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A4102

R W R

Q NJAS

Correspondence

10 sides

add to A4102

4/15/70

Dear Mr. Sloane

A4102 ~~7/10/70~~

"Nonseparable Graphs" should come out in the J. of Combinatorial Theory soon.

"Acyclic Digraphs" will be written in 2 or 3 months and will probably appear in the proceedings of the Combinatorics and Statistics Conference at Chapel Hill to be held next month.

"Cubic graphs" may never get written up - the solution available now, to which Harary has referred, is so involved that I consider it unsatisfactory (though doubtless better in the limit than Parthasarathy's "method").

Yours,

R. W. Robinson



~~7400~~

Bell Laboratories

600 Mountain Avenue
Murray Hill, New Jersey 07974
Phone (201) 582-3000

February 28, 1974

Professor Robert W. Robinson
Department of Mathematics
University of Michigan
Ann Arbor, Michigan 48104

Dear Robert:

The numbers of plane trees in your paper with Harary on achiral trees coincides with a sequence I had already. When I looked up the reference I find that

A. Errera, De quelques problèmes d'analysis situs, Comptes Rendus Congr. nat Sci., Bruxelles, 1930, pages 106-110

had found the number of plane trees. The review (I haven't seen the paper itself) says he gives a recurrence for the numbers, and the review also gives the values for ≤ 8 points. Since this anticipates Harary, Prins, and Tutte by 34 years, you should probably reference it!

Best regards,

MH-1216-NJAS-mv

N. J. A. Sloane

fa

THE UNIVERSITY OF NEWCASTLE
NEW SOUTH WALES, 2308

DEPARTMENT OF MATHEMATICS

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TELEPHONE 68 0401

EXT.

26/2/78

Dear Neil,

About to move offices, your letter of 11/iv/77 came to light. I did have the #5 of signed, worked, etc etc graphs up to $p=40$, but can't find them at the moment. Maybe they'll turn up soon too! Meanwhile I'm enclosing material which may be of help for your 2nd ed. of integer sequences, provided it's not too late.

Bob Robinson

f91



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DEPARTMENT OF MATHEMATICS

EXT.

July 8, 1980

Dear Neil,

I think the values of t_{24} , t_{25} and t_{26} in my paper with Schmeckle are correct. The reason is that it was done by computer, and carried considerably further without any trouble (e.g. non-integral answers or strange asymptotic behavior). Because of the latter, our run has better internal checks than the earlier one that Harry based his table on. The harder-to-control variable of typesetting errors etc. is equally likely in either; I'll check with Harry & Schmeckle to see if they know of any such.

All reprints (and one preprint) with sequences that I can find are enclosed. Also two sample listings which are not yet included in papers, and a list of such listings which have been prepared in the course of an ARGC-supported project. Some of those I'd have sent to you earlier (probably not with the same documentation at the

start of each). We can send any or all
of these listings that might be useful to you;
There are so many that it seemed advisable
to ask you first, before shipping a box full
Looking forward to seeing you in December,

Regards,

Bob



f91

7400

DEPARTMENT OF THE NAVY
UNITED STATES NAVAL ACADEMY
ANNAPOLIS, MARYLAND 21402

15 Sept 80

Dear Neil,

Robinson forwarded to me an account of the errors you found in our tables in "Distribution of Degrees". Bob says he ~~to~~ still has data generated by me accurate up to $p=37$ with error of 1 for $p=38$ and 39.

I am at a loss to explain how the more accurate table was supplanted with erratic data for publication.

I know we were concerned with accuracy, but obviously, we slipped up. In any case, thanks for pointing this out.

Cheers,

Allen

[Schwenk]

591

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Listings of numbers of graphs computed under ARGC supported project "Numerical Implementation of Unlabelled Graph Counting Algorithms" are detailed below. They are available on request from:

Professor R.W. Robinson,
Mathematics Department,
University of Newcastle,
New South Wales, 2308,
Australia.

PART 1

NUMBERS OF GRAPHS HAVING THE POINT SET LABELLED

- L1 Specially labelled bicoloured connected graphs with m points in one colour class and k points in the other class ($m \geq k$ and $k+m \leq 30$)
- L2 Specially labelled bicoloured non-separable graphs with m points in one colour class and k points in the other class ($k+m \leq 25$)
- L3 Bicolourable non-separable graphs with m points in one colour class and k points in the other class ($k+m \leq 25$)
- L4 Bipartite graphs: all, connected, non-separable ($p \leq 32$)
- L5 Cubic graphs ($p \leq 60$)
- L6 Connected cubic graphs ($p \leq 58$)
- L7 2-connected cubic graphs ($p \leq 58$)
- L8 3-connected cubic graphs ($p \leq 56$)
- L9 Cyclically 4-connected cubic graphs ($p \leq 60$)
- L10 Disconnected cubic graphs ($p \leq 60$)
- L11 Cubic graphs with connectivity 1 ($p \leq 60$)
- L12 Cubic graphs with connectivity 2 ($p \leq 60$)
- L13 Connected cubic graphs rooted at a triangle ($p \leq 58$)
- L14 Cubic graphs with no triangles ($p \leq 60$)
- L15 Connected graphs ($p \leq 25$, all $q \geq p-1$)
- L16 2-connected graphs ($p \leq 25$, all $q \geq p$)
- L17 3-connected graphs ($p \leq 25$, all $q \geq 3p/2$)
- L18 Multigraphs with A points of degree 1, B points of degree 2, C points of degree 3, having D double lines and no triple lines ($p \leq 10$) ($p \leq 20$ available on special request)

NUMBERS OF GRAPHS HAVING UNLABELLED POINT SET

- U1 Strongly connected digraphs ($p \leq 18$)
- U2 Acyclic digraphs and harmonic mean numbers of automorphisms
($p \leq 18$)
- U3 Acyclic digraphs ($p \leq 15$ by number of outpoints)
- U4 Point-line-signed graphs of the following eight types
- | | | |
|----|-------------------------|-----------------|
| A: | all graphs | ($p \leq 22$) |
| B: | signed graphs | ($p \leq 22$) |
| C: | marked graphs | ($p \leq 22$) |
| D: | nets | ($p \leq 22$) |
| E: | self-dual signed graphs | ($p \leq 22$) |
| F: | self-dual marked graphs | ($p \leq 26$) |
| G: | point-self-dual nets | ($p \leq 26$) |
| H: | line-self-dual nets | ($p \leq 22$) |
| I: | fully self-dual nets | ($p \leq 26$) |
- U5 Self-converse oriented graphs ($p \leq 27$)
- U6 Bicoloured graphs having k points of one colour and m points of the other colour, the colours not interchangeable ($k+m \leq 20$)
- U7 Bicoloured graphs with no isolated points. The colours not interchangeable ($k+m \leq 20$)
- U8 Bicoloured graphs. The colours not interchangeable ($k+m$ and $k+m \leq 14$ by lines)
- U9 Bicoloured graphs with no isolated points. The colours not interchangeable ($k \leq m$ and $k+m \leq 14$ by lines)
- U10 Bicoloured graphs having k points of each colour, and the like number of graphs having no isolated points ($2k \leq 20$)
- U11 Bicoloured graphs having k points of each colour, and the like number of graphs having no isolated points ($2k \leq 14$ by lines)
- U12 Bicoloured graphs which are invariant when the two colour classes are interchanged ($p \leq 20$)
- U13 Bicoloured graphs which are invariant when the two colour classes are interchanged ($p \leq 14$ by lines)
- U14 Connected bicoloured graphs having k points of one colour and m points of the other colour, interchange of colour classes not allowed ($k \leq m$ and $k+m \leq 14$ by lines)
- U15 Connected bicoloured graphs, interchange of colour classes not allowed ($p \leq 14$)

- U16 Connected bicoloured graphs which are invariant when the two colour classes are interchanged ($p \leq 14$ by lines)
- U17 Connected bicoloured graphs having k points of one colour and m points of the other colour, interchange of colour classes is allowed when $k = m$ ($k \leq m$ and $k+m \leq 14$ by lines)
- U18 Connected bicoloured graphs ($p \leq 14$)
- U19 Rooted bicoloured trees in which k points have even distance from the root and m points have odd distance ($k+m \leq 30$)
- U20 Free bicoloured trees with k points of one colour and m points of the other, colours not interchangeable ($k+m \leq 30$)
- U21 Free bicoloured trees with k points of one colour and m points of the other ($k \leq m$ and $k+m \leq 30$)
- U22 All graphs ($p \leq 29$)
- U23 Graphs without endpoints ($p \leq 26$)
- U24 Graphs without points of degree 2 ($p \leq 28$)
- U25 Graphs without points of degree 0, 1 or 2 ($p \leq 28$)
- U26 Connected graphs ($p \leq 29$)
- U27 Connected graphs without endpoints ($p \leq 26$)
- U28 Connected graphs without points of degree 2 ($p \leq 28$)
- U29 Connected graphs without points of degree 0, 1 or 2 ($p \leq 28$)
- U30 All graphs ($p \leq 20$ by lines)
- U31 Graphs without endpoints ($p \leq 16$ by lines)
- U32 Graphs without points of degree 2 ($p \leq 18$ by lines)
- U33 Graphs without points of degree 0, 1 or 2 ($p \leq 14$ by lines)
- U34 Connected graphs ($p \leq 20$ by lines)
- U35 Connected graphs without endpoints ($p \leq 16$ by lines)
- U36 Connected graphs without points of degree 2 ($p \leq 18$ by lines)
- U37 Connected graphs without points of degree 0, 1 or 2 ($p \leq 14$ by lines)
- U38 Graphs with all points having degree at least 3 ($p \leq 26$, $q \leq 39$)
- U39 Cubic graphs and harmonic mean numbers of automorphisms ($p \leq 40$)
- U40 Connected cubic graphs and harmonic mean numbers of automorphisms ($p \leq 40$)
- U41 Rooted non-separable graphs ($p \leq 26$)
- U42 Non-separable graphs ($p \leq 26$)