Analogical change of accent in the verbal inflection of Yanbian Korean

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Abstract

Verbal accent in Middle Korean (15–16th c., MK) is not 100% predictable but very strongly correlates with the segmental shape of the stem to varying degrees, leading Ramsey (1978, 1986, 1991, 2001) and Whitman (1994) to reconstruct predictable accent for both stems and suffixes in the protolanguage. In a traditional rule-based approach or in optimality theory, the only possible analysis of the data of MK verbal accent is to list the stems with exceptional accent, and it is difficult to explain the gradient lexical frequency patterns. However, it is now possible to capture these gradient patterns and construct a grammatical model in terms of weighted constraints. This paper first attempts to formalize the tone-segment correlation of MK verbal stems noticed in previous research with a weighted constraint OT grammar (Hayes, 2009). Then, we compare the MK grammar with a corresponding investigation of the accentuation of monosyllabic verbal stems in contemporary Yanbian Korean (north-eastern China). An important fact with regard to the two stages of the language is that due to sound changes, some segmental contrasts that were crucial in classifying various accent sub-categories in the verbal inflection have merged in Yanbian, and as a result the original association between accent class and segmental shape seen in MK became partially obscured. In the face of these changes, Yanbian speakers have restructured the correlation between accent class and segmental shape. They either retained the original accent in spite of the segmental change (conservative accent) or have shifted the accent class of a given verbal stem based on the output of the segmental change (innovative accent). The innovative accent attests to the productivity of these tone-segment associations. This finding is modeled as a diachronic restructuring of the weight hierarchy of relevant OT constraints based on the updated lexical statistics, which led to a shift in the accent.

1. Introduction

Verbal accent in Middle Korean (15–16th c., MK) is not 100% predictable but nevertheless very strongly correlates with the segmental shape of the stem, leading Ramsey (1978, 1986, 1991, 2001) and Whitman (1994) to reconstruct predictable accent for both stems and suffixes in the proto-language. Contemporary Korean dialects such as Hamkyeng (North Korea) and Kyengsang (South Korea) still retain the contrastive accent of MK and show quite regular correspondences with the MK accent patterns (Ramsey, 1978; He, 1955). However, their accentual systems are not exactly the same as that of MK, and various sound changes have resulted in the merger of segmental contrasts that

existed in MK. Thus, the tone-segment correlations of verbal stems in Contemporary Korean dialects are not a simple recapitulation of the ones observed in MK. Given this, what is the proper modeling of the tone-segment correlation in both MK and contemporary dialects and do speakers know these relations? What do speakers do when the original strong correlation is weakened as a result of sound change? If speakers change the accent pattern of a stem to maintain the tone-segment correlation, what kind of mechanism is employed?

In historical changes or synchronic variation, certain types of reanalysis are frequently observed while others are rare. Related to this, various kinds of lexical frequency effects have been discussed in previous literature. For example, it is well known that a higher type frequency class tends to attract words from lower type frequency classes (Bybee, 1995 and references cited therein; Albright, 2009). Specific but reliable subregularities for a morphological process can also be internalized by speakers, and these ''Islands of Reliability'' may be projected in novel word experiments as well (Albright, 2002b; Albright and Hayes, 2003). Through her investigation of Tagalog nasal substitution, Zuraw (2000, 2009) also documented a case where the distribution of the exceptions is phonologically patterned. She proposed an OT grammar that contains not only a faithfulness constraint to the listed word but also lower ranked markedness constraints, which reflect the speaker's implicit knowledge of the lexical frequencies of certain sound patterns that were found to govern the behavior of novel words.

This paper examines the historical development and synchronic variation in the accentuation of verbal stems in the Yanbian dialect of Korean (north-eastern China; similar to the Hamkyeng dialect in North Korea), which is a dialect that retains some of the accentual distinctions of Middle Korean. Segmental variation in Korean noun inflection has been reported and analyzed extensively (Kenstowicz, 1996; Kenstowicz and Sohn, 2001; Davis and Kang, 2006; Albright, 2002a, 2008; Kang, 2003, 2005, 2006a, 2007; Jun and Lee, 2007; Jun, 2010; Ito, 2010; Silverman, 2010; Sohn, 2012). Segmental variation in Korean verbs has been investigated by Kang (2006b) and Albright and Kang (2008), and the latter propose a computational modeling of the learning of inflected forms of Korean verbs using the Minimal Generalization Learner Algorithm (Albright and Hayes, 2002, 2003). Do (2013) also documents developmental stages in Korean children who acquire verb and noun paradigms and provides a learning model that incorporates the attested learning biases. Compared to segmental variation, previous studies on suprasegmental variation in Korean are few and they all focus on nouns (Ito, 2008a,b; Do et al., 2014a,b). As far as we know, this paper is the first study to investigate analogical changes and variation of Korean verbal stems at the suprasegmental level.

Monosyllabic (underived) verbal stems in MK are traditionally grouped into seven classes based on their accentual patterns. These accent classes are closely tied to the segmental shape of the stem as a result of their historical development from Proto-Korean (Ramsey, 1978, 1986, 1991, 2001). Thus, accentual class membership in MK monosyllabic verbal stems is more or less predictable based on segmental shape.

This study has two goals. First, we attempt to formalize the tone-segment correlation of MK verbal stems noticed in previous research with a weighted-constraint OT grammar (Hayes, 2009). Our analysis is based on a corpus of 594 verbal paradigms drawn from 36 MK major texts. Second, we compare the MK grammar with a corresponding investigation of the accentuation of 706 monosyllabic verbal stems in contemporary Yanbian Korean. The Yanbian data was collected from seven native speakers (one in her 20s, three in their 30s, one in her 40s, two in their 50s; 1 male and 6 females). For three of the speakers, the accent was transcribed from a recording of five inflected forms for each verbal stem, and for four speakers, through a direct elicitation of these five forms. The total datapoints for the Yanbian data are 3645.

Our findings with regard to Yanbian verbal stem accent are summarized as follows. Due to sound changes, some segmental distinctions have merged in Yanbian, and as a result the original association between accent class and segmental shape seen in MK became partially obscured. In the face of these changes, Yanbian speakers have restructured the correlation between accent class and segmental shape. They either retained the original accent in spite of the segmental change (conservative accent) or have shifted the accent class of a given verbal stem based on the output of the segmental change (innovative accent). This finding is modeled as a diachronic restructuring of the weight hierarchy of relevant OT markedness constraints based on the updated lexical statistics, which lead to a shift in the accent. That is, when sound changes result in a merger/neutralization of a former contrast that was crucial in classifying various accent sub-categories in the verbal inflection, the new distributional patterns in lexical frequency can be different from the original ones. Faced with such a situation, speakers update the generalization on the basis of the available synchronic data by changing the relative weights of relevant constraints. Crucially, the new weight hierarchy results in the accent shift of some stems, if they do not appear with an ''optimal accent'', which is calculated with a new set of weights. Given that not all relevant constraints can be analyzed in terms of markedness, we conclude that our results evidence the diachronic effect of ''Islands of Reliability''.

This paper is organized as follows. Section 2 examines the verbal stem accent of Middle Korean. Section 3 shows the corresponding investigation of verbal stem accent in Yanbian Korean. Section 4 discusses the concrete examples of paradigm restructuring with a weighted constraints analysis. Section 5 is a summary and conclusion.