

Phonology in the Soviet Union*

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1 Historical outlook

This chapter treats mainly the two major ‘schools’ of phonology in the Soviet Union, known as the ‘Moscow’ and ‘Leningrad’ schools. As we shall see, both emerged in the 1920s and early 1930s, maturing — and not by accident — at about the same time as other varieties of European structuralism. To understand their development, however, it will be necessary to briefly sketch the historical context of Russian linguistic science in the foregoing years.

1.1 The early 20th century

At the dawn of the 20th century, the study of language in Russia was mostly preoccupied with traditional philological issues. Although pioneering approaches to phonology had been formulated in Kazan by Mikołaj Kruszewski and Jan Baudouin de Courtenay (Radwańska-Williams this volume) in the late 19th century, their full theoretical impact would really only be felt later. Baudouin de Courtenay himself, after extensive travels, ended up teaching both Indo-European linguistics and linguistic theory in St Petersburg; consequently, his pupils would often identify as part of a ‘St Petersburg linguistic school’ (which, of course, became the ‘Leningrad school’ once the city was renamed by the Bolshevik authorities). He would leave his mark not just on phonology, mainly through his pupil Lev Shcherba (1880–1944) — discussed in more detail in section 2.1 — but also via the morphological and syntactic ideas of the hugely influential grammarian Viktor Vinogradov (1895–1969).

The other important figure in that period was Filipp Fortunatov (1848–1914), the originator of the ‘Moscow Linguistic School’ and one of Russia’s first important Neogrammarians. Fortunatov made contributions to Slavic and Indo-European historical linguistics (notably in the study of Balto-Slavic accentuation), and encouraged the development of dialectological and traditional philological study. He trained notable scholars such as Aleksei Shakhmatov (1864–1920), a leading figure in the study

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of the Old Russian manuscript tradition and language; the dialectologist and grammarian Dmitrii Ushakov (1873–1942); the Slavic and Baltic philologist Viktor Porzhezinskii (Wiktór Porzeziński; 1870–1925); and the dialectologist, Slavic philologist and grammatical theorist Nikolai Durnovo (1876–1937). In 1912 the first (and only) cohort of students graduated from the programme in ‘comparative linguistics’ at Moscow University, run by Fortunatov’s pupil and successor Porzhezinskii: one of the two students was Nikolai Trubetzkoy.

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However, the defining characteristics of Fortunatov’s ‘Moscow School’ lay not in its solid if unspectacular philological work but in the emphasis on ‘formalism’: the attention to structural criteria in linguistic analysis, acting as a counterbalance to the prevailing psychologism of Baudouin de Courtenay (particularly in his later period) or of the influential Ukrainian scholar Aleksandr Potebnya (1835–1891). An example is his analysis of parts of speech, as presented in his lecture notes published as [Fortunatov \(1956\)](#), which rejected the traditional semantically informed classification in favour of one emphasizing morphological criteria. This ‘formalist’ approach was to play an important rôle in later Moscow developments.

1.2 Developments in the 1920s

Following the revolutions of 1917 and the upheaval of the Civil War, despite some organizational changes, linguistics in Russia remained highly productive. Importantly for the development of phonology, the new authorities embarked on a turbocharged programme of language planning, starting with a spelling reform for Russian and moving on to the creation of alphabets for the indigenous minority languages of the Soviet Union (e. g. [Martin 2001](#), [Grenoble 2003](#)).

Traditional philological and grammatical work continued, overseen by scholars in the Neogrammarian mould such as Afanasii Selishchev (1886–1942). An active milieu of literary critics and scholars, as well as theoretical linguists — the latter group including Roman Jakobson (1896–1982), Evgenii Polivanov (1891–1938), and Lev Yakubunskii (1892–1945) — coalesced around the group known as OPOYAZ (for *Society for the Study of Poetic Language*). OPOYAZ’s overriding concern was with the *structure* of language, verse and literary text — indeed, the group is sometimes referred to as ‘the formal school’ (see e. g. [Erlich 1973](#)) — and it is not too difficult to discern the links between this preoccupation and Fortunatov’s lessened emphasis on ‘psychologism’ in favour of formal criteria.

Another important strand of work was conducted under the ægis of the language planning effort. It was led by the All-Soviet Central Committee for the New Alphabet (1925–1937), which supported the work of specialists such as the Finno-Ugric linguist Dmitrii Bubrikh (1890–1949) or the Mongolist Nikolai Poppe (1897–1991). In the context of the history of phonology, however, of most relevance is the work of the Caucasologist Nikolai Yakovlev (1892–1974), who in his capacity as head of the Committee’s Technographic Commission led the work of creating the alphabets (see section [2.2](#) below).

1.3 The Marr hiatus

Linguistics in the Soviet Union took a dramatic turn in the late 1920s with the advent of ‘the new doctrine of language’ (*новое учение о языке*) associated with the name of Nikolai Marr (1865–1934;

see [Slezkine 1996](#), [Alpatov 2004](#), [Brandist 2015](#) for detailed studies).¹ Marr, who had made his name in the pre-revolutionary era as a Caucasologist, veered towards grand theories of language origins and evolution and rejected traditional etymology and the 19th century model of language history based on divergence. Instead, he envisaged language change as the product of hybridization between already existing varieties, emphasizing convergence driven by external events. This led him to a Marxist interpretation of his ‘new doctrine’, whereby language change was triggered by socioeconomic change and class struggle.

Marr did raise some important questions, such as the origin and evolution of language, the rôle of convergence in the history of languages,² and the importance of typological analysis. For the most part, however, the ‘new doctrine’ was essentially pseudoscientific, rejecting accepted methods of linguistic scholarship, impervious to falsification by inconvenient data and deflecting criticism by a crude shield of pseudo-Marxist jargon. Nevertheless, beginning in the late 1920s and particularly after Marr’s death in 1934 it was elevated to the status of orthodoxy. Some linguists active in the 1920s moved to the Marrist camp; those who did not subscribe to its tenets found themselves marginalized (Shcherba), if not outright persecuted (Polivanov, Bubrikh).

Although orthodox historical linguistics on Neogrammarian lines was hit harder than phonological theory, whose concerns were fairly marginal to the Marrists, the energy of the 1920s dissipated in that era. The ‘new doctrine of language’ remained, at least rhetorically, the official line until 1950. Its dominance came to an abrupt end when, at the height of a renewed bout of Marrist repression, Joseph Stalin himself weighed in with a *Pravda* article entitled *Marxism and questions of linguistics*, in which he³ denounced Marrism and proclaimed traditional philology to be the only scientific approach to the study of language.

Although phonological theory came out ‘into the open’ again in the 1950s, some of the most important scholars of the preceding period had been swallowed up in the Marrist tide. For instance, Nikolai Yakovlev had become a proponent of the ‘new doctrine’, and after its fall he was fired, never to return to active research. Many linguists were caught up in Stalin’s purges: Nikolai Durnovo and Evgenii Polivanov were both executed.

Important work *was* done in the 1930s and 1940s, continuing the respective Moscow and Leningrad traditions. It is important to remember that they were very much part of the same intellectual currents that gave birth to the Prague school. Jakobson and Trubetzkoy, of course, had themselves belonged to the intellectual milieu of 1910s and early 1920s Russia, and other links between Russia and Europe (particularly Prague) would persist: for instance, Durnovo spent a few years in Czechoslovakia in the 1920s before being forced to return. During the Marr period, however, these links weakened, and by the time something resembling normal service resumed, phonology in Soviet Union had become estranged from developments that led to mid-century structuralism, and to generative phonology. It did not help that Neogrammarianism was now the proclaimed ‘Marxist’ creed, and other theoretical approaches, no matter how closely related intellectually to Soviet ones, were unavoidably tarred with the ‘bourgeois’ brush. This was vividly demonstrated by the so-called ‘discussion on the phoneme’ of the mid-1950s, occasioned by the publication of [Shaumyan \(1952\)](#). His attempt to

¹See also [Dmitriev \(2016\)](#) for a useful comparison of Marr and Baudouin’s ideological backgrounds.

²Thus, both [Alpatov \(2004\)](#) and [Sériot \(2012\)](#) point out that Marr’s emphasis on convergence can be seen in the same context as Trubetzkoy’s discovery of *Sprachbünde*.

³Or rather, perhaps, Arnol’d Chikobava (1898–1985), an uncompromising opponent of Marrism, who had Stalin’s ear on the matter. For a recent discussion of Stalin’s article, see [Dobrenko \(2015\)](#).

(re-)import structuralist thinking, with particular reference to the Praguians and to Hjelmslev, was met by harsh criticism as ‘idealist’ (for instance, by [Bernshtein 1952](#)) — that is, ideologically suspect (for accounts of the Shaumyan controversy, see [Milivojević 1970](#), [Reformatskiĭ 1970](#)). PI Note: xref?

2 The two schools

As already noted, the development of phonology in the Soviet Union has traditionally been viewed in light of a cleavage between a ‘Moscow school’, continuing the relatively ‘formal’ tradition of Fortunatov and OPOYAZ, and a ‘Leningrad school’, heirs to Baudouin’s ‘psychological’ approach. This is a fair distinction to make, although, as we shall see, a rapprochement between the two frameworks was not at all impossible.

2.1 The Leningrad tradition

The Leningrad tradition is often associated with the name of Lev Shcherba. He studied in Paris, notably under Jean-Pierre Rousselot and Paul Passy, and was primarily a phonetician rather than a phonologist; he also worked with Antoine Meillet and later, in St Petersburg, with Baudouin. He set up a phonetic laboratory at St Petersburg University as early as 1909, and his phonological thinking would always remain tightly bound up with his phonetic interests.

[Shcherba \(1912\)](#), his Master’s thesis, was an early but influential account of his views. Building on Baudouin’s major idea — that the physical realization of a sound is distinct from its abstract, ‘psychological’ representation — Shcherba accepts that speakers of each particular language categorize individual pronunciation events into a finite number of types. His crucial theoretical innovation was to bring in the possibility of expressing lexical distinctiveness in each language as an analytical criterion. Consequently, Shcherba insists, languages differ in whether they treat the difference between a particular pair of sound types as meaningful: so, for instance, in Russian the distinction between a higher [e], found before a palatalized consonant (as in [dʲetʲi] *deti* ‘children’) and a lower [ɛ], found before a non-palatalized one (as in [dʲetʲki] *detki* ‘children-DIM’) is real, but is not easily perceived by untrained speakers, and not used to make semantic distinctions. Conversely, in French the same distinction between [de] *dé* ‘die, cube’ and [dɛ] *dais* ‘niche’ is both meaningful and easily available to speakers.

Shcherba gives the following definition of the phoneme: ‘the briefest general phonetic representation of a given language that is able to be associated with semantic representations and differentiate between words and that can be distinguished in speech without changing the phonetic content of the word’ ([Shcherba 1912](#): 8).⁴ Crucial for his conception is the difference between a ‘phoneme’ and a ‘shade’ (*оттенок*, as in a colour shade), with ‘shade’ differences being non-distinctive in the given language. For [Shcherba \(1912\)](#), these terms are useful as descriptions of the functions of differences between physical, real sounds; he even appears to go so far as to say that ‘phonemes are those shades

⁴ «[К]ратчайшее общее фонетическое представление данного языка, способное ассоциироваться со смысловыми представлениями и дифференцировать слова и могущее быть выделяемо в речи без искажения фонетического состава слова.»

that are the least affected by the surrounding context'.⁵ In later work (Shcherba 1937), he clarifies his position: phonemes are properly abstract units of linguistic analysis, whilst shades are physical events. In other words, phonemes represent types and shades represent tokens:

[There exists] a relatively small number of sound types that are able to distinguish words and their forms... It is these sound types that are meant when referring to individual *speech sounds*. We will call them *phonemes*. The different sounds that are actually pronounced, which are the specific phenomena realizing the general (the phoneme), we will call *phoneme shades* [original emphasis]⁶. (Shcherba 1937: §16)

Note that for Shcherba, real physical distinctions between sounds are the primitives of the analysis: phonemic status is something that is ascribed or denied to these distinctions, insofar as they are put to certain uses within the language (in particular as they create lexical contrasts). In this respect, Shcherba's conception of phonology is what we might today call 'functionalist' in orientation: linguistic analysis is not just guided by formal criteria, but also informed by an understanding of the ways in which linguistic material (phonetic differences, in this case) is manipulated to achieve certain ends (lexical contrastiveness).

This emphasis was shared by Evgenii Polivanov. Due to his vigorous opposition to Marrism,⁷ he was unable to hold a post in Moscow or Leningrad, and was forced to move to Central Asia, where he was caught up in the Stalinist purges of the 1930s, imprisoned and then executed on a trumped-up charge of spying for Japan. He published relatively little, especially after 1931, and his work only reacquired some influence after the fall of the 'new doctrine', but he prefigured several important currents of linguistic thought. Polivanov was a polyglot with a particular interest in Asian languages; among other things, his pioneering analysis of Japanese pitch accents (Polivanov 1915) initiated the modern understanding of this phenomenon. He worked extensively on Turkic, Iranian, and Sinitic languages, and was active in the language planning effort. He was also a productive theorist, maintaining links with Jakobson and Trubetzkoy and publishing papers in the Prague *Travaux*.

Where Shcherba sought to recast Baudouin's 'psychophonetics' as a 'phonology' grounded in objective physical differences, Polivanov remained truer to their teacher's 'psychological' emphasis and retained a strong interest in the relationship between the structure of language and the mind of its speakers (notably, he never abandoned the term 'psychophonetics'). He was particularly interested in theorizing language change (see his selected essays in Polivanov 1968b). He explicitly discussed imperfect learning and the minimization of effort ('human laziness', as he put it) trading off against communicative success as driving forces behind change, weighed up the rôles of endogenous and exogenous change, particularly in the context of language planning, and made specific diachronic proposals, especially relating to the reconstruction and classification of Japanese and Korean. Polivanov's

⁵ «[Ф]онемами являются те оттенки, которые находятся в наименьшей зависимости от окружающих условий» (Shcherba 1912: 12).

⁶ «[С]равнительно небольшое число звуковых типов, способных дифференцировать слова и их формы... Эти звуковые типы и имеются в виду, когда говорят об отдельных *звуках речи*. Мы будем называть их *фонемами*. Реально же произносимые различные звуки, являющиеся тем частным, в котором реализуется общее (фонема), будем называть *оттенками фонем*.»

⁷ Ironically, Polivanov was far superior to Marr not only as a linguist but also as a Marxist theorist (Alpatov 2004, Brandist 2015).

most important phonological contribution was probably his work on historical phonology. He distinguished between phonetically gradual sound changes without phonological consequences and abrupt ('mutational', or 'revolutionary') changes that altered the system of phonemic contrasts, arguing that the latter are normally preceded, and triggered, by the former. He argued that phonemic 'convergences' and 'divergences' (splits and mergers) should not be treated in isolation, insisting on the fundamentally interconnected nature of phonological changes. He noticed that most phonemic splits involved mergers (cf. the 'primary split' of [Hoenigswald 1965](#)), and argued that this showed the constraining influence of the pre-existing phonemic system on the direction of possible changes (cf. the 'priming effect' of [Kiparsky 1995](#)). This emphasis on the phonological conditioning of changes led Polivanov to several analyses where changes are triggered by the outcome of other changes — what we today would recognize as chain shifts. Overall, Polivanov's ideas were highly consonant with Trubetzkoy and Jakobson's approach to diachronic phonology: one need only compare [Jakobson's \(1929\)](#) insistence that '[t]he theory of a historical process is impossible unless the entity that undergoes the changes is considered as a structure governed by internal laws and not as a fortuitous set of facts'⁸ with Polivanov's dictum in a posthumously published paper: 'I consider it necessary to see historical phonetics not as a set of scattered histories of sounds and of the sound make-up of individual words but as a history of consecutive changes of *systems* of phonetic representations'⁹ [original emphasis].

The focus of the Leningrad school would remain on the phonetic basis of phonology, sometimes cast as 'the autonomy of phonetics'. Its ideas informed a programme of research in experimental (including perceptual) phonetics and further development of phonemic theory that emphasized the primacy of the phoneme as an independently observable unit, by scholars such as Lev Zinder (1903–1995), Margarita Matusevich (1895–1979), and Liya Bondarko (1932–2007). Leningrad phonologists rejected the 'atomistic' conception of distinctive features, associated by them primarily with Jakobson. They disagreed with the idea that features are the primitives of phonological representation, and criticized this view for relegating phonemes to epiphenomenal status as essentially shorthands for feature bundles. In Leningrad thinking (see, for instance, the influential textbook by [Zinder 1979](#), first published in 1960; also [Voronkova & Steblin-Kamenskii 1970](#), [Kasevich 1983](#)), features were seen as properties, not building blocks, of phonemes. The reasoning was partly phonetic, emphasizing the multitude of acoustic and articulatory cues to distinctive features and the inconsistency of cues across different contexts (see e. g. [Bondarko 1969](#)); in the absence of such invariants, features were analysed as contingent properties of independently existing phonemes, not suitable primitives for phonological theory.

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The functionalist ethos also remained prominent. One visible representative of this approach was the Germanic philologist and (historical) phonologist Mikhail Steblin-Kamenskii (1903–1981). Like Polivanov, he saw systematic study of historical phonology as a viable and theoretically useful enterprise, and made important contributions to the phonological analysis of the North Germanic languages (see e. g. [Steblyin-Kamenskij 1974](#)). Leningrad phonologists also distinguished themselves by continuing to apply their thinking to a broad range of languages and phenomena; thus, Steblin-Kamenskii's pupils such as Anatoly Liberman (1937–; see e. g. [Liberman 1984](#)), Jurij Kusmenko

⁸ « La théorie d'un processus historique n'est possible qu'à la condition que l'entité qui subit les changements soit considérée comme une structure régie par des lois internes, et non comme un agglomérat fortuit. » ([Jakobson 1929](#))

⁹ « [Я]... считаю необходимым рассматривать историческую фонетику не как совокупность разрозненных историй звуков и звукового состава отдельных слов, а как историю последовательной смены *систем* фонетических представлений. » ([Polivanov 1968a](#): 95)

(1941–), and Yurii Kleiner (1946–) carried out a broad programme of research in Germanic phonology (particularly prosody), while Vadim Kasevich (1945–), among many other contributions, tackled the challenges to a ‘segmental’ model of phonology presented by the ‘syllabic’ languages of East and South-East Asia (Kasevich 1983).

The Leningrad school’s view of phonemicization meant that the focus of their phonological analysis was not as closely trained on alternations as in some other approaches. Under their approach, an automatic alternation such as that, in Russian, between [b] in [ˈrʲɪbə] ‘fish’ and [p] in [ˈrʲɪpkə] ‘fish-DIM’ involves two different phonemes, because /b/ and /p/ are clearly phonemically distinct in the language (cf. [bar] ‘bar’ and [par] ‘steam’) — even though the appearance of the /p/ is conditioned by the following voiceless obstruent. The burden of distinguishing between such an ‘automatic’ alternation and a morphologically conditioned one falls onto the separate discipline of *morphonology*, to which we return in due course. Now, however, we turn to a consideration of the other major strand of Soviet theorizing, which was preoccupied precisely with the phonological import of alternations.

2.2 The Moscow school

In the 1920s, the Moscow ‘formal’ tradition was most fruitfully developed by Nikolai Yakovlev. Although he never presented an extended theoretical account of his phonological ideas, he consistently expressed a view of the phoneme that, whilst taking Baudouin’s conception as its starting point, also prefigured, and influenced, Praguian ideas as later expressed by Trubetzkoy and Jakobson. In a classic paper, Yakovlev (1928), like Shcherba, agrees with Baudouin in assuming abstract representations but rejects psychological criteria and focuses on the function of phonemes as units creating meaningful distinctions:

[I]t is not that phonemes are identifiable [...] because each individual speaker is conscious of them, but the precise reason speakers are conscious of them is that these sounds fulfil a particular grammatical function in language as a socially elaborated grammatical system... We must recognize as phonemes those sound differences that are identifiable in speech as its shortest sound moments *with respect to the differentiation of the meaningful elements of language*.¹⁰ (original emphasis)

Yakovlev, who was closely involved in language planning, claimed that this understanding of the phoneme lay behind the intuitions of the creators of non-logographic writing systems (see Sproat and Duanmu & Kubozono, both this volume); consequently, once the analyst was able to reason their way to these phonemes in non-standardized languages, the creation of new alphabets could be treated as a rigorous discipline (for more on Yakovlev, see Ashnin & Alpatov 1995).

As already noted, Yakovlev became a Marxist and abandoned his earlier work, and the label ‘Moscow phonological school’ proper, which appeared later, is primarily associated with names such as Ruben Avanesov (1902–1982), Vladimir Sidorov (1903–1968), Petr Kuznetsov (1899–1968), and Aleksandr Reformatskii (1900–1978). All of them, trained under Fortunatov’s pupils such as

¹⁰ «[Ф]онемы выделяются [...] не потому, что они сознаются каждым отдельным говорящим, но они потому и сознаются говорящими, что в языке как в социально выработанной грамматической системе эти звуки выполняют особую грамматическую функцию... мы должны признать фонемами те звуковые отличия, которые выделяются в речи как ее кратчайшие звуковые моменты *в отношении к различению значимых элементов языка*.»

Ushakov and Selishchev, inherited a primary interest in the Russian language, and made important contributions to its study over and above their phonological theorizing. Avanesov, Sidorov, and Kuznetsov had extensive training and wide-ranging interests in dialectology and in the history of Russian. All were accomplished fieldworkers; Avanesov would play a leading rôle in planning and conducting a major programme of dialectological research that began in the mid-1940s and culminated in the *Dialectological Atlas of the Russian Language*, finally published almost half a century later. The early Moscow phonologists also took a close interest in written language. Reformatskii had been an OPOYAZ member and held a number of publishing-related jobs in the late 1920s and early 1930s, whilst both Avanesov and Sidorov theorized the reformed Russian orthography, conceptualizing it as a phonemic spelling system (Avanesov & Sidorov 1930). They were, unsurprisingly, influenced by Yakovlev's work on both phonemic theory and orthography.

For the Moscow school, the distinctive function of the phoneme was of fundamental importance. As a corollary, phonological analysis could not ignore the fact that the possibility of producing phonological distinctions depends heavily on positional factors, and in particular that different positions support different ranges of distinctions. To return to our example, Russian obstruents contrast in voicing prevocally ([ˈpar] 'steam' ≠ [ˈbar] 'bar'), but no such contrast is possible before a voiceless obstruent, where all obstruents are voiceless: [ˈrɪpkə] 'fish-ДИМ' is phonotactically licit, but *[ˈrɪbkə] is not. Consequently, the Moscow school refuses to identify the pre-voiceless obstruent [p] in [ˈrɪpkə] with the prevocalic [p] in [ˈpar], because they stand in different contexts, in clear contrast with the Leningrad position, for which the identity of the two [p]'s is a given, and is not disrupted by distributional considerations.

This move closely parallels Trubetzkoy's postulation of archiphonemes on the basis of distributional criteria, but unlike Trubetzkoy the Moscow scholars admitted not just phonological but also morphological criteria. Thus, the word [ˈrɪpkə] 'fish-ДИМ' is morphologically <rip-k-ə> 'fish-ДИМ-НОМ.СГ'. The first morpheme can also appear as [rɪb]: [ˈrɪbə] 'fish'. Crucially, this latter is an example of the same morpheme where the consonant in question appears prevocally — that is, in a position that *does* support the full range of laryngeal contrast. Such positions, where contextual influence on the realization of phonemes is minimized, were known in Moscow parlance as 'strong'. So in the important textbook by Avanesov & Sidorov (1945: 41): 'The degree of phonetic conditioning of the varieties of a phoneme is different in different conditions; in some positions this degree is greater and in others it is smaller. The positions with the smallest degree of conditioning is called *strong*, as opposed to the other positions, called *weak*.¹¹ Phonemicization in a strong position is uncontroversial: the root-final segment in [ˈrɪbə] 'fish' clearly belongs to the phoneme , as there are no contextual influences on prevocalic obstruents in the language. The key analytic move for the Moscow school was to identify the sounds that appear in weak positions as belonging to the same phoneme as the sounds they alternate with, and more specifically to the phoneme that is revealed when a paradigmatically related form puts the member of the alternating series into a strong position. Consequently, [ˈrɪpkə] 'fish-ДИМ' is phonemicized as /rɪbka/: the example in strong position is provided by [ˈrɪbə] 'fish'. By contrast, [ˈlapkə] 'paw-ДИМ', despite the identical sequence [pk], is phonemicized as /lapka/, cf. [ˈlapə] 'paw'. In other words, where Leningrad phonologists endorsed a

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¹¹ «Фонетическая обусловленность разновидностей фонемы в разных позициях неодинакова: в одних позициях эта обусловленность большая, в других — меньшая. Позиция наименьшей обусловленности называется *сильной*, в отличие от других позиций, которые называются *слабыми*.»

conception of biuniqueness ('once a phoneme, always a phoneme') essentially identical to that of mid-century North American structuralism (Ladd this volume), Moscow phonologists rejected it and sought to see morphemes as the level of representation invariant across different contexts.

The importance of 'strong positions' as the key to phonemicization was an important driver in Moscow theoretical thinking. Heuristics for identifying them became an indispensable tool for phonological analysis, as expounded, for instance, by [Reformatskii \(1947\)](#) — an introductory textbook (still widely used) — and reiterated in [Reformatskii \(1970\)](#).

A second consequence of the emphasis on strong positions is the impossibility of unequivocal phonemicization when a phoneme only ever appears in a weak position. Consider vowel reduction in Standard Russian. In unstressed syllables, [o] merges either with [a] (after non-palatalized consonants) or with [e] or [i] (after palatalized consonants); due to stress mobility, however, the phoneme (in its Muscovite understanding) can often be recovered: [vɐ'da] 'water-NOM.SG', phonemically /voda/ (cf. ['vodi] 'water-NOM.PL'); [trɐ'va] 'grass-NOM.SG', phonemically /trava/ (cf. ['travi] 'grass-NOM.PL'). With some morphemes, however, the vowel is *always* in a weak position, as in [bɐ'ran] 'ram-NOM.SG', which has immobile stress in all inflectional forms and derivatives. The Leningrad approach has no issue with phonemicizing 'ram' as /baran/: the vowel is identical to the 'shade' of the phoneme /a/ in such uncontroversially /a/-containing cases as [trɐ'va]; in the Moscow framework, /baran/ and /boran/ are equally plausible analyses. Such irrecoverable neutralization is analysed in classical Moscow phonology by postulating a *hyperphoneme* (a term introduced by [Kuznetsov 1941](#), who attributes it originally to Sidorov). A hyperphoneme is a set of phonemes that do contrast in some positions but are neutralized among themselves in some context, albeit remaining in opposition to other phonemes. Thus, 'ram' is /b{ $\frac{a}{o}$ }ran/, where { $\frac{a}{o}$ } is a hyperphoneme that neutralizes /a/ and /o/ but still contrasts with, for example, /u/ (cf. [bu'ran] 'snowstorm').¹²

2.3 Morphological criteria in phonemicization

The Leningrad and Moscow schools are often presented as essentially opposed to one another, in particular with respect to the use of morphological information for phonemic analysis. It is true that Shcherba throughout his career, culminating in his posthumous 'testament' ([Shcherba 1945](#)), strongly insisted, at least rhetorically, on the inadmissibility of morphological criteria in phonological analysis.¹³ Nevertheless, his insistence on the primacy of lexical distinctiveness only provided a criterion for phonemic distinction; it was not much use as a criterion for phonemic *identity*: if two sounds do not make lexical distinctions, do they necessarily belong to the same phoneme?

Here, Leningrad phonologists parted ways with Trubetzkoy, who suggested phonetic similarity as a possible criterion to reject the phonemic identity of, say, English [h] and [ɣ] despite their complementary distribution; instead, they used morphological criteria, as in the following quotation from Zinder's textbook: 'for two sounds to be allophones of a single phoneme, they must stand in a relation of complementary distribution within at least one morpheme of a given language'.¹⁴ [Zinder](#) explains that this definition allows the analyst to remain firmly within the domain of linguistic structure for the purposes of phonemicization, and thus avoid the mixing of levels that would ensue

¹²See [Spahr \(2014\)](#) for a recent analysis of positional neutralization building on similar ideas.

¹³He was sometimes accused of breaking his own injunctions in practice, though probably unfairly ([Eramian 1975](#)).

¹⁴«[Д]ля того чтобы два звука были аллофонами одной фонемы, они должны быть связаны отношением дополнительной дистрибуции в пределах хотя бы одной морфемы данного языка» ([Zinder 1979](#): 73)

if phonetic criteria were to be used. Recourse to morphological information could also be used to decide whether a sound were to be best interpreted as a single phoneme or a cluster; for in-depth discussion of these issues, see [Kasevich \(1983\)](#), [Popov \(2004\)](#).

Thus, it would not be fair to say that it was the possibility of reference to morphological information was the major dividing line between Moscow and Leningrad schools, although clearly this information was used in quite different ways. It is, however, certainly true that a major point of contention was presented by the analysis of morphophonological alternations.

3 Morphophonology in the Soviet Union

As we have seen, most of the early theoretical work in Russian and Soviet phonology concentrated (with a few notable exceptions) on the analysis of the Russian language. It should therefore not be surprising that the kind of questions that theoreticians mainly sought to address was shaped to a very large degree by Russian phonology.

3.1 The Russian backdrop

Any analysis of Russian has to contend with the fact that the language shows extensive alternations, both with a straightforward contextual motivation — such as voicing assimilation and vowel reduction — and those that are conditioned, or at least restricted, by morphological class membership, morphological boundaries, and outright lexical exceptionality. Consider the verbal paradigm (see any reference, such as [Timberlake 2004](#)). Under the traditional view, never seriously challenged in the Soviet Union, all Russian verbs possess two irreducibly different stems that appear in specified paradigm cells: a present-tense stem and the past-tense stem. Descriptively, there is a large number of both productive and unproductive inflectional classes defined by unpredictable relationships between the shapes of these two stems.

In addition to the dual-stem dichotomy, Russian verbs show other morphologically restricted alternations; for instance, in some inflectional classes the stem-final consonant undergoes an alternation in the 1SG nonpast: [ˈtrudʲ-i-t-sə] ‘(s)he works’ but [truˈz-u-sʲ] ‘(I) work’, despite [dʲu] being phonotactically acceptable. In a famous paper, [Jakobson \(1948\)](#) reanalysed this complexity by postulating a single underlying form for each stem, capitalizing on the generalization that the shapes of the two inflectional stems are essentially in complementary distribution: consonant-final stems appear before vowel-initial suffixes and vowel-final stems appear before consonant-initial suffixes. Crucially, Jakobson’s analysis relied on the notion of *derivation* — it can only work if there is some real sense in which the single underlying stem gets *transformed* into one of the two stems observable in each paradigm cell (see also [Halle 1963](#)).

Both Soviet schools rejected this approach, and continued the line that they traced from Baudouin’s ‘correlatives’ through Trubetzkoy’s ‘morphophoneme’ as applied, for instance, in *Das morphologische System der russischen Sprache*. Trubetzkoy described the morphophoneme as the set of phonemes alternating within a morpheme: ‘To each alternation in the linguistic consciousness there corresponds a *morphophoneme*, that is, the union of all phonemes participating in the relevant al-

ternations, understood as a morphophonological entity.’ (Trubetzkoy 1934: 30)¹⁵ In his analysis of Russian, Trubetzkoy postulated morphophonemes precisely where alternations could not be described as positional allophony or neutralization, such as [‘trudʲ-i-t-sə] ‘(s)he works’ vs. [truʲ-z-u-sʲ] ‘(I) work’, in contrast to alternations occasioned by, say, word-final devoicing along the lines of [‘trut] ‘work’, phonemicized as /truT/, with an archiphoneme in neutralizing position. This pervasiveness of phonologically unmotivated alternations of the former type in Russian convinced both Moscow and Leningrad phonologists of the necessity of a theory of morphophonology to account for these arbitrary phenomena. PI Note: xref?

3.2 The Leningrad school

Within the Leningrad School, phonology embraces only a fairly narrow range of alternations, namely those that involve ‘shades’ of pronunciation that do not participate in lexical contrast within the language. Any alternation in which otherwise contrastive sounds appear within the same morpheme is by definition phonemic; this applies equally to a synchronically arbitrary one such as in [‘trudʲitsə] ~ [truʲzʊsʲ] and a positionally motivated one such as [truʲda] ~ [‘trut].

Under this régime, even alternations with apparently straightforward phonological rationales are instances of allomorphy: thus, ‘work’ can appear phonemically as either /trud/ or /trut/, and this kind of automatic alternation is not really different from morphologically restricted ones such as the one that produces /truz/ — the difference lies in the conditioning for the alternation; here we once again observe the similarities to mid-century American structuralism (Ladd this volume).

For Leningrad theorists, the primary theoretical import of alternations lay in their nature as a by-product of morphology. Specifically, morphophonological alternations were viewed primarily as redundant, additional means of signalling changes in meaning whose primary exponent is to be found elsewhere (see e. g. Zinder 1979: §54). Kasevich (1985) provides a lucid exposition, concluding as follows:

[M]orphophonological phenomena are not signs for two reasons: first, they are not independent, [in that] a morphophonological property is always determined by the phono[logical and] morphological context; second, it is typical for identical morphophonological properties to accompany very different grammatical processes that share nothing whatsoever in terms of function and/or semantics.¹⁶

Notably, Kasevich (1985) uses these criteria to reject morphophonological status for non-concatenative morphology (English *foot*, pl. *feet*), proposed by Kubryakova & Pankrats (1983). Despite their superficial similarity to cases like German *Kunst* ‘art’, pl. *Künste*, where the vowel change is accompanied by affixation, Kasevich argues that alternations that are independent exponents of morphological categories are not properly morphophonological. Such reasoning again exemplified the Leningrad

¹⁵ „Jeder Alternation entspricht im Sprachbewußtsein ein *Morphonem*, d. i. die als morphonologische Einheit gedachte Gesamtheit der an der betreffenden Alternation beteiligten Phoneme.“

¹⁶ «[M]орфонологические явления не носят знакового характера по двум причинам: во-первых, они не являются независимыми, та или иная морфонологическая характеристика всегда обусловлена фоно-морфологическим контекстом; во-вторых, типична ситуация, когда одни и те же морфонологические признаки сопровождают принципиально разные грамматические процессы, не обладающие какой бы то ни было функциональной и/или семантической общностью.» (Kasevich 1985: §1.7)

school's attention to functionalist reasoning; indeed, there was significant interest in attempting to rationalize at least some alternations as bearing a semantic load (Maslov 1979).

Kasevich (1985) is perhaps the most in-depth account of morphophonology from a Leningrad perspective, where all alternations are triggered in morphologically describable contexts. Morphemes are treated as signs in the Saussurean sense, and therefore endowed with both a *signifiant* and a *signifié*. Elements of either or both of those planes can trigger an alternation: therefore, the difference between automatic (purely phonological) and non-automatic alternations is that the former have less specific triggering conditions that only make reference to the *signifiant* plane of the context, whilst the latter may also refer to the *signifié*, be that the grammatical category involved or simply the lexical identity of the relevant morpheme. To support this morphology-centred approach, Kasevich (1983, 1985) argues that even the most apparently straightforwardly phonological alternations often require reference to both the phonological and the morphological context. For instance, word-final devoicing in Russian, in his analysis, requires specific reference to a morphological boundary, since it applies before clitics: ['trut] 'work', but also ['trut li] 'work + question particle'. The clitic is part of the phonological word (as evidenced e. g. by vowel reduction patterns), so the boundary in question has to be morphological. Similarly, the classic question of why the [s] in the reflexive clitic *-sja* is depalatalized after [tʲ] in the infinitive ([ˈmʲɪtʲ] 'to wash' but [mʲɪtsə] 'to wash oneself') but not in the imperative ([ˈpʲatʲsʲə] 'walk backwards!') can be straightforwardly analysed via reference to the difference in morphological structure:

- (1) a. mi- tʲ- sʲə
 wash INF REFL
 b. pʲatʲ- ∅- sʲə
 walk backwards IMP REFL

Overall, Leningrad phonemic theory necessarily required almost any morphophonological alternation to be conceptualized as involving an interchange of phonemes. As a consequence, Leningrad morphophonology embraced both automatic and morphologized alternations, and in fact sought to emphasize their essential identity rather than draw a hard and fast line between the two kinds (cf. Zinder 1979: §§237–240). The situation was quite different in Moscow.

3.3 The Moscow school

The consequences of the Moscow approach to phonemicization for the division of labour between phonology and morphology were drastic, since the very definition of the phoneme required abstracting away from those alternations that were due to a phoneme appearing in a weak position. Alternations such as final devoicing were phonologically irrelevant: they were simply allophony. A different approach was required for alternations such as ['trudʲɪtsə] ~ [truˈzʲɪsʲ], where both [dʲ] and [ʒ] are in strong positions.

In fact, the status of these alternations was never satisfactorily resolved. In an influential article, Reformatskiĭ (1955) sharply criticized the entire morphophonological enterprise, describing non-phonologically driven alternations as the débris of history with no special synchronic status. However, some scholars did attempt elaborating the theory of such alternations, often by postulating a separate level of representation tying phonemic strings to morphological objects.

Churganova (1973) offers one elaborated example. She postulates an autonomous morphophonemic level with its own laws and generalizations. For her it is morphophonemes, not phonemes, that are the building blocks of morphemes; unlike the North American structuralist ‘morphophoneme’, however, the relationship between Churganova’s morphophonemes and phonemes is declarative rather than derivational: morphophonemes are sets of alternating phonemes that occupy the same slot within a morpheme, just like phonemes are sets of alternating allophones. Churganova (1973) justified the necessity of an autonomous morphophonemic level by reference to the fact that morphophonemic regularities cannot always be derived from synchronic morphological structure. She paid particular attention to ‘submorphs’: substrings that do not submit to synchronic morphological analysis but show morphophonological behaviour identical to that of homophonous morphemes. For instance, the ‘submorph’ /eṡ/ undergoes alternations identical to that of the diminutive suffix /eṡ/. Compare [ku'pʲeṡ] ‘merchant’ (genitive [kup'tsa], diminutive [kuptʲik]) and [ɛgu'rʲeṡ] ‘cucumber’ (genitive [ɛgur'tsa], diminutive [ɛgurtʲik]), where [ku'pʲeṡ] has a clear synchronic analysis (cf. [ku'pʲitʲ] ‘to buy’) but [ɛgu'rʲeṡ] is completely opaque.

In practice, an autonomous morphophonology strictly separated from other grammatical components was never particularly popular as a theoretical position. The bulk of morphophonological work remained descriptive, taking a non-committal stance that identified morphophonology as a grey area somewhere between phonology and morphology. Although clearly of major descriptive interest, it was rarely theorized as an independent grammatical component; for instance, Bromleĭ (1974) suggests that ‘all linguistic significance inherent in a phonemic alternating series can be entirely divided between the phonology and the grammar’.¹⁷ Bromleĭ accepts that ‘morphophonemes’, as sets of phonemes alternating within a morpheme, are a useful terminological crutch, but she criticizes Trubetzkoy for excessive ‘psychologism’ in treating them as having special status.

Despite this theoretical vagueness, a rich vein of work in morphophonology, continuing the Moscow tradition’s focus on Russian, produced often exceptionally detailed synchronic and comparative descriptions of the systems of alternations found in both standard and vernacular varieties across the Slavic-speaking world (e. g. Anan’eva et al. 1987, Tolstaya 1998). This was a major enterprise, which made it possible to not only amass a wealth of descriptive data but also build up a framework for morphophonological comparison. The Slavist orientation of this work allowed it to interact with Slavic scholars in the West interested in (morpho)phonological topics, such as Dean Worth (e. g. 1970, 1972a, 1972b) and Edward Stankiewicz (e. g. 1966). We will return to some of the consequences of this interaction in section 4.2.

4 Summary and further developments

4.1 A distinctive Russian approach?

Although relationship between the St Petersburg (Leningrad) and Moscow schools has often been framed as antagonistic, phonology in the Soviet Union can be seen as a coherent, independent sibling of the better known European and American varieties of structuralism. Both schools claimed the heritage of Baudouin de Courtenay, insisted on the centrality of the phoneme (rather than the feature)

¹⁷ «[В]се языковые значимости, заложенные в фонемном альтернативном ряде, без остатка делятся между фонологией и грамматикой.» (Bromleĭ 1974: 36)

as the primitive of phonological analysis, and emphasized the analytical import of the position with minimal contextual conditioning. In general, Soviet theorists subscribed to similar tenets of grammatical theory and standards of reasoning. Typically they rejected derivations and insisted on a declarative mode of grammatical description: in both Moscow and Leningrad frameworks, the analysis of an utterance involved a statement of what phones it consisted of, which phonemes these phones represented, which morphophonemes these phonemes belonged to (if applicable), and so on. For each level of analysis, the description would identify how each unit is realized in different positions, but these descriptions related entities of different kinds, and did not put two similar units in a derivational relationship.

This had far-reaching consequences for what could be accepted as valid reasoning. Consider the famous disagreement between the major schools regarding the inventory of Russian vowels. It is uncontroversial that at least /i u e o a/ are phonemic in Modern Standard Russian. These vowels undergo coarticulation with surrounding (non-)palatalized consonants. Notably, the non-front vowels /u o a/ are appreciably fronted in the neighbourhood of palatalized consonants. The patterning of the front vowels [i e] is more complex. The vowel [e] is normally found after palatalized consonants (for historical reasons), with the exception of recent borrowings, syllable-initial position, and following [ʃ ʒ tʂ], where /e/ is traditionally taken to be low mid [ɛ]. The alternation between [ɛ] and [e] is universally agreed to be allophonic. The crux of the matter is the realization of /i/. Traditionally, the variant appearing after non-palatalized consonant (but not syllable-initially) is interpreted as central unrounded [ɨ]. This [ɨ] is basically in complementary distribution with [i], which appears following palatalized consonants and syllable-initially: hence the triplet ['bɨl] 'be-PAST-MASC.SG' ≠ [bʲil] 'hit-PAST-MASC.SG' ≠ [il] 'silt' (and *[ɨl]).

In fact, as has been known at least since Tomson (1905), this 'ɨ' in modern standard Russian does not have a stable quality, instead starting with a low F₂ transition that converges towards the F₂ values characteristic of [i] (Padgett 2001). However, this fact *per se* has not been prominent in Soviet analytical debates.

Instead, the Moscow school has traditionally emphasized the importance of distributional criteria. Since [i] and [ɨ] are in complementary distribution, and undergo alternations similar to other front/back allophony patterns (as in [ig'ratʲ] 'play-IMPERFECTIVE' ~ [sig'ratʲ] 'play-PERFECTIVE'), Moscow phonologists treat both [i] and [ɨ] as belonging to a single phoneme /i/. (This was, unsurprisingly, also the Praguian analysis, e. g. in Jakobson 1929.)

The Leningrad phonologists, however, take as their starting point the existence of a phonetic distinction between [i] and [ɨ]. This distinction is pronounced to be phonemic, on the strength particularly of the fact that even naïve speakers can produce [ɨ]-initial words, notably [ʲɨ] 'the letter <Ы>' and a nonce verb [ʲɨkətʲ] 'to say [ɨ]', as well as foreign place-names transcribed with an initial <Ы> (e. g. from Korean [u] or Estonian [ɤ]). Further, they point out the lack of parallelism between fronted-backed allophony in [i] ~ [ɨ] and the pattern in the other vowels, which all (including /e/) show the relatively back allophone syllable-initially, unlike the high non-back vowel, where the fronter [i] appears in that position.

From a generative perspective, it is notable that there is absolutely no appeal to information that cannot be extracted from the single-level ('surface?') phonemic representation. Whether we compare the Moscow position to Halle (1959), who derives both [i] and [ɨ] from an underlying [i], or consider the later generative analysis that postulates an underlying /i/ like the Leningrad phonologists (e. g. Lightner 1972, Rubach 2000, Halle & Matushansky 2002), in either case the generative argumentation

is entirely different: it relies on deriving the palatalization specification of preceding consonants from some lexical property of the high non-back vowel in a system of ordered rules. Thus, in the generative six-vowel analysis, one of the plural nominative suffixes has the shape /i/ with a [–back] vowel, because it fails to palatalize preceding non-velar consonants ([ˈstol] ‘table’, plural [stɐˈli]; [krʲuk] ‘hook’, plural [krʲuˈkʲi]). This generalization is to a certain extent transferable to a Moscow analysis: the plurals are phonemicized as /stoli/ and /krʲuki/ respectively, with the (reasonable) addendum that velars have palatalized allophones before front vowels. On the other hand, the generative approach derives the alternation between the [k] of [ˈkrʲik] ‘shout’ and the [tʲ] of [krʲiˈtʲit] ‘(s)he shouts’ from the existence of a verbal suffix /i/ triggering a rule of ‘velar palatalization’. From a Moscow perspective, this is exactly backwards. It is the palatalization of the affricate that determines the realization of the /i/ as [i] rather than [ɨ], whilst the conditioning of the consonantal alternation cannot be extracted from the information available in the purely phonological context; therefore, the [k] ~ [tʲ] alternation must be ‘morphophonological’, and has nothing to do with the phonemic analysis of the [i].¹⁸

Obviously, the rejection of derivationalism did not prevent Soviet phonologists from producing important analytical insights. Consider the phonology of voicing assimilation in Russian. The voicing of the ‘unpaired’ voiceless obstruents [t͡s] and [tʲ͡ʃ] to [d͡z] and [d͡ʒ] before voiced obstruents — a fatal problem for (American) taxonomic phonemics according to the ‘origin myth’ of generative phonology (Anderson 2000) — is entirely unproblematic for Soviet frameworks. In the Moscow framework, the voicing of both ‘paired’ and ‘unpaired’ obstruents is an utterly mundane instance of allophony, since pre-obstruent position is ‘weak’ for obstruent voicing. In Leningrad, the distinction between [t͡s] and [d͡z] could, in principle, be phonemic, but it is not interpreted as such, because there are no (sub)minimal pairs even of the highly marginal kind seen for /i/. The analysis of these facts by Kasevich (1983) is instructive. Rather than leave these segments unspecified for [±voice] on the basis of them lacking phonemic voiced counterparts, Kasevich interprets /t͡s/ and /tʲ͡ʃ/ as phonologically voiceless, since they are invariably preceded by voiceless obstruents. He then justifies a voicelessness specification by reordering the features in Halle’s (1959) distinctive feature hierarchy, so that voicing is assigned before the manner features that distinguish the affricates from other obstruents — essentially the same analysis as that proposed recently by Dresher & Hall (2016).

PI Note: xref?

More generally, where phonotactic or morphophonological regularities could be stated in terms of distinctive features, it was quite common to use this kind of appeal to syntagmatic and paradigmatic generalizations to justify representational solutions.¹⁹

The commonality of assumptions underlying differences in opinion between Moscow and Leningrad can be illustrated by the existence of ‘hybrid’ frameworks that tried to unite Leningrad grounding in phonetic reality with the Moscow framework for the analysis of regular alternations. These tended to be by Moscow phonologists dissatisfied with the indeterminacy forced on the analyst by the overriding importance of the phoneme’s identity in strong position. As we saw in section 2.2, in ‘classical’ Moscow phonology if a phoneme could not be identified, it was left underspecified as a ‘hyperphon-

¹⁸This rejection of derivationalism did find sympathy among Slavic specialists in the West familiar with Russian phonological thinking; see, for instance, Darden (1977) for a criticism of the abstract SPE-style analysis of Russian by Lightner (1972).

¹⁹Two random examples should suffice to demonstrate this: Bromleĭ (1974) insists that regularities of morphophonological alterations are best stated in terms of distinctive features; and Sudnik (1975) offers a comparative study of several Slavic and Baltic vernaculars that analyses differences in phonological patterning by appeal to different orderings of features in a contrastive hierarchy very much reminiscent of Dresher (2009).

eme'. Several phonologists, notably Bernshtein (1962),²⁰ Shaumyan (1952), Panov (1967), and in later years Avanesov himself (e. g. 1956) — attempted to assign phonemic status to *all* minimal units of analysis, and viewed higher-level abstract units as generalizations of such 'phonemes'. For instance, in Avanesov's conception all weak positions contained 'weak phonemes' (never hyperphonemes), whilst strong positions exhibit 'strong phonemes'. Every position supports a different range of phonemic contrasts, with strong positions allowing more contrasts: hence, the problematic form [bɐ'ran] 'ram' was phonemicized as /bα'ran/, with a 'weak phoneme' /α/. The set of weak and strong phonemes participating in phonological alternation was treated as a single 'phoneme series' (*фонемный ряд*), broadly corresponding to the 'classical' Moscow phoneme. This approach, reminiscent of Firthian polysystemic analysis, allowed full phonemicization of strings but avoided the loss of paradigmatic information inherent in the conflation of phonemes across 'strong' and 'weak' positions in Leningrad analysis. At the same time, Avanesov identified the set of strong phonemes as the true phonemic inventory of the language, reproducing the Trubetzkoyan distinction in status between phonemes and archiphonemes. PI Note: xref?

Both main currents of Soviet phonology sprang from the same root as European structuralism, and represent a parallel development that maintained a non-derivational focus and a strict separation between phonological (more specifically phonemic) analysis and the treatment of 'non-automatic' morphophonological alternations. This theoretical commitment, together with the complexity of Russian morphophonology, kept both Moscow and Leningrad phonology from attempting to build a unified theory of 'automatic' and 'morphophonological' alternations. Nevertheless, with their focus closely trained on positional factors in sound patterns, both schools produced hugely valuable descriptive work and sophisticated analyses of patterns of phonological neutralization and contrast.

4.2 Postscript: 'dynamic' models and morphophonology redux

Finally, it is worth mentioning some currents of Soviet phonological thinking that did not directly grow from the two major schools. One source of these was the explosive growth of interest in cybernetics and language processing that began in the 1950s. It led to highly formalized, mathematically informed modelling of phonemic systems by linguists such as Sebastian Shaumyan (1916–2007) and Isaak Revzin (1923–1974) and mathematicians such as Vladimir Uspenskii (1930–); see Kortlandt (1972). Although never particularly influential, this approach was part of a movement away from structuralism towards what was generally described as 'dynamic' — that is, derivational — models of morphological (including morphophonemic) phenomena. Their credibility was buttressed by the masterful explication of Russian morphology by Andrei Zaliznyak (1935–), whose exhaustive formal descriptions of the patterns (Zaliznyak 1967, 1977) remain standard to this day. Zaliznyak trained in Paris under André Martinet, and though he did not focus on functional concerns in phonology that preoccupied Martinet, he mostly worked independently from Soviet theoretical frameworks. In fact, his *œuvre* was not explicitly framed as phonological, despite addressing familiar morphophonological concerns. Instead, the analysis operates with unique underlying representations for morphemes and rules that convert them to phonemic representations — albeit with no claim to any ontologically 'phonological' status to the abstract underliers. It was an idealized model, but a model that worked extremely well.

²⁰This paper was originally written in the 1930s.

These approaches were applied to the typology and history of morphologically conditioned stress and accent, by Zaliznyak himself (1985) and scholars such as Vladimir Dybo (1931–); see (Dybo 1980, 2000, Dybo, Zamyatina & Nikolaev 1990); see Lehfeldt (2009) for an overview and critique. Dynamic modelling was also adopted in work on segmental alternations, often tying in with the morphophonological scholarship described in section 3.3 (e. g. Bul̆ygina 1977, Itkin 2007, Polivanova 2008). Such descriptions readily adopted a derivational perspective, albeit without necessarily attempting to reconcile it with current phonemic theory. They tended to involve autonomous morphophonological representations undergoing rules starting from unique underliers, much as in generative phonology; at the end, however, these are converted to orthodox phonemic ones, with attendant statements of allophony to account for regular phonological patterns. For instance, Itkin (2007) posits two ‘morphophonemes’ {i} and {i} for Russian, on the basis of their derivational properties (much as in the generative analysis), that finally merge into a single phoneme /i/, identified on the basis of the predictable distribution of the two allophones. In embracing derivationalism, ‘dynamic’ models have produced many valuable generalizations whilst maintaining the firewall between positional and morphologically restricted alternations that is often seen as a necessary consequence of the phonological organization of Russian.

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