論文の内容の要旨

論文題目　　　Sound Alternations in Slavic Languages
（スラヴ諸語における音交替）

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　　　This dissertation provides a formal description and analysis of various sound alternations that are observed among Slavic languages, with the main focus placed on segmental alternations in Russian, Polish, Czech, Serbo–Croatian, and Bulgarian.

　　　While phonological patterns among Slavic languages are similar to a large extent, there are also variations. For instance, consonantal palatalization triggered by front vowels and vowel–zero alternation depending on syllable structure are observed in most of these languages, though the type of segments that undergo or trigger them varies from language to language. In addition to such inter-language variations, some alternation patterns are variable also within a language: an alternation does not necessarily occur under a certain phonological condition. In other words, such sound alternations cannot be explained in terms of phonology alone, which raises one of the most important problems in phonological studies. Besides, phonological variability should not be uniform. In particular, while some patterns extend their range within the phonology of a given language, others are lexically restricted in that they are attested exclusively in several morphemes. For instance, vowel raising in Polish and vowel–zero alternation in most languages are extended especially to loanwords, whereas velar coronalization and vowel backness/length alternations are exclusive to several morphemes.

　　　Under the framework of Generative Phonology, which this work is based on, phonological patterns have been formalized as a result of grammatical calculations applied to abstracted sound forms stored in the lexicon of speakers. This work adopts phonological *features* to *represent* linguistic sounds and *Optimality Theory* (OT) as a grammatical model to predict sound patterns in question.

　　　In feature theories, sounds have been represented as certain combinations of phonological or distinctive features, each of which specifies a certain phonological category (e.g., laryngeal voicing,

articulation by the lips, etc.). While earlier studies have assumed different types of features for vowels and consonants respectively, the current work assumes the same features for vocalic and consonantal articulation: [dorsal] for back vowels and velar consonants, [coronal] for front vowels and dental/alveolar or palatal consonants, and [labial] for rounded vowels and labial consonants. Moreover, this dissertation adopts privative features, each of which plays a certain phonological role and, unlike in some previous research, does not have binary values.

Phonological grammar in the OT framework assumes the universal set of constraints, which are ranked differently in each language. Sound patterns at the surface are predicted by calculating the optimal outputs, which incur the least serious violation of the constraints according to the language-specific constraint rankings. Unlike earlier rule-based approaches, the earliest OT assumes one-step or *parallel* derivation model, wherein surface sound patterns are generated directly from the underlying forms. One problem in parallel OT is that *opaque* patterns, in which the triggers of given processes are not phonetically realized or given processes are blocked despite of the presence of the triggers, cannot be accounted for due to the exclusive reference to the surface. Although some researchers have proposed *serial* OT models to resolve this problem, this thesis argues against these approaches by discussing their theoretical and empirical problems; serial OT cannot account for *outward-sensitive* patterns or Paradigm Uniformity. Furthermore, the current work adopts Containment Theory and Turbid Representations, under which input information can be referred to by constraints regardless of whether it is phonetically realized, to account for Opacity.

Another point to consider is how exceptions or variations should be explained. Previous research have proposed mainly two types of approaches: specific underlying representations and stratification of lexicon. Under the former framework, exceptional patterns are attributed to specific underlying representations, which are differentiated from representations for the other patterns. Some researchers have assumed such arbitrary representations that cannot be observed in the phonology of given languages, which is dismissed by this dissertation. By contrast, other researchers have proposed *underspecification* for phonological units that undergo alternations, which is adopted also by the current analysis. The other approach has assumed phonologically stratified lexicon, wherein phonological patterns can vary by stratum. Adopting the OT framework, phonological variations are accounted for by assuming stratum-specific constraints, that is, constraints that are active exclusively in certain strata. As seen in the observations of the Slavic sound alternations, some variable patterns are phonologically *productive* in that they extend within the lexicon, and others are restricted to several morphemes. This dissertation thus analyzes the former type by assuming lexical stratification, whereas the latter by assuming underspecifications specific to the alternating morphemes along with some morpheme-specific constraints.

Assuming the featural representations and the relevant constraints, the current work conducts the formal analysis of the data from Slavic languages. First, phonological palatalization is formalized as the dominance of the constraints on *agreement* within CV sequence in place features over the faithfulness constraints on featural change. The variation in the type of triggering vowels or of undergoing consonants is accounted for by splitting the agreement constraint: the ranking of this constraint may vary depending on vowel height or consonantal place of articulation. For instance, the agreement constraints on all consonants dominate the faithfulness constraints in Russian and Polish, while only that on dorsal consonants does so in Bulgarian, where only velar consonants undergo

palatalization. Moreover, several positional effects are explained by constraints exclusively on each phonological context. Besides, some palatalization patterns are opaque in that triggering front vowels are absent on the surface. In the current analysis, these cases are formalized as preservation of an underlying [coronal] feature, which is guaranteed by the relevant faithfulness constraint. Second, reduction of unstressed vowels is formalized by assuming that the markedness constraints on unstressed vowels are ranked higher than the relevant faithfulness constraints. The markedness constraints are of two types: that on mid vowels, which is active in Belorussian, and that on non-high vowels, which is active in Bulgarian. In Russian, the former is active for all unstressed vowels, while the latter exclusively for non-moraic ones. Moreover, preceding palatal(ized) consonants trigger vowel fronting, which is explained by assuming the agreement constraints exclusively on unstressed vowels.

Next, the analysis moves on to the patterns that are variable, but still productive. First, Polish vowel raising varies by the type of following consonants: the alternation is likely to occur before underlyingly voiced and (non-nasal) sonorant consonants, while not before voiceless and nasal ones. This situation is formalized by ranking the markedness constraints on [o] preceding each type of consonants in closed syllables and the faithfulness constraints specific to each lexical stratum. Note that phonetically absent [+voice] in closed syllables is referred by the constraint owing to the Turbid Representation. Second, vowel–zero alternation is accounted for by assuming the constraint on vowels preceding another vowel and stratum-specific faithfulness constraints on vowel deletion. These two patterns are affected by Paradigm Uniformity, which is explained by the relevant constraints. In addition, loanword phonology can also be formalized by assuming lexical stratification. The current analysis takes up palatalization avoidance in Russian, assuming the loanword-specific faithfulness constraint dominating the agreement constraint on coronal consonants preceding [e].

Finally, non-productive alternations are formalized by morpheme-specific representation (namely, underspecification) and constraints. First, some palatalization patterns, including velar coronalization, are exclusive to several morphemes and explained by assuming constraints on *alignment* of [coronal] specific to the morphemes concerned. Second, vowel backness alternation in Polish and vowel length alternation in Czech are accounted for by underspecification for backness features and for length (i.e., mora), respectively, in the alternating morphemes.

The current discussion is summarized as follows. First, phonological similarity among Slavic languages is grounded in the same set of active constraints, most of which have been proposed as universal in the literature, whereas synchronic variation results from the differences in the constraint rankings. Second, the sound patterns in question can be formalized under the parallel OT framework. Third, some patterns are variable and beyond pure phonology. Some of these processes are phonologically productive and extended within the lexicon, while others are specific to several morphemes. The former is formalized by assuming lexical stratification and stratum-specific faithfulness constraints. By contrast, the latter is accounted for by assuming morpheme-specific properties such as constraints that are active exclusively for the morphemes concerned and underspecification specific to the alternating morphemes. In conclusion, the current work offers new insight into phonological theory by conducting some case studies on Slavic languages.