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Professor R.K. Guy Mathematics Department University of Calgary Calgary, AB

Dear Professor Guy:

March 28, 1988

The (unlabelled, unordered) binary trees with n terminal nodes can indeed be interpreted as representing the "structure" of a

Narayana-Capell numbers T_n enumerate, their verbal description notwithstanding. It seems that T_n is the number of sequences of integers corresponding to the number of matches in the consecutive rounds of a knock-out tournament on n players. The same tree-structure can realize different sequences - realizes both (2,1) and (1,1,1) - and different trees can realize



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88-03-22

Dr. John W. Moon, Department of Mathematics, University of Alberta, Edmonton, Alberta T6G 2H1

Dear John,

I don't know whether Naravana or Capell still exist.

but no doubt you'll consult them if they do. I've just been looking at their paper, On knock-out tournaments, Canad. Math. Bull. 13 (1970) 108, and they enumerate the number, T_n , of "random (knock-out) tournaments" for n players as

n (1) 2 3 4 5 6 7 8 9 10 11

 T_{22} (1) 1 1 2 3 6 11 22 42 84 165

My naive guess is that these should be the same as the number of binary trees (= Wedderburn-Etherington numbers

85-93 and see Comtet, Advanced Combinatorics, Dordrecht, 1974, p.54) and sequence 297 in Sloane's Handbook of Integer Sequences should coincide with sequence 298: ... 6, 11, 23, 46, 98, 207, 451,

Am I wrong?

Best wishes,

Yours sincerely,



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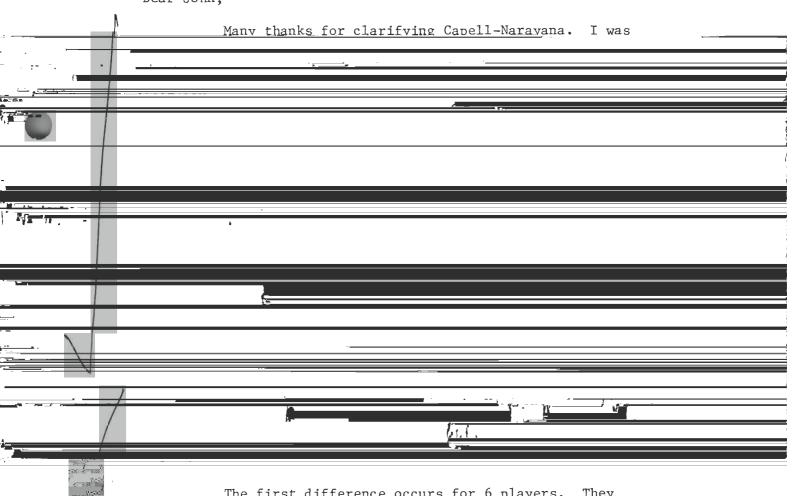
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88-03-31

Professor John W. Moon,
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Dear John,



The first difference occurs for 6 players. They distinguish between



and



but not

