1154-VS-2193 **Ralph P Grimaldi*** (grimaldi@rose-hulman.edu). *Ternary Pell Strings - The Palindromes.*

For $n \geq 1$ let a_n count the number of ternary strings $s_1 s_2 s_3 \ldots s_n$ where (i) $s_1 = 0$; (ii) $s_i \in \{0, 1, 2\}$, for $2 \leq i \leq n$; and, (iii) $|s_i - s_{i-1}| \leq 1$, for $2 \leq i \leq n$. Then $a_1 = 1$, $a_2 = 2$, $a_3 = 5$, $a_4 = 12$, and $a_5 = 29$. In general, for $n \geq 3, a_n = 2a_{n-1} + a_{n-2}$, and a_n equals P_n, the nth Pell number.

For these P_n strings of length n, now let pal_n count the number of palindromes of length n that appear among the P_n strings. We find that $pal_n = P_{\frac{n}{2}}$ for n even, while $pal_n = P_{\frac{n+1}{2}}$ for n odd.

Then, for the pal_n palindromic strings of length n, we determine (i) the number of occurrences of each of the symbols $0, 1, 2$; (ii) the sum of all the entries in the pal_n palindromes; (iii) the number of levels, rises and descents that occur within the strings; (iv) the number of runs that occur within the strings; (v) the number of inversions and coinversions for the strings; and, (vi) the sum of all the strings considered as base 3 integers.

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