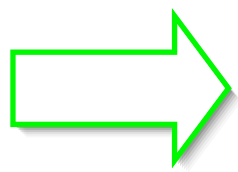
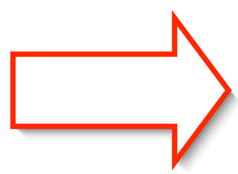
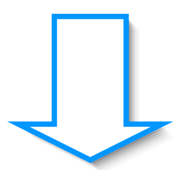
Legend:

State markers:	Start 2 3
Main user visible content and interface:	Text, etc.
Auxiliary user visible content and interface:	Text, etc.
Correct move:	
Incorrect move:	
Navigational move:	
Feedback content:	Text, etc.
Hint content:	Hint text, etc.

Start

Complete the following derivation by filling in the missing formulae. To fill in the formula on a given line, just click anywhere on that line.

1.	$S \leftrightarrow T$	Premise
2.	$S \leftrightarrow R$	Premise
3.	R	Assumption
4.	?	$\leftrightarrow$ER: 2, 3
5.	?	$\leftrightarrow$EL: 1, 4
6.	T	Assumption
7.	?	$\leftrightarrow$ER: 1, 6
8.	?	$\leftrightarrow$EL: 2, 7
9.	?	$\leftrightarrow$I: 5, 8

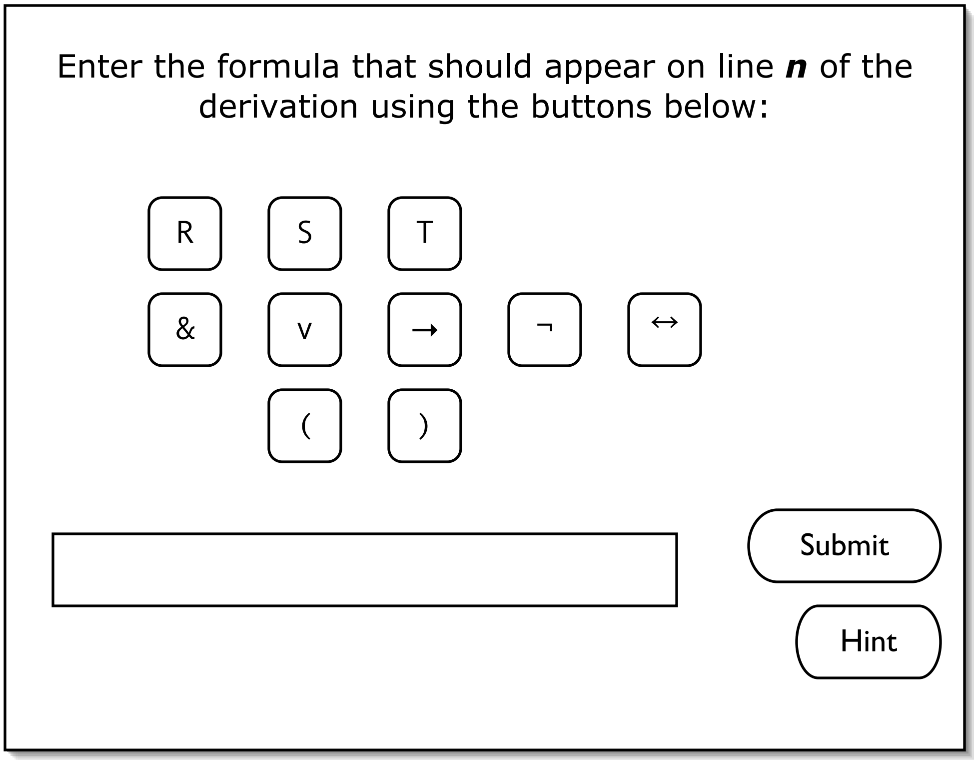
4 5 7 8 9

A B C D E

Completed Derivation:

1.	$S \leftrightarrow T$	Premise
2.	$S \leftrightarrow R$	Premise
3.	R	Assumption
4.	S	$\leftrightarrow$ER: 2, 3
5.	T	$\leftrightarrow$EL: 1, 4
6.	T	Assumption
7.	S	$\leftrightarrow$ER: 1, 6
8.	R	$\leftrightarrow$EL: 2, 7
9.	$R \leftrightarrow T$	$\leftrightarrow$I: 5, 8

Interface for entering formulae:



I've included the ideal version of the interface, here, which contains all and only those symbols actually appearing in the exercise.

If a standardized palette is going to be used for all exercises (for a given set of connectives), I'd prefer to use different sentential letters than those above. Please let me know if that's the case so that I can make the appropriate changes to the scripts.

A

S → That's right.

T → Neither of the biconditionals in the derivation have R as one equivalent and T as the other, so neither variant of ↔E could be used to derive T in this case.

R → Neither of the biconditionals in the derivation have R as the left-hand equivalent, so ↔ER couldn't be used to derive R in this case, not to mention the fact that it wouldn't be necessary to do so, since it has already been derived in the current subderivation.

anything else → It is only possible to derive the left-hand equivalent of the biconditional on the first line cited in an application of ↔ER.

B

T

That's right.

S

Neither of the biconditionals in the derivation have S as the right-hand equivalent, so ↔EL couldn't be used to derive S in this case, not to mention the fact that it wouldn't be necessary to do so, since it has already been derived in the current subderivation.

R

The biconditional on line 1 does not have R as an equivalent, so neither variant of ↔E could be used to derive R when applied to line 1, not to mention the fact that it wouldn't be necessary to do so, since it has already been derived in the current subderivation.

anything else

It is only possible to derive the right-hand equivalent of the biconditional on the first line cited in an application of ↔EL.

C

S

That's right.

R

Neither of the biconditionals in the derivation have R as one equivalent and T as the other, so neither variant of ↔E could be used to derive R in this case.

T

Neither of the biconditionals in the derivation have T as the left-hand equivalent, so ↔ER couldn't be used to derive T in this case, not to mention the fact that it wouldn't be necessary to do so, since it has already been derived in the current subderivation.

anything else

It is only possible to derive the left-hand equivalent of the biconditional on the first line cited in an application of ↔ER.

D

R

That's right.

S

Neither of the biconditionals in the derivation have S as the right-hand equivalent, so $\leftrightarrow$EL couldn't be used to derive S in this case, not to mention the fact that it wouldn't be necessary to do so, since it has already been derived in the current subderivation.

T

The biconditional on line 2 does not have T as an equivalent, so neither variant of $\leftrightarrow$E could be used to derive T when applied to line 2, not to mention the fact that it wouldn't be necessary to do so, since it has already been derived in the current subderivation.

anything else

It is only possible to derive the right-hand equivalent of the biconditional on the first line cited in an application of $\leftrightarrow$EL.

E

$R \leftrightarrow T$

That's right.

$T \leftrightarrow R$

You've got the equivalents in the wrong order, otherwise you have the right idea.

anything else

It is only possible to derive a biconditional by means of an application of $\leftrightarrow$I. The formula on the first line cited (which terminates the first of two subderivations) is the right-hand equivalent of the biconditional derived, while the formula on the second line cited (which terminates the second subderivation) is the left-hand equivalent.

Hints

Each hint should contain the following, after specific hint content:

Click here to view the inference rules for the biconditional.

The link should be to the following file:

missingformulae5hint.gif

A

Remember that biconditional elimination can only be used to derive one or the other of the equivalents of the biconditional on the first line cited. (Which one depends on the direction of the rule, of course.)

The direction of the rule tells you which equivalent is the one eliminated, i.e., the one not occurring in the derived formula.

Once the right-hand equivalent of the biconditional on line 2 has been eliminated, you are left with S.

B

Remember that biconditional elimination can only be used to derive one or the other of the equivalents of the biconditional on the first line cited. (Which one depends on the direction of the rule, of course.)

The direction of the rule tells you which equivalent is the one eliminated, i.e., the one not occurring in the derived formula.

Once the right-hand equivalent of the biconditional on line 1 has been eliminated, you are left with T.

C

Remember that biconditional elimination can only be used to derive one or the other of the equivalents of the biconditional on the first line cited. (Which one depends on the direction of the rule, of course.)

The direction of the rule tells you which equivalent is the one eliminated, i.e., the one not occurring in the derived formula.

Once the right-hand equivalent of the biconditional on line 1 has been eliminated, you are left with S.

D

Remember that biconditional elimination can only be used to derive one or the other of the equivalents of the biconditional on the first line cited. (Which one depends on the direction of the rule, of course.)

The direction of the rule tells you which equivalent is the one eliminated, i.e., the one not occurring in the derived formula.

Once the right-hand equivalent of the biconditional on line 2 has been eliminated, you are left with R.

E

Biconditional introduction works much like conditional introduction, only you need two subderivations, one for each direction.

The assumption that opens the first subderivation corresponds to the left-hand equivalent of the biconditional introduced, while the assumption that opens the second subderivation corresponds to the right-hand equivalent.

The biconditional you should enter in this case is $R \leftrightarrow T$.