Task: Judge if the rules of the form t1 → t2, where t1, t2 are tuples in Open IE format, is a valid inference (can reasonably infer the tuple (t2) from the given tuple (t1)).
For example, (x, studies at, y) → (x, is enrolled at, y) or (x, is the president of, y) → (x, is the citizen of, y) are valid. But (x, chairs, y) → (x, is the president of, y) is invalid.

OPENIE FORMAT:
Larry Page; is the CEO of; Google
argument1; relation; argument2
(arg1; rel; arg2)

In the given task assume argument1 to be X and argument2 be Y, for both t1 and t2.
t1 → t2
(x, rel1, y) → (x, rel2, y)

INPUT FILE FORMAT
Every line has the following format:

rel1;rel2

EXPECTED OUTPUT FORMAT
> In front of the tuple, add a tag in the following format:

"tag";rel1;rel2

tag=0/1/2/3

'0' if it was most likely to yield an incorrect inference,
'1' if it will yield a correct inference

'2' if the inference will be accurate in some scenarios and not in others. For example, (x, is native to, y) --> (x, is grown in, y) will be a valid rule if x is a crop but not if x is a person.
'3' if not able to identify the right tag

> If a rel precedes @R@ it means the arguments are switched i.e Y; rel; X in place of X;rel;Y
Example:

1. rel1**@R@**;rel2
   Y;rel1;**X** --> **X**;rel2;**Y**

2. rel1;rel2**@R@**
   X;rel1;**Y** --> **Y**;rel2;**X**

3. rel1@R@;rel2@R@
   Y;rel1;X --> Y;rel2;X

4. rel1;rel2
   X;rel1;Y --> X;rel2;Y

Example:
update@R@;be modified by
Y; update; X --> X is modified by Y
is true.

update;be modified by
X; update; Y --> X is modified by Y
is NOT true.

NOTE:

1. All triples are normalized and in small case.
2. "be" may mean is/was/were

SAMPLE INPUT
double as@R@;run as@R@
climb;come up on
substitute for;substitute
update@R@;be modified by
try to build;try to start
reduce to;boil to
be refer to;apply to

SAMPLE OUTPUT
"2";double as@R@;run as@R@
"1";climb;come up on
"1";substitute for;substitute
"1";update@R@;be modified by
"2";try to build;try to start
"2";reduce to;boil to
"0";be refer to;apply to

<details for #1>
"2";double as@R@;run as@R@
0-The display doubles as a touchscreen
1-The bar doubles as a restaurant

<detail for #5>
2";try to build;try to start
0-Ram is trying to build the code.
1-She tried to build an emotional relationship with him.

<detail for #6>
2;reduce to;boil to
0- roadway reduced to one lane --boil down is correct though
1- discussion reduced to a single question