Francisco Camps Campins, ScD '33; April 7, 1993; Pelham, N.Y.
Canfield Hadlock, PhD '33; February 11, 1993; Kennett Square, Pa.
Joseph W. Horridge, '33; January 3, 1988; Scottsdale, Ariz.
Joseph Dauber, '34; January 17, 1993; Laguna Hills, Calif.
Robert M. Franklin, '34; April 9, 1993; Brewster, Mass.
Edwin J. Geittmann, '34; December 29, 1992; Hartland, Wisc.
Raymond B. Jewett, '34; February 15, 1993; East Dennis, Mass.
Harvey B. Chess, III, '35; April 11, 1993; Wellesley, Mass.
Oliver Hoag, '35; March 19, 1993; N. Bennington, Vt.
Edward L. Dashefsky, '36; April 23, 1993; Swampscott, Mass.
Douglas A. Elkins, SM '36; April 3, 1993; Salt Lake City, Utah
Walther H. Mathesius, '36; April 18, 1993; Beaver, Pa.
Kristian A. Ostby, '36; 1981
James M. Thomson, '36; March 16, 1993; Farmington, Conn.
Edward V. Corea, '37; April 11, 1993; Hingham, Mass.
Arthur R. Hunt, '37; March 30, 1993; Milford, Conn.
James W. Montgomery, SM '37; July 31 1992
John C. Kinley, '37; October 6, 1991; Houston, Tex.
James J. Dillon, '38; March 11, 1993
John A. Petroskas, '38; March 19, 1993; Swarthmore, Pa.
Joseph R. Perkins, Jr., '39; January 24, 1992; Newark, Del.
Irving Peskoe, '39; February 27, 1993; Homestead, Fla.
Richard D. Robbins, '39; January 7, 1993
Stanley W. Connelly, SM '40; July 18, 1992; Birmingham, Mich.
M. Spalding Toon, '40; March 12, 1993; Belleair, Fla.
John F. Walter, ScD '40; February 21, 1993; Clarendon Hills, Ill.
John H. Brannan, '41; March 18, 1993; Sarasota, Fla.
Frank V. Gandola, '41; May 27, 1989; Cleveland, Ohio

Max Schweinshaut, Jr., '41; November 25, 1992; Attleboro, Mass.
Robert H. Simon, '41; SM '41; March 26, 1993; San Diego, Calif.
Victor S. Franz, '42, PhD '49; November 14, 1992; Silver Spring, Md.
George F. Floyd, Jr., '43, SM '47; ScD '49; October 5, 1989; Placerville, Calif.
Bernard J. Duffy, Jr., '44, '47, SM '48; October 25, 1992; Shawnee Mission, Kan.
Peter F. Leone, '44; May 26, 1992; Drexel Hill, Pa.
John V. Townsend, '44; June 21, 1992; Jamestown, N.C.
Cutler D. West, '45; March 3, 1993; Arlington, Mass.
Betty Larue Stevens, Jr., '46; February 13, 1993; Oceanside, Calif.
Marshall Walker, '46; October 29, 1989; Chaplin, Conn.
Albert Openshaw, '47; May 21, 1991; Amsterdam, N.Y.
Richard H. Davis, '48; March 11, 1993; Scituate, Mass.
Reynold R. Kraft, Jr., SM '48; September 26, 1992; Beaumont, Tex.
Lan R. Lounsbury, SM '48; August 15, 1992; Toronto, Ontario, Canada
Glen G. Macon, '48; April 1, 1993; Lake Worth, Fla.
George W. Webb, Jr., '48, '49; April 9, 1993; Buffalo, N.Y.
F. William Bloecher, SM '49; February 28, 1993; Wyckoff, N.J.
Richard A. Cotton, '49; December 4, 1992; Franconia, N.H.
Ladislav Dolansky, SM '49, EE '52; April 6, 1993; Weston, Mass.
Kenneth E. Perry, '49; November 22, 1988; Wayland, Mass.
Aaron Glickstein, '50
William R. Hewitt, '51; March 9, 1993; San Jose, Calif.
Karl Kniel, '51, SM '52; March 3, 1993; Rockville, Md.
John E. Marshall, '53; December 1, 1992; Fort Worth, Tex.
William J. Ferrini, '54; April 3, 1993; Rome, Italy
Abraham Perera, '54; February 19, 1993
William J. Alston, III, '56; April 1, 1993; Ipswich, Mass.
John J. Burke, SM '56, MAE '57, PhD '68; April 5, 1993; Chestnut Hill, Mass.
Robert L. Cleland, '57, SM '51, PhD '57; April 29, 1993
John G. Howard, SM '57; February 1993; Sun City Center, Fla.
Chester W. Carter, '62; April 18, 1993; Greensboro, Vt.
Asa F. Kinney, '62; February 15, 1993; Kennebunk, Me.
James A. Ross, '62, PhD '66; March 21, 1993; Silver Spring, Md.
Ralph C. Holmer, '63; November 15, 1992; Golden, Colo.
David Wilson, '67;June 7, 1992; Norwalk, Conn.
Richard E. Dupuy, Jr., '74, SM '75; November 28, 1992; Minneapolis, Minn.
Ira C. Levine, '74, '75 SB; October 21, 1992; Laguna Beach, Calif.
Judith A. Fairchild, '75; November 24, 1992; Sacramento, Calif.
Trevor A. Fisk, SM '76; March 14, 1993; Haddonfield, N.J.
Franze T. Epps, Jr., '77; July 3, 1992; Houston, Tex.
Barbara B. Kops, SM '80; January 14, 1993; Ouderkerk, The Netherlands
John E. DeRubeis, '83, SM '84; February 19, 1993; Cold Spring Harbor, N.Y.

As some of you may remember, I was the program chair for last year's International Symposium on Computer Architecture (ISCA 92). I just returned from ISCA 93 and it felt a little funny not having been involved. More interesting was that ISCA 93 was part of the Federated Computing Research Conference, a gathering of many computing subdisciplines, from the theoretical to the practical. I found it quite rewarding and recommend federated conferences to you all.

Problems

A/S 1. The late Bob High wanted to know the longest legal go game on a 2x2 board with no passes.

A/S 2. Thurston Sydnor wonders where, in the first quadrant, the curve $x^y = y^x$ intersects itself.

A/S 3. Dave Mohr has noticed that the temperature sign in his bank alternates integer readings expressing Fahrenheit and Celsius. Assuming that the readings are perfect (and perfectly rounded), for what temperature(s) is one's uncertainty of the precise temperature at a minimum?

Speed Department

A Bridge quicky from Doug Van Patter.

North
♠ K 10 8 3
♥ A 9 8
♦ Q 3
♣ K J 5 2

South
♠ A Q J 9 2
♥ K 7 6 2
♦ A 10 5 2
♣ -

You are South, having reached a poor six spade contract. West leads the seven of spades. Can you find a line of play

SEND PROBLEMS, SOLUTIONS, AND COMMENTS TO ALLAN J. GOTTLIEB, '67, THE COURANT INSTITUTE, NEW YORK UNIVERSITY, 251 MERCER ST., NEW YORK, N.Y. 10012, OR TO: GOTTLIEB@NYU.EDU

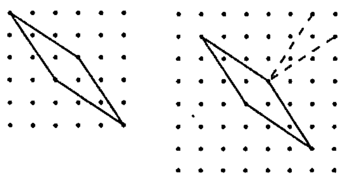
Precise to a Certain Degree

that has a reasonable chance of success given that spades split two-two?

Solutions

APR 1. Our first offering is a chess/timber problem from Winslow Hartford, who begins by pointing out that a closed knight's tour is important for timber companies since it gives a pattern for cutting sections of a forest so that successive cuts are not on adjacent land. Even better would be a closed tour of a "superknight" that moves 3 squares in one direction and 2 in the other (instead of the usual 2 and 1). The smallest chessboard containing a closed knight's tour is a 6x6. What is the smallest chess board containing a closed superknight's tour?

The following solution is from Edward Sheldon: The smallest chess board containing a closed superknight's tour is 10x10. "Odd" boards of any size do not permit a closed tour because the first and last move are odd and the move last to first, a requisite of a closed tour, is not possible. 2x2 and 4x4 boards are too small to permit consecutive moves and easily ruled out. Boards of size 6 and 8 do not work because forced moves out of corners go to the same squares and create small closed loops:



This precludes a grand tour on 6x6 and 8x8 boards. The above shows that boards of size 9 or less cannot contain a superknight's tour. At least one tour exists for a 10x10 board:

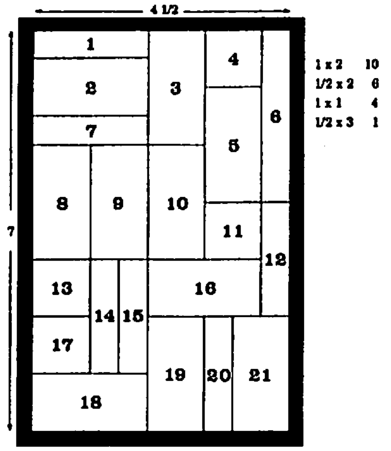
2	209	105	312	121	219	4	211	107	302
207	16	318	24	314	325	213	22	316	109
311	122	220	3	210	106	301	120	218	5
104	313	1	208	15	317	108	303	324	212
319	25	206	17	123	23	315	110	214	21
221	14	310	115	223	323	217	6	225	119
12	124	103	308	117	215	8	201	113	304
205	18	320	101	306	10	203	20	322	111
309	116	222	13	125	114	224	118	216	7
102	307	11	204	19	321	112	305	9	202

NOTE: 25->101, 125->201, 225->301, 325->1.

The above was found using a recursive program written in GFA Basic on an Atari ST computer. Four-fold rotational symmetry was used to keep computation time reasonable. The above numbering scheme was used to show this symmetry.

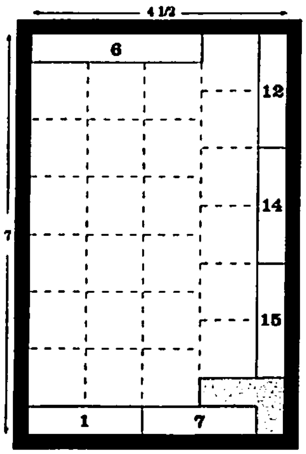
The above is a solution because it proves that at least one superknight's tour exists on a 10x10 board and that no superknight's tour can exist on a smaller board.

APR 2. Samuel Gluss has a set of blocks that fits nicely into a wooden box as shown below. His father, David, notes that there are many ways to pack the pieces into the box and wants you to find one with the 1/2x3 piece (#6) placed horizontally in the upper left corner.

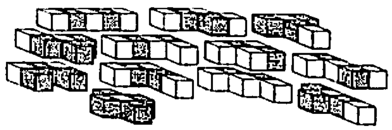


Ken Rosato shows us that such a placement is impossible:

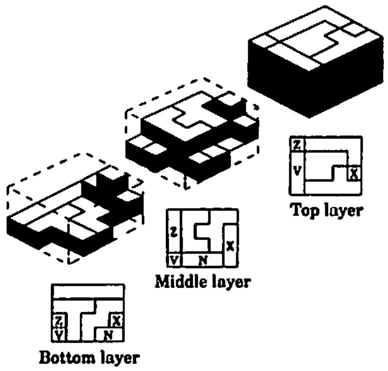
Putting the 1/2x3 piece horizontally means the entire length of it must be made up by some of the 1/2x2 pieces, to allow the 1x1 and 1x2 pieces to fit evenly in the overall length of 7. For the sake of turning this into a boundary condition problem, put them at the bottom as shown. The 4 1/2 width necessitates putting 1/2x2 pieces vertically. Put them along the right side as shown. At this point, 5 of the 6 1/2x2 pieces are used up. The right half of the right-most 1/2x2 piece on the bottom now needs to be balanced by a piece 1/2 wide, to allow the remaining pieces with a width of 1 to fit evenly in the overall length of 7. At the same time, the bottom-most 1 (up-down) x 1/2 (left-right) needs to be filled with a piece of width 1/2. Since there is only 1 remaining piece with width 1/2, it would have to be L-shaped as shown to fit. Thus there is no solution. (I think.)



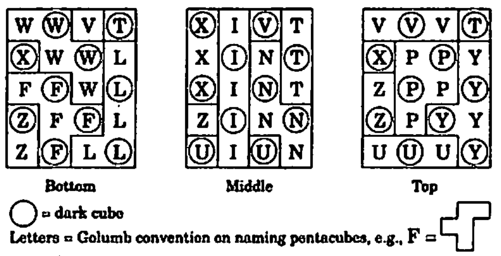
APR 3. Nob Yoshigahara wants you to pile up the 12 pentacubes shown into a 3x4x5 solid. Nob adds that the solution is unique up to mirror image.



Mike Auerbach sent us a lovely illustration from *Pentominoes* by Jon Millington.



Richard Hess notes that there are 3,940 solutions but believes that if the pieces have alternate light and dark squares the solution may be unique and offers the following example.



Better Late Than Never

OCT 2. Dudley Church has improved upon the published solution. His shortest path is 92 (or 133 if each component and not just the sum needs to be integral).

N/D 2. Eugene Sard has found a generating function capable of generating primitive solutions.

Other Responders

Responses have also been received from B. Cain, M. Fountain, and P. Manglis.

Proposer's Solution to Speed Problem

Draw two rounds of trumps and lead towards the diamond queen. If West has the king of diamonds, and hearts break 3-3, you make 12 tricks. Since West didn't lead a diamond, he may have the king. This slam was bid by 4/12 pairs and two Souths did make 12 tricks.