


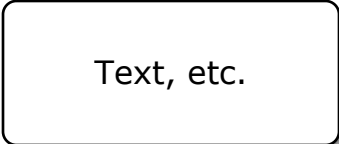
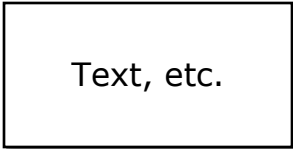
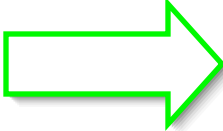




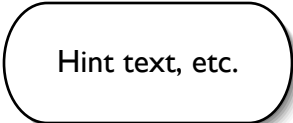


Legend:

State markers:	  
Main user visible content and interface:	
Auxiliary user visible content and interface:	
Correct move:	
Incorrect move:	
Partial move:	
Navigational move:	
Feedback content:	
Hint content:	

Start

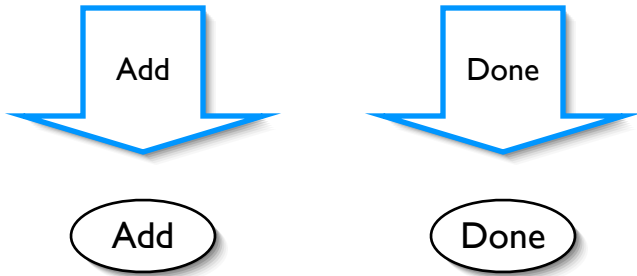
Construct the set of potential contradictions for the derivation below at its current stage. To add a pair to the list, enter a negation from the derivation using the keyboard and the buttons below, indicate the line on which it appears as a positive subformula, and press the "Add" button. When a negation $\neg\phi$ is added to the list, it will automatically be paired with its immediate subformula ϕ for you.

When you think all the potential contradictions have been added to the list, click the "Done" button to check whether or not you found them all.

1. $(\neg L \vee K) \rightarrow A$	Premise	Pairs: <div style="border: 1px solid black; width: 150px; height: 150px; margin: 10px;"></div> <div style="border: 1px solid black; border-radius: 15px; padding: 5px; width: 120px; margin: 10px; text-align: center;">Done</div>
2. $A \rightarrow \neg A$	Premise	
3. $\neg L$	Assumption	
4. $\neg L \vee K$	\vee IR: 3	
5. A	\rightarrow E: 1, 4	
6. $\neg A$	\rightarrow E: 2, 5	
7. \perp	\perp I: 5, 6	
8. L	\neg E: 6	
9. K	Assumption	
⋮	⋮	
⋮	⋮	
⋮	⋮	
n-2. \perp	\perp I: ?, ?	
n-1. $\neg K$	\neg I, n-2	
n. $L \ \& \ \neg K$	$\&$ I: 8, n-2	

& ∨ → ¬ Add

Line # Hint



Correct answers:

Formula	Line #
$\neg A$	2

Pairs display:

A $\neg A$

The feedback is designed with the assumption that the number of contradictory pairs is not provided to the student, so the pairs display shouldn't give away the exact number.

Feedback:
Formula

formula entered is:
 $\neg A$

Now enter the line number.

expression is not well-
formed

That expression is not a well-formed
formula.

expression is well-formed,
but not a negation

That formula is not a negation. You should
only be entering negations that appear as
positive subformulae of lines in the
derivation.

formula entered is:
 $\neg L$

The formula $\neg L$ only appears in this
derivation as a non-positive subformula of
one of the premises, and within a completed
subderivation, where it is inaccessible for
the purpose of obtaining a contradiction in
the current subderivation.

expression is another
negation not on the list

That formula is a negation, but it doesn't
appear as a subformula of any line in the
derivation. You should only be entering
negations that appear as positive
subformulae of lines in the derivation.

Feedback:
Line Number

formula entered is:
 $\neg A$

2

That's right.

1
8

$\neg A$ isn't a subformula of the formula on line [# entered]. You should be entering a line on which $\neg A$ appears as a positive subformula.

3
4
5
7

$\neg A$ isn't a subformula of the formula on line [# entered], and in any case, that line is within a completed subderivation and is hence inaccessible from the current point in the derivation. You should be entering an available line on which $\neg A$ appears as a positive subformula.

6

$\neg A$ is the formula on line [# entered], but that line is within a completed subderivation and is hence inaccessible from the current point in the derivation. You should be entering an available line on which $\neg A$ appears as a positive subformula.

Add

formula and line number are
correct

[Add the negation paired with its
immediate subformula to the list and
clear the entries for formula and line
number.]

Done

all pairs have been added

That's right!

not all pairs have been
added

There are more potential contradictions
than those added to the list.

Hint

no formula entered

To find the set of potential contradictions, all you need to do is find the negations that are positive subformulae of lines in the derivation up to and including the assumption made in order to apply an indirect rule.

A positive subformula is any subformula that is not itself a subformula of a negation, nor a subformula of the antecedent of a conditional.

There are negations on every line of the derivation. Work your way through them one at a time. If a negation is not inside the antecedent of a conditional, and not inside the scope of another negation, enter that negation.

formula entered is:
 $\neg A$

Don't forget that subformulae within the consequent of a conditional are positive subformulae, it is only subformulae within the antecedent that are not.

$\neg A$ appears as a subformula of two lines in the derivation, lines 2 and 6. It is a positive subformula on each line, though since line 6 occurs within a completed subderivation, the occurrence on that line is not available for a potential contradiction at this point in the derivation.