"Jump inversion" for linear orders

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Abstract: In the talk, we will not deal with jump inversion in the strict sense, but we will review a results, the proof of which is used following general idea. To construct a computable linear order L with some given property, firstly, we construct some suitable $\mathbf{0}^{(n)}$-computable linear order L_n, and then we reduce the complexity of it. Namely, we built $\mathbf{0}^{(n-1)}$ computable linear order L_{n-1}, then L_{n-2} and so on, until a computable order L_0 with the required properties is obtained. In addition, we will give a survey of results that allows one to reduce the complexity of a linear order. The classic example is Watnick's theorem, which says that a linear order L has a $\mathbf{0}''$-computable copy if and only if $L\zeta$ has a computable copy.