


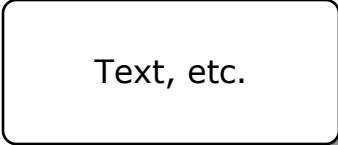
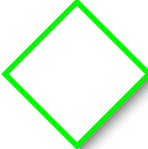

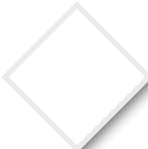

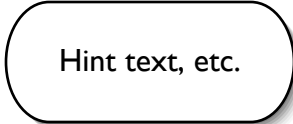


Legend:

State markers:	  
User visible content and interface:	
Correct move:	
Incorrect move:	
Disabled move:	
Feedback content:	
Hint content:	

Start

Insert the missing parentheses into the following formula. To insert a pair of parentheses, click on the main connective of the subformula around which the first set of parentheses should go.

$$P(a) \rightarrow Q(a) \& \neg R(a) \rightarrow N(a) \vee M(a)$$

Hint

→

&

¬

→

∨

When there are multiple occurrences of a connective in a formula, parentheses are inserted around the rightmost occurrence first.

Start

That's right

2

We never put parentheses around negations.

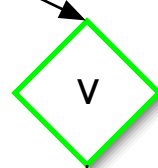
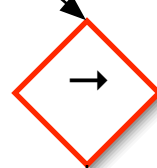
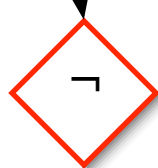
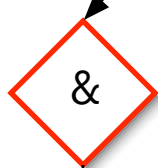
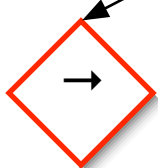
Start

Recall the order of precedence of the connectives:
¬, &, ∨, →

Insert the missing parentheses into the following formula. To insert a pair of parentheses, click on the main connective of the subformula around which the first set of parentheses should go.

$$P(a) \rightarrow (Q(a) \& \neg R(a)) \rightarrow N(a) \vee M(a)$$

Hint



When there are multiple occurrences of a connective in a formula, parentheses are inserted around the rightmost occurrence first.

2

You've already inserted the parentheses around this connective.

2

We never put parentheses around negations.

Recall the order of precedence of the connectives:
 \neg , $\&$, \vee , \rightarrow

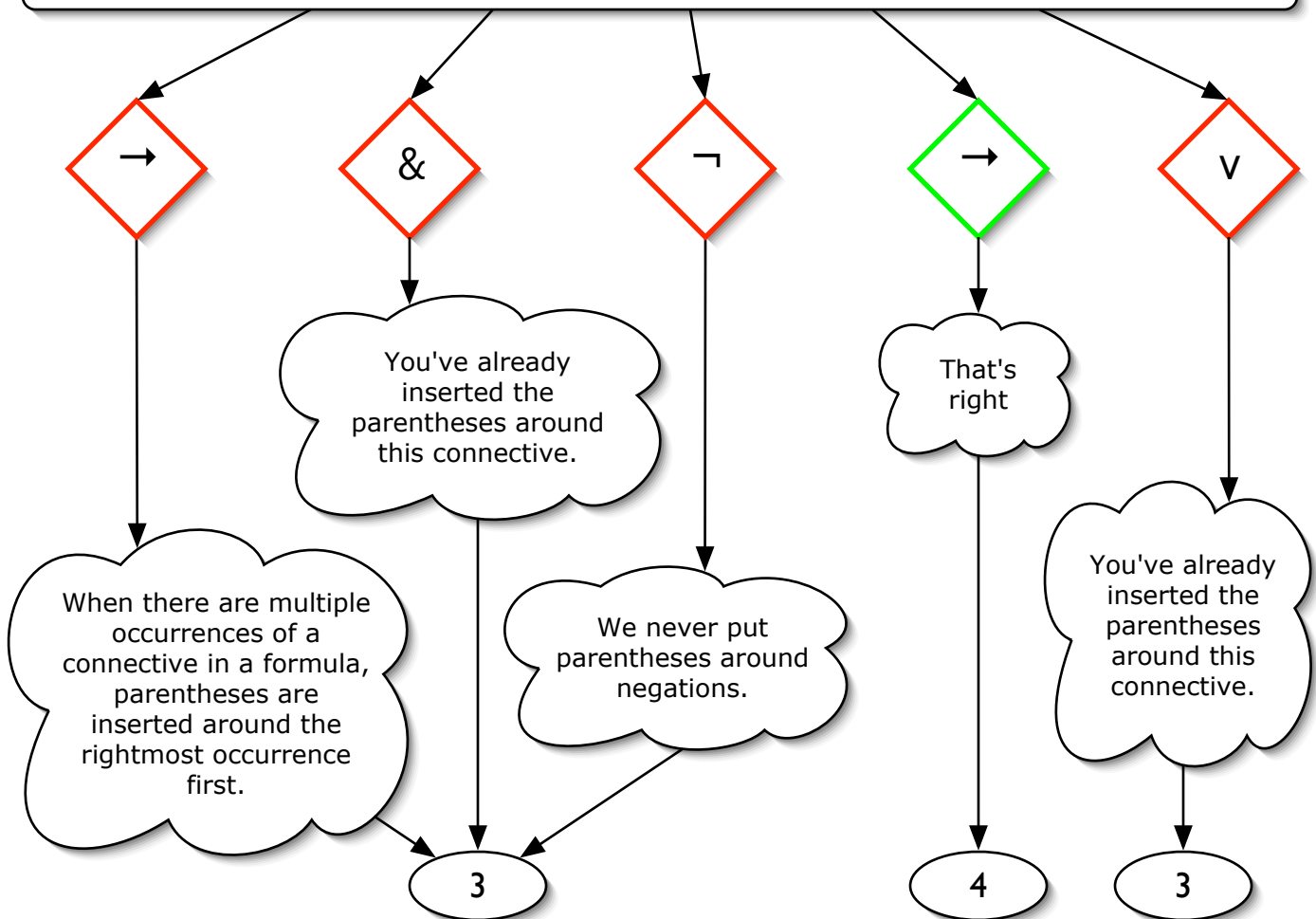
That's right

3

Insert the missing parentheses into the following formula. To insert a pair of parentheses, click on the main connective of the subformula around which the first set of parentheses should go.

$$P(a) \rightarrow (Q(a) \& \neg R(a)) \rightarrow (N(a) \vee M(a))$$

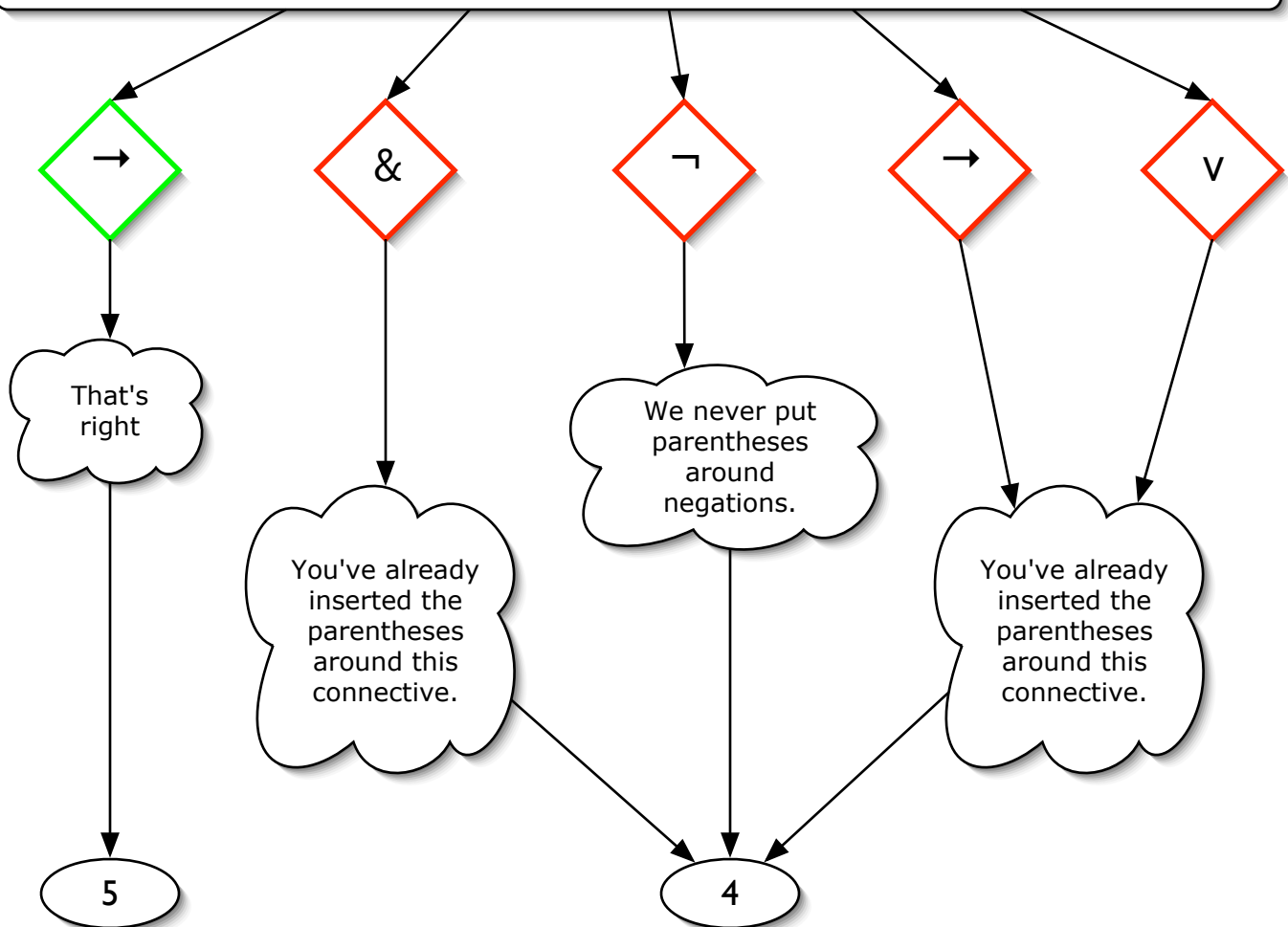
Hint



Insert the missing parentheses into the following formula. To insert a pair of parentheses, click on the main connective of the subformula around which the first set of parentheses should go.

$$P(a) \rightarrow ((Q(a) \& \neg R(a)) \rightarrow (N(a) \vee M(a)))$$

Hint



5

Correct!

$(P(a) \rightarrow ((Q(a) \& \neg R(a)) \rightarrow (N(a) \vee M(a))))$

Hint

\rightarrow

$\&$

\neg

\rightarrow

\vee

Hint sequences by state:

Start

Recall the two things that determine the order in which we insert missing parentheses:

- 1) The order of precedence of the connectives
(\neg , $\&$, \vee , \rightarrow)
- 2) The convention that if there are multiple occurrences of a given connective, we insert parentheses around the rightmost occurrence first.

Since we never insert parentheses around negations, the connective with the highest precedence, the first connective around which parentheses should be inserted is conjunction, the connective with the next highest precedence.

There is only a single occurrence of a conjunction symbol in this formula, so that is the one around which the first pair of parentheses should be inserted.

2

Recall the order of precedence of the connectives:
(\neg , $\&$, \vee , \rightarrow)
You just finished inserting parentheses around all the occurrences of conjunction.

There is only a single occurrence of a disjunction symbol in this formula, so that is the one around which the next pair of parentheses should be inserted.

3

Recall the order of precedence of the connectives:
(\neg , $\&$, \vee , \rightarrow)
You just finished inserting parentheses around all the occurrences
of disjunction.

If there are multiple occurrences of a given connective in a
formula, parentheses should be inserted around the rightmost
occurrence first.

There are two conditionals in this formula, so the next set of
parentheses should be inserted around the rightmost conditional.

4

If there are multiple occurrences of a given connective in a
formula, parentheses should be inserted around all occurrences of
that connective before considering a connective with lower
precedence.

You have inserted parentheses around some but not all
occurrences of the conditional.

Since parentheses are never inserted around negations, the only
connective left that has not had parentheses inserted is the
leftmost occurrence of the conditional. This connective should be
the next one around which parentheses are inserted.