startExp 0 0 initv1 L

startExp 1 1 initv1 L

initv1 \_ | initv2 L

initv2 \_ B initv3 L

initv3 \_ 1 initv4 L

initv4 \_ \* rightv1 R

rightv1 0 0 rightv1 R

rightv1 1 1 rightv1 R

rightv1 \* \* rightv1 R

rightv1 | | rightv1 R

rightv1 B B rightv1 R

rightv1 ^ ^ rightv1 R

rightv1 \_ \_ readC L

readC 0 0 checkFull0 L

readC 1 1 decrement R

checkFull0 0 0 checkFull0 L

checkFull0 ^ ^ rightv5 R

checkFull0 1 1 rightv4 R

rightv4 0 0 rightv4 R

rightv4 1 1 rightv4 R

rightv4 \_ \_ decrement L

rightv5 0 0 rightv5 R

rightv5 \_ \_ tidyv1 L

tidyv1 0 \_ tidyv1 L

tidyv1 1 \_ tidyv1 L

tidyv1 ^ \_ tidyv1 L

tidyv1 | \_ tidyv1 L

tidyv1 B \_ tidyv2 L

tidyv2 0 0 tidyv2 L

tidyv2 1 1 tidyv2 L

tidyv2 \* \_ doneExp R

doneExp | - | - h R

decrement \_ \_ decrement L

decrement 1 0 leftv1 L

decrement 0 1 decrement L

decrement ^ ^ leftv1 L

leftv1 0 0 leftv1 L

leftv1 1 1 leftv1 L

leftv1 ^ ^ duplicateX L

duplicateX 1 @ dup1 L

duplicateX 0 @ dup0 L

dup1 0 0 dup1 L

dup1 1 1 dup1 L

dup1 | | dup1 L

dup1 \* \* dup1 L

dup1 B B dup1 L

dup1 \_ 1 backDup1 R

dup0 0 0 dup0 L

dup0 1 1 dup0 L

dup0 | | dup0 L

dup0 \* \* dup0 L

dup0 B B dup0 L

dup0 \_ 0 backDup0 R

backDup1 @ 1 duplicateX L

backDup1 0 0 backDup1 R

backDup1 1 1 backDup1 R

backDup1 \* \* backDup1 R

backDup1 B B backDup1 R

backDup1 | | checkDoneDupX1 R

backDup0 @ 0 duplicateX L

backDup0 0 0 backDup0 R

backDup0 1 1 backDup0 R

backDup0 \* \* backDup0 R

backDup0 B B backDup0 R

backDup0 | | checkDoneDupX0 R

checkDoneDupX1 @ 1 leftv2 L

checkDoneDupX1 0 0 backDup1 R

checkDoneDupX1 1 1 backDup1 R

checkDoneDupX0 @ 0 leftv2 L

checkDoneDupX0 0 0 backDup0 R

checkDoneDupX0 1 1 backDup0 R

leftv2 0 0 leftv2 L

leftv2 1 1 leftv2 L

leftv2 \* \* leftv2 L

leftv2 | | leftv2 L

leftv2 B B leftv2 L

leftv2 \_ \_ startMult R

doneMult 0 0 leftv3 L

doneMult 1 1 leftv3 L

leftv3 0 0 leftv3 L

leftv3 1 1 leftv3 L

leftv3 \_ s rightv2 R

rightv2 0 0 rightv2 R

rightv2 1 1 rightv2 R

rightv2 \_ \_ shiftAns L

rightv2 B B rightv1 R

shiftAns 0 b shiftAns0 R

shiftAns 1 b shiftAns1 R

shiftAns s \_ rightv3 R

rightv3 \_ \_ rightv3 R

rightv3 0 0 initv4 L

rightv3 1 1 initv4 L

shiftAns0 \_ \_ shiftAns0 R

shiftAns0 0 0 back1ShiftAns0 L

shiftAns0 1 1 back1ShiftAns0 L

shiftAns0 B B back1ShiftAns0 L

shiftAns1 \_ \_ shiftAns1 R

shiftAns1 0 0 back1ShiftAns1 L

shiftAns1 1 1 back1ShiftAns1 L

shiftAns1 B B back1ShiftAns1 L

back1ShiftAns0 \_ 0 backShiftAns L

back1ShiftAns1 \_ 1 backShiftAns L

backShiftAns \_ \_ backShiftAns L

backShiftAns b \_ shiftAns L

backShiftAns 0 0 rightv2 R

backShiftAns 1 1 rightv2 R

startMult 0 0 initv0 L

startMult 1 1 initv0 L

initv0 \_ + rightv0 R

rightv0 0 0 rightv0 R

rightv0 1 1 rightv0 R

rightv0 \* \* rightv0 R

rightv0 B B readB L

readB 0 \_ doubleL L

readB 1 \_ addA L

addA 0 0 addA L

addA 1 1 addA L

addA \* \* read L

doubleL 0 0 doubleL L

doubleL 1 1 doubleL L

doubleL \* 0 shift R

double 0 0 double R

double 1 1 double R

double + + double R

double \* 0 shift R

shift 0 \* shift0 R

shift 1 \* shift1 R

shift \_ \_ tidyv0 L

shift0 0 0 shift0 R

shift0 1 0 shift1 R

shift0 \_ 0 rightv0 R

shift1 0 1 shift0 R

shift1 1 1 shift1 R

shift1 \_ 1 rightv0 R

tidyv0 0 \_ tidyv0 L

tidyv0 1 \_ tidyv0 L

tidyv0 + \_ doneMult L

read 0 c have0 L

read 1 c have1 L

read + + rewrite L

have0 0 0 have0 L

have0 1 1 have0 L

have0 + + add0 L

have1 0 0 have1 L

have1 1 1 have1 L

have1 + + add1 L

add0 0 $ back0 R

add0 \_ $ back0 R

add0 1 & back0 R

add0 $ $ add0 L

add0 | | add0 L

add1 0 | back1 R

add1 \_ & back1 R

add1 1 $ carry L

add1 $ $ add1 L

add1 & & add1 L

carry 0 1 back1 R

carry \_ 1 back1 R

carry 1 0 carry L

back0 0 0 back0 R

back0 1 1 back0 R

back0 $ $ back0 R

back0 | | back0 R

back0 + + back0 R

back0 c 0 read L

back1 0 0 back1 R

back1 1 1 back1 R

back1 $ $ back1 R

back1 & & back1 R

back1 + + back1 R

back1 c 1 read L

rewrite $ 0 rewrite L

rewrite & 1 rewrite L

rewrite 0 0 rewrite L

rewrite 1 1 rewrite L

rewrite \_ \_ double R