the notes of students who had attended one or more of the three courses, with the aim of producing a book that would synthesise them, rather than just reproducing the final course. This decision remains controversial. Following the plan for the book that they worked out together, Sechehaye produced a collation of the student notes and of manuscript notes Saussure had made for some of the lectures (Sofia 2015). Based on this collation, Bally drafted the text of the *Cours*. The section on phonology derives almost entirely from the material from the first course, along with that from the third course, and with the lectures on the syllable from 1897 included as an Appendix. It was however the more general principles laid out in the *Cours* that had a deeper impact on structural phonology than the book’s phonology section per se.

5. **Five common misapprehensions**

Several aspects of Saussurean linguistics have been widely misunderstood. Contrary to what is often reported:

1. *The Mémoire does not posit the existence of laryngeal consonants in PIE.* In keeping with the general orientation of the *Mémoire*, the phonetics of the sonant coefficients $A$ and $\rho$ is not discussed. The two other vowel-based sonant coefficients, $i$ and $u$ have, as semi-consonants, a near closure of the vocal passage. If one imagines a similar articulatory phonetics for semi-consonants corresponding to the vowels $a$ and $o$, they would involve laryngeal constriction. The Danish linguist Hermann Möller (1850–1923), who was pursuing inquiries into IE–Semitic linguistic unity, was the first to suggest (in Möller 1880) that Saussure’s two hypothetical sonant coefficients might be laryngeals, a type of consonant in which the Semitic languages are especially rich.\(^{12}\) *The Mémoire* is often
wrongly credited with this proposal, though if one reads it and translates \( A \) and \( \varphi \) into \( H_1 \) and \( H_2 \), it tells us where exactly to expect these laryngeals, and the locations were confirmed by Kuryłowicz’s (1929) study of Hittite texts.

\[ \text{ii. Saussure did not want to halt historical inquiry, but to reform it.} \]  
All the work Saussure published in his lifetime falls under the heading of historical linguistics, as does nearly all of the manuscript material he left behind. Even when he went out to mountain villages to collect dialect data, in the background was the desire to get information that would give a clue to the historical development of the IE language family. As for how historical linguistics was being practised by his contemporaries, being Swiss, he could see the holes in the cheese. The diachronic linguistics he advocated, far from being in opposition to synchronic analysis, took it as its first stage. His methodological objection was against imagining that individual sounds and forms have a continuous existence that can be traced from, for example, PIE to Latin to French. This is to misunderstand the nature of language as a system in which, at any given point in time, the value of any element is a function of its relationship to other elements with which it shares an associative (paradigmatic) or syntagmatic axis.

\[ \text{iii. The signifier is not sound, and the signified is not a thing.} \]  
One of the more confusing choices made by the editors of the *Cours* was to include a picture of a tree as the signified in one of the diagrams illustrating the linguistic sign. It reinforced the common understanding that Saussure was trying to fight against, a “nomenclaturism” that takes a language to be a set of labels for things that exist in the world, or exist conceptually independent of their naming (see Joseph 2017a). Instead, Saussure taught, signifiers and signifieds come into existence jointly and simultaneously. If *sapling* or *hogget* existed as categories in nature, one would expect many more languages to have words for them. The
signifying value of tree is a function of its difference from sapling, shrub and other similar plants. As for the signifier, the range of phonetic variants is by definition constrained only by its attachment to the signified: if it does not signify the signified, it is not a signifier. The signifying takes place in the mind of the hearer, where the sound perceived has to be compatible with a category – the phoneme – that Saussure sometimes describes as an acoustic image, though ultimately all signifiers, and all signifieds, are values.

iv. **Saussure’s study of anagrams does not challenge his principle of linearity.** From 1906 to 1909 Saussure pursued a project of locating anagrams in Greek and Latin poetic texts. They took the form of a key word, the theme of the poem or the name of its dedicatee, chopped up and rearranged within the poem following certain regularly recurring principles. Ultimately he could not establish definitively that the anagrams were created intentionally and were not the product of chance, and so he abandoned the project. When his 99 notebooks on the subject came to light in the early 1960s, they were interpreted as showing Saussure’s lack of faith in his own principle of the linearity of the signifier, since an anagram is a signifier in non-linear order. However, linearity is an attribute of signifiers in the langue as Saussure conceives it; the poetic anagrams are a part of texts at the level of parole, individual production. There is no inherent contradiction between the linearity of the signifier in langue and the existence of anagrams in parole.

v. **Saussure did not have a narrow, doctrinaire view of language.** Saussure is often presented as insisting that linguistics should be concerned with the language system alone, and not with its use in parole. On the contrary, he projected a linguistics of parole that he would likely have pursued had he lived a few years longer. The Saussurean system is sometimes called abstract, which is understandable given that it is founded on values based on difference; but Saussure was concerned with ensuring that his linguistic analyses were
solidly grounded in what is psychologically real for speakers, and disdainful of what was for him the misguided abstract analyses of linguists who found clever solutions that did not square with speakers’ intuitions. Harris (1987) accuses him of a “telementational” view of linguistic communication, based largely on a picture in the *Cours* showing two heads facing one another, with arrows leading from the mouth of one to the brain of the other. But this has been altered from what Saussure actually drew, which was meant to show simply that, in linguistic exchanges, the roles of speaker and hearer switch between interlocutors. Harris also attributes a “fixed-code theory” to Saussure based on this diagram, claiming it implies that both speakers understand the linguistic signs of their language in precisely the same form – an implication devoid of any textual support in Saussure.

Finally, Saussure’s principle of the arbitrariness of the linguistic sign gets interpreted as a denial of iconicity, or sound symbolism. The *Cours* however includes a substantial discussion of “relative arbitrariness”, in which Saussure recognises that the whole systematic nature of *langue* implies limits to the arbitrary. Although he dismisses cases of onomatopoeia as not being so directly imitative as they appear, the fact is that onomatopoeia inheres not within the linguistic sign, but in the relationship between a sign and a thing-in-the-world, a relationship that Saussure considers to lie outside linguistics, hence beyond his competence to discuss. For example, to identify the Chinese word *mao* “cat” as onomatopoeic is to posit a link between, on the one hand, the sonic realisation of a signifier (/mao/) and a sound-in-the-world (a cat’s meow), and on the other, a signified (“cat”) and the thing-in-the-world that makes the sound. But the arbitrariness principle applies within the sign, which succeeds (or fails) in signifying regardless of whether a particular speaker or hearer perceives or does not perceive the onomatopoeia (see Joseph 2015).
6. The *Cours* and structuralist phonology

Saussure’s impact on twentieth-century phonology includes the modernist simplification brought about by his reorientation away from sound as such, and toward systems and the units that compose them. From the *Mémoire* to the *Cours*, phonetic detail was swept aside, or at least relegated to secondary status. The reality of language lies for Saussure not in sound, nor in the muscular movements needed to create sound, nor in the vibratory acoustics of their transmission and perception. It lies in form, understood as mental patterns, cerebral traces, socially shared, that make it possible to produce and recognise substance as meaningful linguistic form. This would become the basis for structural linguistics in the twentieth century. Yet its development across the century would be driven by the tensions created by pushing down a substance that stubbornly refuses to go away.

Structuralist linguistics arose across Europe and America not in a unified fashion, but in the form of national schools. This was due less to isolation – linguists in different countries read and published in each other’s journals, and maintained regular epistolary and personal contact – than to a desire for intellectual independence, especially after the decades of German domination in historical linguistics, and for theories that would reflect the different interests and ideologies of linguists in the various countries. Yet the post-WWI generation all sought approaches that appeared modern and scientific, and they landed on largely the same things. The *Cours* was a major influence on all the structuralist schools, though by no means the only one; it provided a theoretical programme, but only sketches of the actual work to be carried out (see Joseph 2016).
The person most directly responsible for taking Saussure’s linguistics forward and developing a general structuralist approach was Jakobson. From 1926 to 1938 he and his principal collaborator, Nikolai Trubetzkoy (1890–1938; see Chapter 11), took part in the work of the Prague Linguistic Circle. Trubetzkoy undertook to analyze in this way the sound systems of all the world’s languages on which he could get adequate information, while Jakobson tried to reconceive the historical development of phonological systems in the light of Saussure’s views, as well as drawing out their implications for the study of poetics. However, by 1930 it became clear that they could not stay with Saussurean orthodoxy in the analysis of sound systems. Their work suggested, contrary to what the *Cours* maintains, that the relationships holding among all elements of the linguistic system are not of precisely the same nature. Rather, the details of their production and reception as sounds demanded to be taken into account.13

In many languages, Jakobson and Trubetzkoy noted, the distinction between pairs of consonants such as /t/ and /d/ is “neutralised” at the end of a syllable or word. This connects /t/ with /d/ in a different, closer relationship than either has to /f/ or /v/, for example; and to deny that this closer relationship is linked to their shared articulatory features seemed like blinding oneself to the obvious. Yet the Saussurean view is that the phonetic substance of /t/ and /d/ is inconsequential, and all that matters is the fact that they differ in some perceptible way. As their work progressed, a new perspective developed. The correlation /t/-/d/ consists of a core of features common to the two sounds, plus a distinguishing element. They created the term “archiphoneme” for the core of features common to /t/ and /d/ (symbolized /T/). They could then specify that neutralisation is not simply a change of phonemes, but a realisation of the same archiphoneme, with the distinguishing element deleted in word-final position. Trubetzkoy
suggested calling this extra distinguishing feature a *mark*. When the distinction is neutralized it is always the simple, unmarked member of the opposition that appears. Because simplicity as here understood includes the physical processes of articulation and production, and the actual sounds produced and heard, this idea of “markedness” (as it would be termed by Chomsky & Halle 1968; see Chapters 17 and 18) undoes the key Saussurean tenet that language is form, not substance.

A 1939 paper of Jakobson’s, ostensibly on child language though covering much more, convinced many linguists that the new hierarchical structuralism envisaged by him and the recently deceased Trubetzkoy laid the grounds for a unified theory explaining the facts not only of language structure but of linguistic history and typology, the acquisition of language, and its loss when damage occurs to the brain (Jakobson 1949 [1939]). Jakobson proposed that a universal hierarchy of sounds was valid across all the languages of the world. This hierarchy could be interpreted in terms of markedness. Jakobson pointed out that in the babbling stage that precedes the production of words, children utter *all* the sounds of all the world’s languages, which means that no sound is actually beyond them in articulatory terms. What makes certain sounds “easier” and others “harder” to master must therefore lie not in the tongue, but in the mind, and specifically in the ease or difficulty with which the mind perceives distinctions among sounds. Jakobson noted further that the place of a particular sound in the universal order of phonological acquisition by children corresponded with its degree of distribution among the languages of the world.

In Copenhagen, Louis Hjelmslev (1899–1965; see Chapter 15) was following a similar trajectory. His first book (Hjelmslev 1928) was resolutely Saussurean, but his second (Hjelmslev 1935–37), while still following Saussure in its broad lines, argues that difference and opposition alone cannot account for the internal functioning of the language system,
and that a distinction between “simple” and “complex” elements is required. By the end of
the decade he is professing a linguistics in which “Structure constitutes a hierarchy that
knows only its own order and to which there is only one possible way in: to recognise it
following its own inherent principle, one must […] descend gradually from the most abstract
(general, simple) facts to more and more concrete (particular, complex) facts” (Hjelmslev
1939: 11). He never makes an overt break with Saussure; neither does Jakobson, who
however is more explicit about his divergences. Hjelmslev maintains a rhetorical veneer that
makes it sound as though his various divergences are surely what Saussure meant, or what
he would have said if he were around today. His approach, glossematics, went farther than
any of his contemporaries toward working out the relational nature of linguistic systems as
implied in the Cours. Hjelmslev’s faithfulness to Saussure comes through in his criticism of
the Prague and London Schools for claiming to be “functionalist” but nevertheless
continuing to rely on analysis of phonetic substance.

In Paris the Saussurean flame was kept alight by Antoine Meillet (1866–1936), who
had absorbed the principles of structural linguistics from Saussure’s Mémoire and from
being his student in 1887–9, and passed them on to two generations of his students,
including Émile Benveniste (1902–1976) and André Martinet (1908–1999). In their work,
whether synchronic or diachronic, phonology, and linguistics generally, are approached
from the point of view of the whole system. With the rise to prominence of the Prague
School and, after WWII, of Jakobson on the American scene, Benveniste’s and Martinet’s
positioning relative to structural linguistics became ambivalent, perhaps partly out of
national pride and partly out of personal envy. Martinet worked with Jakobson in New York,
but relations between them were difficult, with Martinet determined to tread his own
“functionalist” path. Jakobson’s work was gaining great notoriety, not least through his
shaping influence on the generalised structuralism being extrapolated in Paris from linguistics to other fields, starting with the ethnography of Claude Lévi-Strauss (1908–2009), whom Jakobson had introduced to the Cours.

The United Kingdom resisted the importation of structural linguistics. The study of language in Britain had undergone a modernisation earlier in the century with the work of the phoneticians Henry Sweet (1845–1912) and, later, Daniel Jones (1881–1967). The phoneme became central to Jones’s work, but as a phonetician his interest in the sound level of language inclined him not to follow Saussure in conceiving of the phoneme as having, like any signifier, a purely mental reality. Instead, Jones linked phonemes to a sort of idealised articulation, most famously with his “cardinal vowels”, a concept-cum-technique of pronouncing vowels at their extreme limits to try to capture their essence. Two of the lecturers whom Jones hired were however more devoted Saussureans: Harold E. Palmer (1877–1949), a practitioner of what would later be called applied linguistics; and J. R. Firth (1890–1960; see Chapter 12), who approached the whole systematic nature of language in an unparalleled way. Whereas most linguists of the structuralist period conceived of language systems as consisting of a small set of largely independent subsystems (phonology, morphology, syntax, suprasegmentals), for Firth language was polysystemic, incorporating an infinite number of interdependent micro-systems which overlap the traditional levels of analysis. The refusal to separate phonology and suprasegmentals, for example, made interaction between Firth’s “London School” and the followers of Sapir and Bloomfield all but impossible – but it anticipated work in generative phonology by nearly half a century.

**7. Conclusion**
One of history’s imponderables is what direction modern phonology would have taken if Saussure had not published the *Mémoire*, if Bally and Sechehaye had not published the *Cours*, or if Saussure had completed the book he started in the early 1880s. Perhaps phonology would have ended up at the same place by the start of the present century; after all, men who were Saussure’s strongest advocates, such as Jakobson and Hjelmslev, were prompted by his work to take a radically different direction from his – a reverential infidelity that the greatest teachers are capable of inspiring. Such teachers are not inclined to worry about misinterpretations of their work, if they yield novel insights and open up new pathways. To quote the literary critic Harold Bloom (1997: 5), “strong poets make [...] history by misreading one another”. So do strong linguists.

**References**


New York: Philosophical Library, 1959 [preferable to the later retranslation by Roy Harris]).


1 Joseph (2012) provides additional information on all of the points raised concerning Saussure in this chapter.
2 Saussure cites the older form *hístāmi* rather than the Classical Greek *hístēmi*. $a_1A$ contracted either to ē or ā.
3 The grounds for this method are often attributed to Grassmann (1863).
4 “Proethnic” means before the separation of the IE people into Asian and European branches.
5 Brugmann (1885: 23) would include in his list of PIE vowels an “a ‘schwa indogermanicum’”, corresponding to Saussure’s $A$, but, to Saussure’s irritation, without attribution to him. *Schwa* is the Hebrew sign $\langle\rangle$ placed under a consonant letter to show that what follows is either no vowel or, in some positions, the neutral /ə/.
6 Here and in other citations from manuscript material, angular brackets ($<$ >) indicate additions or corrections made above the main line of text or in the margins.
7 See also Saussure (1995:226). He acknowledges that evidence for the psychological reality of syllables may be found in the existence of syllabic writing systems.
8 Saussure (ibid., p. 37) attributes the terms implosion and explosion to Brücke (1876 [1856]).
9 For that reason it was assumed, when the notebooks were first examined in the 1960s, that they dated from a later period.
10 Something is amiss in the passage: $kṣrj$ is aperture 0.1.2.3, while $tlm$ is S0.2.1.
11 Saussure (1996) is cited for the original text, but the translations are mine. Those by Wolf are excellent for their readability, but often are not literal enough for purposes of linking Saussure’s words with texts from other stages of his career.
IE-Semitic unity is also in the background of Brugmann’s suggestion discussed in note 5.

Trubetzkoy’s best known and most influential work is Troubetzkoy (1949). A good selection of Jakobson’s work can be found in Jakobson (1995).

Benveniste’s most significant papers are collected in two volumes (Benveniste 1966, 1974), and his final lectures have recently been reconstructed and published (Benveniste 2012). Martinet’s extensive phonological work is represented by Martinet 1955, 1962).

His crowning work was Jones (1950). See further Joseph (2017b) on Jones’s and Firth’s contrasting responses to Saussure, along with those of their American contemporaries Bloomfield and Sapir.

Firth’s most significant papers are collected in two volumes (Firth 1957, 1968).