April 2007 Puzzle

Nine men—Cantor, Cauchy, Descartes, Euler, Fermat, Gauss, Leibniz, Newton, and Pascal—play the nine positions on a baseball team (pitcher, catcher, first base, second base, third base, shortstop, right field, center field, and left field). Determine the position of each player using the following information:

a. Descartes and Cauchy each lost $20 playing poker with the pitcher.
b. Fermat is taller than Newton and shorter than Gauss, but each of these weighs more than the first baseman.
c. The third baseman lives across the corridor from Pascal in the same apartment building.
d. Cantor and the outfielders play bridge in their spare time.
e. Gauss, Cantor, Cauchy, the right fielder, and the center fielder are bachelors; the rest are married.
f. Of Euler and Newton, one plays an outfield position.
g. The right fielder is shorter than the center fielder.
h. The third baseman is the brother of the pitcher’s wife.
i. Leibniz is taller than the first-, second-, and third-basemen, the shortstop, the pitcher and catcher, except for Pascal, Descartes, and Euler.
j. The third baseman, the shortstop, and Fermat made $300 betting on horse races.
k. The second baseman is engaged to Cantor’s sister.
l. The second baseman beat Pascal, Cauchy, Fermat, and the catcher at cards.
m. Euler lives in the same building as his own sister but dislikes the catcher.
n. Euler, Cauchy, and the shortstop lost $200 each playing slots.
o. The catcher and his wife have three daughters, and the third baseman and his wife have two sons, but Leibniz is being sued for divorce.

April 2007 Solution

<table>
<thead>
<tr>
<th>Pitcher—Pascal</th>
<th>Catcher—Descartes</th>
<th>First Base—Cauchy</th>
<th>Second Base—Gauss</th>
<th>Third Base—Euler</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shortstop—Cantor</td>
<td>Right Field—Newton</td>
<td>Center Field—Fermat</td>
<td>Left Field—Leibniz</td>
<td></td>
</tr>
</tbody>
</table>

1. By a. we know that neither Descartes nor Cauchy is the pitcher.
2. By b. we know that neither Fermat, nor Newton, nor Gauss is the first baseman.
3. By c. we know that Pascal is not the third baseman.
4. By d. we know that Cantor is not the right-, left-, or center-fielder.
5. By e. we know that neither Gauss, nor Cantor, nor Cauchy are the right- or center-fielder.
6. By h. we know that the pitcher is married and thus cannot be Cantor, Cauchy, or Gauss (bachelors).
7. By i. we know that Leibniz is not the first-, second-, or third-baseman, he is not the shortstop, pitcher, or catcher. We also know that Pascal, Descartes, and Euler must play one of the abovementioned positions and so they cannot be left-, right-, or center-fielders.
8. By j. we know that Fermat is not the third baseman or the shortstop.
9. By k. we know that Cantor is not the second baseman. Because the second baseman is engaged, he is a bachelor and thus must be either Cauchy or Gauss.
10. By l. neither Pascal, nor Cauchy, nor Fermat are the second baseman or catcher. Thus by 9. above, we conclude that Gauss must be the second baseman.
11. By m. we know that Euler is not the catcher.
12. By n. we know that neither Euler nor Cauchy is the shortstop.
13. By o. we know that the catcher, third baseman and Leibniz are married and thus are not bachelors. Therefore, Leibniz cannot be right- or center-field and so must be the left fielder. Since Cauchy and Cantor are bachelors, they cannot be the catcher or third baseman. Thus Cauchy must be the first baseman. This allows us to conclude that Cantor is the shortstop and then that Pascal must be the pitcher. It then follows that Euler must be the third baseman.
14. By f. since we know Euler is the third baseman, we must have that Newton plays an outfield position and is therefore not the catcher. It follows that Descartes must be the catcher.
15. At this point we have Fermat and Newton remaining along with the positions right- and center-field. By b. we know that Fermat is taller than Newton, and by g. we know that the center fielder is taller than the right fielder. Therefore, Fermat is the center fielder and Newton is the right fielder.

*It is best to create a table with rows and columns labeled with the players and positions. Each time we rule out a position for a given player, put an X in the corresponding entry of the table. Once you know a players position, you can eliminate all other positions for that player and all other players for that position.