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p-adic Stirling numbers of the second kind,
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Abstract

Let $S(n,k)$ denote the Stirling numbers of the second kind. We prove that the p-adic limit of $S(p^e a + c, p^e b + d)$ as $e \to \infty$ exists for any integers a, b, c, and d with $0 < b \le a$. We call the limiting p-adic integer $S(p^\infty a + c, p^\infty b + d)$. When $a \equiv b \bmod (p-1)$ or $d \le 0$, we express them in terms of p-adic binomial coefficients $\binom{p^\infty \alpha - 1}{p^\infty \beta}$ introduced in a recent paper.