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N s Webb Wedd
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Dear Mr. Sloane,

CBD

I have been studying your "Handbook of Integer Sequences" with great interest.

I am writing to suggest the inclusion of the sequence, 1 3 22 262 4336 ... which means the criteria which you list in the Handbook. However we not know whether its mathematical interest is sufficiently great.

It can be defined as the number of rooted trees with n labeled nodes. A tree must have all its terminal nodes (not necessarily including the root) labeled; other nodes may be labeled. It is of (slight) interest to textual critics, who have n manuscript texts to compare. Any existing text may be a (direct or indirect) copy of any other existing text, or two existing texts may derive from a single existing or ~~with~~ postulated text. The terms of the sequence give the number of possible relationships between the n texts.

Textual critics draw trees with their roots at the top, and call them stemmae (singular stemma). They call the nodes texts, and denote existing ones by Roman, and postulated ones by Greek, letters. If three texts, A, B, and C, exist, they may be related by any of twenty-two stemmae:

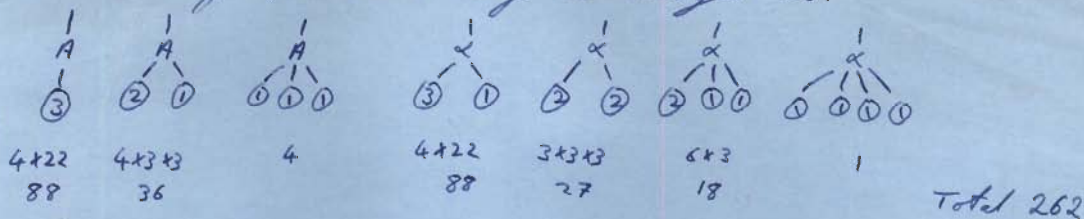
6 of the form (i.e. 6 permutations of the A, B, C)	$\begin{array}{c} \\ A \\ \\ B \\ \\ C \end{array}$	6 of the form	$\begin{array}{c} \\ \alpha \\ / \quad \backslash \\ A \quad B \\ \quad \\ \quad C \end{array}$	3 of the form	$\begin{array}{c} \\ A \\ / \quad \backslash \\ B \quad C \end{array}$
3 of the form	$\begin{array}{c} \\ A \\ \\ \alpha \\ / \quad \backslash \\ B \quad C \end{array}$	3 of the form	$\begin{array}{c} \\ \alpha \\ / \quad \backslash \\ A \quad B \\ / \quad \backslash \\ B \quad C \end{array}$	1 of the form	$\begin{array}{c} \\ \alpha \\ / \quad \quad \backslash \\ A \quad B \quad C \end{array}$
$6+6+3+3+3+1 = 22$					

Note that the Greek letters refer only to postulated texts; there is also an arbitrary number of postulated texts along each line, so that $\begin{array}{c} | \\ A \\ / \quad \backslash \\ B \quad C \end{array}$ might, superfluously, be written $\begin{array}{c} | \\ \alpha \\ / \quad \backslash \\ A \quad B \\ / \quad \backslash \\ \beta \quad \gamma \\ | \quad | \\ B \quad C \end{array}$

I have calculated the terms up to 4,336 for 5 texts by two independent methods, which agree.

①. By drawing the possible stemmae, using whatever abbreviations suggest themselves, and multiplying by the number of permutations for each stemma;

② Recursively: e.g. 4 tests may be arranged as:



etc.

There is no difficulty in extending either method to numbers of tests greater than five. The second method is easier.

Yours,
N. S. Wedd.