



Chuck Stimming

HBC's 1995 Player of the Year

Butch Meese led most of the summer until Chuck won the Advanced Division at the **43rd Indiana Open**. It was a neck and neck race until Chuck captured the lead with a good November. Butch could not muster a threat and Chuck won **1995 Player of the Year** by the closest margin ever. This is the second year in a row Chuck has won this honor and the third year in a row that Butch has finished second. If Butch had won, it would have been the first time someone would have won **Player of the Year** without winning **Player of the Month** once.

The Mathematics of Backgammon Replies to Opening Rolls, Part II by Chuck Bower

Backgammon is in the midst of a revolution, based on the development of intelligent backgammon software and fast, affordable home computers. At present, three cybergammons are playing close to world class: Jellyfish^{Note1}, Loner^{Note2}, and TD-Gammon^{Note3}. All three are accessible to the public through FIBS^{Note4}. In addition, Jellyfish will run on a PC with Microsoft Windows and TD-Gammon has a version which plays on the PC with IBM's OS2/Warp operating system. If the current trend continues, improved versions of these programs as well as new competitors will be popping up over the next year.

Although playing against these silicon opponents offers lessons in itself, even better learning is available by running rollouts. The study which this article is based on results from over 5.6 million complete games played by Jellyfish against itself on a Pentium-60. (Statistical comments have been relegated to footnote 5.)

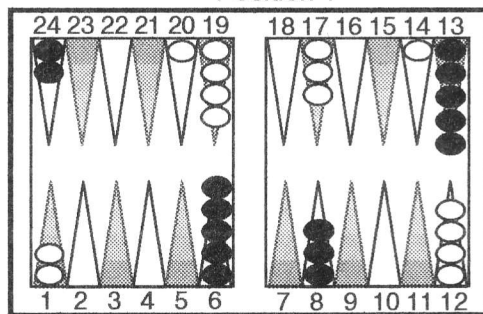
Another way to use the computer as a learning tool is to just ask Jellyfish's opinion of how to play a position. I have chosen not to use this method here in order to keep the article's length manageable.

Warning: use the conclusions of this article at your own risk. Just because Jellyfish likes a certain play

doesn't make it correct. However, your alternative of listening to the opinions of humans (expert or otherwise) carries no guarantee, either.

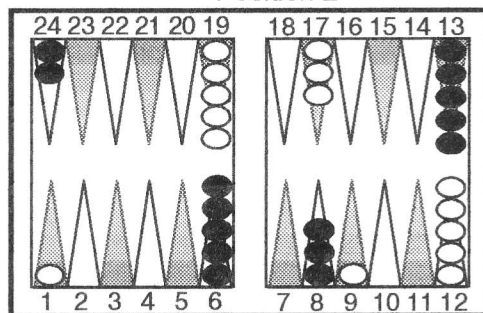
A little over a year ago (HBC Newsletter Vol. XI, No. 6, Nov-Dec 1994) the article **Replies to Opening Rolls - Part I** was published. The recommendations there were based on rollouts by **Expert Backgammon**^{Note6} for the PC versions 1.6 and 2.1. Since that time, I have put **Jellyfish Analyzer 1.0** to work on the same problem. Not surprisingly, its recommendations differ for many of the plays. This article is based on these latest rollout results.

Position 1



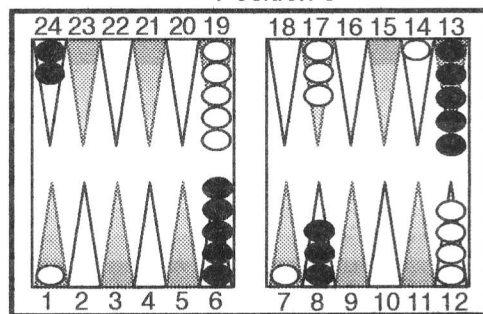
A) Black to Play 3-1? B) Black to Play 1-1?

Position 2



Black to Play 3-1?

Position 3



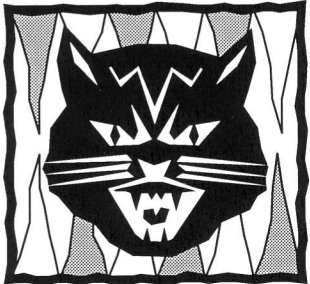
Black to Play 3-1?

...continues on Page 3...

Final 1995 HOOSIER BACKGAMMON CLUB Gammon Point Standings.
 HBC Player of the Month for November was **Jan Gurvitz** with 160 gammon points.
 HBC Player of the Month for December was **Ellis Bray** with 130 gammon points.

1) Chuck Stimming.....1607	Mick Dobratz..... 260	Randall Witt..... 80	David Smith..... 20
2) Butch Meese..... 1588	Janice Newman.....190	J.A. Miller..... 80	Jim Bowman..... 20
3) Larry Strommen..... 1324	G.L. Harvey..... 168	Philip Degen..... 68	Elijah Miller..... 16
4) Ellis Bray..... 1110	Kevin McLeaster.....150	Steve Perlman..... 64	Richard Heinz..... 16
5) Woody Woodworth.....1106	Stan Gurvitz..... 144	Wendy Kaplan..... 60	Lance Jenkins..... 16
6) Don Woods..... 996	Bill Hodes..... 130	Dave Cardwell..... 50	Jamie Curtis..... 15
7) Mary Ann Meese..... 944	Bill Gheen.....126	Bob Koca..... 48	Ralph Stowell..... 10
8) Sean Garber..... 810	Peter Kalba.....116	Reggie Porter..... 32	Paul Ruterman..... 10
9) Dave Groner..... 806	Rick Reahard..... 110	Bud Maniac.....30	Stephen Maas..... 10
10) Jan Gurvitz..... 643	Scott Richardson..... 96	Tom Helt.....30	Alice Gerard..... 10
Gabe Stiasny..... 608	Bill Julian..... 90	Fred Badagnani..... 30	Dave Williams..... 10
Jim Curtis..... 400	Brian Nelson..... 88	Jon Stephens.....20	Dave Fey..... 10
Chuck Bower.....328	John Brussel.....84	Jim Painter.....20	Carol Falk..... 10
Neil Ezell.....320	Karen Davis..... 84	Bob Cassell.....20	Art Overbay..... 10



BLACK CAT



"Your opponent's bad luck is good."

BACKGAMMON

1996 Midwest Backgammon Championships
22-24 March 1996
The Drake Oakbrook Hotel
Oak Brook, Illinois

To request an invitation, contact Bill Davis at 312/583-6464
 Fax: 312/583-3264 • E-mail: chipoint@interaccess.com



Season Greetings
 received from

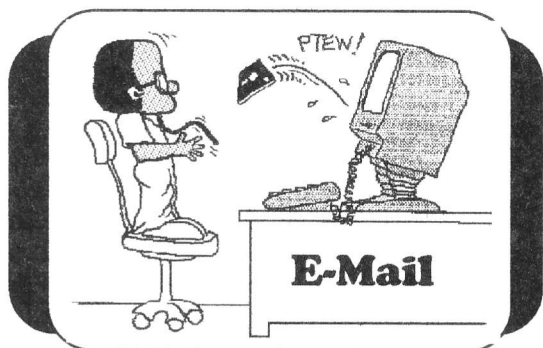
Chuck & Terri Bower (IN) Harold Branch (KY)
 Carol Joy Cole (MI) Jim Curtis (IN)
 Dennis & Jeanette Cupp (OH)
 Jill Ferdinand (IL) Malcolm Davis (TX)
 Mike **JellyFish** Fujita (CA)
 Pat & Carla Gibson (CA) David Groner (IN)
 Mary Hickey (OH) Jack & Geri Kissane (NY)
 Mary Kuchenbrod (KY) J. A. Miller (IL)
 Harold Milarch (Germany)
 Brian & Bev Nelson (FL) Sean Garber (IN)
 Tony & Lynda Siegel (CO) Trudie Stern (IL)
 Dragon Stevanovic (IN) Bill Davis (IL)
 Gayle & Wally Wolf (MI)
 Woody & Donna Woodworth (IN)

	<u>November 2nd</u> 1st <i>Dave Groner</i> 2nd <i>Chuck Stimming</i> 2nd ...	<u>November 9th</u> <i>Jan Gurvitz</i> <i>Larry Strommen</i> <i>Stan Gurvitz</i>	<u>November 16th</u> <i>Jan Gurvitz</i> <i>Chuck Stimming</i> <i>Woody Woodworth</i>	<u>November 30th</u> <i>Mary Ann Meese</i> <i>Jim Curtis</i> <i>Sean Garber</i>
	<u>December 7th</u> 1st <i>Mary Ann Meese</i> 2nd <i>Woody Woodworth</i> 2nd <i>Butch Meese</i>	<u>December 14th</u> <i>Ellis Bray</i> <i>Larry Strommen</i> <i>Woody Woodworth</i>	<u>December 21st</u> <i>Don Woods</i> <i>Janice Newman</i> <i>Butch Meese</i>	<u>December 28th</u> <i>Dave Groner</i> <i>Janice Newman</i> <i>Mary Ann Meese</i>

Backgammon Tournament Schedule

Feb 16-18....	18th Annual Pittsburgh Championships , Greentree Mariott, PA.....	(412) 823-7500
Mar 24-26....	Midwest Backgammon Championships , Drake Oakbrook, Oak Brook, IL.....	(312) 583-6464
Apr 24-28....	Nevada State Championships , Riviera Hotel, Las Vegas, NV.....	(702) 893-6025
Jul 4-7.....	Michigan Summer Championships , Novi Hilton Hotel, Novi, MI.....	(810) 232-9731

Thursdays..... 7:00 PM at **SPATS** (842-3465) Castleton Square (between J.C.Penney's & L.S.Ayres).... 845-8435



To: hbc@ix.netcom.com
 From: stang@iquest.net (stanley gurvitz)
 Subject: ANNOUNCEMENT
 Date: Jan 06, 1996

A child was born at 1:56 AM Saturday morning, a boy. He weighs 5 pounds 8 ounces and is 20 inches long with light reddish brown hair. He has grey blue eyes and most all of is healthy! The only problem we had was to get that damn blasted dice cup away from him, and I think he said faintly the words, DOUBLE. Mother (Jan) and baby are doing fine, we're still discussing the name. Jan will probably be there Thursday.

See you soon,
 Stan Gurvitz

To: hbc@ix.netcom.com
 From: Mika Johnsson <JOHNSSON@sara.cc.utu.fi>
 Subject: MF and JF

Hello Butch!

Thanks for the latest issue of HBC Newsletter. I must ask about Jake Jacobs Article about Mike Fujita and Jellyfish: I became very suspicious about his comment that the play was better for money but worse in that match score, I checked the math and got totally different result: moving to the 3-point was much better also in that score.

I used 91% 8-2 and 66% 6-4 and 25% 6-8, if other values are used it doesn't change the result. Here is my calculation in more detail, I hope there is no error.

3-Point Move	Score	Win%		
	8-2	91%	62.2%	56.602%
	10-2	100%	10.9%	10.900% **
	6-4	66%	24.2%	15.972%
	6-6	50%	2.7%	1.350%
	6-8	25%	0.0%	0.000%
			total	84.824%

2-Point Move	Score	Win%		
	8-2	91%	59.9%	54.509%
	10-2	100%	14.8%	14.800% **
	6-4	66%	21.4%	14.124%
	6-6	50%	3.8%	1.900%
	6-8	25%	0.1%	0.025%
			total	85.358%

(** gammons and BG's)

The difference is 0.534% in favour for the 3-point move!!! So Jellyfish is stronger even in match play.
 -Mika Johnsson ;-)

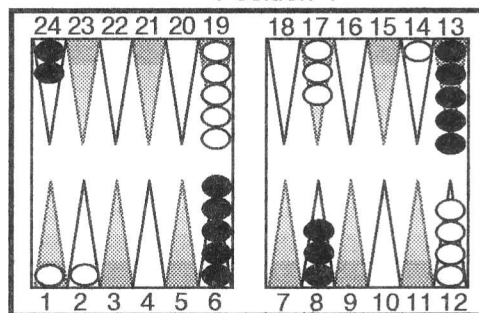
**The Mathematics of Backgammon
 Replies to Opening Rolls, Part II**
 by Chuck Bower

...continues from Page 1...

In Positions 1-3, Black has the fortunate option presented by the 3-1 roll: hit or make the 5-point. As mentioned in the previous article, this decision used to be considered close for Position 1A, after the opener had slotted the 5-point. Here Jellyfish agrees with EXBG; hitting (24/20x) is better than building (8/5, 6/5) by a significant equity^{Note7} of 0.12. Jellyfish disagrees with EXBG on Problem 1B, the 1-1 reply. Here Jellyfish prefers the hit by 0.035 while EXBG likes building the 5- and 7-points (equity difference = 0.05).

Position 2 saw EXBG giving preference to the hit (13/9x) by 0.033. Jellyfish sees the building play as virtually even with the hit. And for Position 3, the two cybergammons agree that building the 5-point is preferable to any hit play (for example, 24/21, 8/7x or 13/10, 8/7x) by at least 0.05.

Position 4



Black to Play 4-1?

To: hbc@ix.netcom.com
 From: Howard Berg <howard26@mci.newscorp.com>
 Date: 12.11.95

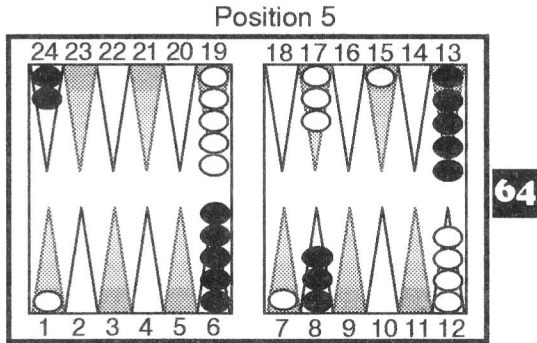
Hi Butch,

Very nice newsletter. Good all the way through. And liked the info on the files available thru FTP. Got them earlier to-nite. Also the ones you got in your folder.

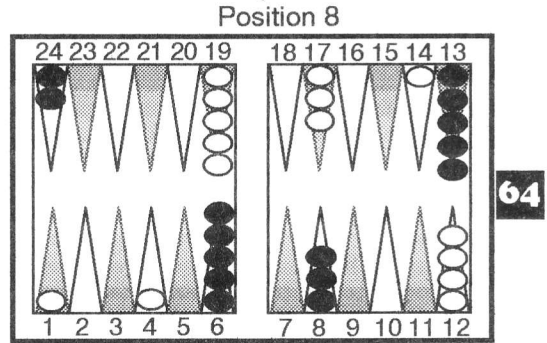
Keep up the good work,
 Howard Berg
 howard26@beta.delphi.com

Position 4 offers (at least) three reasonable alternatives: split plus builder (13/9, 24/23), double split (and coming *under the gun*) 24/20, 24/23, and the aggressive double hit (6/2x/1x) which leaves a blot in an unfavorable position, the ace point. EXBG had a slight (but still statistically significant) preference for the double split, preferring it by 0.03 over 13/9, 24/23 and 0.04 over the double hit. Jellyfish, always keeping an eye open for the blitz, has the double hit outscoring the other alternatives by 0.05.

Finally Positions 6 and 7 were previously presented as being too close to call between hitting and not hitting (running 24/16 in Position 6 and splitting 24/21 in Position 7 being equal to the hits). That is how EXBG saw things. Jellyfish has no qualms about hitting loose in its infield. 13/5x beats both 24/16 and 24/18, 13/11 by 0.07 and 0.08 respectively for Problem 6. Jellyfish isn't spineless about choosing the hit for Position 7, either. Here it sees 6/4x, 24/23 as 0.03 better than either non-hit split (24/21 or 13/11, 24/23).

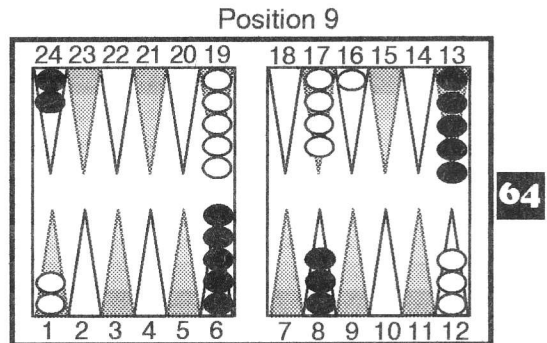


Black to Play 6-5?

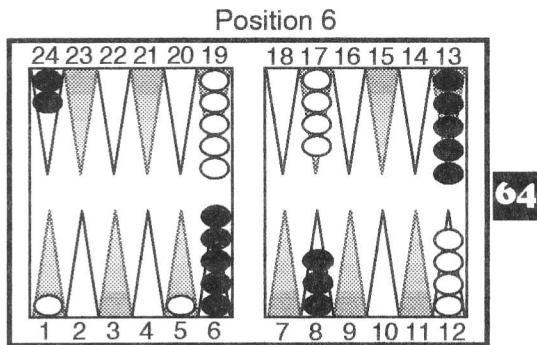


Black to Play 3-2?

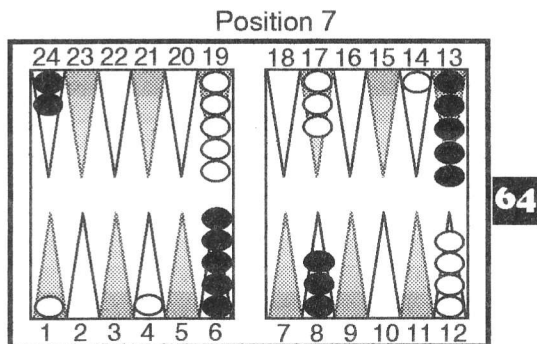
Position 5 has led to some interesting discussion on the Internet newsgroup rec.games.backgammon. Some observers there were surprised that Jellyfish and M-Loner made the double hit play (13/7x, 5/1x). Readers of this newsletter had already been introduced to this variation in the Nov. 1994 article. EXBG was reported there to prefer this play over 13/7x, 13/8 by 0.055. It also preferred the double hit to simply running (24/13) by 0.09. Jellyfish rollouts see both hitting plays as equal, with each being 0.10 better than the run.



Black to Play 2-2?



Black to Play 6-2?



Black to Play 2-1?

In my article from 14 months ago, I presented four **Rules of Thumb** for how to respond to opening rolls in general. I repeat those four rules verbatim, and follow each with new and improved rules:

- 1) *Hitting on the opponents side of the board and in your own outfield (excepting the bar point) is clearly correct according to EXBG rollouts.*
- N1) Hitting anywhere on the board is correct with the following exceptions: do not hit loose on your 7 (bar) point with a 3-1; instead make your 5-point. Hit loose on your 2- and 1-points only if you are hitting two checkers. The loose hit on the 3-point (for example after your opponent opens 13/8, 24/22 with 5-2) is sometimes equal to its alternatives. An example of this is 6-4 (making the 2-point and running to the 14-point are equal in equity to hitting 13/3x).

- 2) *Building the 5-point is better than hitting loose on the bar point. (Note: rollouts also in dictate that with 42, making the 4-point is slightly preferable to hitting loose on the bar point. Difference is 2.4%.)*
- N2) (Covered by Rule N1.) Knocking your opponent off the bar point with 4-2 is preferred by Jellyfish instead of building the 4-point.
- 3) *Hitting loose on the 5- and 4-points is as good or better than other alternatives, assuming that Rules 1 and 2 can't be applied.*
- N3) Hitting loose on the 5- and 4-points is BETTER than other alternatives, assuming you don't shun hits elsewhere on the board.
- 4) *Hitting loose on the 1-point is only correct when protecting a blot on your own bar point, and then probably only in conjunction with the double hit.*
- N4) Hitting loose on the 1-point is only correct when done as part of a double hit. Even then, it is not always best. For example, see Position 8. Your opponent opens 24/21, 13/11 with 32 and you respond with 32. Hitting loose on your 4-point and splitting 24/21 is better than hitting twice by 0.05 in equity.

As mentioned in the last article, these rules apply to non-doubles, but not necessarily to doubles. Sometimes it is better to build two points than to hit at the expense of building any points. Figure 9 shows this. Your opponent opens 54 bringing two checkers off the midpoint. Jellyfish rollouts say that building the 4- and 22-points is 0.05 better than hitting with 24/16x. (Note: making the 11-point instead of the 22- point is not as good by 0.04.)

- 1 **Jellyfish** was written by Frederick Dahl of Norway and is available from Larry Strommen (317) 545-0224 or Carol Joy Cole (810) 232-9731.
- 2 To the best of my knowledge, **Loner** is only available to the general public as a **FIBS** opponent. Three versions exist: **Loner** plays only single games. **Loner-C** plays with a money cube. **MLoner** plays matches.
- 3 Written by Gerry Tesauro of IBM's Watson Research Center. Available as part of IBM's **Family Fun Pack for OS/2** from Indelible Blue (800) 776-8284 for \$52 (which includes 2nd day shipping).
- 4 First International Backgammon Server, a program on a computer in Europe which allows worldwide access through the Internet to players and which handles the mechanics (dice rolling, cube position, etc.) at the command of the two opponents, either of whom can be humans or cybergammons like

Jellyfish or MLoner.

- 5 Each candidate position was rolled out 10,368 times using sequential dice for the first two rolls (that is each player's first available roll) with truncation turned off (leading to cubeless rollouts to each game's end). Standard deviations are typically 0.013 in equity units leading to a 90% confidence level conclusion if two plays differ by more than 0.024 in equity. An equity difference of less than this caused me to conclude that two plays were equal.
- 6 Expert Backgammon was originally written by Tom Johnson for the Macintosh and later modified (and improved) by Tom Weaver to run under DOS on a PC. This excellent work was the standard bearer for backgammon software for several years, but has since been overshadowed by the new neural net programs.
- 7 I use **equity** here to refer to **cubeless equity**, which is the value of the game at the end of a play to the player completing that play. A cubeless equity of 1 means that, on average, if this game were to be played to completion with no cube, the player completing his/her roll would win a simple game. If the probability of each different type of outcome is known, then cubeless equity can be calculated from

$$E = S + 2G + 3B - s - 2g - 3b$$

where S represents simple wins, G gammon wins, and B backgammon wins. The lower case symbols are for the corresponding losses. Computer rollouts give the probabilities of the six outcomes so comparison of different plays can be quantified by comparing cubeless equity. Note that cubeless equity falls within the range -3 to 3, and that if gammons and backgammons are impossible (for example, in a bearoff) then cubeless equity is the same as fractional edge. For example, if player A wins 80% and player B wins 20%, then player A has a 60% edge (= 80% - 20%). If you were to plug the corresponding values into the above equation defining cubeless equity, you would get $E = 0.6$ (=60%).

Hoosier Pips: Congratulations to Jan and Stan Gurvitz on the arrival of their new son, Aaddison Chasse...Larry Whittenburg was an out-of-town visitor during December.

**HBC Awards Tournament
February 25th, 1996
SPATS, Castleton**

**18th Annual Pittsburgh Backgammon
Championships and ABT Awards
The Hospitality Specialists
February 16-18, 1996**

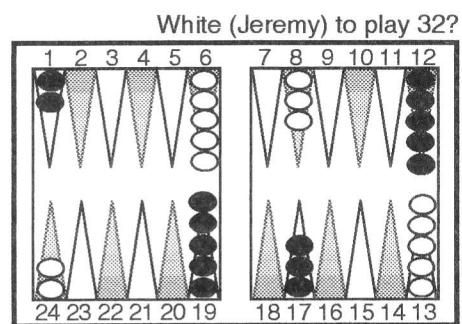
Featuring: Hospitality all weekend...Optional Side Pool...Micro Blitz
Missing Person Reward...Masters and Amateur Jackpots
Pittsburgh Greentree Marriott (800) 525-5902 or (412) 922-8400
Steve Hast: (412) 823-7500 // **FIBS:** pghsteve // Email: pghsteve@telerama.lm.com

**Annotated match
Kit Woolsey vs Jeremy Bagai
FIBS - 9 Point Match**

In February 1994, **Kit Woolsey** and **Jeremy Bagai** played a match and then annotated it for **FIBS (First Internet Backgammon Server)** players so they could see the thought process of the more experienced players. They played a fairly interesting match, logged it, and then annotated it independently. You will see reasons for their plays and cube decisions, as well as their second thoughts upon later analysis which often came to a different conclusion than their original choices.

Gerry Tesauro also volunteered **TD-Gammon's** valuable help. **TD-Gammon** analyzed the whole match and listed its top 3 choices for each play along with its estimated equities. These equities are always assuming a 1-cube and they do not take into account cube ownership. Thus on a pass-take decision an equity of -0.50 would be a break-even decision (not taking cube ownership into account -- that would probably make it a little higher), since that would translate to an equity of -0.100 on a 2-cube. **TD-Gammon** was also nice enough to comment on the game, giving its reasons behind its choices as well as getting in a few snide remarks about their mistakes. **Mark Damish (MA)**, first formatted the commentary for the Internet.

Game 7



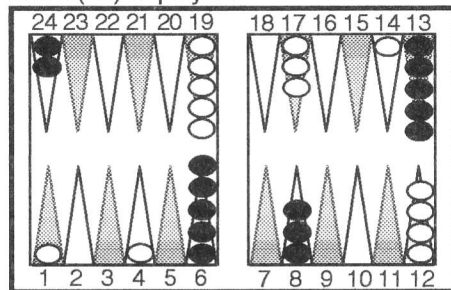
24/21 13/11

Jeremy: As I mentioned last game, the leading player should strive for an advanced anchor in order to avoid positions with nasty gammon threats. This play is better than 13/11, 13/10.

TD-Gammon: Not to mention that it's just plain the best play.

24/21, 13/11.....	+0.014
24/22, 13/10.....	-0.003
13/11, 13/10.....	-0.004

Black (Kit) to play 32?



24/21 6/4x

Kit: Once again I prefer the valuable split with reasonable safety. Here there is strong argument for 13/10, 6/4x, since the builder is six away, but I like to work on both sides of the board. The play to be avoided is 6/4x/1x. Granted it is safer than hitting on the four point and stopping, but it is much less productive when it works. Avoid dumping a checker onto the ace point in the early stages unless you really have to do so.

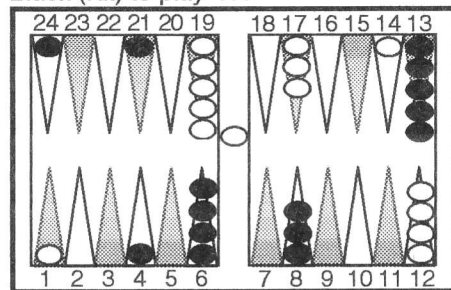
Jeremy: I think 13/10, 6/4x, another builder for the four point, is a little better.

TD-Gammon: Jeremy's play is a tiny bit better, but it is too close to call. You two are right on target on this one.

13/10, 6/4x.....	-0.068
24/21, 6/4x.....	-0.071
6/4x/1x	-0.092

White (Jeremy) dances with 66.

Black (Kit) to play 41?



21/20 8/4

Kit: I have the stronger board, so I challenge Jeremy's blot in the outfield. 24/23, 8/4 doesn't put him under nearly as much pressure.

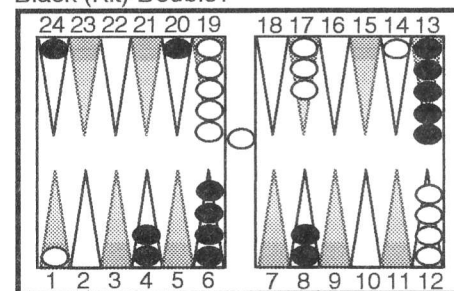
Jeremy: Attacking my blot.

TD-Gammon: I get 24/23, 8/4 a bit better, presumably in order to avoid return sixes. However, Kit's play is probably ok, particularly at the match score, since he is trying to create action to increase gammon possibilities.

24/23, 8/4.....	+0.198
21/20, 8/4.....	+0.186
8/4, 6/5	+0.117

White (Jeremy) dances with 64.

Black (Kit) Double?



Kit: This is clearly a big double. I have the stronger board, he is on the bar, and I am shooting at another blot. In addition if he takes he will have no use for the cube at the match score. The take is the problem.

Jeremy: This is a great double at this score. Kit is threatening to blow me out of the water. He has the better board, is attacking another checker, and I'm still in the starting gate.

TD-Gammon: Sure is. In fact with equity of 0.409 and reasonable volatility, it is even a thin money double. White (Jeremy) Takes.

Kit: At this match score there are arguments for making aggressive takes. The key is that Jeremy needs exactly two points to win the match, while there isn't too much difference between being ahead 7 to 5 and 7 to 6. However these arguments generally apply to positions where gammons are impossible or unlikely. In this position a good chunk of Jeremy's losses will be gammons, since he could wind up with quite a few checkers back. Also he will be sitting on a dead cube, and winning a gammon is meaningless for him. He has a clear disadvantage in all stages of the game, and things figure to get worse before they get better. I think he should let it go.