# COMPUTER CHESS DIGEST ANNUAL

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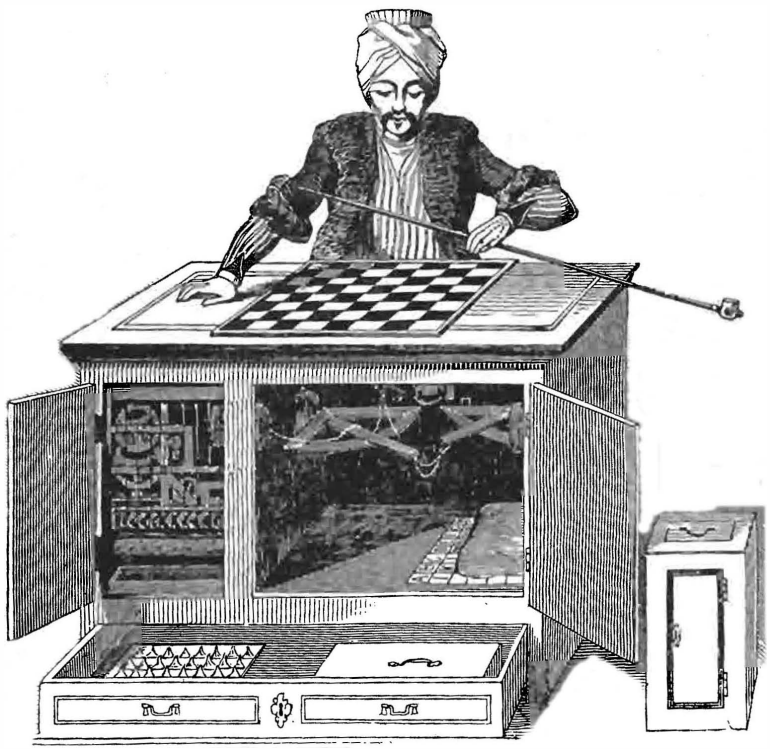

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# Editorial

Independent, accurate and comprehensive information on commercially available chess computers is what this publication is all about.

How many times have you heard or read hyperbolic statements and inflated ratings about a given machine that later on failed to live up to your expectations? The answer is: too many.

Because it was to the advertiser's commercial advantage, real proof of their claims has been generally avoided.

The publication of articles intended to guide the consumer have normally failed to do so, for they didn't provide the data on which their opinions were based, even if we assume they had enough data on which to base an opinion.

The general state of affairs is best exemplified by a recent article that defined as "fish" all chess computers. Probably its author didn't realize that, by implication, he was also talking about some 90% of USCF members, weaker than today's best microcomputers. More important is what this statement reveals: a strong prejudice and lack of rational approach to these fascinating devices that just happen to be also chessplayers.

By publishing reviews, news, and comparative information about all chess computers in the market, we intend to share our findings with everyone interested in this field and also to orient the person who is trying to decide between the number of machines that today play "real chess," as opposed to clever toys, "piece-movers," that won't be even considered here.

We anticipate that this publication will carry, in forthcoming issues, a number of letters to the editor and comments from manufacturers and programmers alike that will provide us with the much-needed feed-back information to diversify and orient our content.



# The Tournaments

The machine vs. machine tournaments that include a quantity of games sufficient to ensure statistical accuracy provide conclusive proof of their relative playing strengths. There has been unsubstantiated speculation that the computers might perform differently vs. computers than vs. humans. In my opinion, the performance should be equivalent if the total number of games played per match is large enough to be statistically accurate and if the tournament includes machines of various playing styles. The validity of this approach, initially a working hypothesis, appears to be confirmed by:

1) Results of the test submitted to Danny Kopec, who failed to identify humans and computers in the 10-game test, and who to a larger degree failed to specify major differences between computers and humans rated under 2000.
2) Ratings obtained from the machine vs. machine tournaments, which approximate USCF ratings in the case of the two microcomputers (SC9 and Prestige) that recently participated in human tournaments. The discrepancy between Elite's rating vs. machines and Elite's USCF rating can be attributed to the fact that the latter was based on games against only three human players, a condition which places the result beyond the boundaries of statistical accuracy. Under similar conditions, Sargon 2.5 deserved an Initial USCF rating of 1700 that finally dropped to 1484.

How many machines should participate in a tournament, and how many games per match should be played?

The first tournament included all of the commercially available chess microcomputers that I thought might be able to play at or above the 1600 level. The second tournament included the two highest-scoring machines from the first tournament (Elite and Scisys Mk V), plus all new machines able to play above 1600 that arrived in time to play.

I decided to make the matches 10 games each. A lesser number seems to be statistically inaccurate, as shown by the extreme but not atypical case of the Mephisto-SC9 match, in which Mephisto won the first half 4-1 and lost the second half 0-5. In other words, a number less than 10 could give a false result. A larger number of games is theoretically desirable but probably unnecessary. In a 24-game match between Champion and Great Game Machine the partial results were 5-5,5-5, and 2-2, totaling 12-12; that is, the result in 10 games was the same as in 24. I don't mean to say that this would always happen, but it seems to indicate that 10 games per match is sufficiently accurate. In addition, to play more games per match would not have been practical given the time limitation. I would also like to point out that the relative rating differences obtained after 40 games per machine are, according to Professor Elo's research, better than 99% accurate.

Finally, the participating machines have been obtained in the most part through regular commercial conduits. In the cases where the companies have been kind enough to send me machines for testing, other machines of the same models have been obtained through a dealer In order to verify that the former are strictly production-line, commercially available models.

And here are the results of the tournaments, played with a time control of 40 moves In 2 hrs:

**WINTER '81 TOURNAMENT (40/2)**

| | Elite | Mk V | Champion | GGM(1) | Savant | Total | % |
|---|---|---|---|---|---|---|---|
| **Elite** | — | 5½ | .7 | 9½ | 8½ | 30½ | 76% |
| **Mk V** | 4½ | — | 7½ | 4 | 3½ | 19½ | 49% |
| **Champion** | 3 | 2½ | — | 5 | 8 | 18½ | 46% |
| **G.G.M.(1)** | ½ | 6 | 5 | — | 4½ | 16 | 40% |
| **Savant** | 1½ | 6½ | 2 | 5½ | — | 15½ | 39% |

(1): with "Master trio", including latest updates.

**FALL '82 TOURNAMENT (40/2)**

| | Prestige | Elite | Mephisto | S.C. 9 | Conchess (1) | Mk V | Total | % |
|---|---|---|---|---|---|---|---|---|
| **Prestige** | — | 5½ | 7 | 9 | 2½ | 8½ | 32½ | 74% |
| **Elite** | 4½ | — | 5 | 6 | 4 | 5½ | 25 | 57% |
| **Mephisto** | 3 | 5 | — | 4 | 1½ | 9½ | 23 | 52% |
| **S.C. 9** | 1 | 4 | 6 | — | 3 | 5½ | 19½ | 44% |
| **Conchess (1)** | 1½ | 0 | 2½ | 1 | — | 3 | 8 (1) | 40% |
| **Mk (V)** | 1½ | 4½ | ½ | 4½ | 1 | — | 12 | 27% |

Based on USCF ratings for Sargon 2.5, Champion, SC9, Elite, and Prestige, the ratings obtained after these two tournaments are as follows:

| | | | | | |
|---|---|---|---|---|---|
| Prestige | 1952 | 1875 | Champion | 1640 | 1674 |
| Elite | 1854 | 1801 | Mk V | 1635 | 1671 |
| Mephisto | 1811 | 1751 | G.G.M. | 1600 | 1653 |
| SC9 | 1759 | 1737 | Savant | 1592 | 1651 |
| Conchess | 1722 | 1694 | | | |

THE FULL LISTINGS OF ALL GAMES PLAYED IN THIS TOURNAMENT APPEAR IN THE GAMES SECTION.

There are interesting comparisons between the two tournaments. In the first place, the comparative results of Elite and Scisys Mk V indicate a considerably higher average strength in the latest one. That is, in a 12-month period the chess microcomputers have been improved by some 150 points, 1750 being as common today as 1600 was a year ago.

In the second place, and as importantly, we can observe the fact that the new microcomputers are no longer the product of the "brute-force" school, in which speed is the first priority. (Elite, the brute-force champion, had dominated the first tournament.) The point is not only that the average strength of Prestige, Mephisto, SC9 and Conchess is significantly higher than that of Elite, Mark V, Champion, Great Game Machine and Savant, but they also pay much more attention to relevant positional factors, providing a more interesting, more active, and, finally, more fun game.

It's interesting to observe that this more "human-like" approach to chess programming has been achieved at the expense of the sheer speed of a given program. By emphasis, using the same 6502 microprocessor running at an identical 4 MHz. clock speed, Prestige is significantly slower than Elite. It's also interesting to note that the performance of Scisys Mx V seems to be directly proportional to the passivity of its opponent. In fact, it won only one match, defeating the most passive (and in my opinion also most boring) of the abovementioned microcomputers, while doing very poorly vs. the most active ones, Mephisto and Prestige.

Another interesting question remained to be answered. Because many chess computer owners play with their machines at a speed other than 40/2, it would seem to be important to check the performance at different time controls. The initial hypotheses were that the relative strengths of the computers would remain unchanged, and that the following general rule of thumb would be confirmed: A decrease in the computing time by a factor of 4 equals a decrease in strength of 200 points. As it turned out, neither is necessarily correct.

(1) Due to limitations in its opening book, Conchess played only 4 game matches.



**AT 30" PER MOVE**

| | Elite | Champion | G.G.M.(1) | Mk V | Savant | Total | % |
|---|---|---|---|---|---|---|---|
| **Elite** | — | 5 | 7½ | 7½ | 7½ | 27½ | 69% |
| **Champion** | 5 | — | 4½ | 6½ | 7 | 23 | 57% |
| **G.G.M.(1)** | 2½ | 5½ | — | 5 | 6 | 19 | 47% |
| **Mk V** | 2½ | 3½ | 5 | — | 6 | 17 | 42% |
| **Savant** | 2½ | 3 | 4 | 4 | — | 13½ | 34% |

(1) with "Master Trio", including latest updates

**AT 10" PER MOVE**

| | Elite | Champion | Savant | GGM(1) | Mk V | Total | % |
|---|---|---|---|---|---|---|---|
| **Elite** | — | 8½ | 7½ | 6½ | 10 | 32½ | 81% |
| **Champion** | 1½ | — | 6½ | 5½ | 5½ | 19 | 47% |
| **Savant** | 2½ | 3½ | — | 6 | 6 | 18 | 45% |
| **GGM(1)** | 3½ | 4½ | 4 | — | 5½ | 17½ | 44% |
| **Mk V** | 0 | 4½ | 4 | 4½ | — | 13 | 32% |

(1) with "Master Trio", including updates

In the case of the Mk V, it simply happens that the program has been optimised for an average of 3 min/move, with the additional handicap in playing speed chess that it will use its first 4 to 6 seconds to examine captures and checks without looking at anything else in the position. Also, at least in the case of Elite and Champion, it seems that odd plies added to the full-width search are much more significant than even plies. In the middle-game, Elite looks ahead typically 5 ply at 40/2, almost 4 ply at 30 sec/move, and 3 ply at 10 sec/move, while Champion looks ahead approximately one-half ply less at each level. This odd/even ply difference seems to be the only explanation to the fact that Elite's relative performance at 10 sec/move and at 3 min/move was much better than at 30 sec/move, while just the opposite was true for Champion.

In conclusion, it seems to me that, when choosing a chess computer, a potential buyer might want to keep in mind the performance of the various machines at his favorite time control. I am planning some tournaments with Prestige, Mephisto, SC9, Conchess, Steinitz, Savant Royale, and Philidor at various speeds. Time considerations have prevented me from doing so for the current publication.

E.I.

# Humans/Machines: A Comparison and A Test

What makes a chess computer not only fun but also fascinating is its potential for artificial intelligence, the way a machine duplicates, or tries to duplicate, the human process or thinking, or, better yet, the way a computer achieves a given goal using means other than human ones. If they only could learn from experience!

It has been said, in a way with good reason, that the basic difference between humans and machines, when it comes to playing chess, is the latter's inability to formulate long-term, relevant strategies which necessarily derive from a process of analysis and abstraction that today seems to belong exclusively to human thinking. But it also happens that this specific difference is the one that separates great chess players from mediocre ones and not just from chess computers.

It has also been said that computers lack "creativity" and "imagination," terms that belong to the descriptive, sometimes poetic, language, and not to the analytical or scientifical one, tending to confuse rather than clarify the problem.

Anyway, even if convinced that there are dissimilarities between the way humans and chess computers play chess, I thought it would be interesting to try to formulate them in a specific way and to see how well an expert in chess and in the chess computer field would do in a test consisting in: 1) identifying the players of a given game as human or as computer, and 2) specifying and explaining after these games which characteristics differentiate between human chess and computer chess.

For the purpose of the test I selected 10 games, and provided the following information: 1) Some games were computer vs. computer; some were human vs. computer; none were human vs. human. 2) All the humans were officially rated between 1720 and 1916, i.e. similar in strength to the microcomputers in the test.

Then I selected Dr. Danny Kopec because he is a strong chessplayer (2430), his Ph.D. is in artificial intelligence, and he has been involved with chess computer programming and research for over 10 years. It's difficult to imagine anyone who would be better qualified for the purposes of this experiment. I should add that Dr. Kopec was delighted to participate in a test that, using his words, "is going to be fun and very easy to solve."

And here are the games and the results of such an "easy to solve" experiment:

**SYMBOLS:** !? an interesting move; ! a very good move; ? a mistake
?! a dubious move; ?? a blunder; !! an excellent move
W: White B: Black

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**GAME 1**

Nimzo-Indian Defence (Irregular)

Guess: White: Human Black: Computer

This game is featured by irregular Opening play by both sides (4.F2F3, D7D5; 9. ...C8D7). All in all White's play is quite consistent and humanlike to the point that the finish from 20.D3G6 + is so efficient as to suggest that it might be a computer program playing. B is definitely a computer program. Development is carried out for the sake of development (9. ...C8D7?!, and then 11. ...B7B6, 12. ...E7C5) and then the great weakening of the K-side with 14. ...F7F6 was typical of computer play.

| | WHITE | BLACK | |
|---|---|---|---|
| 1. | D2D4 | G8F6 | |
| 2. | C2C4 | E7E6 | |
| 3. | B1C3 | F8B4 | |
| 4. | F2F3 | D7D5 | Preferable was 4. ... C7C5 |
| 5. | A2A3 | B4E7 ? | This allows White an uncontested, massive center. |
| 6. | E2E4 | D5xE4 | Black had to try 5. ...B4xC3 + to prevent E2E4. |
| 7. | F3xE4 | C7C5 | |
| 8. | G1F3?! | | White should play 8.D4D5 not allowing his P's to be split. Black should swap Q's (9. ...D8xD4 or 9. ...B8C6) with a good ending due to White's weak K-pawn. |
| | | C5xD4 | |
| 9. | D1xD4 | C8D7 | |
| 10. | F1D3 | B8C6 | |
| 11. | D4F2 | B7B6?! | Black should play 11. ...F6G4! and answer 12.F2G3 with G4E5 since 12.F3xE5? is met by E7H4 winning the WQ. |
| 12. | E4E5 | E7C5 | |
| 13. | F2H4 | F6G8 | |
| 14. | C1G5 | F7F6?! | Black should try 14. ...D8B8. The text is too weakening. |
| 15. | E5xF6!? | | White could also play 15.H4H5 + E8F8 16.H1F1 with strong attacking chances. |
| | | G8xF6 | |
| 16. | C3E4 | C5E7 | |
| 17. | 0-0 | B6B5? | In a very difficult position, Black loses immediately. White finishes very effectively with 20.D3G6 + . From 11.D4F2 White's play was very good. |
| 18. | E4xF6 + | E7xF6 | |
| 19. | C4xB5 | F6xG5 | |
| 20. | D3G6 + | H7xG6 | |
| 21. | H4xH8 + | E8E7 | |



| | | |
|---|---|---|
| 22. | H8xG7 + | E7D6 |
| 23. | A1D1 + | D6C7 |
| 24. | B5xC6 | G5E3 + |
| 25. | G1H1 | C7xC6 |
| 26. | F3E5 + | Resigns |

**GAME 2**

Sicilian Defence - Richter Rauzer Variation

Guess: White: Computer Black: Computer

White's play is computerlike due to the excess of Q-moves (13.D2H6, 15.H6H5 and the exchange sacrifice 16.H5xF7! is beyond the normal ability of a human of first category strength. Black is almost certainly a computer, as he plays without a plan. This is also revealed by Black's decision to take W's P/e6 rather than to defence his P/a6 on move 24. (Computers often consider advanced P's very valuable relative to others). The game concludes with a nice and precise mating attack.

| | WHITE | BLACK | |
|---|---|---|---|
| 1. | E2E4 | C7C5 | |
| 2. | G1F3 | D7D6 | |
| 3. | D2D4 | C5xD4 | |
| 4. | F3xD4 | G8F6 | |
| 5. | B1C3 | B8C6 | |
| 6. | C1G5 | E7E6 | |
| 7. | D1D2 | A7A6 | |
| 8. | 0-0-0 | C8D7 | |
| 9. | F2F4 | F8E7 | |
| 10. | D4F3 | B7B5 | |
| 11. | G5xF6 | G7xF6 | |
| 12. | F4F5 | D8B6 | |
| 13. | D2H6 | | The first twelve moves were book. No doubt 13.D2H6 is a new move, where 13.F1D3 or 13.G2G3 would be normal. |
| | | 0-0-0 | |
| 14. | D1D2 | | An unusual continuation in an effort to allow the KB to develop. |
| | | D8G8 | |
| 15. | H6H5 | | This poses interesting problems for B. 15. ...D7E8 was a better reply for him here. |
| | | E7F8 | |
| 16. | H5xF7 ! | (Diagram) | White now gets 3 pawns for the exchange, more than enough, and is therefore winning. |
| | | F8H6 | |
| 17. | F5xE6 | H6xD2 + | |
| 18. | F3xD2 | D7E8 | |
| 19. | F7xF6 | G8F8 | |
| 20. | F6H6 | B6F2 | |
| 21. | C3D1 | | This is a fine way of evicting the BQ while redeploying the QN. |
| | | F2F6 | |
| 22. | H6H3 | F8G8 | |
| 23. | H3A3 ! | | Suddenly White shifts his attention to the BK. The trouble is that now White wins at least a P in any case, e.g. 23. ...C8B7 24.A3xD6 G8G6 25.D2 B3! and the P/e6 is immune. |
| 23. | . . . | F6xE6 | |
| 24. | A3xA6 + | C8C7 | |
| 25. | D1C3 | C6E7 | |
| 26. | A6A7 + | C7D8 | |
| 27. | F1xB5 | | This leads to a decisive attack for White which is most neatly and efficiently concluded |
| 27. | . . . | E8xB5 | |
| 28. | C3xB5 | E6D7 | |
| 29. | A7B6 + | D8E8 | |
| 30. | B5xD6 + | E8F8 | |

| | | | |
|---|---|---|---|
| 31. | H1F1 + | F8G7 | |
| 32. | D6E8 + | G8xE8 | |
| 33. | B6F6 + | G7G8 | |
| 34. | F6F7 + + | | |

## GAME 3

Ruy Lopez

Guess: White: Computer Black: Computer

First impressions tell us that Black is a computer with the pointless retreat 7. ...F6G8? and then he still fails to solve his development problems with 10. ...C6A5?!. White too is a computer, for otherwise he would not hesitate to exploit his much better development with 18.A1A3? rather than 18.D2E5!. After a number of errors and vicissitudes in the endgame, Black utilizes his extra pawn plus well in the final stages of a N-ending.

| | **WHITE** | **BLACK** | |
|---|---|---|---|
| 1. | E2E4 | E7E5 | |
| 2. | G1F3 | B8G6 | |
| 3. | F1G5 | A7A6 | |
| 4. | B5A4 | G8F6 | |
| 5. | 0-0 | F8E7 | |
| 6. | D2D4 | E5xD4 | |
| 7. | E4E5 | F6G8 ? | A poor move, where 7. ...F6E4 or 7. ...F6D5 are indicated. |
| 8. | F1E1! | | Thus B is already made to suffer for his error on the previous move. It is difficult for him to move now. 8. ...E7C5 is typically too materialistic in lieue of development. Probably 8. ...F7F6 must be tried for better or for worse. |
| | | E7G5 | |
| 9. | B1D2 | B7B5 | |
| 10. | A4B3 | C6A5?! | This does not solve Black's problems after 11.B3D5 and only leads to the displacement of his N. |
| 11. | B3D5 | C8B7 | |
| 12. | D5xB7 | A5xB7 | |
| 13. | A2A3?! | | A strange move, where 13.D2E4 was indicated. Moves 13-17 which follow are the wrong plan for both sides. White's QB should not be fiancettoed. D2E4 was still correct in the next few moves. Black must develop his KN. |
| 13. | | C5B6 | |
| 14. | B2B4 | A6A5 | |
| 15. | C1B2 | A5xB4 | |
| 16. | A3xB4 | A8xA1 | |
| 17. | D1xA1 | | Now it is imperative that Black develop his KN though White will recover the QP with advantage. |
| 17. | . . . | D8E7? | A serious error. A human would now see 18.D2E4! threatening 19.E4F6 + ! or 19.E4D6 + ! with a winning attack, which is also the case if Black plays 18. ...E7xB4, i.e. 19.E4F6 + G8xF6 20.E5xF6 + E8F8 21.A1A8 + and mates. |
| | (Diagram) | | |
| 18. | A1A3 ? | | Passive. Black now manages some semblance of consolidation in the next few moves. |
| | | G8H6 | |
| 19. | B2xD4 | B6xD4 | |
| 20. | F3xD4 | C7C6 | |
| 21. | A3B3? | | White should try to keep a bind on the B-squares by 21.D2E4 and 22.F2F4. |
| 21. | . . . | 0-0 | |
| 22. | D2F1 | F8A8 | |
| 23. | F1G3 | E7E8 | |
| 24. | G3F5 ? | | White should not trade his good N for Black's poor one on h6 thereby easing his game, but also missing the upcoming backranker 25. ...E8xE5! when suddenly Black is winning. |
| 24. | . . . | H6xF5 | |
| 25. | D4xF5 | E8xE5! | |
| 26. | F5E3 | A8A1 | Black would do better to first centralize his N with 26. ...B7D6, though after 29. ...D8E6 which follows, Black still stands better with an extra P to boot. |
| 27. | E1xA1 | E5xA1 + | |
| 28. | E3F1 | B7D8 | |
| 29. | B3E3 | D8E6 | |
| 30. | C2C3 | G8F8 | |
| 31. | F2F4 | E6C7 ?! | This is provocative but far from good, leading to the next forced phase of play. Better was 31.A1B1 with centralization of the BQ to follow, e.g. 32.E3E5 F7F6 33.E5D6 + F8E8, etc. |
| 32. | E3B6 | C7E8 | |
| 33. | B6C5 + | F8G8 | |
| 34. | C5E7 | A1A7 + | |
| 35. | F1E3 ? | | Why this? Simply 35.G1H1 guarantees White at least the win of a P with the better game due to the back rank threat. |
| 35. | . . . | A7A1 + | |
| 36. | G1F2 ? | | Still allows Black to solve his problems when 36.E3F1 would lead to recovery of the P as above. |
| 36. | | A1A2 + | |
| 37. | F2F3 | A2E6 | |
| 38. | E7xE6 ? | F7xE6 | Now Black has excellent winning chances in the ensuing N-ending. |
| 39. | G2G4 ? | | Weakening the K-side P's as they are now more exposed and this ultimately leads to White's defeat. |
| 39. | . . . | D7D5?! | Black could advance more methodically here. Better was 39. ...D7D6 or 39. ...E8D6. |
| 40. | E3C2 | | White has no answer to the threat of 40. ...E8D6 followed by 41. ...D6E4 but to counter against Black's pawns. |
| 40. | E3C2 | | |
| 40. | . . . | E8F6 | |
| 41. | C2D4 | G8F7 | |
| 42. | D4xC6 | F6E4 | |
| 43. | C6D4 | E4xC3 | |
| 44. | F3E3 | F7F6 | |
| 45. | H2H4 | | This is well played since here on 46. E3D3 C3A2 47.D4C6 G7G5 would win for Black. |
| 45. | . . . | G7G6 | |
| 46. | E3D3 | C3A2 | |
| 47. | D4C6 | A2C1 + | |
| 48. | D3D2 | C1A2 | |
| 49. | D2C2 | D5D4 | |
| 50. | C6xD4 ? | (Diagram) | But here some kind of real comprehension of this ending is lacking, for 50.C2D3 would recover White's pawn deficit with the better game (i.e. White has winning chances due to 1) The better K position 2) The better N 3) Superior pawn structure and his ability to attack Black's weak b-pawn. |
| 50. | . . . | A2xB4 + | |
| 51. | C2D2 | B4D5 | From here Black plays the remainder of the ending very effectively, though White should test his opponent's technique conclusively before resigning. |
| 52. | D4xB5 | D5xF4 | |
| 53. | B5D4 | G6G5 | |

| | | |
|---|---|---|
| 54. | H4H5 | E6E5 |
| 55. | D4F5 | F4xH5 |
| 56. | F5D6 | H5G3 |
| 57. | D2E3 | F6E6 |
| 58. | D6C4 | H7H5 |
| 59. | G4xH5 | G3xH5 |
| 60. | E3F3 | H5F6 |
| | Resigns | |

## GAME 4

FRENCH DEFENSE - Winnawer Variation

Guess: White: Computer Black: Computer

After the first ten book moves play quickly heads into uncharted waters. It is safe to conclude that both players are computers from the further inconsistent, indecisive course which play follows, (i.e. 11.D1B1, and Black's later failure to pursue the trade of Q's). Actually Black's early Q-side play is quite good and "its" subsequent errors on the K-side from a decisive position, can only be termed as tragic.

| | WHITE | BLACK | |
|---|---|---|---|
| 1. | E2E4 | E7E6 | |
| 2. | D2D4 | D7D5 | |
| 3. | B1C3 | F8B4 | |
| 4. | E4E5 | C7C5 | |
| 5. | A2A3 | B4xC3 + | |
| 6. | B2xC3 | G8E7 | |
| 7. | A3A4 | E8G6 | |
| 8. | G1F3 | D8A5 | |
| 9. | C1D2 | C8D7 | |
| 10. | F1E2 | C5C4 | |
| 11. | D1B1 | E7C8 | Black's b-pawn is immune while he prepares to win White's isolatd a-pawn. |
| 12. | 0-0 | C8B6 | |
| 13. | B1B5 | A7A6 | |
| 14. | B5C5 | B6A4 | |
| 15. | C5A3 | | White has simply lost time between moves 11 and 15 with his Q sortie. |
| 15. | . . . | B7G5 | |
| 16. | A3D6 | A5B6 | |
| 17. | F3G5 | A8D8 | |
| 18. | E2H5 | G7G6 | |
| 19. | H5G4 | A6A5 | |
| 20. | F1B1 | B6A6 | |
| 21. | B1E1 | A4B6 | After Black's sound play to this point, he should focus on trading Q's, or at least ousting the WQ with D7C8. The text move is O.K. but of course involves more risk. |
| 22. | D2F4 | A5A4 | |
| 23. | A1B1 | A4A3 | |
| 24. | B1A1 | A3A2 | |
| 25. | G4E2 | H7H6 | The following unnecessary advances of Black's h-pawn between moves 25 and 30 ultimately lead to his undoing, though in the interum he is actually winning for many moves. |
| 26. | G5F3 | A6A5 | |
| 27. | E1D1 | H6H5 | |
| 28. | F4G5 | D8A8 | |
| 29. | G5D2 | H5H4 | |
| 30. | D6G7 | H4H3 | |
| 31. | E2F1 | H3xG2 | |
| 32. | F1xG2 | A8A6 | |
| 33. | F3G5 | 0-0 | |
| 34. | C7D6 | F8A8 | |



| | | | |
|---|---|---|---|
| 35. | G1H1 | A5A4?! | Why not 35. ...A5A3 and trade Q's once and for all? Or later 37. ...A8A7 achieving this? |
| 36. | D1C1 | A4A3 | |
| 37. | D6C7 | A3B2 | |
| 38. | C7D6 | B5B4 | |
| 39. | C3xB4 | C6D4 | |
| 40. | D6E7 | D7E8 | Black's inability to force victory between moves 32 and 55 despite his complete vanquish of White's center and Q-side is terribly painful to observe, until he finally succumbs. |
| 41. | B4B5 | A6A4 | |
| 42. | G5E4 | D5xE4 | |
| 43. | G2xE4 | B6D5 | |
| 44. | E7G5 | C4C3 | |
| 45. | D2E3 | D4E2 | |
| 46. | E4xD5 | E6xD5 | |
| 47. | C1D1 | B2C2 | |
| 48. | F2F3 | C2B2 | |
| 49. | G5G2 | C3C2 | |
| 50. | D1E1 | E8xB5 | |
| 51. | E5E6 | D5D4 | |
| 52. | E6xF7 + | G8xF1 | |
| 53. | E3H6 | A4A3 | |
| 54. | F3F4 | D4D3 | |
| 55. | G2D5 + | F7E7 | |
| 56. | H6G5 + | E7F8 | |
| 57. | D5D6 + | F8F7 | |
| 58. | D6E7 + | F7G8 | |
| 59. | E7E6 + | G8H7 | |
| 60. | G5F6 | | Black should give up his Q here 60. ...B2xF6, which is still winning; instead: |
| 60. | . . . | B2B3 | |
| 61. | E6E7 + | H7H6 | |
| 62. | F6G7 + | H6H7 | |
| 63. | G7B2 + | B3F7 | |
| 64. | E7H4 + | H7G8 | |
| 65. | H4H8 + + | | |

## GAME 5

Sicilian Defense - Four Knights

Guess: White: Computer Black: Computer

Both sides are computers in this game, though from the Opening and early mid-game play you probably wouldn't think so. White gets the early initiative, but Black defends properly while making progress on the Q-side. The game is exemplary of the deep tactical motifs which may be employed by computer programs.

| | WHITE | BLACK | |
|---|---|---|---|
| 1. | E2E4 | C7C5 | |
| 2. | G1F3 | E7E6 | |
| 3. | D2D4 | C5xD4 | |
| 4. | F3xD4 | G8F6 | |
| 5. | B1C3 | B8C6 | |
| 6. | D4xC6 | B7xC6 | |
| 7. | F1D3 ? | | Normal here is 7.E4E5 F6D5 8.C3E4 F7F5 etc. The text allows Black to gain equality by 7. ...D7D5. |
| 7. | . . . | F8D6 ?! | |
| 8. | 0-0 | 0-0 | |
| 9. | C1E3 | | A good solid developing move. |
| | | A8B8 | |
| 10. | C3A4 ! | | Better than 10.F2F4 E6E5 etc. which is unclear. |
| 10. | . . . | D8C7 | |

| | | | |
|---|---|---|---|
| 11. | F2F4 | D6E7 | |
| 12. | E4E5 | F6D5 | |
| 13. | E3D2 | F7F5 | This is well played. Black needs to counter against White's central control. |
| 14. | E5xF6 | E7xF6 | |
| 15. | C2C3 | | More to the point is 15.C2C4 e.g. F6D4 + 16.G1H1 D5E3 17.D2xE3 D4xE3 18.D3xH7 + etc. |
| 15. | . . . | H7H6 | |
| 16. | D1G4 | C7A5 | This Q-side counterplay is correctly motivated. |
| 17. | D3C2 | C8A6 | |
| 18. | F1D1 | A5C7 | |
| 19. | G4G6 | | It would be advisable for White to interject 19.G1H1 here or hereabouts to enable A4C5 without having to worry about the pin. |
| 19. | . . . | F8F7 | (Diagram) |
| 20. | G6H7 + | G8F8 | |
| 21. | C2G6 | A6B5 | |
| 22. | A4C5 | B5E2 | Actually a very fine exchange sacrifice: menacing are B8xB2, E2xD1 as well as C7B6. |
| 23. | G6xF7 | F8xF7 | |
| 24. | D1E1 | E2G4 | And now G4F5 is also threatened. |
| 25. | H7C2 | C7B6 | |
| 26. | B2B4 | D7D6 | Now Black gains vital material with a positional plus supplement it. |
| 27. | A2A4 | D6xC5 | |
| 28. | B4B5 | C5C4 + | |
| 29. | G1H1 | C6xB5 | |
| 30. | A4xB5 | B8B7 | |
| 31. | C2B2 | | White's game is now very bad and it is just a matter of time before "it" must succumb. |
| 31. | . . . | G4F5 | |
| 32. | A1A4 | F5D3 | |
| 33. | B2A1 | B6F2 | From here on Black's technique, though not by any means flawless, is quite adequate, White never being given a real chance. |
| 34. | A4A2 | F6H4 | |
| 35. | E1G1 | B7xB5 | |
| 36. | F4F5 | F2xF5 | |
| 37. | A2xA7 + | F7F6 ?! | In light of Black's next move, an inexplicable "computer move". |
| 38. | A1A3 | F6G6 | |
| 39. | G1A1 | B5B3 | |
| 40. | A3C1 | H4F6 | |
| 41. | A7A3 | D3E4 | |
| 42. | A3xB3 | C4xB3 | |
| 43. | H1G1 | D5xC3 | |
| 44. | D2xC3 | F5C5 + | |
| 45. | G1H1 | F6xC3 | |
| 46. | A1B1 | C5B4 | |
| 47. | C1D1 | B3B2 | |
| 48. | D1G4 + | G6H7 | |
| 49. | G4D1 | B4A3 | |
| 50. | D1F1 | E6E5 | |
| 51. | B1D1 | A3A2 | |
| 52. | H2H3 | C3D4 | |
| 53. | H1H2 | D4E3 | |
| 54. | D1E1 | B2B1 | |
| 55. | E1xB1 | A2xB1 | |
| 56. | F1xB1 | E4xB1 | |
| | Resigns(0-1) | | |



## GAME 6

Nimzo-Indian Defence - Saemisch Variation

Guess: White: Computer Black: Computer

Both players are computers, Black especially for the reason that he develops without purpose (10. ...D8E8, 11. ...E8E7). White's opening play is reasonable up to 12.C1D2. Then Black finally sets upon a logical plan with 17. ...C7C5, but developments are slow. Through the middlegame exchanges which follow he wins two pieces for a rook. The endgame technique of both sides proves lacking.

| | WHITE | BLACK | |
|---|---|---|---|
| 1. | D2D4 | G8F6 | |
| 2. | C2C4 | E7E6 | |
| 3. | B1C3 | F8B4 | |
| 4. | A2A3 | B4xC3 + | |
| 5. | B2xC3 | 0-0 | |
| 6. | F2F3 | D7D5 | |
| 7. | E2E3 | B8C6 | |
| 8. | C4xD5 | E6xD5 | |
| 9. | F1D3 | C8D7 | |
| 10. | G1E2 | D8E8 | A better, more "normal" move is ...F8E8. The text doesn not leave the KR any options. |
| 11. | 0-0 | E8E7 ?! | Black immediately wastes a tempo for no reason. |
| 12. | C1D2 ?! | | White also develops without purpose. More consistent here is 12.D1C2 to play E3E4. |
| 12. | | A8B8 | |
| 13. | E2F4 | F8E8 | |
| 14. | D1B3 ? | | Very short-sighted. Still F1E1, D1C2 and E3E4 is the indicated plan. |
| 14. | . . . | C6A5 | |
| 15. | B3A2 | E7D6 | A human would play 15. ...C7C5 here with action on the c-file. |
| 16. | F1B1 | B8C8 | |
| 17. | B1B2 | C7C5 | |
| 18. | C3C4 ! | | A good move, opening up the game and leading to exchanges freeing White's game a bit. |
| 18. | | D5xC4 | |
| 19. | D3xC4 | A5xC4 | |
| 20. | A2xC4 | B7B6 ! | Now the game has stabilized a bit with Black clearly better. |
| 21. | D4xC5 | C8xC5 | |
| 22. | C4D4 | D6C6 | Black continues to play soundly and logically. White should now try 23.E3E4, instead he loses two pieces for a rook. |
| 23. | F4D3 | C5C4 | |
| 24. | D3E5 | C4xD4 | |
| 25. | E5xC6 | D4xD2 | |
| 26. | B2xD2 | D7xC6 | Black now has two pieces for a rook, though it's not by any means easy to win. He must first improve his pieces and then advance the Q-side pawns. The next 10 moves are logical for both sides. |
| 27. | A1C1 | C6B5 | |
| 28. | E3E4 | A7A6 | |
| 29. | C1C7 | G8F8 | |
| 30. | C7B7 | E8E6 | |
| 31. | D2D8 + | B5E8 | |
| 32. | D8B8 | B6B5 | |
| 33. | B7A7 | E6C6 | |
| 34. | B8A8 | C6C1 + | |
| 35. | G1F2 | C1C2 + | |
| 36. | F2G1 | F6H5 ? | This allows White to double R's on the 8th rank which would win, though it's difficult to discover how Black |

could prevent this threat in conjunction with E4E5. Instead White goes pawn-grabbing.

| | | |
|---|---|---|
| 37. | A7xA6 | H5F4 |
| 38. | G2G3 | F4H3 + |
| 39. | G1F1 | C2xH2 |
| 40. | F3F4 | |

White should quickly double R's on the 8th rank, e.g. 40.A6B6

| | | |
|---|---|---|
| 40. | . . . | H2F2 + |
| 41. | F1E1 | F2F3 |
| 42. | E1E2 | F3xG3 |
| 43. | F4F5 | H3G5 |
| 44. | E4E5 | G3G4 |
| 45. | E2D1 | G4E4 |
| 46. | F5F6 | G7xF6 |
| | Resigns | |

— Now White no longer has a chance to double on the 8th with any effect, though his resignation is a bit premature.

## GAME 7

Sicilian Defence - Najdorf Variation

Guess: White: Computer Black: Human

The singularly best game of the set of 10. White is a computer. Black is probably a human in light of his positive, determined play. After a book opening Black plays consistently and finds a brilliant stroke in 24.C4xA3!! His play then slacks a bit, but is adequate to win.

| | WHITE | BLACK | |
|---|---|---|---|
| 1. | E2E4 | C7C5 | |
| 2. | G1F3 | D7D6 | |
| 3. | D2D4 | C5xD4 | |
| 4. | F3xD4 | G8F6 | |
| 5. | B1C3 | A7A6 | |
| 6. | C1G5 | E7E6 | |
| 7. | F2F4 | F8E7 | |
| 8. | D1F3 | D8C7 | |
| 9. | 0-0-0 | B8D7 | |
| 10. | G2G4 | B7B5 | |
| 11. | G5xF6 | D7xF6 | |
| 12. | G4G5 | F6D7 | |
| 13. | A2A3 | 0-0 | It's all book up to here when Black diverges from the main line which is 13. ...A8B8. Now White might try the very human sacrifice 14.D4F5!!? (Velimirovic) e.g. E6xF5 15.C3D5 C7D8 16.E4xF5 etc. with strong attacking chances. |
| 14. | H2H4 | | This is probably too slow here. |
| 14. | . . . | C8B7 | |
| 15. | F1E2 | F8C8 | |
| 16. | H1G1 | D7B6 | Black is building up his attack patiently and soundly. |
| 17. | H4H5 | D6D5 ! | The classical Sicilian equalizing move. This is why I suspect that Black is human. Computers have not yet been taught the "hows" and "whys" of such moves. |
| 18. | D1D3 | E7C5 !? | Also strong is 18.D5xE4 19.C3xE4 B6D5 with board-wide control. Now White can close the center as he does. |
| 19. | E4E5 | B6C4 | |
| 20. | G1G3 | C7B6 ! | White's next move (21.F3F2?) voluntarily binds his pieces. It is interesting that two masters, namely Victor V. Palciauskas, likely World Correspondence Champion, and this writer instinctively would chose 21.D4B3 here, as would most people. There are many promising continuations for Black in that case and one cannot be sure of what he saw, but perhaps it was: 21. ...C5F2 22.G3H3 (22.G3F3 F2E3+ etc.) C4xB2! 23.C1xB2 C8xC3! |



24.D3xC3 D5D4 etc. with strong attack. Black proceeds with his Q-side attack very logically and consistently as only befitting a human!

| | | |
|---|---|---|
| 21. | F3F2 ? | A6A5 |
| 22. | D3D1 | B5B4 |

Black must already see the brilliant shot which comes in two moves, otherwise he would not allow 23.C3A4.

| | | |
|---|---|---|
| 23. | C3A4 | C5xD4 |
| 24. | F2xD4 | C4xA3 !! |

(DIAGRAM) A very precise and original combination which caps Black's attack.

| | | |
|---|---|---|
| 25. | B2xA3 | B6C6 |
| 26. | A4C3 | B4xC3 |
| 27. | G5G6 | F7xG6 |
| 28. | H5xG6 | H7H6 |

In the ensuing play from her Black must keep a grip on the position despite White's temporary initiative.

| | | |
|---|---|---|
| 29. | E2G4 | C6E8 !? |
| 30. | D4B6 | B7C6 |
| 31. | G3xC3 | E8xG6 ! |
| 32. | D1G1 | G6E8 |
| 33. | C3H3 ? | |

White should play 33.C3G3 so that he might obtain serious counterchances on the g-file.

| | | |
|---|---|---|
| 33. | . . . | E8E7 |
| 34. | G1G3 | G8F7 |
| 35. | G4H5 + ? | |

White should save this check. Instead 35.B6G1 allows the Q to participate with threats (i.e. 36.G4xE6 + ). A continuation could go: 35. ...F7F8 36.F4F5 C6A4 37.G4D1 E6xF5 38.H3xH6! etc.

| | | |
|---|---|---|
| 35. | . . . | F7F8 |
| 36. | G3G6 | C6A4 |
| 37. | G6G2 | C8C6 |
| 38. | B6D4 | C6C4 |
| 39. | D4E3 | A8B8 ! |

Finally Black's forces are prepared for a conclusive attack which cannot be thwarted and he finishes neatly.

| | | |
|---|---|---|
| 40. | G2F2 | E7B7 |
| 41. | H5G6 | B7B1 + |
| 42. | C1D2 | C4xC2 + |
| 43. | G6xC2 | B4xC2 + |
| 44. | D2E1 | C2D1 + + |
| | | 0 : 1 |

## GAME 8

Nimzo-Indian Defence, Saemisch Variation

Guess: White: Computer Black: Computer

This game is most probably played by the same two contestants as in Game 6 where again both participants are definitely computers. Again Black develops without purpose (9. ...C8D7, 10. ...D8E8, 11. ...C6E7) only here 11. ...C6E7 replaces 11. ...E8E7, and again White does not carry out a plan such as advancing his center pawns.

| | WHITE | BLACK | |
|---|---|---|---|
| 1. | D2D4 | G8F6 | |
| 2. | C2C4 | E7E6 | |
| 3. | B1C3 | F8G4 | |
| 4. | A2A3 | B4xC3 + | |
| 5. | B2xC3 | 0-0 | |
| 6. | F2F3 | D7D5 | |
| 7. | E2E3 | B8C6 | |
| 8. | C4xD5 | E6xD5 | |
| 9. | F1D3 | C8D7 | |
| 10. | G1E2 | D8E8 | |
| 11. | 0-0 | C6E7 | |
| 12. | D1B3 !? | | This make more sense than 14.D1B3 in the aforementioned game since the Q cannot be immediately attcked and the P/b7 is threatened. |
| 12. | . . . | A8B8 | |

| | | | |
|---|---|---|---|
| 13. | E2F4 ?! | | Stronger here is 13.a3 a4 later followed by C1A3 or 13.E3E4. |
| 13. | . . . | D7F5 ! | A good move for it gets rid of White's "good" bishop while fighting for the e4 square. |
| 14. | C1D2 | F5xD3 | |
| 15. | F4xD3 | A7A5 ?! | Rather inappropriate. Better ...E7F5 followed by ...F5D6. |
| 16. | D3F4 | A5A6 | |
| 17. | B3A2 | E8B5 ?! | The Q has no business exposed here. |
| 18. | A1B1 | B5C6 | |
| 19. | B1B4 | C6A6 | |
| 20. | A2C2 | B7B5 | |
| 21. | E3E4 ! | | Finally White finds the way to improve his position. Also strong was 21.F4D3. |
| 21. | . . . | A6C6 | Black has wasted a lot of time with these Q-moves. |
| 22. | E4E5 | F6D7 | |
| 23. | F1B1 | B8B6 | |
| 24. | D2E1 | C6H6 | |
| 25. | C2C1 | | An unusual move it would seem in that it walks into a sort of a pin, but it creates the chance of a discovered attack. Why not 25.E1D2? |
| 25. | . . . | C7C6 | And now the discovered attack motif cannot be evaded without material loss. |
| 26. | E1D2 | B6B8 | |
| 27. | F4D5 | H6E6 | |
| 28. | D5F4 | E6H6 | |
| 29. | C3C4 ! | | A correct advance expanding White's plus. |
| 29. | | E7F5 | |
| 30. | C4xB5 | C6xB5 | |
| 31. | C1C3 | G7G5 ? | Very weakening in a bad position. |
| 32. | F4E2 | | 32.F4H3 wins further material. |
| 32. | . . . | F8C8 | |
| 33. | C3D3 | F5H4 | |
| 34. | B4xB5 | B8xB5 | |
| 35. | B1xB5 | G8F8 | |
| 36. | B5D5 | | The incursion of this rook spells the collapse of Black's game which follows very quickly. |
| 36. | . . . | C8C7 | |
| 37. | D5D6 | F7F6 | |
| 38. | E5E6 | D7C5 | |
| 39. | D4xC5 | Resigns | |

**GAME 9**

Ruy Lopes, Exchange Variation

Guess: White: Computer Black: Human

White plays a few senseless moves in the opening such as 8.C3A4? ad 9.C1G5? certifying that it is a computer playing these moves; however Black over-commits his Q-side pawns enabling White to hold a positional plus in the middlegame. Black tries to struggle for the vital central squares, but the WQ infiltrates the Q-side bastion of Black's pawns, in true computer style. Just when White seems to be getting away with his greedy play he leaves his back row unprotected and must soon succumb.

| | **WHITE** | **BLACK** | |
|---|---|---|---|
| 1. | E2E4 | E7E5 | |
| 2. | G1F3 | B8C6 | |
| 3. | F1B5 | A7A6 | |
| 4. | B5xC6 | D7xC6 | |
| 5. | 0-0 | C8G4 | |
| 6. | D2D3 | | Normal is 6.H2H3 when Black replies H7H5 etc. |
| 6. | . . . | F8C5 | |



| | | | |
|---|---|---|---|
| 7. | B1C3 | G8E7 | |
| 8. | C3A4 ? | | This and White's next move are very short-sighted stabs. |
| 8. | | C5A7 | |
| 9. | C1G5 | B7B5 | |
| 10. | A4C3 | F7F6 | |
| 11. | G5E3 | A7xE3 | |
| 12. | F2xE3 | B5B4 ?! | This gains space but means that the Black Q-side pawns can be fixed in contrast to 12. ...C6C5. |
| 13. | C3E2 | 0-0 | |
| 14. | D3D4 ?! | | This is premature. Better to first play D1E1, E2G3, etc. with the eventual exploitation of the f5 square. |
| 14. | . . . | A6A5 | |
| 15. | D1D3 | D8D6 | |
| 16. | D3B3 + ? | | A rather pointless move in light of the obvious response which Black has available. |
| 16. | . . . | G4E6 | |
| 17. | C2C4 | C6C5 | |
| 18. | D4xE5 | F6xE5 | |
| 19. | A1D1 | D6C6 | |
| 20. | B3D3 | E7G6 | |
| 21. | F3G5 | | White tries to demonstrate an advantage; 21.E2G3 with G3F5 to follow was another way to do this. |
| 21. | . . . | G8H8 | |
| 22. | G5xE6 | C6xE6 | |
| 23. | D3D5 | E6E7 | |
| 24. | D5C6 ? | | White's possession of the open d-file spells an important edge which should be exploited by 23.F1xF8 + followed by E2G3. |
| 24. | . . . | F8xF1 + | |
| 25. | D1xF1 | A8D8 | |
| 26. | C6B5 ?! | | This and White's next are poorly motivated, leaving his Q isolated and offside, though as the play goes it seems that he can get away with it. |
| 26. | | E7D6 | |
| 27. | B5xA5 | D6D3 | |
| 28. | A5xC7 | D3xE3 + | |
| 29. | G1H1 | E3D2 | |
| 30. | F1F7 ? | | With an extra pawn and the near symmetry of the pieces White should be better, but this move leaves White's back rank and K very exposed. |
| 30. | | D8G8 | |
| 31. | C7xC5 | D2xE2 | |
| 32. | A2A3 | G6F4 | |
| 33. | C5G1 | E2xC4 | |
| 34. | F7D7 | C4xE4 | |
| | Resigns | | |

**GAME 10**

Center Game

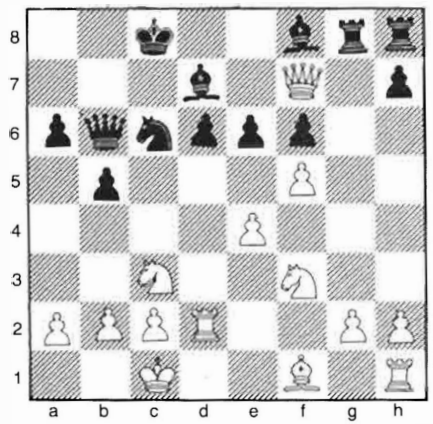
Guess: White: Computer Black: Human

White's dubious opening suggests that he is of machine origin. Any human Category I or II player would know better than to develop his Q in the early opening. Both sides proceed to play some questionable and strange moves such as 7.E3G3?!, 8. ...E7B4, 9. ...C6E7!? from which it is clear that neither player is set upon a definite course, though Black does temporarily gambit a pawn leading White into the confusion which conveinces him to give up a piece.

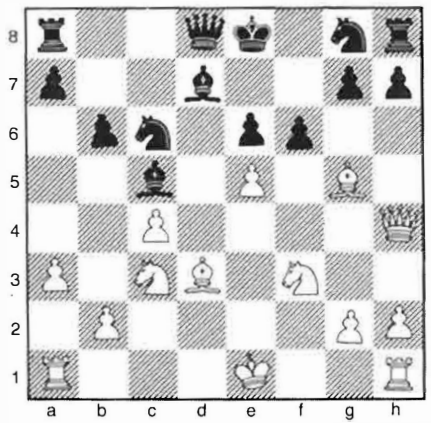
| | **WHITE** | **BLACK** | |
|---|---|---|---|
| 1. | E2E4 | E7E5 | |
| 2. | D2D4 | E5xD4 | |
| 3. | D1xD4 ?! | | White would be better advised to head for transposi into |

| | | | |
|---|---|---|---|
| | | | the Scotch Game with 3.G1F3. The text simply loses time as is well known. |
| 3. | . . . | B8C6 | |
| 4. | D4E3 | G8F6 | |
| 5. | C1D2 | F8E7 | |
| 6. | B1C3 | D7D5 ! | A good move because when you have superior development you should open the center. |
| 7. | E3G3 ?! | | |
| | | | Wasting more crucial time. |
| 7. | . . . | 0-0 | |
| 8. | F103 | E7B4 | |
| 9. | E4xD5 | C6E7 !? | Better than simply recovering the P with 9. ...F6xD5 or 9. ...F8E8 + 10.G1E2. |
| 10. | D2H6 ? | | White loses more time. |
| 10. | . . . | C8G4 ! | Black interferes and develops. |
| 11. | H2H3 | E7xD5 | |
| 12. | H6xG7 ? | | White commits "suicide" giving away a bishop thereby hastening his defeat. |
| 13. | . . . | G8G7 | |
| 13. | A2A3 | F8E8 + | |
| 14. | D3E2 | B4D6 ! | Black wins a piece by deflecting the WQ and the rest is easy. |
| 15. | G3H4 | D5xC3 | |
| 16. | H4G5 + | G7H8 | |
| 17. | B2xC3 | D6E5 | |
| 18. | A1B1 | E5xC3 + | |
| 19. | E1F1 | G4xE2 | |
| 20. | G1xE2 | C3D2 | |
| 21. | G5F5 | D8E7 | |
| 22. | Resigns | | |

Game 2 Position after 16.H6xF7!

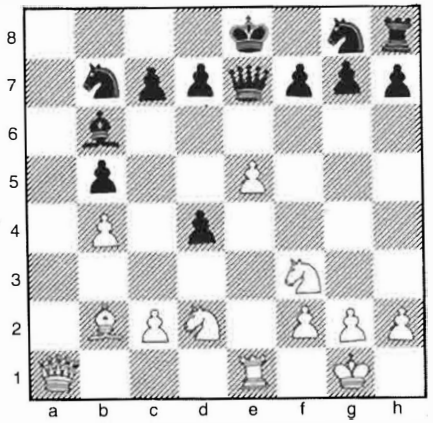


Game 1 Position after 14...F7F6?!

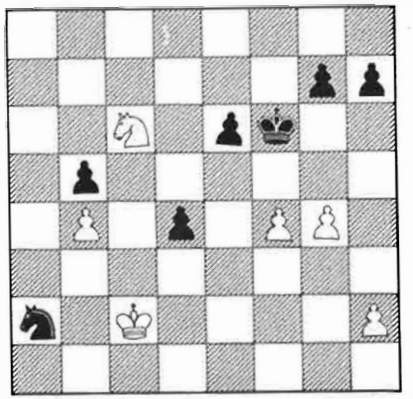




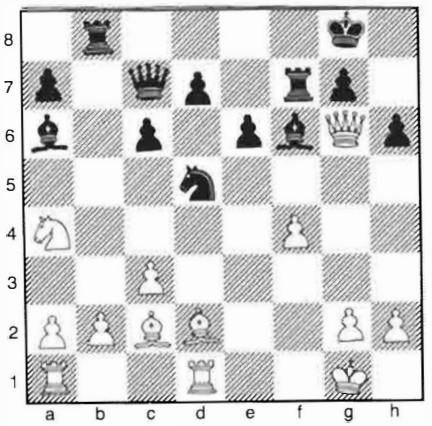
Game 3 Position after 17...D8E7



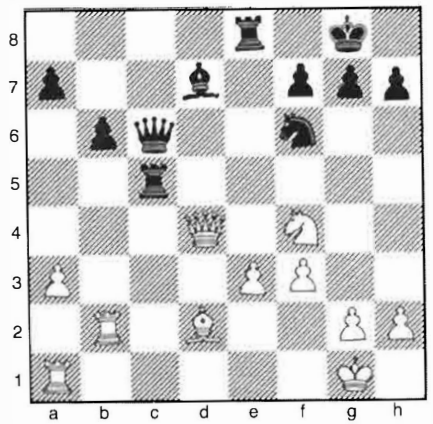
Game 3 After 49...D5D4



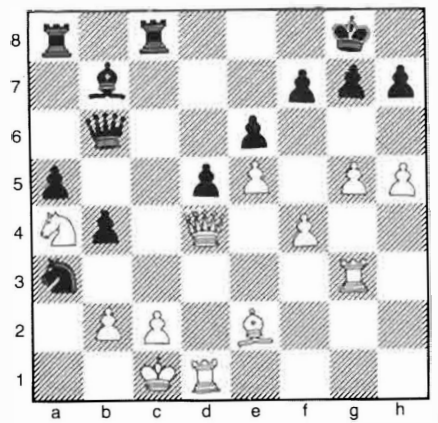
Game 5 Position after 19...F8F7



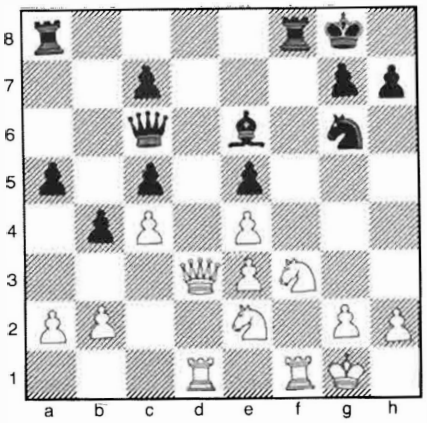
Game 6 Position after 22...D6C6



Game 7 Position after 24...C4xA3!!



Game 9 Position after 20...E7G6



## Summary and Conclusions

Less than a few years ago it was clear that the top micros played in the 1700 (Category II) range on the Elo rating scale. Furthermore their play, largely idiosyncratic, was easy to distinguish from human play. As can be seen from my results in attempting to guess what the origins of the White and Black players (whether human or machine) neither do these two properties any longer hold true. There can be little doubt that top micros are now playing in the 1900 - 2000 range. They are clearly searching a few ply deeper than a few years ago and making fewer of the obscure, bad and inexplicable moves we'd become used to. In many cases opening books have been largely expanded and this has resulted in fewer errors of a critical nature in the early stages. On the other hand opening play is still not varied as a result of previous experiences.

In a number of cases I had been certain that humans were *not* playing due to the "short-sighted" nature of some of the moves played. As it turned these bad moves were in fact played by Category I and Category II human players. Perhaps this should not be so surprising since such players, whether of machine or human origin, must occasionally make bad moves as otherwise they would be masters.

Most noticable in terms of the improvement in computer play was the ability to build-up and successfully execute an attack on the opposing king as exemplified by Games 1,2, and 7 (Nimzo-Indian Defense, Richter-Rauzer variation of Sicilian Defense, and Najdorf Variation of the Sicilian Defence, respectively). In Games 4 and 5 the play by Black (French Defense, Winnawer Variation, and Sicilian Defence, Four Knights Variation) was very tedious but for the most part very appropriate as to the needs of the positions. Black loss in the former game was tragic. The play in Games 3,6,8, and 9 (Ruy Lopez, Nimzo-Indian, Nimzo-Indian, and Ruy Lopez, Exchange Variation, respectively) was variable, while in Game 10 White's play was distinctly bad.

Danny Kopec

The players in the 10 games were as follows:

| # | White | Black |
|---|---|---|
| 1 | Mk V | G. Gribble (1720) |
| 2 | Elite | J. Burnham (1916) |
| 3 | J. Burnham (1916) | Elite |
| 4 | Elite | Mephisto* |
| 5 | Elite | Mephisto* |
| 6 | Mephisto* | Elite |
| 7 | Elite | SC9 |
| 8 | Mephisto* | SC9 |
| 9 | SC9 | Mephisto* |
| 10 | Mk V | Mephisto* |

*This was a Mephisto prototype, slightly weaker and more computerlike than the later production model.

x - incorrect guess
O - correct

## CONCLUSIONS II

In four of these 10 games, three programs were identified as "human" (2 Mephisto, 1 SC9 and 1 Mk V), while the three human players were identified as computers (!). If we assume this experiment to be reliable, the first conclusion should be that in many games there are *no major differences* between some chess computers and human players of the same approximate strength (1700-2000). It's still true that a computer will be stronger tactically and weaker positionally than players rated in the same category, but this tactical/positional difference tends to be minimized in the best of the most recent programs (e.g. Prestige and Mephisto) and seems to no longer justify the expressions "human chess" vs. "computer chess" when talking about under-2000 players vs. the best of today's microcomputers.

Second, the three human players were identified as computers because of their lack of a plan or because of their inability to always play moves relevant to the position, both characteristics of the so-called "computer game."

Third, we can observe relevant differences between computers in the fact that Elite played in 6 of the 10 games and was identified each time as a computer, while Mephisto, SC9 and Mk V fared much better.[2] This, together with the increased strength of the latest and much more "humanlike" chess microcomputers, should suggest something to programmers who want to come with stronger and more enjoyable chess machines.

Also, I would recommend playing through some of the games from the fall '82 tournament, particularly those of Prestige, many of which show excellent levels of "creativity" and "imagination."

Finally, if anything has been proved by this experiment it is the fallacy of some statements that are common among chess club players, such as "Chess computers are only clever toys," or "Chess computers don't play real chess."

1) The main criterion in the selection of these 10 games was the avoidance of computer end-games, the weakest and most "computerlike" aspect of today's machines. Even so, at that time I didn't have any games played by Prestige. Otherwise, the result of the experiment would have been even more spectacular.

2) The fact that the majority of the games played by computers were identified as such doesn't seem very relevant, since the two humans that played in three games were also identified as computers.

E.I.

## UPGRADABILITY

### I - The Modular Concept

Much emphasis has been placed on the fact that some chess microcomputers have modular programs. Manufacturers of such machines promise oncoming stronger ones, the implication being that these machines will not become obsolete in the near future; thus, a potential buyer can "invest" rather than simply "buy."

If we take a closer look at what has happened in the past two years with such "modular" games we will observe that the potential of this concept has been wasted in most cases and not even actualized in others. Perhaps this possible upgradability has been more of a marketing ploy than a real benefit to the buyer.

In the first place, we have the example of this wonderful machine called Mk V. Modular in many ways, it can accept not only new programs but also a printer and, as advertised one year ago, an auto-response board. Nevertheless, the promised programs for chess and other games have never reached the market, and the same has been true for the printer. The board, to be marketed later this year, will be of the pressure-sensitive type, less advanced and not as easy to use as the originally promised one. Recently I got a new chess program module: Philidor. I have only had time to play some 25 games with it, but it does not seem to be any stronger than the original Mk V. What happened then with the proud owners of the Mk V that bought it because of its upgradability? I imagine they are as frustrated as I am.

The newest Fidelity chess microcomputers, SC9 and Prestige, have built-in programs that can accept plug-in modules for the different phases of the game. The two modules currently available are opening books which, in my opinion, don't add anything to the basic strength of the program. To the contrary, because of interfacing problems to be dsicussed later, it seems reasonable to believe that the SC9 will do as well or better in a tournament *without* the opening book modules as with them. It's true that a large opening book can be more fun than a small one, and that an overly small one (e.g. Conchess) can be a real pain. But in the specific cases of Prestige and SC9, where it is so easy to enter an opening position, these two modules seem to be basically gimmicks.

Applied Concepts approached the problem in a more interesting way. After Sargon 2.5 they introduced Morphy, roughly 100 points stronger and a partial success in the application of the modular concept. Even so, Grunfeld was basically another gimmicky book, and Capablanca didn't seem to add more than 20 or 30 points to the total strength. After buying the original M.G.S., Sargon 2.5, Morphy, Grunfeld (with upgrade) and

Capablanca (also with upgrade) we had spent more than $600, $400 of them to improve the initial strength by some 100-130 points. If one had purchased, for example, a Mk V as an alternative to these expensive points, he would have two computers instead of one, different playing styles and a slightly stronger program.

Mephisto, also a modular game, came recently with a new and stronger program. The problem this time is that the clock speed has been increased from 3.5 MHz. to 6.1 MHz. Thus, in order to get the most from the new program it's necessary to buy a new machine.

Finally, Conchess and Savant have yet to prove the validity of the modular concept, since new modules for their machines either don't yet exist (Conchess) or have not yet been tested (Savant).

To this rather discouraging panorama I should add the fact that, except in the case of Conchess, only the software is modular. When new and faster microprocessors are used, your machine will be obsolete, no matter how "modular" it appears to be in the adds.

It seems quite obvious that the modular concept has not been very successful in the past and that this feature by itself should not be decisive when selecting a machine. Now it is up to the manufacturers to prove otherwise.

### II - The Opening Book

Chess programmers and manufacturers have approached the opening book problem from various different angles. Applied Concepts and Fidelity Electronics seem to be in favor of the "bigger is better" school, offering us two opening modules each (Fidelity threatens us with a third one for Prestige and SC9), the lines of which are chosen with little discrimination. The Conchess built-in opening book is an extremely limited one. This machine will open only with P-K4 as white, and as black it will play only the Bird variation against the Ruy Lopez and the Tarrasch defense against P-Q4. The purpose of this selection is that these openings seem to interface particularly well with Conchess's middle-game style.

The Scisys Mk V is limited to a few unusual openings and defences, with the pecliarity that it will play a maximum of 5 moves automatically, while the next 5 or 6 moves still in book will be played sooner or later, according to the tactical and strategical problems of the position. This makes Mk V's openings sometimes more interesting and gives the illusion that this machine "understands" the ideas behind a given opening.

Mephisto and Savant will play a selection of basically sound openings, very much like the ones included in Champion, Elite, and SC9 in what seems to be a very straightforward approach to the problem, without any obvious pretensions of hugeness or of interfacing considerations.

I have been using the word "interfacing" without a previous explanation of what I mean by this. What I am trying to say is: How valuable is an opening book that will follow to the 16th move the latest sub-variation of the Richter-Rauzer attack in the Sicilian when, immediately out of book, the chess program that takes over doesn't understand a thing about the resultant position? I can give two specific examples: When Morphy plays black in a Marshall attack (included in Grunfeld), it will play 11 . . Bf6, initiating an attack on the queen (!) side; or when Prestige plays white in a King's Gambit (included in the PC16 opening book module), despite having an excellent position after book it will panic at being a pawn down and will try to repeat moves, playing for a draw (game # 29). Most pathetic. In my opinion, it does not make any sense to include an opening that sacrifices a pawn for the positional advantage when the program that takes over is incapable of understanding wherein lies the compensation. And these two cases are more the rule than the exception, in the sense that today's opening books for chess programs seem to be, in many cases, written down without consideration for what kinds of positions the middle-game program "likes" or "doesn't like." This is noticeable in some of the games from the fall '82 tournament.

I guess that one way to test the effectiveness of the opening selections in the machines would be to compare their performances with white and with black. Looking at the games from the fall '82 tournament, Conchess was the only machine scoring significantly better with the white pieces. It should be pointed out, however, that Conchess may have played too few games to provide accurate statistical information.



| Machine | Color | Wins | Losses | Draws | Total | Total Games |
|---|---|---|---|---|---|---|
| Prestige | White | 24 | 5 | 3 | 25.5 | |
| | Black | 23 | 3 | 6 | 26 | 64 |
| Elite | White | 22 | 11 | 9 | 26.5 | |
| | Black | 26 | 8 | 8 | 30 | 84 |
| Mephisto | White | 7 | 8 | 7 | 10.5 | |
| | Black | 11 | 8 | 3 | 12.5 | 44 |
| SC9 | White | 11 | 14 | 2 | 12 | |
| | Black | 8 | 13 | 6 | 11 | 54 |
| Conchess | White | 4 | 5 | 3 | 5.5 | |
| | Black | 3 | 8 | 1 | 3.5 | 24 |
| Totals | White | 68 | 43 | 24 | | |
| | Black | 71 | 40 | 24 | | |

It's generally assumed that a given player should do better with white pieces than with black, but as far as I know this has been proven only of strong players (2300-2400 and above). This computer performance does not nessarily indicate a basic difference between humans and machines of the same strength (under 2000), but rather simply the latter's inability to benefit from the advantage of playing with the white pieces and, then, the inadequacy of the current approaches to the opening book problem.

In my opinion, the positive aspects of today's opening books are: 1) They help to avo
move instantaniously, leaving more computing time after book. 3) They offer more fun to the owner. But the opening book modules that can be added to an intrinsically sound, although more limited built-in book (e.g. SC9), don't seem to increase at all the Initial strength of a given program.

### III - The End-game

Capablanca, so far the only end-game module to reach the market, was supposed to solve some of Morphy's basic weaknesses in this phase of the game. However, I question the end-game character of a program that doesn't recognize under-promotion or that is incapable of understanding the most basic laws of the king's opposition (this second problem was improved in the updated Capablanca). In a simple position with white king on D1, white pawn on D2, and black king on D8, with white to play, the first Capablanca was unable to promote the pawn. Because of other important limitations (e.g. It tends too often to play moves irrelevant to the position, and also to blockade its bishop with its own pawns), Capablanca (1st or 2nd generation) added very little to Morphy's strength - maybe 20 to 30 points. Even this could be considered generous since the only results I have for comparison are GGM - Champion and Morphy-Champion, both played at 40/2: GGM and Champion tied at 12-12 while Morphy defeated Champion 5.5-4.5. Anyway, looking at the many games played by GGM it seems difficult to believe that Capablanca didn't add anything to GGM's strength.

It's generally accepted that the end-game (particularly rook endings) is the weakest part of today's chess microcomputer programs. It would seem quite reasonable then to desire an end-game module that could cure, even if partially, this basic sickness. Even if we admit that a module stronger than Capablanca could be written, an important problem will remain unsolved: If the basic end-game knowledge is confined in a program separate from the middle-game, how is it then possible for a chess computer to play the middle-game taking into account how favorable or unfavorable the resultant end-game will be? In my opinion, a separate program for the end-game could solve some specific problems, but it seems to be more of an afterthought than the best way to do things.

**IV - Conclusion**

When a human player selects an opening repertoire he takes into account the resultant positions and how much he likes or dislikes to play them. Also, when playing the middle-game he keeps in mind the kind of end-game that can result after accomplishing a given strategy. In other words, the game is, or at least tends to be, considered as a unit from the first move to the last. In contrast, today's chess programs seem to divide the game into three sub-games not necessarily interrelated, a peculiarity that certainly doesn't improve the game they play, let alone their "humanlike" quality.

I see no reason why the game of chess shouldn't be considered by programmers and manufacturers alike as a unit per se, and why the effort to offer a modular game can't be oriented towards a chess computer that will be modular where it counts: the hardware; e.g. a hand-held unit (like Mephisto) that can be connected to an auto-response board (also like Mephisto's ESB) or to a small LCD screen, with modular program *and* microprocessor (like Conchess), and possibly with some accessories like a printer. I realize that this is my personal dream in this field, but I also believe that such a machine, with a top-notch program and state-of-the-art electronics, would be a great success in the chess computer market.

E.I.

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## The Mephisto Concept
## A "Humanlike" Thinking Chess Program

**T. Nitsche**

In the following I would like to introduce the Mephisto concept to the general public. Mephisto (authors: E. Henne, T. Nitsche) is not a fixed program, rather it consists more of a set of ideas, which we are continually developing further. Contrary to the general belief the basic problem of chess programming does not lie in the optimization of pre-calculations, rather in the most exact possible evaluation of chess positions. All our ideas in the tactical and positional regions are to be examined with this point of view.

I don't wish to burden the reader with technical details such as "Quick movements" or "Exact static approximation of the consequences of capture," etc., as this would greatly exceed the scope of this article. Furthermore, I am unable to give final dtails here, as premature publication would endanger our "technological advance."

Before going into the Mephisto concept more deeply I would like to define the most important basic concepts for those readers who have not yet acquainted themselves with this field.

The "decision tree" represents the possible combinations of moves stemming from an initial position (="root") from which a move should be found. The branch-forks are called "nodes" and represent positions. Nodes are connected by branches, which represent the moves. The "depth" ishow many moves one needs to reach a node from the root. Exactly one branch leads to each node (except the root), and according to the situation none, one, or several branches lead away from it. If no branch leads away from a node it is called an "end-node." A "good move" means for Mephisto those moves whereby the moved piece cannot be profitably taken by the other side, i.e. no threat of material loss.

In general one differentiates between two concepts or types of chess program.

**The Shannon-A method:** Also called the "brute-force method" (raw power). Up to a certain depth all combinations of moves are looked at. Additionally many brute-force programs look at all captures in the end-nodes.

**The Shannon-B method:** Hereby at a node a choice is made among the possible moves, and only the chosen moves are analyzed further. This concept is more flexible than type A, but distinct disadvantage that under some circumstances it can overlook good moves or enemy threats.

The current chess programs with which we are acquainted can be only very unsatisfactorily characterized by Shannon A or B. Many programs, such as Mephisto, are mixed forms. The following criteria are helpful in describing chess programs:

-What are the selections criteria for moves at a node (with dependence on e.g. depth)?

-What are the criteria for breaking off the calculation of the consequences of a move (e.g. the move's goal can no longer be reached)?



-How much "chess" will be played at each node, i.e. how inclusively will a position be judged? Will an inclusive evaluation be made at every end-node, or only for the nodes at depth 1?

**The tactical Mephisto concept**

1) The following selection criteria and rules are used for the breaking off of calculations:
2) There is always a minimal depth MIN.T. (in connection with e.g. the level of ply) as well as a maximum depth MAX.T.
3) If a node has a calculational depth less than or equal to MIN.T. then all possible moves are analyzed further. Up to a certain depth Mephisto acts as a brute-force program, so as not (as with some other selective calculating programs) to overlook simple sacrifices and traps on both sides.
For nodes with depth greater than MIN.T. and less than or equal to MAX.T. there are various possibilities, for example:
4) If there are pieces threatened at a node, moves which "quiet" the situation will be examined (e.g. move it away or interpose a piece).
5) If "good" moves are possible, these moves will be analyzed further. In the best case an attempt at mate will ensue. At tournament level Mephisto II can recognize up to a mate-in-4 in the mid-game or a mate-in-5 in the end-game.
6) For pawns on the 7th rank the conversion will be analyzed further. On principle every win of a piece is analyzed further for possible traps.
7) If at a node of depth equal to MIN.T. +1 there are "good moves" in the position, then these variations are analyzed further. In principle, destabilizing moves should be looked at for as long as possible, in order to make the most exact evaluation of the position.

Additionally Mephisto has a number of time-saving stopping rules. For example, if, even by an optimistic move evaluation (every move that Mephisto makes is given an expected value), Mephisto cannot reach the value of the heretofore best combination of moves, then the combination of moves will be broken off. As an example, if a queen has already been sacrificed and Mephisto only has the possibility of attacking a rook, then the combination will be abandoned. If however the possibility exists for a "good" check, then the move is analyzed further.

Of course Mephisto also uses a number of exact techniques (Alpha-Beta algorithm, window technique, killer heuristic, etc.) with whose help not every senseless combination need be looked at. By exact I mean that the result of the move selection is not affected by such techniques. The time expended for the move selection is thereby greatly reduced (exponentially in the case of the Alpha-Beta algorithm); the program is made "fast."

Everything said up to now concerns itself solely with the tactical aspect of the Mephisto program. In order to win a game, however, it is not sufficient to merely avoid losing pieces, or to win a pawn. For this reason modern, state-of-the-art chess programs have a number of single evaluations called heuristics with whose help they strive to win material in the long run. In the short run however they "only" try for positional advantage.

**The positional Mephisto concept**

In contrast with pure brute-force program Mephisto can allow itself the luxury of developing a positional concept. Different heuristics are heeded for the various individual chess pieces. I would like to list the most important ones.

**Pawns:** Tempo, advance, center, and, recently, also doubled and free pawns. The pawn structure as well as isolated and backward pawns will be taken into account.

**Knights:** Tempo, centralization.

**Bishops:** Tempo, long diagonals, confinement, as well as fianchetto. Thereby Mephisto's handling it has the of certain openings (e.g. the Indian systems) is considerably improved.

**Rook:** Half-open and open files, doubling.

**Queen:** Holding back in the opening, becoming active in the middle-game.

**King:** Striving toward a safe, castled position, castled-king pawn pattern, remaining close to it's own pawns, centralization in the end-game.

In the general play of the pieces there are further priorities for the attack on the enemy king, as well as for defending it's own position and pieces. Mephisto II's manner of play is much improved by the confinement heuristic. The program can now build and recognize even complex threats in the middle-game. Furthermore, there are a number of end-game heuristics which will be much more meaningful in the future, such as the opposition, critical strokes in pawn endings, correct positioning of rooks in rook endings, or even knight + bishop mates.

Of course, Mephisto differentiates among the applications of these heuristics according to the opening, middle-game, or end-game. In the opening much value is put on e.g. the tempo (i.e. quick development), while attacking plays practically no role. The division of the phases of play by Mephisto is not fixed by the number of moves, but is decided by the state of the game. The middle-game is established after about 8 opening tempi, but the end-game is dependent on material.

The heuristics of the chess programs currently on the market vary considerably. In a sense, they each have their own "chess style." The selection from amongst several approximately equally strong chess microcomputers could thus be almost a matter of personal taste. The computer-chess enthusiast, however, in deciding on a particular system, would like to know about the shape of future developments.

In my opinion the programs based on the A strategy have largely arrived at a threshold; they can still get faster, but hardly "better." One should note that even with an increase in speed by a factor of 5 the calculational depth using this strategy would be increased by less than one half of one move! In the magazine "DM" (issue 11/81) I ventured the prediction that with our program "Orwell" for large computers we could reach a playing strength of 2000 Elo points. By the end of 1983 I hope that Mephisto will also be able to realize this. And thus the "humanlike" thinking chess program will at last have made the breakthrough possible.

## The Past and Future of Microcomputer Chess

by Kathe Spracklen

Microcomputer chess is a rather new field: only five years old. Yet, no one who has observed events in the field since its inception will deny that tremendous progress has been made. The firs microcomputer chess machines sold to the public were scarcely able to move the pieces; some could not even castle. Their ratings could, generously, be estimated to be in the 900's. Now, only five years later, the best micros rate in the 1900's; this is an average improvement of 200 rating points per year! Certainly, we cannot expect this pace to continue during the next five years. But, what *can* we expect to see? A look into the sources of past improvements may help to answer that question.

Growth in microcomputer chess has come about through improvements in hardware and in software. Till now, hardware improvements have been mainly faster and faster computer speeds. Processors are now available that run about four times faster than those used five years ago, and that increased speed has resulted in stronger play. Software improvements are program changes that improve the playing strength. Some of the software improvements have also been speed related. More efficient coding can sometimes bring about as much improvement in speed as a faster computer chip. But, not all the improvement in the microcomputer chess machines has been due to speed. Programs have also incorporated added chess knowledge. Early chess computers, for instance, knew nothing of pawn structure. Even the simplest principle of pushing passed pawns toward the Queening Square was not within their grasp. Today we would not be seeing the strength that we do in the best microcomputer chess machines, if the only improvements had been to their speed. So, where would we look for progress in the chess machines of tomorrow? To hardware or to software? To speed or to knowledge?

Is there hope for added speed? From a software perspective the outlook is pessimistic. Code can only be optimized so far; and these tiny computers are really being pushed to their limit. If we look to the chip makers, we see a brighter future. Faster microprocessors and processors with greater power continue to become available with each passing year. Each hardware advance threatens to obsolete all previous processors. Assume for the moment that the next five years will bring us the same speed improvement as the last five years, namely that chess computers five years hence will be running four times faster than today's models. What effect would the increased speed have on the playing strength of the program if no improvements were made to the software? There is a well-known formula devised by Ken Thompson which relates playing strength of a chess program to speed.* Using Thompson's formula, we would expect a program which currently plays at 1900 strength to increase to 2260 strength due to improvement in speed alone. As pleasant as this prospect may seem, we must remember that the programmers will also be active in the coming years.

The prospect for improved performance due to increased chess knowledge cannot be measured in a tidy formula. In fact, Thompson's formula predicts that added knowledge will result in no improvement in playing strength at all! I do not share that grim view, but there are problems associated with the attempt to add chess knowledge to the program. The principal problem is that adding knowledge can easily slow the program down. In the extreme case, the slow-down produced by added knowledge can actually decrease the playing strength of the program. The other major problem is that adding code space can make the machine more expensive. But, though there are two major problems, there are three major payoffs. The first significant payoff is the obvious one: if a program understands Principle X, then it will play correctly in situations where Principle X is a factor. As a result playing strength will increase noticeably. A less obvious payoff is what I've been calling the "Multiplier Effect" of added chess knowledge: if a program understands Principle X, then it can *threaten* to bring about situations in which Principle X will be a factor. Such threats can be handled with all the power that has made full-width programs such renowned tactical fighters. The third, and final, payoff results from the nature of the Alpha-Beta searching process itself. It turns out that the order in which the moves are examined can make a critical differance in the speed of the search. For this reason most programs attempt to sort the moves before performing the search. Added chess knowledge can improve the sorting and thus can buy back some of the time expended on calculation. Properly handled, the addition of chess knowledge to a microcomputer chess program can be an important factor in increasing the program's playing strength.

Overall, the outlook is bright for the future of micro-processor chess. Just how strong the programs may become in the next five years, I could not venture to say. But if the machines reach the 2200 rating level, I'm certain that chess knowledge and not speed alone will be a major factor in the achievement.

## The North American Computer Chess Championship

By Danny Kopec

The 13th annual North American Computer Chess Championship held October 24-26 at the Dallas Hilton was won for the third year running by BELLE the program from Bell Laboratories, Murray Hill, New Jersey, authored by Ken Thompson and Joseph Condon, on tie-break over NUCHESS of Northwestern University, Evanston, Illinois (authors David Slate and William Blanchard), CRAY BLITZ of Cray Research, Mendota Heights, Minnesota (authors Robert Hyatt, Albert Gower, and Harry Nelson) and CHAOS of the University of Michigan Computing Center, Ann Arbor, Michigan (authors Fred Swartz and Joseph Berman), all scoring 3-1 in the four-round-Swiss System event.

As in previous years, the tournament was part of the ACM, the annual conference of the Association for Computing Machinery, America's premier society for computer professinals with over 1100 registrants attending. Besides BELLE, the current World Computer Chess Champion and recent runner-up at the U.S. Open Speed Championship, there were 13 other entrants including three new participants: ADVANCE 2.4 (Dave Wilson and Mike Johnson, London, England), SFINKS EXPERIMENTAL (Gainesville, Forida) and PION (Derksen, Huisman, van den Herik, Nefkens, Dekker, Delft University of Technology,

Dept. of Computer Science, Holland). Noteworthy was the improved performance and numbers of micros, at least two of which (FIDELITY EXPERIMENTAL (Fidelity Electronics, by Kathe and Dan Spracklen, advised by Boris Baczynskyj), and PHILIDOR Philidor Software by I.M. David Levy and co-workers) have commercial connections. The Tournament Organizing Committee, consisting of Mike Rossi, Robert Hyatt, Ben Mittman (ICCA President), Professor Monroe Newborn (ACM Computer Chess Committee Chairman) and Ken Thompson, was responsible for all the complex arrangements of terminals and telephone links to remote computers around the U.S. and Canada. For the most part, with few exceptions, the telecommunications went smoothly with only minor delays to programs' abilities to complete 40 moves within the normal four hour clock-time sessions.

Professors Ben Mittman and Monroe Newborn (author of OSTRICH, Department of Computer Science, McGill University) require a special tribute, for they have been involved in the organization of all ACM Computer Chess Championships since their inception in 1970. Throughout the 1970's the tournament had been dominated by the continuous developmental series of the program CHESS, from 3.0 to 4.9, authored by David Slate, Larry Atkin, and Keith Gorlen, and later Slate and Atkin only, at Northwestern University, running on a CDC Cyber 176 in" Minneapolis, Minnesota. In 1978, 1980, and 1981 BELLE began its current domination of the event with special purpose hardware hooked up to a DEC LSI-11/13. It has by far the largest opening book size with 350,000 stored positions which have been typed in by Ken Thompson directly from the volumes of the Encyclopedia of Chess Openings published in Yugoslavia. Able to search 100-150 thousand nodes (positions) per second, BELLE is a tough customer, particularly in 5-minute chess where it regularly beats Grandmasters despite the handicap of having to win in less than 60 moves (i.e. it has 5 seconds per move).

In only four rounds it is difficult to distinguish a true Champion, though it is clear that BELLE, CRAY BLITZ, and NUCHESS are all of approximately the same strength (around 2100-2150), being weakest in the endgame while thriving on middlegame complications when calculaton and tactics are pre-emminent. For the past 3 years BELLE has prevented CRAY BLITZ from taking the title by winning or drawing their last round encounters with the Black pieces. NUCHESS, authored by David Slate and William Blanchard, is an independent program developed by Slate in the last few years, which he now hopes to transfer to a microprocessor from the CDC Cyber 176.

After a few years computer chess programs, like humans, develop certain characteristics or quirks in their play or performance, which distinguish them from others. For years CHAOS has been a perennial second-place finisher to the CHESS series of Northwestern University. It has also been noticable for its most "humanlike" qualities of play, searching fewer nodes than nearly all strong successful programs while geared towards a slower, positional game. However it is also a slower-paced mover than other programs, occassionally losing on time or falling apart due to time pressure. Its authors, Swartz and Berman, are understandably often nervous, for you can imagine their concern when in a last-round encounter against OSTRICH, CHAOS, three pawns up in a King and Pawn ending deferred the promotion of a pawn on the 7th rank for a few moves while Black got a passed pawn of his own. OSTRICH, a perennial participant and loser in the clutch, is noted for unpredictable behavior when winning or in strong positions, giving author Newborn an often grave appearance of fatalism during its games. However OSTRICH came through with the upset of the tournament in the very first round by drawing BELLE, the favorite, though in fact it should have won, having been the exchange ahead for nothing. Newborn has it running in Montreal on an 8-Nova multiprocessing system at McGill University.

In a crucial third round encounter between BELLE (White, 1½) vs. NUCHESS (Black, 2) Ken Thompshon's industrious efforts inproviding BELLE with all of ECO finally paid off. His program essayed the somewhat obscure and antiquated Ponziani Opening, catching NUCHESS in a prepared book trap resulting in a brief and decisive victory for BELLE, to the disappointment of all who expected a great battle.



The continuous, improved performanance of programs running off of microprocessors was indicated by the results of ADVANCE 2.4 and BEBE, both 2½, just behind the winning programs running on bigger machines. FIDELITY EXPERIMENTAL and SAVANT ROYALE scored 2, while PHILIDOR was somewhat unfortunate to get only 1½ due to its third-round game against SCHACH 2.6 having been adjudicated, perhaps incorrectly, a draw, despite it having been two pawns up in a R and P ending.

The tournament director was International Master Michael Valvo, who is also one of American's chess exhibitionists. took on 5 programs entertainment and draw.

Next year's ACM t serve as the World Championship and v York City.

REFERENCES: I would like to acknowledge the A.C.M. Computer Chess Committee's excellent handout.

Danny Kopec
Dallas, Texas

**THIRTEENTH ACM NORTH AMERICAN COMPUTER CHESS CHAMPIONSHIP**

| # | NAME | RATING | Rnd. 1 | Rnd. 2 | Rnd. 3 | Rnd. 4 | TOTAL | PLACE |
|---|---|---|---|---|---|---|---|---|
| 1 | ADVANCE 2.4 | 1760 | W/14 ½ | B/9 1 | B/2 0 | W/13 1 | 2½ | =5 |
| 2 | BEBE | 1780 | W/10 1 | B/6 ½ | W/1 1 | B/8 0 | 2½ | =5 |
| 3 | BELLE | 2161 | W/9 ½ | B/4 1 | W/8 1 | B/6 ½ | 3 | =1 |
| 4 | CHAOS | 1800* | B/5 1 | W/3 0 | B/12 1 | W/9 1 | 3 | =1 |
| 5 | CHATURANGA 2.0 | 1319* | W/4 0 | B/10 0 | W/11 0 | B/14 0 | 0 | 14 |
| 6 | CRAY BLITZ | 2258/5* | B/12 1 | W/2 ½ | B/7 1 | W/3 ½ | 3 | =1 |
| 7 | FIDELITY EXPERIMENTAL | 1890* | W/11 1 | B/8 0 | W/6 0 | B/10 1 | 2 | =7 |
| 8 | NUCHESS | 2035* | B/13 1 | W/7 1 | B/3 0 | W/2 1 | 3 | =1 |
| 9 | OSTRICH | 1611 | B/3 ½ | W/1 0 | W/14 1 | B/4 0 | 1½ | =9 |
| 10 | PHILIDOR | 1923* | B/2 0 | W/5 1 | B/13 ½ | W/7 0 | 1½ | =9 |
| 11 | PION | UNR | B/7 0 | W/13 0 | B/5 1 | W/12 0 | 1 | 13 |
| 12 | SAVANT ROYALE | 1700* | W/6 0 | B/14 1 | W/4 0 | B/11 1 | 2 | =7 |
| 13 | SCHACH 2.6 | UNR | W/8 0 | B/11 1 | W/10 ½ | B/1 0 | 1½ | =9 |
| 14 | SFINKS | UNR | B/1 ½ | W/12 0 | B/9 0 | W/5 1 | 1½ | =9 |

* = rating is an estimate

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## PROGRAM INFORMATION

| Program | Authors | Computing System (Location) | Language | Program Size (Program, Data) | Book Size | Nodes/Sec. |
|---|---|---|---|---|---|---|
| ADVANCE 2.4 | Wilson Johnson | 6502-based system | Assembly | 30 K, 4 K | 5,000 pos. | 5 K |
| BEBE | Scherzer | CHESS ENGINE (at site) | Assembly | 12 K, 16 K | 400 moves | 20 K |
| BELLE | Thompson Condon | DEC LSI-11/23 with special purpose hardware (Bell Labs., Murray Hill) | C | 90 Kb, 5 Kb | 350,000 pos. | 100-150 K |
| CHAOS | Alexander, Swartz O'Keefe, Hersey | Amdahl 470 v/8 (Amdahl Corp., Sunnyside, California) | FORTRAN | 700 Kb, 3 Megb. | 10,000 pos. | 0.85 K |
| CHATURANGA 2.0 | Poduska | Apollo (at site) | FORTRAN and Motorola 68000 assembly | 20 K, 4 K | 1000 moves | .2K |
| CRAY BLITZ | Hyatt, Gower, Nelson | CRAY-I (Cray Research, Mendota Heights, MN) | FORTRAN IV | 200 K 12Mb | 30,000 pos. | 8-20 K |
| FIDELITY EXPERIMENTAL | Spracklen, Spracklen Baczynskyj | 6502-based system (at site) | Assembly | 20 K, 8 K | 16,000 pos. | 1 K |
| NUCHESS | Slate, Blanchard | CDC Cyber 175 (Minneapolis, Minnesota) | FORTRAN | 100 K, 400 K | 5,700 pos. | 1.8 K |
| OSTRICH | Newborn | 8-Nova Multiprocessing System (McGill University, Montreal) | Assembly | 10 K, 12 K/machine | 1000 pos. | .6K |
| PHILIDOR | Broughton, Levy, O'Connell, Taylor, Johnson | Osborne 1 (at site) | Z-80 Assembly | 32 K, 16 K | 4,000 moves | .4 K |
| PION | Derksen, Huisman van den Herik, Nefkens Dekker | PDD 11/70 (Purdue University) | C | 100 K, 10 K | 2,000 | 1-2 K |
| SAVANT ROYALE | Kittinger | Savant Royale (at site) | | | | |
| SCHACH 2.6 | Engelbach | Burroughs B 7800 (Burroughs Corp., Padi, Pennsylvania) | Z-80 Assembly | 32 K, 2 K | 9,000 pos. | .08 K |
| | | | Algol | 60 Kb, 1.8 Megb. | 8,000 pos. | .7-1.3 K |
| SFINKS EXPERIMENTAL | Fink | TRS-80 Microcomputer (at site) | Z-80 Assembly | 20 K, 4 K | 256 moves | .1 K |

# The U.S. Open Chess Championship, 1982

**Introduction: Kathe Spracklen**
**Game Commentary: Boris Baczynskyj**

## Games Played by the Prestige Chess Challenger in the 1982 U. S. Open

This year's U. S. Open in St. Paul Minnesota was attended by over 400 participants, four of whom were computers. Belle, the reigning World Computer Chess Champion competed via a terminal connection between Bell Labs in Murray Hill, New Jersey and the tournament hall. Belle is rated at approximately 2160. Belle is the work of Ken Thompson and Joe Condon and was operated at the tournament site by Dave Cahlander of Control Data Corp. Cahlander is one of the authors of the former World Computer Chess Champion, Chess 4.9. CHAOS, a program whose authors are Fred Swartz, Mike Alexander, Jack O'Keefe, Mark Hersey and Victor Berman, communicated its moves over the telephone from the University of Michigan. It was represented in St. Paul by Fred Swartz and Mark Hersey. CHAOS took 2nd place in the most recent World Computer Chess Championship and is rated 1820.

The two other computer participants were microcomputers. Both are products of Fidelity Electronics and are programmed by Dan and Kathe Spracklen with the aid of Boris Baczynskyj as chess advisor. One participant, the Sensory Chess Challenger 9, is an off-the-shelf product that is new on the market this year. Priced around $160, the Sensory 9 offers playing skills comparable to the Champion Sensory Challenger in an economy housing. The Sensory 9 earned an event rating of approximately 17-70 in the twelve round event. The other microcomputer present was a preproduction prototype of the new Prestige Chess Challenger soon to be offered by Fidlity. The Prestige set a record in the tournament by defeating an "expert" rated player, the first time a microcomputer has ever accomplished this in a tournament game. The Prestige chalked up a rating of about 1870 over the twelve games in the open.

Both micros were assisted in several of their games by a new tournament opening book of approximately 12,000 positions that was prepared by Boris Baczyskyj especially for this event. The tournament book will be available this fall as an accessory module for both the Sensory 9 and the Prestige. Games which did not employ the tournament book were played using the CB16 book, a 16,000 position opening book which is currently available as an accessory for the Sensory 9 and which will be supplied free of charge to purchasers of the Prestige. The Sensory 9 utilizes a 6502 microprocessor running at a clock speed of approximately 1.5 mHz. The Prestige uses the same microprocessor, but runs at a clock speed of 4mHz.

K.S.

**ROUND 1**
**White: Chuck Fenner**
**Black: Prestige**

| | | |
|---|---|---|
| 1. | d4 | d5 |
| 2. | Nf3 | Nf6 |
| 3. | g3 | e6 |
| 4. | Bg2 | Bd6 |
| 5. | 0-0 | 0-0 |
| 6. | c4 | c5 |
| 7. | Nc3 | dc4 |
| 8. | e4 | Nc6 |
| 9. | Bg5 | e5 |
| 10. | de5 | Be5 |
| 11. | Qd8 | Rd8 |
| 12. | Ne5 | Ne5 |
| 13. | f4 | Ng6 |
| 14. | Nd5 | Rd6 |
| 15. | f5 | Nd5 |
| 16. | ed5 | Ne5 |
| 17. | Be7 | Rb6 |
| 18. | Bc5 | Rb2 |
| 19. | Bd4 | Re2 |
| 20. | Rfe1 | Re1 + |
| 21. | Re1 | f6 |
| 22. | Be5 | fe5 |
| 23. | Re5 | c3 |
| 24. | d6 | c2 |
| 25. | Rc5 | Bf5 |
| 26. | Bd5 + | Kh8 |
| 27. | Bb3 | b6 |
| 28. | Rc7 | Rd8 |
| 29. | Bc2 | Bh3 |
| 30. | Ra7 | g6 |
| 31. | d7 | Bd7 |
| 32. | Rb7 | b5 |
| 33. | Be4 | Be6 |
| 34. | Rb5 | Rd1 + |
| 35. | Kf2 | Rd2 + |
| 36. | Ke3 | Ra2 |
| 37. | h4 | Ra7 |
| 38. | Kf4 | Kg7 |
| 39. | h5 | Rf7 + |
| 40. | Ke3 | Bc4 |
| 41. | Rg5 | Rf6 |
| 42. | hg6 | hg6 |
| 43. | Rg6 + | Rg6 |
| 44. | Bg6 | Kg6 |
| 45. | Draw Agreed. | |

The Prestige suffered through first-round jitters: its book module was not properly inserted; as a result the machine had to fend its own theoretical path after the second move. A strange machine-like opening resulted: 4... Bd6 misplaced the Bishop; most humans would play 9...cd4 instead of 9...e5; it is not clear why the machine played 10...Be5 instead of 10...Ne5 (as the Bishops are more-highly scored than the Knights the machine is usually more piously attached to its clergy.)

Although the computer's position seemed awkward until the 23rd move, it does not seem that White missed any obvious win. However, it seems that he could have maintained more pressure on Black's position if instead of 14.Nd5 he played 14.e5 h6; 15.ef6 hg5;16.fg5. Also, on White's next turn, a stronger line would have been 15.e5 Rd5; 16.ef6. Subsequently, 26...Kh8 seemed like a less natural move than the centralizing 26... Kf8, which, however loses a Pawn to 27.BB7.

Over-all, though, in this game the Prestige showed its pluck: bereft in the theoretical sea it found its way to the haven of a clearly drawn ending.

**ROUND 2**
**White: Fidelity Prestige**
**Black: David Moody, 2049**

| | | |
|---|---|---|
| 1. | e4 | e5 |
| 2. | Nc3 | Nf6 |
| 3. | g3 | Bc5 |
| 4. | Bg2 | a6 |
| 5. | Nf3 | d6 |
| 6. | d4 | ed4 |
| 7. | Nd4 | Bg4 |
| 8. | f3 | Be6 |
| 9. | Ne6 | fe6 |
| 10. | Bh3 | Qe7 |
| 11. | Na4 | Ba7 |
| 12. | Qd3 | b5 |
| 13. | Nc3 | Nc6 |
| 14. | a4 | Ne5 |
| 15. | Qe2 | c6 |
| 16. | ab5 | ab5 |
| 17. | Be3 | 0-0 |
| 18. | Ba7 | Ra7 |
| 19. | Be6 + | Kh8 |
| 20. | Ra7 | Qa7 |
| 21. | f4 | Ng6 |
| 22. | h4 | Qa1 + |
| 23. | Nd1 | Re8 |
| 24. | f5 | Ne5 |
| 25. | 0-0 | Nc4 |
| 26. | c3 | Qa7 |
| 27. | Kh2 | h5 |
| 28. | Nf2 | Ne3 |
| 29. | Re1 | Ng4 + |
| 30. | Ng4 | Ng4 + |
| 31. | Kg2 | Qe7 |
| 32. | Ra1 | Rb8 |
| 33. | Qd2 | Nf6 |
| 34. | Qd3 | c5 |
| 35. | Qf3 | b4 |
| 36. | c4 | Re8 |
| 37. | b3 | Rd8 |
| 38. | Qe3 | Re8 |
| 39. | Qg5 | Kh7 |
| 40. | Ra2 | Kh8 |
| 41. | Qg6 | Qb7 |
| 42. | Bd5 | Qe7 |
| 43. | Ra1 | Qe5 |
| 44. | Ra7 | Qb2 + |
| 45. | Kh3 | Nd5 |
| 46. | Qe8 + | and the Prestige's LCD's lit up, announcing checkmate after 46...Kh7; 47.Qg6 + , Kh8 (or Kg8); 48. Ra8 Checkmate. |

An important game for the Prestige since it manages to best a candidate master in its premier tournament. The machine achieves a fine position out of the opening but then plays 8.f3 (instead of 8. Qd3) loosening its King-side. Then, unable to find the idea of 10. Qe2, followed by 11. Be3 and castling, Prestige scatters its minor pieces on its 10th and 11th turn. In a roughly equal position Black, provoked by the Knight on the rim, makes the weakening move 12...b5; the machine promptly takes aim at this target with 14.a4.

Then Black, who had ignored good opportunities to castle previously, gets his King out of the center at the wrong moment, allowing the Prestige to win a pawn because of the overload on Black's Queen. However, the position remains unclear because of the exposed position of the machine's King in the center. With several adroit defensive moves and a little bit of luck (Black should have played 24...Nf8 winning back the pawn with the

better position), the electronic wizard brings his monarch to relative safety on its 25th turn.

When Black needlessly abandons the a-file with 31... Qe7, the artificial chessplayer coolly seizes it by 32. Ra1; then after some mysterious (grandmaster-like?) Queen moves it posts its Queen very nicely with 39.Qg5. The win would still have been a challenge to the cool calculator's capacities, but then its warm-blooded opponent, harried by lack of time for thought, errs with 44. Qb2+ (instead of 44. Re7) and now the Black King is defenseless.

**ROUND 3**
**White: Fidelity Prestige**
**Black: Tim Radermacher, 1991**

| | | |
|---|---|---|
| 1. | e4 | c5 |
| 2. | Nf3 | d6 |
| 3. | d4 | cd4 |
| 4. | Nd4 | Nf6 |
| 5. | Nc3 | g6 |
| 6. | f4 | Bg7 |
| 7. | e5 | de5 |
| 8. | fe5 | Nd7 |
| 9. | e6 | Ne5 |
| 10. | Bb5+ | Nbc6 |
| 11. | ef7+ | Kf7 |
| 12. | 0-0+ | Bf6 |
| 13. | Nc6 | bc6 |
| 14. | Qd8 | Rd8 |
| 15. | Ba4 | Kg7 |
| 16. | Bf4 | Bf5 |
| 17. | Rae1 | Nf7 |
| 18. | Bc6 | Rac8 |
| 19. | Be4 | Be4 |
| 20. | Re4 | Rd4 |
| 21. | Re6 | Rb4 |
| 22. | Bc1 | Rc5 |
| 23. | Kh1 | Ne5 |
| 24. | a3 | Rb6 |
| 25. | Na4 | Re6 |
| 26. | Nc5 | Rc6 |
| 27. | b4 | Nc4 |
| 28. | g4 | Bd4 |
| 29. | Nb3 | Be3 |
| 30. | Na5 | Rc7 |
| 31. | Nc4 | Bc1 |
| 32. | Rc1 | Rc4 |
| 33. | g5 | e5 |
| 34. | Rd1 | Rc7 |
| 35. | c4 | Kf7 |
| 36. | c5 | Ke7 |
| 37. | Kg2 | a5 |
| 38. | Rc1 | ab4 |
| 39. | ab4 | Kd7 |
| 40. | b5 | Kc8 |
| 41. | b6 | Rf7 |
| 42. | c6 | Rf5 |
| 43. | Ra1 | Rg5+ |
| 44. | Kh1 | Kb8 |
| 45. | Ra7 | Rf5 |
| 46. | c7+ | Kc8 |
| 47. | Ra8+ | Kd7 |
| 48. | c8 (Q)+ | Ke7 |
| 49. | Ra7+ | Kf6 |
| 50. | Qd8+ | Ke6 |
| 51. | Qd7+ | Resigns. |

The Prestige shines in this game — probably its best performance of the tournament. The game proceeds 15 moves into the machine's book and it achieves a comfortable edge in the Levenfish Variation of the Dragon Sicilian: Black's pieces are disorganized and his pawns are disjointed.

Then, on his 16th turn Black blunders a pawn with Bf5, instead of 16... Bb7 or 16... Bd7. After gobbling up the pawn, the computer holds on to it by neutralizing the threat of Bc3 with its counter-attack on the e7-pawn. It also has no trouble coping with the tactical traps that Black keeps throwing its way, e.g. with 20...Rd4 Black is threatening 21...Rc3, winning material but the machine deftly side-steps this with 21. Re6.

With 24.a3 and 27. b4 the machine starts its pawn majority rolling. Then follows a tactical intermezzo, which results in a winning Rook and pawn ending for the Prestige. It transforms its advantage into a point flawlessly.

An impressive performance by the Fidelity Prestige—not only does it keep taut tactical control throughout, but its moves are woven neatly into a coherent strategic design.

**ROUND 4**
**White: Peter Moscatelli, 2142**
**Black: Fidelity Prestige**

| | | |
|---|---|---|
| 1. | Nf3 | c5 |
| 2. | g3 | Nc6 |
| 3. | Bg2 | g6 |
| 4. | 0-0 | Bg7 |
| 5. | d3 | e5 |
| 6. | Nc3 | Nge7 |
| 7. | a3 | 0-0 |
| 8. | Rb1 | d5 |
| 9. | Bd2 | a5 |
| 10. | Na4 | b6 |
| 11. | c4 | dc4 |
| 12. | dc4 | Bg4 |
| 13. | h3 | Bf5 |
| 14. | Rc1 | h6 |
| 15. | Bc3 | Qc7 |
| 16. | Nd2 | Rfd8 |
| 17. | Qb3 | Rab8 |
| 18. | Qa2 | Nd4 |
| 19. | Rfe1 | Bd7 |
| 20. | b3 | Ba4 |
| 21. | ba4 | Ne6 |
| 22. | Qc2 | Kh7 |
| 23. | Rcd1 | f5 |
| 24. | e3 | e4 |
| 25. | Bg7 | Ng7 |
| 26. | Nb1 | Qe5 |
| 27. | Nc3 | Ne6 |
| 28. | Qb3 | Ng5 |
| 29. | Nd5 | Nd5 |
| 30. | Rd5 | Rd5 |
| 31. | cd5 | Nf7 |
| 32. | Bf1 | Qc7 |
| 33. | Rd1 | Nd6 |
| 34. | h4 | c4 |
| 35. | Qc3 | Rc8 |
| 36. | h5 | gh5 |
| 37. | Be2 | Kg6 |
| 38. | Kg2 | Qd7 |
| 39. | Bh5+ | Kg5 |
| 40. | Rh1 | Qe7 |
| 41. | Rh4 | Qf6 |
| 42. | Qc1 | Qe5 |
| 43. | Qh1 | Qd5 |
| 44. | Be8 | Kf6 |
| 45. | Rh6+ | Ke7 |
| 46. | Bb5 | Nb5 |
| 47. | ab5 | Qb5 |
| 48. | Rh7+ | Ke6 |
| 49. | Qh6+ | Kd5 |
| 50. | Rf7 | Rf8 |
| 51. | Qf8 | Qa4 |
| 52. | Qd8+ | Ke5 |
| 53. | Re7+ | Kf6 |
| 54. | Qf8+ | Kg5 |
| 55. | Rg7+ | Kh5 |
| 56. | Qh8 Checkmate. | |

Prestige has the better position for most of this game against a strong candidate master, but loses the game because it does not know how to utilize its advantages, then becomes cavalier about the safety of its King, and finally succumbs to some sharp tactical shots by its opponent.

The machine plays the opening nicely; it is White that commits the first major inaccuracy by putting his Knight on the rim with 10. Na4. Then, the machine decides to give up its strong white-squared Bishop on its 20th turn to double White's a-pawns. Still, in the position after 25...Ng7 Black stands better because of its superior pawn structure, and because of the possibility of occupying the holes d3 and f3 in White's camp. However, then the human player nurses his Knight toward the d5 hole in Black's camp, while the machine neglects the possibility of the maneuver Ne7-c6-e5 pointing the steed toward the weak spots in White's camp. But, even though White succeeds in creating a passed pawn on his 31st move, he does not confer any advantage because it can be readily blockaded by the Knight; in addition Black has at least as strong a passed pawn of his own on the c-file.

But then the machine misses several moves (e.g. 34... h5 blockading the King-side, or 36...Qg7 either displacing White's Queen or heading for an advantageous endgame, or finally 37...h4 38. gh Rg8+ 39 K any Qe7 and it is Black who will have a decisive attack) and allows White's pieces to encircle its King. Finally, with no good move on its 50th turn, Prestige lets out a painful yelp and offers up a Rook. The end is swift.

**ROUND 5**
**White: Fidelity Prestige**
**Black: A. Unger**

| | | |
|---|---|---|
| 1. | e4 | e5 |
| 2. | Nc3 | Nc6 |
| 3. | Bc4 | Bc5 |
| 4. | Qg4 | g6 |
| 5. | Qf3 | Qf6 |
| 6. | Nd5 | Qf3 |
| 7. | Nf3 | Bb6 |
| 8. | c3 | d6 |
| 9. | d4 | h6 |
| 10. | 0-0 | Bg4 |
| 11. | Be3 | Bf3 |
| 12. | gf3 | Nge7 |
| 13. | Nb6 | ab6 |
| 14. | d5 | Nd8 |
| 15. | f4 | f6 |
| 16. | fe5 | fe5 |
| 17. | f4 | Nf7 |
| 18. | Bb5+ | Kf8 |
| 19. | fe5 | de5 |
| 20. | Bc4 | Nc8 |
| 21. | Rf6 | Nd6 |
| 22. | Bd3 | Kg7 |
| 23. | R6f1 | Rhf8 |
| 24. | a4 | Nh8 |
| 25. | Rf8 | Rf8 |
| 26. | Rf1 | Ra8 |
| 27. | b3 | Nf7 |
| 28. | Kf2 | Rh8 |
| 29. | Ke2 | Ng5 |
| 30. | Bg5 | hg5 |
| 31. | Rf2 | Rh4 |
| 32. | Ke3 | Rf4 |
| 33. | Ra2 | g4 |

| | | |
|---|---|---|
| 34. | Rf2 | g5 |
| 35. | Rf1 | Kg6 |
| 36. | b4 | Kh5 |
| 37. | Rf2 | Kh4 |
| 38. | c4 | g3 |
| 39. | Rg2 | gh2 |
| 40. | Rh2 + | Kg3 |
| 41. | Rh5 | Rf3 + |
| 42. | Kd2 | Kg4 |
| 43. | Rh7 | Rf7 |
| 44. | Rh1 | Kf3 |
| 45. | Re1 | Rf4 |
| 46. | Re3 + | Kg2 |
| 47. | c5 | bc5 |
| 48. | bc5 | Nf7 |
| 49. | a5 | g4 |
| 50. | c6 | bc6 |
| 51. | a6 | Nd6 |
| 52. | Re2 + | Kh3 |
| 53. | dc6 | g3 |
| 54. | Re1 | g2 |
| 55. | a7 | Rf8 |
| 56. | Ke3 | Ra8 |
| 57. | Kf3 | Ra7 |
| 58. | Rd1 | Ra3 |
| 59. | Kf2 | Kh2 |
| 60. | Ke2 | g1(Q) |
| 61. | Resigns | |

Black plays an inferior variation against the Vienna Game, and booked-up Prestige achieves a comfortable edge in the opening. Soon afterwards the Two Bishops (vs. Two Knights) are added to White's arsenal. But then the machine does not take advantage of several opportunities to open up the position for the clergy, e.g. instead of the blocking 14.d5 stronger is the fluid 14.f4; rather than 20.Bc4, much more effective is 20.d6 cd6; 21. Bb6. so the Prestige does not understand the opening up of a pawn position to favor the Bishops; when attempts were made to incorporate this concept into the machine's play it was found that the necessary code was so lengthy that it impeded the machine's tactical analysis.

In the more simplified endgame resulting after the exchange on Move 30 White should immediately push its Queen-side pawns, aiming for a break at c5 or a5, eventually producing a passed pawn there. Instead of that Prestige's dilly-dallying (between moves 31 and 46 it makes 12 Rook moves — most of them unnecessary) allows the more purposeful human to carry out his plan of slowly advancing his pieces into White's territory, exhanging off the formost g-pawn, and then nursing the remaining g-pawn to victory. When Prestige finally achieves its breakthrough on the Queenside and obtain's a passed a-pawn, it's too little and too late.

**ROUND 6**
**White: W. Howell, 1845**
**Black: Fidelity Prestige**

| | | |
|---|---|---|
| 1. | e4 | c5 |
| 2. | Nf3 | Nc6 |
| 3. | d4 | cd4 |
| 4. | Nd4 | g6 |
| 5. | Nc3 | Bg7 |
| 6. | Be3 | Nf6 |
| 7. | Nc6 | bc6 |
| 8. | e5 | Nd5 |
| 9. | Nd5 | cd5 |
| 10. | Qd5 | Rb8 |
| 11. | 0-0-0 | Bb7 |
| 12. | Qd4 | 0-0 |
| 13. | Qd7 | Qa5 |
| 14. | Qe7 | Be5 |
| 15. | Bd4 | Bd4 |
| 16. | Rd4 | Qa2 |
| 17. | Qa3 | Qa3 |
| 18. | ba3 | Rfe8 |
| 19. | Kd2 | Bc6 |
| 20. | Bc4 | Bg2 |
| 21. | Re1 | Re1 |
| 22. | Ke1 | Kg7 |
| 23. | Rd7 | Rb1 + |
| 24. | Kd2 | Rb7 |
| 25. | Rb7 | Bb7 |
| 26. | Ke3 | Kf6 |
| 27. | Kd4 | g5 |
| 28. | Bd5 | Bc8 |
| 29. | c4 | Ke7 |
| 30. | Kc5 | f6 |
| 31. | Kc6 | g4 |
| 32. | Kc7 | Bd7 |
| 33. | c5 | Bf5 |
| 34. | c6 | h5 |
| 35. | Kb8 | Kd6 |
| 36. | Bg2 | h4 |
| 37. | c7 | Be6 |
| 38. | Bb7 | f5 |
| 39. | Bc8 | g3 |
| 40. | fg3 | hg3 |
| 41. | hg3 | Bc4 |
| 42. | Bf5 | Ba6 |
| 43. | c8 (Q) | Bc8 |
| 44. | Bc8 | Resigns. |

A game which demonstrates two typical weaknesses of machine chess play:

1) the computer does not understand the idea of initiative and attack;
2) endgame concepts, even those that are relatively simple for a human player, are not comprehensible to the machine.

Prestige plays a book pawn sacrifice in which Black's material minus is compensated for by the lead in development and the open lines available to its pieces. In the game Black seizes the advantage leading up to crucial position reached after White's 16.Rd4. But then the machine makes an error in an immediate grab of one of its sacrificed pawns, 16... Qa2, and then after 17. Qa3 it exchanges Queens, eliminating the posibility of further pressure on White's exposed King. Much better is 16...Rfe8, leading to the following possibilities:
A) 17. Qb4 Qa with a wining attack for Black;
B) 17. Qa3 Re1 +; 18. Rd1 Qg5 + winning;
C) 17. Qd6 Rbd8 winning;
D) 17. Qf6 (or 17.Qh4) Re1 +; 18. Rd1 Rd1 +; 19. Kd1 Qa2, and although White is still a pawn up it is doubtful that he will be able to organize his position in any way that would avoid the full fury of Black's pieces.

Having missed its chance for a win in the middle-game, the Prestige proceeds to misplay the drawable endgame. (after White gives back the pawn to complete his development). 23... Rb1 is a useless check driving the King toward the center, where it wants to go anyway. Later, Black throws away the game by not blockading White's passed c-pawn, and by not advancing his pawn majority on the King-side to produce its own passed pawn.

**ROUND 7**
**White: L. Johansson, 1757**
**Black: Fidelity Prestige**

| | | |
|---|---|---|
| 1. | d4 | Nf6 |
| 2. | c3 | g6 |
| 3. | Bg5 | Bg7 |
| 4. | Nd2 | 0-0 |
| 5. | e4 | h6 |
| 6. | Bh4 | g5 |
| 7. | Bg3 | d5 |
| 8. | e5 | Ne4 |
| 9. | Nf3 | f5 |
| 10. | ef6 e.p. | ef6 |
| 11. | Bd3 | g4 |
| 12. | Nh4 | f5 |
| 13. | f3 | Ng3 |
| 14. | hg3 | Qd6 |
| 15. | f4 | c5 |
| 16. | Nb3 | c4 |
| 17. | Nc5 | cd3 |
| 18. | Nd3 | Re8 + |
| 19. | Ne5 | Nc6 |
| 20. | Ng6 | Qg6 |
| 21. | Kd2 | Ne5 |
| 22. | de5 | Qb6 |
| 23. | Qc2 | Qf2 + |
| 24. | Kc1 | Qg3 |
| 25. | Qd2 | Be6 |
| 26. | b3 | Kh7 |
| 27. | Rb1 | a5 |
| 28. | b4 | ab |
| 29. | Rb4 | Ra2 |
| 30. | Resigns | |

Not a profound game, but an efficient performance by Prestige. In the twilight of his illustrious chess career Emmanuel Lasker was to have sid, "I might be an old man, but if you put your hand in my mouth, I still know how to bite." Similarly in this game the Prestige, if it had the power of speech, could say, "I might not be very smart and the subtleties of positional play might escape me, but if you hang your pieces I know how to take them."

The game is decided by two piece-losing blunders by White: 16. Nb3 allows a pawn fork, and 20.Ng6 (apparently overlooking that the Knight on e5 is pinned) drops another piece. White's weak play fails to make an Issue out of Black's early loosening of the King position. If White was a stronger player, It might have been otherwise.

**ROUND 8**
**White: Fidelity Prestige**
**Black: K. Smith, 1883**

| | | |
|---|---|---|
| 1. | e4 | e5 |
| 2. | Nc3 | Nc6 |
| 3. | Bc4 | Nf6 |
| 4. | d3 | Bb4 |
| 5. | Bg5 | h6 |
| 6. | Bf6 | Qf6 |
| 7. | Ne2 | Na5 |
| 8. | 0-0 | c6 |
| 9. | a3 | Bc3 |
| 10. | Nc3 | 0-0 |
| 11. | Ba2 | b5 |
| 12. | Qd2 | Nb7 |
| 13. | f4 | ef4 |
| 14. | Qf4 | Qf4 |
| 15. | Rf4 | d6 |
| 16. | Raf1 | Be6 |
| 17. | d4 | Ba2 |
| 18. | Na2 | Rae8 |
| 19. | Nc3 | a6 |

| | | |
|---|---|---|
| 20. | d5 | c5 |
| 21. | Kh1 | Re7 |
| 22. | Kg1 | Rfe8 |
| 23. | Rf3 | f6 |
| 24. | Rf4 | b4 |
| 25. | ab4 | cb4 |
| 26. | Na2 | a5 |
| 27. | c3 | b3 |
| 28. | Nc1 | Nc5 |
| 29. | c4 | Re4 |
| 30. | g3 | Rf4 |
| 31. | Rf4 | Re1 + |
| 32. | Rf1 | Re4 |
| 33. | Rf4 | a4 |
| 34. | Re4 | Ne4 |
| 35. | Nd3 | Kf7 |
| 36. | Kg2 | Ke7 |
| 37. | Kg1 | Kd7 |
| 38. | Kg2 | Kc7 |
| 39. | Kg1 | Kb6 |
| 40. | Kg2 | Nd2 |
| 41. | c5 + | dc5 |
| 42. | d6 | c4 |
| 43. | Nc5 | a3 |
| 44. | ba3 | c3 |
| 45. | Na4 + | Kc6 |
| 46. | Nc3 | b2 |
| 47. | a4 | b1(Q) |
| 48. | Nb1 | Nb1 |
| 49. | Kf3 | Kd6 |
| 50. | Kf4 | g6 |
| 51. | h4 | Nc3 |
| 52. | a5 | Nd5 + |
| 53. | Ke4 | f5 + |
| 54. | Kd4 | g5 |
| 55. | hg5 | hg5 |
| 56. | Kc4 | f4 |
| 57. | gf4 | gf4 |
| 58. | Kd3 | Kc6 |
| 59. | Ke4 | Kb5 |
| 60. | Resigns. | |

A couple of positional misjudgements ruined the Prestige in this game. Taking advantage of its opponent's opening inaccuracies, the machine entered the middle game with an advantage and the prospects of an attack on Black's King. But, then the Prestige inexplicably played 14. Qf4, allowing the exchange of Queens, instead of the (humanly) much more natural 14. Rf4.

The resulting endgame was equal, even though the computer enjoyed a slight space advantage. But, then it committed another positional horror — 20.d5. By this single stroke it injured its position in four respects: a) the e5-square was weakened; b) Black's Queen-side pawns were allowed to push on agressively; c) the White Knight could not make use of the d5-square; and d) the e4-pawn was weakened.

It was not long before the e4-pawn fell, and with it the game was gone. But the Prestige, bent on self-flagelation, extended the trauma before resigning after Black's 59th move.

**ROUND 9**
**White: Tom Tingblad, 1752**
**Black: Fidelity Prestige**

| | | |
|---|---|---|
| 1. | e4 | e6 |
| 2. | d4 | d5 |
| 3. | Nc3 | Bb4 |
| 4. | e5 | c5 |
| 5. | a3 | Bc3 |
| 6. | bc3 | Ne7 |
| 7. | Nf3 | Nd7 |
| 8. | h4 | f6 |
| 9. | h5 | 0-0 |
| 10. | Nh4 | fe5 |
| 11. | Bd3 | cd4 |
| 12. | Bh7 + | Kh7 |
| 13. | h6 | dc3 |
| 14. | hg7 | Kg7 |
| 15. | Qg4 + | Kf6 |
| 16. | Bg5 + | Kf7 |
| 17. | Qh5 + | Kg8 |
| 18. | Ng6 | Nf6 |
| 19. | Bf6 | Kf7 |
| 20. | Nf8 + | Kf6 |
| 21. | Qh8 + | Kf7 |
| 22. | Rh7 + | Ke8 |
| 23. | Ne6 + | Resigns |

This game is a bizarre act from the drama of Man vs. Machine. Should White be lauded for his exploitation of the holes in the programmed chips, or should he be censored for the bad chess he displays? Probably praise is merited, because White does win.

The Winawer Variation of the French, set up in this game by Black, is not well-suited for machine play because it usually portends closed, strategically complex positions — not the machine's forte. Moreover, Prestige falls out of book early and, instead of the normal 7...N(8)c6, plays 7...Nd7 which hinders the development of the rest of Black's Queen-side and lessens his pressure on White's center.

White, apparently tailoring his strategy to the machine's perceived weaknesses, neglects his development in favor of an unwarranted advance by the h-pawn, and then pitches an important central pawn with 10.Nh4.

Prestige is now winning, but then it neglects to play 11...e4, consolidating its position. Next move White assays the unsound piece sacrifice Bh7 + . Now heavily up in material, but greedy for still more, the machine makes the decisive blunder 13...dc3 allowing White to play 14.hg7, stripping the King of all pawn protection and allowing the White Rook to enter the assault on the enemy monarch. White concludes his attack successfully. But, if the Prestige had found the simple (for a human player) move of 13...g6, nothing would have been left of White's unsound attack except for the bad breath of his material minus.

**ROUND 10**
**White: Fidelity Prestige**
**Black: Mike Hall**

| | | |
|---|---|---|
| 1. | d4 | Nf6 |
| 2. | Nf3 | Nc6 |
| 3. | d5 | Nb4 |
| 4. | Nc3 | b6 |
| 5. | e4 | Bb7 |
| 6. | a3 | Na6 |
| 7. | e5 | Ng4 |
| 8. | h3 | Nh6 |
| 9. | Bd3 | e6 |
| 10. | 0-0 | d6 |
| 11. | Bb5 + | Ke7 |
| 12. | de6 | de5 |
| 13. | Qe2 | Nc5 |
| 14. | Rd1 | Qc8 |
| 15. | Rd7 + | Qd7 |
| 16. | ed7 | Bf3 |
| 17. | Qe5 + | Ne6 |
| 18. | Bh6 | f6 |
| 19. | Qf5 | Nd4 |
| 20. | Re1 + | Kf7 |
| 21. | Bc4 + | Resigns |

A game which shows the Prestige computer in the best light. After Black plays 2...Nc6 (possibly in an attempt to throw the machine out of its book), Prestige develops smoothly and establishes a powerful center. Black's next error, 10...d6, instead of 10... Be7, allows the powerful check, 11. Bb5 + , which traps the King in the center, a victim for the full fury of the silicon wizard's pieces.

Noteworthy is White's 13. Qe2, declining to exchange Queens, so as to continue to have the strongest piece's participation in the attack. Computers have not always made the correct decision in such situation. At the game's conclusion the Black King is executed precisely and efficiently.

**ROUND 11**
**White: Martha Petersen**
**Black: Fidelity Prestige**

| | | |
|---|---|---|
| 1. | c4 | e5 |
| 2. | Nc3 | Nc6 |
| 3. | d3 | Nf6 |
| 4. | Nf3 | Bb4 |
| 5. | Qc2 | 0-0 |
| 6. | a3 | Bc5 |
| 7. | b4 | Nd4 |
| 8. | Nd4 | Bd4 |
| 9. | e3 | Bc3 |
| 10. | Qc3 | Re8 |
| 11. | Bb2 | d5 |
| 12. | Be2 | Bf5 |
| 13. | 0-0 | d4 |
| 14. | ed4 | ed4 |
| 15. | Qd2 | Qd6 |
| 16. | Bf3 | Ng4 |
| 17. | Bg4 | Bg4 |
| 18. | Rfe1 | Kh8 |
| 19. | f3 | Bf5 |
| 20. | Rad1 | Rad8 |
| 21. | g4 | Bd7 |
| 22. | Qf2 | Ba4 |
| 23. | Re8 + | Re8 |
| 24. | Re1 | Re1 + |
| 25. | Qe1 | Kg8 |
| 26. | c5 | Qf4 |
| 27. | Qe4 | Qe3 + |
| 28. | Qe3 | de3 |
| 29. | Kf1 | Bd1 |
| 30. | Kg2 | Bc2 |
| 31. | d4 | c6 |
| 32. | Bc1 | e2 |
| 33. | Kf2 | Bd3 |
| 34. | Bd2 | Kf8 |
| 35. | f4 | Ke7 |
| 36. | Ke3 | Bc4 |
| 37. | f5 | g6 |
| 38. | Kf4 | gf5 |
| 39. | Kf5 | Bd3 + |
| 40. | Kf4 | Ke6 |
| 41 | Ke3 | Bb5 |
| 42. | Ke4 | Bc4 |
| 43. | Be1 | h6 |
| 44. | Bd2 | f6 |
| 45. | h4 | b6 |
| 46. | Be1 | Bb5 |
| 47. | Bf2 | Ba6 |
| Draw Agreed | | |

A fairly placid game whose outcome — a draw — seems merited by the play. Prestige is the first to commit an inaccuracy: it should play 6...Bc3 rather than the time-wasting 6...Bc5, after which it still has to give up that Bishop for the Knight, but under less-favorable circumstances. White returns the comple-

ment by allowing the opening of the e-file with 14.ed4 rather than 14. Qc2 with chances of nursing her two Bishops into a tangible advantage.

At its 18th turn, the Prestige makes a typical computer error: not knowing how to improve its position it makes a meaningless King move, only to move the King back on move 25. Then, White misses her chance to secure an advantage by temporarily excuding the Bishop, misplaced at a4, out of the game by 26.b5 (instead of 26.c5).

After the exchange of Queens, neither side has any serious winning attempts. But, maybe the Prestige should be rewarded by more than the sound of one hand clapping for its performance because computers have misplayed even apparently more simple ones endings.

**ROUND 12**
**White: M. Wangen, 1763**
**Black: Fidelity Prestige**

| | | |
|---|---|---|
| 1. | c4 | e5 |
| 2. | Nc3 | Nc6 |
| 3. | Nf3 | Nf6 |
| 4. | d4 | e4 |
| 5. | Nd2 | Bb4 |
| 6. | e3 | d6 |
| 7. | Be2 | 0-0 |
| 8. | 0-0 | Bf5 |
| 9. | Qb3 | Re8 |
| 10. | h3 | a5 |
| 11. | a4 | Qd7 |
| 12. | Kh2 | Kh8 |
| 13. | f3 | ef3 |
| 14. | Nf3 | Ne4 |
| 15. | Nh4 | Bc3 |
| 16. | bc3 | Ne7 |
| 17. | g4 | Bg6 |
| 18. | Ng6+ | Ng6 |
| 19. | Bd3 | c5 |
| 20. | Ra2 | f6 |
| 21. | d5 | Re5 |
| 22. | Rb2 | Rb8 |
| 23. | Qc2 | Rbe8 |
| 24. | Rb5 | Qc7 |
| 25. | Rf5 | R5e7 |
| 26. | Rf1 | Kg8 |
| 27. | Qb2 | Ng5 |
| 28. | Qb1 | Ne5 |
| 29. | Be2 | Ng6 |
| 30. | Kg3 | Ne4+ |
| 31. | Kh2 | Nc3 |
| 32. | Qc2 | Nb5 |
| 33. | ab5 | Re5 |
| 34. | Bd3 | Qf7 |
| 35. | Rf3 | Kh8 |
| 36. | Kg3 | b6 |
| 37. | h4 | Re7 |
| 38. | Bf5 | Ne5 |
| 39. | Be6 | Qg6 |
| 40. | Bf5 | Qh6 |
| 41. | e4 | g5 |
| 42. | hg5 | fg5 |
| 43. | Bb2 | Qh1 |
| 44. | Rf2 | Ra7 |
| 45. | Qd2 | Rg7 |
| 46. | Qe3 | Qg1+ |
| 47. | Kh3 | Qb1 |
| 48. | Qd2 | Ree7 |
| 49. | Be6 | Qh1+ |
| 50. | Kg3 | Qh4+ |
| 51. | Kg2 | Re6 |
| 52. | de6 | Qg4+ |
| 53. | Kh2 | Qh4+ |
| 54. | Kg2 | Qe4+ |
| 55. | Kg1 | Qg4+ |
| 56. | Kh2 | Qh4+ |
| 57. | Kg1 | Qg3+ |
| 58. | Kf1 | Qh3+ |
| 59. | Kg1 | Qe6 |
| 60. | Rf8+ | Rg8 |
| 61. | Rg8+ | Kg8 |
| 62. | Qg5+ | Qg6 |
| 63. | Resigns | |

A game full of inaccuracies by both sides, but White commits the decisive mistakes, and the Prestige winds up on top. The machine is knocked out of its book early — by White's 4.d4; nevertheless, it achieves a fine position. But then it neglects several opportunities to saddle White with doubled pawns and get rid of its misplaced Bishop by capturing B(b4)c3 until White virtually forces it to make that capture on move 15.

During the game the machine makes several unnecessary King moves and one strange Rook move (44... Ra7) demonstrating that there are times when it just does not know what to do.

White makes his game-losing error 30.Kg3, overlooking the Material-winning Knight fork. But then the machine allows the White Bishops to participate in the game powerfully. The Electronic Materialist is unable to see the key winning idea of an exchange sacrifice until it stumbles into it on move 51 by noticing within its lookahead range that it will harvest enough White pawns to assuage its mourning at the Rook's departure. When Black forces the Queen trade on move 62, White decides that he's seen enough, and declines to play out the hopeless ending.



**ROUND 1**
**White: Sensory 9 Chess Challenger**
**Black: Somner Sorenson, 1971**

| | | |
|---|---|---|
| 1. | e4 | e5 |
| 2. | Nc3 | Nc6 |
| 3. | Bc4 | Nf6 |
| 4. | d3 | Bb4 |
| 5. | Bg5 | h6 |
| 6. | Bd2 | Na5 |
| 7. | Bb5 | c6 |
| 8. | Ba4 | b5 |
| 9. | Bb3 | Nb3 |
| 10. | ab3 | 0-0 |
| 11. | Nf3 | Re8 |
| 12. | 0-0 | d6 |
| 13. | Be3 | Qe7 |
| 14. | Qe1 | d5 |
| 15. | d4 | Ne4 |
| 16. | Ne5 | Qf6 |
| 17. | Ne4 | Be1 |
| 18. | Nf6+ | gf6 |
| 19. | Nc6 | Re3 |
| 20. | fe3 | Bh4 |
| 21. | Ne7+ | Kf8 |
| 22. | Nd5 | Bb7 |
| 23. | Nf6 | Kg7 |
| 24. | Nh5+ | Kg6 |
| 25. | Nf4+ | Kg7 |
| 26. | c4 | Bd8 |
| 27. | cb5 | Be4 |
| 28. | Ra6 | Bb6 |
| 29. | Raa1 | Re8 |
| 30. | Nh5+ | Kg6 |
| 31. | Nf6 | Re6 |
| 32. | Ne4 | Re4 |
| 33. | Rf3 | Resigns. |

**ROUND 2**
**White: Sensory 9 Chess Challenger**
**Black: Pedro Marcal, 2139**

| | | |
|---|---|---|
| 1. | e4 | c5 |
| 2. | Nf3 | d6 |
| 3. | d4 | cd4 |
| 4. | Nd4 | Nf6 |
| 5. | Nc3 | g6 |
| 6. | f4 | Nc6 |
| 7. | Nc6 | bc6 |
| 8. | e5 | Ng4 |
| 9. | Qf3 | Bd7 |
| 10. | h3 | Nh6 |
| 11. | ed6 | ed6 |
| 12. | Qe4+ | Be7 |
| 13. | Bd3 | 0-0 |
| 14. | 0-0 | Nf5 |
| 15. | Qf3 | Bf6 |
| 16. | Be3 | Re8 |
| 17. | Bf5 | Bf5 |
| 18. | Bf2 | d5 |
| 19. | Rac1 | Qa5 |
| 20. | g4 | Be4 |
| 21. | Qg3 | Qb4 |
| 22. | Ne4 | Re4 |
| 23. | b3 | Qa3 |
| 24. | Rce1 | Qa2 |
| 25. | Re4 | de4 |
| 26. | Qe3 | Re8 |
| 27. | Qc5 | Qa6 |
| 28. | Qa7 | Qa7 |
| 29. | Ba7 | e3 |
| 30. | Rb1 | Bc3 |
| 31. | b4 | e2 |
| 32. | Bf2 | e1(Q) |
| 33. | Be1 | Re1 |
| 34. | Re1 | Be1 |
| 35. | Kf1 | Bb4 |
| 36. | Ke2 | f5 |
| 37. | Kd3 | Kf7 |
| 38. | gf5 | gf5 |
| 39. | c3 | Bd6 |
| 40. | Ke3 | Ke6 |
| 41. | c4 | Bc7 |
| 42. | h4 | h5 |
| 43. | Resigns. | |

**ROUND 3**
**White: Michael Muff, 1886**
**Black: Sensory 9 Chess Challenger**

| | | |
|---|---|---|
| 1. | e4 | c5 |
| 2. | Nf3 | Nc6 |
| 3. | d4 | cd4 |
| 4. | Nd4 | g6 |
| 5. | Be3 | Nf6 |
| 6. | Nc3 | Qa5 |
| 7. | Nb3 | Qe5 |
| 8. | f4 | Qc7 |
| 9. | e5 | Nh5 |
| 10. | Nb5 | Qb8 |
| 11. | g4 | Ng7 |
| 12. | N3d4 | e6 |
| 13. | Nf3 | h5 |
| 14. | Ng5 | Bb4+ |
| 15. | c3 | Be7 |
| 16. | Ne4 | Bh4+ |
| 17. | Bf2 | hg4 |
| 18. | Nbd6+ | Kf8 |
| 19. | Qg4 | Nf5 |
| 20. | Bh4 | Rh4 |
| 21. | Qg5 | Nd6 |
| 22. | Nd6 | Rh7 |
| 23. | Bd3 | Qc7 |
| 24. | Bg6 | fg6 |
| 25. | Qg6 | Qb6 |
| 26. | Qe8+ | Kg7 |
| 27. | Qf7+ | Kh6 |
| 28. | Qf6+ | Kh5 |

29. Qg5 Checkmate.

**ROUND 4**
**White: Shahin, 1773**
**Black: Sensory 9 Chess Challenger**

| | | |
|---|---|---|
| 1. | d4 | d5 |
| 2. | c4 | dc4 |
| 3. | Nc3 | e5 |
| 4. | Nf3 | ed4 |
| 5. | Qd4 | Qd4 |
| 6. | Nd4 | a6 |
| 7. | a4 | Bc5 |
| 8. | e3 | Bd4 |
| 9. | ed4 | Nc6 |
| 10. | Nd5 | Kd7 |
| 11. | Bf4 | Nd4 |
| 12. | Rd1 | Nc2+ |
| 13. | Kd2 | Nb4 |
| 14. | Nb4 | Ne7 |
| 15. | Bc4 | a5 |
| 16. | Kc2 | Ke8 |
| 17. | Bc7 | Bf5+ |
| 18. | Nd3 | Rc8 |
| 19. | Kb3 | Rc7 |
| 20. | Ne5 | Nc6 |
| 21. | Rhe1 | Ne5 |
| 22. | Re5+ | Be6 |
| 23. | Be6 | fe6 |
| 24. | Re6+ | Re7 |
| 25. | Red6 | Rf8 |
| 26. | Rd8+ | Kf7 |
| 27. | Rf8+ | Kf8 |
| 28. | Rd2 | Re4 |
| 29. | f3 | Rh4 |
| 30. | g3 | Rb4+ |
| 31. | Ka3 | b5 |
| 32. | b3 | ba4 |
| 33. | ba4 | Rc4 |
| 34. | Rd5 | Rc3+ |
| 35. | Kb2 | Rf3 |
| 36. | Ra5 | Rf2+ |
| 37. | Kb3 | Rh2 |
| 38. | Re5 | Rd2 |
| 39. | a5 | Rd3+ |
| 40. | Kb4 | Rg3 |
| 41. | a6 | Rg2 |
| 42. | a7 | Ra2 |
| 43. | Ra5 | Ra5 |
| 44. | Ka5 | Resigns. |

**ROUND 5**
**White: Sensory 9 Chess Challenger**
**Black: CHAOS, 1820**

| | | |
|---|---|---|
| 1. | e4 | c5 |
| 2. | Nf3 | Nc6 |
| 3. | Bb5 | Nf6 |
| 4. | e5 | Nd5 |
| 5. | Nc3 | e6 |
| 6. | 0-0 | Be7 |
| 7. | Nd5 | ed5 |
| 8. | d4 | Qb6 |
| 9. | Bc6 | dc6 |
| 10. | dc5 | Bc5 |
| 11. | c3 | Bg4 |
| 12. | b4 | Be7 |
| 13. | Be3 | Qa6 |
| 14. | a4 | Qc4 |
| 15. | Qd4 | Qd4 |
| 16. | Nd4 | h6 |
| 17. | a5 | Bd7 |
| 18. | Re1 | 0-0 |
| 19. | Bd2 | b6 |
| 20. | e6 | fe6 |
| 21. | ab6 | ab6 |
| 22. | Ra8 | Ra8 |
| 23. | Ne6 | Ra2 |
| 24. | Bc1 | Rc2 |
| 25. | Ng7 | Bf6 |
| 26. | Bh6 | Kf7 |
| 27. | Nh5 | Bc3 |
| 28. | Rc1 | Rc1 |
| 29. | Bc1 | Bb4 |
| 30. | h3 | d4 |
| 31. | Nf4 | Bf5 |
| 32. | g4 | Bh7 |
| 33. | Kf1 | d3 |
| 34. | Nh5 | d2 |
| 35. | Bd2 | Bd2 |
| 36. | f4 | Bd3+ |
| 37. | Kf2 | b5 |
| 38. | f5 | b4 |
| 39. | h4 | b3 |
| 40. | g5 | b2 |
| 41. | g6+ | Kg8 |
| 42. | Nf6+ | Kh8 |
| 43. | Nh5 | b1(Q) |
| 44. | Ng3 | Bf5 |
| 45. | Kg2 | Bg6 |
| 46. | Kh3 | Qg1 |
| 47. | Resigns. | |

**ROUND 6**
**White: Yoos, 1356**
**Black: Sensory 9 Chess Challenger**

| | | |
|---|---|---|
| 1. | e4 | c6 |
| 2. | d4 | d5 |
| 3. | f3 | e6 |
| 4. | Be3 | de4 |
| 5. | fe4 | Qh4+ |
| 6. | g3 | Qe4 |
| 7. | Qf3 | Qc2 |
| 8. | Qe2 | Bb4+ |
| 9. | Kf2 | Qe2+ |
| 10. | Ne2 | Nf6 |
| 11. | Kf3 | Nd5 |
| 12. | Bf2 | 0-0 |
| 13. | a3 | Bd6 |
| 14. | Nd2 | Na6 |
| 15. | Ne4 | Bc7 |
| 16. | N2c3 | Nc3 |
| 17. | bc3 | b6 |
| 18. | Bd3 | Bb7 |
| 19. | Re1 | Rad8 |
| 20. | Ke2 | Rd5 |
| 21. | c4 | Rh5 |
| 22. | h4 | Rd8 |
| 23. | g4 | Rh6 |
| 24. | h5 | f5 |
| 25. | gf5 | ef5 |
| 26. | Ng5 | Rh5 |
| 27. | Be3 | Re8 |
| 28. | Kd2 | F4 |
| 29. | Bf2 | Re1 |
| 30. | Re1 | Rg5 |
| 31. | Kc3 | Ra5 |
| 32. | Kb3 | Bd6 |
| 33. | a4 | Nb4 |
| 34. | Be4 | Rh5 |
| 35. | c5 | Rh3+ |
| 36. | Kb4 | a5+ |
| 37. | Resign. | |

**ROUND 7**
**White: Sensory 9 Chess Challenger**
**Black: Hamann, 1732**

| | | |
|---|---|---|
| 1. | e4 | e6 |
| 2. | d4 | d5 |
| 3. | Nc3 | Bb4 |
| 4. | e5 | c5 |
| 5. | a3 | Bc3 |
| 6. | bc3 | c4 |
| 7. | Qg4 | g6 |
| 8. | Be2 | Qa5 |
| 9. | Bd2 | Ne7 |
| 10. | Nf3 | Nc6 |
| 11. | 0-0 | Bd7 |
| 12. | Rfb1 | Qc7 |
| 13. | Bh6 | Nf5 |
| 14. | Qg5 | Nh6 |
| 15. | Qh6 | 0-0-0 |
| 16. | Ng5 | Rdf8 |
| 17. | Nh7 | Be8 |
| 18. | Qf8 | Rf8 |
| 19. | Nf8 | Qa5 |
| 20. | Rb4 | Nb4 |
| 21. | cb4 | Qb6 |
| 22. | c3 | Qd8 |
| 23. | Nh7 | Qh4 |
| 24. | Nf6 | Ba4 |
| 25. | g3 | Qg5 |
| 26. | f4 | Qf5 |
| 27. | Rc1 | Qh3 |
| 28. | Bg4 | Qh8 |
| 29. | Nd5 | Bc6 |
| 30. | Ne3 | b5 |
| 31. | d5 | Bd7 |
| 32. | d6 | Qd8 |
| 33. | h4 | Qb6 |
| 34. | Kf2 | a5 |
| 35. | Bf3 | ab4 |
| 36. | ab4 | Qa7 |
| 37. | Be4 | Qb6 |
| 38. | Ra1 | Bc6 |
| 39. | Bc6 | Qc6 |
| 40. | Ra7 | f5 |
| 41. | Rc7 | Qc7 |
| 42. | dc7 | Kc7 |
| 43. | Nc2 | Kc6 |
| 44. | Nd4 | Kd5 |
| 45. | Ke2 | Ke4 |
| 46. | Ne6 | Kd5 |
| 47. | Nd4 | g5 |
| 48. | hg5 | Ke4 |
| 49. | g6 | Kd5 |
| 50. | g7 | Ke4 |
| 51. | g8(N) | Kd5 |
| 52. | Nf6 Checkmate. | |

**ROUND 8**
**White: Sensory 9 Chess Challenger**
**Black: Hoffa, 1781**

| | | |
|---|---|---|
| 1. | c4 | Nf6 |
| 2. | d4 | e6 |
| 3. | g3 | d5 |
| 4. | Bg2 | Bb4+ |
| 5. | Bd2 | Bd2 |
| 6. | Nd2 | c6 |
| 7. | Nf3 | 0-0 |
| 8. | 0-0 | Nd7 |
| 9. | Qc2 | Re8 |
| 10. | Ng5 | h6 |
| 11. | Nf3 | e5 |
| 12. | cd5 | Nd5 |
| 13. | e4 | N4b6 |
| 14. | Rac1 | ed4 |
| 15. | Nd4 | Ne5 |
| 16. | N2f3 | Nf3+ |
| 17. | Nf3 | Bg4 |
| 18. | Rfe1 | Qf6 |
| 19. | Qb3 | Be6 |
| 20. | Qa3 | Nc4 |
| 21. | e5 | Qd8 |
| 22. | Qb4 | Nb6 |
| 23. | Red1 | Qc7 |
| 24. | Qa5 | Qe7 |
| 25. | Rd4 | Bd5 |
| 26. | Re1 | Nc4 |
| 27. | Qc3 | Nb6 |
| 28. | b3 | Qa3 |
| 29. | Qc2 | Qa5 |
| 30. | Qd2 | Qd2 |
| 31. | Rd2 | Rad8 |
| 32. | Rd4 | Rd7 |
| 33. | Rf4 | Rde7 |
| 34. | Rf1 | Bf3 |
| 35. | Bf3 | Re5 |
| 36. | Rd1 | Re1+ |

| | | |
|---|---|---|
| 37. | Re1 | Re1 |
| 38. | Kg2 | Kf8 |
| 39. | h3 | Ke7 |
| 40. | Rg4 | g6 |
| 41. | Rd4 | Re5 |
| 42. | b4 | Nd5 |
| 43. | b5 | Kd6 |
| 44. | bc6 | bc6 |
| 45. | Rh4 | h5 |
| 46. | Ra4 | a5 |
| 47. | Kh2 | Nb6 |
| 48. | Ra3 | Nc4 |
| 49. | Rc3 | Rc5 |
| 50. | Bg2 | Ke5 |
| 51. | Bf1 | Kd4 |
| 52. | Rd3+ | Ke5 |
| 53. | Rc3 | Draw Agreed |

**ROUND 9**
**White: Leary, 1759**
**Black: Sensory 9 Chess Challenger**

| | | |
|---|---|---|
| 1. | c4 | Nf6 |
| 2. | Nc3 | e6 |
| 3. | e4 | c5 |
| 4. | e5 | Ng8 |
| 5. | d4 | cd4 |
| 6. | Qd4 | Nc6 |
| 7. | Qe4 | Bb4 |
| 8. | Nf3 | Bc3+ |
| 9. | bc3 | Qa5 |
| 10. | Bd2 | Nge7 |
| 11. | Rc1 | Qa2 |
| 12. | Bd3 | Ng6 |
| 13. | Ke2 | Qa5 |
| 14. | Ra1 | Qc7 |
| 15. | Bf4 | f6 |
| 16. | Bg3 | Nge5 |
| 17. | Nd4 | d6 |
| 18. | Nb5 | Qe7 |
| 19. | Rhe1 | Kf8 |
| 20. | Kf1 | a6 |
| 21. | f4 | f5 |
| 22. | Qe3 | Ng5 |
| 23. | Qb6 | Qf6 |
| 24. | Nd6 | Qc3 |
| 25. | Bf5 | Ne3+ |
| 26. | Qe3 | Qe3 |
| 27. | Re3 | Nd4 |
| 28. | Be4 | Rb8 |
| 29. | f5 | ef5 |
| 30. | Nf5 | Nf5 |
| 31. | Bf5 | Ra8 |
| 32. | Ra5 | Kf7 |
| 33. | Be4 | Be6 |
| 34. | Rf3+ | Kg8 |
| 35. | Rc5 | b6 |
| 36. | Rc7 | Re8 |
| 37. | Be5 | Bc4+ |
| 38. | Kg1 | Bf7 |
| 39. | Rcf7 | Re5 |
| 40. | Rf8 Checkmate. | |

**ROUND 10**
**White: Camero 1736**
**Black: Sensory 9 Chess Challenger**

| | | |
|---|---|---|
| 1. | d4 | Nf6 |
| 2. | c4 | g6 |
| 3. | Nc3 | d5 |
| 4. | e3 | dc4 |
| 5. | Bc4 | Nc6 |
| 6. | Qb3 | e6 |
| 7. | Be2 | Bb4 |
| 8. | Bf3 | Bc3 |
| 9. | Qc3 | Bd7 |
| 10. | d5 | ed5 |
| 11. | Bd5 | 0-0 |
| 12. | Bf3 | Re8 |
| 13. | b3 | Ne4 |
| 14. | Be4 | Re4 |
| 15. | Nf3 | Qe7 |
| 16. | 0-0 | Rf8 |
| 17. | Bb2 | f6 |
| 18. | Rac8 | Be6 |
| 19. | Nd2 | Rg4 |
| 20. | f3 | Rh4 |
| 21. | Ne4 | Kg7 |
| 22. | Nc5 | Bc4 |
| 23. | bc4 | Qc5 |
| 24. | Ba3 | Qe5 |
| 25. | Bf8 | Kf8 |
| 26. | f4 | Qc3 |
| 27. | Rc3 | f5 |
| 28. | g3 | Rh5 |
| 29. | Rd1 | Ke7 |
| 30. | a3 | Ke6 |
| 31. | Rcd3 | Na5 |
| 32. | Rc1 | b6 |
| 33. | c5 | a6 |
| 34. | cb6 | cb6 |
| 35. | a4 | h6 |
| 36. | Rc7 | g5 |
| 37. | Ra7 | Nc4 |
| 38. | Ra6 | Rh3 |
| 39. | Kg2 | Rh5 |
| 40. | Ra8 | gf4 |
| 41. | ef4 | Nd6 |
| 42. | Rb8 | Nc4 |
| 43. | Re8+ | Kf7 |
| 44. | Rc8 | Nb2 |
| 45. | Rd4 | Ke7 |
| 46. | Rc7+ | Ke6 |
| 47. | Rc6+ | Resigns. |

**ROUND 11**
**White: Sensory 9 Chess Challenger**
**Black: Petermeier, 1358**

| | | |
|---|---|---|
| 1. | F4 | e5 |
| 2. | fe5 | d6 |
| 3. | ed6 | Bd6 |
| 4. | Nf3 | h5 |
| 5. | e4 | Nc6 |
| 6. | Bb5 | g5 |
| 7. | Bc6 | bc6 |
| 8. | d4 | g4 |
| 9. | Ne5 | Ba6 |
| 10. | Bf4 | Qf6 |
| 11. | Qd2 | Ne7 |
| 12. | Nc3 | Rb8 |
| 13. | 0-0-0 | Rg8 |
| 14. | Rhe1 | h4 |
| 15. | Qe3 | Bb4 |
| 16. | g3 | Qe6 |
| 17. | h4 | f6 |
| 18. | d5 | cd5 |
| 19. | ed5 | Nd5 |
| 20. | Nd5 | Qc8 |
| 21. | Nc7+ | Qc7 |
| 22. | Nd7+ | Resigns. |

**ROUND 12**
**White: Sensory 9 Chess Challenger**
**Black: Conway, 1660**

| | | |
|---|---|---|
| 1. | b4 | Nf6 |
| 2. | Nf3 | e6 |
| 3. | Ba3 | d5 |
| 4. | e3 | Bd6 |
| 5. | Be2 | Qe7 |
| 6. | c3 | e5 |
| 7. | 0-0 | 0-0 |
| 8. | d4 | e4 |
| 9. | Ng5 | h6 |
| 10. | Nh3 | Bh3 |
| 11. | gh3 | Nh7 |
| 12. | Nd2 | Nd7 |
| 13. | Qb3 | c6 |
| 14. | c4 | Qh4 |
| 15. | Bg4 | Ndf6 |
| 16. | b5 | Ba3 |
| 17. | Qa3 | dc4 |
| 18. | bc6 | bc6 |
| 19. | Be2 | Ng5 |
| 20. | Rb1 | Nh3+ |
| 21. | Kg2 | Ng5 |
| 22. | Nc4 | Nf3 |
| 23. | Qd6 | Rfd8 |
| 24. | Qg3 | Qg3 |
| 25. | hg3 | Ng5 |
| 26. | Ne5 | Rdc8 |
| 27. | Ba6 | Rc7 |
| 28. | Bb7 | Rb8 |
| 29. | Bc6 | Rb6 |
| 30. | Rb6 | ab6 |
| 31. | Rb1 | Ra7 |
| 32. | a4 | Kf8 |
| 33. | Rb6 | Ne6 |
| 34. | Kf1 | Ke7 |
| 35. | a5 | Nd8 |
| 36. | a6 | Kd6 |
| 37. | Be4+ | Kc7 |
| 38. | Rb7+ | Nb7 |
| 39. | Bb7 | Ne8 |
| 40. | Nf7 | Kb6 |
| 41. | Nd8 | Nd6 |
| 42. | Kg2 | Kc7 |
| 43. | Nc6 | Rb7 |
| 44. | ab7 | Nb7 |
| 45. | d5 | Kd6 |
| 46. | e4 | Nc5 |
| 47. | Kf3 | Nd3 |
| 48. | Ke3 | Nc5 |
| 49. | Nd4 | Ke5 |
| 50. | f4+ | Kf6 |
| 51. | e5+ | Ke7 |
| 52. | Nf5+ | Kf7 |
| 53. | e6+ | Ne6 |
| 54. | de6+ | Ke6 |
| 55. | Ng7+ | Kf6 |
| 56. | Nh5+ | Kg6 |
| 57. | g4 | Resigns. |

## The Bratko-Kopec Experiment Updated:

A test for comparison of human and computer performance in chess.*

By Drs. Danny Kopec, Enrique Irazoqui and Ivan Bratko

**Abstract**

The work of psychologist/chess master Adrian de Groot gave evidence to the point of view that chess masters employ their ability to *associate and recall* from a large pattern-store of configurations rather than perform prodigious calculations. Independent estimates by Simon and Gilmartin (1973) and Nievergelt (1977) suggest that the size of this pattern-store is somewhere between 10,000 and 100,000. Recently the best computer programs have demonstrated the ability to hold their own against grandmasters in blitz play and in tournament play have been able to obtain ratings just below the master level. The foundation of their success is the ability to exhaustively search 6 to 7 or more ply which makes them superior in tactical positions to humans of the same rating.

We have designed this experiment in order to obtain some quantitative support for the above well known propositions. The space of chess positions which arise in competitive play may be

viewed as either positional or tactical in nature. Our experimental positions have been chosen with the point of view that a certain type of positional move (called a lever) can play an important role in the strong player's ability to find the best move in a position. Thus our hypothesis is:

> Strong computer programs will score well on tactical problems (better than humans of the same rating) but will score rather more poorly on the selected positional problems, unless the best "positional" move also leads to material gain within their search limits or distinctly improves mobility more than any other move in the position.

Assuming that there are essentially four levels of chessplayer: novice ( 1600), intermediate (1600-1999), strong (2000-2399) and very strong (2400 and above), a correlate result of the quantitative data is that the experiment is a good method for predicting or assessing a human player's rating within normal standard deviations.

* The original, not updated, version of this paper, co-authored by Kopec and Bratko, appears in "Advances in Computer Chess 3", (editor M.R.B. Clarke) Pergamon Press, Oxford, 1982 and as M.I.P.R. 133 reporting work done at the Machine Intelligence Research Unit, University of Edinburgh, Scotland.

## I. Introduction

### (A) Computer and Human Chess

It has been our long held view that in artificial intelligence work, particularly with regard to computer chess, more attention should be paid to the way humans do things before attempting to implement the computational process involved. De Groot's (1965) work with chess masters established the fact that they build small lookahead trees, generally storing about 30 positions in their lookahead memory, with an upper bound on the order of 100 positions. This leads to the conclusion that a chess master's unique talent does not lie in the ability to perform computer-like feats of memory or calculation, but in the ability to conceptualize a position's features. By contrast, today's top computer chess programs, which are based on the Turing-Shannon paradigm (Turning, 1953; Shannon, 1950), can develop lookahead trees consisting of millions of positions as in the case of large mainframe computers such as CHESS 4.9 and BELLE. Today we are on the threshold of master level play by computer chess programs mainly due to refinements in the efficient implementation of the Turning-Shannon paradigm and developments in semi-conductor technology.

However, these refinements have resulted mainly in the growth of deeper and more efficient lookahead trees, rather than in improved methods of knowledge representation, whereby the chess master's conceptualizations have been understood. Alfred Binet 1894) investigated the ability of chess masters to play simultaneous blindfold chess. He concluded that this feat was founded by "la memoire" (in the sense of concept formation), "l'erudition", the use of accumulated chess knowledge to form meaningful descriptions of board positions, and "l'imagination", the ability to reconstruct mentally a position from a description. We agree with and emphasize Michie's (1980) conclusion:

> "Although machine play is now impressive, little progress has been made in mechanizing *l'erudition* and *l'imagination*. .... the next few years' hardware development may alone suffice to force the door to Master-level play. However, for scientific study of cognitive science and cognitive engineering, more ambitious goals of performance, or of computational economy must be set."

### (B) Objectives of the Work and Progress of Computer Chess Programs.

The Elo chess rating system (Elo, 1978) is now sufficiently established to be a reasonably reliable method of judging a chessplayer's (human or machine) strength. It is founded on the ability to predict a player's success ratio in a given set of games or tournament(s) based on his previous performances. Figure 1 gives the various divisions of the rating system and the positions of the most recent World Champions and top computer programs on it. Though computer chess programs (both mainframe and micros) now command a respectable position on the E10 scale, this has not been achieved by the knowledge engineering approach suggested by researchers and chess masters working in the field (Michie, 1973; Berliner, 1973; Kopec, 1977; Bratko, Kopec, Michie, 1978; Pitrat, 1980; Michie, 1980; Michie, 1980a). Most noticable has been the progress of microcomputer programs, a number of which are now playing at a higher rating level than the top mainframes of 10 years ago. Even since the time our original data was collected in early 1981 the ratings of top micros have improved by three to four hundred points. Nonetheless, this has had little to do with improved methods of concept formation, knowledge representation, modularization, learning, or the formation of long-range goals or plans, particularly with regard to endgame play, as studied in the works cited above.

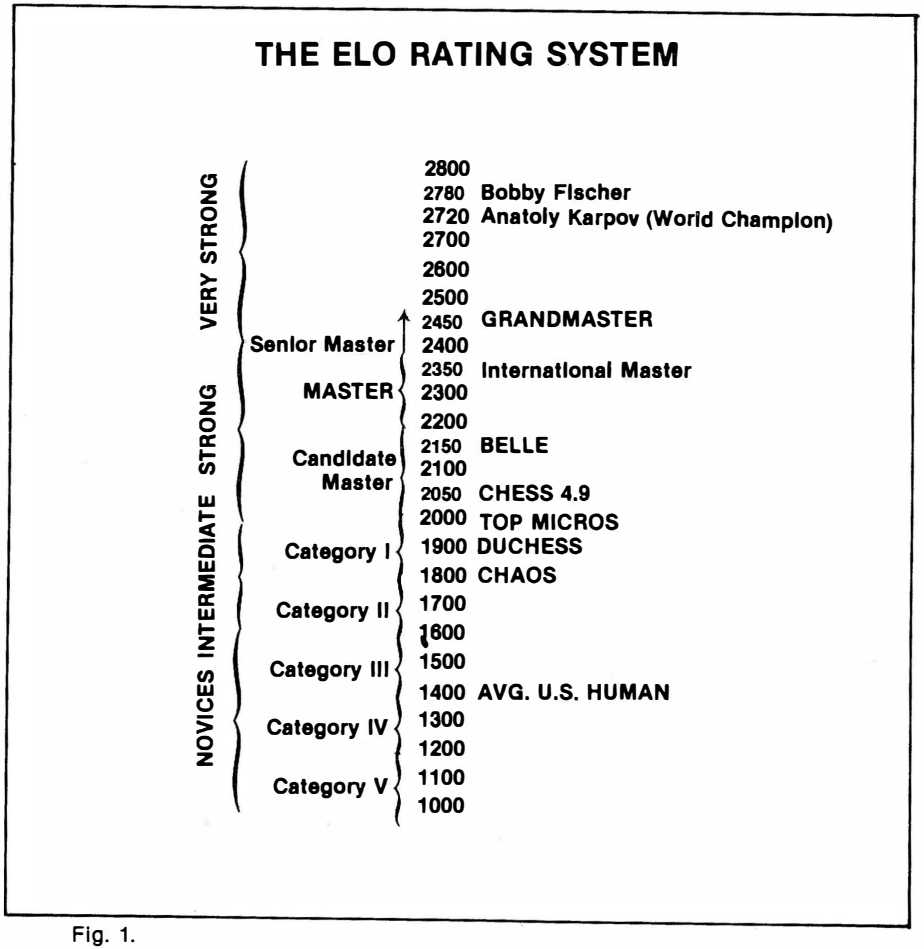


Fig. 1.
The Elo Rating System with the 4 major categories used for purposes of this experiment on the left, U.S. categories in the middle, and some key points where humans and certain computer chess programs fall on it.

The above generally accepted view that the strength of computer chess programs lies in their ability to calculate and not in the use of chess knowledge has not as yet been supported by quantitative analysis. This paper aims at such an analysis. We devised an experiment where subjects had to choose a move in positions of two fundamentally different types:

(1) tactical moves in which the lack of chess knowledge can be compensated by calculation.

(2) positional moves where the lack of knowledge cannot be compensated.

It is also generally accepted that chess moves fall into either of two overall categories: tactical or positional. Tactical moves are those which involve the interaction (possible capture) of White and Black forces and include:

(1) checkmate or gain of material and/or
(2) a distinct improvement in terms of positional ends (i.e. mobility) and/or
(3) the defence to some immediate threats.

Positional moves are those which do *not* involve interaction of the opposing White and Black forces, but result in improvements in such tangible notions as mobility, centralization, acquisition of new terrain (space or squares), regroupment of forces, etc.

### (C) Related Work

Four further works provide the spirit and background of our present research. (1) E.T.O Slater (1950) recorded the differences in mobility between winners and losers of 78 arbitrarily selected master games which ended in a decisive result on or before the 40th move (see Michie, 1980). This helped to establish the importance of *mobility* which is still employed as a significant factor in the evaluation function of most modern computer chess programs. (2) Tan's (1977) work, pointed towards the complexities of pawn endings and attempted to develop a logical framework which might uncover their secrets. The vocabulary for Tan's work is that which is defined in (3) Kmoch's *Pawn Power* (1959). One term in particular provides the motivation behind our present experiment: LEVERS. Kmoch's simple, overall definition is (p16): "The situation in which two opposing pawns can capture each other constitutes an element of pawn play which we shall call the *lever*, ..." Our definition includes a few additions, though the overall concept is unaltered. A pawn move which:

(1) Offers to trade itself
(2) Leads to an ultimate improvement of the pawn structure of the side playing it and/or
(3) Damages the opponent's pawn structure.

This is founded on the notion that any pawn structure can be reliably defined and measured in terms of positive and negative points. An example of a lever which results in the improvement of the pawn structure of the side playing it is given in Fig 2.1, while a lever of the type which damages the opponent's pawn structure is given in Fig 2.2.

Levers may be considered as a subclass of positional moves, though they may also be considered to border on the realm of tactical chess in the sense that they *do* involve the interaction of opposing forces and may employ a temporary or long-term pawn sacrifice.

More than two centuries ago Philidor (1749) said: "Les pions sont l'ame du jeu." (Pawns are the soul of chess) They are even more: they provide the "skeleton" (overall concept, outline) of a position. (4) An effort to establish their role in the strong player's ability to recall a position was earlier work by Bratko and Tancig (1976), where very strong players were tested on their ability to recall a set of stimulus positions from short term memory. They found that the pawns were recalled much more consistently than other pieces, particularly when organized into some wellknown patterns. They also found that the ability to recall the positions of pieces was directly related to how well they fit into these pawn configurations or patterns (See also Chase and Simon, 1973). This is the foundation of our decision to use lever moves for the choice of those experimental positions in which the correct move is a positional one.



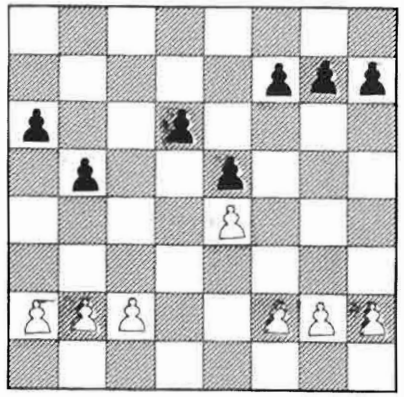

Fig. 2.1
A classic Sicilian Defence pawn structure whereby if Black can safely play the lever ...d5 he gets rid of a weakness and improves his pawn structure.

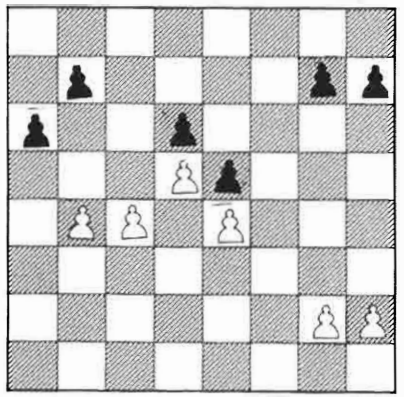

Fig. 2.2
A position where a lever of the second type, 1.c5 damages Black's d6-e5 mini-chain and forms a duo.

## II. The Bratko-Kopec Experiment

### (A) Pilot Experiment

Our original experiment in 1977 consisted of 25 stimulus positions, 20 of which were 'lever' positions from *Pawn Power*, with 5 tactical positions included as controls. The positions were stored in a data file on the DEC10 at Edinburgh's Regional Computing Centre, and then flashed for 1½ minutes each on a hardwired chess TV display unit. Subjects were than allowed 30 seconds to write down their choice of 'Best Move(s)' and 'Candidate's moves' for each position. Only human chessplayer subjects in Edinburgh were tested. Our general finding was that scores correlated closely with ratings, and that with some experience we were soon able to predict subjects' scores a priori, based on their ratings. Where scores were higher than would be expected from subjects' ratings, we have found that their subsequent substantial improvement in rating had been effectively foreshadowed. To draw attention to 'biased' subjects we asked each subject to note after the experiment whether he had read *Pawn Power*. However the number of control tactical positions (5) proved insufficient to draw any conlcusions on the relative roles played by tactics and levers according to a player's rating. It was also difficult to standardize the scoring of candidate moves by our experimental design. These findings enabled us to conclude that in further experimentation it would be necessary and advantageous to:

1) increase the number of tactical positions,
2) substitute the notion of 'candidate moves' with '2nd Choice', '3rd Choice', '4th Choice'.
3) make the experiment more portable.

### (B) The Experimental Design

Of the 20 original lever positions (L) from *Pawn Power*, 10 were retained with two additional ones selected from *The Best Move* (Hort & Jansa, 1980) and 9 additional tactical positions (T) were chosen from *Informator 18* (Matanovic, 1975) and *Modern Chess Tactics* (Pachman, 1973), with 3 of the original 5 being retained. Thus 24 positions (12T and 12L) are presented on the separate pages of a booklet, with the side to move indicated alongside each diagrammed position as well as on a standardized Answer Sheet. (see end of article) Subjects are given a total of 2 minutes for each position to select their preferred move(s) and to write down up to 4 choices in order of preference on the Answer Sheet provided. Thus the experiment is portable and can be administered (e.g. by mail) to any chess-

player. (human or machine) in the world.

**(C) Results**

**1. Human Subjects**

Thus far we have tested 35 human chess-player subjects and 17 computer chess-playing programs. Scoring is done by 1/N where N goes from one to four as the choice-preference of the correct move(s). So that if the "Preferred Move" selected by a subject for a given test position is the correct move, one full point credit is given; if the subject's second choice is the correct move, then ½ point credit is given; third choice correct give ⅓ point credit, and fourth choice gives ¼. The ratings, scores, and breakdown of scores for human subjects are given in Table 1. The composition of subjects' scores within 6 rating zones according to their dependence on T and L is given by the following table.

**Table 1**

**Data for 35 human subjects where T is Tactics (Max 12), L is Levers (Max 12), and S stands for Score.**

| NAME | RATING | SCORE | T | L | 12(T-L)/S |
|---|---|---|---|---|---|
| M. Pinsky (J) | 1000 | 1.25 | o | 1.25 | -12.0 |
| A. Mullen | 1310 | 1.50 | .5 | 1.00 | - 4.0 |
| A. McIntosh (J) | 1000 | 1.50 | 1.0 | 0.50 | + 4.0 |
| J. Sheddon | 1000 | 1.50 | 1.5 | 0.00 | +12.0 |
| T. Combe | 1000 | 1.50 | 0.5 | 1.00 | - 4.0 |
| B. Gordon | 1000 | 2.50 | 1.5 | 1.00 | + 2.4 |
| A. Mountford | 1685 | 2.50 | 0.5 | 2.00 | - 7.2 |
| C. Gordon | 1000 | 3.00 | 2.0 | 1.00 | + 4.0 |
| L. Stirling (~) | 1400 | 5.00 | 2.0 | 3.00 | + 2.4 |
| J. Burnham | 1940 | 7.50 | 4.0 | 3.50 | + 0.8 |
| R. Granston(*) | 1600 | 8.58 | 3.08 | 5.50 | -3.38 |
| F. Clough | 1855 | 8.58 | 4.0 | 4.58 | +0.82 |
| E. Penn | 1600 | 9.00 | 4.0 | 5.00 | -1.3 |
| B. Eley | 1760 | 9.00 | 5.0 | 4.00 | +1.33 |
| P. Condie (S) | 1820 | 9.00 | 5.0 | 4.00 | +1.3 |
| J. Austin | 1945 | 10.00 | 4.0 | 6.00 | - 2.4 |
| G. Chandler | 1950 | 10.25 | 7.0 | 3.25 | + 4.4 |
| R. Baxter | 2115 | 11.00 | 4.0 | 7.00 | - 3.3 |
| E. Allan | 1895 | 11.50 | 7.0 | 4.50 | + 2.6 |
| B. Smerdon | 2045 | 11.50 | 5.0 | 6.50 | - 1.6 |
| D. Smith | 2060 | 11.75 | 6.5 | 5.25 | + 1.3 |
| S. Reuben | 2170 | 12.00 | 6.5 | 5.50 | + 1.0 |
| S. Marjan (~) | 2200 | 13.33 | 8.5 | 4.83 | + 3.3 |
| L. Melvin (*) | 1995 | 13.50 | 7.0 | 6.50 | + 0.4 |
| J. Henley | 2015 | 14.50 | 9.0 | 5.50 | + 2.9 |
| K. Slavko (~) | 2250 | 14.50 | 7.0 | 7.50 | - 0.4 |
| S. Steiner | 2325 | 14.50 | 6.0 | 8.50 | - 2.1 |
| D. Bryson | 2215 | 14.83 | 6.5 | 8.33 | - 1.9 |
| C. Morrison | 2115 | 15.33 | 9.0 | 6.33 | + 2.6 |
| G. Morrison | 2270 | 16.00 | 8.0 | 8.00 | 0.0 |
| A. Reid | 2255 | 17.00 | 9.0 | 8.00 | + 0.7 |
| N. Ivell | 2300 | 18.00 | 9.0 | 9.00 | 0.0 |
| N. Davies | 2360 | 18.92 | 8.5 | 10.42 | - 1.1 |
| C. Pritchett (I) | 2400 | 20.33 | 11.0 | 9.33 | + 1.0 |
| I. Jelen (I) | 2435 | 20.50 | 10.0 | 10.50 | - 0.3 |

**Key:** * Rating will change by more than 100 points
~ Rating is approximate
S Was Pilot Experiment subject
J Junior, under 21
I International Master

**Note: For purposes of the data analysis unrated players are given nominal ratings of 1000.**



**Table 2.**

| Rating Range | Avg. T | Avg. L | Avg. 12(T-L)/ | |
|---|---|---|---|---|
| 1000-1599 | 1.13 | 1.05 | .43 | |
| 1600-1799 | 3.33 | 4.13 | -1.32 | |
| 1800-1999 | 5.43 | 4.62 | .97 | |
| 2000-2199 | 6.67 | 4.84 | 1.73 | 6 |
| 2200-2399 | 7.81 | 8.07 | 0.20 | 8 |
| 2400 + | 10.50 | 9.95 | 0.32 | 2 |
| Tot. Avg. | 5.23 | 5.09 | 0.39 | Tot. 35 |

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It is worth noting that in the case of very high scoring subjects the (T-L)/S ration has its bounds. For example if a subject scores 18, the maximum for T L is T = 12, L = 6, so that 12(T-L)/S gives 4. This means that simply due to the experimental design in that the maximum of both T and L is 12, high scores (i.e. 18) are comprised of general success with regard to both T and L. Therefore a greater difference between T and L in scores near 12 is most significant, as is the case with the group rated 2000-2199. However a more appropriate measure would be to use the ratio (T-L)/S if S is less than or equal to 12 and to use the ratio (T-L)/(24-S) if S is greater than 12. A further 20 sample subjects have not been included here due to various unrealiability factors such as age, rating, etc.

**2. Computer Subjects**

Though our data for computer programs as compared to humans is somewhat limited, Table 3 below indicates that once scores get above 5, there is a definite and significant, strong trend for T≥ L. The two cases where L>T (3 to 2) can be attributed to the fact that the scores are low and possibly to the nature of at least one of the correct moves involved. This will be discussed in the next section.

**Table 3**

**COMPUTER SUBJECTS**

| Program | Rating | Score | T | L | 12(kT-L)/S |
|---|---|---|---|---|---|
| 1. Chess Challenger '10' | 1000 | 1 | 1 | 0 | + 12.00 |
| 2. Chess Challenger '7' | 1150( ) | 5 | 2 | 3 | - 2.40 |
| 3. Sensory Chess Challenger | 1150( ) | 5 | 3 | 2 | + 2.40 |
| 4. Sargon 2.5 | 1484 | 5 | 2 | 3 | - 2.40 |
| 5. AWIT | 1500 | 6.25 | 5 | 1.25 | + 7.20 |
| 6. OSTRICH81 | 1450( ) | 6 | 4 | 2 | + 4.00 |
| 7. CHAOS | 1820 | 6 | 5 | 1 | + 8.00 |
| 8. Mephisto II A | 1850( ) | 6.50 | 4 | 2.50 | + 2.77 |
| 9. Chess Champion Mk V | 1700( ) | 6.83 | 5 | 1.83 | + 5.56 |
| 10. Elite | 1880( ) | 9.00 | 6 | 3.00 | + 4.00 |
| 11. Morphy Encore | 1600( ) | 9.33 | 6 | 3.33 | + 3.43 |
| 12. Champion Sensory 9 | 1770(*) | 9.50 | 5.5 | 4.00 | + 1.89 |
| 13. Prestige | 1980( ) | 11.00 | 6.16 | 4.83 | + 1.45 |
| 14. BCP | 1685( ) | 13 | 10 | 3 | + 6.46 |
| 15. CRAY BLITZ | 2100( ) | 13.33 | 7.33 | 6 | + 6.60 |
| 16. DUCHESS | 1850 | 16.50 | 10.5 | 6 | + 4.38 |
| 17. BELLE | 2150 | 18.25 | 11 | 7.25 | + 2.46 |

**Key: (*) Provisional Rating**
**( ) Rating is an estimate**

**Note: Programs running off mainframe computers have names entirely in upper case letters. Others are stand-alone microcomputer program.**

**The ratings and scores indicated are based on data gathered since the early months of 1981.**

## Discussion of Positions

Table 4 is the "Master Sheet" for our experiment, giving the correct move(s) in each position and their sources. We refer to positions by their move number followed by the side to move in "( )". 1(B) requires little explanation you've seen this theme of a Q sacrifice followed by double-discovered-check then you will find it. 2(W) is an example of a very characteristic lever: "the sweeper-sealer twist" (Kmoch, 1959). It involves a long-term pawn sacrifice in which the principle variation (as play continued) is 1.d5 cd 2.e5 R/6d7 (Not 2. ...d4? 3. exd6 dxc3 4.dxe7+ winning a piece) 3.Nd4 after which White has: 1) gained full control of the opened c-file. 2) sealed off Black's half-open d-file 3) gained a tremendous central post for his N. 4) weakened Black's pawns into 3 groups and 5) gained a K-side majority of pawns. 3(B) exemplifies the classic lever ..... f5 around which Black has organized nearly all his forces. Without knowing about levers, computer programs are able to select this move because it improves mobility, gains space, and attacks the centre. 4(W) is an example of the "Knight attack", 1.e6!. Now if ...cxd4 2.Qb5+ Bd7 3.Qxd5 (or exf7+) wins. It is arguable that 1.e6 is a very tactical move, but the game continuation 1. ... fxe6 2.Qh5+ Kd7 (2. ...g6 3.Qe5 Rg8 4.Nxe6 wins) 3.Nf3 indicates a P-sacrifice for positional/quasi tactical ends, whereby White mated on move 20! 5(W) calls for the thematic tactical stroke 1.Nd5. If 1. ...exd5 2.Bxd5+ wins; or on 1. ...Nxd5 2.Rxf8+ Bxf8 (If 2. ...Kxf8 3.Bxd5 leads to a promising attack e.g.3...exd5 4.Rf1+ Bf6 5.e5!! de 6.Qxd5 etc.) 3.Bxd5 Rb8 4.Qa7! wins. Sixteen-year-old Mark Condie contributed the lever 1.a4 which must also be considered as a correct move in the position. In 6(W) 1.g6, again a temporary endgame P-sacrifice, is necessary immediately in view of Black's threat to equalize with ...g6 ...Kf8-e8. Some computer programs may find 1.g6 because their search sees that White will recover more than the sacrificed P and they want to keep their Rook on the 7th rank. 7(W) is one of the harder positions where many humans overlook the main tactical theme 1.Nf6! gxf6 2.exf6 and White either wins the N on e7 or forks with f7. Many subjects suggesst 1.Bb4, a good intermediary move, but we have no way of knowing that Nf6 is the intended follow-up since it is not amongst their further choices. In 8(W) Black suffers from classic "melanopenia", a weakness on the Black squares (Kmoch); hence 1.f5 forces access for White's N to f4 sooner or later. 9(W): 1.f5. Many subjects chose 1.Bb5, but the main theme is to follow the lever with 2.Bd3 then Ne2-f4 etc. English translation (Hort & Jansa, 1980) puts a Black pawn on b6. In 10(B) 1. ...Ne5 removes the blockader and leads to the opening of the g1-a7 diagonal. If 2.Rxd4 Neg4! 3.fxg4 Nxg4! wins; or if the R retreats then 2. ...Neg4! wins with the same idea. Interestingly, many programs chose 1. ...Qc5 which is a good move, though clearly not the best. 11(W) offers a straightforward space-gaining lever, 1.f4, though experienced humans know that if Black's pieces (especially N's) had easy access to e5 then it would be a poor move due to the resulting backwardness of White's e-pawn. 12(B) is a defensive tactical position. The only one of its kind in the experiment and one of the easiest. White has two threats and B has only one move which defends against both: 1. ...Bf5. In 13(W) Black suffers from "leucopenia" (weakness on the White squares). The sophisticated lever, 1.b4 enables White to advance his central pawns after bxc5 and Qc4. If Black plays 1. ...cxb4 White recaptures 2.Bxb4 and soon Black's weak doubled front d-pawn will fall. 14(W) is straightforward tactics; 1.Qd2 or 1.Qe1 wins heavy material. 15(W) is from a Fischer game which many subjects, particularly younger ones, recognized. After 1.Qxg7+ Qxg7 2. Rxf6 Qxg3 3.hxg3 later followed by g4-g5-g6, Fischer managed to trade off his extra doubled P to remain a P up.

16(W) is an example of a tactical position whereby after 1.Ne4! White is guaranteed at least positional gains with 2.Nd6+ to follow; i.e. if 1. ...dxe4 2.Bxf7+ Kxf7 3.Qxd8 hxg5, though Black obtains 3 pieces for his Q, his exposed K, P-deficit, and lack of piece coordination mean that he does not have sufficient compensation. However after 1. ...Be6 (as suggested in BCP's search) 2.Nd6+ etc., White only obtains a big positional plus. 17(B) calls for 1. ...h5 with the idea of ...hg, Nh7 and Ng5 to follow. If 2.g5 Nh7 3.h4 f6!. Alekhine played 1. ...Ne8 (a move suggested by many subjects) in this position and did not obtain good play. 18(B) is from a Fischer game which exemplifies the fact that the achievement of the two bishops vs. bishop and knight in a semi-open position is at the highest level tantamount to material gain. Very few humans found 1. ...Nb3, most stronger ones suggesting 1. ...Qb6 or 1. ...Be6. After 1. ...Nb3 2.Bxb3 Qb6+ White relinquishes the two bishop advantage to Black and is left weakened on the light squares. The programs BELLE and DUCHESS found 1. ...Nb3. 19(B) is the "fork trick" in action. After 1. ...Rxe4 2.Rxe4 d5 3.Qxa6 dxe4 4.Be3 Qg4! Keres managed to transfer his central advantage to a winning K-side attack. 20(W) suggests the straightforward lever 1.g4 with the intention to follow 1. ...fg with 2.Qxg4 and f5, strking at the base of Black's chain and exposing his disorganized position. In 21(W) 1.Nh6 wins the exchange in all variations. 22(B) is the hardest position of the entire set, at least for humans. Perhaps the fact that only one human subject, I.M. Craig Pritchett found the best move, as did the programs BCP, DUCHESS, and BELLE is most significant to the experiment. Humans suggest reasonable and/or intersting moves such as Rfd8, Nc5, d5!?, Ne5!? and Nh5, which often come into consideration in similar positions, but the most unusual combination starting with 1. ...Bxe4 followed by 2. ...Qxc4 is the key. It should be noted that depth of search is not the problem for humans in finding this combination; but rather more likely is its individuality and the fact that many good moves seem in the offing. 23(B) is also a hard position in the sense that the "normal" move 1. ...Bf5 is confronted with the very interesting 2.g4!? which most people (and machines) fail to consider adequately. 1. ...f6 is an indisputable, solid lever which meets the threat 1.f5. Finally in 24(W) 1.f4 is the indicated lever since White's superior pieces make it easier for him to maintain the tension in the center.

### Discussion of Experiment and Results

A number of human subjects made interesting comments/criticisms after participating in the experiment. Some suggested that they would have fared much better had they been given an initial few "training" positions to get some idea of what was being asked for in the experiment. However this would give us no fair method of comparing human results with computer results. Others stated that in a number of positions they could guess the "characteristic" move we were after; however, in two minutes or under tournament time constraints ( 2 minutes per move), they could not calculate its consequences and would most probably not play the indicated move. Quite a few subjects recognized the Fischer position 15(W), where he played Qxg7+ against Mecking in the 1970 Palma de Mallorca Interzonal. Nevertheless we do not feel that this or other positions which may have been recognized invalidates their inclusion in the experiment. A chess player's experience or education can be used as a measure of his ability. We accept that a few positions in the experiment are not ideal, and that a few are even controversial as to what the best move is, but this will not significantly alter a human or machine subject's overall score within some standard deviation.

It is interesting to note that the computer programs with known tendencies towards play like humans, namely CHAOS, Mephisto IIA, and Chess Champion MKV, all scored relatively poorly on the test. Their T to L ratios are still high, in line with the performance of other programs. This means that their superior "positional sense" has not been sufficient to find the required lever moves in the experiment.

There is a certain positional sense for a characteristic move such as a lever which most human players do not acquire until they obtain the experience which is reflected in master level play. The lack of experience, knowledge about, and understanding of pawn structures, both in computer programs and humans of Category I and II level is indicated by their performance on the test.

They share a tendency to occasionally play "disjointed", short-term moves which overlook the essential features or requirements of a position. A lever can lead to a long-term positional advantage (such as superior pawn structure or outposts for pieces) which may ultimately lead to the gain of material. Themes such as "bad bishops", "good knights", and "destroying the communication channels" particularly in endgames, are generally overlooked by less than master strength players of either machine or human origin.

Clearly Candidate Master level

humans and machines (also of Category I for the latter) are adept at finding forcing tactical variations. Our hypothesis as given in Figure 2 indicates this trend, though the data for Category I humans participating in the experiment is rather sparse and does not support this view. Our data does indicate that as humans encroach on the 2200 threshold their ability to find lever moves does necessarily improve, even to the point that for ratings up to 2400 L may predominate.

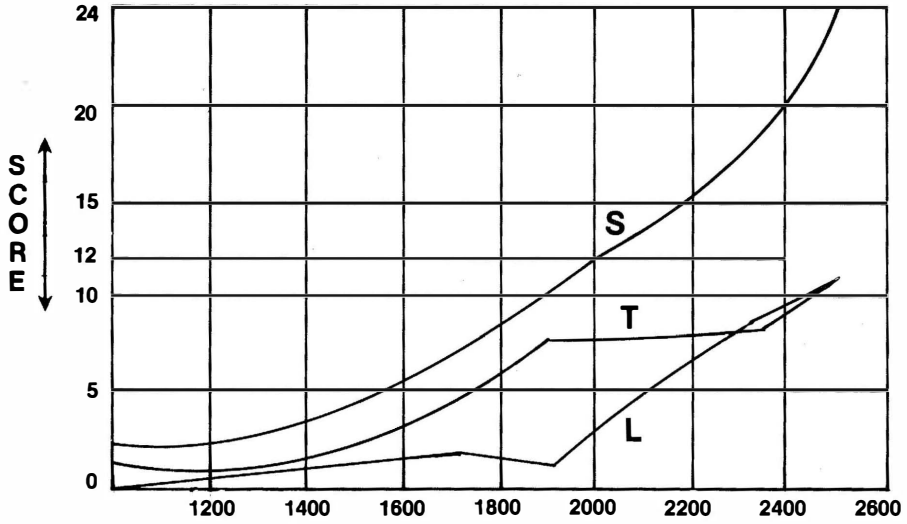
Finally this leads to the natural question:

"Can we imagine a World Champion chess player of machine origin with no positional sense of the normal, classical mold?"

Only time will tell.

**Fig. 2**

**Hypothesis for effects of Tactics and Levers on Sum Score vs Rating for Humans**




**T = TACTICS L = LEVERS S = SUM SCORE**

**Note: Maximum of S is 24**
**Maximum for T and L is 12 each.**

### Conclusions

The design of the experiment facilitates the quantitative study of differences in the ways that human players and most tournament programs play chess. The results confirmed those differences, which were suspected prior to the experiment. It is hoped that the experiment can become a standard test for the characteristics of chess programs in enabling the establishment of their "tactic vs. lever" profile.

A few comments should be made about the disadvantages of the experiment. The first is based on the observation that some programs scored surprisingly well, outscoring strong human players who in our judgment would be able to beat them under standard tournament conditions. One explanation for this is that the test conditions were more favorable to machines than to humans. During actual games human players tend to nonuniformly allocate their total time to individual moves. Thus a chess master would typically spend 10 or 20 minutes or more in a critical position for finding a key move or a correct plan, and them play the next few moves almost instantly. On the contrary,most programs must more or less repeat the whole analysis after each reply by the opponent. Therefore the programs were probably not as handicapped by the two minute time limit in the experiment.

There is another explanation for why the experiment ranked some of the programs higher than humans of similar tournament strength. The scores in the test were based on the ability to find a correct move in individual, mutually *independent* positions, and not a correct *sequence* of moves in a whole game. A program may be able to find correct moves in a sequence of positions of the same game. However, although each of the moves may be correct, in a sequence they may not achieve a desired cumultive effect as they may belong to different plans, each of them winning alone but not if mixed with other. Therefore, a program's individually correct moves may not in an actual game be as efficient as a human's sequence of moves.

Another weakness of the experiment may be that in some of the positions there is more than one good move. Our measures, S, L, and T were based on the comparison of *one* correct move with the move(s) proposed by the subjects, and therefore cannot be considered as absolutely reliable. One way of excluding this effect would be to base the interpretation of the results on the mutual similarity of subject's responses instead of the absolute correctness criterion.

Subjects' responses would thus not be matched against correct responses in order to obtain the subject's success/failure pattern along the axis of 24 test positions. Instead, in order to find a similarity measure between two players, their responses would be compared directly, before matching them against the correct responses.

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We would like to thank Professor Donald Michie for encouragement and helpful discussions of this work, our colleague Alen Shapiro for programming assistance, and Don Beal for useful comments. Also deserving many thanks are the various people who took the time and trouble to carry out our experiment on their computer chess programs and the human chess-player subjects who participated.




## Bratko-Kopec Experiment
## INSTRUCTIONS

**In the next hour subjects are asked to select their preferrred move(s) for 24 chess positions. The time limit per problem is no more than two minutes. Positions will vary with White and Black to move. The** *preferred move* is to be written in the space provided on the answer sheet. Space is also provided for your 2nd, 3rd, and 4th choices if they exist. Please note that the order of your choices is important. After completing the task we would appreciate your comments on the experiment.

### ANSWER SHEET

Name: _____

Grading (give source please); _____ Age: ___ Nationality: _____

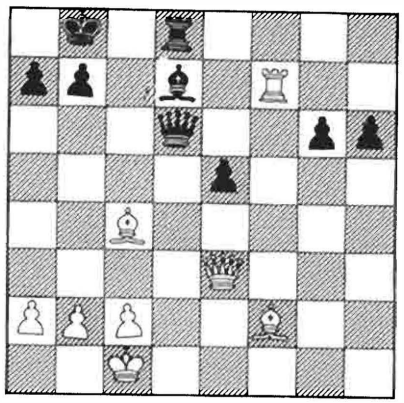
| Position Number | (Side To Move) | Preferred Move | 2nd Choice | 3rd Choice | 4th Choice |
|---|---|---|---|---|---|
| 1. | (B) | | | | |
| 2. | (W) | | | | |
| 3. | (B) | | | | |
| 4. | (W) | | | | |
| 5. | (W) | | | | |
| 6. | (W) | | | | |
| 7. | (W) | | | | |
| 8. | (W) | | | | |
| 9. | (W) | | | | |
| 10. | (B) | | | | |
| 11. | (W) | | | | |
| 12. | (B) | | | | |
| 13. | (W) | | | | |
| 14. | (W) | | | | |
| 15. | (W) | | | | |
| 16. | (W) | | | | |
| 17. | (B) | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 18. | (B) | | | | |
| 19. | (B) | | | | |
| 20. | (W) | | | | |
| 21. | (W) | | | | |
| 22. | (B) | | | | |
| 23. | (B) | | | | |
| 24. | (W) | | | | |

Comments on the Experiment:

Score: _____

1. (B)



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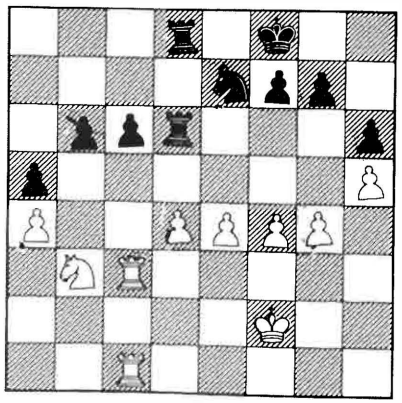



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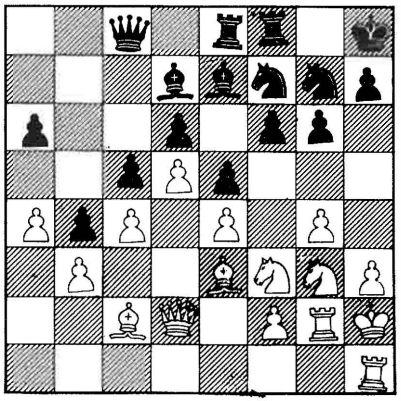

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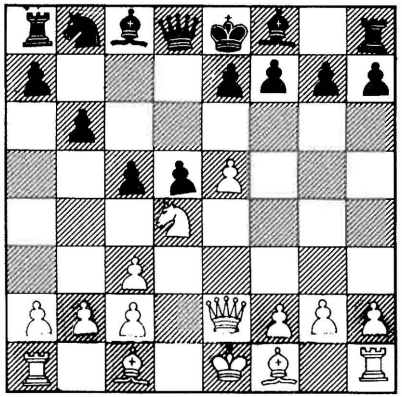

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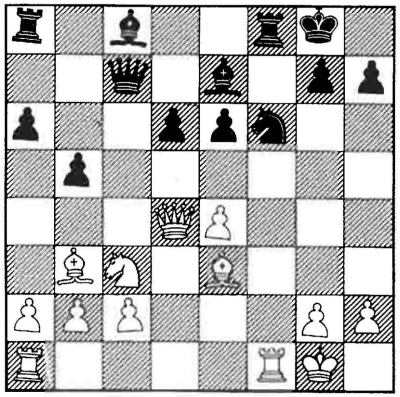

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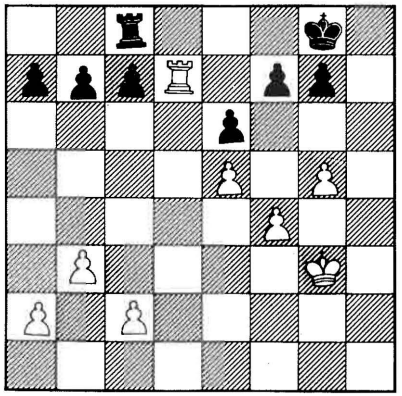

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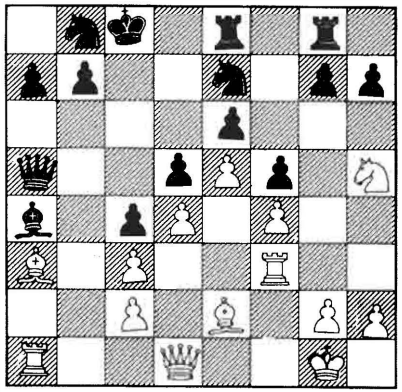

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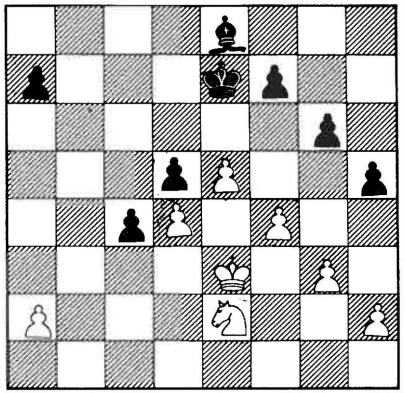

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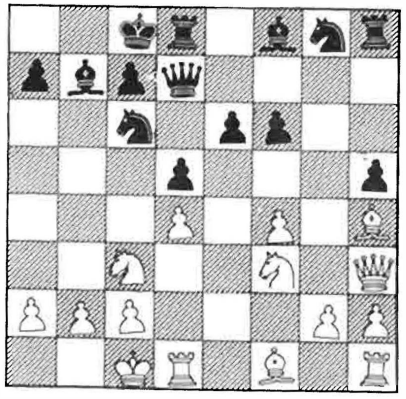

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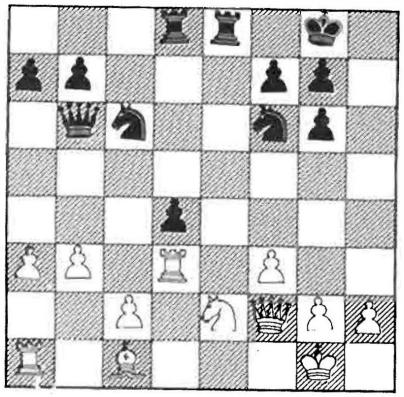

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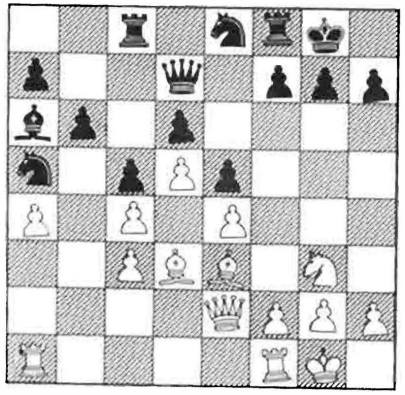

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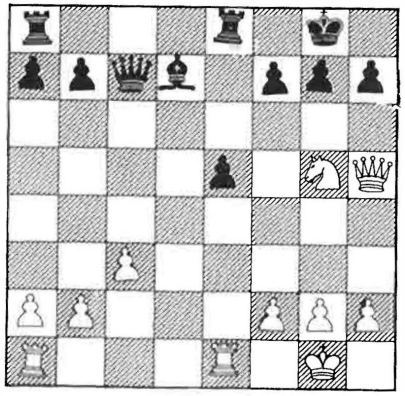

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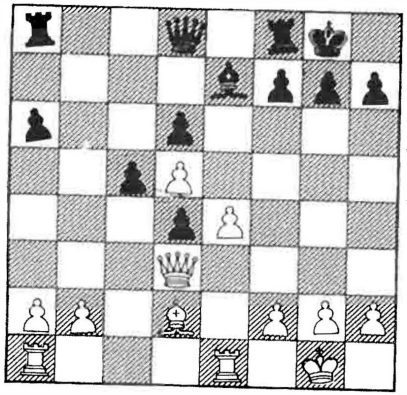

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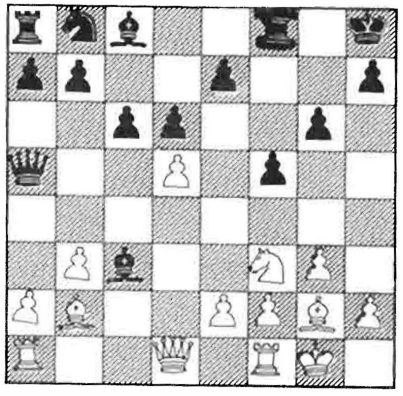



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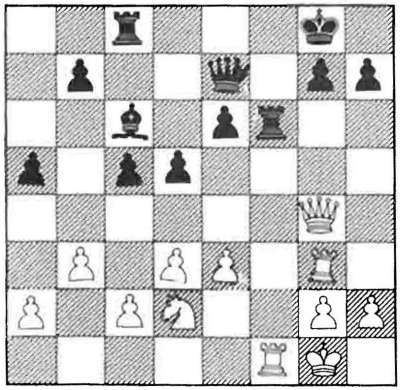

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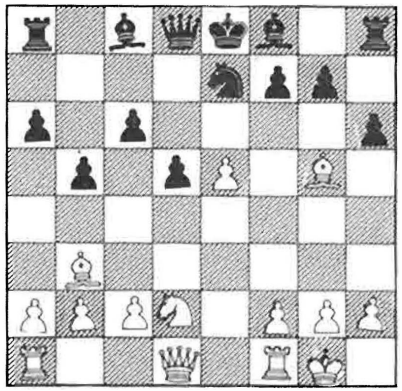

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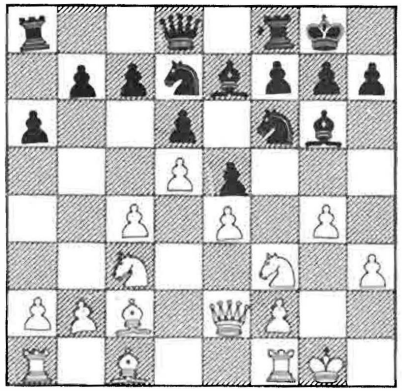

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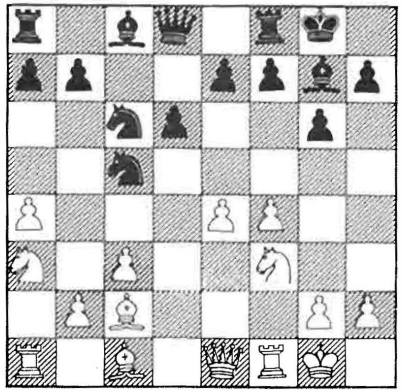

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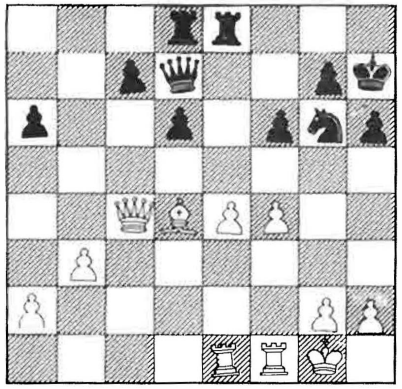

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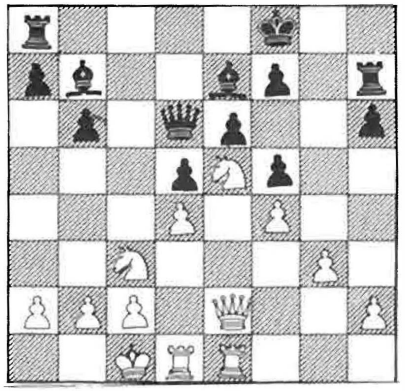

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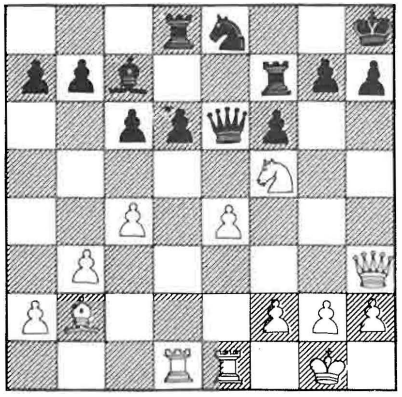

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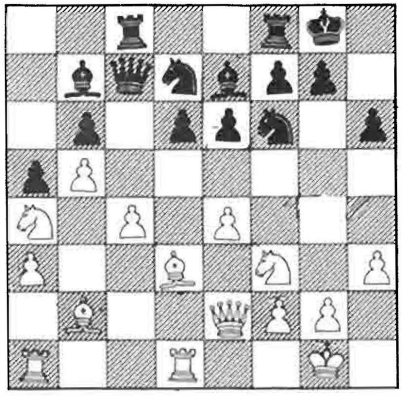

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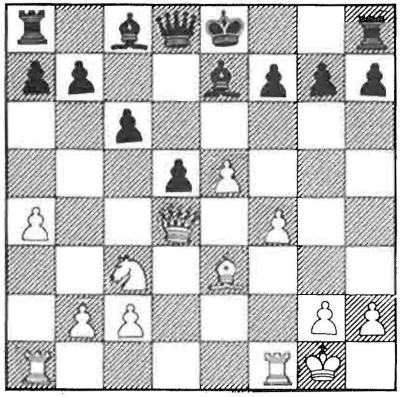


24. (W)

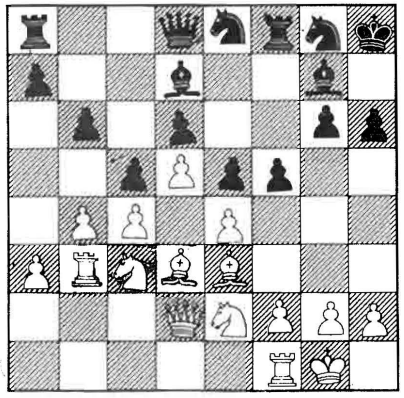




**TABLE 4.**
**MASTER ANSWER SHEET**

| Type | Players | Best Move | Source | Side To Move |
|---|---|---|---|---|
| T | 1 . Andersson - Knuttson | ...Qd1 + | Inf. 18, No. 9 | (B) |
| P | 2 . Bogolyubow -Spielmann, | d5 | P.P.D.144 | (W) |
| P | 3 . Evans - Rossolimo, | ...f5 | P.P.D164 | (B) |
| P | 4 . Spielmann - Walter, | e6 | P.P.D146 | (W) |
| T | 5 . Rogolewicz - Jarecz | Ndt, a4 | Inf. 18, No. 24 | (W) |
| P | 6 . | g | P.P.D.105 | (W) |
| T | 7 . Golyak -Gaiduk | Nf6 | Pachman D222 | (W) |
| P | 8 . Alekhine -Yates | f5 | P.P. D65 | (W) |
| P | 9 . Jansa - Ornstein | f5 | Jansa-Hort No. 14 | (W) |
| T | 10. Kabadzjah - Cibelavvili | ..Ne5 | Inf. 18 No. 45 | (B) |
| P | 11. Byrne - Kotov | f4 | P.P.D.177 | (W) |
| T | 12. | ...Bf5 | Pachman D3 | (B) |
| P | 13. Pfeiffer - Trifunovich | b4 | P.P.D69 | (W) |
| T | 14. Robatsch - Jansa | Qd2 (seq. form) | Inf. 18, No. 32 | (W) |
| T | 15. Fischer - Mecking | Qxg7 + | Fischer's Games G726 | (W) |
| T | 16. Vasilchuk - Bobolovitch | Ne4 | Pachman D18 | (W) |
| P | 17. Bosch - Kmoch | ...h5 | P.P.D. 176 | (B) |
| T | 18. Maric - Fischer | ...Nb3 | Fischer's Games G458 | (B) |
| T | 19. Euwe - Keres | ...Rxe4 | P.P.D.154 | (B) |
| P | 20. Euwe - Flohr | g4 | P.P.D.90 | (W) |
| T | 21. Tarrasch - Blackburne | Nh6 | Pachman D27 | (W) |
| T | 22. Najdorf - Reshevsky | ...Bxe4 | Pachman D50 | (B) |
| P | 23. Jansa-Kavalek | ...f6 | Jansa - Hort D24 | (B) |
| P | 24. Szabo-Ivkov | f4 | P.P.D160 | (W) |

T = Tactical Position
P = Lever Position

(Where P.P.D. stands for "Pawn Power", Diagram No.)

**Sources**

1. Pawn Power
2. Informator No. 18
3. The Best Move
4. Modern Chess Tactics

**Author(s)**

Hans Kmoch
Alexander Matanovic, (Editor)
Vlastimil Hort & Vlastimil Jansa
Ludek Pachman

## COMPUTERS AND PROBLEMS
**by**
**Bob Sostack**

The proficiency of computers for solving directmate chess problems varies considerably with each program on the market. For this rason only the latest computers, advanced enough to solve a minimum of mate in 4 problems, were evaluated. They include: The Capablanca endgame module (improved version), Challenger "9", Champion Sensory Challenger, Chess Champion Mark V, Conchess, Elite Challenger, Mephisto II, Prestige Challenger, Prodigy, Robot Adversary, Super Sensor IV, and Sensor Chess. Unfortunately, Laser Chess, The Philador module for the Mark V, the Royale, and Steinitz/Mega 4 programs were unavailable for testing at the time of this writing due to the manufacturers' inability to supply units.

First of all, keep in mind that the most

important rule applying to all chess problems is that mate must be forced only in the stipulated number of moves, and in all lines. Any mate that exceeds this number does not count as the solution. And problems are not sound unless they have only one solution (first move or "key"). Legal positions (those that can be derived from the initial position of a game) are also required for problems.

There are two computers that outperform the other 10 in every type of problem; they are the Mark V and Prestige. They are the only computers that can solve any problem up to 7 moves (excluding problems that require retrograde analysis) with a 100% accuracy rate. This has been made possible mainly through the combination of 3 critical functions that only the Mark V and Prestige posses: 1) the number of moves to a problem are input so the program will limit its search only to the correct ply, 2) considers all legal moves including underpromotion by both sides, and 3) will look for any "cook" or alternate solutions and display each one — regardless of how many cooks there are.

The other computers have a mixture of features (see chart), but none can verify the soundness of a problem (#3 above). And more than half of the computers can come up with a wrong solution that is one or more moves longer than he stipulation. This is due in part to the way in which programs search positions. Chess programs have been designed to find mates in the fastest time rather than the shortest number of moves. This may be great for tournament players, but it's a disaster for solving composed problems, where time is not a factor.

To find mates in the minimum amount of time, programs are instructed to first examine lines involving "violent moves" such as checks and captures, and temporarily leap ahead several ply and bypass many "quiet moves in the process. If a mate is discovered at this point, the computer will not go back to look for a shorter mate. Although this method of move ordering is common at all levels of play, its use is even more pronounced in special mate finding levels. The Challenger "9", Prodigy, and Super Sensor IV are the only computers not to have a "mate finder". Instead, the "9" and Sensor IV analyze in an infinite tournament time setting, and the Prodigy applies a 24 hour "postal chess" time limit.

The correction for over solving has been to add a "fixed search" to the mate mode. This has the effect of forcing the program to solve the problem within the stipulation by exhaustively analyzing all the possibilities up to that point.

Retrograde analysis (RA) is the only operation that can not be performed by any chess computer now on the market. RA is necessary for problems where castling and/or an e.p. capture may be possible. It's also necessary in some cases to verify the legality of a position. The Mark V is the only computer that partially addresses RA by automatically asking the programmer if castling (either side) and/or e.p. is legal in all applicable positions. The actual task of performing RA is left to the human to figure out, while the Mark V patiently waits for a "yes" or "no" answer. Of course some RA problems can be solved by trial and error, but there's one exception to the "yes-no" test. It occurs when there's a solution to both yes and no and only one is correct. Until a program is developed that will incorporate all aspects of RA, humans will have to calculate the extrapolations themselves.*

For any chess computer to be a successful problem solver, it must be able to compute any possible pawn underpromotions. Problem literature is filled with promotion themes, so its importance as a major strategic device can not be underestimated. The following classifies the extent of each computer's underpromoting ability:

A) Analyze under promotions for both sides while computing, and when the other side has the move:
   - Prestige
   - Mark V
   - Challenger "9"
   - Conchess

B) Analyze underpromotions only for itself while computing, but allows the other side to underpromote:
   - Elite
   - CSC

C) Underpromotes for itself, but not for the other side:
   - Sensor Chess

*For a more detailed treatment on RA see: The Chess Mysteries of Sherlock Holmes (1979), and The Chess Mysteries of the Arabian Knights, by Raymond Smullyan Knopf, 1981.



   - Robot Advesary

D) No underpromotions for either side:
   - Capablanca
   - Prodigy
   - Mephisto II
   - Super Sensor IV

Computers in "B" and "C" can't solve problems where black's only defense is to underpromote, but they can solve "allumwandlungs" (four promotions) and other multiple promotion problems as long as one variation is to a queen.

**Functional Chart**

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Chess Champion Mark V | 7 | 7 | Y | Y | Y | N | 2 | Y | N | S |
| Elite Challenger | 11 | 8 | Y | Y | Y | Y | 2 | Y | Y | F |
| Prestige Challenger | 16 | 8 | Y | Y | Y | N | 1 | Y | Y | F |
| Mephisto II | 8 | 7 | N | Y | Y | Y | 3 | N | Y | S |
| Champion Sensory Challenger | 11 | 7 | Y | Y | Y | Y | 2 | Y | Y | F |
| Challenger "9" | 7 | 7 | Y | N | Y | Y | 1 | Y | N | F |
| Capablanca Endgame Module | 11 | 6 | Y | Y | Y | Y | 3 | N | Y | F |
| Robot Adversary | 7 | 7 | N | N | Y | N | 1 | N | N | F |
| Conchess | 7 | 7 | N | N | N | Y | 2 | Y | Y | F |
| Prodigy | 7 | 4 | Y | Y | Y | Y | 3 | N | N | F |
| Sensor Chess | 4 | 4 | N | N | Y | N | 2 | N | N | F |
| Super Sensor IV | 7 | 5 | N | N | N | N | 2 | N | N | F |

**Y = YES** **N = NO**

1. Maximum length of problem that can be solved (in moves) theoretically
2. Maximum length of problem that can be solved (in moves) realistically
3. Announce or display that mate has ben found in "n" moves
4. Clock display
5. Will analyze all vriations of a solution without changing levels (assuming no dual secondary moves for white)
6. Displays move while computing in problem mode
7. Ease of position set-up/varification (scale: 1 - easy, 2- average, 3- involved)
8. Checks for illegal positions (only for too many pieces on the board, and for pawns on the first and eighth ranks)
9. Displays depth of search while in problem mode
10. Type of program search: (F) Full width; (S) Selective

**Prestige**

When I first received Prestige around two months ago I was disappointed at the fact that it didn't do what it was supposed to, according to a conversation I had had with Kathe Spracklen last June, namely: It was incapable of sacrificing material for the positional advantage or for a strong attack. This initial disillusionment has been steadily replaced by an appreciation for what it does do: play a game better in every respect than any other chess computer now available, sometimes by an order of magnitude. Due to the increased sophistication of the program, it's slower than Elite (some 20% to 30% in most positions; about half as fast to find a checkmate), although you will seldom notice this difference in a game. What you will notice is that Prestige plays the strongest, most coherent, most humanlike, most competent, most fun game available today among chess machines. And if I sound enthusiastic about Prestige it's because I am. I want to emphasize that the 100-point difference in strength relative to Elite is, in my opinion, less important than its humanlike style of play. In this very consumeristic field, one can only wonder about future Spracklen programs that, utilizing faster microprocessors, will overcome some of Prestige's limitations (e.g. the discontinuity between openings and middle-games or between middle-games and end-games). Why, when ahead in the middle-game, is Prestige still incapable of simplifying the position to play for an easy-to-win ending?.

The Fidelity-Spracklen team is once again not being fair. Not satisfied with already having the strongest machine (Elite) and the best performance/price ratio (SC9), they have come now with another chess computer that is not only the best but a full class above the competition.

Coming back to more mundane considerations, I can't help but wonder at the poor quality of Prestige's instruction manual. Not only is it not accurate and comprehensive enough, but it is not even well printed. And this is a real shame, for I know of several instances of frustrated Prestige owners looking for help while trying to understand how their new and otherwise excellent machines work. Also, they get whimsical from time to time and refuse to play until they are unplugged and plugged in again.

I realize now that I have forgotten to include some positive aspects of Prestige which, if only by comparison with its chess playing ability, seem minor to me. The auto-response board is very competent and well-crafted, and the package includes all the features you can imagine and then some.

To conclude, Prestige is in my opinion a brilliant departure from the "brute force" school to which the Spracklens adhered for so long. It is a most promising step in what I am convinced and they have proved to be the right direction.

**Elite**

This variation on a theme by the Spracklens has been until recently the strongest microcomputer commercially available and also the prime exponent of the "brute force" school. The main differences in performance between Elite and his smaller brother, Champion, should be attributed to the doubled clock speed (from 2 MHz. to 4 MHz.) and, even more importantly, to the increased extensions for captures and for checks. Champion's 2-ply extensions were expanded to a number that seems to be proportional to the full-width search. During the middle-game, a 5-ply full-width search will have 5 more ply of extensions for captures and checks, so Elite will find a mate in 5 (10 ply). During the eng-game, the extensions seem to be three times as deep as the full width search. If looking ahead 5 ply it will see a checkmate in 7 (14 ply). These increased extensions are also shared by the newest Spracklen programs, SC9 and Prestige, and add a good deal to the tactical strength of a given program. Some other machines, Conchess for instance, could really benefit from this.

Otherwise, Champion and Elite seem to be basically similar. Maybe as a result of its increased tactical ability, Elite seems to be a bit more active, although it is still very much on the passive side. This, together with its inability to play the pawns during the middle-game and its tendency to play some moves not relevant to the position, makes Elite play a "computerlike" game, one that I am not particularly fond of. In other words, even admitting that Elite was clearly stronger than the Mk V, I personally preferred the latter when I felt like playing chess.

It seems that some substandard Elites (3.6 MHz. instead of 4 MHz.) have reached the market. Although this difference in speed will hardly affect the playing strength, it seems to be difficult to accept in view of Elite's cost, already too high to begin with. I also had some minor reliability problems. In my first Elite the voice and the beep didn't always work properly, and the B2 LED refused to light. In my second Elite, none of the 4th-rank LED's worked after a 20- or 30-minutes warm-up period.

Finally, the instruction manual failed to inform about some Elite features, like the fact that it plays different openings in the best and in the radom modes.

**Mephisto**


This one is a real gem. Prior to the Prestige arrival, while looking at the games it was playing I wondered why other chess programmers hadn't realized that they had reached a plateau with their brute-force approach, while Mephisto, with a much slower microprocessor (4 to 5 times slower than Elite or Prestige), was playing as strong a game as the best (then Elite), and a more humanlike, more active and interesting one. In the middle-game Mephisto seems to be as humanlike and as active as Prestige, although its much slower speed makes it less strong tactically, something particularly noticeable in the end-game (Prestige looks ahead typically 1 ply deeper in the middle-game and between 2 and 3 ply deeper in the end-game). It's precisely in this last phase of the game where Mephisto seems to be relatively weaker than the best of its electronic competitors, mainly because of its recurrent inability to play its king actively when required, something that made it lose some favorable games (e.g. games 41 and 43).

Its otherwise excellent coherence and chessplaying ability makes it the second-strongest chess computer available and in many instances as fun to play with as Prestige. In other words, if I had to choose between Mephisto and the now-sold-out Elite, even for the same price I would take Mephisto.

With the Mephistos I used, a total of 6, I had no reliability problems. I will add that its optional and expensive auto-response board works and looks at least as well as that of Prestige.

**SC9**


The third product of the fruitfull collaboration between Fidelity and the Spracklens has a performance/price ratio that has become the standard by which to judge all chess playing products, one that seems extremely difficult to improve upon. Although slightly slower than Champion (1.5 MHz. as opposed to 2 MHz.), SC9's program is positionally more accurate than Champion's (or Elite's, for that matter), while also being tactically sharper. Because of the increased activity of its play and its better understanding of the pawns' role in the middle-game, it provides a considerably more humanlike, more coherent, and more fun game. Its end-game is also Im-

proved over Elite's and Champion's. Although lacking some "needed" features (e.g. depth display and position evaluation), the game it plays is so good relative to its price that it has to be considered *the best buy* in today's market, providing that the SC9 is considered without the addition of the opening modules, which add a lot to the price and probably nothing to the strength. In absolute terms, only the more expensive Prestige, Elite and Mephisto play a stronger game.

I have been using two SC9's and I have seen only one difference between them: One is about 7% faster than the other and, probably because of this, they sometimes will play a different move. Nevertheless, in the 54 games they played they scored roughly the same. It's peculiar, though, that sometimes (maybe 10% or 20% of the time) they will seem not to be thinking on the opponent's time.

I would like to add that, at the price, nobody has the right to ask for anything better in a chess computer.

**Conchess**

Here we have an inexpensive auto-response board that finally incorporates a modular microprocessor, so you won't have to throw your machine away when the manufacturer comes with something faster. And it just so happens that it plays an excellent game of chess. Active, tactical and fun, it also has enough positional understanding to provide us with a "humanlike" game. Because it is relatively inexpensive, truly upgradable and generally sound in its program, the obvious shortcomings are, to me, particularly frustrating.

Its limited extensions for captures and checks handicap Conchess in the kind of complicated games it likes to play. In addition, its opening book is so brief that I could enter this machine only in 4-game matches vs. the other ones. Otherwise, it would have repeated the same openings and the same games.

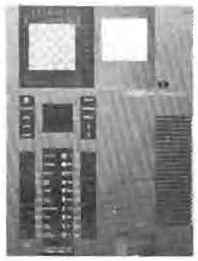
If what I have said about extensions for captures and checks in Elite's review is right, Conchess programmers should be able to easily come up with an 1800+ program that, provided it will include a more enjoyable opening book, should prove to be extremely competitive in the actual marketplace.

**Champion**

During the fall of '81 Champion, the first Spracklen program to be commercialized by Fidelity Electronics, was the strongest chess computer on the market. Together with some gimmicks (e.g. the voice and the grandmaster games), it came with a chess program capable of playing chess at a decent level, one that cared about pawn structure and piece development more than any previous machine, while also playing fewer irrelevant moves. It also played an exceedingly passive game of chess, sometimes moving the king from G8 to H8 back and forth, as though it "didn't know what to do," offering what I considered to be a very boring time. Its end-game was its weakest aspect, even more so than for its competitors, and that is saying a lot.

Even if recognizing its achievements, I smiled happily the day I sold mine.

**Scisys Mark V**



An executive of Hegener & Glaser (Mephisto) told me at the summer Consumer Electronics Show that "the Scisys Mark V is an engineering masterpiece." And I couldn't agree more. This beautiful machine has about all the features I care for in a chess computer, including the ability to play up to 12 simultaneous games and LCD piece symbols that are not confusing. Its program is as strong as Champion's, but much more active and more fun, a program that tries to complicate matters and plays an eminantly tactical game. Its opening style (see the article about ungradability) is an interesting one, although limited in scope. Its positional play isn't precisely great, bettered by all the competition with the possible exception of Morphy. Anyway, because of its human engineering and the fun game it provided, the Mark V was for a long half-year my favorite machine, the one I used most often, even after I became the proud owner of an Elite.

I have had only minor reliability problems with my two machines. Both refused to work a couple of times, a situation that was mysteriously aleviated by unplugging them for 48 hours. Also, the keys sometimes tend to stick. Otherwise, Mk V's consistency is excellent, and by this I mean that they always seem to play the same moves given the same time control, something that doesn't necessarily happen with other models.

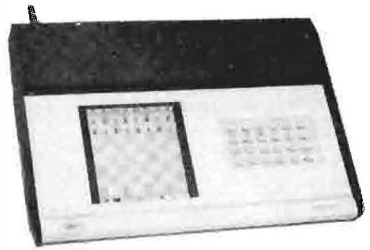
**M.G.S. and G.G.M.**

This machine, chronologically the first to play chess at a decent level, has an excellent reliability record. In my personal experience with four of them, only one ever refused to function properly, and that was my fault, since I forgot to switch to "memory" while pluggging in a cartridge. Otherwise they worked admirably well time after time.

Its main shortcoming is probably the discontinuity between the three main phases of the game. In other words, you have, with the so-called "master trio," three distinctly different and not-well-integrated players. As discussed in the section on upgradability, when Morphy takes over from Grunfeld it will generally play moves that have little to do with the position. Also, Morphy's positional and tactical capabilities are not exactly the best I have ever seen in a chess microcomputer. It's in this combination of factors that we find the "master trio's" inherent weakness, one that Capablanca tried to solve partially, but not with complete success. The end-game cartridge enters the game too late to be of great value and, at the same time, it doesn't seem to be strong enough to fully justify its specialized end-game character. As an example, I and a programmer connected with Applied Concepts tried the position that results after the exchange variation of the Ruy Lopez, but taking off all the pieces other than the kings and pawns. Against Elite (itself a rather weak end-game player), Capablanca lost with white and with black. It's most fortunate that José Raúl Capablanca didn't see that.

Morphy,[1] only 18 months ago the reference standard for competing microcomputers, is, together with Grunfeld and Capablanca, basically obsolete in today's market. That can give you an idea about how quickly things move in this field and about how successful the modular concept has been.

**Savant**



Together with the Mk V, Mephisto's ESB, and Prestige, this is, in my opinion,

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[1]Prodigy is basically a Morphy in an attractive disguise, with an even more attractive price. Its small size and its ability to run on batteries makes it truly portable, and its program seems slightly improved (if only for speed chess) over Morphy, its otherwise twin brother.

the best looking machine in the market. It is also blessed by a printer and a clock (optional) that not only work consistently (not necessarily true for Fidelity's printer), but also integrate with the machine so as to form a handsome unit.

Its positional play is a least as good as the best in the winter '82 tournament, but Its tactical ability and its end-game play were the culprits to blame for its last place finish in that particular event. Its active and not-excessively-computerlike game compensates for its above-mentioned weaknesses and, in my opinion, Savant's game should be considered roughly as good as Mk V's, Champion's, and G.G.M.'s.

I have found two kinds of problems in the three Savant I have used. Sometimes they will stop in the middle of a game and re-start for a new game; great for your ego if you are losing, but very frustrating in most cases. Also, it is occasionally necessary to replace a burned-out bulb behind the LCD board.

I should also mention that I never got used to some of the piece symbols in the LCD display, having a difficult time distinguishing between the rooks and the queens.



# PREVIEWS

### Philidor

Eureka! I got it! I said to myself when I received two Philidor modules in late October. During the past spring I became so compulsive about this much-awaited update on the Mk V that I was ready to kill in order to get a Philidor prototype. But they wouldn't give it to me. Anyway, I finally got it and, not without great trepidation, I plugged this marvel into my dear Mk V. 1st check: It played many more openings. 2nd check: It was tactically much faster than the previous Mk V. On the verge of a heart attack, I immediately started a match at 40/2 vs. the best there is amongst microcomputers: Prestige. The result? 10-0! ...in favor of Prestige, of course.

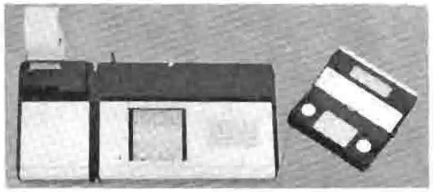
What has happened? When I.M. David Levy (co-author of Mk V and Philidor) played vs. CHESS 4.9 some years ago, he said that the best way to play a computer is to "do nothing, but do it well." Philidor is undoubtedly a partial success in the application of this formula, for it doesn't do anything. The problem is that it doesn't do it well. It's so incredibly passive that it wasn't defeated by Prestige, rather it was massacred. In the several games I myself played against Philidor I wasn't really threatened even once, as it played for a more an more confined position, allowing me to build any kind of attack I wished. It shares with Champion the dubious honor of being the most passive program I have tried.

What else can I say? This is only a first impression, and naturally I admit the possibility of being wrong. In this case, at least the theoretical possibility.

### Steinitz

As of today I have only had the opportunity to use a Steinitz prototype, in many ways different from the final version to be commercialized shortly. It seems to be based on Capablanca, with some added middle-game heuristics, and also includes a 4,000-move opening book. According to the information I got from a programmer connected with Applied Concepts, the final version of Steinitz has played the following two 10-game matches at 40/2: In the first it defeated G.G.M.'s "master-trio" 7-3; in the second it lost to SC9 4.5-5.5. According to the same source, Steinitz should be around 150 points stronger than Morphy, reaching the 1750 level in the old 2 MHz. mainframe. The new 4 MHz. machine, to be released sometime this winter, is supposed to bring Steinitz's strength to around 1800. I also have heard that the commercially available Steinitz is different from the one that supposedly defeated Elite 5.5-4.5.

### Savant Royale



Received too late to allow for thorough testing, the Savant Royale, identical to the previous Savant in its features and in its gorgeous appearance, comes with a supposedly improved program, an expanded opening repertoire and an increase in clock speed from 6 MHz. to 7.5 MHz. Although I didn't have time to play enough games to form an accurate opinion about its strength and playing style, my first impression is that it plays an active and fun game that could put Savant Royale in the 1700's. Just like the original Savant, its idiosyncratic electronics decide from time to time to play a new game instead of finishing the old one.

**Notes:**
1: Subjective Estimate
2: A = Active; P = Passive; M = Intermediate
3: (In Relative Terms) 1 = Maximum; 2 = Intermediate; 3 = Minimum
4: Required: Battery Operated and Small Size.

# COMPARATIVE CHART

| | PRESTIGE | ELITE | MEPHISTO | S.C. 9 | CONCHESS | CHAMPION | Mk. V | G.G.M. | SAVANT | PRODIGY |
|---|---|---|---|---|---|---|---|---|---|---|
| **Estimated Rating (1)** | 1930 | 1850 | 1820 | 1760 | 1720 | 1670 | 1670 | 1630 | 1630 | 1600 |
| **Book Size** | 16 K | 4 K | 3 K | 3 K | 800 | 3 K | 1 K | 6 K | 3 K | 400 |
| **Middle Game Strength (1) Tactical** | 2200 | 2250 | 1900 | 2000 | 1850 | 1850 | 2000 | 1800 | 1800 | 1800 |
| **Positional** | 1800 | 1500 | 1750 | 1650 | 1650 | 1500 | 1400 | 1400 | 1550 | 1400 |
| **End Game Strength (1)** | 1600 | 1500 | 1400 | 1500 | 1400 | 1300 | 1400 | 1400 | 1350 | 1350 |
| **Active/Passive (2)** | A | P | A | M | A | P | A | M | M | M |
| **Human Like (3)** | 1 | 3 | 1 | 2 | 1 | 3 | 3 | 3 | 2 | 3 |
| **Typical Look-Ahead Middle Game Full Width** | 5 | 5 | 4 | 4.5 | 4.5 | 4.5 | — | 4 | 4 | 4 |
| **Selective** | 10 | 10 | 8 | 8-9 | 6-7 | 6-7 | 8 | 5 | 6 | 5 |
| **User Adjus** | Y | Y | N | N | N | Y | Y | N | N | N |
| **Displays Main Variation** | Y | N | N | N | N | N | N | Capablanca | Y | N |
| **Displays Depth of Analysis** | Y | Y | Y | N | Y | Y | N | Capablanca | N | N |
| **Displays Position Evaluation** | Y | Y | Y | N | N | N | Y | Capablanca | N | N |
| **Underpromotes** | Y | Y | N | Y | Y | Y | Y | N | Y | N |
| **Accepts/Refuses a Draw** | Y | N | N | Y | N | N | Y | N | N | N |
| **Offers A Draw** | N | N | N | N | N | N | Y | N | N | N |
| **Claims A Draw** | Y | N | Y | Y | Y | N | Y | Capablanca | Y | N |
| **Resigns** | N | N | N | N | N | N | Y | N | N | N |
| **Announces Forced Mate In Advance** | Y | Y | Y | Y | N | Y | Y | Y | Y | N |
| **Random/Best Option** | N | Y | Y | N | N | Y | N | Y | Y | N |
| **Plays Simultaneous Games** | N | N | N | N | N | N | Y | N | N | N |
| **Next Best Option** | Y | N | N | N | N | N | Mate Problem | N | N | N |
| **Ease To Enter Opening Position (3)** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 3 |
| **Ease To Enter Problems (3)** | 1 | 1 | 2 | 1 | 1 | 1 | 2 | 3 | 1 | 3 |
| **Auto Response Board** | Y | N | Optional | N | Y | N | N | N | N | N |
| **Key-In Moves** | N | N | Y | N | N | N | Y | Y | N | Y |
| **Pressure Sensitive** | N | Y | N | Y | N | Y | N | N | Y | Y |
| **L.C.D. Board** | N | N | N | N | N | N | Y | N | Y | N |
| **Selectable Openings** | Y | N | Y | Y | N | Y | N | Y | N | N |
| **Take Back (No. of Ply)** | 40 | 39 | All | 22 | All | 39 | All | 6 | All | 6 |
| **Retains All Game In Memory** | N | N | Y | N | Y | N | Y | N | Y | N |
| **Clock** | Y | Y | Y | N | N | Y | Y | Y | Optional | Y |
| **Count-Down Mode** | Y | Y | N | N | N | Y | N | N | N | N |
| **Move Counter** | Y | N | Y | N | N | N | Y | Y | N | Y |
| **Plays White/Black From Bottom** | Y | Y | Y | Y | N | Y | Y | N | Y | N |
| **Audio Desable** | Y | Y | Y | Y | N | Y | Y | Y | Y | Y |
| **Portable (4)** | N | N | Y | N | N | N | N | N | N | Y |
| **Modular Program** | Add-on Modules | N | Y | Add-on Modules | Y | N | Y | Y | Y | N |
| **Modular Microprocessor** | N | N | N | N | Y | N | N | N | N | N |

table Time Control

# FALL '82 TOURNAMENT

**1. PRESTIGE · ELITE**

01 B2B3—E7E5
02 C1B2—B8C6
03 E2E3—D7D6
04 C2C4—G8F6
05 B1C3—C8F5
06 D2D4—E5D4
07 C3D5—D4E3
08 D5E3—F5G6
09 G1F3—F8E7
10 F1D3—G6D3
11 D1D3—E8G8
12 E1G1—F6D7
13 D3F5—E7F6
14 B2F6—D7F6
15 F5G5—F6E4
16 G5F5—F8E8
17 E3D5—D8C8
18 F5H5—C6E5
19 F3E5—D6E5
20 H5H4—E4F6
21 D5F6—G7F6
22 H4F6—C8G4
23 A1D1—A7A5
24 H2H3—G4G6
25 F6F3—E5E4
26 F3F4—E8E7
27 D1D5—G8F8
28 F1D1—B7B6
29 D5G5—G6E6
30 A2A3—E4E3
31 F4G3—E3F2
32 G1H2—E7E8
33 G5G8—F8E7
34 G3G5—E6F6
35 G8E8—A8E8
36 D1D7—E7D7
37 G5F6—E8E2

1-0

**2. ELITE — PRESTIGE**

01 D2D4—G8F6
02 C2C4—C7C5
03 D4D5—E7E6
04 B1C3—E6D5
05 C4D5—D7D6
06 E2E4—G7G6
07 G1F3—F8G7
08 F1E2—E8G8
09 E1G1—F8E8
10 F3D2—B8A6
11 F2F3—A6C7
12 A2A4—B7B6
13 D2C4—C8A6
14 C1G5—H7H6
15 G5H4—D8D7
16 A1C1—F6H5
17 B2B3—B6B5
18 A4B5—C7B5
19 C3B5—A6B5
20 C4E3—A8B8
21 E2B5—D7B5
22 E3C4—B5D7
23 G1H1—B8B5
24 H4F2—E8B8
25 C1B1—D7E7
26 F2E3—B8F8
27 D1D2—F8B8
28 C4A5—E7H4
29 H1G1—A7A6
30 A5C6—B8B6
31 B3B4—B6B7
32 D2C2—G7F8
33 B1A1—C5B4
34 A1A6—B4B3
35 C2B1—H5F4
36 G2G3—F4H3
37 G1H1—H4H5
38 C6A5—B7D7
39 B1D3—B5B8
40 A5B3—F8G7
41 B3D4—H3G5
42 H2H4—G5H7
43 D4B5—G6G5
44 B5D6—G5H4
45 G3G4—H5G6
46 D6F5—F7F6
47 F5H4—G6F7
48 H4F5—H7G5
49 E3D4—G5H7
50 D3D2—F7G6
51 D2F4—B8C8
52 F1C1—C8C1
53 F4C1—G7F8
54 A6A8—H6H5
55 C1H6—G6H6
56 F5H6—G8G7
57 H6F5—G7G6
58 G4H5—G6H5
59 D4F6—H7F6
60 A8F8—F6D5
61 E4D5—D7D5
62 F5G3—H5H4

1—0

**3. ELITE — MEPHISTO**

01 E2E4—C7C5
02 G1F3—E7E6
03 D2D4—C5D4
04 F3D4—G8F6
05 B1C3—B8C6
06 D4C6—B7C6
07 F1D3—F8D6
08 E1G1—D8C7
09 G2G3—E8G8
10 C1E3—D6E7
11 A1B1—C8B7
12 D1F3—C6C5
13 D3C4—F6E4
14 C3E4—F7F5
15 E3F4—C7C6
16 F4E5—C6E4
17 F3E4—B7E4
18 B1D1—D7D5
19 C4D3—C5C4
20 D3E4—F5E4
21 C2C3—F8F3
22 B2B3—E4E3
23 F2E3—F3E3
24 E5D4—E3E2
25 B3C4—D5C4
26 F1E1—E2E1
27 D1E1—G8F7
28 E1F1—E7F6
29 F1F4—A8C8
30 D4A7—F7G8
31 F4E4—F6C3
32 E4E6—C8A8
33 A7C5—A8A2
34 E6E4—A2A5
35 C5E7—A5A4
36 E4F4—H7H5
37 G1F2—G8H7
38 F2E3—H7G6
39 F4E4—C3F6
40 E7F6—G7F6
41 E4D4—A4A3
42 E3D2—C4C3
43 D2C2—A3A2
44 C2C3—A2H2
45 D4D2—H2H3
46 D2D3—F6F5
47 C3C4—H5H4
48 G3H4—H3H4
49 C4D5—F5F4
50 D5E4—G6G5
51 D3D8—G5G4
52 D8G8—G4H3
53 E4F3—H3H2
54 G8G2—H2H3

½-½

**4. MEPHISTO · ELITE**

01 D2D4—D7D5
02 C2C4—E7E6
03 G1F3—G8F6
04 C1G5—F8E7
05 C4D5—E6D5
06 G5F6—E7F6
07 E2E3—B8C6
08 F1D3—C8G4
09 B1C3—E8G8
10 D1B3—C6E7
11 B3B7—A8B8
12 B7A7—G4F3
13 G2F3—B8B2
14 E1G1—D8A8
15 A7C5—C7C6
16 A2A4—F8B8
17 A4A5—E7G6
18 D3G6—F7G6
19 E3E4—B2B4
20 E4E5—F6D8
21 F1D1—B4C4
22 C5A3—A8A5
23 A3A5—D8A5
24 C3D5—A5C3
25 D5C3—C4C3
26 D1C1—C3D3
27 C1C6—D3D4
28 A1C1—B8F8
29 C6C3—G8F7
30 G1G2—F7E6
31 C3E3—F8F5
32 C1C6—E6D7
33 C6C2—D7E6
34 C2C5—F5G5
35 G2F1—D4H4
36 C5C6—E6E7
37 C6C7—E7E6
38 C7G7—G5E5
39 E3E5—E6E5
40 F1G2—E5F6
41 G7D7—H7H5
42 D7D6—F6G5
43 G2G3—H4C4
44 H2H4—G5F5
45 D6D1—F5E6
46 F3F4—C4C3
47 F2F3—C3C2
48 D1D3—C2B2

½-½

**5. ELITE · MEPHISTO**

01 E2E4—E7E5
02 G1F3—B8C6
03 F1B5—A7A6
04 B5A4—G8F6
05 E1G1—F8E7
06 F1E1—B7B5
07 A4B3—D7D6
08 D2D3—E8G8
09 B1C3—B5B4
10 C3D5—F6D5
11 B3D5—C8D7
12 D3D4—E7F6
13 D4E5—D6E5
14 C1E3—D8E7
15 D1D3—E7D6
16 A1D1—F6E7
17 D3C4—D7E8
18 C4E2—D6G6
19 F3E5—C6E5
20 D5A8—E8B5
21 D1D3—E5D3
22 C2D3—F8A8
23 E2C2—G6D6
24 D3D4—A6A5
25 A2A4—B4A3
26 B2A3—A5A4
27 E4E5—D6D5
28 C2C7—E7A3
29 E1A1—A3B2
30 A1D1—B5C6
31 F2F3—A4A3
32 C7B6—B2C3
33 B6C5—D5C5
34 D4C5—A3A2
35 E3F4—A2A1
36 D1A1—C3D4
37 G1F1—A8A1

0-1

**6. MEPHISTO · ELITE**

01 D2D4—G8F6
02 C2C4—G7G6
03 B1C3—F8G7
04 E2E4—D7D6
05 G1F3—E8G8
06 F1E2—E7E5
07 E1G1—B8C6
08 D4D5—C6E7
09 C1E3—F6G4
10 F3G5—G4E3
11 F2E3—G7H6
12 H2H4—F7F6
13 G5E6—C8E6
14 D5E6—H6E3
15 G1H2—F6F5
16 D1D3—E3D4
17 E4F5—E7F5
18 G2G3—D8C8
19 C3D5—C7C6
20 F1F5—C6D5
21 F5F8—C8F8
22 C4D5—D4B2
23 A1B1—F8F2
24 H2H3—B2D4
25 B1B7—A8C8
26 D3B5—F2G1
27 E6E7—G1H1
28 H3G4—H1E4
29 G4H3—E4H1
30 H3G4—H1E4
31 G4H3—E4H1
32 H3G4—½-½

**7. ELITE · MEPHISTO**

01 D2D4—G8F6
02 C2C4—E7E6
03 G2G3—F8E7
04 G1F3—E8G8
05 F1H3—D7D5
06 C4D5—E6D5
07 H3C8—D8C8
08 E1G1—B8C6
09 B1C3—H7H6
10 C1F4—A7A6
11 A1C1—F8E8
12 F1E1—C6B4
13 A2A3—B4C6
14 D1D3—E7D6
15 F4D6—C7D6
16 G1G2—C8G4
17 H2H3—G4E6
18 F3H4—A8C8
19 E2E3—F6E4
20 C3E4—D5E4
21 D3D1—D6D5
22 G2H2—E8E7
23 D1H5—E7C7
24 B2B3—G7G5
25 H4G2—C6D4
26 C1C7—D4F3
27 H2H1—C8C7
28 E1A1—C7C2
29 B3B4—C2F2
30 H5G4—E6C6
31 H3H4—C6C4
32 G4F3—E4F3

0-1

**8. MEPHISTO · ELITE**

01 E2E4—C7C5
02 B1C3—B8C6
03 F2F4—E7E6
04 G1F3—G8F6
05 E4E5—F6D5
06 C3D5—E6D5
07 B2B3—D7D6
08 F1B5—F8E7
09 C1B2—E8G8
10 E1G1—C8G4
11 H2H3—G4F5
12 D2D3—A8C8
13 E5D6—E7D6
14 B5C6—C8C6
15 D1D2—F8E8
16 A2A4—D6C7
17 A1E1—E8E1
18 F1E1—C6E6
19 E1E6—F5E6
20 D2C3—D8F8
21 B2C1—F8D6
22 C1A3—D6F4
23 A3C5—E6H3
24 C3D2—F4D2
25 F3D2—B7B6
26 C5E3—H3F5
27 G1F2—H7H5
28 G2G3—F7F6
29 D2F3—G7G5
30 F3D4—F5D7
31 D4F3—C7D6
32 C2C4—D5C4
33 D3C4—D6B4
34 E3D2—B4D2
35 F3D2—H5H4
36 D2E4—G8G7
37 G3H4—G5H4
38 E4D6—G7G6
39 F2G2—F6F5
40 G2F2—F5F4
41 D6B5—D7B5
42 C4B5—H4H3
43 F2F3—G6F5
44 B3B4—F5E5
45 A4A5—E5D4
46 A5B6—A7B6
47 F3F2—D4E4
48 F2F1—E4F3
49 F1G1—F3G3

0-1

**9. ELITE · MEPHISTO**

01 E2E4—E7E6
02 D2D4—D7D5
03 B1C3—F8B4
04 E4E5—C7C5
05 A2A3—B4C3
06 B2C3—G8E7
07 A3A4—B8C6
08 G1F3—D8A5
09 C1D2—C8D7
10 F1E2—E8G8
11 E1G1—C5C4
12 D1C1—E7G6
13 C1A3—F7F6
14 E5F6—F8F6
15 F1B1—A5A6
16 F3G5—A8F8
17 E2F3—C6E7
18 A3B4—F8B8
19 F3H5—H7H6
20 G5F3—B7B6
21 F3E5—B8B7
22 B4A3—D7E8
23 A3D6—G6E5
24 D4E5—F6F8
25 D6E6—G8H8
26 H5E8—F8E8
27 A4A5—B7B8
28 D2H6—E7G8
29 H6G7—H8G7
30 E6G4—G7H6
31 G4H4—H6G6
32 H4G4—G6H6
33 G4F4—H6H7
34 F4F7—H7H6
35 A5B6—A6B7
36 F7B7—B8B7
37 B6A7—B7B1
38 A1B1—E8A8
39 B1B7—H6H5
40 F2F3—G8H6
41 E5E6—H6G8
42 B7B8—A8A7
43 B8G8—A7E7
44 G2G4—H5H6
45 G8D8—E7E6
46 G1F2—E6A6
47 D8D5—A6A3
48 H2H4—A3C3
49 D5D6—H6G7
50 D6D7—G7F6
51 D7D2—C3A3
52 H4H5—A3A2
53 F3F4—C4C3
54 D2E2—F6G7
55 G4G5—A2A7
56 H5H6—G7G6
57 E2E3—A7C7
58 E3E6—G6F5
59 E6F6—F5E4
60 G5G6—C7D7
61 H6H7—D7D2
62 F2G3—D2D1
63 H7H8—D1G1

1-0

**10. MEPHISTO · ELITE**

01 E2E4—E7E5
02 G1F3—B8C6
03 F1B5—A7A6
04 B5A4—G8F6
05 E1G1—F8E7
06 F1E1—F8E7
07 A4B3—E8G8
08 D2D4—E5D4
09 E4E5—F6E8
10 F3D4—C8B7
11 B3D5—C6D4
12 D5B7—A8A7
13 B7D5—D4F5
14 D5E4—F5H4
15 G2G3—H4G6
16 E4G6—H7G6
17 C1E3—A7A8
18 B1C3—E7B4
19 A2A3—B4C3
20 B2C3—D8E7
21 D1D5—E7D8
22 E3C5—D7D6
23 A1D1—D8C8
24 E5D6—E8D6
25 D5C6—F8D8
26 E1E7—D6E8
27 D1E1—G6G5
28 C5D4—A8B8
29 C3C4—B5C4
30 C6C4—C8F5
31 D4B2—B8B2
32 E7E8—D8E8
33 E1E8—G8H7
34 C4D3—F5G6
35 E8A8—B2C2
36 D3G6—H7G6
37 A8A6—G6F5
38 A3A4—C7C5
39 A6A7—F5G6
40 A4A5—C5C4
41 A5A6—C2A2
42 A7C7—A2A6
42 C7C4 ½-½

**11. ELITE · MEPHISTO**

01 D2D4—D7D5
02 C2C4—E7E6
03 B1C3—G8F6
04 G1F3—F8B4
05 C1G5—D5C4
06 E2E4—H7H6
07 G5F6—D8F6
08 F1C4—B4C3
09 B2C3—F6G6
10 E4E5—G6G2
11 H1G1—G2H3
12 G1G3—H3H5
13 G3G7—C8D7
14 A1B1—D7C6
15 C4E2—B8D7
16 C3C4—E8G8
17 F3G5—H5H2
18 G5F7—D8G8
19 F7H8—G8G7
20 D1D3—G7G1
21 E2F1—H2G2
22 F2F3—G2G7
23 D3E3—G1G3
24 D4D5—E6D5
25 E5E6—D5D4
26 E6D7—C8D7
27 B1D1—G7H8
28 D1D4—D7C8
29 D4F4—C8B8
30 E1F2—G3G5
31 E3A3—G5G8
32 F1H3—H6H5
33 H3E6—H8H6
34 E6G8—H6F4
35 A3B3—H5H4
36 G8D5—F4D2
37 F2F1—C6D5
38 C4D5—B7B6
39 B3C4—H4H3
40 C4C6—D2G2
41 F1E1—G2F3
42 C6E8—B8B7
43 E8C6—B7C8

*Peculiarities of computer notation: 0-0 = {E1G1; E8G8  0-0-0 = {E1C1 E8C8

44 C6E8—C8B7

½-½

### 12. MEPHISTO - ELITE

01 D2D4—G8F6
02 C2C4—E7E6
03 B1C3—F8B4
04 A2A3—B4C3
05 B2C3—E8G8
06 F2F3—D7D5
07 E2E3—B8C6
08 F1D3—D5C4
09 D3C4—F6D5
10 G1E2—D8G5
11 C4D5—E6D5
12 E1G1—F8E8
13 D1B3—G5F5
14 E2F4—E8D8
15 C1D2—C6A5
16 B3B5—A5C4
17 F1D1—C7C6
18 B5C5—F5F6
19 D2C1—B7B6
20 C5B4—F6H4
21 B4A4—D8D6
22 E3E4—C8D7
23 A4A6—D7C8
24 A6A4—D6H6
25 H2H3—B6B5
26 A4C2—D5E4
27 F3E4—A7A5
28 E4E5—C8D7
29 G1H1—A8E8
30 A3A4—H4G3
31 A4B5—C6B5
32 A1A2—D7G4
33 C2D3—G3D3
34 D1D3—G4F5
35 D3D1—E8D8
36 F4D3—H6G6
37 D3F4—G6A6
38 D1F1—D8E8
39 F4D5—F5D3
40 F1F2—A6A7
41 C1A3—C4A3
42 A2A3—A5A4
43 D5F4—D3C4
44 F2D2—F7F6
45 E5F6—E8E1
46 H1H2—A7F7
47 F4H5—G7G6
48 H5F4—F7F6
49 F4D3—C4D3
50 D2D3—F6F2
51 D4D5—E1E2
52 D3G3—E2D2
53 C3C4—B5C4
54 A3A4—D2D5
55 A4C4—D5D2

½-½

### 13. ELITE - CONCHESS

01 D2D4—D7D5
02 C2C4—E7E6
03 B1C3—C7C5
04 C4D5—E6D5
05 G1F3—B8C6
06 G2G3—C5C4
07 F1G2—F8B4
08 E1G1—G8E7
09 A2A3—B4C3
10 B2C3—C8G4
11 A1B1—G4F3
12 G2F3—D8D7
13 E2E4—D5E4
14 F3E4—F7F5
15 E4G2—C6A5
16 F1E1—E8G8
17 E1E5—A5B3
18 D1E2—B3C1
19 E2C4—G8H8
20 B1B7—A8C8
21 B7D7—C8C4
22 E5E7—C4C3
23 E7G7—C1E2
24 G1F1—E2G3

1-0

### 14. CONCHESS - ELITE

01 E2E4—E7E5
02 G1F3—B8C6
03 D2D4—E5D4
04 F3D4—F8C5
05 C1E3—D8F6
06 C2C3—G8E7
07 F1C4—C6E5
08 B1D2—E5C4
09 D2C4—F6G6
10 D1F3—C5D4
11 C3D4—D7D6
12 H2H3—C8E6
13 D4D5—E6D7
14 E1G1—E8G8
15 A1C1—A8E8
16 C4D2—C7C5
17 D2C4—B7B5
18 C4D2—F7F5
19 E3C5—D6C5
20 C1C5—F5E4
21 F3E4—F8F5
22 D2F3—E7D5
23 E4G4—G6A6
24 A2A3—D5F6
25 G4B4—F5C5
26 B4C5—E8E2
27 F1B1—A6B7
28 C5C3—B7E4
29 B1D1—E4C2
30 C3C2—E2C2
31 F3E5—D7E8
32 B2B4—C2C4
33 D1A1—F6H5
34 G2G3—G8F8
35 G1H2—A7A6
36 H2G1—F8E7
37 E5G4—E8D7
38 G4E3—E7D6
39 G1H2—C3D3
40 A1D1—D3D1
41 E3D1—D7C6
42 D1E3—D6E5
43 F2F4—E5E4
44 E3G4—H5F6
45 G4F6—G7F6
46 H2G2—E4E3
47 G2H2—E3F3
48 H3H4—H7H5
49 H2H3—F6F5
50 G3G4—H5G4
51 H3H2—F3F2
52 A3A4—G4G3
53 H2H3—C6G2

0-1

### 15. ELITE - CONCHESS

01 E2E4—E7E5
02 G1F3—B8C6
03 F1B5—C6D4
04 F3D4—E5D4
05 E1G1—F8C5
06 D1H5—D8E7
07 D2D3—G8F6
08 H5G5—E8G8
09 E4E5—F6D5
10 G5E7—D5E7
11 B1D2—A7A6
12 B5A4—E7G6
13 F1E1—B7B5
14 A4B3—C8B7
15 D2E4—C5B4
16 C2C3—G6E5
17 C3B4—E5D3
18 E1E2—A8E8
19 E4G3—D3B4
20 C1F4—E8E2
21 G3E2—D4D3
22 E2C3—D7D6
23 A1D1—B7C8
24 A2A3—C8G4
25 F2F3—G4E6
26 B3E6—F7E6
27 F4D6—C7D6
28 A3B4—D6D5
29 D1D3—F8F4
30 C3A2—F4C4
31 D3E3—G8F7
32 E3A3—C4C2
33 A3A6—C2B2
34 A2C3—B2B4
35 A6A7—F7F6
36 A7B7—D5D4
37 B7B5—B4B5
38 C3B5—F6E5
39 G1F2—E5D5
40 B5C7—D5E5
41 F3F4—E5F5
42 G2G4—F5F6
43 F2F3—H7H5
44 G4H5—D4D3
45 F3E3—E6E5
46 F4E5—F6E5
47 C7E8—E5F5
48 H2H4—F5E6
49 E8G7—E6F6
50 H5H6—D3D2
51 E3D2—F6F7

1-0

### 16. CONCHESS - ELITE

01 E2E4—C7C5
02 G1F3—D7D6
03 D2D4—C5D4
04 F3D4—G8F6
05 B1C3—B8C6
06 F1E2—E7E5
07 D4C6—B7C6
08 C1E3—D8A5
09 D1D3—A8B8
10 E1C1—F6G4
11 E2G4—C8G4
12 F2F3—G4E6
13 A2A3—F8E7
14 H2H3—E8G8
15 H1F1—F8D8
16 E3F2—E7G5
17 F2E3—E6C4
18 D3C4—G5E3
19 C1B1—A5A3
20 C3A4—B8B4
21 C4C3—A3C3
22 A4C3—E3D4
23 D1D3—D8B8
24 B2B3—F7F6
25 B1A2—G8F7
26 C3E2—F7E6
27 F1D1—D4C5
28 A2A1—A7A5
29 E2C1—B4D4
30 C1E2—D4D3
31 D1D3—C5A3
32 E2G3—A3C5
33 G3F5—G7G6
34 F5E3—C5E3
35 D3E3—F6F5
36 E4F5—G6F5
37 E3C3—E6D7
38 C3D3—E5E4
39 D3E3—D6D5
40 E3E2—B8E8
41 F3F4—H7H5
42 G2G3—D5D4
43 A1B1—C6C5
44 B1C1—D7C6
45 E2G2—E4E3
46 C1D1—C6D5
47 G2E2—D5E4
48 C2C3—D4C3
49 E2A2—E4D3
50 A2A3—C3C2
51 D1C1—E3E2
52 B3B4—D3C4
53 C1C2—E2E1
54 A3E3—E8E3
55 C2B2—E3E2
56 B2A3—E1B4

0-1

### 17. ELITE - SC9

01 D2D4—G8F6
02 C2C4—G7G6
03 B1C3—F8G7
04 E2E4—D7D6
05 F2F3—E8G8
06 C1E3—E7E5
07 D4D5—C7C6
08 G1E2—C6D5
09 C4D5—B8D7
10 D1D2—A7A6
11 E2G3—B7B6
12 F1D3—D7C5
13 D3E2—C8D7
14 E1G1—D8C7
15 B2B4—C5A4
16 A1C1—C7B7
17 C3A4—D7A4
18 D2D3—A4D7
19 C1C3—B6B5
20 F1C1—A8C8
21 A2A3—C8C3
22 C1C3—F8C8
23 D3C2—C8C3
24 C2C3—B7C8
25 C3C8—D7C8
26 G1F2—H7H5
27 E3G5—G8F8
28 F2E3—F6E8
29 E3D3—F7F5
30 E4F5—C8F5
31 G3E4—E8F6
32 G5F6—G7F6
33 D3E3—F8E7
34 G2G3—G6G5
35 E2D3—F5G6
36 E4C5—G6D3
37 C5D3—F6G7
38 E3E4—G7H6
39 E4F5—G5G4
40 F3F4—H6G7
41 F4E5—D6E5
42 D3C5—E7D6
43 F5E4—G7H6
44 C5A6—H6C1
45 A6C5—C1D2
46 C5B7—D6C7
47 B7A5—D2C1
48 E4E5—C1A3
49 A5C6—A3B2
50 E5E6—B2C3
51 C6A7—C7B6
52 D5D6—C3D2
53 A7C8—B6C6
54 D6D7—D2G5
55 C8A7—C6B6
56 A7C8—B6C6
57 C8D6—G5D8
58 D6F7—D8B6
59 D7D8—B6D8

1-0

### 18. SC9 - ELITE

01 E2E4—E7E5
02 G1F3—B8C6
03 F1B5—A7A6
04 B5C6—D7C6
05 E1G1—F7F6
06 D2D4—C8G4
07 D4E5—D8D1
08 F1D1—G4F3
09 G2F3—F6E5
10 F3F4—G8F6
11 B1C3—F8D6
12 F4E5—D6E5
13 C3A4—A8D8
14 C1G5—D8D6
15 G5F6—D6F6
16 D1D3—E8G8
17 A1F1—F6G6
18 G1H1—G6H6
19 A4C5—H6H2
20 H1G1—F8F6
21 D3D8—G8F7
22 D8D7—F7F8
23 D7D8—F8E7
24 F1D1—F6G6
25 G1F1—H2H1
26 F1E2—H1D1
27 D8D1—G6G4
28 E2E3—G4H4
29 D1B1—H4H3
30 F2F3—G7G5
31 C5D3—E7F6
32 D3E5—F6E5
33 B1G1—E5G6
34 C2C4—H7H5
35 G1F1—G5G4
36 E3F4—G4G3
37 E4E5—F6E6
38 B2B3—H5H4
39 A2A3—G3G2
40 F1G1—H3H2
41 F4E4—H4H3
42 E4E3—H2H1
43 E3F2—E6E5
44 C4C5—E5F4
45 G1G2—H3G2

0-1

### 19. ELITE - SC9

01 E2E4—C7C5
02 G1F3—D7D6
03 D2D4—C7D4
04 F3D4—G8F6
05 B1C3—A7A6
06 C1G5—E7E6
07 F2F4—F8E7
08 D1F3—D8C7
09 E1C1—B8D7
10 G2G4—B7B5
11 G5F6—D7F6
12 G4G5—F6D7
13 A2A3—E8G8
14 H2H4—C8B7
15 F1E2—F8C8
16 H1G1—D7B6
17 H4H5—D6D5
18 D1D3—E7C5
19 E4E5—B6C4
20 G1G3—C7B6
21 F3F2—A6A5
22 D3D1—B5B4
23 C3A4—C5D4
24 F2D4—C4A3
25 B2A3—B6C6
26 A4C3—B4C3
27 G5G6—F7G6
28 H5G6—H7H6
29 E2G4—C6E8
30 D4B6—B7C6
31 G3C3—E8G6
32 D1G1—G6E8
33 C3H3—E8E7
34 G1G3—G8F7
35 G4H5—F7F8
36 G3G6—C6A4
37 G6G2—C8C6
38 B6D4—C6C4
39 D4E3—A8B8
40 G2F2—E7B7
41 H5G6—B7B1
42 C1D2—C4C2
43 G6C2—B1C2
44 D2E1—C2D1

0-1

### 20. SC9 — ELITE

01 E2E4—C7C5
02 G1F3—D7D6
03 D2D4—C5D4
04 F3D4—G8F6
05 B1C3—B8C6
06 C1G5—E7E6
07 D1D2—A7A6
08 E1C1—C8D7
09 F2F4—F8E7
10 D4F3—B7B5
11 G5F6—G7F6
12 F4F5—D8B6
13 F1D3—H8G8
14 H1E1—C6E5
15 F3E5—F6E5
16 D2E2—E6F5
17 E4F5—A8C8
18 D3E4—D7C6
19 C1B1—B6C5
20 E4C6—C8C6
21 F5F6—E7F8
22 C3E4—C5B4
23 G2G3—A6A5
24 E2D3—G8G6
25 D3D5—B4C4
26 D5C4—B5C4
27 D1D5—C6A6
28 E1D1—G6G4
29 E4D6—F8D6
30 D5D6—A6D6
31 D1D6—G4E4
32 C2C3—E4E2
33 D6C6—E2H2
34 C6C4—H2H1
35 B1C2—E8D7
36 C4C5—D7E6
37 C5A5—E6F6
38 A5A6—F6F5
39 G3G4—F5G4
40 A6F6—E5E4
41 F6F7—H1H2
42 C2B3—E4E3
43 F7E7—E3E2
44 A2A4—H7H5
45 B3A3—G4F3
46 A3B3—H5H4
47 E7F7—F3E3
48 F7E7—E3F2
49 E7F7—F2G1
50 F7E7—H4H3
51 A4A5—H2F2
52 B3A4—H3H2
53 E7G7—F2G2
54 G7E7—H2H1

0-1

### 21. ELITE - SC9

01 D2D4—D7D5
02 C2C4—E7E6
03 B1C3—G8F6
04 C1G5—F8E7
05 E2E3—E8G8
06 G1F3—B8D7
07 A1C1—C7C6
08 F1D3—D5C4
09 D3C4—F6D5
10 G5E7—D8E7
11 E1G1—D5C3
12 C1C3—E6E5
13 D4E5—D7E5
14 F3E5—E7E5
15 F2F4—E5E4
16 D1B3—B7B5
17 C4D3—E4E3
18 G1H1—E3D2
19 C3C2—D2A5
20 C2C6—C8E6
21 B3C2—G7G6
22 C6C5—A5A2
23 D3B5—F8C8
24 C5C3—A8B8
25 C3C8—B8C8
26 C2E2—C8D8
27 F1C1—A2D5
28 B5C4—D5D2
29 E2D2—D8D2
30 C4E6—F7E6
31 B2B3—D2D3
32 B3B4—D3D4
33 G2G3—D4B4
34 C1C8—G8F7
35 C8C7—H7H5
36 C7A7—H7H5
37 A7G7—E6E5
38 F4E5—B4E4
39 G7G6—E4E5
40 G6G7—E8F8
41 G7B7—F8G8
42 H2H3—E5E1
43 H1G2—E1F2
44 G2F3—E2C2
45 G3G4—H5G4
46 H3G4—C2C3
47 F3F4—C3C2
48 F4F5—C2C5
49 F5G6—C5C6
50 G6H5—C6C2
51 G4G5—G8F8
52 G5G6—C2H2
53 H5G5—H2G2
54 G5F6—G2F2
55 F6E6—F2E2
56 E6F6—E2F2
57 F6G5—E2F2
58 G5F5—G2F2
59 F5G4—F2G2
60 G4H5—G2H2
61 H5G4—H2G2

62 G4F5—G2F2
63 F5E5—F2G2
64 B7F7—F8G8
65 E5F6—G2F2
66 F6E7—F2G2
67 F7F6—G8G7
½-½

**22. SC9 · ELITE**

01 D2D4—G8F6
02 C2C4—G7G6
03 B1C3—F8G7
04 E2E4—D7D6
05 G1F3—E8G8
06 F1E2—E7E5
07 E1G1—B8C6
08 D4D5—C6E7
09 F3E1—F6D7
10 F2F3—F7F5
11 E1D3—F5F4
12 C1D2—D7F6
13 D2E1—C8D7
14 E1F2—G8H8
15 A1C1—D8C8
16 G1H1—C8E8
17 C4C5—H8G8
18 D1B3—B7B6
19 C5C6—D7C8
20 D3E5—D6E5
21 D5D6—G8H8
22 D6E7—E8E7
23 C1D1—C8E6
24 B3A4—A7A6
25 A4C2—E7E8
26 C3D5—E6D5
27 E4D5—A8D8
28 D5D6—D8D6
29 D1D6—C7D6
30 E2A6—E8A8
31 C2C4—D6D5
32 C4B5—F6E8
33 B5B6—F8F7
34 F1A1—E8C7
35 A6D3—H8G8
36 B6B7—A8D8
37 F2B6—G7F8
38 A1C1—F8D6
39 B6A5—F7F8
40 B7B3—D8B8
41 A5B6—G8H8
42 D3C2—C7A8
43 B6F2—A8C7
44 B3B8—F8B8
45 B2B3—D6A3
46 C1E1—B8E8
47 F2B6—E8E7
48 E1B1—C7A6
49 C2D3—A6B4
50 D3B5—B4C6
51 B5C6—E7E6
52 B6C7—E6C6
53 C7E5—H8G8
54 E5F4—G8F7
55 B1D1—F7E6
56 H1G1—C6C2
57 D1D2—C2D2
58 F2D2—D5D4
59 G1F2—E6E5
60 F2E2—E5D5
61 E2D3—D5C5
62 D3E4—A3B2
63 D2H6—B2C3
64 H6F8—C5B6
65 E4D3—H7H5
66 D3C4—B6A5
67 F8C5—G6G5
68 C5D4—C3D4
1-0

**23. ELITE · SC9**

01 E2E4—E7E5
02 G1F3—B8C6
03 F1B5—A7A6
04 B5A4—G8F6
05 E1G1—F8E7
06 F1E1—B7B5
07 A4B3—E8G8
08 C2C3—D7D6
09 H2H3—C6A5
10 B3C2—C7C5
11 D2D4—D8C7
12 B1D2—C5D4
13 C3D4—C8E6
14 D2B3—A5C4
15 F3G5—E6D7
16 C2D3—A8C8
17 A1B1—A6A5
18 G5F3—D7C6
19 C1G5—C7B6
20 D3C4—B5C4
21 B3D2—B6B5
22 F3H4—C6D7
23 D2F3—C8B8
24 D4E5—D6E5
25 A2A4—B5A4
26 F3E5—A4D1
27 E1D1—D7B5
28 H4F5—F8E8
29 E5G4—E7D8
30 G5F4—B8B6
31 F5D6—B6D6
32 D1D6—F6E4
33 D6D5—B5C6
34 D5E5—E8F8
35 F2F3—D8B6
36 F4E3—E4D2
37 B1D1—F8D8
38 D1E1—B6E3
39 E1E3—D2B3
40 E5E7—G8F8
41 E7C7—C6D5
42 E3E7—A5A4
43 F3F4—B3D4
44 G4E5—F7F6
45 E7D7—D8D7
46 E5D7—F8G8
47 G1F2—D4E6
48 C7C8—G8F7
49 G2G3—G7G5
50 D7B6—D5E4
51 C8C4—E4F5
52 H3H4—G5H4
53 G3H4—F7G6
54 F2E3—F5H3
55 B6A4—E6G7
56 E3D2—G7F5
57 H4H5—G6H5
58 B2B4—H5G4
59 B4B5—H7H5
60 B5B6—H3G2
61 A4C5—F5D6
62 C4D4—D6B7
63 C5B7—G2B7
64 D4D7—B7C6
65 D7D6—C6H1
66 D6F6—H5H4
67 F4F5—H4H3
68 F6H6—G4G3
69 F5F6—H1D5
70 F6F7—D5F7
1-0

**24. SC9 · ELITE**

01 E2E4—E7E5
02 G1F3—B8C6
03 F1B5—A7A6
04 B5A4—G8F6
05 E1G1—F8E7
06 F1E1—B7B5
07 A4B3—E8G8
08 C2C3—D7D6
09 H2H3—C6A5
10 B3C2—C7C5
11 D2D4—D8C7
12 B1D2—C5D4
13 C3D4—C8B7
14 E1E3—E5D4
15 F3D4—D6D5
16 E4E5—E7C5
17 E5F6—C5D4
18 F6G7—D4G7
19 C2D3—A8E8
20 D1H5—E8E4
21 D2E4—D5E4
22 D3E4—B7E4
23 E3E4—C7D6
24 H5E2—A5C4
25 E4E8—G7E5
26 E2G4—G8H8
27 E8F8—D6F8
28 G4E2—F8G7
29 E2F3—C4B2
30 A1B1—B2C4
31 F3A8—G7G8
32 A8A6—G8D8
33 C1H6—C4D6
34 B1D1—D8E8
35 F2F4—E5F4
36 H6F4—D6E4
37 D1D5—F7F6
38 D5B5—H8G7
39 B5B8—E4C5
40 A6A7—E8F7
41 A7C5—F7A2
42 C5H5—A2A7
43 G1H2—A7B8
1-0

**25. ELITE · SC9**

01 D2D4—G8F6
02 C2C4—E7E6
03 B1C3—F8B4
04 E2E3—E8G8
05 G1F3—D7D5
06 F1D3—C7C5
07 E1G1—B8C6
08 A2A3—B4C3
09 B2C3—D5C4
10 D3C4—D8C7
11 C4A2—E6E5
12 H2H3—E5E4
13 F3H2—F8D8
14 A1B1—C8F5
15 C1D2—B7B6
16 A2B3—C6A5
17 B3A2—C7D6
18 D2C1—A8C8
19 C1B2—F5D7
20 B1C1—B6B5
21 G1H1—D8E8
22 D4C5—D6D1
23 C1D1—C8C5
24 D1D6—A5C4
25 A2C4—C5C4
26 F1D1—D7E6
27 H2F1—C4C5
28 F1G3—E6B3
29 D1D2—B3C4
30 D2D4—C5E5
31 A3A4—C4E6
32 D6D8—E6C4
33 A4B5—E8D8
34 D4D8—E5E8
35 D8E8—F6E8
36 G3E4—C4B5
37 E4D2—B5D3
38 C3C4—A7A5
39 C4C5—G8F8
40 D2F3—A5A4
41 C5C6—F8E7
42 F3G5—D3B5
43 B2A3—E7F6
44 G5H7—F6G6
45 H7F8—G6F5
46 F2F3—B5C6
47 E3E4—F5E5
48 A3B2—E5D6
49 B2A3—D6E5
50 H3H4—E5D4
51 H4H5—D4C4
52 G2G4—C4B3
53 A3C5—A4A3
54 C5D4—A3A2
55 G4G5—F7F5
56 G5F6—G7F6
57 H5H6—B3C4
58 F8E6—E8D6
59 H6H7—D6F7
60 D4F6—C6A4
61 E6G5—A2A1
1-0

**26. SC9 · ELITE**

01 C2C4—C7C5
02 B1C3—B8C6
03 G2G3—G7G6
04 F1G2—F8G7
05 G1F3—G8F6
06 E1G1—E8G8
07 D2D4—C5D4
08 F3D4—C6D4
09 D1D4—D7D6
10 D4D3—A7A6
11 C1D2—A8B8
12 E2E4—C8E6
13 D2E3—F6G4
14 E3D4—B8C8
15 D4G7—G8G7
16 B2B3—G7G8
17 D3D4—G4E5
18 D4A7—D8A5
19 C3D5—E6D5
20 C4D5—A5B5
21 F1C1—E7E6
22 C1D1—F8D8
23 A1C1—E6D5
24 E4D5—D8E8
25 A7E3—C8C1
26 E3C1—B5E2
27 D1D2—E5F3
28 G2F3—E2F3
29 C1F1—B7B6
30 H2H3—B6B5
31 G1H2—F3F5
32 A2A4—E8E3
33 A4B5—E3G3
34 H2G3—F5G5
35 G3H2—G5F4
36 H2G1—F4G5
37 F1G2—G5D2
38 B5A6—D2D1
39 G2F1—D1B3
40 F1C1—B3D5
41 C1C8—G8G7
42 A6A7—D5G5
43 G1H1—G5D5
44 H1G1—D5G5
45 G1H1—G5D5
46 H1G1—D5G5
½-½

**27. PRESTIGE · ELITE**

01 E2E4—E7E5
02 G1F3—B8C6
03 F1B5—A7A6
04 B5A4—G8F6
05 E1G1—F8E7
06 F1E1—B7B5
07 A4B3—E8G8
08 C2C3—D7D6
09 H2H3—C6A5
10 B3C2—C7C5
11 D2D4—D8C7
12 B1D2—C5D4
13 C3D4—C8B7
14 D2F1—A8C8
15 E1E2—D6D5
16 D4E5—F6E4
17 F1G3—E4G3
18 F2G3—C7C4
19 C2F5—C8C6
20 F3D4—E7C5
21 C1E3—C5D4
22 E3D4—B7C8
23 E2C2—C4A4
24 C2C6—A4D1
25 A1D1—A5C6
26 F5C8—F8C8
27 D1C1—G8F8
28 C1C5—C6E7
29 C5C8—E7C8
30 G1F2—C8E7
31 D4C5—F8E8
32 F2E3—E7C6
33 C5D6—E8D7
34 D6F8—G7G6
35 F8G7—D7E6
36 E3F4—C6B4
37 F4E3—B4A2
38 E3D3—A2B4
39 D3D4—B4C2
40 D4D3—C2E1
41 D3E2—E1C2
42 E2D3—C2A1
43 B2B4—A1B3
44 G7H6—A6A5
45 B4A5—B3A5
46 D3D4—B5B4
47 D4D3—E6E5
48 H6F4—E5E6
49 D3C2—B4B3
50 C2B2—E6D7
51 F4G5—D5D4
52 G5F6—D4D3
53 B2C3—D7E6
54 F6G5—E6F5
55 G5D8—A5C4
56 C3D3—F5E5
57 D3C3—B3B2
58 C3C2—H7H5
59 D8E7—H5H4
60 E7H4—F7F6
61 G3G4—F6F5
62 G4F5—G6F5
63 G2G3—E5E4
64 H4G5—E4F3
65 G5F4—F3E4
66 H3H4—E4D5
67 F4H6—D5E4
68 H4H5—E4D5
69 H6G7—B2B1 = N
70 H5H6—B1A3
71 C2B3—C4D6
72 H6H7—D6F7
73 B3A3—D5E4
74 H7H8—F7H8
75 G7H8—F5F4
76 G3F4—E4F4
½-½

**28. ELITE · PRESTIGE**

01 D2D4—G8F6
02 C2C4—G7G6
03 B1C3—F8G7
04 E2E4—D7D6
05 F2F3—E8G8
06 C1E3—E7E5
07 D4D5—C7C6
08 G1E2—C6D5
09 C4D5—B8D7
10 D1D2—A7A6
11 E2G3—B7B5
12 F1D3—D7B6
13 D2F2—B6C4
14 D3C4—B5C4
15 E3B6—D8E7
16 B6E3—H7H5
17 E1G1—H5H4
18 G3E2—H4H3
19 G2G4—A8B8
20 A1B1—B8B4
21 F2G3—E8B7
22 C3D1—C8D7
23 G3H3—D7A4
24 E2C3—A4C2
25 B1C1—C2D3
26 F1F2—B7D7
27 E3H6—F8B8
28 H6G7—G8G7
29 H3H4—B8H8
30 H4G5—F6H7
31 G5D2—F7F6
32 H2H4—H8B8
33 B2B3—F6F5
34 G4F5—G6F5
35 F2G2—G7H8
36 D1B2—F5E4
37 F3E4—D3E4
38 C3E4—C4B3
39 D2E3—B3A2
40 B2D3—B4A4
41 D3E5—D6E5
42 E4C3—A2A1 = Q
43 E3E5—H7F6
44 E5F6—H8H7
45 F6G6—H7H8
46 G6H6—D7H7
47 H6F6—H7G7
48 F6G7—1-0

**29. PRESTIGE · ELITE**

01 E2E4—E7E5
02 F2F4—E5F4
03 G1F3—G7G5
04 H2H4—G5G4
05 F3E5—G8F6
06 D2D4—D7D6
07 E5D3—F6E4
08 C1F4—D8E7
09 D1E2—F8G7
10 C2C3—H7H5
11 B1D2—E4D2
12 E2E7—E8E7
13 F4G5—E7E8
14 E1D2—C8E6
15 D3F4—E8F8
16 F4E6—F7E6
17 F1D3—B8C6
18 H1F1—F8G8
19 A1E1—E6E5
20 D3C4—G8H7
21 C4D3—H7G8
22 D3C4—G8H7
23 C4D3—H7G8
24 D3C4—½-½

**30. ELITE · PRESTIGE**

01 E2E4—C7C5
02 G1F3—D7D6
03 D2D4—C5D4
04 F3D4—G8F6
05 B1C3—B8C6
06 C1G5—E7E6
07 D1D2—A7A6
08 E1C1—C8D7
09 F2F4—F8E7
10 D4F3—B7B5
11 G5F6—G7F6
12 F4F5—D8B6
13 D2H6—B5B4
14 C3A4—B6A5
15 B2B3—C6E5
16 F3E5—A5E5
17 F5E6—F7E6
18 H6G7—H8F8
19 G7H7—D7A4
20 B3A4—E5A1
21 C1D2—A1A2
22 H7H5—E8D7
23 H5A5—A2A3
24 D1B1—E7D8
25 A5B4—A3B4
26 B1B4—D8A5
27 C2C3—A5B4
28 C3B4—F6F5
29 E4F5—F8F5
30 B4B5—A8F8
31 D2E1—A6B5
32 A4B5—F8A8
33 G2G4—A8A1
34 E2E1—F5B5
35 H2H4—E6E5
36 G4G5—B5B2
37 E2F3—D7E7
38 G5G6—A1A3
39 F3G4—E7F6
40 G4H5—B2B8
41 F1E2—B8H8
42 H5G4—F6G6
43 H4H5—G6H6
44 H1D1—H8D8
45 G4F5—D6D5
46 D1B1—E5E4
47 B1B6—H6G7
48 B6B7—G7H8
49 H5H6—A3H3
50 B7B6—H8H7
51 B6B7—H7H6
52 B7B6—H6G7
53 B6B7—G7H8
54 E2G4—H3C3
55 F5G6—D8G8
56 G6H5—C3C2
57 G4H3—D5D4
58 H5H6—C2C6
59 H6H5—C6C5
60 H5H6—G8E8
61 B7H7—H8G8
62 H3D7—E8E5
63 H7G7—G8F8
64 D7G4—D4D3

65 G7D7—C5D5
66 D7B7—E4E3
67 B7B8—F8E7
68 B8B7—E7D6
69 B7D7—D6C5
70 D7C7—C5B6
71 C7G7—E3E2
0-1

**31. PRESTIGE · ELITE**

01 E2E4—C7C5
02 G1F3—D7D6
03 D2D4—C5D4
04 F3D4—G8F6
05 B1C3—B8C6
06 C1G5—E7E6
07 D1D2—A7A6
08 E1C1—C8D7
09 F2F4—F8E7
10 D4F3—B7B5
11 G5F6—G7F6
12 F4F5—D8B6
13 F5E6—F7E6
14 C1B1—B5B4
15 C3E2—E6E5
16 D2H6—D7E6
17 E2C1—E8C8
18 F1D3—D8G8
19 H6D2—G8G4
20 H2H3—G4G3
21 F3H4—H8G8
22 D2H6—G3G7
23 G2G4—C6D4
24 C1E2—B6A5
25 B2B3—D4B5
26 G4G5—G7G5
27 H6H7—G8G7
28 H7H6—D6D5
29 E4D5—B5A3
30 B1B2—E6D5
31 H1H2—G7G8
32 D3A6—C8C7
33 A6D3—E5E4
34 H6H7—G5G7
35 H7F5—G7G5
36 F5H7—G8G7
37 H7H6—D5G8
38 D3E4—A5E5
39 E2D4—E5H2
40 H4F3—H2G3
41 D4E2—G3F2
42 F3G5—G7G5
43 E4D3—E7D6
44 B2C1—F2E3
45 D1D2—D6F4
46 C1B2—E3D2
47 H6G5—F6G5
48 E2F4—D2C3
49 B2C1—C3E1
50 C1B2—E1B1
0-1

**32. ELITE · PRESTIGE**

01 E2E4—E7E5
02 G1F3—G8F6
03 D2D4—E5D4
04 E4E5—F6E4
05 D1D4—D7D5
06 E5D6—E4D6
07 B1C3—B8C6
08 D4F4—G7G6
09 F1D3—F8G7
10 E1G1—E8G8
11 C1E3—C8F5
12 D3F5—D6F5
13 A1D1—D8C8
14 E3C5—F8E8
15 C3D5—C6E5
16 F3D4—F5D4
17 C5D4—C7C6
18 D5F6—G7F6
19 F4F6—C8E6
20 F6E6—E8E6
21 F1E1—A8E8
22 G1F1—E5C4
23 E1E6—F7E6
24 B2B3—C4B6
25 D4B6—A7B6
26 D1D7—B6B5
27 D7B7—E8A8
28 B7C7—H7H6
29 C7C6—G8F7
30 C2C4—B5C4
31 B3B4—A8A2
32 C6C4—A2B2
33 C4C7—F7E8
34 C7B7—B2B1
35 F1E2—B1B2
36 E2E3—B2B3
37 E2D2—B3B2
38 D2E1—B2B1
39 E1D2—B1B2
40 D2C3—B2F2
41 B7H7—H6H5
42 G2G3—E8F8
43 H7H8—F8E7
44 H8G8—E7F7
45 G8D8—F2H2
46 D8D7—F7F8
47 D7D8—F8E7
48 D8D3—H2H1
49 B4B5—H1B1
50 C3C4—E6E5
51 C4C5—E7F6
52 B5B6—E5E4
53 D3D4—E4E3
54 D4E4—B1B3
55 C5D4—B3B4
56 D4E3—B4B6

Here the computers played 50 moves without captures or pawn moves. A draw was claimed after move 106 ½ · ½

**33. PRESTIGE · ELITE**

01 D2D4—G8F6
02 G1F3—G7G6
03 G2G3—F8G7
04 F1G2—E8G8
05 E1G1—D7D6
06 B2B3—E7E5
07 D4E5—F6D7
08 C1B2—B8C6
09 E2E4—D6E5
10 B1C3—B7B6
11 C3D5—F8E8
12 D1D2—D7C5
13 F1E1—C8G4
14 C2C4—G4F3
15 G2F3—C6D4
16 B2D4—E5D4
17 B3B4—C5D7
18 F3G2—C7C6
19 D5F4—D7E5
20 C4C5—D8E7
21 E1C1—A8D8
22 F4D3—G7H6
23 F2F4—E5D3
24 D2D3—E7D7
25 E4E5—B6B5
26 C1F1—H6G7
27 A2A4—A7A6
28 A4B5—A6B5
29 A1A6—D8C8
30 F1A1—C8C7
31 A6A8—E8C8
32 A1A2—G8F8
33 A8C8—C7C8
34 A2D2—F7F6
35 D3E4—F6E5
36 F4E5—D7C7
37 D2E2—F8G8
38 G2F3—C7F7
39 E5E6—F7E7
40 E2A2—E7B7
41 E6E7—C8E8
42 E4E6—G8H8
43 F3C6—B7E7
44 E6E7—E8E7
45 A2A8—G7F8
46 A8F8—H8G7
47 F8D8—E7E6
48 C6B5—E6E4
49 B5D3—E4E1
50 G1G2—G7F6
51 D8D4—E1C1
1-0

**34. ELITE · PRESTIGE**

01 E2E4—E7E5
02 G1F3—B8C6
03 F1B5—A7A6
04 B5A4—D7D6
05 C2C3—G8F6
06 D2D3—C8D7
07 E1G1—F8E7
08 C1E3—F6G4
09 A4B3—E8G8
10 F1E1—G4E3
11 E1E3—D7G4
12 B1D2—D8D7
13 E3E1—C6A5
14 D3D4—D7B5
15 C3C4—B5B4
16 D4E5—D6E5
17 A2A3—B4B6
18 D1C2—G4F3
19 G2F3—A8D8
20 B3A4—B6G6
21 G1H1—G6H5
22 C2C3—D8D2
23 C3D2—H5F3
24 H1G1—A5C4
25 D2E2—F3E2
26 E1E2—F8D8
27 A1D1—D8D4
28 A4B3—C4A5
29 B3C2—C7C5
30 F2F3—A5C4
31 C2D3—E7H4
32 G1F1—B7B5
33 F1G1—C4B6
34 D3C2—A6A5
35 G1G2—A5A4
36 G2H3—H4G5
37 H3G4—G5F4
38 G4H4—B6C4
39 D1D4—C5D4
40 C2D3—C4D2
41 H4G4—G7G6
42 E2F2—H7H5
43 G4H3—F4E3
44 F2E2—D2F3
45 H3G2—F3D2
46 D3B5—D2E4
47 B5A4—F7F5
48 B2B4—E4C3
49 A4B3—G8G7
50 E2C2—E5E4
51 A3A4—F5F4
52 B4B5—F4F3
53 G2F1—E3F4
54 C2F2—D4D3
55 B3C2—D3D2
56 F2D2—F4D2
57 C2E4—C3E4
58 A4A5—F3F2
59 B5B6—D2E1
60 F1E2—E4D2
61 E2D1—F2F1 = Q
62 A5A6—D2F3
63 D1C2—F1E2
0-1

**35. MEPHISTO · SC9**

01 D2D4—D7D5
02 C2C4—E7E6
03 G1F3—D5C4
04 E2E4—F8B4
05 B1C3—G8F6
06 C1G5—B8C6
07 E4E5—H7H6
08 E5F6—H6G5
09 F6G7—H8G8
10 F1C4—G8G7
11 C4B5—C8D7
12 A2A3—B4D6
13 E1G1—G5G4
14 B5C6—D7C6
15 F3E5—D6E5
16 D4E5—D8H4
17 D1D4—A8D8
18 D4F4—H4G5
19 F4G5—G7G5
20 A1E1—D8D2
21 B2B4—D2D3
22 C3E4—C6E4
23 E1E4—D3A3
24 F1D1—A3A4
25 E4D4—G5E5
26 D4G4—E5D5
27 D1E1—D5D2
28 G4G8—E8D7
29 G8G7—D7E7
30 B4B5—E6E5
31 E1C1—A4C4
32 C1A1—C4D4
33 H2H3—D2D1
34 A1D1—D4D1
35 G1H2—D1D5
36 H2G3—D5B5
37 H3H4—C7C5
38 H4H5—C5C4
39 H5H6—C4C3
40 H6H7—C3C2
41 H7H8—B5B3
42 G3H2—C2C1
43 H8H4—E7E6
44 F2F3—B3B2
45 H4H3—E6F6
46 H3H7—C1F4
47 H2H3—F6E6
48 H7H5—B2B1
49 H5G4—F4G4
50 H3G4—B7B5
51 G7G8—A7A5
52 G8E8—E6F6
53 E8A8—B1B4
54 G4G3—A5A4
0-1

**36. SC9 · MEPHISTO**

01 E2E4—C7C5
02 G1F3—E7E6
03 D2D4—C5D4
04 F3D4—G8F6
05 B1D2—B8C6
06 D4C6—B7C6
07 F1E2—F8D6
08 E1G1—D8C7
09 G2G3—C8B7
10 D2C4—D6E7
11 C1F4—C7C8
12 C4D2—E8G8
13 C2C4—D7D5
14 E2F3—D5D4
15 D1A4—F6D7
16 A4A5—E6E5
17 F4E5—E7D8
18 A5A3—D7E5
19 A1D1—D4D3
20 F3G2—C8D7
21 D2F3—E5F3
22 G2F3—D3D2
23 A3E3—D8A5
24 E3G5—D7C7
25 F3G4—B7A6
26 B2B3—A8D8
27 A2A3—H7H6
28 G5H5—F8E8
29 H5F5—D8D4
30 G4H5—E8E5
31 F5G4—A6C8
32 G4F3—C8H3
33 B3B4—E5E4
34 B4A5—H3F1
35 G1F1—C7D7
36 F3G2—D7E6
37 H5E2—E4E2
38 G2F3—E2E1
39 F1G2—E6C4
40 H2H4—E1D1
41 F3D1—C4C1
0-1

**37. MEPHISTO · SC9**

01 E2E4—E7E5
02 G1F3—B8C6
03 F1B5—A7A6
04 B5A4—G8F6
05 E1G1—F8E7
06 F1E1—B7B5
07 A4B3—E8G8
08 D2D4—E5D4
09 E4E5—F6G4
10 H2H3—G4H6
11 C1H6—G7H6
12 F3D4—C6A5
13 D1G4—E7G5
14 F2F4—D7D5
15 G4G3—A5B3
16 A2B3—C7C5
17 D4F3—C8F5
18 C2C3—F7F6
19 E5F6—F8F6
20 F4G5—F6G6
21 G3F2—D8F8
22 E1E5—H6G5
23 F2D2—D5D4
24 C3D4—A8C8
25 D4D5—F8F6
26 D5D6—G5G4
27 E5F5—F6F5
28 F3H4—F5E4
29 H4G6—E4G6
30 D2D5—G8H8
31 D5E5—G6G7
32 E5G7—H8G7
33 A1A6—G4H3
34 G2H3—C8G8
35 A6C6—G7F7
36 G1H2—G8E8
37 B1C3—B5B4
38 C6C7—F7E6
39 C3E4—E8D8
40 C7C5—D8A8
41 H2G3—A8A2
42 C5B5—A2B2
1-0

**38. SC9 · MEPHISTO**

01 D2D4—D7D5
02 C2C4—E7E6
03 B1C3—G8F6
04 C1G5—B8D7
05 E2E3—C7C6
06 G1F3—D8A5
07 C4D5—F6D5
08 D1D2—F8B4
09 A1C1—F7F6
10 G4H4—G7G5
11 H4G3—G5G4
12 F3H4—D7B6
13 E3E4—D5C3
14 B2C3—B4E7
15 F1E2—E6E5
16 D4E5—F6E5
17 D2H6—C8D7
18 H4G6—E7F8
19 H6H5—H7G6
20 H5H8—A5A2
21 H8E5—F8E7
22 E5H8—E7F8
23 G3D6—A2F7
24 C1D1—E8C8
25 H8E5—D8E8
26 E5A5—F8D6
27 D1D6—E8E4
28 A5A7—E4E2
29 E1E2—F7E7
30 E2F1—E7D6
31 A7A1—D6D3
32 F1G1—B6A4
33 C3C4—D3E4
34 A1H8—C8C7
35 H8A1—C6C5
36 A1F1—A4C3
37 F2F3—E4D4
38 F1F2—D4C4
39 F2G3—C7C8
40 G3D6—C4D4
41 D6D4—C5D4
42 G1F2—B7B5
43 F3F4—B5B4
44 H1A1—B4B3
45 A1A8—C8B7
46 A8D8—B7C7
47 D8A8—B3B2
48 A8A7—C7C6
49 A7A6—C6C5
50 A6A5—C3B5
51 A5A2—B2B1
0-1

**39. MEPHISTO · SC9**

01 D2D4—G8F6
02 C2C4—E7E6
03 B1C3—F8B4
04 A2A3—B4C3
05 B2C3—E8G8
06 F2F3—D7D5
07 E2E3—B8C6
08 F1D3—D5C4
09 D3C4—F6D5
10 G1E2—D8H4
11 G2G3—H4F6
12 E1G1—F5H6
13 E3E4—D5C3
14 E2C3—H6F6
15 C3B5—F8D8
16 C1F4—C6A5
17 B5C7—A8B8
18 C7E8—D8E8
19 F4B8—A5C4
20 D1D3—C4B2
21 D3C3—B2A4
22 C3B4—B7B5
23 B8A7—F6G5
24 D4D5—C8D7
25 D5D6—E8C8
26 F3F4—G5H5
27 A1C1—C8C1
28 F1C1—F7F5
29 C1C7—H5E8
30 C7B7—F5E4
31 B7B8—D7C8
32 B4E4—G8F7
33 E4A8—E8D7
34 B8C8—D7D6
35 A8B7—F7F6
36 B7B5—D6D1
37 G1G2—D1D5
38 B5D5—E6D5
1-0

**40. SC9 · MEPHISTO**

01 E2E4—E7E5
02 G1F3—B8C6
03 F1B5—A7A6
04 B5C6—D7C6
05 E1G1—C8G4
06 D2D3—F8D6
07 C1E3—G8F6
08 B1C3—E8G8
09 A1C1—B7B6
10 G1H1—D6E7
11 H2H3—G4F3
12 D1F3—D8D6
13 F3F5—G7G6
14 F5F3—D6B4
15 E3H6—F8D8
16 C1B1—A6A5
17 F1E1—A5A4
18 A2A3—B4C5
19 B1D1—A8A5
20 H6E3—C5D6
21 D3D4—D8E8
22 D4E5—D6E5
23 E3F4—E5C5
24 F4C7—A5A8
25 F3F4—F6H5
26 F4E3—B6B5
27 D1D7—H5F6
28 D7D4—C5A7
29 C7D6—A8D8
30 D6E7—A7E7
31 D4D8—E8D8
32 E3B6—E7E8
33 C3B5—C6B5
34 B6F6—D8D2
35 H1G1—D2C2
36 E1D1—C2C6
37 D1D8—C6F6
38 D8E8—G8G7
39 F2F3—F6E6
40 E8C8—E6E5
41 G1F2—H7H5
42 F2E3—E5G5
43 G2G4—H5G4
44 H3G4—F7F6
45 C8C7—G7F8

46 E3D4—F8E8
47 C7C5—B5B4
48 C5G5—F6G5
49 A3B4—E8D7
1-0

**41. MEPHISTO · SC9**

01 E2E4—C7C5
02 B1C3—B8C6
03 F2F4—D7D6
04 F1B5—C8D7
05 G1F3—G8F6
06 E1G1—C6D4
07 B5D7—D8D7
08 D2D3—F6G4
09 F4F5—D4B5
10 F3G5—B5C3
11 D1G4—C3A4
12 G4H5—G7G6
13 F5G6—F7G6
14 H5F3—E7E5
15 F3F6—D7G7
16 F6G7—F8G7
17 G5E6—E8D7
18 E6G7—A8F8
19 B2B3—A4C3
20 F1F8—H8F8
21 C1H6—F8F7
22 A2A4—C3E2
23 G1H1—E2D4
24 C2C4—F7F6
25 A1B1—G6G5
26 H6G5—F6G6
27 G7H5—G6G5
28 H5F6—D7E7
29 F6D5—E7E6
30 B1F1—G5G7
31 B3B4—C5B4
32 F1F6—E6D7
33 D5B4—D4E6
34 F6F2—B7B6
35 B4A6—E6F4
36 D3D4—F4E6
37 D4E5—D6E5
38 F2F5—D7D6
39 F5F1—G7G4
40 F1D1—D6E7
41 D1E1—E6G5
42 C4C5—G5E4
43 C5C6—E4F2
44 H1G1—F2H3
45 G1F1—G4F4
46 F1E2—F4A4
47 C6C7—H3F4
48 E2F3—A4A3
49 F3E4—A3C3
50 E4E5—F4D3
51 E5D4—D3E1
52 D4C3—E7D7
53 G2G3—E1F3
54 H2H4—H7H5
55 C3D3—F3H2
56 D3E4—D7C8
57 E4F4—H2F1
58 F4F3—C8B7
59 F3F4—B6B5
60 A6C5—B7C7
61 C5E6—C7B6
62 E6G7—B5B4
63 G7H5—B4B3
64 H5F6—B6C5
65 F6E4—C5C4
66 E4D6—C4B4
67 D6F5—B3B2
68 F5D4—B2B1
0-1

**42. SC9 — MEPHISTO**

01 E2E4—E7E5
02 G1F3—B8C6
03 F1B5—A7A6
04 B5A4—G8F6
05 E1G1—F8E7
06 F1E1—B7B5
07 A4B3—D7D6
08 D2D3—E8G8
09 B1C3—B5B4
10 C3D5—F6D5
11 B3D5—C8D7
12 D3D4—E7F6
13 D4E5—D6E5
14 C1E3—D8E7
15 D1D3—E7D6
16 A1D1—F6E7
17 D3C4—D7E8
18 C4F1—E8D7
19 D5C6—D6C6
20 F3E5—C6C2
21 D1D7—A8E8
22 D7D2—C2E4
23 E5D7—E4B7
24 D7F8—G8F8
1-0

**43. MEPHISTO · SC9**

01 D2D4—G8F6
02 C2C4—G7G6
03 B1C3—F8G7
04 E2E4—D7D6
05 G1F3—E8G8
06 F1E2—E7E5
07 E1G1—B8C6
08 D4D5—C6E7
09 C1E3—F6G4
10 E3G5—C8D7
11 H2H3—G4F6
12 B2B4—A7A5
13 B4B5—F6H5
14 A2A4—D8E8
15 D1D2—G8H8
16 A1C1—F8G8
17 F3H4—H5F6
18 F2F4—E7C8
19 F4F5—E8F8
20 F5G6—F7G6
21 F1F2—F8E7
22 H4G6—H7G6
23 F2F6—E7E8
24 D2E1—G7F6
25 G5F6—G8G7
26 E1H4—H8G8
27 F6G7—G8G7
28 C1F1—E8E7
29 H4G3—C8B6
30 E2H5—D7E8
31 C4C5—D6C5
32 F1F5—B6D7
33 F5F2—D7F6
34 H5E2—E8D7
35 F2F1—A8F8
36 F1C1—F6H7
37 G1H1—E7G5
38 G3G5—H7G5
39 C1D1—F8H8
40 D1D3—G7F6
41 D3G3—H8H7
42 E2F3—B7B6
43 F3E2—H7H4
44 E2D3—C5C4
45 D3C2—H4H7
46 C3B1—G5F7
47 B1D2—F7D6
48 G3F3—F6E7
49 F3C3—H7H4
50 D2C4—D6E4
51 C4E5—E7D6
52 E5F7—D6D5
53 C3C7—E4C5
54 H1G1—D5E6
55 F7G5—E6D6
56 C7A7—H4D4
57 G5F7—D6E6
58 F7D8—E6F6
59 G1H2—D7E8
60 D8C6—D4D2
61 C2B1—D2B2
62 C6E7—B2B1
63 E7D5—F6E6
64 D5B6—E8B5
65 A4B5—B1B5
66 B6A8—E6E5
67 A8C7—B5B7
68 A7B7—C5B7
69 C7A8—E5D5
70 A8B6—D5D6
71 G2G4—G6G5
72 H2G3—D6C6
73 B6C4—A5A4
74 C4E5—C6B5
75 E5F3—A4A3
76 F3D4—B5A4
77 D4E2—A4B3
78 E2C1—B3B2
79 C1D3—B2C2
80 D3B4—C2B3
81 B4D3—B7C5
82 D3C5—B3C4
83 C5E4—A3A2
84 E4D2—C4B4
85 D2E4—A2A1
86 E4G5—A1E5
87 G3H4—E5F6
88 H4H5—F6G7
89 H3H4—B4C4
90 G5H3—G7H8
91 H5G6—H8H4
92 H3G5—H4G4
0-1

**44. SC9 · MEPHISTO**

01 C2C4—C7C5
02 B1C3—G8F6
03 G2G3—G7G6
04 G1F3—F8G7
05 D2D3—E8G8
06 F1G2—D7D5
07 C4D5—F6D5
08 C3D5—D8D5
09 E1G1—B8C6
10 F3G5—D5E5
11 G2C6—B7C6
12 E2E4—F8D8
13 A1B1—C5C4
14 D1F3—F7F6
15 D3D4—E5B5
16 G5H7—C8H3
17 F1D1—F6F5
18 F3F4—H3G4
19 F2F3—E7E5
20 F4E3—D8D4
21 D1D4—E5D4
22 E3F4—G4F3
23 F4F3—G8H7
24 E4F5—B5F5
25 F3F5—G6F5
26 H2H4—D4D3
27 C1E3—A8D8
28 H4H5—D8D7
29 G1F1—D7E7
30 E3F4—E7B7
31 B1C1—B7B2
32 C1C4—B2H2
33 C4C6—H2H1
34 F1G2—H1A1
35 C6A6—G7D4
36 A6A5—D4B6
37 A5D5—A1A2
38 G2H3—A2A1
39 H5H6—A1H1
40 H3G2—H1G1
41 G2H2—G1E1
42 D5D7—H7H8
43 D7D3—E1E2
44 H2H3—E2E1
45 H3H4—E1E8
46 D3D7—B6D8
47 H4H5—A7A5
48 D7F7—A5A4
49 H5G6—E8G8
50 G6F5—G8E8
51 H6H7—D8B6
52 F4E5—E8E5
53 F5E5—A4A3
54 G3G4—A3A2
55 F7F8—H8H7
56 F8A8—1-0

**45. MEPHISTO · SCISYS MARK V**

01 E2E4—E7E5
02 G1F3—B8C6
03 F1B5—G8F6
04 B1C3—F8C5
05 E1G1—A7A6
06 B5C6—D7C6
07 F3E5—C5D4
08 E5C4—D4C3
09 B2C3—F6E4
10 F1E1—D8H4
11 F2F3—H4F2
12 G1H1—C8E6
13 E1E4—E8C8
14 D2D3—F2C5
15 C1E3—C5E7
16 D1B1—B7B5
17 C4A5—E7E8
18 E4E5—F7F6
19 E5E4—F6F5
20 E4E5—H7H6
21 B1E1—E8D7
22 E5C5—E6D5
23 C3C4—F5F4
24 E3F4—H8E8
25 E1B4—D5F3
26 C4B5—E8E2
27 B5A6—F3G2
28 H1G1—D7G4
29 B4B7—C8D7
30 B7C7—D7E8
31 C5E5—E2E5
32 C7E5—E8F8
33 E5C5—F8G8
34 F4G3—G4F3
35 C5F2—F3D5
36 A5C4—D8F8
37 F2B6—G2H3
38 C4E3—D5G5
39 A1E1—C6C5
40 E3C4—G5D5
41 B6B7—D5D4
42 G1H1—H3C8
43 B7C6—C8D7
44 C6G2—D4F6
45 G2D5—F6F7
46 D5C5—D7E6
47 C5B4—F7F3
48 H1G1—E6D5
49 B4F8—F3F8
50 E1E5—F8F3
51 C4E3—F3H1
52 G1F2—H1F3
53 F2E1—D5A2
54 E5E8—G8F7
55 E8E4—F3H1
56 E1D2—A2E6
57 A6A7—H1A1
58 G3B8—A1A5
59 D2E2—A5H5
60 E2F2—E6D5
61 E4F4—F7G6
62 F4F5—H5F5
63 E3F5—G6F5
64 C2C4—D5C6
65 D3D4—F5E4
66 D4D5—C6A8
67 D5D6—A8B7
68 D6D7—E4D4
1-0

**46. SCISYS MARK V · MEPHISTO**

01 E2E4—E7E6
02 D2D4—D7D5
03 B1C3—F8B4
04 G1E2—D5E4
05 A2A3—B4E7
06 C3E4—G8F6
07 D1D3—F6E4
08 D3E4—F7F5
09 E4E5—E8G8
10 C1D2—E7F6
11 E5C5—B8C6
12 D2C3—D8D7
13 E1C1—B7B6
14 C5B5—C8B7
15 H2H3—D7D6
16 D4D5—F8D8
17 C3F6—G7F6
18 E2C3—D6F4
19 C1B1—E6D5
20 C3D5—F4F2
21 F1C4—G8G7
22 D5C7—A7A6
23 B5A4—B6B5
24 C7B5—A6B5
25 A4B5—A8B8
26 D1F1—F2D4
27 B5B3—F5F4
28 D2C3—E4D5
29 B3B4—D5E4
30 B3B4—D4B4
31 A3B4—A7B5
32 F1F4—B5D6
33 C2C3—D5E4
34 B1A2—B8A8
35 A2B3—H7H5
36 C3C4—E4D3
37 C4C5—D6B5
38 G1H1—B5D4
39 F4D4—D8D4
0-1

**47. MEPHISTO · SCISYS MARK V**

01 D2D4—G8F6
02 C2C4—E7E5
03 D4E5—F6G4
04 D1D4—D7D5
05 C4D5—B8C6
06 D4E4—F8C5
07 E2E3—C6E5
08 H2H3—F7F5
09 E4C2—C5B4
10 B1C3—B4C3
11 C2C3—E8G8
12 H3G4—E5G4
13 F1C4—G4F6
14 C3B3—A7A6
15 D5D6—G8H8
16 D6C7—D8C7
17 G1F3—B7B5
18 C4E2—C8B7
19 C1D2—B7D5
20 B3D3—D5E4
21 D3C3—C7B7
22 C3B3—E4D5
23 B3D3—D5E4
24 D3D4—A8D8
25 D4B4—F6D5
26 B4A3—F8E8
27 A3B3—D5F6
28 D2C3—E4D5
29 B3B3—D5E4
30 C3F6—G7F6
31 H1H3—F5F4
32 B4C3—B7G7
33 G2G3—F4E3
34 F2E3—E4F5
35 G3G4—F5G4
36 H3G3—D8C8
37 C3B4—H7H5
38 B4D4—C8D8
39 D4B6—G7E7
40 A1D1—D8D1
41 E1D1—E8D8
42 F3D4—D8D6
43 B6C5—E7E5
44 C5E5—F6E5
45 E2G4—H5G4
46 G3G4—B5B4
47 D1C2—E5D4
48 E3D4—H8H7
49 C2B3—D6B6
50 B3C4—A6A5
51 D4D5—B4B3
52 A2A3—H7H8
53 G4D4—H8G7
54 D5D6—B6B8
55 D6D7—B8D8
56 C4B3—G7F6
57 D4D5—F6E6
58 D5A5—D8D7
59 A3A4—D7D6
60 A5C5—D6D3
61 B3C4—D3F3
62 B2B4—F3F4
63 C4B5—E6D6
64 A4A5—F4F8
65 A5A6—F8A8
66 B5A5—A8G8
67 A6A7—G8D8
68 A5A6—D8H8
69 A6
70 B7B6—H7H8
71 C5A5—H8E8
1-0

**48. SCISYS MARK V MEPHISTO**

01 E2E4—E7E5
02 G1F3—B8C6
03 F1C4—F8C5
04 E1G1—D7D6
05 C2C3—C8G4
06 B2B4—C5B6
07 D2D3—G8F6
08 H2H3—G4F3
09 D1F3—E8G8
10 A2A4—A7A5
11 C1A3—A5B4
12 A3B4—C6B4
13 C3B4—B6D4
14 A1A2—C7C6
15 G2G4—D6D5
16 C4B3—D8D6
17 G4G5—D6B4
18 F3D1—F6H5
19 B1D2—H5F4
20 H3H4—F4D3
21 E4D5—D3F2
22 F1F2—D4F2
23 G1F2—B4H4
24 F2E2—H4G4
25 E2E1—G4G3
26 E1F1—C6D5
27 D2F3—E5E4
28 F3G1—D5D4
29 B3D5—G3F4
30 A2F2—F4E3
31 D5B7—A8A5
32 G1E2—F8D8
33 D1B1—D403
34 E2C3—D3D2
35 C3D1—E3E1
36 F1G2—A5G5
37 G2H3—E1H1
38 F2H2—H1F3
39 H3H4—F3G3
0-1

**49. MEPHISTO · SCISYS MARK V**

01 E2E4—E7E5
02 G1F3—B8C6
03 F1C4—F8E7
04 E1G1—D7D6
05 B1C3—C8G4
06 H2H3—G4F3
07 D1F3—G8F6
08 D2D3—E8G8
09 C1E3—D8D7
10 F3G3—C6D4
11 A1C1—B7B5
12 E3D4—B5C4
13 D4E3—A8B8
14 D3C4—B8B2
15 A2A4—D7C6
16 E3H6—F6E8
17 H6E3—C6A6
18 C3D5—E7D8
19 E3D2—A6A4
20 G3C3—B2A2
21 C3D3—A2A3
22 D5C3—A4C6
23 D3D5—C6D7
24 C1A1—A3A1
25 F1A1—C7C6
26 D5D3—D8B6
27 C3A4—E8F6
28 A1B1—D7C7
29 D2G5—B6A5
30 G5F6—G7F6
31 C4C5—F8D8
32 D3G3—G8H8
33 C5D6—C7D6
34 C2C4—A5B4
35 G3H4—C6C5
36 A4B2—D6C6
37 H4H6—B4D2
38 H6H4—D8D4
39 F2F3—A7A5
40 G1H1—D2F4
41 H4G4—C6B7
42 G2G3—F4E3
43 G4F5—H8G7
44 F5G4—G7H8

45 G4F5—H8G7
46 F5G4—G7F8
47 G4F5—D4D2
48 F5F6—D2F2
49 B1D1—E3D4
50 B2D3—F2A2
51 D3C5—A2H2
52 H1H2—B7B2
53 H2H1—F8E8
54 F6C6—E8F8
55 C6A8—F8G7
56 C5D7—B2E2
57 A8F8—G7G6
58 F8D6—G6G7
59 D6F6—G7G8
60 D1B1—D4B2
61 F6G5—G8H8
62 D7E5—E2E1
1-0

**50. SCISYS MARK V MEPHISTO**

01 E2E4—C7C5
02 B2B3—G8F6
03 D2D3—D7D5
04 C1B2—D5E4
05 B2F6—G7F6
06 D3E4—D8D1
07 E1D1—F8H6
08 F1B5—B8C6
09 G1F3—E8G8
10 B1D2—F8D8
11 H2H3—C8E6
12 G2G4—A7A6
13 B5C6—B7C6
14 D1E2—D8D7
15 C2C4—A8D8
16 A1D1—G8F8
17 A2A4—H6F4
18 H1E1—F8G7
19 E1G1—A6A5
20 G1G2—D7D3
21 G2G1—D8D6
22 H3H4—D3B3
23 D2B3—E6C4
24 E2E1—D6D1
25 E1D1—C4B3
26 D1E2—B3A4
27 G1A1—A4B5
28 E2E1—A5A4
29 A1D1—E7E6
30 D1D8—C5C4
31 F3D4—F4E5
32 D4E2—C4C3
33 F2F4—B5E2
34 E1E2—E5F4
35 E2D3—F4G3
36 D8A8—G3H4
37 D3C3—C6C5
38 C3C4—H4F2
39 A8A4—H7H6
40 A4A3—F2D4
41 A3A8—E6E5
42 C4D5—D4F2
43 A8A7—F2E3
44 A7A8—E3D4
45 A8D8—D4F2
46 D5D6—F2E3
47 D6D5—E3G1
48 D8A8—G7G6
49 D5D6—G6G5
50 A8F8—C5C4
51 F8C8—G1D4
52 C8C4—G5G4
53 C4C7—F6F5
54 E4F5—G4F5
55 C7F7—F5G6
56 D6E7—H6H5
57 E7E8—H5H4
58 F7C7—G6H5
59 C7H7—H5G5
60 H7G7—G5F4
61 G7H7—D4F2
62 E8F7—E5E4
63 F7G6—E4E3
64 H7F7—F4G3
65 F7E7—H4H3
66 E7E5—E3E2
67 E5G5—G3H2
68 G5E5—H2G2
69 E5E2—H3H2
70 G6F5—H2H1
0-1

**51. MEPHISTO · SCISYS MARK V**

01 D2D4—G8F6
02 C2C4—C7C5
03 D4C5—E7E6
04 E2E3—B8C6
05 F1E2—F8C5
06 G1F3—E8G8
07 E1G1—D7D5
08 C4D5—E6D5
09 B2B3—D8A5
10 C1B2—C8E6
11 B2F6—G7F6
12 D1C2—C6B4
13 C2C3—C5E7
14 A2A3—B4C6
15 C3A5—C6A5
16 F3D4—E7C5
17 B1D2—C5D4
18 E3D4—A5C6
19 D2F3—A8E8
20 A1C1—E6D7
21 E2D3—A7A6
22 C1C5—C6E7
23 F1E1—D7C6
24 E1C1—C6D7
25 C5C7—D7C6
26 C1E1—E7G6
27 E1E8—F8E8
28 D3A6—E8A8
29 A6B7—A8A3
30 H2H3—C6B7
31 C7B7—G8G7
32 B3B4—G6F4
33 G1H2—A3A2
34 B7B5—A2F2
35 H2G3—F4D3
36 F3H4—F6F5
37 B5D5—F5F4
38 G3H2—D3B4
39 D5D7—G7F6
40 H2G1—B4D3
41 D7D6—F6G5
42 H4F3—G5F5
43 D6H6—F5E4
44 H3H4—F2C2
45 H6H7—C2C1
46 G1H2—D3F2
47 F3G5—E4E3
48 G2G3—F4F3
49 G5F3—E3F3
50 H7F7—F3E3
51 D4D5—F2E4
52 F7A7—C1D1
53 A7D7—E4F6
54 D7E7—F6E4
55 E7D7—E4F6
56 D7E7—F6E4
57 E7D7—½-½

**52. SCISYS MARK V · MEPHISTO**

01 E2E4—E7E5
02 D2D4—E5D4
03 D1D4—B8C6
04 D4E3—G8F6
05 C1D2—F8E7
06 B1C3—D7D5
07 E3G3—C6B4
08 E1C1—E8G8
09 A2A3—B4A6
10 E4D5—A6C5
11 F1C4—C8F5
12 F2F4—F6E4
13 C3E4—C5E4
14 G3F3—E4D2
15 D1D2—D8D7
16 G1E2—B7B5
17 C4D3—F5D3
18 F3D3—B5B4
19 A3B4—E7B4
20 C2C3—B4C5
21 B2B4—C5E7
22 H1E1—A7A5
23 D3D4—A5B4
24 D2B2—B4C3
25 B2B1—E7F6
26 D4C4—F8E8
27 C1D1—E8D8
28 E2C3—F6C3
29 C4C3—D7D5
30 D1C1—D8D6
31 B1A1—A8A1
32 C1C2—D5A2
33 C3B2—D6D2
34 C2D2—A2B2
0-1

**53. MEPHISTO · SCISYS MARK V**

01 E2E4—C7C5
02 B1C3—D7D6
03 G2G3—G8F6
04 B2B3—E7E5
05 C1B2—B8C6
06 F1B5—F8E7
07 G1F3—E8G8
08 B5C6—B7C6
09 E1G1—A7A6
10 F3G5—C8G4
11 F2F3—G4D7
12 F3F4—D7G4
13 D1C1—H7H6
14 F4E5—F6D7
15 G5F3—D6D5
16 E4D5—G4F3
17 F1F3—D7E5
18 F3F5—F7F6
19 D5D6—D8D4
20 G1F1—A8C8
21 D2D3—E5D3
22 C3D5—D4D5
23 F5D5—D3C1
24 D5D7—F8E8
25 C6C7—C1B3
26 A2B3—C8A8
27 A1A5—E7F8
28 B2A3—E8E7
29 D7D8—E7E8
30 D8A8—E8A8
31 A3C5—F8C5
32 A5C5—A8C8
33 B3B4—G8F7
34 C2C4—F7E7
35 C5C6—A6A5
36 B4A5—E7D7
37 C6C5—C8C7
38 C5C7—D7C7
39 F1G2—C7B7
40 C4C5—F6F5
41 G2F3—G7G5
42 H2H3—B7A6
43 C5C6—A6A7
44 H3H4—A7A6
45 H4H5—A6A7
46 F3E3—F5F4
47 G3F4—G5F4
48 E3F4—A7A6
1-0

**54. SCISYS MARK V · MEPHISTO**

01 D2D4—D7D5
02 C2C4—C7C6
03 C4D5—C6D5
04 B1C3—E7E6
05 G1F3—B8C6
06 C1F4—D8A5
07 E2E3—G8F6
08 F1D3—F8B4
09 D1B3—E8G8
10 A1C1—B7B6
11 E1G1—C8B7
12 H2H3—A8C8
13 A2A3—B4C3
14 B3C3—C6E5
15 C3A5—E5F3
16 G2F3—B6A5
17 C1C7—C8C7
18 F4C7—A5A4
19 C7D6—F8C8
20 D6C5—A7A5
21 F1C1—F6D7
22 D3B5—D7C5
23 C1C5—E6E5
24 C5C8—B7C8
25 D4E5—C8H3
26 B5A4—H7H5
27 A4B3—H3E6
28 G1F1—H5H4
29 E3E4—D5D4
30 B3E6—F7E6
31 F3F4—D4D3
32 F4F5—E6F5
33 B2B3—F5E4
34 B3B4—A5A4
35 E5E6—H4H3
36 E6E7—G8F7
37 F2F4—E4F3
38 F1G1—D3D2
0-1

**55. PRESTIGE · MEPHISTO**

01 F2F4—G8F6
02 G1F3—D7D5
03 E2E3—C8G4
04 H2H3—G4F3
05 D1F3—E7E6
06 B1C3—F8E7
07 D2D4—E8G8
08 F1D3—C7C5
09 D4C5—B8C6
10 C1D2—C6B4
11 E1G1—A8C8
12 C3E2—B4D3
13 C2D3—C8C5
14 D2C3—D8C7
15 E3E4—D5E4
16 D3E4—C5C4
17 E2D4—E7B4
18 A1C1—B4C5
19 C1D1—F8D8
20 F3F2—C7B6
21 B2B4—C5D4
22 C3D4—C4D4
23 D1D4—D8D4
24 F1C1—F6E8
25 B4B5—D4E4
26 F2B6—A7B6
0-1

**56. MEPHISTO · PRESTIGE**

01 D2D4—D7D5
02 C2C4—E7E6
03 B1C3—G8F6
04 C1G5—F8E7
05 E2E3—E8G8
06 G1F3—B8D7
07 A1C1—C7C6
08 F1D3—D5C4
09 D3C4—F6D5
10 G5E7—D8E7
11 E1G1—D5C3
12 B2C3—D7B6
13 C4D3—F7F6
14 D1B3—C8D7
15 A2A4—A8B8
16 A4A5—B6D5
17 C1B1—B7B5
18 C3C4—D5C7
19 C4B5—C7B5
20 G1H1—E7D6
21 B3C2—B5A3
22 D3H7—G8H8
23 C2G6—B8B1
24 F1B1—D7E8
25 G6D3—A3B1
26 D3B1—D6A3
27 A5A6—A3A6
28 H7D3—A6A5
29 B1C1—E8D7
30 F3H4—H8G8
31 H4G6—F8F7
32 F2F3—A5B4
33 F3F4—A7A5
34 H1G1—B4B3
35 D3E4—B3B5
36 C1A3—B5B4
37 A3B4—A5B4
38 E4C2—D7C8
39 G1F2—F7C7
40 C2B3—C6C5
41 D4C5—G8F7
42 G6H8—F7E7
43 H8G6—E7D8
44 G6F8—E6E5
45 F4E5—F6E5
46 F8E6—C8E6
47 B3E6—C7C5
48 F2F3—C5C3
49 H2H4—B4B3
50 F3E4—B3B2
51 E6A2—C3C1
52 E4E5—C1A1
0-1

**57. PRESTIGE · MEPHISTO**

01 G1F3—G8F6
02 B2B3—B7B6
03 E2E3—C8B7
04 F1E2—E7E6
05 E1G1—F8E7
06 C1A3—C7C5
07 C2C4—E8G8
08 D2D4—B8C6
09 D4D5—E6D5
10 C4D5—F6D5
11 D1D5—E7F6
12 B1D2—C6D4
13 D5B7—D4E2
14 G1H1—F6A1
15 F1A1—D8C8
16 B7C8—A8C8
17 A3B2—C5C4
18 B3C4—D7D5
19 C4D5—F8D8
20 E3E4—F7F6
21 F3D4—E2F4
22 H1G1—F4D3
23 B2A3—C8C3
24 D2B3—D8D7
25 A1D1—D3E5
26 F2F4—E5C4
27 A3B4—C3E3
28 D1C1—C4B2
29 C1C8—G8F7
30 D4F5—E3D3
31 C8C1—A7A5
32 B4C3—D3D1
33 C1D1—B2D1
34 C3D4—A5A4
35 B3C1—B6B5
36 C1D3—F7G8
37 E4E5—F6E5
38 F4E5—G8F8
39 F5D6—D7D8
40 D3B4—H7H6
41 B4C6—D8D7
42 E5E6—D7D6
43 D4C5—F8E8
1-0

**58. MEPHISTO · PRESTIGE**

01 E2E4—C7C6
02 D2D4—D7D5
03 E4D5—C6D5
04 C2C4—G8F6
05 B1C3—G7G6
06 C4D5—F6D5
07 F1B5—C8D7
08 B5D7—D8D7
09 C3D5—D7D5
10 D1F3—E7E6
11 C1D2—B8C6
12 F3D5—E6D5
13 G1F3—F8G7
14 D2E3—E8G8
15 E1G1—F7F5
16 G2G3—C6B4
17 F1C1—A8C8
18 C1C3—F8E8
19 C3C8—E8C8
20 A1D1—C8C2
21 A2A3—B4C6
22 B2B4—C2C3
23 B4B5—C6A5
24 D1C1—C3C1
25 E3C1—A5B3
26 C1B2—G7F6
27 F3E5—G8G7
28 A3A4—G7H6
29 B2C3—F6E7
30 A4A5—H6H5
31 E5D3—E7F6
32 D3F4—H5H6
33 F4E6—B7B6
34 A5A6—F6E7
35 G1H1—E7F6
36 H1G2—F6E7
37 F2F4—E7F6
38 H2H3—H6H5
39 G2F2—G6G5
40 F4G5—F6G5
41 H3H4—G5D2
42 C3D2—B3D2
43 E6F4—H5G4
44 F4D5—D2E4
45 F2E3—G4G3
46 D5B6—E4C3
47 B6C4—F5F4
48 E3D3—C3B5
49 H4H5—B5C7
50 C4E5—F4F3
51 E5C4—F3F2
52 C4E3—C7D5
53 E3F1—G3G2
54 F1D2—F2F1
0-1

**59. PRESTIGE · MEPHISTO**

01 B2B3—B8C6
02 E2E4—G8F6
03 B1C3—E7E5
04 G1F3—D7D5
05 E4D5—F6D5
06 C1B2—C8G4
07 H2H3—D5C3
08 B2C3—G4F3
09 D1F3—A7A6
10 F1C4—D8D7
11 E1G1—F8D6
12 F3E4—E8G8
13 C4D3—G7G6
14 D3C4—D6C5
15 A2A4—F8E8
16 A1E1—A8D8
17 A4A5—C5D4
18 E1A1—D4C3
19 D2C3—G8G7
20 B3B4—D7D6
21 H3H4—E8E7
22 A1E1—G7G8
23 E1E3—E7D7
24 E3D3—D6E7
25 C4D5—E7F6
26 F1E1—D7E7
27 D5C6—D8D3
28 C2D3—F6C6
29 E4C6—B7C6
30 G1H2—E7D7
31 E1E5—D7D3
32 E5E8—G8G7
33 E8A8—D3C3
34 A8A6—H7H6
35 A6A7—C3B3
36 H4H5—G6H5
37 A7C7—B3B4
38 C7C6—B4H4
39 H2G3—H4G4
40 G3F3—G4A4
41 A5A6—H5H4
42 C6D6—A4A2
43 D6B6—A2A4
44 B6C6—A4A2
45 C6D6—A2A4
46 D6B6—A4A2
47 F3E3—A2A3
48 E3D2—A3A2
49 D2C3—A2F2
50 A6A7—F2A2
51 B6B7—G7G6
52 C3B3—A2A5
53 B3B4—A5A1
54 B4B5—F7F5
55 B7B6—G6G5
56 B6A6—A1B1
57 B5C6—B1C1
58 C6D7—C1D1
59 D7E7—H4H3
60 A7A8 = Q
1-0

**60. MEPHISTO - PRESTIGE**

01 E2E4—E7E5
02 G1F3—G8F6
03 F3E5—D7D6
04 E5F3—F6E4
05 D1E2—D8E7
06 D2D3—E4F6
07 C1G5—C8E6
08 B1C3—H7H6
09 G5F6—E7F6
10 D3D4—F6E7
11 E1C1—D6D5
12 G2G3—B8C6
13 F1G2—E7D7
14 E2B5—E8C8
15 H1E1—F8E7
16 A2A3—C8B8
17 F3E5—C6E5
18 E1E5—C7C6
19 B5B3—E7D6
20 E5E2—D8E8
21 D1E1—E6G4
22 F2F3—E8E2
23 E1E2—G4F5
24 G3G4—F5E6
25 H2H3—H8E8
26 C1B1—F7F6
27 H3H4—F6F5
28 G4G5—H6G5
29 H4G5—D7D8
30 C3A4—D8G5
31 A4C5—D6C5
32 D4C5—F5F4
33 G2H3—G5G1
34 B1A2—G1G6
35 E2E6—E8E6
36 H3E6—G6E6
37 B3C3—E6E2
38 A2A1—E2E3
39 C3G7—E3C5
40 G7E5—B8C8
41 E5F5—C8C7
42 F5F4—C7B6
43 F4A4—C5E3
44 F3F4—E3E4
45 A4B4—B6C7
46 C2C3—E4B4
47 A3B4—C7D6
48 B4B5—C6B5
49 A1A2—D6E6
50 A2B3—A7A5
51 B3C2—E6F5
52 C2D3—B5B4
53 C3B4—A5B4
54 D3D4—F5E6
55 F4F5—E6D6
56 F5F6—D6E6
57 F6F7—E6F7
58 D4D5—F7F6
59 B2B3—F6F5
60 D5C4—F5E4
61 C4B4—E4D4
62 B4A5—D4C5

½-½

**61. PRESTIGE - MEPHISTO**

01 E2E4—E7E6
02 D2D4—D7D5
03 B1C3—F8B4
04 E4E5—C7C5
05 A2A3—B4C3
06 B2C3—G8E7
07 D1G4—E8G8
08 F1D3—C5D4
09 C3D4—D8C7
10 G1E2—B8C6
11 C1G5—C7A5
12 C2C3—E7G6
13 E1G1—C8D7
14 F2F4—A8E8
15 A3A4—C6E7
16 A1B1—E7F5
17 G4F3—H7H6
18 B1B7—D7C6
19 D3F5—C6B7
20 F5G6—F7G6
21 G5H4—G6G5
22 H4G3—G5F4
23 G3F4—A5A4
24 F3G4—B7A6
25 H2H3—A4C2
26 F1E1—F8F7
27 F4H6—A6E2
28 E1E2—C2C3
29 G1H2—A7A5
30 E2F2—C3C7
31 F2A2—F7E7
32 H6G5—C7C4
33 G5E7—E8E7
34 A2A5—C4C6
35 A5A2—E7F7
36 G4G6—G8F8
37 G6H7—C6C7
38 A2A8—F8E7
39 H7H8—C7D7
40 H8H4—F7F6
41 E5F6—E7F7

1-0

**62. MEPHISTO - PRESTIGE**

01 E2E4—C7C5
02 B1C3—B8C6
03 F2F4—G7G6
04 G1F3—F8G7
05 F1C4—E7E6
06 E1G1—G8E7
07 D2D3—D7D5
08 E4D5—E6D5
09 C4B3—C8G4
10 H2H3—G4F5
11 F1E1—E8G8
12 C1D2—D8B6
13 C3D5—E7D5
14 B3D5—G7B2
15 A1B1—C6D4
16 D2C3—B6D6
17 C3D4—B2D4
18 F3D4—D6D5
19 D4F5—D5F5
20 D1D2—F5D7
21 D2E3—B7B6
22 E3E5—D7A4
23 C2C4—A4A2
24 E5E3—A2C2
25 B1C1—C2B3
26 C1B1—B3C3
27 F4F5—F8D8
28 F5G6—F7G6
29 B1D1—G8H8
30 E3E5—C3E5
31 E1E5—A7A5
32 E5E6—A8A6
33 D1B1—A5A4
34 E6B6—A6A8
35 B6C6—A4A3
36 C6C5—A3A2
37 B1A1—D8D3
38 C5B5—D3A3
39 C4C5—A3A6
40 B5B6—A6A7
41 C5C6—H8G7
42 G1H1—H7H6
43 H1G1—G7F7
44 B6B2—F7E6
45 B2C2—E6D6
46 C6C7—A7C7
47 C2D2—D6E5
48 A1A2—A8A2
49 D2A2—½-½

**63. PRESTIGE - MEPHISTO**

01 E2E4—C7C5
02 G1F3—E7E6
03 D2D4—C5D4
04 F3D4—G8F6
05 B1C3—B8C6
06 D4B5—D7D6
07 F1C4—A7A6
08 B5A3—B7B5
09 C4B3—B5B4
10 B3A4—C8D7
11 D1D2—B4C3
12 D2C3—F6E4
13 C3C6—E4C5
14 C6F3—C5A4
15 E1G1—F8E7
16 A1B1—E8G8
17 B2B3—A4C5
18 B3B4—C5A4
19 C1F4—E6E5
20 F4D2—D7E6
21 C2C4—A4B6
22 F1C1—D8C7
23 B4B5—A6B5
24 A3B5—C7D7
25 B5A3—E7D8
26 C1C3—A8B8
27 C3B3—D7C8
28 D2E3—E5E4
29 F3F4—C8C6
30 B1D1—D8C7
31 E3B6—B8B6
32 B3B6—C7B6
33 F4D6—C6C5
34 D6C5—B6C5
35 A3B5—E6C4
36 A2A4—F8A8
37 D1C1—A8A4
38 B5C3—E4E3
39 C3A4—E3F2
40 G1H1—C5E3
41 C1B1—G7G6
42 A4C3—G8G7
43 G2G4—E3D4
44 H1G2—F2F1
45 B1F1—C4F1

0-1

**64. MEPHISTO - PRESTIGE**

01 D2D4—G8F6
02 C2C4—C7C5
03 D4C5—E7E6
04 E2E3—F8C5
05 G1F3—E8G8
06 F1D3—D7D5
07 E1G1—B8C6
08 B1C3—D5C4
09 D3C4—E6E5
10 F3G5—D8D1
11 F1D1—C8G4
12 F2F3—G4F5
13 C1D2—A8D8
14 G5E4—F6E4
15 C3E4—F5E4
16 F3E4—D8D2
17 D1D2—C5E3
18 D2F2—E3F2
19 G1F2—G8H8
20 A1F1—F7F5
21 F2G1—F5F4
22 B2B3—F8D8
23 C4D5—C6B4
24 D5B7—B4A2
25 F1A1—D8D7
26 B7C6—D7D2
27 C6B7—H8G8
28 B7D5—G8F8
29 D5E6—A2C3
30 E6F5—G7G6
31 F5G4—C3E4
32 A1A7—D2B2
33 H2H3—B2B1
34 G1H2—E4G3
35 A7A8—F8G7
36 G4D1—B1D1
37 A8A7—G7H6

0-1

**65. SCISYS MARK V - SC9**

01 E2E4—E7E5
02 G1F3—B8C6
03 F1C4—G8F6
04 F3G5—D7D5
05 E4D5—C6A5
06 C4B5—C7C6
07 D5C6—B7C6
08 B5E2—H7H6
09 G5F3—E5E4
10 F3E5—F8D6
11 F2F4—E4F3
12 E5F3—E8G8
13 E1G1—F8E8
14 D2D4—C8E6
15 B1C3—A8B8
16 G1H1—A5C4
17 B2B3—D8A5
18 D1D3—C4B6
19 C1D2—A5H5
20 F3E5—F6G4
21 D3G3—D6E5
22 D4E5—B8D8
23 E2G4—E6G4
24 D2F4—B6D5
25 C3E4—D5F4
26 G3F4—E8E6
27 E4G3—H5G6
28 H2H3—G4H5
29 F4H4—D8D2
30 H4H5—G6G3
31 H5F7—G8H8
32 F7F8—H8H7
33 F8F5—E6G6
34 F1G1—D2E2
35 A1F1—E2E5
36 F5D7—E5E2
37 F1F3—G3G5
38 D7D3—E2D2
39 D3F5—A7A6
40 F5G5—G6G5
41 F3C3—C6C5
42 G2G4—H6H5
43 A2A4—H5G4
44 G1G4—G5F5
45 G4G2—D2D4
46 C3G3—D4D7
47 H1H2—D7F7
48 C2C4—F5F6
49 G3G5—F6F3
50 G5C5—F3B3
51 C5H5—H7G8
52 C4C5—B3B4
53 G2A2—B4C4
54 H5D5—F7C7
55 D5D8—G8H7
56 D8A8—C7C6
57 A8A7—H7H6
58 A2G2—G7G6
59 A7A8—C4C5
60 A8E8—C5C4
61 G2G4—C4G4
62 H3G4—C6C4
63 H2G3—C4A4
64 E8E6—A6A5
65 E6D6—A4C4
66 D6D5—A5A4
67 G3H4—A4A3
68 D5A5—C4C3
69 G4G5—H6G7
70 H4G4—G7F8
71 A5A7—C3D3
72 G4F4—D3H3
73 F4E5—H3F3
74 E5E6—F8G8
75 A7A8—F3F8
76 A8A3—F8F7
77 A3D3—G8G7
78 D3D6—F7B7
79 E6E5—½-½

**66. SC9 - SCISYS MARK V**

01 E2E4—E7E5
02 G1F3—B8C6
03 F1B5—G8F6
04 E1G1—F6E4
05 D2D4—E4D6
06 B5C6—D7C6
07 D4E5—D6F5
08 D1D8—E8D8
09 C1D2—C8E6
10 B1C3—F8E7
11 D2G5—F7F6
12 F1D1—D8C8
13 E5F6—E7F6
14 G5F6—G7F6
15 C3E4—H8F8
16 F3D4—F5D4
17 D1D4—B7B6
18 F2F3—C8B7
19 G2G4—C6C5
20 D4D2—F6F5
21 E4G5—E6G8
22 D2D7—F5G4
23 F3G4—F8F4
24 H2H3—A8E8
25 G5H7—E8E2
26 H7G5—B7C6
27 D7G7—G8D5
28 G7G6—C6B7
29 C2C4—E2G2
30 G1H1—F4C4
31 G6F6—G2G4
32 G5F3—G4F4
33 F6F4—C4F4
34 A1F1—F4F3
35 F1F3—D5F3

0-1

**67. SCISYS MARK V - SC9**

01 E2E4—C7C5
02 B1C3—B8C6
03 D2D3—E7E5
04 C1E3—G8F6
05 D1D2—F8E7
06 G2G3—D7D6
07 F1G2—F6G4
08 F2F4—G4E3
09 D2E3—E8G8
10 G1F3—C6D4
11 E1C1—C8E6
12 F4F5—E6D7
13 C3D5—G8H8
14 H1E1—D7A4
15 B2B3—D4F3
16 E3F3—E7G5
17 C1B1—A4C6
18 H2H4—C6D5
19 E4D5—G5F6
20 F3G4—D8A5
21 G2E4—A5C3
22 E1E2—F8C8
23 D1E1—F6D8
24 F5F6—D8F6
25 G4F5—H8G8
26 F5H7—G8F8
27 G3G4—C5C4
28 G4G5—C4D3
29 G5F6—D3C2
30 E4C2—G7F6
31 E1F1—F8E7
32 C2G6—C8F8
33 E2F2—F6F5
34 F2F5—C3D3
35 B1A1—D3C3
36 A1B1—C3D3
37 B1B2—D3D2
38 B2A2—D2A5

½-½

**68. SC9 - SCISYS MARK V**

01 C2C4—E7E5
02 B1C3—B8C6
03 G1F3—G8F6
04 G2G3—F8B4
05 F1G2—E5E4
06 F3G5—B4C3
07 D2C3—D8E7
08 D1C2—C6A5
09 B2B3—D7D6
10 G5E4—E8G8
11 C1G5—C8F5
12 G5F6—G7F6
13 A1D1—A8E8
14 D1D5—F5E4
15 G2E4—E7E4
16 C2E4—E8E4
17 D5A5—A7A6
18 E2E3—C7C5
19 E1E2—F8E8
20 H1D1—E8E6
21 D1D5—G8G7
22 E2F3—E4E5
23 G3G4—G7G6
24 F3F4—H7H6
25 H2H3—H6H5
26 A2A3—H5G4
27 H3G4—E5E4
28 F4F3—E4E5
29 B3B4—C5B4
30 C3B4—F6F5
31 G4F5—G6F5
32 E3E4—F5G6
33 D5D6—E5E4
34 D6E6—E4E6
35 A5D5—F7F5
36 D5D7—B7B5
37 C4C5—G6G5
38 D7D6—E6D6
39 C5D6—G5F6
40 F3F4—F6E6
41 D6D7—E6D7
42 F4F5—D7C6
43 F5E5—C6B6
44 F2F3—B6C6
45 E5E6—C6B6
46 F3F4—B6C7
47 E6E7—A6A5
48 F4F5—C7B6

1-0

**69. SCISYS MARK V - SC9**

01 E2E4—E7E5
02 D2D4—E5D4
03 D1D4—B8C6
04 D4E3—G8F6
05 C1D2—B7B6
06 B1C3—F8C5
07 E3G3—E8G8
08 E1C1—F8E8
09 F1D3—C6B4
10 E4E5—F6D5
11 C3D5—B4D5
12 D3H7—G8H7
13 G3D3—H7G8
14 D3D5—A8B8
15 D2E3—C5E3
16 F2E3—D8G5
17 G1F3—G5G2
18 H1G1—G2F2
19 G1F1—F2E3
20 F3D2—E8E6
21 D1E1—E3C5
22 D5F3—C5E7
23 F3A3—E7A3
24 B2A3—C8B7
25 C1B2—B8E8
26 F1F5—E6H6
27 E1E2—F7F6
28 D2F3—H6H5
29 F3D4—H5F5
30 D4F5—E8E5
31 E2F2—D7D5
32 H2H4—G8F7
33 F5D4—C7C6
34 D4F5—B7A6
35 F2F4—B6B5
36 A3A4—B5B4
37 F5D4—C6C5
38 D4C6—E5E4
39 F4E4—D5E4
40 A2A3—B4A3
41 B2A3—E4E3
42 C2C4—E3E2

0-1

**70. SC9 - SCISYS MARK V**

01 D2D4—G8F6
02 C2C4—C7C5
03 D4D5—E7E6
04 B1C3—E6D5
05 C4D5—D7D6
06 E2E4—G7G6
07 G1F3—C8G4
08 F1B5—B8D7
09 E1G1—F8G7
10 C1F4—A7A6
11 B5E2—G4F3
12 E2F3—D8B6
13 C3A4—B6C7
14 F1E1—E8G8
15 A1C1—B7B5
16 A4C5—D7C5
17 B2B4—F6D7
18 B4C5—D7C5
19 D1C2—A8C8

20 F3G4—F7F5
21 E4F5—H7H5
22 G4H3—C8B8
23 C2C5—C7C5
24 C1C5—D6C5
25 F4B8—F8B8
26 F5G6—B8F8
27 E1E4—G7D4
28 H3E6—G8G7
29 E6F7—F8D8
30 G1F1—D8D6
31 F2F4—D6F6
32 G2G3—A6A5
33 E4E7—H5H4
34 F7E8—G7G8
35 F1G2—B5B4
36 E8F7—G8G7
37 E7A7—C5C4
38 A7A5—C4C3
39 A5A8—F6F5
40 D5D6—C3C2
41 D6D7—H4H3
42 G2H3—F5H5
43 H3G2—C2C1 = Q
44 A8G8—G7H6
45 G8H8—D4H8
46 D7D8 = Q C1B2
47 G2F3—B2C3
48 F3G2—C3C6
49 G2G1—C6C1
50 G1G2—C1C6
51 G2G1—C6C1
52 G1G2—½-½

### 71. SCISYS MARK V · SC9

01 D2D4—D7D5
02 C2C4—E7E6
03 G1F3—D5C4
04 D1A4—B8C6
05 E2E3—C8D7
06 A4C4—F8B4
07 B1C3—B4E7
08 H2H3—G8F6
09 E3E4—E8G8
10 C1F4—A8C8
11 A1C1—C6A5
12 C4D3—C7C5
13 D4C5—E7C5
14 E4E5—F6H5
15 F4G5—C5E7
16 G5E7—D8E7
17 D3E3—E7B4
18 G2G4—H5F4
19 E3D2—D7C6
20 A2A3—A5B3
21 A3B4—B3D2
22 E1D2—C6F3
23 H1G1—F4G6
24 C1E1—F8D8
25 F1D3—G6F4
26 E1E3—F3C6
27 G1C1—C6E4
28 C3E4—C8C1
29 D2C1—F4D3
30 C1C2—D3E5
31 F2F4—E5C6
32 C2C3—D8D5
33 E4G5—A7A6
34 G5F3—G8F8
35 F3E5—C6E5
36 E3E5—F8E7
37 H3H4—E7D6
38 E5H5—D5H5
39 G4H5—E6E5
40 F4E5—D6D5
41 B4B5—D5E5
42 B5A6—B7A6
43 B2B4—F7F5
44 C3C4—E5F4
45 C4D3—F4G4
46 D3E3—H7H6
47 E3D4—F5F4
48 D4E4—F4F3
49 E4D3—G4G3
50 D3E3—F3F2
0-1

### 72. SC9 · SCISYS MARK V

01 G1F3—D7D5
02 C2C4—G8F6
03 C4D5—F6D5
04 E2E4—D5F6
05 D1A5—B8C6
06 F1B5—C8D7
07 E4E5—F6D5
08 E1G1—A7A6
09 A4E4—E7E6
10 B5A4—F8E7
11 D2D4—E8G8
12 A4B3—C6B4
13 A2A3—D7B5
14 A3B4—B5F1
15 G1F1—E7B4
16 C1D2—D8D7
17 B3C2—F7F5
18 E5F6—D5F6
19 E4B7—F8B8
20 B7B4—B8B4
21 D2B4—D7B5
22 F1G1—B5B4
23 B2B3—C7C5
24 A1A4—B4B6
25 B1D2—C5D4
26 A4D4—A8F8
27 D2C4—B6C5
28 G1F1—G7G5
29 H2H3—A6A5
30 D4D6—G5G4
31 H3G4—F6G4
32 D6D2—A5A4
33 F1E1—C5B4
34 F3G5—F8F2
35 C2H7—G8G7
36 H7E4—A4B3
37 E4D3—B3B2
38 G5E6—G7F6
39 D3B1—F6E6
40 G2G3—B4C4
41 D2F2—C4C1
42 E1E2—C1E3
43 E2D1—E3F2
44 B1A2—E6E5
45 A2B1—G4E3
0-1

### 73. SCISYS MARK V · SC9

01 D2D4—G8F6
02 C2C4—E7E6
03 B1C3—F8B4
04 F2F3—D7D5
05 A2A3—B4C3
06 B2C3—E8G8
07 E2E3—B8C6
08 F1D3—D5C4
09 D3C4—F6D5
10 G1E2—D8H4
11 G2G3—H4F6
12 E1G1—F6H6
13 E3E4—D5C3
14 E2C3—H6F6
15 C3B5—F8D8
16 B5C7—D8D4
17 C4D3—D4D7
18 E4E5—F6E5
19 C1F4—E5D4
20 G1G2—A8B8
21 C7E6—D4D3
22 F4B8—D3D1
23 F1D1—C6B8
24 A1C1—B8C6
25 D1D7—C8D7
26 E6C5—D7C8
27 C5E4—C8D7
28 C1D1—D7E6
29 D1D6—G8F8
30 E4C5—E6C8
31 D6D5—F8E7
32 G3G4—B7B6
33 C5D3—C8B7
34 G2G3—E7E8
35 D3E5—C6A5
36 D5D6—F7F6
37 D6E6—E8D8
38 E5F7—D8D7
39 E6E3—A5C6
40 E3D3—D7E7
41 F7D6—C6E5
42 D6F5—E7F7
43 D3C3—F7F8
44 F5G7—B7F3
45 G7H5—F3G4
46 H5F6—H7H5
47 C3C7—A7A5
48 F6G4—H5G4
49 C7B7—E5C4
50 G3G4—C4A3
51 B7B6—A3C4
52 B6B5—A5A4
53 B5B8—F8F7
54 B8B4—C4E5
55 G4F5—E5G6
56 B4A4—1-0

### 74. SC9 · SCISYS MARK V

01 D2D4—G8F6
02 C2C4—E7E5
03 D4E5—F6G4
04 C1F4—F8B4
05 B1D2—D7D6
06 E5D6—D8F6
07 G1H3—B4D6
08 F4D6—F6D6
09 D1A4—B8C6
10 D2F3—E8G8
11 A1D1—D6F6
12 A4B3—G4E5
13 F3E5—C6E5
14 E2E4—C8G4
15 D1D5—C7C6
16 D5D2—G4E6
17 F2F4—E6H3
18 F4E5—F6H4
19 E1D1—H3G4
20 D1C2—H4E7
21 B3G3—G4E6
22 D2D6—F8D8
23 F1E2—C6C5
24 H1D1—B7B5
25 G3A3—E6C4
26 A3A7—E7G5
27 D6D8—A8D8
28 D1D8—G5D8
29 E2C4—B5C4
30 A7A3—H7H6
31 A3E3—D8H4
32 H2H3—H4H5
33 E3C5—H5E2
34 C2C3—E2G2
35 C5C8—G8H7
36 C8F5—H7G8
37 A2A4—G8F8
38 E5E6—F7F6
39 E5C5—F8G8
40 C5C8—G8H7
41 E6E7—G2E4
42 E7E8 = Q—E4D3
43 C3B4—D3D2
44 B4B5—D2B2
45 B5A6—B2E5
At this point SC9 announced mate in 7.
46 E8G8—H7G6
47 C8G4—E5G5
48 G4E4—G6H5
49 G8F7—G7G6
50 E4F3—H5H4
51 F7C4—G5G4
52 C4G4—1-0

### 75. PRESTIGE · SC9

01 E2E4—C7C5
02 G1F3—D7D6
03 D2D4—C5D4
04 F3D4—G8F6
05 B1C3—A7A6
06 C1G5—E7E6
07 F2F4—F8E7
08 D1F3—D8C7
09 E1C1—B8D7
10 G2G4—B7B5
11 G5F6—D7F6
12 G4G5—F6D7
13 A2A3—E8G8
14 C1B1—C8B7
15 H1G1—F8C8
16 F1E2—D7C5
17 F3E3—C7B6
18 E2G4—G8F8
19 F4F5—B6D8
20 F5E6—E7G5
21 E3E2—C8C7
22 E6F7—F8F7
23 D4F5—G5E7
24 E4E5—D6D5
25 G4F3—G7G6
26 F5E7—F7E7
27 C3D5—B7D5
28 D1D5—D8F8
29 D5D6—A8C8
30 F3G4—C8A8
31 E2G2—F8G8
32 D6C6—A8A7
33 C6B6—C5D7
34 G4D7—E7D7
35 G2G4—D7E7
36 G4H4—E7D7
37 G1D1—D7C8
38 H4G4—C7D7
39 B6C6—C8B8
40 D1D7—1-0

### 76. SC9 · PRESTIGE

01 G1F3—F7F5
02 D2D4—E7E6
03 C1D2—F8E7
04 E2E3—G8H6
05 F1B5—E8G8
06 E1G1—B8C6
07 B1C3—D7D5
08 B5C6—B7C6
09 F3E5—C8D7
10 C3A4—A8B8
11 C2C4—E7D6
12 E5D7—D8D7
13 C4C5—D6E7
14 A1C1—E7F6
15 F1E1—E6E5
16 D2A5—H6G4
17 H2H3—G4H6
18 D1D3—H6F7
19 C1D1—B8B5
20 A5C3—E5E4
21 D3E2—D7E6
22 B2B3—F6G5
23 C3B2—F5F4
24 A4C3—B4B8
25 E3F4—G5F4
26 E2A6—B8A8
27 C3B5—E6E8
28 B5A3—F7G5
29 A3C2—E8G6
30 G1H1—G6E6
31 C2B4—G5H3
32 E1F1—E6H6
33 F2F3—F4E3
34 H1H2—H3F2
35 H2G3—H6F4
0-1

### 77. PRESTIGE · SC9

01 C2C4—C7C5
02 G1F3—G8F6
03 D2D4—C5D4
04 F3D4—E7E6
05 B1C3—B8C6
06 G2G3—D8B6
07 D4B3—F8B4
08 F1G2—B6A6
09 B3D2—B4C3
10 B2C3—E8G8
11 E1G1—D7D5
12 D1B3—C6A5
13 B3A3—D5C4
14 A1B1—F6D5
15 D2E4—B7B6
16 E4G5—C8B7
17 E2E4—D5F6
18 E4E5—B7G2
19 G1G2—F6D5
20 C1D2—A8D8
21 F2F3—D5B4
22 D2E3—B4C2
23 A3C1—C2E3
24 C1E3—H7H6
25 G5H3—A5C6
26 B1B2—D8D5
27 F3F4—A6A3
28 B2D2—C6B4
29 F4F5—F8D8
30 D2E2—D5D3
31 E3F2—D3C3
32 F5E6—F7E6
33 H3G5—B4D3
34 F2F7—G8H8
35 G5E6—D8G8
36 E6F8—D3C1
37 F1F6—G8F8
38 F7F8—H8H7
39 E2D2—C1A2
40 F6D6—A3D6
41 E5D6—A2B4
42 F8F5—H7H8
43 D6D7—1-0

### 78. SC9 · PRESTIGE

01 D2D4—D7D5
02 C2C4—E7E6
03 B1C3—G8F6
04 C1G5—F8E7
05 E2E3—E8G8
06 G1F3—B8D7
07 A2C1—C7C6
08 F1D3—D5C4
09 D3C4—F6D5
10 G5E7—D8E7
11 E1G1—D5C3
12 C1C3—E6E5
13 D1C2—E5E4
14 F3D2—D7F6
15 C3A3—C8D7
16 A3A5—B7B5
17 C4E2—A7A6
18 A5A3—A6A5
19 D2B3—A5A4
20 B3C5—D7F5
21 F1C1—F8D8
22 C2D1—F6D5
23 B2B3—A4B3
24 A3A8—D8A8
25 A2B3—A8A2
26 C1A1—A2A1
27 D1A1—E7D8
28 A1A6—D5C3
29 E2H5—D8E8
30 C5B7—F5C8
31 A6A8—E8F8
32 B7D6—C8E6
33 A8C6—B5B4
34 G1F1—E6B3
35 H5G4—B3D5
36 C6A6—B4B3
37 A6B6—C3A4
38 B6B4—B3B2
39 G4F5—D5C4
40 B4C4—B2B1
41 F1E2—A4B2
42 C4B3—F8D6
43 F5E4—B1E4
0-1

### 79. PRESTIGE · SC9

01 B2B4—E7E6
02 C1B2—G8F6
03 B4B5—F8B4
04 E2E4—E8G8
05 E4E5—F6D5
06 G1F3—A7A6
07 A2A4—D5F4
08 G2G3—F4G6
09 B2A3—B4A3
10 B1A3—D7D6
11 E5D6—C7D6
12 F1G2—E6E5
13 E1G1—C8E6
14 D1E2—B8D7
15 A3C4—E6C4
16 E2C4—A8C8
17 C4D3—D7F6
18 F3G5—D6D5
19 B5A6—B7A6
20 F1B1—F6G4
21 H2H4—H7H6
22 G5F7—F8F7
23 G2D5—G6E7
24 D5F7—G8F7
25 D3E2—H6H5
26 C2C3—D8D5
27 B1B6—C8D8
28 A1D1—A6A5
29 B6B5—D5D3
30 E2D3—D8D3
31 B5A5—D3F3
32 D1F1—F3D3
33 F2F3—G4H6
34 A5E5—H6F5
35 A4A5—F5G3
36 F1F2—E7F5
37 G1G2—F7F6
38 E5B5—F6E6
39 A5A6—D3D6
40 A6A7—D6A6
41 B5B6—A6B6
1-0

### 80. SC9 · PRESTIGE

01 D2D4—G8F6
02 C2C4—G7G6
03 B1C3—D7D5
04 G1F3—F8G7
05 D1B3—D5C4
06 B3C4—E8G8
07 E2E4—C8G4
08 C1E3—F6D7
09 C4B3—D7B6
10 A1D1—B8C6
11 D4D5—C6E5
12 F1E2—E5F3
13 E2F3—G4F3
14 G2F3—D8D7
15 H2H4—D7D6
16 C3B5—D6F6
17 F3F4—F6B2
18 B3B2—G7B2
19 B5C7—A8C8
20 C7B5—C8C4
21 F2F3—C4A4
22 B5A7—B2C3
23 E1E2—A4A2
24 E2D3—B6A4
25 D1C1—C3G7
26 H4H5—A4B2
27 D3C2—B2C4
28 C2B3—A2A3
29 B3C4—A3E3
30 C1F1—E3A3
31 A7B5—A3A8
32 C4B4—G6H5
33 H1H5—F8C8
34 H5H2—H7H6
35 F1G1—G8H7
36 H2G2—G7F8
37 E4E5—A8A6
38 B5D4—C8D8
39 B4C5—A6A4
40 G2D2—B7B6
41 C5C6—A4C4
42 C6B5—C4C5
43 B5B6—C5D5
44 G1D1—E7E6
45 D4E6—D5D2
46 E6D8—D2D1
47 D8F7—D1D3
48 F4F5—H7G8
49 E5E6—D3F3
50 B6C6—H6H5
51 F5F6—H5H4
52 C6D7—F3F6
0-1

### 81. PRESTIGE · SC9

01 D2D4—G8F6
02 G1F3—G7G6
03 G2G3—F8G7
04 F1G2—E8G8
05 E1G1—D7D6
06 B2B3—E7E5
07 D4E5—F6D7
08 C1B2—B8C6
09 E2E4—D6E5
10 B1C3—B7B6
11 C3D5—F8E8
12 D1D2—D7C5
13 F1E1—C8G4

14 C2C4—G4F3
15 G2F3—C6D4
16 B2D4—E5D4
17 B3B4—C5D7
18 F3G2—C7C6
19 D5F4—A7A5
20 A2A3—A5B4
21 A3B4—D7E5
22 C4C5—A8A1
23 F1A1—B6C5
24 B4C5—E5D7
25 F4D3—D8C7
26 F2F4—C7B7
27 E4E5—E8A8
28 D2B2—B7B2
29 A1A8—B2B8
30 G2C6—G6G5
31 A8B8—D7B8
32 C6B5—G5F4
33 G3F4—F7F6
34 C5C6—B8C6
35 B5C6—F6E5
36 F4E5—G8F7
37 C6D5—F7E7
38 D5C4—G7H6
39 G1G2—H6E3
40 G2F3—E3G1
41 H2H3—G1E3
42 F3E4—H7H6
43 D3B4—E7D7
44 E4D5—D7E8
45 B4C6—E8F7
46 E5E6—F7E8
47 C6D4—E3F4
1-0

**82. SC9 - PRESTIGE**

01 E2E4—E7E6
02 D2D4—D7D5
03 B1C3—F8B4
04 E4E5—C7C5
05 A2A3—B4C3
06 B2C3—G8E7
07 A3A4—B8C6
08 G1F3—D8A5
09 C1D2—C8D7
10 F1E2—C5C4
11 F3G5—C6D8
12 D1C1—H7H6
13 G5F3—D7A4
14 C1A3—B7B5
15 E1G1—D8C6
16 A3D6—E8G8
17 F1B1—A7A6
18 B1C1—A5B6
19 A1B1—E7F5
20 D6A3—B6A7
21 G1H1—A6A5
22 C1G1—A7C7
23 G2G4—F5E7
24 A3C1—C7B7
25 G4G5—H6G5
26 F3G5—E7F5
27 E2H5—C6E7
28 C1D1—F5H4
29 D2C1—B7C7
30 H5F7—F8F7
31 D1H5—G7G6
32 H5H4—A4C2
33 B1B5—C7C6
34 B5B2—C2D3
35 G5F7—D3E4
36 G1G2—E4G2
37 H1G2—G8F7
38 H4F6—F7E8
39 C1G5—E7F5
40 F6G6—E8F8
41 G6H7—F5G7
42 G5F6—G7F5
43 B2B7—C6B7
1-0

**83. PRESTIGE - SC9**

01 F2F4—D7D5
02 G1F3—G8F6
03 E2E3—G7G6
04 F1E2—F8G7
05 E1G1—E8G8
06 D2D3—C7C5
07 D1E1—B8C6
08 E1H4—B7B6
09 B1D2—C8A6
10 F3E5—C6E5
11 F4E5—F6D7
12 E3E4—D5E4
13 D2E4—G7E5
14 C1H6—E7E6
15 E4G5—E5D4
16 G1H1—F8E8
17 H6G7—H7H5
18 G7D4—C5D4
19 F1F7—D7E5
20 H4F4—E5C6
21 F7F6—G8G7
22 A1F1—A6D3
23 E2D3—D8E7
24 F6G6—G7H8
25 G5F7—E7F7
26 G6H6—F7H7
27 F4F6—H8G8
28 D3H7—1-0

**84. SC9 - PRESTIGE**

01 C2C4—G8F6
02 B1C3—E7E6
03 E2E4—D7D5
04 C4D5—E6D5
05 E4D5—F6D5
06 F1B5—C7C6
07 B5C4—D5F4
08 D1F3—F8D6
09 D2D4—C8E6
10 B2B3—F4G6
11 C4E6—F7E6
12 G1H3—H8F8
13 F3E4—E6E5
14 E1G1—D6B4
15 C3E2—D8D5
16 E4G4—D5D7
17 G4H5—E5D4
18 H5H7—F8F6
19 C1G5—F6E6
20 F1D1—C6C5
21 H3F4—G6F8
22 H7G8—E6E5
23 F4G6—D7F5
24 E2F4—E5E4
25 F4D5—F5G6
26 D5C7—E8D7
27 C7A8—G6G5
28 G8F8—B8C6
29 F8F3—E4E8
30 F3F7—G5E7
31 F7F5—D7D6
32 F5G6—D6D7
33 G6G4—D7D6
34 A2A3—B4A3
35 G4F4—C6E5
36 A1A3—E8A8
37 F4E4—E5C6
38 E4E7—D6E7
39 F2F4—A8F8
40 G2G3—F8D8
41 H2H4—A7A5
42 F4F5—E7F6
43 D1F1—D4D3
44 A3A2—C6D4
45 A2A5—D3D2
46 G1F2—D4B3
47 A5B5—C5C4
48 F1D1—D8D7
49 B5B4—C4C3
50 B4C4—D7D3
51 C4C8—B3D4
52 C8F8—F6E5
53 F8E8—E5F5
54 E8F8—F5G6
55 F8C8—C3C2
56 C8C2—D4C2
57 F2E2—D3G3
58 E2D2—C2A3
0-1

**85. PRESTIGE - SCISYS MARK V**

01 E2E4—E7E5
02 G1F3—B8C6
03 F1B5—G8F6
04 E1G1—F6E4
05 D2D4—E4D6
06 B5C6—D7C6
07 D4E5—D6F5
08 D1D8—E8D8
09 B1C3—F8E7
10 F1D1—D8E8
11 C1F4—C8E6
12 F3G5—E7G5
13 F4G5—H7H6
14 G5C1—A8D8
15 D1D8—E8D8
16 C1F4—G7G5
17 F4D2—H8E8
18 A1D1—E6D7
19 F2F4—F5D4
20 F4G5—D4C2
21 G5H6—E8E5
22 H6H7—E5H5
23 D2G5—D8C8
24 C3E4—H5H7
25 D1D7—C8D7
26 E4F6—D7D6
27 G5F4—D6C5
28 F6H7—C2B4
29 H7G5—B4A2
30 G5F7—C5B6
31 G2G4—A2B4
32 H2H4—B4D5
33 F4E5—C6C5
34 H4H5—D5E3
35 H5H6—E3G4
36 H6H7—G4E5
1-0

**86. SCISYS MARK V - PRESTIGE**

01 E2E4—E7E6
02 D2D4—D7D5
03 E4D5—E6D5
04 F1D3—F8D6
05 B1C3—G8F6
06 C1G5—C8E6
07 G1E2—E8G8
08 D1D2—H7H6
09 G5H4—B8C6
10 E1C1—D6E7
11 F2F3—C6B4
12 A2A3—B4D3
13 D2D3—D8D7
14 H4F6—E7F6
15 E2F4—F6G5
16 D3E3—A8E8
17 G2G3—E6F5
18 E3D2—C7C6
19 H2H4—G5F6
20 G3G4—F5H7
21 H1H2—D7D8
22 D2F2—D8B6
23 H2G2—F6E7
24 G4G5—E7D6
25 F4D3—H6G5
26 H4G5—H7F5
27 C3A4—B6B5
28 A4C3—B5A5
29 D3C5—D6F4
30 C1B1—F5H3
31 C5B7—A5B6
32 B7C5—F4E3
33 F2G3—H3G2
34 C5D7—G2F3
35 D7B6—F3D1
36 C3D1—E3F4
37 G3F4—E8E4
38 F4C7—E4D4
39 D1E3—A7B6
40 C7C6—D4E4
41 E3D5—E4E5
42 C2C4—F8B8
43 G5G6—F7G6
44 C6G6—B8B7
45 D5B6—B7E7
46 B2B4—E5E1
47 B1C2—E7E2
48 C2D3—E2E3
49 D3D2—E1E2
50 D2D1—E2E1
51 D1D2—E1E2
52 D2D1—E2E1
53 D1C2—E3E2
54 C2B3—E2E3
55 B3A4—E1A1
56 A4B5—E3A3
57 B5C5—A3E3
58 B6D5—E3E5
59 B4B5—A1C1
60 B5B6—C1F1
61 G6G3—E5E8
62 B6B7—F1F8
63 D5E7—E8E7
64 B7B8—F8B8
65 G3B8—G8F7
66 C5D5—E7D7
67 D5E5—D7E7
68 E5F5—E7E8
69 B8D6—E8E1
70 D6G6—F7F8
71 G6D6—F8F7
72 D6G6—F7F8
73 G6H5—E1E3
74 C4C5—E3C3
75 F5E6—F8G8
76 H5F5—C3C1
77 E6E7—C1E1
78 E7D8—E1D1
79 D8E7—D1E1
80 E7D8—E1D1
81 D8E7—D1E1
½-½

**87. PRESTIGE - SCISYS MARK V**

01 D2D4—G8F6
02 C2C4—E7E5
03 D4E5—F6G4
04 C1F4—F8B4
05 B1D2—D7D6
06 A2A3—D6E5
07 F4G3—B4D2
08 D1D2—B8C6
09 D2D8—E8D8
10 G1F3—E5E4
11 F3G5—C8E6
12 E2E3—G4E5
13 E1C1—D8C8
14 B2B4—E6C4
15 B4B5—C4F1
16 H1F1—E5D3
17 D1D3—E4D3
18 B5C6—A8B8
19 G5F7—H8F8
20 F7E5—B7C6
21 F1D1—B8B5
22 D1D3—B5C5
23 C1D1—F8E8
24 F2F4—G7G5
25 D1D2—C8B7
26 D3B3—B7A6
27 A3A4—C5D5
28 D2C3—D5A5
29 B3B4—G5F4
30 E3F4—A5C5
31 C3B3—C5C1
32 F4F5—C1B1
33 B3A3—B1B4
34 A3B4—E8B8
35 B4C4—B8F8
36 E5D7—F8F7
37 D7C5—A6B6
38 F5F6—A7A6
39 G3E5—H7H5
40 C5E6—H5H4
41 E5C7—B6A7
42 C7E5—A7B6
43 C4B4—A6A5
44 B4C4—F7H7
45 E6G5—H7H8
46 F6F7—H8F8
47 E5D4—B6A6
48 D4C5—F8C8
1-0

**88. SCISYS MARK V - PRESTIGE**

01 D2D4—D7D5
02 C2C4—D5C4
03 E2E4—E7E5
04 G1F3—F8B4
05 C1D2—B4D2
06 B1D2—E5D4
07 F1C4—G8H6
08 E1G1—C7C5
09 E4E5—C8F5
10 D1B3—D8D7
11 C4B5—B8C6
12 A1C1—A7A6
13 B5C6—B7C6
14 C1C5—A6A5
15 D2C4—F5E6
16 B3A3—E6C4
17 C5C4—H6F5
18 G2G4—D7E6
19 A3A4—F5H6
20 C4D4—A8B8
21 F1C1—B8B5
22 F3G5—E6G6
23 G5F3—G6E6
24 F3G5—E6G6
25 G5F3—G6E6
½-½

**89. PRESTIGE - SCISYS MARK V**

01 B2B3—D7D5
02 C1B2—G8F6
03 E2E3—C8G4
04 F1E2—D8D7
05 G1F3—B8C6
06 E1G1—E8C8
07 F3G5—G4E2
08 D1E2—E7E5
09 F2F4—F8D6
10 F4E5—C6E5
11 B2E5—D6E5
12 D2D4—E5D6
13 B1C3—D6B4
14 E2D3—D8E8
15 C3B5—A7A6
16 A2A3—H7H6
17 A3B4—H6G5
18 B5A3—F6G4
19 H2H3—G4E3
20 F1F3—E3G2
21 G1G2—H8H4
22 D3F5—D7F5
23 F3F5—H4D4
24 F5F7—G5G4
25 H3H4—D4B4
26 F7G7—E8E2
27 G2G1—C7C5
28 H4H5—B7B5
29 A1F1—C8D8
30 H5H6—E2E3
31 F1F8—E3E8
32 F8E8—D8E8
33 H6H7—B4F4
34 H7H8—F4F8
35 H8H5—F8F7
36 H5F7—E8D8
37 G7G8—1-0

**90. SCISYS MARK V - PRESTIGE**

01 E2E4—C7C6
02 D2D4—D7D5
03 E4E5—C8F5
04 G1E2—E7E6
05 E2G3—F5G6
06 B1D2—F8E7
07 F1D3—C6C5
08 D3G6—H7G6
09 D2B3—C5C4
10 B3D2—B8C6
11 D2F3—G6G5
12 E1G1—G5G4
13 F3E1—D8B6
14 D1G4—B6D4
15 G4G7—C6E5
16 C1H6—D4B2
17 A1B1—B2B1
18 G7H8—E8C8
19 H8E5—G8H6
20 E5E3—H6G4
21 E3A7—B1B4
22 H2H3—E7C5
23 C2C3—C5A7
24 C3B4—G4F2
25 F1F2—A7F2
26 G1F2—D5D4
27 E1F3—D4D3
28 G3E4—F7F5
29 E4C3—C8B8
30 F2E3—D8G8
31 E3D4—G8G2
32 D4C4—G2G3
33 F3E5—D3D2
34 E5D3—B7B5
35 C4D4—E6E5
36 D4E5—G3D3
37 C3D1—D3F3
38 H3H4—F3F1
39 D1B2—F1B1
0-1

**91. PRESTIGE - SCISYS MARK V**

01 E2E4—C7C5
02 G1F3—B8C6
03 D2D4—C5D4
04 F3D4—G8F6
05 B1C3—E7E5
06 D4B5—D7D6
07 C3D5—F6D5
08 E4D5—C6B8
09 F1D3—F8E7
10 E1G1—E8G8
11 C1E3—A7A6
12 B5C3—B8D7
13 D1F3—B7B5
14 A2A4—B5A4
15 A1A4—D7F6
16 F1A1—A6A5
17 D3B5—H7H6
18 B5C6—A8A6
19 F3E2—D8C7
20 C3B5—C7D8
21 B5A7—D8C7
22 A7C8—C7C8
23 E2B5—F6E8
24 C6B7—C8C2
25 B5A6—C2B2
1-0

**92. SCISYS MARK V - PRESTIGE**

01 E2E4—E7E5
02 G1F3—B8C6
03 C2C3—D7D5
04 D1A4—G8F6
05 F3E5—F8D6
06 E5C6—B7C6
07 D2D3—E8G8
08 A4C6—C8D7
09 C6B7—D5E4
10 B1D2—E4D3
11 F1D3—D8E8
12 E1F1—D7C6
13 B7A6—E8D7
14 D2F3—C6F3
15 G2F3—D7H3
16 F1G1—H3F3
17 C1E3—F6G4
18 D3E2—F3H3
19 E2G4—H3G4
20 G1F1—F8B8
21 B2B4—G4F3
22 F1G1—F3F6
23 G1G2—F6C3
24 A2A3—C3E5
25 E3A7—E5D5
26 G2G1—B8B7
27 A6E2—B7A7
0-1

**93. PRESTIGE - SCISYS MARK V**

01 D2D4—G8F6
02 C2C4—C7C5
03 D4D5—E7E6
04 B1C3—E6D5
05 C4D5—D7D6
06 E2E4—G7G6
07 G1F3—C8G4
08 F1C4—F8G7
09 E1G1—E8G8
10 H2H3—G4F3
11 D1F3—B8D7
12 C1F4—D8B6
13 C3B5—A7A6
14 B5D6—F6E8
15 D6E8—A8E8
16 A1B1—D7E5

17 F4E5—G7E5
18 F1D1—B6B4
19 F3B3—B7B5
20 B3B4—C5B4
21 C4F1—F7F5
22 E4F5—F8F5
23 D5D6—E8D8
24 D6D7—F5F2
25 D1D5—F7E7
26 F2F4—E5F4
27 B1D1—F4E5
28 B2B3—E5B8
29 D1D2—B8F4
30 D2D3—F4E3
31 G1H2—E3F4
32 G2G3—F4C7
33 H2H1—E7E1
34 D3D1—E1D1
35 D5D1—C7G3
36 H1G2—G3C7
37 F1E2—G8G7
38 E2G4—D8F8
39 D1D4—A6A5
40 G4E2—C7B6
41 D4D2—F8F2
42 G2G3—F2F8
43 E2B5—G7H6
44 B5C6—B6C7
45 G3G2—G6G5
46 C6F3—H6G6
47 F3D5—H7H5
48 D2C2—C7D8
49 D5E4—G6H6
50 C2C6—F8F6
51 C6C8—F6F8
52 E4F3—H6G6
½-½

**94. SCISYS MARK V - PRESTIGE**

01 E2E4—C7C5
02 B1C3—B8C6
03 D2D3—G8F6
04 C1E3—E7E6
05 D1D2—D7D5
06 E3G5—D5D4
07 C3E2—F8D6
08 G2G3—E8G8
09 F1G2—H7H6
10 G5F6—D8F6
11 F2F4—E6E5
12 F4F5—D6C7
13 G1F3—C7A5
14 C2C3—C8D7
15 E1G1—D4C3
16 E2C3—C6D4
17 F3H4—A8C8
18 H4F3—C8D8
19 A1E1—C5C4
20 D3C4—D7B5
21 C3D5—D4F3
22 G2F3—A5D2
23 D5F6—G7F6
24 C4B5—D2E1
25 F1E1—D8D2
26 E1E2—D2E2
27 F3E2—F8D8
28 G1G2—D8D2
29 G2F3—D2B2
30 A2A4—B2B3
31 F3F2—B3B4
32 E2D3—B4A4
33 F2F3—G8F8
34 G3G4—A4A1
35 D3C4—A1C1
36 C4D5—B7B6
37 H2H4—C1C5
38 D5B7—C5B5
0-1

**95. PHILIDOR - PRESTIGE**

01 E2E4—C7C6
02 D2D4—D7D5
03 E4E5—C8F5
04 F1D3—E7E6
05 D3F5—E6F5
06 G1F3—B8A6
07 E1G1—F8E7
08 B1C3—G7G5
09 C1E3—F5F4
10 E3D2—G8H6
11 A2A3—H8G8
12 B2B4—H6F5
13 C3E2—G5G4
14 F3E1—F4F3
15 G2F3—G4F3
16 E2G3—F5D4
17 E1F3—D4F5
18 F1E1—D8B6
19 D2F4—G8G4
20 D1D2—A6C7
21 A1D1—C7E6
22 F4E3—D5D4
23 E3H6—B6B5
24 H2H3—G4G6
25 H6F4—B5D5
26 F3H2—F5H4
27 F2F3—H4F3
28 H2F3—D5F3
29 E1F1—F3A3
30 G1H2—E7B4
31 D2F2—B4C3
32 F4H6—E8C8
33 H6C1—A3C5
34 F2F7—C5E5
35 F1G1—D8F8
36 C1F4—E5F4
37 F7H7—G6H6
38 H7H6—F4H6
0-1

**96. PRESTIGE - PHILIDOR**

01 F2F4—D7D5
02 G1F3—G8F6
03 G2G3—B8C6
04 F1G2—C8F5
05 E1G1—E7E6
06 B1C3—F8E7
07 D2D4—E8G8
08 F3H4—F5G4
09 C1E3—D8D7
10 H4F3—A7A5
11 F3E5—C6E5
12 F4E5—F6E8
13 D1D2—H7H6
14 E3F2—E7G5
15 D2D3—G4F5
16 E2E4—F5G6
17 F2E3—G5E3
18 D3E3—D5E4
19 C3E4—A8D8
20 C2C3—C6E4
21 E3E4—C7C6
22 F1F2—F7F5
23 E4C2—B7B5
24 A2A4—D7B7
25 C2B3—E8C7
26 A4B5—B7B5
27 B3B5—C6B5
28 A1A5—F8F7
29 G2C6—D8B8
30 A5A2—B8D8
31 G1G2—G7G5
32 A2A5—D8B8
33 A5A1—B8B6
34 C6F3—G5G4
35 F3E2—F7D7
36 A1A7—B5B4
37 D4D5—E6D5
38 F2F5—B4C3
39 B2C3—B6G6
40 F5F4—H6H5
41 E2D3—G6B6
42 D3C2—D7E7
43 F4F5—B6B2
44 F5F2—B2B6
45 F2E2—B6E6
46 C2D3—E6C6
47 E2E3—G8F8
48 D3F1—C6E6
49 A7B7—F8G7
50 F1D3—E6C6
51 D3B1—C6H6
52 B7B2—H6E6
53 B2E2—C7B5
54 B1A2—B5C7
55 E2E1—G7H6
56 A2B1—E6C6
57 H2H3—G4H3
58 G2H3—C7B5
59 B1D3—B5C3
60 D3F5—H6G5
61 E3F3—C6H6
62 E5E6—C3E4
63 E1D1—H5H4
64 D1D5—H4G3
65 H3G2—H6H2
66 G2G1—E4F6
67 D5B5—F6H5
68 F3G3—H5G3
69 F5H3—G5F4
70 G1H2—E7H7
71 B5B4—G3E4
72 B4D4—F4E3
73 D4D7—H7H8
74 E6E7—H8E8
75 H2G1—E8G8
76 H3G2—E4F6
77 D7D8—G8E8
78 D8E8—F6E8
79 G2C6—E8D6
80 G1H2—E3F2
81 H2H3—F2E3
82 H3G4—E3D4
83 G4F4—D4C4
84 F4E5—C4C5
85 C6D7—D6C4
86 E5E6—C4B6
1-0

**97.PHILIDOR - PRESTIGE**

01 E2E4—E7E5
02 G1F3—B8C6
03 F1B5—A7A6
04 B5C6—D7C6
05 B1C3—F7F6
06 D2D4—E5D4
07 D1D4—D8D4
08 F3D4—C8D7
09 E1G1—F8D6
10 C1E3—G8E7
11 F2F4—E8G8
12 F4F5—C6C5
13 D4E6—D7E6
14 F5E6—E7C6
15 C3A4—C6D4
16 E3D4—C5D4
17 F1F5—F8E8
18 A1D1—D6E5
19 A4C5—B7B6
20 C5B3—C7C5
21 C2C3—A8D8
22 C3D4—C5D4
23 D1D3—E8E6
24 A2A4—E6C6
25 G2G3—A6A5
26 B3D2—C6C2
27 B2B3—C2C3
28 F5F3—C3D3
29 F3D3—G8F7
30 D2C4—E5C7
31 G1G2—F7E6
32 H2H3—G7G6
33 H3H4—F6F5
34 E4F5—E6F5
35 D3F3—F5G4
36 F3D3—H7H6
37 C4D2—D8D5
38 D2E4—G4F5
39 E4C3—D5D8
40 C3B5—F5E4
41 D3D2—C7E5
42 B5C3—E4E3
43 D2D1—D4D3
44 D1E1—E3D2
45 E1E5—D2C3
46 E5E3—C3C2
47 E3E6—D3D2
48 E6E2—C2B3
49 E2D2—D8D2
0-1

**98. PRESTIGE - PHILIDOR**

01 E2E4—C7C5
02 G1F3—D7D6
03 D2D4—C5D4
04 F3D4—G8F6
05 B1C3—A7A6
06 C1G5—E7E6
07 F2F4—D8C7
08 F1E2—F8E7
09 E1G1—E8G8
10 F4F5—E6F5
11 E4F5—B8D7
12 D1D2—B7B5
13 D2E3—D7E5
14 G5F6—E7F6
15 C3D5—C7D8
16 A2A4—B5A4
17 A1A4—F6H4
18 E3B3—A6A5
19 A4A1—F8E8
20 G2G3—H4G5
21 E2B5—E8F8
22 G1G2—C8B7
23 D4F3—E5F3
24 F1F3—A8C8
25 C2C3—B7D5
26 B3D5—D8B6
27 C3C4—C8C5
28 D5D3—C5E5
29 A1D1—F8D8
30 H2H3—G5E3
31 F5F6—G7G6
32 G2H2—E5E6
33 D1E1—E3D4
34 E1E6—F7E6
35 D3E4—G8F7
36 E4F4—D4B2
37 F4H6—B6G1
1-0

**99. PHILIDOR - PRESTIGE**

01 E2E4—E7E6
02 D2D4—D7D5
03 E4E5—C7C5
04 D1G4—C5D4
05 G4D4—B8C6
06 F1B5—C8D7
07 B5C6—B7C6
08 G1F3—C6C5
09 D4F4—A8B8
10 E1G1—G8H6
11 B1C3—F8E7
12 B2B3—B8B4
13 F4G3—H6F5
14 G3H3—G7G5
15 H3H5—H7H6
16 G2G4—F5G7
17 H5H3—H6H5
18 G4H5—G5G4
19 H3G2—G7F5
20 F3E1—F5H4
21 G2G3—H8H5
22 A2A3—H4F5
23 G3D3—B4D4
24 D3A6—H5H3
25 C3E2—D4E4
26 E2F4—D8B8
27 F4H3—D7B5
28 A6A5—B5F1
29 G1F1—B8E5
30 H3G5—E4E1
31 A5E1—E5A1
32 F2F4—A1B1
33 E1D2—F5D4
34 B3B4—C5B4
35 A3B4—D4C2
36 F1E2—E7B4
37 D2D1—B4C5
38 H2H3—B1B5
39 D1D3—C2D4
40 E2D2—C5B4
41 D2E3—D4F5
42 D3F5—E6F5
0-1

**100. PRESTIGE - PHILIDOR**

01 G1F3—G8F6
02 G2G3—G7G6
03 F1G2—F8G7
04 E1G1—E8G8
05 D2D3—D7D5
06 B1D2—C8F5
07 C2C4—F5G4
08 D1B3—B7B6
09 C4D5—F6D5
10 H2H3—G4F3
11 D2F3—B8C6
12 C1D2—D8D7
13 E2E4—D5F6
14 E4E5—F6D5
15 A1C1—E7E6
16 D3D4—F8D8
17 B3C4—C6E7
18 F3G5—B6B5
19 C4D3—B5B4
20 G5E4—D7A4
21 D2G5—G7F8
22 E4F6—G8G7
23 F6D5—E6D5
24 C1C7—A4E8
25 D3B3—A7A5
26 G5F6—G7G8
27 F6E7—F8E7
28 G2D5—A5A4
29 B3C4—A8A5
30 D5C6—E8F8
31 C6E4—D8E8
32 E4G2—H7H6
33 F1D1—G8H7
34 G1H2—H6H5
35 C4C6—E8D8
36 G2F3—A4A3
37 C6B6—A5A4
38 B6B5—A4A8
39 F3A8—D8A8
40 B5D7—A8E8
41 B2A3—B4A3
42 D4D5—H7H6
43 F2F4—H6G7
44 D5D6—E7D8
45 C7A7—D8B6
46 A7A3—B6C5
1-0

**101. PHILIDOR - PRESTIGE**

01 C2C4—C7C5
02 G1F3—G8F6
03 B1C3—D7D5
04 D2D3—D5D4
05 C3B5—C8D7
06 D1A4—A7A6
07 F3E5—B8C6
08 E5D7—F6D7
09 B5A3—D7B6
10 A4D1—E7E5
11 G2G3—F8E7
12 F1G2—E8G8
13 E1G1—D8C7
14 C1D2—F7F5
15 A1B1—F5F4
16 G3G4—A6A5
17 A3B5—C7D7
18 G2F3—C6B4
19 A2A3—B4C6
20 B1C1—A5A4
21 D1E1—E5E4
22 F3E4—D7G4
23 G1H1—G4H3
24 B5C7—F4F3
25 F1G1—E7D6
26 E4D5—B6D5
27 G1G7—G8G7
28 C7E6—H3E6
0-1

**102. PRESTIGE - PHILIDOR**

01 D2D4—G8F6
02 C2C4—C7C5
03 D4D5—E7E6
04 B1C3—E6D5
05 C4D5—D7D6
06 E2E4—G7G6
07 G1F3—F8G7
08 F1E2—E8G8
09 E1G1—C8D7
10 C1F4—D8B6
11 D1B3—B6B3
12 A2B3—F6E8
13 E4E5—G7E5
14 F3E5—D6E5
15 F4E5—E8G7
16 E5D6—F8C8
17 C3E4—D7F5
18 E4C5—B8D7
19 C5B7—C8C2
20 E2C4—C2B2
21 F1D1—D7B6
22 B7C5—G7E8
23 D6E7—F5C2
24 D1D2—B6C8
25 C5A4—B2B1
26 A1B1—C2B1
27 E7B4—A7A5
28 B4C3—C8D6
29 C3E5—A8B8
30 E5C3—D6E4
31 D2B2—E4C3
32 A4C3—B1F5
33 B2A2—B8A8
34 C3B5—F5D7
35 A2A1—D7B5
36 C4B5—E8D6
37 B5C6—A8B8
38 A1A5—B8B3
39 G1F1—B3B1
40 F1E2—B1B2
41 E2F3—B2B3
42 F3G4—F7F5
43 G4F4—B3B4
44 F4G3—D6E4
45 G3F3—B4B2
46 F3E3—E4F2
47 A5A8—G8G7
48 D5D6—F2G4
49 E3F4—B2B4
50 F4G3—G4E5
51 C6D5—B4D4
52 A8A5—G7H6
53 D5E6—D4D3
54 G3F4—E5G4
55 D6D7—D3D4
56 F4F3—G4H2
57 F3E2—D4D6
58 A5D5—D6D7
59 D5D7—1-0

**103. PHILIDOR - PRESTIGE**

01 D2D4—G8F6
02 C2C4—G7G6
03 B1C3—F8G7
04 E2E4—D7D6
05 F1E2—E8G8
06 C1G5—C7C5
07 D4D5—E7E6
08 D5E6—C8E6
09 G5F4—D8B6
10 F4D6—F8D8
11 E4E5—F6E8
12 C3A4—B6A5
13 A4C3—E8D6
14 E5D6—G7C3
15 B2C3—A5C3
16 E1F1—E6C4
17 A1B1—B7B6
18 E2C4—C3C4
19 D1E2—C4E2
20 G1E2—D8D6
21 H2H4—D6D2
22 A2A4—B8C6
23 H1H3—A8D8
24 B1E1—F7F5
25 H3C3—D2A2
26 C3C4—D8D2
27 C4F4—A2C2
28 H4H5—C6E5
29 E2C1—C5C4
30 H5G6—H7G6
31 E1E5—C2C1
32 E5E1—C1C2
33 F1G1—G8F7
34 G2G4—F7F6
35 G1G2—C4C3
36 E1E8—F6G5
37 G2G3—C2C1
38 E8C8—C3C2

39 F4C4—C1G1
40 G3H2—G1F1
41 G4F5—F1F2
42 H2G3—G6F5
43 C8G8—G5F6
44 G8F8—F6E5
45 F8E8—E5D5
46 E8C8—F2G2
47 G3H3—D2E2
48 C4C7—F5F4
49 C8D8—D5E5
50 D8E8—E5D6
51 E8E2—G2E2
52 C7C4—F4F3
53 C4C8—F3F2
54 H3G2—E2E1
55 G2F2—C2C1
56 C8C1—E1C1
0-1

### 104. PRESTIGE - PHILIDOR

01 B2B3—E7E5
02 C1B2—B8C6
03 C2C4—F8C5
04 G1F3—D7D6
05 B1C3—G8F6
06 C3A4—C5B4
07 A2A3—B4A5
08 B3B4—A5B6
09 C4C5—D6C5
10 B4C5—B6A5
11 F3E5—E8G8
12 E5C6—B7C6
13 E2E3—F6E4
14 B2C3—C8G4
15 D1C2—A5C3
16 D2C3—F8E8
17 F1D3—E4F6
18 H2H3—G4E6
19 E1G1—D8D7
20 A1D1—D7E7
21 D1B1—A8D8
22 C3C4—G7G6
23 B1B7—E7D7
24 F1D1—A7A6
25 A4C3—D7E7
26 C3E4—F6E4
27 D3E4—D8D1
28 C2D1—E6C8
29 E4C6—C8B7
30 C6B7—E7C5
31 D1A4—E8D8
32 A4A6—D8D1
33 G1H2—D1F1
34 A6F6—C5A3
35 F6D8—A3F8
36 D8C7—F1F2
37 C4C5—F8E8
38 E3E4—E8A4
39 B7D5—A4C2
40 E4E5—C2D2
41 C7D8—G8G7
42 D8H4—D2E3
43 C5C6—E3E5
44 H4G3—E5G3
45 H2G3—F2C2
46 G3F4—C2C3
47 F4E5—G6G5
48 E5D6—F7F6
49 C6C7—C3C2
50 D6D7—F6F5
51 D5C6—C2D2
52 D7E7—D2E2
53 E7D6—E2D2
54 D6C5—D2C2
55 C5B6—C2B2
56 B6A5—B2A2
57 C6A4—F5F4
58 C7C8—1-0

### 105. MEPHISTO - CONCHESS

01 D2D4—D7D5
02 C2C4—E7E6
03 G1F3—D5C4
04 E2E4—F8B4
05 B1C3—B4C3
06 B2C3—B7B5
07 F1E2—G8F6
08 D1C2—H7H6
09 E4E5—F6D7
10 C2E4—D7B6
11 E4G4—G7G6
12 G4E4—C8A6
13 E1G1—B6D5
14 C1A3—B8C6
15 A1B1—D8D7
16 F1C1—E8C8
17 H2H3—C6B8
18 A3C5—A6B7
19 E4C2—D5B6
20 C5B6—A7B6
21 A2A3—B8A6
22 C2B2—B7C6
23 F3H4—C8B7
24 C1D1—D7E7
25 H4F3—C6E4
26 B1A1—C7C6
27 A3A4—E4F3
28 A4B5—F3D5
29 B5A6—B7A7
30 B2A2—E7G5
31 E2F1—D5F3
32 A2C4—F3D1
33 C4C6—G5E7
34 A1D1—E7D7
35 C6F3—D8F8
36 F1E2—D7D5
37 F3D5—E6D5
38 C3C4—F8D8
39 C4D5—D8D5
40 E2C4—D5D7
41 C4B5—D7C7
42 D1D2—H8D8
43 B5E2—C7C1
44 G1H2—D8D5
45 E2F3—D5D8
46 F3B7—C1C4
47 D4D5—C4E4
48 D5D6—E4E5
49 D6D7—B6B5
50 B7C8—B5B4
51 D2B2—E5B5
52 B2B3—B5B6
53 H2G1—B6B5
54 G1F1—F7F5
55 F1G1—G6G5
56 G1F1—F5F4
57 F1G1—H6H5
58 F2F3—B5B6
59 G1F1—B6B5
60 F1F2—B5B6
61 F2G1—B6B5
62 G1F1—B5B6
63 F1E1—B6E6
64 E1D1—E6D6
65 D1C1—D6D4
66 C1B1—D4D1
67 B1A2—D1D4
68 A2A1—D4D1
69 B3B1—D1D4
70 B1B2—D8F8
71 B2E2—F8D8
72 A1B2—A7B8
73 B2B3—B8A7
74 E2E8—D4D7
75 C8D7—D8D7
76 E8E5—G5G4
77 B3B4—G4F3
78 G2F3—D7D3
79 E5H5—D3F3
80 H5H6—F3E3
81 H3H4—E3E4
82 B4B5—E4E5
83 B5C4—E5F5
84 C4D4—F4F3
85 H6H7—A7A6
86 H7H6—A6B7
87 H6H7—B7C6
88 D4C4—F3F2
89 H7H6—C6D7
90 H6H7—D7E6
91 H7H6—F5F6
92 H6H8—F2F1 = Q + 0-1

### 106. CONCHESS - MEPHISTO

01 E2E4—E7E6
02 D2D4—D7D5
03 E4E5—C7C5
04 C2C3—B8C6
05 G1F3—D8B6
06 F1E2—C5D4
07 C3D4—G8E7
08 B1C3—E7F5
09 C3A4—B6A5
10 E1F1—C8D7
11 C1D2—A5C7
12 A1C1—C7B8
13 D2F4—F7F6
14 G2G4—F6E5
15 F3E5—F5D6
16 A4C5—D7C8
17 D1A4—B7B5
18 E5C6—B5A4
19 C6B8—A8B8
20 C5A4—C8D7
21 B2B3—B8B4
22 A4C5—D6C8
23 C5D7—E8D7
24 C1C7—D7D8
25 F4E5—A7A5
26 F1G2—H7H6
27 C7C6—C8A7
28 C6E6—A7B5
29 E2B5—B4B5
30 E6G6—H8H7
31 H1C1—B5B7
32 G6C6—F8A3
33 C1C3—D8E8
34 F2F4—B7E7
35 G2F3—H6H5
36 G4G5—A3B4
37 G5G6—H7H6
38 C3C2—B4A3
39 F4F5—E7E5
40 C6C8—E8D7
41 D4E5—A3D6
42 E5D6—1-0

### 107. MEPHISTO - CONCHESS

01 E2E4—E7E5
02 G1F3—B8C6
03 F1B5—C6D4
04 F3D4—E5D4
05 E1G1—F8C5
06 D1H5—D8E7
07 D2D3—G8F6
08 H5G5—E8G8
09 C1D2—H7H6
10 G5G3—C5D6
11 G3H4—C7C6
12 B5C4—B7B5
13 C4B3—C8A6
14 F2F4—D6C7
15 A2A3—A8E8
16 F1F3—D7D5
17 E4E5—F6D7
18 H4E7—E8E7
19 F3G3—D7C5
20 D2B4—C7B6
21 A3A4—C5B3
22 C2B3—C6C5
23 A4A5—C5B4
24 A5B6—A6B7
25 A1A7—F8C8
26 B1D2—C8C1
27 G1F2—C1C2
28 F2E1—C2B2
29 E1D1—H6H5
30 D1C1—B2D2
31 C1D2—G8H7
32 A7A5—B7C6
33 G3H3—G7G6
34 D2C1—H7G7
35 H3G3—E7B7
36 A5A6—G7F8
37 F4F5—G6F5
38 G3G5—H5H4
39 G5F5—B7B8
40 F5H5—C6B7
41 A6A7—B8C8
42 C1D2—H4H3
43 H5H3—C8C3
44 A7B7—C3B3
45 B7F7—F8F7
46 B6B7—F7E7
47 B7B8 = Q
1-0

### 108. CONCHESS - MEPHISTO

01 E2E4—E7E5
02 G1F3—B8C6
03 D2D4—E5D4
04 F3D4—D8H4
05 D4B5—H4E4
06 F1E2—F8B4
07 C1D2—B4D2
08 B1D2—E4E5
09 D2F3—E5F4
10 D1D2—F4D2
11 F3D2—C6B4
12 B5C7—E8D8
13 C2C3—B4C2
14 E1D1—D7D5
15 D1C2—D8C7
16 E2D3—G8H6
17 A1E1—C8E6
18 D2F3—H6G4
19 H1F1—A8E8
20 H2H3—G4F6
21 F3D4—E6D7
22 E1E8—H8E8
23 D3F5—D7F5
24 D4F5—E8E2
25 C2C1—F6E4
26 F5G7—E4F2
27 C1B1—C7B8
28 B1A1—F2D3
29 G2G3—E2H2
30 H3H4—H2C2
31 G3G4—C2H2
32 H4H5—D3E5
33 G4G5—H2G2
34 G7E8—G2G5
35 H5H6—E5G4
36 A2A3—F7F5
37 B2B3—B7B6
38 F1G1—G5G6
39 G1D1—G4E3
40 D1H1—F5F4
41 H1H3—G6G3
42 H3H4—F4F3
43 H4F4—G3H3
44 F4F7—E3G4
45 E8F6—H3H1
46 A1B2—H1H2
47 B2C1—G4F6
48 F7F8—B8B7
49 F8F6—F3F2
50 C1D1—H2H6
51 F6F2—B7C6
52 F2F7—A7A5
53 F7F1—H6H2
54 F1F6—C6C5
55 B3B4—C5B5
56 F6D6—A5B4
57 A3B4—B5C4
58 D6B6—C4C3
59 B4B5—C3D3
60 D1C1—D5D4
61 B6D6—H2C2
62 C1B1—C2C7
63 B5B6—C7F7
64 B1B2—D3C4
65 D6E6—C4D5
66 E6H6—F7B7
67 B2C2—D5C4
68 C2D2—B7B8
69 H6F6—H7H5
70 F6G6—H5H4
71 G6C6—C4B5
72 C6D6—B6C5
73 D6H6—B8B6
74 H6H4 and the game was drawn after many more moves. ½-½

### 109. SC9 - CONCHESS

01 D2D4—D7D5
02 C2C4—E7E6
03 B1C3—C7C5
04 C4D5—E6D5
05 G1F3—B8C6
06 G2G3—C5C4
07 F1G2—F8B4
08 E1G1—G8E7
09 C1G5—F7F6
10 G5F4—B4C3
11 B2C3—C8F5
12 F3H4—F5E6
13 E2E4—D5E4
14 G2E4—E7D5
15 D1H5—E6F7
16 E4G6—F7G6
17 H4G6—D5C3
18 G6H8—G7G6
19 A1E1—E8D7
20 H5H7—C6E7
21 H8G6—C3D5
22 E1E2—B7B5
23 F1E1—D8G8
24 E2E7—D5E7
25 H7E7—D7C6
26 E7C7—C6D5
27 C7D6—1-0

### 110. CONCHESS - SC9

01 E2E4—E7E5
02 G1F3—B8C6
03 D2D4—E5D4
04 F3D4—F8C5
05 C1E3—D8F6
06 C2C3—G8E7
07 F1C4—C6E5
08 B1D2—F6G6
09 C4F1—E8G8
10 D4F5—E7F5
11 E3C5—F8E8
12 H1G1—B7B6
13 C5B4—F5H4
14 F2F4—E5C6
15 G2G3—C8B7
16 E1F2—G6F6
17 G3H4—C6B4
18 C3B4—F6D4
19 F2G2—E8E4
20 D2E4—B7E4
21 G2H3—D4G1
22 D1G4—G1E3
23 G4G3—E3D2
24 G3C3—D2F4
25 B4B5—F4F2
26 C3D3—0-1

### 111. SC9 - CONCHESS

01 E2E4—E7E5
02 G1F3—B8C6
03 F1B5—C6D4
04 F3D4—E5D4
05 E1G1—F8C5
06 D1H5—D8E7
07 H5G4—E8F8
08 G4F3—G8F6
09 D2D3—C7C6
10 B5C4—B7B5
11 C4B5—C6B5
12 E4E5—A8B8
13 C1G5—B8B6
14 E5F6—G7F6
15 G5H6—F8E8
16 F3F5—E7E5
17 F5E5—F6E5
18 H6G7—H8G8
19 G7E5—B6E6
20 E5G3—C8B7
21 B1D2—G8G5
22 D2B3—G5D5
23 F1E1—F7F6
24 G3H4—C5E7
25 F2F3—F6F5
26 H4E7—E8E7
27 B3A5—B7C6
28 G1F2—D5C5
29 A1C1—E6E1
30 F2E1—C6D5
31 A2A3—E7F6
32 E1D2—C5C8
33 A5B3—D5B3
34 C2B3—C8C1
35 D2C1—F6E5
36 C1D2—A7A5
37 A3A4—B5B4
38 G2G3—E5D6
39 G3G4—D6E5
40 G4G5—E5F4
41 H2H4—D7D6
42 D2E2—F4E5
43 E2E1—E5F4
44 E1F2—F4E5
45 F2G3—E5D5
46 G3F4—D5E6
47 H4H5—H7H6
48 G5H6—E6F6
49 H6H7—F6G7
50 F4F5—G7H7
51 F5E4—H7H6
52 E4D4—H6H5
53 D4C4—H5G5
54 C4B5—G5F4
55 B5A5—F4E5
56 A6B6—E5D4
1-0

### 112. CONCHESS - SC9

01 E2E4—C7C5
02 G1F3—D7D6
03 D2D4—C5D4
04 F3D4—G8F6
05 B1C3—A7A6
06 F1D3—C8G4
07 F2F3—G4D7
08 C1E3—E7E5
09 D4B3—F8E7
10 E1G1—E8G8
11 C3D5—F6D5
12 E4D5—A6A5
13 F3F4—A5A4
14 B3D2—A4A3
15 B2B3—E7H4
16 D2C4—D8E7
17 C4B6—E5F4
18 E3D4—H4F6
19 D3H7—G8H7
20 B6A8—F6D4
21 D1D4—E7E3
22 D4E3—F4E3
23 A1E1—F8E8
24 F1F7—H7G6
25 F7F3—E3E2
26 A8B6—D7F5
27 F3F2—F5C2
28 E1E2—E8E2
29 F2E2—C2D3
30 E2E6—G6F5
31 B6C8—F5F4
32 C8D6—D3B1
33 E6E2—B8A6
34 G2G3—F4F3
35 E2F2—F3E3
36 D6C4—E3D4
37 C4A3—B1E4
38 D5D6—A6C5
39 F2F7—E4C6
40 F7G7—D4C3
1-0

### 113. SCISYS MARK V - CONCHESS

01 E2E4—E7E5
02 G1F3—B8C6
03 C2C3—G8F6
04 D2D4—E5D4
05 E4E5—F6G4
06 C1G5—D4C3
07 B1C3—F7F6
08 E5F6—G7F6
09 G5F4—F8C5
10 D1E2—D8E7
11 E2E7—C6E7
12 C3B5—C5F2
13 E1D2—E7D5
14 F4C7—F2E3
15 D2C2—G4F2
16 H1G1—F2E4
17 G1H1—A7A6
18 B5D6—E4D6
19 C7D6—E3F2
20 A1B1—D5E3
21 C2B3—B7B6
22 B1C1—C8B7
23 D6C7—A8C8
24 C1C3—B7F3
25 G2F3—E3D5

26 C3C2—C8C7
27 C2F2—C7C1
28 F2D2—D5C7
29 F1G2—C1H1
30 G2H1—H8G8
31 F3F4—G8G4
32 D2D4—G4H4
33 H1B7—H4H3
34 B3C2—H3H2
35 C2B1—H2F2
36 D4D6—F2F4
37 D6B6—A6A5
38 B6D6—E8E7
39 D6D1—H7H5
40 D1E1—E7F8
41 E1C1—C7E6
42 C1C8—F8G7
43 C8A8—F4F1
44 B1C2—F1F5
45 A8A6—F5B5
46 B7H1—B5C5
47 C2D3—C5B5
48 H1F3—H5H4
49 D3C3—B5C5
50 C3D3—H4H3
51 A6D6—C5C7
52 F3D5—H3H2
53 D3D2—F6F5
54 B2B3—E6G5
55 D2E3—G5E4
56 D5E4—F5E4
57 D6D1—D7D5
58 E3F4—C7C2
59 F4E5—C2A2
60 E5E6—D5D4
61 E6E5—E4E3
62 E5D5—A5A4
63 B3A4—A2A4
64 D1H1—E3E2
65 D5E4—A4A5
66 E4F3—A5E5
67 F3G3—E5G5
68 G3F2—G5G1
0-1

### 114. CONCHESS - SCISYS MARK V

01 E2E4—C7C5
02 G1F3—B8C6
03 D2D4—C5D4
04 F3D4—G8F6
05 B1C3—E7E5
06 D4B5—D7D6
07 C1G5—A7A6
08 G5F6—G7F6
09 B5A3—C8E6
10 F1C4—D8B6
11 C3A4—B6A5
12 C2C3—B7B5
13 C4D5—E6D5
14 E4D5—C6E7
15 D1F3—F6F5
16 A4C5—D6C5
17 D5D6—E5E4
18 F3H5—E7G6
19 H5F5—F8D6
20 F5E4—E8D7
21 E1G1—A5C7
22 A1D1—A8C8
23 E4F5—D7C6
24 F5D5—C6D7
25 D5F7—D7C6
26 F7D5—C6D7
27 D5F7—D7C6
28 F7D5—C6D7
29 D5F7—G6E7
30 F2F4—C8F8
31 F7B3—C5C4
32 B3C2—C7C5
33 G1H1—E7D5
34 C2E4—D5C3
35 B2C3—C5A3
36 E4B7—D7E6
37 B7D5—E6D7
38 F4F5—H8G8
39 D5B7—D7D8
40 B7C6—D8E7
41 D1D6—A3D6
42 F1E1—E7F6
43 C6D6—F6G5
44 D6E7—G5H6
45 G2G4—G8G4
1-0

### 115. SCISYS MARK V - CONCHESS

01 D2D4—D7D5
02 C2C4—E7E6
03 G1F3—D5C4
04 D1A4—B8C6
05 A2A3—G8F6
06 B1C3—F8E7
07 H2H3—C8D7
08 A4C4—E8G8
09 C1F4—E7D6
10 E2E3—C6A5
11 C4D3—D6F4
12 E3F4—A5B3
13 A1D1—D7C6
14 F3E5—C6D5
15 C3D5—D8D5
16 F1E2—C7C6
17 E1G1—A8B8
18 E2F3—D5B5
19 D3B5—C6B5
20 D1D3—B3A5
21 B2B4—A5C4
22 F1E1—F8D8
23 E1E2—F6D5
24 F3D5—D8D5
25 H3H4—B8D8
26 E5F3—D5F5
27 G2G3—F5D5
28 E2E4—C4B2
29 D3C3—B2C4
30 G1G2—H7H6
31 E4E2—D8D6
32 A3A4—A7A6
33 G3G4—H6H5
34 G4G5—D6C6
35 E2C2—D5D8
36 G2H3—C6D6
37 C3D3—D6D5
38 A4A5—D5F5
39 H3G3—F5D5
40 C2E2—D5D6
41 D3C3—G8F8
42 E2E1—F8G8
43 E1E2—G8F8
44 E2E1—D6C6
45 C3D3—C4D6
46 G5G6—D6F5
47 G3H3—F7F6
48 H3H2—F5E7
49 D4D5—E7D5
50 E1E4—D8C8
51 F3D4—F6F5
52 E4E6—D5B4
53 E6C6—C8C6
54 D3B3—C6C4
55 D4E6—F8G8
56 B3E3—C4C2
57 E6C5—C2F2
58 H2G3—F2E2
59 E3E2—B4D3
60 E2E8—1-0

### 116. CONCHESS - SCISYS MARK V

01 E2E4—E7E5
02 G1F3—B8C6
03 D2D4—G8F6
04 D4E5—F6E4
05 F1D3—D7D5
06 E5D6—E4D6
07 E1G1—C8G4
08 D1E1—F8E7
09 F3G5—H7H6
10 F2F3—D8D7
11 G5F7—D6F7
12 F3G4—F7E5
13 D3F5—D7D4
14 E1E3—E8G8
15 B1C3—E7G5
16 E3D4—C6D4
17 C1G5—D4F5
18 G4F5—H6G5
19 C3D5—F8F7
20 A2E1—A8E8
21 F5F6—C7C6
22 D5E7—G8H7
23 E1E5—G7F6
24 E7C6—E8F8
25 E5E6—B7C6
26 E6C6—H7G6
27 C2C4—F8H8
28 C4C5—H8H4
29 F1C1—A7A5
30 C6E6—A5A4
31 C5C6—G6F5
32 E6E8—F7C7
33 C1C5—F5G6
34 E8D8—H4B4
35 D8D2—B4B6
36 D2C2—F6F5
37 G1F2—G6F6
38 F2F3—A4A3
39 B2A3—B6A6
40 C2C3—A6A4
41 C3D3—G5G4
42 F3G3—A4E4
43 D3D7—C7D7
44 C6D7—E4D4
45 C5C7—F6E6
46 A3A4—D4D2
47 G3F4—D2D4
48 F4G5—D4D2
49 A4A5—E6E7
50 G5F5—D2A2
51 F5G4—A2G2
52 G4H3—G2D2
53 A5A6—E7E6
54 A6A7—D2D3
55 H3G4—D3D4
1-0

### 117. PRESTIGE - CONCHESS

01 E2E4—E7E5
02 F2F4—D7D5
02 E4D5—E5F4
04 D1F3—D8E7
05 F1E2—G8F6
06 D2D4—C8F5
07 C1F4—F5C2
08 B1C3—B8A6
09 G1H3—A6B4
10 E1G1—E8C8
11 E2C4—H7H5
12 A2A3—B4A6
13 F4E5—F6G4
14 C4A6—G4E5
15 D4E5—B7A6
16 F3E2—C2G6
17 E2A6—C8B8
18 A6B5—B8C8
19 B5E2—E7C5
20 G1H1—F8E7
21 H3F4—C5B6
22 C3A4—B6D4
23 E2A6—C8B8
24 A6B5—B8C8
25 D5D6—E7H4
26 A1D1—D4D1
1-0

### 118. CONCHESS - PRESTIGE

01 E2E4—C7C5
02 G1F3—D7D6
03 D2D4—C5D4
04 F3D4—G8F6
05 B1C3—G7G6
06 F1B5—C8D7
07 C1G5—B8C6
08 G5F6—E7F6
09 D4F3—A7A6
10 B5C6—B7C6
11 E1G1—F8E7
12 D1D4—E8G8
13 A2A3—A8B8
14 B2B3—D8B6
15 D4B6—B8B6
16 H2H3—F6F5
17 E4E5—B6B8
18 A1D1—D6D5
19 B3B4—A6A5
20 B4A5—B8B2
21 F3D4—E7C5
22 A5A6—C5D4
23 D1D4—B2C2
24 C3D1—F8A8
25 D1E3—C2A2
26 D4A4—C6C5
27 A4A5—D5D4
28 E3D5—D7E6
29 A5C5—A2A3
30 D5C7—A8D8
31 C5C6—E6C8
32 F1C1—A3A5
33 C6C5—A5A4
34 C5C4—A4A5
35 A6A7—C8B7
36 E5E6—F7E6
37 C7E6—D8A8
38 C4D4—A5A7
39 D4D7—B7E4
40 D7A7—A8A7
41 C1C8—G8F7
42 E6G5—F7F6
43 G5E4—F5E4
½-½

### 119. PRESTIGE - CONCHESS

01 D2D4—D7D5
02 C2C4—E7E6
03 B1C3—C7C5
04 C4D5—E6D5
05 G1F3—B8C6
06 G2G3—G5C4
07 F1G2—F8B4
08 E1G1—G8E7
09 A2A3—B4C3
10 B2C3—C8G4
11 A1B1—G4F3
12 G2F3—D8D7
13 E2E4—D5E4
14 F3E4—E8G8
15 D1E2—C6A5
16 E4H7—G8H7
17 E2H5—H7G8
18 H5A5—E7D5
19 C1D2—A7A6
20 F1E1—B7B6
21 B1B6—D5B6
22 A5B6—D7B5
23 B6B5—A6B5
24 E1B1—A8A5
25 H2H3—F8D8
26 G1G2—D8D5
27 D2C1—A5A6
28 G2F3—F7F5
29 F3G2—G8F7
30 B1B2—A6E6
31 B2A2—E6A6
32 A2D2—F7F6
33 D2E2—A6A7
34 F2F4—A7A8
35 E2E5—A8D8
36 G2F3—D8D7
37 G3G4—G7G6
38 G4F5—G6F5
39 H3H4—F6G6
40 E5D5—D7D5
41 F3G3—D5D6
42 C1E3—G6H5
43 G3H3—D6E6
44 E3F2—E6A6
45 F2E1—A6A3
46 H3G2—H5G4
47 G2F1—G4F4
48 F1E2—F4E4
49 E1D2—B5B4
50 C3B4—E4D4
51 D2E1—C4C3
52 B4B5—A3A1
53 B5B6—C3C2
54 E1D2—C2C1
55 D2C1—A1C1
56 H4H5—C1B1
57 E2F3—D4E5
58 F3G3—B1B6
0-1

### 120. CONCHESS - PRESTIGE

01 E2E4—E7E5
02 G1F3—B8C6
03 D2D4—E5D4
04 F3D4—F8C5
05 C1E3—D8F6
06 C2C3—G8E7
07 F1C4—C6E5
08 B1D2—E8G8
09 E1G1—E5C4
10 D2C4—D7D6
11 D1E2—C8D7
12 E2H5—F6G6
13 H5G6—F7G6
14 A1D1—A8E8
15 F2F3—B7B5
16 C4D2—C5B6
17 F1E1—C7C5
18 D4C2—D7E6
19 D2B3—B6C7
20 C2A3—A7A6
21 D1D2—E7C6
22 A3C2—C6E5
23 C2A3—E5C4
24 A3C4—B5C4
25 B3C1—F8F7
26 C1E2—E6D7
27 E3F4—E8E6
28 F4G3—G6G5
29 D2D5—G5G4
30 E2F4—E6E8
31 F3G4—D7G4
32 D5G5—G4D7
33 F4D5—C7D8
34 G5H5—D7G4
35 H5H3—G4H3
36 G2H3—E8E6
37 G1G2—F7B7
38 E1E2—D8G5
39 G3F4—G5F4
40 D5F4—E6E8
41 G2G3—E8B8
42 E4E5—B7B2
43 E2B2—B8B2
44 E5D6—B2A2
45 F4E6—A2D2
46 D6D7—D2D7
47 E6C5—D7D2
48 H3H4—A6A5
49 C5A4—D2D3
50 G3G2—G7G6
0-1

### 121. ELITE - SCISYS MARK V

01 D2D4—G8F6
02 C2C4—E7E5
03 D4E5—F6G4
04 C1F4—F8B4
05 B1D2—D7D6
06 A2A3—D6E5
07 F4G3—B4D2
08 D1D2—B8C6
09 D2D8—E8D8
10 G1F3—E5E4
11 F3G5—C8E6
12 E2E3—G4E5
13 E1C1—D8C8
14 G3E5—C6E5
15 D1D4—E5G4
16 G5E4—F7F5
17 H2H3—G4E5
18 E4C5—H8E8
19 C5E6—E8E6
20 F1D3—E5D3
21 D4D3—E6C6
22 D3D4—B7B5
23 C1B1—A8B8
24 D4D5—B5B4
25 A3A4—C6C4
26 D5F5—B8B6
27 F2F4—B6A6
28 F5F8—C8B7
29 F8F7—A6G6
30 G2G4—G6E6
31 F4F5—E6E3
32 F7G7—B7B6
33 G7H7—B6A5
34 H1C1—C4C1
35 B1C1—A7A6
36 H7C7—E3H3
37 C7C6—H3G3
38 C6G6—A5A4
39 G6A6—A4B3
40 A6G6—G3G2
41 F5F6—G2B2
42 F6F7—B2F2
43 G6G7—B3A2
44 C1D1—B4B3
45 D1E1—F2F6
46 F7F8—F6F8
47 G7A7—A2B1
48 G4G5—B3B2
49 G5G6—B1C2
50 A7C7—C2D3
51 C7D7—D3C2
52 D7C7—C2D3
53 C7B7—D3C2
54 B7C7—½-½

### 122. SCISYS MARK V - ELITE

01 E2E4—E7E5
02 G1F3—B8C6
03 F1C4—G8F6
04 F3G5—D7D5
05 E4D5—C6A5
06 C4B5—C7C6
07 D5C6—B7C6
08 B5E2—H7H6
09 G5F3—E5E4
10 F3E5—F8D6
11 F2F4—D8E7
12 D2D4—E7B7
13 B1C3—E8G8
14 E1G1—F8E8
15 A2A4—C8E6
16 F4F5—E6C8
17 E5G4—F6G4
18 E2G4—B7C7
19 H2H3—D6G3
20 D1E2—C7D6
21 C1E3—A8B8
22 F5F6—C8D7
23 F6G7—B8B2
24 G4D7—D6D7
25 C3D1—B2B4
26 E2H5—F7F5
27 H5F5—D7F5
28 F1F5—A5C4
29 E3H6—G3D6
30 C2C3—B4B3
31 F5F6—C6C5
32 D4D5—B3B6
33 F6E6—E8E6
34 D5E6—D6E7
35 D1F2—E4E3
36 F2G4—E3E2
37 A1E1—B6E6
38 G1F2—C4B2
39 E1E2—B2D1
40 F2F1—E6E2
41 F1E2—D1C3
42 E2F3—C3A4
43 G2G3—C5C4
44 G4E3—C4C3
45 E3D5—E7D8
46 H3H4—G8H7
47 F3G4—A7A5
48 G4F5—C3C2
49 G7G8—H7G8
50 H4H5—A4C5
51 D5C3—A5A4
52 G3G4—A4A3
53 F5G6—C5D3
54 C3A2—D8C7
55 A2C1—D3C1
56 H6G5—A3A2
57 H5H6—A2A1 = Q
58 G5E7—A1A6
0-1

### 123. ELITE - SCISYS MARK V

01 D2D4—G8F6
02 C2C4—C7C5
03 D4D5—E7E6
04 B1C3—E6D5
05 C4D5—D7D6
06 E2E4—G7G6
07 G1F3—C8G4
08 F1B5—B8D7
09 E1G1—F8G7
10 C1F4—A7A6

11 B5E2—G4F3
12 E2F3—D8B6
13 A1C1—E8G8
14 F3E2—A8B8
15 D1D3—F6H5
16 E2H5—G6H5
17 D3G3—H5H4
18 G3H4—B6B2
19 H4G3—D7E5
20 F4H6—E5G6
21 H6G7—G8G7
22 G3D6—B7B6
23 D6G3—F8E8
24 F1D1—C5C4
25 C1B1—B2A3
26 D5D6—E8D8
27 D1D5—B6B5
28 D6D7—B5B4
29 G1F1—A3C3
30 G3C3—B4C3
31 B1B8—D8B8
32 D5D4—C3C2
33 D4C4—G6F4
34 F1E1—C2C1
35 C4C1—F4D3
36 E1D2—D3C1
37 D2C1—B8D8
38 E4E5—D8D7
0-1

**124. SCISYS MARK V · ELITE**

01 E2E4—E7E5
02 D2D4—E5D4
03 D1D4—B8C6
04 D4E3—G8F6
05 C1D2—B7B6
06 B1C3—F8C5
07 E3G3—E8G8
08 E1C1—C6B4
09 F1C4—C8A6
10 C4A6—B4A6
11 F2F4—D7D5
12 E4E5—F6E4
13 C3E4—D5E4
14 D2C3—D8E8
15 G1E2—E8E6
16 A2A3—A8D8
17 E2D4—C5D4
18 C3D4—E6A2
19 C2C3—C7C5
20 D4E3—A6C7
21 F4F5—F8E8
22 G3F4—A2C4
23 D1D8—E8D8
24 F4G5—C4D3
25 H1E1—H7H6
26 G5G3—A7A6
27 E5E6—C7D5
28 E1D1—D3D1
29 C1D1—D5E3
30 D1E2—E3F5
31 G3C7—D8F8
32 E6E7—F5E7
1-0

**125. ELITE · SCISYS MARK V**

01 E2E4—E7E5
02 G1F3—B8C6
03 F1B5—G8F6
04 E1G1—F6E4
05 D2D4—E4D6
06 B5C6—D7C6
07 D4E5—D6E4
08 D1D8—E8D8
09 C1E3—F8E7
10 F1D1—C8D7
11 B1D2—E4D2
12 D1D2—D8E8
13 F3D4—C6C5
14 D4E2—A8D8
15 E2F4—D7C6
16 D2D8—E8D8
17 C2C4—G7G5
18 A1D1—D8C8
19 F4D5—C6D5
20 C4D5—H8D8
21 F2F4—G5G4
22 F4F5—D8E8
23 E5E6—F7E6
24 D5E6—E8F8
25 D1D7—E7D6
26 D7F7—H7H5
27 F7F8—D6F8
28 F5F6—F8D6
29 F6F7—G4G3
30 H2G3—H5H4
31 G3H4—B7B5
32 E3G5—C8B7
33 E6E7—1-0

**126. SCISYS MARK V · ELITE**

01 D2D4—G8F6
02 C2C4—E7E6
03 B1C3—F8B4
04 F2F3—D7D5
05 A2A3—B4C3
06 B2C3—D5C4
07 D1A4—C8D7
08 A4C4—E8G8
09 E2E3—B8C6
10 E3E4—E6E5
11 F1D3—F8E8
12 G1E2—E5D4
13 C3D4—D7E6
14 C4C3—C6E7
15 E1G1—C7C6
16 A1B1—D8C8
17 C3B4—B7B6
18 E2F4—C6C5
19 B4C3—C5D4
20 C3D4—E8D8
21 D4F2—F6H5
22 F4H5—D8D3
23 C1B2—F7F6
24 H5F4—D3D8
25 F4E6—C8E6
26 B2C3—A8C8
27 F1C1—E6D6
28 C3B4—D6D7
29 C1C8—D8C8
30 B1F1—G8H8
31 F2B2—D7C7
32 F1D1—E7G6
33 B4D6—C7C4
34 G1H1—C4C2
35 B2C2—C8C2
36 D6B8—H8G8
37 B8A7—B6B5
38 D1D8—G8F7
39 D8D7—G6E7
40 D7B7—C2C1
41 A7G1—C1B1
42 H2H4—F7E6
43 H1H2—H7H6
44 C1C5—E7C8
45 B7G7—B1B2
46 G7G6—E6E5
47 G6H6—B2C2
48 C5F8—C8A7
49 H6H7—A7C6
50 H7H5—E5E6
51 H5B5—C6D4
52 B5C5—D4F3
53 H2G3—C2C5
54 F8C5—1-0

**127. ELITE · SCISYS MARK V**

01 E2E4—C7C5
02 G1F3—B8C6
03 D2D4—C5D4
04 F3D4—G8F6
05 B1C3—E7E5
06 D4B5—D7D6
07 C1G5—A7A6
08 G5F6—G7F6
09 B5A3—C8E6
10 F1C4—D8B6
11 C3D5—E6D5
12 D1D5—E8C8
13 C4B3—D8D7
14 A3C4—B6C7
15 D5D2—B7B5
16 C4E3—F8H6
17 E1C1—H8E8
18 B3D5—C6D4
19 C2C3—F6F5
20 C1B1—D4E6
21 E4F5—E6F4
22 G2G3—F4D5
23 D2D5—C8B8
24 E3G4—H6G5
25 H1E1—E8E7
26 H2H4—H7H5
27 F5F6—E7E6
28 G4E5—D6E5
29 D5D7—G5F6
30 D1D2—C7D7
31 D2D7—F6E7
32 B2B3—F7F5
33 D7D5—E7F6
34 F2F4—E5E4
35 E1E3—E6C6
36 D5F5—C6C3
37 E3E4—F6D8
38 E4E8—B8C7
39 F5D5—D8F6
40 E8E6—C3C6
41 E6C6—C7C6
42 D5H5—1-0

**128. SCISYS MARK V · ELITE**

01 E2E4—C7C5
02 B2B3—G8F6
03 D2D3—D7D6
04 F1E2—E7E5
05 C1B2—F8E7
06 G1F3—E8G8
07 E1G1—B8C6
08 B2C3—C8D7
09 B1D2—F6G4
10 A2A3—E7H4
11 D2C4—D7E6
12 F3H4—D8H4
13 E2G4—E6G4
14 F2F3—G4E6
15 C4D6—H4E7
16 D6F5—E6F5
17 E4F5—E7G5
18 G2G4—A8D8
19 C3D2—G5F6
20 D2E3—F6D6
21 F1E1—F8E8
22 E3G5—C6E7
23 F3F4—D6D4
24 G1H1—F7F6
25 G5H4—D4F4
26 B3B4—E7F5
27 E1F1—F5E3
28 F1F4—E3D1
29 F4F3—E5E4
30 D3E4—C5B4
31 A3B4—E8E4
32 A1A7—E4G4
33 H4E1—G4E4
34 F3F1—D1E3
35 F1F2—E3G4
36 F2F1—D8D1
37 A7B7—E4E1
38 B7B8—G8F7
39 F1E1—D1E1
40 H1G2—G4E3
41 G2F3—E3C2
0-1

**129. ELITE · SCISYS MARK V**

01 E2E4—E7E5
02 F2F4—F8C5
03 G1F3—D7D6
04 C2C3—G8F6
05 F4E5—D6E5
06 F3E5—D8E7
07 D2D4—C5D6
08 D1E2—D6E5
09 D4E5—E7E5
10 E2B5—B8D7
11 B1D2—C7C5
12 F1D3—E8G8
13 E1G1—A7A6
14 B5B3—E5D6
15 D3E2—D7E5
16 D2C4—E5C4
17 E2C4—B7B5
18 C4D5—C5C4
19 B3D1—D6C5
20 F1F2—C8G4
21 D1D4—C5D4
22 C3D4—F6D5
23 E4D5—A8D8
24 F2F4—G4C8
25 C1D2—G7G5
26 F4E4—D8D5
27 D2C3—C8F5
28 E4E7—F7F6
29 E7A7—F5C8
30 A1E1—D5D7
31 A7D7—C8D7
32 D4D5—G8G7
33 E1E7—F8F7
34 D5D6—G7G6
35 G1F2—F6F5
36 F2F3—F5F4
37 F3E2—D7G4
38 E2F2—H7H5
39 A2A4—G4D7
40 A4B5—A6B5
41 C3B4—D7F5
42 F2F3—F5G4
43 F3E4—G4D7
44 E4D4—D7C6
45 E7E6—F7F6
46 D4E5—F6E6
47 E5E6—C6G2
48 D6D7—G2H3
49 E6E7—H3D7
50 E7D7—F4F3
51 B4E1—B5B4
52 D7E6—C4C3
53 B2C3—B4B3
54 E1F2—B3B2
55 E6E7—B2B1 = Q
0-1

**130. SCISYS MARK V · ELITE**

01 E2E4—E7E5
02 G1F3—B8C6
03 C2C3—D7D5
04 D1A4—D8D6
05 D2D4—E5D4
06 E4D5—D6D5
07 F3D4—G8E7
08 C1E3—C8F5
09 B1D2—E8C8
10 E1C1—C6D4
11 E3D4—A7A6
12 F1C4—D5G2
13 C4F7—G2C6
14 A4C4—C6C4
15 D2C4—E7C6
16 C4E3—F5E4
17 H1G1—C6D4
18 D1D4—D8D4
19 C3D4—C8D8
20 G1G5—H7H6
21 G5E5—E4H7
22 E3F5—G7G6
23 E5D5—D8C8
24 F7E6—C8B8
25 D5D8—B8A7
26 F5E7—F8G7
27 D8D7—G7F6
28 D7C7—A7B8
29 C7D7—H8E8
30 E7D5—F6D4
31 D5C7—E8C8
32 D7D4—C8C7
33 C1D2—G6G5
34 D2E3—C7E7
35 F2F4—E7E6
0-1

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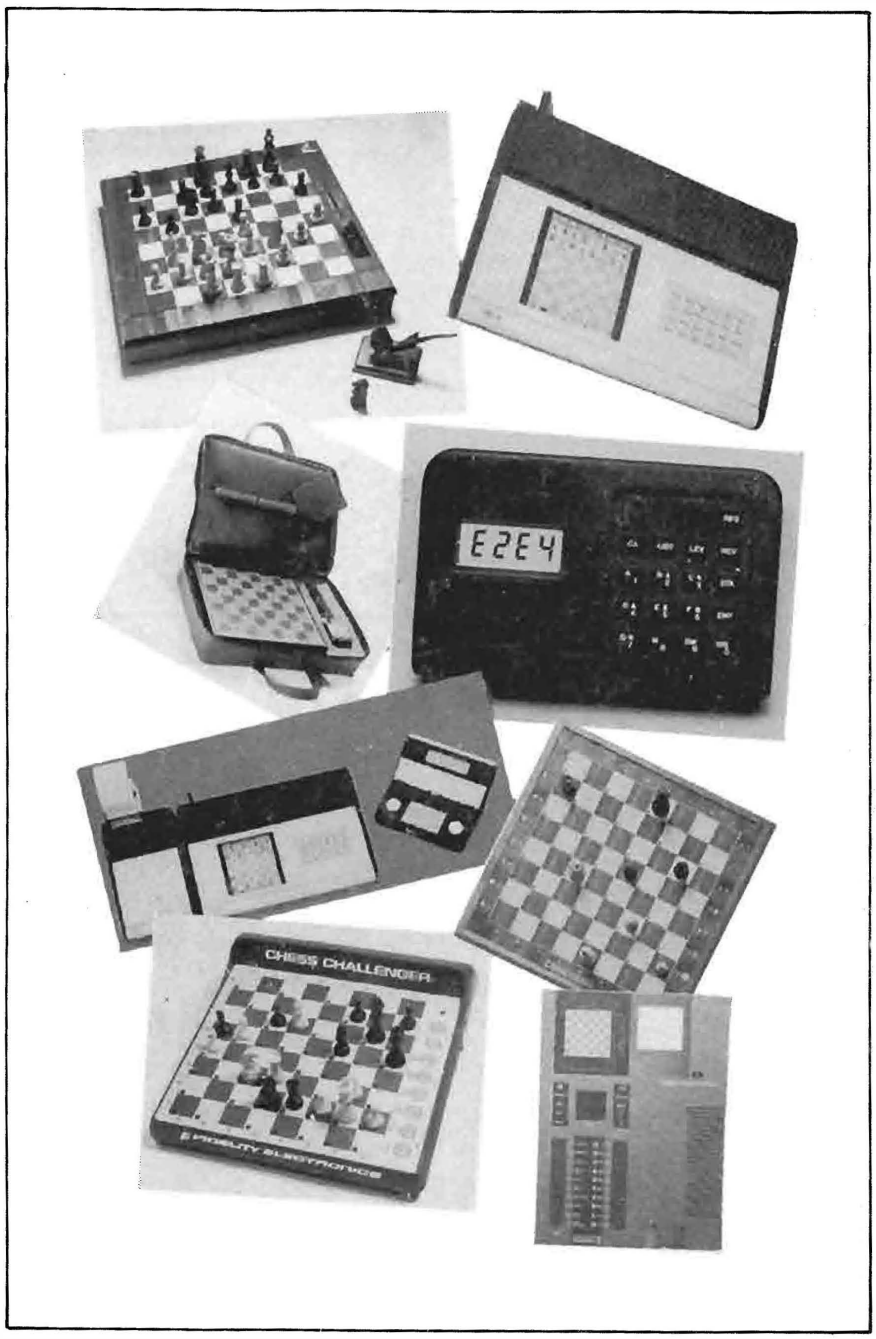
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