Puzzle Corner

INTRODUCTION

I have been asked how it feels to send our older son off to MIT. Perhaps the best answer I can give is the following e-mail that we sent after returning home from delivering him to pre-orientation in August:

Today was a day of mixed but strong emotions for your parents. We are both so proud of your accomplishments and are confident that you will do well at MIT, and that MIT will do well by you. It is a wonderful school, you are a wonderful student, the school fits you well.

We were also pleased to see how easily you fit in with the other students at the BBQ. By the time we finished our lunch you were already fully engaged with them.

The sad part, of course, is that we then had to drive 240 miles away from you and come to grips with the fact that seeing you will be the exception and not the rule. We have traded our boy for our grown son.

You are now a young adult charting your own course. Of course, we will always be there for you, but from now on you make most of your decisions by yourself. This is as it should be and we have every confidence that you will decide well.

> With love forever,
> Mom and Dad

PROBLEMS

N/D 1. Larry Kells offers us a new installment in his bridge saga. This time the husband obtains some revenge. Presumably, next year we get a sequel based on the "First Wives Club."

"A whole year passed without my seeing my bridge-playing friend. Then, one recent warm, spring afternoon, I saw him on the park bench again, but this time he had his arm around a lovely young lady I hadn't met before; they were chatting and laughing and clearly in love. I went over to find out who she was. He told me that she had just become his new bridge partner for life, and would soon be his bride.

"Their romance was sealed at the bridge club while I was on an extended vacation out of town. They were playing a rubber against his ex-wife and her new partner, the first time they had played each other since the divorce. The young woman could feel the tension in the air; she knew without having to be told that her partner wanted both to stick it to his ex, and to finish the rubber as soon as possible and get away from the table. Their opportunity came with both vulnerable. My friend dealt and opened one diamond. His ex-wife firmly jump-overcalled three spades. Without batting an eyelash, the young woman confidently bid four spades!

"This was passed around to the ex, who doubled ferociously, and the young woman equally confidently redoubled. As he watched her superb play land the redoubled contract, my friend became totally smitten with her. Finally, all was well. Finally all the past abuse was avenged, and his ex-wife thoroughly humiliated. For she, the ex, held eight spades to the KJ97, and 14 points overall! They laughed so hard as they told of her vain struggle to find a fourth trick, and her expression when she finished with but three! 'Especially when you said to her, "Next time don't double a four-bid unless you have nine trumps in your hand." I don't think we'll ever see her again!'

"As I left the two lovebirds in the setting sun, I felt happy because of their happiness; then I realized that I had never gotten the details of their triumphal hand. How did she do it?"

N/D 2. Roy Sinclair wonders for which n can n points be placed on a sphere so that each point is equidistant from all the others.

N/D 3. Art Delagrange hopes to reduce aircraft fuel consumption for the steady state portion of a flight (constant velocity and altitude). He postulates that thrust is proportional to consumption rate and that drag is proportional to air speed, squared. How fast should the plane travel assuming a wind speed of W and an angle B to the direction the plane is traveling?

SPEED DEPARTMENT

Ramon Mireles, two of whose sons have graduated MIT, recalls a 715-foot freight train and a 275-foot passenger train that traveled on parallel tracks. When going in opposite directions, they passed in 9 seconds, but when traveling in the same direction, passing required 45 seconds. How fast were they going?

SOLUTIONS

J/A 1. The end (for now) of the Kells saga:

"Now the wife was really getting steamed. Nevertheless, the third hand I was sure I was safe. I had KQ1098 of spades and 26 good points, no singleton king or doubleton queen or anything like that. Almost the best hand I've ever held in my whole life. I opened two spades, which we play as forcing to game. The opponents competed and the final contract was four spades doubled."

"With that powerful a hand, surely you couldn't have gone down very much. He burst out screaming. 'You just don't get it! It was they who bid four spades and made it! I doubled so loud it set off the fire alarm. Delayed the game at least 20 minutes. When we came back, the dummy came down with nothing higher than a 6! I figured we'd score thousands of points. But I'll never forget the way declarer laughed at me as I helplessly watched him gather his ninth trick while he still had the ace of spades remaining in his hand. Then my wife turned beet-red, hyperventilated and bellowed at me 'Three strikes, you're out, get lost!'

"At that point he burst out sobbing again. He was too distraught to say anything more about this catastrophic deal. Can you deduce what it was?"

Richard Polis sent us a dramatic rendition inspired by similar challenges in a James Bond book and in the *Bridge in the Menagerie* series. William Varrochi, who has been reading Puzzle Corner for all 34 years of its existence, enjoyed this problem so much that, for the first time, he felt compelled to respond. Polis writes (with apologies to Victor Mollo):

"Karapet the Armenian, sitting East, deals and opens two spades (forcing to game). The Hideous Hog, sitting South, immediately realizes that neither West nor North can have more than a few points and that his hand is virtually worthless against the likely contract of 3 no trump by East; accord-

ingly, he passes. The Hog's usual playing partner, the Rueful Rabbit, was initially occupied in discovering why he had 14 cards (one of them was from the other pack), and therefore missed Karapet's bid; he, seeing nine spades in his hand, responds to his partner's opening 3 no trump by bidding four spades. Karapet, who thinks his family's luck (universally bad since being cursed by a witch in the 14th century) is about to change, resoundingly redoubles.

"(East has 26 high-card points and, if one is a little generous, two more distribution points. If this is too many points, heart or club honors can be exchanged between East and West, since only the distribution of these suits matters.) North (dummy) has no card higher than a six, and the Rabbit belatedly discovers that five of his spades are actually clubs. The hands are shown below:

	R.R.				R.R.	
	♠ 5432				♠ none	
	♥ none				♥ none	
Papa	♦ 5432	Karapet	Papa		♦ 54	Karapet
♠ none	♣ 65432	♠ KQ1098	♠ none	♣ 654	♠ KQ1098
♥ 5432		♥ AKQJ	♥ none		♥ none
♦ 876		♦ KJ	♦ 8		♦ none
♣ QJ10987	H.H.	♣ AK	♣ QJ109	H.H.	♣ none
	♠ AJ76			♠ AJ	
	♥ 109876			♥ 10	
	♦ AQ109			♦ 109	
	♣ none			♣ none	

"Papa leads the club nine (the most deceptive card he can find) but, as usual, it does not really matter.

"The Hog therefore cross-ruffs two rounds of clubs and hearts; he then leads a diamond from dummy (finesse if necessary), giving two more entries to the hand which are used to ruff two more rounds of hearts (Papa and Karapet obligatorily following suit). The Hog has now taken the first eight tricks, producing the position shown above right, with the lead in dummy.

"To the ninth trick, the Hog leads the club four; Karapet is forced to ruff, and Papa's hand becomes irrelevant: if Karapet ruffs high with the king or queen, then the Hog plays the diamond nine, allowing Karapet to score his first trick. But Karapet is then end-played, allowing the Hog to score both the ace and jack of spades to make his contract. If Karapet is then end-played, he allows the Hog to score both the ace and jack of spades to make his contract. If Karapet instead ruffs with the 10, 9 or 8 of spades, then the Hog plays the spade jack (ninth trick for declarer), and still has the ace of spades for his 10th trick."

J/A 2. Richard Hess is much too non-conventional to wear a wristwatch. Instead, he gives himself a hotfoot or two.

You are given matches and two shoelaces. The laces burn irregularly like fuses. One takes 50 minutes to burn completely when lit from either end; the other takes 24 minutes. Your job is to burn the laces so as to accurately time 31 minutes.

The following solution and fashion statement comes from Paul Burstein:

This is a case of burning the shoelace at both ends: the key is to recognize that a shoelace lit at both ends will last exactly half as long as a shoelace lit from one end, regardless of the irregularity of the burn rate.

1) Light both ends of the 24-minute shoelace and one end of the 50-minute shoelace at the same time.

2) Call this t = 0.

3) When the 24-minute shoelace burns out, t = 12 minutes. At this point, the 50-minute shoelace has a single-ended remaining burn time of (50-12) = 38 minutes.

4) Immediately light the other end of the 50-minute shoelace, yielding a remaining burn time of 19 minutes.

5) When the second shoelace burns out, t = 12 + 19 = 31 minutes.

You only need a single match, as long as you can use one shoelace to light another.

But why shoelaces? A 24-minute shoelace requires a Doc Martens boot. A 50-minute shoelace was probably left over from one of Cher's thigh-high get-ups from the 1970s.

BETTER LATE THAN NEVER

1999 J/F 2. Eugene Sard believes that the solution given in 2000 J/F, which agrees with his unpublished solution, is correct, despite comments to the contrary given in 2000 A/S. As I said in A/S, I find this difficult to determine.

2000 M/A 3. Eugene Sard notes that his solution, while longer than the one published, has the virtue of showing how to systematically get other integer solutions.

OTHER RESPONDERS

Responses have also been received from R. Bishop, M. Chartier, X. Chen, D. Church, E. Collins, S. Feldman, S. Goldwasser, T. Harriman, D. Harris, J. Kirschner, T. Kraft, G. Landis, M. Lindenberg, B. McCue, D. McMahon, J. Nohrden, D. Pastorello, D. Plass, James R., M. Robbin, K. Rosato, J. Rudy, G. Sahagen, R. Salomon, S. Sperry, R. Spinner, L. Stabile, D. Stork, D. Teare, R. Turkel, W. Verrochi, A. Wasserman, T. Yap and K. Zeger.

PROPOSER'S SOLUTION TO SPEED PROBLEM:

From the editor: 66 and 44 feet per second.

Send problems, solutions and comments to Allan Gottlieb, New York University, 715 Broadway, 10th floor, New York, NY 10012, or to gottlieb@nyu.edu.

— *Edited by Owen W. Ozier '98*