

## Box 8.1

### Production Rules for Multicolumn Subtraction

*If* the goal is to solve a subtraction problem,  
*Then* make the subgoal to process to the rightmost column.

*If* there is an answer in the current column and there is a column to the left,  
*Then* make the subgoal to process the column to the left.

*If* the goal is to process a column and there is no bottom digit,  
*Then* write the top digit as the answer.

*If* the goal is to process a column and the top digit is not smaller than the bottom digit,  
*Then* write the difference between the digits as the answer.

*If* the goal is to process a column and the top digit is smaller than the bottom digit,  
*Then* add 10 to the top digit and set as a subgoal to borrow from the column to the left.

*If* the goal is to borrow from a column and the top digit in that column is not zero,  
*Then* decrement the digit by 1.

*If* the goal is to borrow from a column and the top digit in that column is zero,  
*Then* replace the zero by 9 and set as a subgoal to borrow from the column to the left.