

Early languages like Fortran IV use conditional and unconditional *goto* statements instead of structured statements like *if* and *while*. In Fortran IV, each statement occupies a line of input. The first five positions in each line are reserved for an optional label, which is an integer. The next position is reserved for a continuation marker, which we shall not consider further. Therefore, statements occupy positions 7 and beyond in each input line. The *goto* statement looks like this

```
goto label
```

and the conditional *goto* statement looks like this

```
if(expression)goto label
```

The language contains many other statements, but only the conditional *goto* begins with ‘*if*’ and ends with ‘*goto label*’ where *label* is an integer. All spaces are ignored within a Fortran IV statement. For this problem, the ‘*stop*’ statement, which halts execution, appears only as the last line of the program.

Your job is to determine whether or not two Fortran programs are equivalent. They are equivalent if, for all possible inputs, they execute exactly the same sequence of statements, ignoring unconditional *gotos* and labels. By “the same sequence of statements” we mean statements that are textually identical, after spaces and labels are removed. You must assume that each conditional *goto* will be taken for some inputs and not taken for others. Unconditional *gotos* are, of course, always taken.

## Input

Your input consists of several couples of programs separated by a blank line. There is also a blank line between two consecutive couples. No input line exceeds 80 characters and no program contains more than 1000 lines. Each label used in a *goto* statement appears to the left of exactly one statement; no label is repeated.

## Output

Output consists of a single line for each one of the input couples, stating either ‘The programs are equivalent.’ or ‘The programs are not equivalent.’

## Sample Input

```
    read 6, i,k,j
99  if(i .lt. j)goto 33
    goto 55
33  i=j
    goto 99
55  k=j+1
    stop

    read6,i,k,j
77  if(i.lt.j)goto12345
    goto5555
12345 i=j
    if(i.lt.j)goto12345
    goto77
88  goto88
5555 stop

    read 6, i,k,j
99  if(i .lt. j)goto 33
    goto 55
33  i=j
    goto 99
55  k=j+2
    stop

    read6,i,k,j
77  if(i.lt.j)goto12345
    goto5555
12345 i=j
    if(i.lt.j)goto12345
    goto77
5555 stop
```

## Sample Output

```
The programs are equivalent.
The programs are not equivalent.
```