

Voice Onset Time in Russian

Catherine Ringen & Vladimir Kulikov

University of Iowa

catherine-ringen@uiowa.edu vladimir-kulikov@uiowa.edu

There have been numerous recent studies of voicing and aspiration in a variety of languages, including Dutch (van Alphen & Smits 2004), Swedish (Helgason & Ringen 2008), German (Jessen & Ringen 2002; Beckman, Jessen & Ringen 2009), Korean (Cho, Jun, & Ladefoged 2002). One of the central debates is what the features of contrast are in various languages. One issue is whether, in languages such as German and English (aspirating languages), the feature of contrast is [spread glottis] (henceforth [sg]) or, as was previously assumed, the feature of contrast is [voice], as is widely assumed for languages such as Russian, Dutch, French & Hungarian (true voice languages). There have been few studies of voicing in true voice languages. This is problematic because without data about voicing in lenis stops in true voice languages such as Russian, it is impossible to determine whether there is a difference between aspirating languages and true voice languages with respect to prevoicing and voicing during closure in intervocalic position and final position.

In this paper we present the results of our investigation of VOT in Russian, initial and medial stops. We recorded 14 speakers of Russian, 8 males and 6 females, in St. Petersburg. We found the following mean VOTs for initial fortis stops: velars, 38 ms.; dentals, 20, ms.; and bilabials, 18 ms., which exhibit the expected $k > t > p$. For initial lenis stops, mean VOTs were: velars, -78 ms.; dentals, -75 ms.; bilabials -70 ms. 97.3% of the Russian initial lenis stops were fully voiced. VOTs for intervocalic fortis stops were: velars, 35 ms., dentals, 18 ms, bilabials, 18 ms. Except for a short voicing tail into closure, the intervocalic fortis stops were completely voiceless. 97.5% of intervocalic lenis stops were pronounced with voicing during the entire closure.

Iverson & Salmons (1995), Jessen & Ringen (2002), among others, suggest that the intervocalic voicing in true voice languages such as Russian is *active*, in contrast to the *passive* voicing found in aspirating languages such as German. It has been suggested that one difference between languages that have *active* voicing of stops (as in Russian) and ones with *passive* voicing (as in German) is that intervocalic stops show significant variation in voicing when the voicing is passive and less variation when the voicing is active (Jessen & Ringen 2002). Since it is clear that Russian is a language with active voicing, one of the questions we wanted to investigate how much variation occurs in the voicing of intervocalic lenis stops in Russian. Is it really different from what is found in German? We found that over 97% of the Russian intervocalic lenis stops were fully voiced, that is, there was very little variation. In contrast, studies of intervocalic voicing in German lenis stops have shown that speakers have many fully or partially voiceless lenis stops in intervocalic position. For example, Beckman, Jessen & Ringen (2010) report that analysis of Jessen's (1997) data reveals that only 55% of his German subjects' intervocalic lenis stops were fully voiced. Thus, our results show that there is a substantial difference between the voicing of the intervocalic stops in Russian and German. This can be taken as evidence in support of the claim that the feature of contrast in Russian is [voice], but in German it is [sg], and the voicing that occurs in German intervocalic stops is passive, not active as it is in Russian.