ERRATA in Intuition Pumps

Corrections of the mistakes, thinkos, typos, and other Useful Improvements to Intuition Pumps and Other Tools for Thinking.

So far, these are the errors that have been pointed out to me by sharp-eyed readers. I especially want to thank Hugo Dixon and Sara Smollett, the first readers to point these out. If you find others, please point them out to me, and I will be very grateful.

Daniel Dennett

p20: Sixth line of the last paragraph corrected from "Asking the wrongs questions" to "Asking the wrong questions".

p.22. I say that most errors in DNA copying are “of no consequence, since nothing reads them! They are as inconsequential as the rough drafts you didn’t, or don’t, hand in to the teacher for grading.” But, as Susan van Druten points out to me (in a note on 9 July), “you know this is not accurate because you yourself have counseled students (back on page 20) that a blurted-out rough draft will provide them with something to fix. Humans learn from rough drafts, but DNA does not.” So it is a bad analogy.

p.116. revised flow graph:
p.117. line 10 of the RAP program should have 8, not 11, in the GO TO STEP

p.119. zero on the first “branch on zero” line:
p. 122. a missing zero is now added:
p.176. I invited readers to send me better ambiguous ("Quinian") crossword puzzles. I was reminded by several readers, first by Ilan Caron, of the famous 1996 New York Times crossword puzzle that “predicted” the winner of the upcoming presidential election: BOBDOLE or CLINTON, with all the definitions of the crossing words equally ambiguous. It can be found on the web at, for instance: (http://en.wikipedia.org/wiki/The_New_York_Times_crossword_puzzle#Records_and_puzzles_of_note).

Other ambiguous puzzles in the British crossword tradition (cryptic clues, much less constraint on word crossings) have been sent to me by Roger Phillips and several other readers.

p.252. I speak of “the four-stroke Otto cycle and the two-stroke Diesel cycle” where I should have said “the Otto cycle and the Diesel cycle, in both two-stroke and four-stroke versions”

Thanks to Bruce Hyman for pointing this out, December 26, 2017.

p.275. I quote Alain “every boat is copied from another boat . . . . it is the sea herself who fashions the boats, choosing those which function and destroying the others.”

Roger DePledge points out that Alain [pseudonym of Émile August Chartier] was writing “not about Polynesian but Breton fishermen on the Île de Groix (47° 38’ N, 3° 28’ W) off Lorient. This was my mistake, since the article by Rogers, D.S., and Ehrlich, P.R. (2008). “Natural selection and cultural rates of change.” Proceedings of the National Academy of Sciences DOI: 10.1073/pnas.0711802105 is about Polynesian canoes and cites Alain but does not claim he was speaking about canoes. I drew that inference by mistake.

p.398. I hadn’t found the French version of Fabre’s words about Sphex, but these have been supplied by Roger DePledge:

Après deux ou trois épreuves... le saisit avec les mandibules par les antennes et l’entraîne immédiatement dans le terrier. Qui fut sot?

p.420, The game I named “chmess” and opined to be probably not worth playing has indeed been explored in depth, as I surmised, and is known as SuperKing, according to a note (19 June) from Benjamin Conover. It and other variants such as “960 and Seirawan Chess were used as a way for top grandmasters (Bobby Fischer and Yasser Seirawan) to improve their own games. So Chmess is useful for improving your Chess game!”

p434: In the RAP program for the answer to "Exercise 2" (subtraction), in step 10, the "REGISTER" column should read "2", not "1".

p. 435. Line 7 should have 3 in BRANCH TO STEP:
b. What happens when the program tries to subtract 3 from 3 or 4 from 4?
The program halts with 0 in register 4.

c. What possible error is prevented by zeroing out register 3 before trying the
   subtraction at step 3 instead of after step 4?
   If there was a zero at the start in both registers 1 and 2, the answer when
   the program ended could be nonsensical (either -0, or some number other
   than 0 or 1 in the sign register).

Exercise 3

a. Draw a flow graph (and write the RAP program) for multiplying the content of
   register 1 by the content of register 3, putting the answer in register 5.

\[\begin{array}{c|c|c|c|c}
\text{STEP} & \text{INSTRUCTION} & \text{REGISTER} & \text{GO TO STEP} & \text{[BRANCH TO STEP]} \\
1. & Deb & 5 & 1 & 2 \text{ [zeroes out}} \\
2. & Deb & 2 & 2 & 3 \text{ [buffers]}} \\
3. & Deb & 3 & 4 & 9 \text{ [starts the countdown]} \\
4. & Deb & 5 & 5 & 7 \text{ [adds the contents}} \\
5. & Inc & 5 & 6 & \text{ of register 1}} \\
6. & Inc & 2 & 4 & \text{ to itself]} \\
7. & Deb & 2 & 8 & 3 \\
8. & Inc & 1 & 7 & \\
9. & End & & & \\
\end{array}\]
p.436. new flow graph:

P437: New RAP program for exercise 3b:
<table>
<thead>
<tr>
<th>STEP</th>
<th>INSTRUCTION</th>
<th>REGISTER</th>
<th>GO TO STEP</th>
<th>[BRANCH TO STEP]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Deb</td>
<td>2</td>
<td>1</td>
<td>2 [zeros out 3 buffers]</td>
</tr>
<tr>
<td>2.</td>
<td>Deb</td>
<td>4</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3.</td>
<td>Deb</td>
<td>5</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4.</td>
<td>Deb</td>
<td>3</td>
<td>5</td>
<td>7 [makes a copy of contents of 3]</td>
</tr>
<tr>
<td>5.</td>
<td>Inc</td>
<td>4</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Inc</td>
<td>2</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Deb</td>
<td>2</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>8.</td>
<td>Inc</td>
<td>3</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Deb</td>
<td>3</td>
<td>10</td>
<td>15 [this is just the code in exercise 3a with different line numbers]</td>
</tr>
<tr>
<td>10.</td>
<td>Deb</td>
<td>1</td>
<td>11</td>
<td>13</td>
</tr>
<tr>
<td>11.</td>
<td>Inc</td>
<td>5</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Inc</td>
<td>2</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>Deb</td>
<td>2</td>
<td>14</td>
<td>9</td>
</tr>
<tr>
<td>14.</td>
<td>Inc</td>
<td>1</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>Deb</td>
<td>4</td>
<td>16</td>
<td>17 [restores the original value to register 3 (register 1 is restored in steps 13 and 14)]</td>
</tr>
<tr>
<td>16.</td>
<td>Inc</td>
<td>3</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>End</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
p.441. revised flowgraph with zero-out arrows on steps 2-4:
The seven tools drawn from Part II excerpted in the *Guardian* inspired a comic strip by nox nbek which can be found at http://nbek.org/blog/?p=2020

And here is a cartoon drawn by Neil Cohn, inspired by a stick-figure cartoon I saw on a door at MIT’s AI Lab in the early 1980s. (I don’t know who drew the original.)