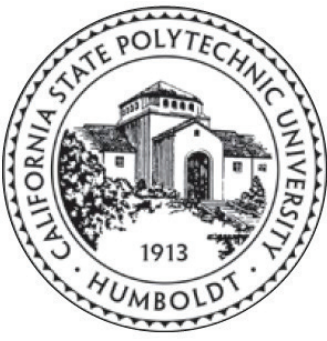




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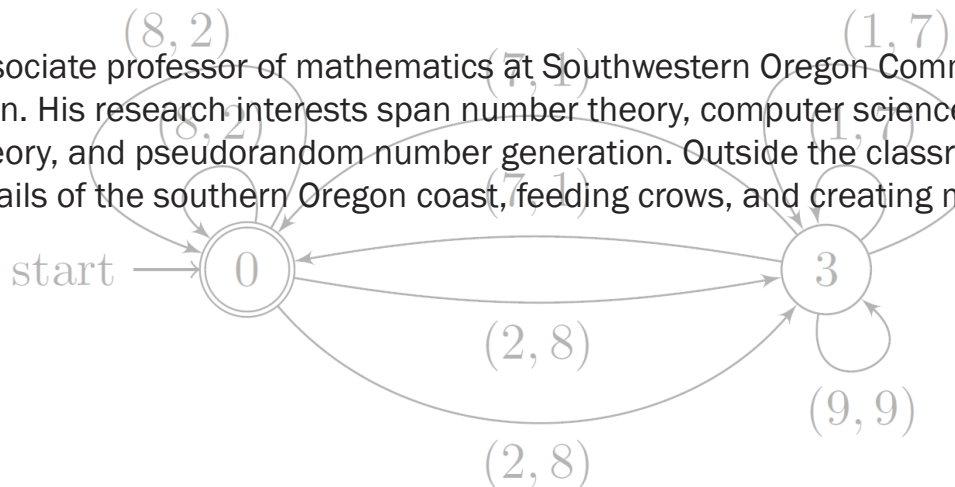
Digit Permutation Without Apology

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In “A Mathematician’s Apology,” G. H. Hardy cited the phenomenon of digit-reversing multiplication as a “non-serious” problem. Numbers that are multiples of their digit reversals are known as “**palintiples**” or “**reverse multiples**.” Undaunted by pronouncements of non-seriousness, we nerd out and present techniques for finding more general “digit-preserving” multiplications, which we call “**permutiples**.” A well-known permutiple (also a palintiple), mentioned specifically by Hardy, is $8712 = 4 \cdot 2178$. From the digits of such examples, we may produce new permutiples, such as $7128 = 4 \cdot 1782$ (NOT mentioned by Hardy). But the fun doesn’t stop there! Utilizing graph-theoretical and finite-state machine constructions, we may generate unlimited examples in a base and multiplier of our choosing, such as the base-10 permutiples $493827156 = 4 \cdot 123456789$ and $87152820 = 4 \cdot 21788205$, which are both related to the examples already mentioned.

Benjamin is an associate professor of mathematics at Southwestern Oregon Community College in Coos Bay, Oregon. His research interests span number theory, computer science, dynamical systems, graph theory, and pseudorandom number generation. Outside the classroom, he can be found hiking the trails of the southern Oregon coast, feeding crows, and creating music.



THURSDAY
Oct. 8, 2026

4:00 PM
BSS 302

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We cordially invite you to the PRE-COLLOQUIUM TEA in BSS#312
at 3:30 PM