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**Tetsuya Ishiu\*** ([ishiut@miamioh.edu](mailto:ishiut@miamioh.edu)), 123 Bachelor Hall, 301 S. Patterson Ave., Oxford, OH 45069. *A proof of the Mardešić Conjecture by using countable elementary submodels.*

S. Mardešić proposed the following conjecture: For all positive integers  $d$  and  $s$ , if  $K_1, K_2, \dots, K_d$  are compact linearly ordered spaces, and  $X_1, X_2, \dots, X_{d+s}$  are infinite Hausdorff spaces, and there exists a continuous surjection from  $\prod_{i=1}^d K_i$  onto  $\prod_{j=1}^{d+s} X_j$ , there exist at least  $(s+1)$ -many  $j$  such that  $X_j$  is metrizable. This conjecture was affirmatively proved by G. Martínez-Cervantes and G. Plebanek by using a new dimension they defined, called *free dimension*. We shall give a completely different proof of this theorem by using countably elementary submodels. We also discuss why we can replace ‘compact’ by ‘countably compact’ in it. (Received September 20, 2021)