The present research project focuses on the acoustic and phonological aspects of Polish and Ukrainian stress systems. On the theoretical side, it tests the adequacy of phonological theories designed to account for bidirectional systems with internal lapses. The widely accepted postulate that bidirectional systems exhibit iteration of secondary stresses towards the peak, and not towards the opposite end (Kager 2001), is considered against a recent proposal that bi-directional systems do not exist at all (Newlin-Łukowicz 2012). On the empirical side, the present research project looks for acoustic evidence of the Polish and Ukrainian subsidiary stress. The empirical goal is twofold: (i) to verify the bidirectional and/or iterative characteristics of the two stress systems, and (ii) to test the hypothesis that primary and secondary prominence effects in a given language are expressed in terms of the same acoustic parameters.

Polish stress is considered a classic example of a bidirectional trochaic system with internal lapses in odd-parity words, as exemplified in (2prenu)me(1rata) 'subscription'. It is classified as such both in traditional descriptions, based on early empirical research (Dłuska 1932, 1974), as well as theoretically oriented analyses (e.g. Rubach & Booij 1985; Kraska-Szlenk 2003). The iterative nature of Polish stress is questioned in Newlin-Łukowicz's (2012) acoustic study, in which only one level of prominence, main stress on the penult, is detected. As Polish is considered to be the only 'uncontested example of bidirectional stress system with internal lapses', its non-iterative characteristics puts into question the existence of bidirectional stress systems in general, and, what follows, the adequacy of phonological tools designed to account for such systems. However, this conclusion is refuted on the basis of recent acoustic findings reported in Łukaszewicz (2015). The results indicate that Polish has iterative stress, with the third degree of prominence manifested acoustically by an increase in consonant duration, thus making Newlin-Łukowicz's argument against bidirectional systems invalid. Neither Newlin-Łukowicz's study nor Łukaszewicz's (2015) study consider heptasyllabic words, which, if parsed [(20)(20)0(10)], constitute direct evidence for stress bidirectionality in Polish. The current research project will take such forms into account, thus providing a more complete acoustic description of the Polish stress system.

From a cross-linguistic perspective, Polish might not be the only 'uncontested example of a bidirectional system with internal lapses'. Ukrainian, whose stress system largely remains a terra incognita in phonological literature, may also be an example of this stress type. The interplay between the main stress and subsidiary stress in Ukrainian is potentially more complex because the location of main stress is lexically marked, with secondary stress occuring at word edges and on word medial syllables, as in bačytymete 'you will see' (Bilodid 1969). Depending on the location of primary stress, the iteration of secondary stresses is predicted to be rightward or leftward. Another question is whether the Ukrainian stress system indeed exhibits the bidirectional characteristics. Thus, the Ukrainian data seem to constitute an excellent testing ground for Kager's (2001) postulate that secondary stresses in bi-directional systems iterate towards the peak, and not towards the opposite end.