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Finite canonization

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Abstract: The canonization theorem says that for given m, n for some m^* (the first one is called $ER(n; m)$) we have
for every function f with domain $[1, ..., m^*]^n$, for some $A \in [1, ..., m^*]^m$, the question of when the equality $f(i_1, ..., i_n) = f(j_1, ..., j_n)$ (where $i_1 < ... < i_n$ and $j_1 < ...j_n$ are from A) holds has the simplest answer: for some $v \subseteq \{1, ..., n\}$ the equality holds iff $\bigwedge_{\ell \in v} i_\ell = j_\ell$.
We improve the bound on $ER(n, m)$ so that fixing n the number of exponentiation needed to calculate $ER(n, m)$ is best possible.

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