EXTENSION THEOREMS FOR CODES BETWEEN SHIFTS OF
FINITE TYPE

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Abstract. We consider the problem of extending sliding block codes between subshifts of finite type. For infinite-to-one codes, extending the result of Boyle and Tuncel, we show that if $X$ and $Y$ are irreducible shifts of finite type and $Y$ is a lower entropy factor of $X$, then any code from a proper subshift of $X$ to $Y$, which can be extended to a code on $X$, can be extended to a bi-continuing code of $X$ onto $Y$. As for finite-to-one codes, the analogous statement fails and we are led to consider a weak version of extension problem. We investigate the bi-covering extensions of bi-resolving graph homomorphisms and show that every bi-closing code can sit in $n$-to-one codes between irreducible shifts of finite type for all large $n$.

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