

This is the first of an on-going series of articles on how the Internet benefits backgammon. During the last two years, tournament attendance increase can partly be due to First Internet Backgammon Server (FIBS). FIBS is a place where you can play backgammon and chat with players all over the world. There are an average of 100 players on FIBS any time 24 hours a day, 7 days a week.

Internet: it seems to be the new magic word. Internet is not new but the Net has grown to the level that the masses can use it easily. There are many facets of the Internet, but I will cover only one at a time.

One of the benefits of FIBS is that you can watch good players. Mark Damish (MA) has taken this feature a step further. He wrote a program that logs in to FIBS and not only watches the top 150 players by their rating but records the moves and saves the information. The program logs in as Big_Brother and has been running on FIBS for over 3 months. In that time, it has recorded over 800 matches. At the end of October, two of the best known backgammon programs on FIBS, mloner and idiot (JellyFish 1.6 demo) played 1005 -point matches. By the way, mloner won 55 to idiot's 45 matches. Mark has made all the matches available to anyone who wants to download them.

Here comes a lesson on the Internet. Mark has placed the matches on a computer site named: ftp.cybercom.net. To get the matches, you must use file transfer protocol or ftp for short. FTP transfers files from one computer to another. Most local Internet providers have ftp service, each a little different in how they access the feature. When you ftp, you have to input the computer name you want to login to, in this case: ftp.cybercom.net. This computer site provides files free to the public.
...continues page 2...

# Is Mike Fujita Jellyfish? <br> by Jake Jacobs 

Sure, I know, Jellyfish is a neural net program developed by Frederick Dahl over in one of those semi-interchangeable countries clustered around northern Europe. At least, that is the cover story we've all been given, but after you've heard my shocking story, perhaps you'll reconsider.

It all started in a quiet, midwestern hamlet where something called the 43rd Indiana Open was taking place. During one of the qualifying rounds (of which there were many, Butch being famous for designing tournaments wherein the chance to cash varies in inverse proportion to the number of matches played) | had my first chance to play Mike Fujita. Of course I had heard about Mike's recent successes in Monte Carlo, but to see him floating around tournaments the last few years - smiling, friendly, as innocent-looking as any naif you'd welcome into your chouette...this is exactly the way swimmers describe real-life jellytish just before they're stung!

Still, our match was proceeding just the way I always hoped it would, with me having all the good dice. I was winning our 9 -point match 6-2, and Mike was still smiling despite all the nasty rolls I was flinging at him. Then, he had to play 1-1 in the position below.


Mike played 4-2 with two of his ones, then paused to consider the remainder of his play. After some thought, he advanced his anchor, playing 23-22(2). This seemed like a clear error. In discussion in the hotel bar later, with Neil Kazaross, after we had sufficiently lubricated our analytical mechanisms, I commented that, in addition to our shared belief that the deuce-point produced more long term shots, it generated immediate shots on 8 of my sixes with 6-4 an especial treasure! In the actual game...I won't ...continues on Page 3...

| 1995 HOOSIER BACKGAMMON CLUB Gammon Point Standings. <br> HBC Player of the Month for September was Mary Ann Meese with 164 gammon points. HBC Player of the Month for October was Jim Curtis with 160 gammon points. |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| 1) | Butch Meese............... 1406 | Mick Dobratz.......... 260 | J.A. Miller..................... 80 | David Smith.............. 20 |
| 2) | Chuck Stimming.......... 1399 | G.L. Harvey............ 168 | Philip Degen............... 68 | Jim Bowman............ 20 |
| 3) | Larry Strommen.......... 1120 | Kevin McLeaster..... 150 | Steve Perlman............. 64 | Elijah Miller............... 16 |
| 4) | Ellis Bray..................... 950 | Bill Hodes............... 130 | Bill Julian..................... 60 | Richard Heinz........... 16 |
| 5) | Woody Woodworth......... 912 | Bill Gheen................. 126 | Wendy Kaplan............. 60 | Lance Jenkins........... 16 |
| 6) | Don Woods.................. 896 | Janice Newman...... 126 | Dave Cardwell.............. 50 | Jamie Curtis.............. 15 |
| 7) | Mary Ann Meese........... 776 | Peter Kalba............ 116 | Bob Koca.................... 48 | Ralph Stowell........... 10 |
| 8) | Sean Garber................ 682 | Rick Reahard ......... 110 | Reggie Porter.............. 32 | Paul Ruterman......... 10 |
| 9) | Dave Groner................ 636 | Scott Richardson....... 96 | Bud Maniac................. 30 | Stephen Maas.......... 10 |
| 10) | Gabe Stiasny............... 608 | Brian Nelson............. 88 | Tom Helt...................... 30 | Alice Gerard............. 10 |
|  | Jan Gurvitz.................. 483 | Stan Gurvitz.............. 86 | Fred Badagnani........... 30 | Dave Williams........... 10 |
|  | Neil Ezell..................... 320 | John Brussel............. 84 | Jon Stephens.............. 20 | Dave Fey................. 10 |
|  | Chuck Bower................ 318 | Karen Davis.............. 84 | Jim Painter.................. 20 | Carol Falk................ 10 |
|  | Jim Curtis.................... 278 | Randall Witt.............. 80 | Bob Cassell................. 20 | Art Overbay.............. 10 |

## Internet...continues

You must login, but since it's open to the public, the login procedure is straight forward. When the remote computer asks for your login name, type anonymous or ftp. When the remote computer prompts you for your password, enter your e-mail address. If the system suggests guest as password, type guest instead.

You will need a few commands to move around the computer site, list and download files.

Command
Function
change directory
list files in current dir
download file
print working directory

After you login, you will have to move to where the files are located. The computer site separates/organizes files into directories. Mark Damish has placed the matches in a directory seven directories deep. Below is the complete path to get to the matches:
/pub/users/damish/backgammon/bg-matches/fibs
To make sure you are in the right directory, you can use the nlist or pwd (short for print working directory) commands. nlist will list the directories and files in the
current directory and pwd tells you which directory you are in. Before you start downloading, run the command binary. This will insure the correct downloading mode.

In the directory /fibs, there are two more directories: /ml_vs_jf and /Big_Brother. The /ml_vs_jf directory contains the matches of mloner against idiot (JellyFish). In the /Big_Brother directory are the general matches recorded during August, September and October by Big_Brother, one file for each month.

That is the good news...the bad news is that most of the files are in a Unix format. The Unix files are not always compatible with the personal computer (PC). Unix allows for filenames as long as 255 characters. And if two Unix files have the first 8 characters alike, you may have problems trying to unpack them to DOS (PC).

To make it easier for PC users to get access to the files without any problems, I have downloaded the files and renamed them for DOS. There is one file for each match. The files for each month are packed together and compressed into one file which saves disk space and download time. For example all the files for August are in a file named: aug95.exe. After downloading the Big_Brother matches, you need to move to the $\mid \mathrm{ml} \_$vs $\mathbf{j} \mathbf{j}$ directory. You will then have to back up one directory by typing in co .. (that is dot dot).

| $1 s t$ | September 6th | September 13th | September 20th | September 27th |
| :---: | :---: | :---: | :---: | :---: |
| 2nd | Mary Ann Meese | Butch Meese Mary Ann Meese | Larry Strommen Chuck Stimming | Butch Meese <br> Jim Curtis |
| 2nd | (s) Larry Strommen | Mary Ann Meese | Chuck Stimming | Jim Curis |
|  | October 5th | October 12th | October 19th | October 26th |
| 1st | Sean Garber | Larry Strommen | Jim Curtis | Jim Curtis |
| 2nd | Janice Newman | Chuck Stimming | Bob Koca | Janice Newman |
| 2nd | Larry Strommen | ... | Butch Meese | Butch Meese |

## 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

After you have downloaded the files to your PC, type the filename and the file will automatically unpack into the current directory. Make sure you have enough disk space. All the files will unpack for a total of over 3 megabytes. There are two files of interest; 1) read.me with information on reading the files and 2) match.Ist with information on the players and match length.

If you do not have Internet access and with permission from Mark Damish, I will make the matches available to anyone you wants them, either set or both. There will be charge for disks and postage: $\$ 3$ for 100 mloner-Jellyfish matches, $\$ 7$ for 800 Big_Brother matches or $\$ 10$ for all. You will receive one disk for the mloner vs idiot matches and three disks for the Big_Brother matches. Make the check payable to Hoosier Backgammon Club. For overseas order, please add \$2.

A sample of a game format is below:

| Score is $0-0$ in a 5 point match <br> idiot is X - mloner is O <br> O: (3 1) 8-5 6-5 <br> X: (4 3) 12-16 1-4 <br> O: (2 1) 24-23 6-4 <br> X: (64) bar-4 4-10 <br> O: (1 1) bar-24 24-23 23-22 23-22 <br> X: (5 4) 10-15 12-16 <br> O: (3 3) 24-21 21-18 18-15 13-10 <br> X: (2 2 ) bar-2 1-3 19-21 19-21 <br> O: (3 5) 15-10 13-10 <br> X: (3 3) 12-15 17-20 17-20 17-20 <br> O: (2 4) 13-11 10-6 <br> X: (64) 3-9 15-19 <br> O: (6 6) 10-4 10-4 8-2 8-2 <br> X: (46) can't move <br> O: doubles <br> X: rejects <br> O: wins |
| :---: |

If you download the matches, please send a thank you email to Mark Damish (damish@II.mit.edu) for his work in providing the matches. Check the site from time to time, Big_Brother is watching and recording matches every day. New matches will be uploaded each month.

# Is Mike Fujita Jellyfish? 

continues...
relate the particulars; they are too painful. After I got gammomed, which evened the score, I went on to lose the match. I became one more lifeless victim washing up on shore, much like the trail of hapless bodies Mike left littering the playing room in Monaco.

Back home, as an exercise in masochism (Look, Jelly, at what they did to your daddy while he was out of town!) I fed the position to my Jellyfish program, and
waited eagerly to hear how wrong Mike's play was. I'm still waiting. Jellyfish claimed, after 1296 rollouts each way that Mike's play was better. In money play it gives the deuce-point an equity of -0.543 but the three-point an equity of -0.478 (a money take). Of course, we are not so interested in money equities. At this score the cube was not moving even if Mike had played 6-4, 5-4, 23-22!

Cubeless, Jellyfish still prefers Mike's
play: -0.545 to -0.603 . The exact figures are:

| 3-pt play | $\frac{\text { Wins }}{26.9 \%}$ | $\frac{\text { GorBG }}{2.7 \%}$ | BG |
| :---: | :---: | ---: | :--- |
| Mike | $\frac{0.0 \%}{2.9 \%}$ |  |  |
| Jake | $73.1 \%$ | $10.7 \%$ | $0.2 \%$ |
| 2-pt play | $\frac{\text { Wins }}{}$ |  | GorBG |
| Mike | $25.3 \%$ | BG |  |
| Jake | $74.7 \%$ | $14.3 \%$ | $0.1 \%$ |
|  |  |  | $0.5 \%$ |

Why is Mike's play better? Two reasons, I suspect. After playing 1-1, Mike is only trailing by $15 \mathrm{pips}, \| 8-103$. The 3-point gives him better chances to convert to a race. Also, when Mike hits from the 3 -point, his hits come earlier. He is running out of time, and can't wait long enough for the late hits generated by the deucepoint. What about the immediate shots? Almost all involve hitting from the bar-point which leaves him the problem of escaping those men from the deuce cubeless, these shots are not as fearsome as they seem.

All this was pretty depressing however, I wasn't wearing my Does anal retentive have a hyphen? sweatshirt for nothing! I used the above numbers to calculate Mike's net match equity after each play. Ha! Ha! Who's laughing now? It turns out that Mike's play gives me $84.68 \%$ match equity, whereas keeping the deuce yields only $84.22 \%$. A whopping $0.46 \%$ match equity rewards the correct play!

Why does all this convince me that Mike Fujita must lurk behind the mask of Jellyfish? Consider firsts he makes a winning play that only a Jellyfish would find. Second, the play is actually not better at match play Jellyfish is weakest at match equities. Finally, both Jellyfish and Fujita contain a $\boldsymbol{J}$ an $\boldsymbol{F}$ and an $\boldsymbol{I}$ and both are commonly found along the Pacific coast. Only one conclusion can be drawn: we have a rogue coelenterate on our hands! All you intermediate swimmers out there - if you spot this creature, do not attempt to engage him in a match. He is too tricky and dangerous! Leave him to the experts they know enough to fear his sting.

Hoosier Pips: HBC wishes all our friends all over the world a very Happy Holiday season and wishes for a prosperous New Year...Out of town visitors for October were Bob Koca (PA) and
 Jay Ward (IL).

## 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 TDGammon'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. TDGammon 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 5 Continues...

TD-Gammon: Equity of +0.402 , moderate volatility. Just barely worth a double, but it is there.

## Black Takes.

Kit: Easy take. Plenty of shot hitting and race potential, with little gammon danger. No question about this one.

Jeremy: I suppose so. The way most experts would analyze this is by comparing it to the more familiar reference position where the two outfield points are the 13 and eight points rather than the 14 and seven points. That position would be a close take, and this position looks slightly better for Kit. The open five point is a big problem, though.

TD-Gammon: Not all that big a problem, Jeremy. The equity is only -0.402 , largely due to the racing potential. As Kit said, easy take. Once again, well done guys. I always hated 1-cubes anyway.

Black (Kit) to play 22?

White (Jeremy) to play 55?


Black (Kit) to play 41?


13/9 6/5
TD-Gammon: My algorithm gave me $8 / 4,6 / 5$ as the best play, but I'll admit that it is hard to see how that can be right. This sort of position just ain't my strong suit. I'd stick with the experts on this one if I were you.

| $8 / 4,6 / 5 \ldots \ldots \ldots \ldots \ldots . .-0.734$ |
| ---: |
| $6 / 1 \ldots \ldots \ldots \ldots \ldots . .-0.752$ |
| $13 / 9,6 / 5 \ldots \ldots \ldots \ldots$ |



Kit: Pays off to 6-6, but otherwise follows the principles of clearing from the back and keeping buffers on the six point to handle future awkward rolls. I agree -this is better than 6/1, 4/3.

Jeremy: Although it looks awkward, I think it's right. I want to clear the nine point so I need to strip it first. It only leaves a shot on 6-6.


13/11 9/5 8/6
Kit: $13 / 5$ is probably equally good.
TD-Gammon: | still do strange things here. I get 9/5, 8/4 as best, which doesn't make much sense.


Jeremy: I can't see any reason not to put a checker on the two point for the race.

TD-Gammon: | got $6 / 1,3 / 2$ as best. I won't even try to justify such apparent silliness.

TD-Gammon: I must agree.

| $9 / 3 \ldots \ldots \ldots \ldots \ldots+0.728$ |
| ---: |
| $6 / 1,4 / 3 \ldots \ldots \ldots+\ldots+0.690$ |
| $7 / 6,7 / 2 \ldots \ldots \ldots .+2$ |


| $6 / 1,3 / 2 \ldots \ldots \ldots \ldots+0.712$ |
| :---: |
| $9 / 4,3 / 2 \ldots \ldots \ldots \ldots+0.695$ |
| $7 / 6,7 / 2 \ldots \ldots \ldots+0.689$ |

Black (Kit) to play 62?

20/12


TD-Gammon: Once again, I seem to have this thing about moving the spare to the four point. Doesn't make much sense, does it.

| $20 / 14,6 / 4 \ldots \ldots \ldots \ldots . .0 .720$ |
| ---: |
| $11 / 5,6 / 4 \ldots \ldots \ldots \ldots \ldots .0 .732$ |
| $20 / 12 \ldots \ldots \ldots \ldots .0 .744$ |



Black (Kit) to play 52?


12/7 11/9
Kit: $12 / 5$ is probably a bit better, since it brings a builder inside to the ideal place. It can't be a big deal.

TD-Gammon: I have Kit's actual play much worse than $12 / 5$, which is strange. Stranger still, I have running with 20/15, 6/4 (the famous shift to the four point) tied for first. Seems weird. How can running be right?



TD-Gammon: I have 7/6(3), 2/1 a bit better. Oh well, I never did understand this bearing off concept anyway.

| $7 / 6(3), 2 / 1 \ldots \ldots \ldots+0.826$ |
| :---: |
| $7 / 6(3), 3 / 2 \ldots \ldots \ldots+0.818$ |
| $7 / 6(3), 4 / 3 \ldots \ldots \ldots+0.817$ |

Black (Kit) to play 61?


9/3 6/5
Kit: It is probably better to start the ace point now with $9 / 8,7 / 1$. I won't want to be leaving with one checker next turn, so I should be prepared to make the full closed board. Again, not a big deal.

Jeremy: Why not start the ace point? I can't leave a shot next roll.

TD-Gammon: I came up with 9/3, 7/6. Looks like I am worried about the gammon. Seems pretty paranoid, doesn't it.


Kit: This is a strange oversight. Obviously Jeremy should play 6/1, 4/0, which not only takes a checker off but keeps even on the six point. The actual play risks leaving a shot on 6-6 and 5-5 next turn. Quite possibly he didn't see the number of checkers he had on the six point. This kind of error is common on FIBS.

Jeremy: Blunder. Obviously 6/2, $4 / 0$ is better because it doesn't leave shots on 6-6 and 5-5. I think I simply miscounted.

TD-Gammon: Yep, Jeremy's move was pretty silly. My new special bearin algorithm kicks in here, and shows that to be the case.

Black (Kit) to play 51 ?

$7 / 1$
Kit: I must keep both checkers on the anchor as long as I can do so conveniently. I don't want Jeremy blowing me away with $1-1$. I will not crunch my board in order to hold the anchor, since I need a strong board to contain a shot if I hit one. Similarly I will run with one checker if the gammon starts to get close. Here there is little gammon danger, so it is proper to hold the fort one more roll.

TD-Gammon: | get that running is a wee bit better. I guess I'm still worried about that freak gammon.

| $20 / 15,7 / 6 \ldots \ldots \ldots \ldots . .0 .860$ |
| ---: |
| $7 / 1 \ldots \ldots \ldots \ldots \ldots .-0.863$ |
| $7 / 2,3 / 2 \ldots \ldots \ldots .$. |



Jeremy: I come to my senses and even out.

Black (Kit) to play 44 ?


Kit: It is clear to hang back with one checker. The race is pretty hopeless, and I just could get a shot. I risk getting pointed on or picked and passed, but all things considered that may not be so bad for me -- I have better chances of getting a shot if I am on the bar. However I think 20/8, 5/1 is slightly better. My actual play is best for the race, but making the ace point and keeping one checker outside gives me the option of staying put if I roll a six next turn. Since hitting a shot appears to be my best chance, this looks like what I should have done.

Jeremy: Interesting. Why not 20/8, $5 / 1$ ? Kit sees that he won't be getting shots next roll and coming to the four point is better for the race. Why not get four crossovers with 20/16(2)? Because staying on the 20 point keeps me from playing my aces to cover the hole. Looks right, but I'm sure the plays are close.

TD-Gammon: I found Kit's actual play to be better, but once again I don't think these results can be trusted very much.

| $20 / 4 \ldots \ldots \ldots \ldots . .0 .801$ |
| ---: |
| $20 / 8,5 / 1 \ldots \ldots \ldots .0 .826$ |
| $20 / 16,20 / 8 \ldots \ldots . .0 .826$ |

White (Jeremy) to play 64?


Kit: Another double jeopardy situation. This time, however, it is clear to take two checkers off rather than play $6 / 2$, $6 / 0$. First of all I am unlikely to be able to hang around for two turns without crunching my board, so the next roll is key, and Jeremy's play leaves fewest shots next turn. Secondly the race is not entirely gin. I do have some racing chances, so taking a checker off could be important. Both of these factors argue for Jeremy's play.

Jeremy: Back to double jeopardy. This time Kit will be leaving in the next two rolls, so I make the play that is safest immediately rather than cumulatively.

Black (Kit) to play 33?


20/8
Kit: Staying back for the unlikely shot and crunching my board seems pretty hopeless, since even if I hit the shot I may not win. My racing chances are better after this roll, so that appears to be the route to take.

Jeremy: The chances of hitting are $2 / 36$ ( roll $6-5$ ) times $1 / 3$, or $1 / 54$. He then has to win from there with his six point open. His racing chances look much better.

White (Jeremy) moves 6/0. 4/0 with 64. Black (Kit)moves 8/5, 6/0 with 63.

Kit: Putting a third checker on the two point with $8 / 2,3 / 0$ didn't seem too productive. My play makes $5-5$ play better next turn. Since I need some miracles anyway, why not play for them.

White (Jeremy) moves 3/0, 2/0 with 32. Black (Kit) moves 5/0, 3/0 with 53.
White (Jeremy) moves 6/0, 2/0 with 62. Black (Kit) moves $5 / 0,4 / 0$ with 54.
White (Jeremy) moves 6/0 3/0 with 63. Black (Kit) moves 6/0 4/0 with 64? White (Jeremy) moved 4/0, 4/0 with 64. Black (Kit) moves $3 / 0,2 / 0$ with 32 ? White (Jeremy) moved 4/0 2/0 with 52.

## Jeremy Bagai wins 2 points.



Black (Kit) to play 43 ?


24/21 13/9
Kit: Once again, I like this split better than $13 / 10,13 / 9$ in response to a made five point. I can use his four point for an anchor badly, and right now he doesn't have the ammo with which to attack. If I delay splitting just one roll, the builders come down from the midpoint and then splitting will be too dangerous.

Jeremy: A little surprising. I would have thought the match score would prompt Kit to play 13/10, 13/9 trying for a prime versus prime game where the prevalence of gammons would give him more menacing threats. His actual play looks right for the player who is leading in the match and wants simple games where the cube actions are clear. Kit must think his play is simply stronger than $13 / 10,13 / 9$. I think the two plays are about equal so I would bring two checkers down.

TD-Gammon: If Kit's reason for making his play is that it simply is the better play, he is right. Going after the advanced anchor quickly here is very important.
$24 / 21,13 / 9 \ldots \ldots . . . . . .-0.205$
$13 / 10,13 / 9 \ldots \ldots \ldots . . .0 .240$
$13 / 6 \ldots . . . . . . . . . . . . . . . .281$


Black (Kit) to play 32?


B/23 24/21
White (Jeremy) to play 63?


Black (Kit) to play 31?


8/5 6/5


Kit: An interesting problem. Jeremy's play is certainly the natural looking one, but I'm not so sure it addresses the position. He is miles ahead in the race, but I have an anchor on his four point. This indicates that a priming approach won't work -- I should have sufficient timing if I can contain his back checker. After his play his position is very stripped. Now let's look at 24/15, $13 / 10$. This is great if he isn't hit. He will have escaped all his checkers and will have a big racing lead -- enough to claim with the cube or be very close to a claim. If he is hit it isn't so great, but he is still in pretty good shape. The one big argument in favor of Jeremy's play isn't so much that it makes a new blocking point for a prime, but the bar point is now a landing place for his checkers in the future. This of course assumes that he will be able to escape the back checker -- if he can't, that landing place won't to much good. It's an interesting position and making the bar point could easily be right, but 1 would play $24 / 15,13 / 10$.

TD-Gammon: Sorry Kit, but your play just doesn't rank in the top three. Looks like making the board improvement is more important. However there is plenty of value in getting the back checker going somewhere and the three point isn't chopped liver, so I like 24/21, 13/10, 6/3(2).

$$
\begin{array}{r}
24 / 21,13 / 10,6 / 3(2) \ldots+0.377 \\
24 / 18,6 / 3(2) \ldots \ldots \ldots+0.374 \\
13 / 7(2) \ldots \ldots \ldots .+0.368
\end{array}
$$

Black (Kit) to play 54 ?


13/9 13/8


Jeremy: I have a five-prime, but it's no big deal agains Kit's advanced anchor. A double would be premature -especially at this match score where Kit will be very quick to recube. Overage is the issue here. I can't use all four points of a four-cube, while Kit certainly can. I also won't have the usual luxury of being able to redouble to eight if things go well.

TD-Gammon: Equity is +0.409 , and volatility is relatively low. Not even a money double.
Black (Kit) to play 43 ?


13/10* 13/9
White (Jeremy) to play 51?


Kit: Jeremy must risk getting hit with a 5-4. Dumping a checker onto the ace point here is very bad.

Jeremy: I should give some thought to the anti-positional $B / 24,6 / 1$ in order not to get hit with Kit's 5-4. But Kit's 5-4 plays very well anyway (makes his four point), so I make the more flexible play.

TD-Gammon: Just examining going to the ace point almost caused my program to crash.

| $B / 24,13 / 8 \ldots \ldots \ldots .+0.339$ |
| :---: |
| $B / 24,6 / 1 \ldots \ldots \ldots+0.246$ |
| $B / 24,10 / 5 \ldots \ldots \ldots+0.171$ |

Black (Kit) to play 44 ?


8/4 8/4 6/2 6/2


Black (Kit) to play 33 ?


B/22 9/6 9/3


Kit: This is obviously a huge double. Jeremy has four of my checkers trapped, and he is well placed to bring the position home safely. He doesn't have many gammon chances, but he is a big favorite to win. The match score shouldn't stop him from doubling positions like this one.

Jeremy: The match score shouldn't paralyze me!

TD-Gammon: No kidding. This is a monster double.

Black (Kit) Drops.
Kit: It just isn't worth it. I'm not hopelessly behind in the race, but I would have to roll very well to make it a race. If I can't escape one of the back checkers quickly while still holding the advanced anchor my position will fall apart. I'm not likely to get a shot, and I may not be ready for the shot even if I do get one. While I would have big recube leverage available due to the match score, I simply don't have sufficient winning chances.
Jeremy: Clear drop for money; Kit's position stinks. I won't be leaving shots for a long while, and he may be crashing in two rolls. What does the match score do to this?

The numbers look like this: If Kit takes and wins the score is tied, so his chances of winning the match are $50 \%$. If he passes he needs five points while I need two, and the associated winning chances are 25\%. If he takes and loses he needs five and I need one,
which puts him at 15\%. (these numbers come from a match equity table which you would need to memorize in order to do this sort of thing.) That means that by taking he would risk 10\% (the difference between $15 \%$ and the $25 \%$ he would have by passing) in order to gain $25 \%$ (the difference between passing and winning.) $10 \% /(10 \%+25 \%)=28.6 \%$ which is the raw game winning chances Kit needs in order to take this double. It can be instructive to see how this logic works for money games: Taking a two-cube and winning earns you two points. Dropping a two-cube loses you one point. Taking and losing loses you two points. Your risk is one point, and your possible gain is three points. $1 /(1+3)$ gives you $1 / 4$, or the familiar $25 \%$ which you need to take a normal double (assuming no gammons). But this is only halt the story, $28.6 \%$ is the raw winning chances that Kit needs. Kit $\overline{c a n}$ win the game another way -- with a recube. It turns out that Kit's recube is particularly powerful. When Kit redoubles to 4, my take point is $33.3 \%$, which is pretty high. I also won't be able to recube to 8 because I only need 3 points. (It is usually on recube considerations that you get the intuitive result that the player behind in the match should be aggressive, while the player ahead in the match should be conservative.) So you have to integrate his high take point with the power of his recube. How to do this is a matter of some controversy. If this all seems a little esoteric, it is, but serious players need to master it. A great place to learn it is Kit Woolsey's How to Play Tournament Backgammon, which is all about match score considerations.

In the current position none of this really matters. Kit's position stinks. He passed in an eye-blink, as I recall.

TD-Gammon: Kit's position sure does stink. I make the equity -0.709 , surely not enough to take even at this match score. Once again your cube action has been flawless.

## Jeremy Bagai wins 1 point.



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