Demographics

How long have you been working as a software engineer?

How long have you been working with configurable software?

Association results-variant

Is knowing that facts or analysis results are associated with a **single** software variant useful in understanding the results?

- ○ Strongly disagree
- ○ Somewhat disagree
- ○ Neither agree nor disagree
- ○ Somewhat agree
- ○ Strongly agree

Why? (Optional)

Is knowing that facts or analysis results are associated with a **collection** of software variants useful in understanding the results?

- ○ Strongly disagree
- ○ Somewhat disagree
- ○ Neither agree nor disagree
- ○ Somewhat agree
- ○ Strongly agree

Why? (Optional)

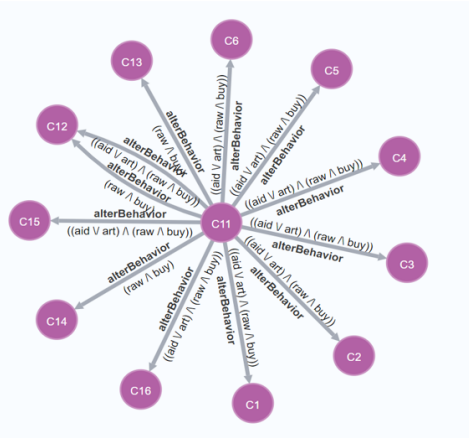
Graphical vs. tabular representation

Which format (graphical or tabular) of representation of dataflow results do you prefer when facts of the **same** type are related to one another (e.g., dataflows that involve the same components as in slide 9 of the presentation)?

Tabular

srcComp	dstComp	behaviourAlterationEdge
C11	C13	raw ∧ buy)
C11	C12	raw ∧ buy)
C11	C6	(aid ∨ art) ∧ (raw ∧ buy)
C11	C12	(aid ∨ art) ∧ (raw ∧ buy)
C11	C3	(aid ∨ art) ∧ (raw ∧ buy)
C11	C15	(aid ∨ art) ∧ (raw ∧ buy)
C11	C5	(aid ∨ art) ∧ (raw ∧ buy)
C11	C14	raw ∧ buy)
C11	C2	(aid ∨ art) ∧ (raw ∧ buy)
C11	C16	(aid ∨ art) ∧ (raw ∧ buy)
C11	C1	(aid ∨ art) ∧ (raw ∧ buy)
C11	C4	(aid ∨ art) ∧ (raw ∧ buy)

Graphical



- ○ Strongly prefer tabular
- ○ Somewhat prefer tabular
- ○ No preference
- ○ Somewhat prefer graphical
- ○ Strongly prefer graphical

Why? (Optional)

Which format (graphical or tabular) of representation of dataflow results do you prefer when facts of **different** types are related to one another (e.g., dataflows, their constituent call links, the components involved, the dataflows' configuration expressions as in slide 11 of the presentation)?

Tabular

relationshipType	srcComp	dstComp	relationshipCondition
call	C7	C1	TRUE
call	C7	C12	TRUE
call	C7	C16	(aid ⋁ art)
call	C8	C14	TRUE
call	C8	C3	(aid ⋁ art)
call	C8	C13	TRUE
call	C8	C2	(aid ⋁ art)
call	C8	C4	(aid ⋁ art)
call	C8	C5	(aid ⋁ art)
call	C9	C6	TRUE
call	C9	C15	TRUE
call	C10	C12	(aid ⋁ art)
call	C11	C8	(raw ⋀ buy)
call	C11	C9	(raw ⋀ buy)
call	C11	C7	(raw ⋀ buy)
call	C11	C10	(raw ⋀ buy)
call	C12	C9	TRUE
alterBehavior	C11	C13	(raw ⋀ buy)
alterBehavior	C11	C12	(raw ⋀ buy)
alterBehavior	C11	C6	((aid ⋁ art) ⋀ (raw ⋀ buy))
alterBehavior	C11	C12	((aid ⋁ art) ⋀ (raw ⋀ buy))
alterBehavior	C11	C3	((aid ⋁ art) ⋀ (raw ⋀ buy))
alterBehavior	C11	C15	((aid ⋁ art) ⋀ (raw ⋀ buy))
alterBehavior	C11	C5	((aid ⋁ art) ⋀ (raw ⋀ buy))
alterBehavior	C11	C14	(raw ⋀ buy)
alterBehavior	C11	C2	((aid ⋁ art) ⋀ (raw ⋀ buy))
alterBehavior	C11	C16	((aid ⋁ art) ⋀ (raw ⋀ buy))
alterBehavior	C11	C1	((aid ⋁ art) ⋀ (raw ⋀ buy))
alterBehavior	C11	C4	((aid ⋁ art) ⋀ (raw ⋀ buy))

Graphical

- ○ Strongly prefer tabular
- ○ Somewhat prefer tabular
- ○ No preference
- ○ Somewhat prefer graphical
- ○ Strongly prefer graphical

Why? (Optional)

Which format (graphical or tabular) of representation of dataflow results do you prefer to **read** the data values/results?

- ○ Strongly prefer tabular
- ○ Somewhat prefer tabular
- ○ No preference
- ○ Somewhat prefer graphical
- ○ Strongly prefer graphical

Why? (Optional)

Which format (graphical or tabular) of representation of dataflow results do you prefer to **find** particular data values/results?

- ○ Strongly prefer tabular
- ○ Somewhat prefer tabular

- ○ No preference
- ○ Somewhat prefer graphical
- ○ Strongly prefer graphical

Why? (Optional)

Which format has a more instinctively familiar representation of dataflows?

- ○ Strongly prefer tabular
- ○ Somewhat prefer tabular
- ○ No preference
- ○ Somewhat prefer graphical
- ○ Strongly prefer graphical

Why? (Optional)

Overall, which format do you prefer?

- ○ Strongly prefer tabular
- ○ Somewhat prefer tabular
- ○ No preference
- ○ Somewhat prefer graphical
- ○ Strongly prefer graphical

Why? (Optional)

To help us understand the reasoning behind your answer, please rank which of the above factors from the previous page have the **most** influence on your preference

	1°	2°
when facts of the same type are related to one another (e.g., dataflows that involve the same components)		

when facts of different types are related to one another (e.g., dataflows, their constituent call links, the components involved, the dataflows' configuration expressions)	
to read the data values/results	
to find particular data values/results	
more instinctively familiar representation of dataflows	

3°

Would your preference change if there were thousands of results to visualize? If so, which format would you prefer in that situation?

- ○ No change of preference
- ○ Strongly prefer tabular
- ○ Somewhat prefer tabular
- ○ No preference
- ○ Somewhat prefer graphical
- ○ Strongly prefer graphical

Would your preference change if the results could be further queried to focus on a subset of results? If so, which format would you prefer in that situation?

- ○ No change of preference
- ○ Strongly prefer tabular
- ○ Somewhat prefer tabular
- ○ No preference
- ○ Somewhat prefer graphical
- ○ Strongly prefer graphical

Would your preference change if the results' labels could be searched (via text search)? If so, which format would you prefer in that situation?

- ○ No change of preference
- ○ Strongly prefer tabular
- ○ Somewhat prefer tabular

- ○ No preference
- ○ Somewhat prefer graphical
- ○ Strongly prefer graphical

If there are other factors that influence your preference that are not covered by the above, describe them below

Coloured filters - Tabular representation

The following questions ask about your preference for coloured rows in the visualization of analysis results.

When visualizing dataflow results and their corresponding configuration expressions, to what extent are coloured rows helpful to **understand** the results that are associated with a **particular** software variant?

Tabular

relationshipType	srcComp	dstComp	relationshipCondition
call	C11	C7	(raw /\ buy)
call	C7	C12	TRUE
alterBehavior	C11	C12	(raw /\ buy)
call	C11	C10	(raw /\ buy)
call	C10	C12	(aid \/ art)
alterBehavior	C11	C12	((aid \/ art) /\ (raw /\ buy))

- ○ Very helpful
- ○ Somewhat helpful
- ○ No difference
- ○ Somewhat unhelpful
- ○ Very unhelpful

Why? (Optional)

When visualizing dataflow results and their corresponding configuration expressions, to what extent are coloured rows helpful to **compare** the results that are associated with **two** different software variants?

relationshipType	srcComp	dstComp	relationshipCondition
call	C11	C7	(raw /\ buy)
call	C7	C12	TRUE
alterBehavior	C11	C12	(raw /\ buy)
call	C11	C10	(raw /\ buy)
call	C10	C12	(aid \/ art)
alterBehavior	C11	C12	((aid \/ art) /\ (raw /\ buy))

- ○ Very helpful
- ○ Somewhat helpful
- ○ No difference
- ○ Somewhat unhelpful
- ○ Very unhelpful

Why? (Optional)

When visualizing dataflow results and their corresponding configuration expressions, to what extent are coloured rows helpful to **understand** the results that are associated with a **collection** of software variants (i.e., where each row colour is associated with a

configuration expression representing a collection of variants)?

relationshipType	srcComp	dstComp	relationshipCondition
call	C7	C1	TRUE
call	C7	C12	TRUE
call	C7	C16	(aid \/ art)
call	C8	C14	TRUE
call	C8	C3	(aid \/ art)
call	C8	C13	TRUE
call	C8	C2	(aid \/ art)
call	C8	C4	(aid \/ art)
call	C8	C5	(aid \/ art)
call	C9	C6	TRUE
call	C9	C15	TRUE
call	C10	C12	(aid \/ art)
call	C11	C8	(raw /\ buy)
call	C11	C9	(raw /\ buy)
call	C11	C7	(raw /\ buy)
call	C11	C10	(raw /\ buy)
call	C12	C9	TRUE
alterBehavior	C11	C13	(raw /\ buy)
alterBehavior	C11	C12	(raw /\ buy)
alterBehavior	C11	C6	((aid \/ art) /\ (raw /\ buy))
alterBehavior	C11	C12	((aid \/ art) /\ (raw /\ buy))
alterBehavior	C11	C3	((aid \/ art) /\ (raw /\ buy))
alterBehavior	C11	C15	((aid \/ art) /\ (raw /\ buy))
alterBehavior	C11	C5	((aid \/ art) /\ (raw /\ buy))
alterBehavior	C11	C14	(raw /\ buy)
alterBehavior	C11	C2	((aid \/ art) /\ (raw /\ buy))
alterBehavior	C11	C16	((aid \/ art) /\ (raw /\ buy))
alterBehavior	C11	C1	((aid \/ art) /\ (raw /\ buy))
alterBehavior	C11	C4	((aid \/ art) /\ (raw /\ buy))

- ○ Very helpful
- ○ Somewhat helpful
- ○ No difference
- ○ Somewhat unhelpful
- ○ Very unhelpful

Why? (Optional)

When visualizing dataflow results and their corresponding configuration expressions, to what extent are coloured rows helpful to **compare** the results that are associated with **two** different **collections** of software variants (i.e., where each row colour is associated with a

configuration expression representing a collection of variants)?

relationshipType	srcComp	dstComp	relationshipCondition
call	C7	C1	TRUE
call	C7	C12	TRUE
call	C7	C16	(aid \/ art)
call	C8	C14	TRUE
call	C8	C3	(aid \/ art)
call	C8	C13	TRUE
call	C8	C2	(aid \/ art)
call	C8	C4	(aid \/ art)
call	C8	C5	(aid \/ art)
call	C9	C6	TRUE
call	C9	C15	TRUE
call	C10	C12	(aid \/ art)
call	C11	C8	(raw /\ buy)
call	C11	C9	(raw /\ buy)
call	C11	C7	(raw /\ buy)
call	C11	C10	(raw /\ buy)
call	C12	C9	TRUE
alterBehavior	C11	C13	(raw /\ buy)
alterBehavior	C11	C12	(raw /\ buy)
alterBehavior	C11	C6	((aid \/ art) /\ (raw /\ buy))
alterBehavior	C11	C12	((aid \/ art) /\ (raw /\ buy))
alterBehavior	C11	C3	((aid \/ art) /\ (raw /\ buy))
alterBehavior	C11	C15	((aid \/ art) /\ (raw /\ buy))
alterBehavior	C11	C5	((aid \/ art) /\ (raw /\ buy))
alterBehavior	C11	C14	(raw /\ buy)
alterBehavior	C11	C2	((aid \/ art) /\ (raw /\ buy))
alterBehavior	C11	C16	((aid \/ art) /\ (raw /\ buy))
alterBehavior	C11	C1	((aid \/ art) /\ (raw /\ buy))
alterBehavior	C11	C4	((aid \/ art) /\ (raw /\ buy))

- ○ Very helpful
- ○ Somewhat helpful
- ○ No difference
- ○ Somewhat unhelpful
- ○ Very unhelpful

Why? (Optional)

When visualizing dataflow results and their corresponding configuration expressions, to what extent are coloured rows helpful to **compare** the set of results that are associated with **multiple** different **collections** of software variants (i.e., where each row colour is associated with a configuration expression representing a collection of variants)?

- ○ Very helpful
- ○ Somewhat helpful

- ○ No difference
- ○ Somewhat unhelpful
- ○ Very unhelpful

Why? (Optional)

When visualizing dataflow results and their corresponding configuration expressions, to what extent are coloured rows helpful to **assess** the impact on analysis results from adding or removing a feature from a configuration expression (i.e., where each row colour is associated with either the original or modified configuration expression)?

aid /\ art /\ !raw /\ buy vs.
aid /\ art /\ raw /\ buy
Tabular

relationshipType	srcComp	dstComp	relationshipCondition
call	C11	C7	(raw /\ buy)
call	C7	C12	TRUE
alterBehavior	C11	C12	(raw /\ buy)
call	C11	C10	(raw /\ buy)
call	C10	C12	(aid \/ art)
alterBehavior	C11	C12	((aid \/ art) /\ (raw /\ buy))

- ○ Very helpful
- ○ Somewhat helpful
- ○ No difference
- ○ Somewhat unhelpful
- ○ Very unhelpful

Why? (Optional)

Overall, which visualization would be faster and easier to read, understand, find, and report dataflows and their associated configuration expressions?

- ○ Strongly prefer coloured rows

- ○ Somewhat prefer coloured rows
- ○ No preference
- ○ Somewhat prefer uncoloured rows
- ○ Strongly prefer uncoloured rows

Why? (Optional)

To help us understand the reasoning behind your answer, please identify and rank the tasks from the previous page that have the **most** influence on your preference

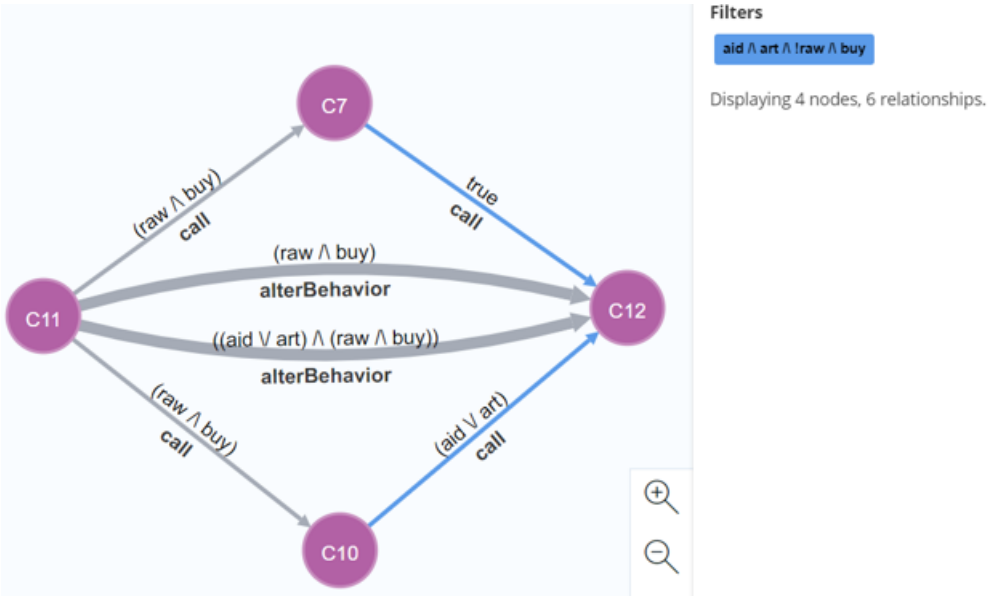
	1°	2°	3°
to understand the facts associated with a particular software variant			
to compare the facts associated with two different software variants			
to understand the facts associated with a collection of software variants			
to compare the facts associated with two different collections of software variants			
to compare the set of facts associated with multiple different collections of software variants			
to assess the impact on analysis results from adding or removing a feature from a configuration expression			

If there are other factors that influence your preference that are not covered by the above, describe them below.

Coloured filters - Graph representation

The following questions ask about your preference for coloured edges in the visualization of analysis results.

When visualizing dataflow results and their corresponding configuration expressions, to what extent are coloured edges helpful to **understand** the the results that are associated with a **particular** software variant?

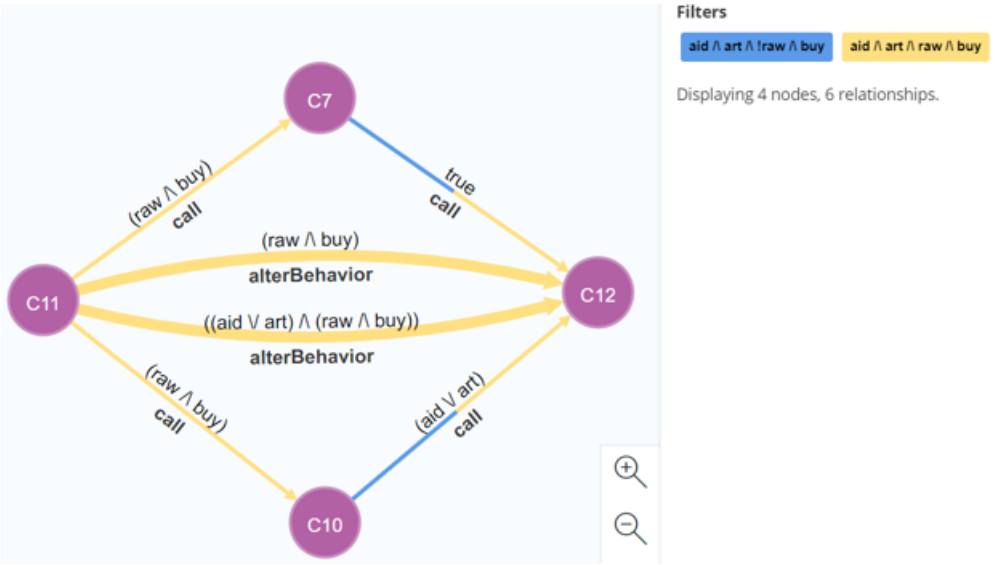


- ○ Very helpful
- ○ Somewhat helpful
- ○ No difference
- ○ Somewhat helpful
- ○ Very unhelpful

Why? (Optional)

When visualizing dataflow results and their corresponding configuration expressions, to what extent are coloured edges helpful to **compare** the results that are associated with **two**

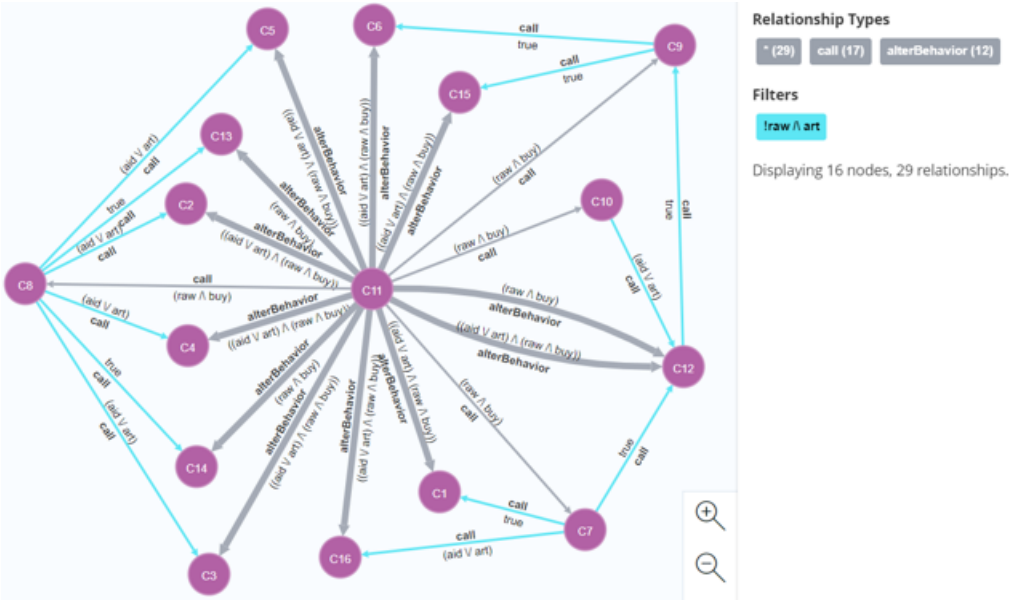
different software variants?



- Very helpful
- Somewhat helpful
- No difference
- Somewhat helpful
- Very unhelpful

Why? (Optional)

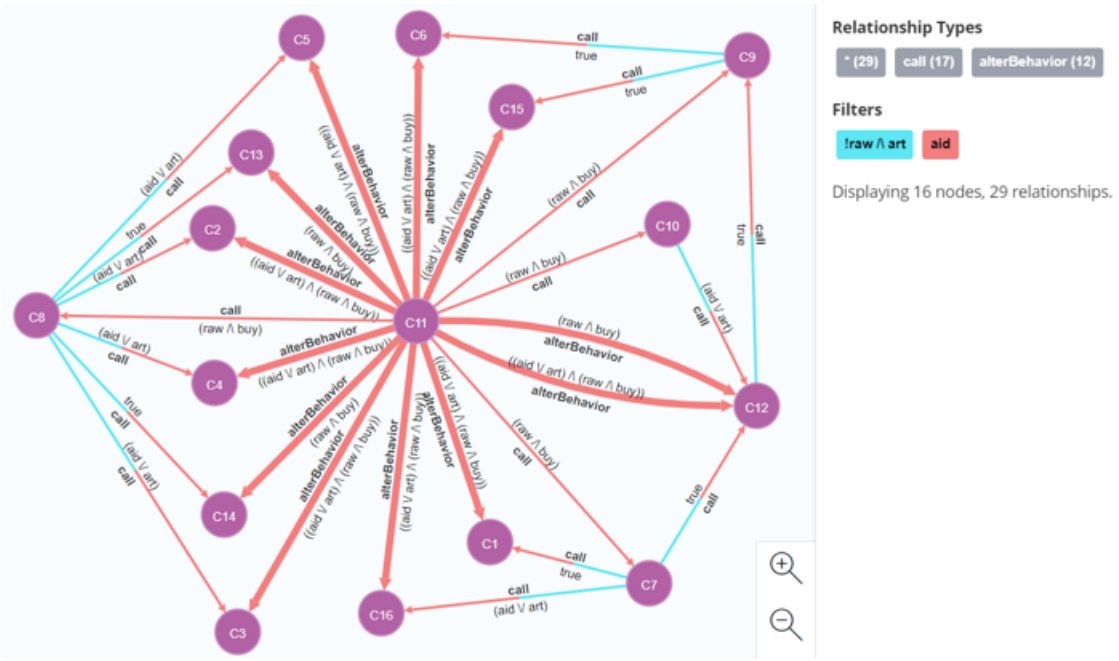
When visualizing dataflow results and their corresponding configuration expressions, to what extent are coloured edges helpful to **understand** the results that are associated with a **collection** of software variants (i.e., where each edge colour is associated with a configuration expression representing a collection of variants)?



- ○ Very helpful
- ○ Somewhat helpful
- ○ No difference
- ○ Somewhat helpful
- ○ Very unhelpful

Why? (Optional)

When visualizing dataflow results and their corresponding configuration expressions, to what extent are coloured edges helpful to **compare** the results that are associated with **two** different **collections** of software variants (i.e., where each edge colour is associated with a configuration expression representing a collection of variants)?



- ○ Very helpful
- ○ Somewhat helpful
- ○ No difference
- ○ Somewhat helpful
- ○ Very unhelpful

Why? (Optional)

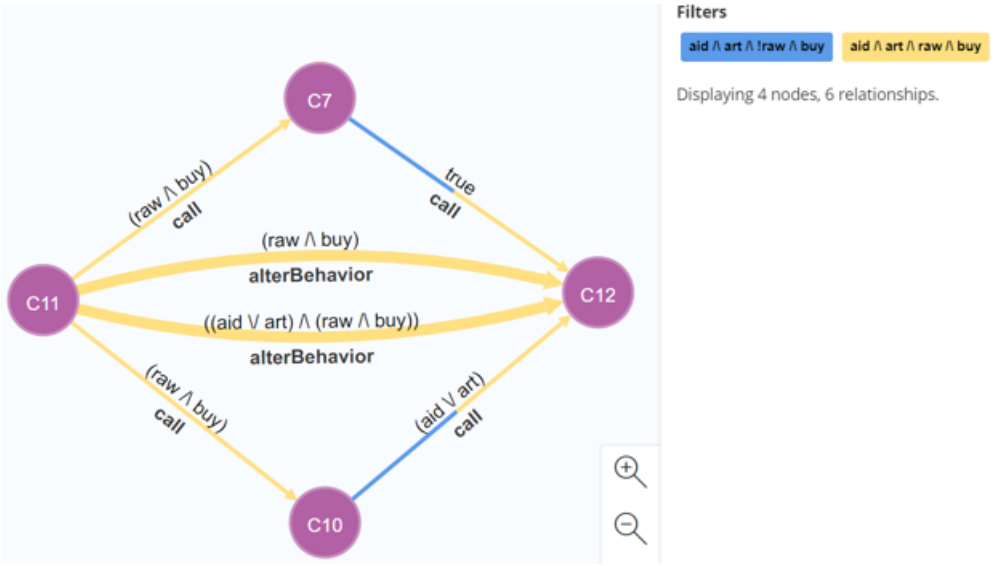
When visualizing dataflow results and their corresponding configuration expressions, to what extent are coloured edges helpful to **compare** the set of results that are associated with

multiple different **collections** of software variants (i.e., where each edge colour is associated with a configuration expression representing a collection of variants)?

- Very helpful
- Somewhat helpful
- No difference
- Somewhat helpful
- Very unhelpful

Why? (Optional)

When visualizing dataflow results and their corresponding configuration expressions, to what extent are coloured edges helpful to **assess** the impact on analysis results from adding or removing a feature from a configuration expression (i.e., where each edge colour is associated with either the original or modified configuration expression)?



- Very helpful
- Somewhat helpful
- No difference
- Somewhat helpful
- Very unhelpful

Why? (Optional)

Overall, which visualization would be faster and easier to read, understand, find, and report dataflows and their associated configuration expressions?

- ○ Strongly prefer coloured edges
- ○ Somewhat prefer coloured edges
- ○ No preference
- ○ Somewhat prefer uncoloured edges
- ○ Strongly prefer uncoloured edges

Why? (Optional)

To help us understand the reasoning behind your answer, please identify and rank the tasks from the previous page that have the **most** influence on your preference

	1°	2°	3°
to understand the facts associated with a particular software variant			
to compare the facts associated with two different software variants			
to understand the facts associated with a collection of software variants			
to compare the facts associated with two different collections of software variants			
to compare the set of facts associated with multiple different collections of software variants			
to assess the impact on analysis results from adding or removing a feature from a configuration expression			

If there are other factors that influence your preference that are not covered by the above, describe them below.

Feedback and suggestion

What are your general impressions of the presented tool?

Do you have any suggestions for improvements to the presented tool? If so, please describe them below.