## Appendix 1 - Log of all test failures

#### Failures:

1) gemini-2.0-flash-lite | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 2 variables

## Message:

Incorrect polarity discovered: Expected '-' to be '+'.

2) gemini-2.0-flash-lite | causal translation testing | multiple feedback loops | extract 3 feedback loops with [+, +, -] polarities

## Message:

Incorrect polarity discovered: Expected '-' to be '+'.

#### Message:

Incorrect polarity discovered: Expected '-' to be '+'.

## Message:

Incorrect polarity discovered: Expected '-' to be '+'.

## Message:

Incorrect polarity discovered: Expected '-' to be '+'.

## Message:

Incorrect polarity discovered: Expected '-' to be '+'.

3) gemini-2.0-flash-lite | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 5 variables

## Message:

Incorrect polarity discovered: Expected '-' to be '+'.

#### Message:

Incorrect polarity discovered: Expected '-' to be '+'.

## Message:

Incorrect polarity discovered: Expected '-' to be '+'.

4) gemini-2.0-flash-lite | causal translation testing | single relationship | extract a reinforcing relationship down Message:

Fake relationships found

Fewer Frimbulators --> (+) Fewer Whatajigs

**Ground Truth** 

frimbulators --> (+) whatajigs: Expected 1 to be 0.

## Message:

Real relationships not found

frimbulators --> (+) whatajigs **Ground Truth** frimbulators --> (+) whatajigs: Expected 1 to be 0. 5) gemini-2.0-flash-lite | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 7 variables Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. 6) gemini-2.0-flash-lite | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 4 variables Message: Fake relationships found funkados --> (-) refluppers, marticatenes --> (+) maxabizers, maxabizers --> (+) funkados, refluppers --> (+) marticatenes **Ground Truth** funkados --> (+) maxabizers, marticatenes --> (+) refluppers, maxabizers --> (+) marticatenes, refluppers --> (+) funkados: Expected 4 to be 0. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. 7) gemini-2.0-flash-lite | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 6 variables Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'.

8) gemini-2.0-flash-lite | causal translation testing | multiple feedback loops | extract 2 feedback loops with [-, +] polarities Message: Fake relationships found refluppers --> (-) frimbulators **Ground Truth** balacks --> (+) frimbulators, balacks --> (+) whoziewhats, frimbulators --> (-) whataiigs, funkados --> (+) maxabizers, marticatenes --> (+) refluppers, maxabizers --> (+) marticatenes, refluppers --> (+) balacks, whataiigs --> (+) balacks, whoziewhats --> (+) funkados: Expected 1 to be 0. 9) gemini-2.0-flash-lite | causal translation testing | multiple feedback loops | extract 2 feedback loops with [+, +] polarities Message: Fake relationships found frimbulators --> (+) maxabizers, frimbulators --> (+) refluppers, frimbulators --> (+) whoziewhats, frimbulators --> (-) funkados, frimbulators --> (-) marticatenes, refluppers --> (+) frimbulators **Ground Truth** balacks --> (+) frimbulators, balacks --> (+) whoziewhats, frimbulators --> (+) whatajigs, funkados --> (+) maxabizers, marticatenes --> (+) refluppers, maxabizers --> (+) marticatenes, refluppers --> (+) balacks, whatajigs --> (+) balacks, whoziewhats --> (+) funkados: Expected 6 to be 0. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. 10) gemini-2.0-flash-lite | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 8 variables Message: Fake relationships found

dominitoxings --> (-) ocs, ocs --> (-) priaries, povals --> (-) exemintes, priaries --> (-) povals

**Ground Truth** 

auspongs --> (+) dominitoxings, dominitoxings --> (+) exemintes, exemintes --> (+) ocs, houtals --> (+) povals, ocs --> (+) proprimatires, povals --> (+) auspongs, priaries --> (+) houtals, proprimatires --> (+) priaries: Expected 4 to be 0.

Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. 11) gemini-2.0-flash-lite | causal translation testing | multiple feedback loops | extract 5 feedback loops with [-, +, +, -, -] polarities Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'.

12) gemini-2.0-flash-lite | causal translation testing | single feedback loop | extract a balancing feedback loop with 8 variables

#### Message:

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Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
 Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
13) gemini-2.0-flash-lite | causal translation testing | single feedback loop | extract a balancing feedback loop
with 4 variables
 Message:
  Fake relationships found
  Funkados --> (-) Marticatenes, Maxabizers --> (+) Refluppers
  Ground Truth
  funkados --> (-) maxabizers, marticatenes --> (+) refluppers, maxabizers --> (+) marticatenes, refluppers -->
(+) funkados: Expected 2 to be 0.
 Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
14) gemini-2.0-flash-lite | causal translation testing | multiple feedback loops | extract 5 feedback loops with [-,
+, +, +, -] polarities
 Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
 Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
 Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
 Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
 Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
 Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
 Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
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Message:

Message:

Incorrect polarity discovered: Expected '-' to be '+'.

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Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. 15) gemini-2.0-flash-lite | causal translation testing | single feedback loop | extract a balancing feedback loop with 7 variables Message: Fake relationships found exemintes --> (-) proptimatires, houtals --> (+) refluppers, ocs --> (+) priaries, priaries --> (-) povals, proptimatires --> (+) houtals, refluppers --> (+) ocs **Ground Truth** exemintes --> (+) ocs, houtals --> (+) povals, ocs --> (+) proptimatires, povals --> (+) refluppers, priaries --> (+) houtals, proptimatires --> (+) priaries, refluppers --> (-) exemintes: Expected 6 to be 0. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. 16) gemini-2.0-flash-lite | causal translation testing | single feedback loop | extract a balancing feedback loop with 3 variables Message: Fake relationships found maxabizers --> (-) funkados **Ground Truth** funkados --> (+) maxabizers, maxabizers --> (+) whoziewhats, whoziewhats --> (-) funkados: Expected 1 to be 0. Message: Incorrect polarity discovered: Expected '-' to be '+'. 17) gemini-2.0-flash-lite | causal translation testing | single feedback loop | extract a balancing feedback loop with 6 variables Message:

Fake relationships found

exemintes --> (-) proptimatires, marticatenes --> (-) exemintes, ocs --> (+) priaries, priaries --> (+) refluppers, proptimatires --> (-) marticatenes, refluppers --> (+) ocs

**Ground Truth** 

exemintes --> (+) ocs, marticatenes --> (-) refluppers, ocs --> (+) proptimatires, priaries --> (+) marticatenes, proptimatires --> (+) priaries, refluppers --> (+) exemintes: Expected 6 to be 0.

## Message:

Incorrect polarity discovered: Expected '-' to be '+'.

#### Message:

Incorrect polarity discovered: Expected '-' to be '+'.

18) gemini-2.0-flash-lite | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 3 variables

## Message:

Fake relationships found

fewer funkados --> (-) less whoziewhats, fewer whoziewhats --> (-) less maxabizers, less maxabizers --> (-) fewer whoziewhats, less whoziewhats --> (-) fewer funkados, more funkados --> (+) more maxabizers, more maxabizers --> (+) more funkados

**Ground Truth** 

funkados --> (+) maxabizers, maxabizers --> (+) whoziewhats, whoziewhats --> (+) funkados: Expected 6 to be 0.

## Message:

Real relationships not found

funkados --> (+) maxabizers, maxabizers --> (+) whoziewhats, whoziewhats --> (+) funkados

**Ground Truth** 

funkados --> (+) maxabizers, maxabizers --> (+) whoziewhats, whoziewhats --> (+) funkados: Expected 3 to be 0.

19) gemini-1.5-flash | causal translation testing | single feedback loop | extract a balancing feedback loop with 6 variables

#### Message:

Incorrect polarity discovered: Expected '-' to be '+'.

## Message:

Incorrect polarity discovered: Expected '-' to be '+'.

20) gemini-1.5-flash | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 5 variables

## Message:

Incorrect polarity discovered: Expected '-' to be '+'.

## Message:

Incorrect polarity discovered: Expected '-' to be '+'.

## Message:

21) gemini-1.5-flash | causal translation testing | single feedback loop | extract a balancing feedback loop with 5 variables Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. 22) gemini-1.5-flash | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 2 variables Message: Incorrect polarity discovered: Expected '-' to be '+'. 23) gemini-1.5-flash | causal translation testing | multiple feedback loops | extract 2 feedback loops with [-, +] polarities Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. 24) gemini-1.5-flash | causal translation testing | multiple feedback loops | extract 2 feedback loops with [+, +] polarities Message: Fake relationships found balacks --> (-) refluppers, balacks --> (-) whatajigs, whatajigs --> (-) frimbulators **Ground Truth** balacks --> (+) frimbulators, balacks --> (+) whoziewhats, frimbulators --> (+) whatajigs, funkados --> (+) maxabizers, marticatenes --> (+) refluppers, maxabizers --> (+) marticatenes, refluppers --> (+) balacks, whatajigs --> (+) balacks, whoziewhats --> (+) funkados: Expected 3 to be 0. 25) gemini-1.5-flash | causal translation testing | single feedback loop | extract a balancing feedback loop with 7 variables Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'.

# Message: Incorrect polarity discovered: Expected '-' to be '+'. 26) gemini-1.5-flash | causal translation testing | single relationship | extract a balancing relationship up Message: Fake relationships found whatajigs --> (+) frimbulators **Ground Truth** frimbulators --> (-) whatajigs: Expected 1 to be 0. 27) gemini-1.5-flash | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 7 variables Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. 28) gemini-1.5-flash | causal translation testing | multiple feedback loops | extract 5 feedback loops with [-, +, +, +, -] polarities Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'.

Message:

Message:

Incorrect polarity discovered: Expected '-' to be '+'.

Incorrect polarity discovered: Expected '-' to be '+'.

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Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. 29) gemini-1.5-flash | causal translation testing | multiple feedback loops | extract 3 feedback loops with [-, -, +] polarities Message: Real relationships not found maxabizers --> (+) funkados **Ground Truth** balacks --> (+) whoziewhats, exemintes --> (+) maxabizers, frimbulators --> (-) whatajigs, funkados --> (+) frimbulators, funkados --> (-) maxabizers, marticatenes --> (+) refluppers, maxabizers --> (+) funkados, maxabizers --> (+) marticatenes, refluppers --> (+) exemintes, whatajigs --> (+) balacks, whoziewhats --> (+) funkados: Expected 1 to be 0. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '+' to be '-'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. 30) gemini-1.5-flash | causal translation testing | multiple feedback loops | extract 3 feedback loops with [+, +, -] polarities Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'.

Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. 31) gpt-4o | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 3 variables Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. 32) gpt-4o | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 5 variables Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. 33) gpt-40 | causal translation testing | multiple feedback loops | extract 3 feedback loops with [-, -, +] polarities Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. 34) gpt-4o | causal translation testing | single feedback loop | extract a balancing feedback loop with 7 variables Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message:

Incorrect polarity discovered: Expected '-' to be '+'. 35) gpt-40 | causal translation testing | multiple feedback loops | extract 5 feedback loops with [-, +, +, -] polarities Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. 36) gpt-40 | causal translation testing | multiple feedback loops | extract 2 feedback loops with [-, +] polarities Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'.

37) gpt-4o | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 6 variables

#### Message:

Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. 38) gpt-40 | causal translation testing | single feedback loop | extract a balancing feedback loop with 5 variables Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. 39) gpt-4o | causal translation testing | single feedback loop | extract a balancing feedback loop with 8 variables Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. 40) gpt-40 | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 7 variables Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message:

41) gpt-4o | causal translation testing | single feedback loop | extract a balancing feedback loop with 3 variables

#### Message:

Incorrect polarity discovered: Expected '-' to be '+'.

42) gpt-4o | causal translation testing | single feedback loop | extract a balancing feedback loop with 6 variables Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. 43) gpt-4o | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 8 variables Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. 44) gpt-40 | causal translation testing | multiple feedback loops | extract 5 feedback loops with [-, +, +, -, -] polarities Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message:

45) gpt-4o-mini   causal translation testing   single feedback loop   extract a balancing feedback loop with 3 variables
Message:
Incorrect polarity discovered: Expected '-' to be '+'.
Message:
Incorrect polarity discovered: Expected '+' to be '-'.
46) gpt-4o-mini   causal translation testing   multiple feedback loops   extract 5 feedback loops with [-, +, +, -, -]
polarities
Message:
Incorrect polarity discovered: Expected '-' to be '+'.
Message:
Incorrect polarity discovered: Expected '-' to be '+'.
Message:
Incorrect polarity discovered: Expected '-' to be '+'.
Message:
Incorrect polarity discovered: Expected '-' to be '+'.
Message:
Incorrect polarity discovered: Expected '+' to be '-'.
Message:
Incorrect polarity discovered: Expected '-' to be '+'.
Message:
Incorrect polarity discovered: Expected '-' to be '+'.
Message:
Incorrect polarity discovered: Expected '-' to be '+'.
Message:
Incorrect polarity discovered: Expected '-' to be '+'.
Message:
Incorrect polarity discovered: Expected '+' to be '-'.
Message:
Incorrect polarity discovered: Expected '-' to be '+'.

47) gpt-4o-mini | causal translation testing | single feedback loop | extract a balancing feedback loop with 6 variables Message: Fake relationships found Marticatenes --> (+) Priaries **Ground Truth** exemintes --> (+) ocs, marticatenes --> (-) refluppers, ocs --> (+) proptimatires, priaries --> (+) marticatenes, proptimatires --> (+) priaries, refluppers --> (+) exemintes: Expected 1 to be 0. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '+' to be '-'. Message: Incorrect polarity discovered: Expected '-' to be '+'. 48) gpt-4o-mini | causal translation testing | multiple feedback loops | extract 5 feedback loops with [-, +, +, -] polarities Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '+' to be '-'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '+' to be '-'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'.

Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. 49) gpt-4o-mini | causal translation testing | single feedback loop | extract a balancing feedback loop with 4 variables Message: Fake relationships found funkados --> (-) refluppers, maxabizers --> (-) funkados **Ground Truth** funkados --> (-) maxabizers, marticatenes --> (+) refluppers, maxabizers --> (+) marticatenes, refluppers --> (+) funkados: Expected 2 to be 0. Message: Incorrect polarity discovered: Expected '+' to be '-'. Message: Incorrect polarity discovered: Expected '-' to be '+'. 50) gpt-4o-mini | causal translation testing | multiple feedback loops | extract 3 feedback loops with [-, -, +] polarities Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '+' to be '-'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '+' to be '-'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. 51) gpt-4o-mini | causal translation testing | multiple feedback loops | extract 3 feedback loops with [+, +, -] polarities Message: Incorrect polarity discovered: Expected '-' to be '+'.

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Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
 Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
52) gpt-4o-mini | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 5
variables
 Message:
  Fake relationships found
  marticatenes --> (+) maxabizers
  Ground Truth
  exemintes --> (+) ocs, marticatenes --> (+) refluppers, maxabizers --> (+) marticatenes, ocs --> (+)
maxabizers, refluppers --> (+) exemintes: Expected 1 to be 0.
 Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
 Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
 Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
53) gpt-4o-mini | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 2
variables
 Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
54) gpt-4o-mini | causal translation testing | single feedback loop | extract a balancing feedback loop with 5
variables
 Message:
  Fake relationships found
  Maxabizers --> (-) Ocs
  Ground Truth
  exemintes --> (+) ocs, marticatenes --> (+) refluppers, maxabizers --> (-) marticatenes, ocs --> (+)
maxabizers, refluppers --> (+) exemintes: Expected 1 to be 0.
 Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
 Message:
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55) gpt-4o-mini | causal translation testing | multiple feedback loops | extract 2 feedback loops with [-, +] polarities Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '+' to be '-'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. 56) gpt-4o-mini | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 7 variables Message: Fake relationships found povals --> (+) exemintes, refluppers --> (+) povals **Ground Truth** exemintes --> (+) ocs, houtals --> (+) povals, ocs --> (+) proptimatires, povals --> (+) refluppers, priaries --> (+) houtals, proptimatires --> (+) priaries, refluppers --> (+) exemintes: Expected 2 to be 0. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. 57) gpt-4o-mini | causal translation testing | multiple feedback loops | extract 2 feedback loops with [+, +] polarities Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'.

## Message:

Incorrect polarity discovered: Expected '-' to be '+'.

58) gpt-4o-mini | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 6 variables

Message:

Fake relationships found

Marticatenes --> (+) Priaries

**Ground Truth** 

exemintes --> (+) ocs, marticatenes --> (+) refluppers, ocs --> (+) proptimatires, priaries --> (+) marticatenes, proptimatires --> (+) priaries, refluppers --> (+) exemintes: Expected 1 to be 0.

#### Message:

Incorrect polarity discovered: Expected '-' to be '+'.

#### Message:

Incorrect polarity discovered: Expected '-' to be '+'.

59) gpt-4o-mini | causal translation testing | single feedback loop | extract a balancing feedback loop with 8 variables

Message:

Fake relationships found

dominitoxings --> (+) ocs, exemintes --> (+) dominitoxings

**Ground Truth** 

auspongs --> (+) dominitoxings, dominitoxings --> (+) exemintes, exemintes --> (-) ocs, houtals --> (+) povals, ocs --> (+) proptimatires, povals --> (+) auspongs, priaries --> (+) houtals, proptimatires --> (+) priaries: Expected 2 to be 0.

#### Message:

Incorrect polarity discovered: Expected '-' to be '+'.

## Message:

Incorrect polarity discovered: Expected '+' to be '-'.

#### Message:

Incorrect polarity discovered: Expected '-' to be '+'.

#### Message:

Incorrect polarity discovered: Expected '-' to be '+'.

60) gpt-4o-mini | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 3 variables

#### Message:

Fake relationships found

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maxabizers --> (-) funkados
  Ground Truth
  funkados --> (+) maxabizers, maxabizers --> (+) whoziewhats, whoziewhats --> (+) funkados: Expected 1 to
be 0.
 Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
 Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
61) gpt-4o-mini | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 8
variables
 Message:
  Fake relationships found
  exemintes --> (+) dominitoxings
  Ground Truth
  auspongs --> (+) dominitoxings, dominitoxings --> (+) exemintes, exemintes --> (+) ocs, houtals --> (+)
povals, ocs --> (+) proptimatires, povals --> (+) auspongs, priaries --> (+) houtals, proptimatires --> (+) priaries:
Expected 1 to be 0.
 Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
 Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
 Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
62) gpt-4o-mini | causal translation testing | single feedback loop | extract a balancing feedback loop with 7
variables
 Message:
  Fake relationships found
  refluppers --> (+) povals
  Ground Truth
  exemintes --> (+) ocs, houtals --> (+) povals, ocs --> (+) proptimatires, povals --> (+) refluppers, priaries -->
(+) houtals, proptimatires --> (+) priaries, refluppers --> (-) exemintes: Expected 1 to be 0.
 Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
 Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
 Message:
```

Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '+' to be '-'. 63) gpt-4o-mini | causal translation testing | single relationship | extract a reinforcing relationship up Message: Fake relationships found Whatajigs --> (+) Frimbulators **Ground Truth** frimbulators --> (+) whatajigs: Expected 1 to be 0. 64) gpt-4o-mini | causal translation testing | single relationship | extract a balancing relationship down Message: Fake relationships found Whatajigs --> (-) Frimbulators **Ground Truth** frimbulators --> (-) whatajigs: Expected 1 to be 0. Message: Incorrect polarity discovered: Expected '+' to be '-'. 65) gpt-4o-mini | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 4 variables Message: Fake relationships found marticatenes --> (-) maxabizers **Ground Truth** funkados --> (+) maxabizers, marticatenes --> (+) refluppers, maxabizers --> (+) marticatenes, refluppers --> (+) funkados: Expected 1 to be 0. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. 66) gpt-4o-mini | causal translation testing | single relationship | extract a reinforcing relationship down Message: Fake relationships found Whatajigs --> (+) Frimbulators **Ground Truth** frimbulators --> (+) whatajigs: Expected 1 to be 0.

Message:

Incorrect polarity discovered: Expected '-' to be '+'.

67) gpt-4o-mini | causal translation testing | single relationship | extract a balancing relationship up Message:

Fake relationships found

Frimbulators --> (-) Whatajig Demand, Whatajig Demand --> (+) Frimbulators, Whatajigs --> (+) Frimbulators Ground Truth

frimbulators --> (-) whatajigs: Expected 3 to be 0.

68) o3-mini high | causal translation testing | single relationship | extract a balancing relationship down Message:

Fake relationships found

Whatajigs --> (-) Frimbulators

**Ground Truth** 

frimbulators --> (-) whatajigs: Expected 1 to be 0.

69) o3-mini high | causal translation testing | single relationship | extract a reinforcing relationship down Message:

Fake relationships found

Whatajigs --> (+) Frimbulators

**Ground Truth** 

frimbulators --> (+) whatajigs: Expected 1 to be 0.

70) o3-mini high | causal translation testing | single relationship | extract a balancing relationship up Message:

Fake relationships found

Whatajigs --> (-) Frimbulators

**Ground Truth** 

frimbulators --> (-) whatajigs: Expected 1 to be 0.

71) o3-mini medium | causal translation testing | single relationship | extract a balancing relationship up Message:

Fake relationships found

Frimbulator Count --> (-) Whatajig Count, Whatajig Count --> (-) Frimbulator Count

**Ground Truth** 

frimbulators --> (-) whatajigs: Expected 2 to be 0.

Message:

Real relationships not found

frimbulators --> (-) whatajigs

**Ground Truth** 

frimbulators --> (-) whatajigs: Expected 1 to be 0.

72) o3-mini medium | causal translation testing | single relationship | extract a balancing relationship down Message:

Fake relationships found

Whatajigs --> (-) Frimbulators

**Ground Truth** 

frimbulators --> (-) whatajigs: Expected 1 to be 0.

73) gemini-2.0-flash | causal translation testing | single feedback loop | extract a balancing feedback loop with 4 variables

Message:

Fake relationships found

marticatenes --> (-) maxabizers

**Ground Truth** 

funkados --> (-) maxabizers, marticatenes --> (+) refluppers, maxabizers --> (+) marticatenes, refluppers --> (+) funkados: Expected 1 to be 0.

74) gemini-2.0-flash | causal translation testing | single relationship | extract a reinforcing relationship up Message:

Fake relationships found

whatajigs --> (+) frimbulators

**Ground Truth** 

frimbulators --> (+) whatajigs: Expected 1 to be 0.

75) gemini-2.0-flash | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 8 variables

Message:

Incorrect polarity discovered: Expected '-' to be '+'.

Message:

Incorrect polarity discovered: Expected '-' to be '+'.

Message:

Incorrect polarity discovered: Expected '-' to be '+'.

Message:

Incorrect polarity discovered: Expected '-' to be '+'.

76) gemini-2.0-flash | causal translation testing | single relationship | extract a reinforcing relationship down Message:

Fake relationships found

Number of frimbulators --> (+) Number of whatajigs, Number of whatajigs --> (+) Number of frimbulators Ground Truth

```
frimbulators --> (+) whatajigs: Expected 2 to be 0.
 Message:
  Real relationships not found
  frimbulators --> (+) whatajigs
  Ground Truth
  frimbulators --> (+) whatajigs: Expected 1 to be 0.
77) gemini-2.0-flash | causal translation testing | single feedback loop | extract a reinforcing feedback loop with
6 variables
 Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
 Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
 Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
78) gemini-2.0-flash | causal translation testing | single feedback loop | extract a reinforcing feedback loop with
3 variables
 Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
 Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
79) gemini-2.0-flash | causal translation testing | single relationship | extract a balancing relationship up
 Message:
  Fake relationships found
  whatajigs --> (-) frimbulators
  Ground Truth
  frimbulators --> (-) whatajigs: Expected 1 to be 0.
80) gemini-2.0-flash | causal translation testing | single feedback loop | extract a reinforcing feedback loop with
4 variables
 Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
 Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
```

81) gemini-2.0-flash | causal translation testing | multiple feedback loops | extract 3 feedback loops with [+, +, -] polarities

Message:

Fake relationships found

maxabizers --> (-) exemintes

**Ground Truth** 

balacks --> (+) whoziewhats, exemintes --> (+) maxabizers, frimbulators --> (+) whatajigs, funkados --> (+) frimbulators, funkados --> (+) maxabizers, marticatenes --> (+) refluppers, maxabizers --> (+) funkados, maxabizers --> (-) marticatenes, refluppers --> (+) exemintes, whatajigs --> (+) balacks, whoziewhats --> (+) funkados: Expected 1 to be 0.

82) gemini-2.0-flash | causal translation testing | single relationship | extract a balancing relationship down Message:

Fake relationships found

Number of frimbulators --> (-) Number of whatajigs, Number of whatajigs --> (-) Number of frimbulators Ground Truth

frimbulators --> (-) whatajigs: Expected 2 to be 0.

## Message:

Real relationships not found

frimbulators --> (-) whatajigs

**Ground Truth** 

frimbulators --> (-) whatajigs: Expected 1 to be 0.

83) gemini-2.0-flash | causal translation testing | multiple feedback loops | extract 2 feedback loops with [+, +] polarities

Message:

Fake relationships found

refluppers --> (-) marticatenes, whatajigs --> (-) frimbulators

**Ground Truth** 

balacks --> (+) frimbulators, balacks --> (+) whoziewhats, frimbulators --> (+) whatajigs, funkados --> (+) maxabizers, marticatenes --> (+) refluppers, maxabizers --> (+) marticatenes, refluppers --> (+) balacks, whoziewhats --> (+) funkados: Expected 2 to be 0.

84) gemini-2.0-flash | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 5 variables

Message:

Incorrect polarity discovered: Expected '-' to be '+'.

Message:

Incorrect polarity discovered: Expected '-' to be '+'.

Message:

85) o1 | conformance testing | can conform to the instruction include a minimum number of feedback loops and a minimum number of variables| for the case American Revolution

Message:

Too few feedback loops: The number of feedback loops found was 1: Expected 1 to be greater than or equal 6.

86) o1 | conformance testing | can conform to the instruction include a minimum number of feedback loops| for the case American Revolution

Message:

Too few feedback loops: The number of feedback loops found was 6: Expected 6 to be greater than or equal 8.

87) o1 | conformance testing | can conform to the instruction include a maximum number of feedback loops| for the case Road Rage

Message:

Too many feedback loops: The number of feedback loops found was 9: Expected 9 to be less than or equal 4.

88) o1 | conformance testing | can conform to the instruction include a minimum number of feedback loops and a minimum number of variables| for the case Road Rage

Message:

Too few feedback loops: The number of feedback loops found was 5: Expected 5 to be greater than or equal 6.

89) o1 | conformance testing | can conform to the instruction include a min number of feedback loops and a maximum number of variables| for the case American Revolution

Message:

Too few feedback loops: The number of feedback loops found was 3: Expected 3 to be greater than or equal 6.

90) o3-mini medium | conformance testing | can conform to the instruction include a min number of feedback loops and a maximum number of variables| for the case Road Rage

Message:

Too few feedback loops: The number of feedback loops found was 4: Expected 4 to be greater than or equal 6.

91) o3-mini medium | conformance testing | can conform to the instruction include a maximum number of feedback loops and a minimum number of variables | for the case Road Rage

Message:

Too many feedback loops: The number of feedback loops found was 5: Expected 5 to be less than or equal 4.

92) o3-mini medium | conformance testing | can conform to the instruction include a minimum number of feedback loops| for the case Road Rage

Message:

Too few feedback loops: The number of feedback loops found was 5: Expected 5 to be greater than or equal 8.

93) o3-mini medium | conformance testing | can conform to the instruction include a min number of feedback loops and a maximum number of variables| for the case American Revolution

Message:

Too few feedback loops: The number of feedback loops found was 4: Expected 4 to be greater than or equal 6.

94) o3-mini medium | conformance testing | can conform to the instruction include a minimum number of feedback loops and a minimum number of variables| for the case American Revolution

Message:

Too few feedback loops: The number of feedback loops found was 3: Expected 3 to be greater than or equal 6.

95) o3-mini medium | conformance testing | can conform to the instruction include a minimum number of feedback loops| for the case American Revolution

Message:

Too few feedback loops: The number of feedback loops found was 3: Expected 3 to be greater than or equal 8.

96) o3-mini high | conformance testing | can conform to the instruction include a min number of feedback loops and a maximum number of variables| for the case Road Rage

Message:

Too few feedback loops: The number of feedback loops found was 5: Expected 5 to be greater than or equal 6.

97) o3-mini high | conformance testing | can conform to the instruction include a minimum number of feedback loops| for the case Road Rage

Message:

Too few feedback loops: The number of feedback loops found was 6: Expected 6 to be greater than or equal 8.

98) o3-mini high | conformance testing | can conform to the instruction include a min number of feedback loops and a maximum number of variables| for the case American Revolution

Message:

Too few feedback loops: The number of feedback loops found was 4: Expected 4 to be greater than or equal 6.

99) o3-mini high | conformance testing | can conform to the instruction include a minimum number of feedback loops and a minimum number of variables| for the case Road Rage

Message:

Too few feedback loops: The number of feedback loops found was 5: Expected 5 to be greater than or equal 6.

100) o3-mini high | conformance testing | can conform to the instruction include a minimum number of feedback loops and a minimum number of variables| for the case American Revolution

Message:

Too few feedback loops: The number of feedback loops found was 5: Expected 5 to be greater than or equal 6.

101) o3-mini high | conformance testing | can conform to the instruction include a minimum number of feedback loops| for the case American Revolution

Message:

Too few feedback loops: The number of feedback loops found was 3: Expected 3 to be greater than or equal 8.

102) gemini-1.5-flash | conformance testing | can conform to the instruction include a maximum number of variables| for the case Road Rage

Message:

Too many variables: Variables are: Stress Levels, Aggressive Driving Incidents, Traffic Congestion, Road Design Improvements, Stress Reduction Techniques, Public Awareness Campaigns: Expected 6 to be less than or equal 5.

103) gemini-1.5-flash | conformance testing | can conform to the instruction include a minimum number of feedback loops| for the case Road Rage

Message:

Too few feedback loops: The number of feedback loops found was 0: Expected 0 to be greater than or equal 8.

104) gemini-1.5-flash | conformance testing | can conform to the instruction include a min number of feedback loops and a maximum number of variables| for the case Road Rage

Message:

Too few feedback loops: The number of feedback loops found was 4: Expected 4 to be greater than or equal 6.

105) gemini-1.5-flash | conformance testing | can conform to the instruction include a minimum number of feedback loops| for the case American Revolution

## Message:

Too few feedback loops: The number of feedback loops found was 3: Expected 3 to be greater than or equal 8.

106) gemini-1.5-flash | conformance testing | can conform to the instruction include a minimum number of feedback loops and a minimum number of variables| for the case American Revolution Message:

Too few feedback loops: The number of feedback loops found was 5: Expected 5 to be greater than or equal 6.

107) gemini-1.5-flash | conformance testing | can conform to the instruction include a min number of feedback loops and a maximum number of variables| for the case American Revolution

## Message:

Too few feedback loops: The number of feedback loops found was 0: Expected 0 to be greater than or equal 6.

108) gemini-1.5-flash | conformance testing | can conform to the instruction include a maximum number of variables| for the case American Revolution

## Message:

Too many variables: Variables are: British Policies (Taxation, Repression), Colonial Resistance, British Repressive Measures, Colonial Unity, American Revolution, Colonial Identity, French and Indian War: Expected 7 to be less than or equal 5.

109) gemini-2.0-flash-lite | conformance testing | can conform to the instruction include a minimum number of feedback loops and a minimum number of variables| for the case Road Rage

## Message:

Too few variables: Variables are: Stress Levels, Road Rage Incidents, Traffic Congestion, Poor Road Design, Perceived Provocations, Learned Behavior, Public Awareness of Road Rage: Expected 7 to be greater than or equal 8.

## Message:

Too few feedback loops: The number of feedback loops found was 5: Expected 5 to be greater than or equal 6.

110) gemini-2.0-flash-lite | conformance testing | can conform to the instruction include a maximum number of feedback loops| for the case Road Rage

#### Message:

Too many feedback loops: The number of feedback loops found was 9: Expected 9 to be less than or equal 4.

111) gemini-2.0-flash-lite | conformance testing | can conform to the instruction include a minimum number of feedback loops| for the case American Revolution

## Message:

Too few feedback loops: The number of feedback loops found was 5: Expected 5 to be greater than or equal 8.

112) gemini-2.0-flash-lite | conformance testing | can conform to the instruction include a maximum number of feedback loops and a maximum number of variables| for the case American Revolution Message:

Too many variables: Variables are: British Taxation, Colonial Resentment, Colonial Defiance, Anti-British Sentiment, British Response, French and Indian War, Colonial Identity: Expected 7 to be less than or equal 5.

113) gemini-2.0-flash-lite | conformance testing | can conform to the instruction include a minimum number of variables| for the case American Revolution

## Message:

Too few variables: Variables are: British Taxation, Colonial Economic Hardship, Colonial Satisfaction with British Rule, Colonial Defiance, British Response to Colonial Defiance, Colonial Anti-British Sentiment, Colonial Identity, French and Indian War Debt, British Military Presence: Expected 9 to be greater than or equal 10.

114) gemini-2.0-flash-lite | conformance testing | can conform to the instruction include a min number of feedback loops and a maximum number of variables| for the case American Revolution Message:

Too few feedback loops: The number of feedback loops found was 5: Expected 5 to be greater than or equal 6.

115) gemini-2.0-flash-lite | conformance testing | can conform to the instruction include a minimum number of feedback loops and a minimum number of variables| for the case American Revolution Message:

Too few variables: Variables are: British Taxation, Colonial Grievances, Colonial Identity, Acts of Defiance, British Response, Revolutionary Sentiment, Armed Conflict: Expected 7 to be greater than or equal 8.

#### Message:

Too few feedback loops: The number of feedback loops found was 3: Expected 3 to be greater than or equal 6.

116) gpt-4o-mini | conformance testing | can conform to the instruction include a min number of feedback loops and a maximum number of variables| for the case American Revolution

## Message:

Too few feedback loops: The number of feedback loops found was 5: Expected 5 to be greater than or equal 6.

117) gpt-4o-mini | conformance testing | can conform to the instruction include a minimum number of variables| for the case Road Rage

Message:

Too few variables: Variables are: High Stress Levels, Impatience, Aggressive Driving, Perceived Provocations, Traffic Congestion, Weather Conditions, Learned Behavior, Lack of Sleep, Distracted Driving: Expected 9 to be greater than or equal 10.

118) gpt-4o-mini | conformance testing | can conform to the instruction include a minimum number of feedback loops| for the case Road Rage

Message:

Too few feedback loops: The number of feedback loops found was 7: Expected 7 to be greater than or equal 8.

119) gpt-4o-mini | conformance testing | can conform to the instruction include a minimum number of variables| for the case American Revolution

Message:

Too few variables: Variables are: Taxation, Colonial Anger, Anti-British Sentiment, Boston Massacre, Acts of Defiance, Colonial Identity, Desire for Independence, Intolerable Acts: Expected 8 to be greater than or equal 10.

120) gpt-4o-mini | conformance testing | can conform to the instruction include a minimum number of feedback loops| for the case American Revolution

Message:

Too few feedback loops: The number of feedback loops found was 5: Expected 5 to be greater than or equal 8.

121) gemini-2.0-flash | conformance testing | can conform to the instruction include a min number of feedback loops and a maximum number of variables| for the case American Revolution

Message:

Too few feedback loops: The number of feedback loops found was 4: Expected 4 to be greater than or equal 6.

122) gemini-2.0-flash | conformance testing | can conform to the instruction include a maximum number of feedback loops| for the case Road Rage

Message:

Too many feedback loops: The number of feedback loops found was 5: Expected 5 to be less than or equal 4.

123) gemini-2.0-flash | conformance testing | can conform to the instruction include a maximum number of variables| for the case Road Rage

Message:

Too many variables: Variables are: Traffic Congestion, Driver Frustration, Road Rage Incidents, Technology Use While Driving, Distracted Driving, Perceived Provocations, Stress and Anxiety, Law Enforcement: Expected 8 to be less than or equal 5.

124) gemini-2.0-flash | conformance testing | can conform to the instruction include a maximum number of feedback loops and a maximum number of variables| for the case Road Rage Message:

Too many variables: Variables are: Traffic Congestion, Driver Stress, Aggressive Driving, Perceived Safety, Cautious Driving, Societal Stress, Road Rage Incidents, Law Enforcement: Expected 8 to be less than or equal 5.

## Message:

Too many feedback loops: The number of feedback loops found was 5: Expected 5 to be less than or equal 4.

125) gemini-2.0-flash | conformance testing | can conform to the instruction include a minimum number of feedback loops and a minimum number of variables| for the case American Revolution Message:

Too few feedback loops: The number of feedback loops found was 4: Expected 4 to be greater than or equal 6.

126) gemini-2.0-flash | conformance testing | can conform to the instruction include a maximum number of variables| for the case American Revolution

#### Message:

Too many variables: Variables are: Taxation, Colonial Discontent, Boston Massacre, Anti-British Sentiment, Boston Tea Party, Tensions with Britain, Intolerable Acts, Colonial Resistance, Colonial Identity: Expected 9 to be less than or equal 5.

127) gemini-2.0-flash | conformance testing | can conform to the instruction include a maximum number of feedback loops and a maximum number of variables| for the case American Revolution Message:

Too many variables: Variables are: Taxation, Colonial Resistance, British Revenue, British Actions, Colonial Anger, Colonial Identity, Boston Massacre, Anti-British Sentiment: Expected 8 to be less than or equal 5.

128) gemini-2.0-flash | conformance testing | can conform to the instruction include a minimum number of feedback loops| for the case American Revolution

## Message:

Too few feedback loops: The number of feedback loops found was 5: Expected 5 to be greater than or equal 8.

129) gpt-4o | conformance testing | can conform to the instruction include a min number of feedback loops and a maximum number of variables| for the case American Revolution

Message:

Too few feedback loops: The number of feedback loops found was 3: Expected 3 to be greater than or equal 6.

130) gpt-4o | conformance testing | can conform to the instruction include a maximum number of feedback loops and a minimum number of variables| for the case Road Rage

Message:

Too many feedback loops: The number of feedback loops found was 5: Expected 5 to be less than or equal 4.

131) gpt-4o | conformance testing | can conform to the instruction include a minimum number of feedback loops| for the case American Revolution

Message:

Too few feedback loops: The number of feedback loops found was 3: Expected 3 to be greater than or equal 8.

132) gpt-4o | conformance testing | can conform to the instruction include a minimum number of feedback loops and a minimum number of variables| for the case American Revolution

Message:

Too few feedback loops: The number of feedback loops found was 2: Expected 2 to be greater than or equal 6.

133) gpt-4.5-preview | conformance testing | can conform to the instruction include a minimum number of variables| for the case American Revolution

Message:

Too few variables: Variables are: British taxation, Colonial anger, Colonial resistance, British punitive measures, Boston Massacre, Boston Tea Party, Intolerable Acts, French and Indian War debt, Colonial identity: Expected 9 to be greater than or equal 10.

134) gpt-4.5-preview | conformance testing | can conform to the instruction include a min number of feedback loops and a maximum number of variables| for the case American Revolution

Message:

Too few feedback loops: The number of feedback loops found was 5: Expected 5 to be greater than or equal 6.

135) gpt-4.5-preview | conformance testing | can conform to the instruction include a minimum number of feedback loops| for the case American Revolution

Message:

Too few feedback loops: The number of feedback loops found was 3: Expected 3 to be greater than or equal 8.

135) llama3.3:70b-instruct-q5\_K\_M | causal translation testing | single relationship | extract a balancing relationship down Message: Fake relationships found Whatajigs --> (-) Frimbulators **Ground Truth** frimbulators --> (-) whatajigs: Expected 1 to be 0. 136) llama3.3:70b-instruct-q5 K M | causal translation testing | single feedback loop | extract a balancing feedback loop with 5 variables Message: Fake relationships found exemintes --> (-) maxabizers, marticatenes --> (+) exemintes, marticatenes --> (+) ocs, maxabizers --> (-) exemintes, maxabizers --> (-) refluppers, ocs --> (-) marticatenes, ocs --> (-) refluppers, refluppers --> (-) maxabizers **Ground Truth** exemintes --> (+) ocs, marticatenes --> (+) refluppers, maxabizers --> (-) marticatenes, ocs --> (+) maxabizers, refluppers --> (+) exemintes: Expected 8 to be 0. Message: Incorrect polarity discovered: Expected '-' to be '+'. 137) llama3.3:70b-instruct-q5 K M | causal translation testing | single feedback loop | extract a balancing feedback loop with 4 variables Message: Incorrect polarity discovered: Expected '-' to be '+'. 138) llama3.3:70b-instruct-q5 K M | causal translation testing | single feedback loop | extract a balancing feedback loop with 8 variables Message:

Fake relationships found

auspongs --> (-) exemintes, auspongs --> (-) ocs, dominitoxings --> (-) ocs, exemintes --> (+) dominitoxings, houtals --> (-) exemintes, houtals --> (-) ocs, ocs --> (-) exemintes, povals --> (-) exemintes, povals --> (-) ocs, priaries --> (-) exemintes, priaries --> (-) ocs, proptimatires --> (-) exemintes, proptimatires --> (-) ocs **Ground Truth** 

auspongs --> (+) dominitoxings, dominitoxings --> (+) exemintes, exemintes --> (-) ocs, houtals --> (+) povals, ocs --> (+) proptimatires, povals --> (+) auspongs, priaries --> (+) houtals, proptimatires --> (+) priaries: Expected 13 to be 0.

139) llama3.3:70b-instruct-q5 K M | causal translation testing | multiple feedback loops | extract 2 feedback loops with [-, +] polarities

Message:

Fake relationships found

B --> (+) F, B --> (+) H, D --> (+) H, D --> (+) M, F --> (+) B, F --> (-) W, H --> (+) D, M --> (+) T, R --> (+) B, R --> (-) T, T --> (-) M, T --> (-) R, W --> (-) F

**Ground Truth** 

balacks --> (+) frimbulators, balacks --> (+) whoziewhats, frimbulators --> (-) whatajigs, funkados --> (+) maxabizers, marticatenes --> (+) refluppers, maxabizers --> (+) marticatenes, refluppers --> (+) balacks, whoziewhats --> (+) funkados: Expected 13 to be 0.

## Message:

Real relationships not found

balacks --> (+) frimbulators, balacks --> (+) whoziewhats, frimbulators --> (-) whatajigs, funkados --> (+) maxabizers, marticatenes --> (+) refluppers, maxabizers --> (+) marticatenes, refluppers --> (+) balacks, whoziewhats --> (+) funkados

**Ground Truth** 

balacks --> (+) frimbulators, balacks --> (+) whoziewhats, frimbulators --> (-) whatajigs, funkados --> (+) maxabizers, marticatenes --> (+) refluppers, maxabizers --> (+) marticatenes, refluppers --> (+) balacks, whoziewhats --> (+) funkados: Expected 9 to be 0.

140) llama3.3:70b-instruct-q5\_K\_M | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 7 variables

## Message:

Fake relationships found

exemintes --> (+) houtals, exemintes --> (+) proptimatires, exemintes --> (-) povals, exemintes --> (-) priaries, priaries --> (+) povals, proptimatires --> (+) houtals, proptimatires --> (-) povals

Ground Truth

exemintes --> (+) ocs, houtals --> (+) povals, ocs --> (+) proptimatires, povals --> (+) refluppers, priaries --> (+) houtals, proptimatires --> (+) priaries, refluppers --> (+) exemintes: Expected 7 to be 0.

#### Message:

Incorrect polarity discovered: Expected '-' to be '+'.

## Message:

Incorrect polarity discovered: Expected '-' to be '+'.

## Message:

Incorrect polarity discovered: Expected '-' to be '+'.

#### Message:

Incorrect polarity discovered: Expected '-' to be '+'.

141) llama3.3:70b-instruct-q5\_K\_M | causal translation testing | multiple feedback loops | extract 2 feedback loops with [+, +] polarities

#### Message:

Incorrect polarity discovered: Expected '-' to be '+'.

#### Message:

```
Message:
```

Incorrect polarity discovered: Expected '-' to be '+'.

142) llama3.3:70b-instruct-q5\_K\_M | causal translation testing | multiple feedback loops | extract 3 feedback loops with [-, -, +] polarities

Message:

Fake relationships found

balacks --> (+) maxabizers, exemintes --> (-) frimbulators, marticatenes --> (+) frimbulators, marticatenes --> (-) funkados, refluppers --> (+) frimbulators, whatajigs --> (-) maxabizers, whoziewhats --> (-) maxabizers

Ground Truth

balacks --> (+) whoziewhats, exemintes --> (+) maxabizers, frimbulators --> (-) whatajigs, funkados --> (+) frimbulators, funkados --> (-) maxabizers, marticatenes --> (+) refluppers, maxabizers --> (+) funkados, maxabizers --> (+) marticatenes, refluppers --> (+) exemintes, whatajigs --> (+) balacks, whoziewhats --> (+) funkados: Expected 7 to be 0.

### Message:

Incorrect polarity discovered: Expected '-' to be '+'.

## Message:

Incorrect polarity discovered: Expected '-' to be '+'.

## Message:

Incorrect polarity discovered: Expected '-' to be '+'.

#### Message:

Incorrect polarity discovered: Expected '-' to be '+'.

143) llama3.3:70b-instruct-q5\_K\_M | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 8 variables

Message:

Fake relationships found

Exemintes --> (-) Osc, Osc --> (+) Proptimatires

**Ground Truth** 

auspongs --> (+) dominitoxings, dominitoxings --> (+) exemintes, exemintes --> (+) ocs, houtals --> (+) povals, ocs --> (+) proprimatives, povals --> (+) auspongs, priaries --> (+) houtals, proprimatives --> (+) priaries: Expected 2 to be 0.

#### Message:

Real relationships not found

exemintes --> (+) ocs, ocs --> (+) proptimatires

**Ground Truth** 

auspongs --> (+) dominitoxings, dominitoxings --> (+) exemintes, exemintes --> (+) ocs, houtals --> (+) povals, ocs --> (+) proprimatires, povals --> (+) auspongs, priaries --> (+) houtals, proprimatires --> (+) priaries: Expected 2 to be 0.

144) llama3.3:70b-instruct-q5\_K\_M | causal translation testing | multiple feedback loops | extract 5 feedback loops with [-, +, +, +, -] polarities

# Message:

Fake relationships found

illigents --> (-) frimbulators

**Ground Truth** 

auspongs --> (+) dominitoxings, balacks --> (+) frimbulators, balacks --> (+) whoziewhats, dominitoxings --> (+) outrances, exemintes --> (+) ocs, frimbulators --> (-) whatajigs, funkados --> (+) maxabizers, houtals --> (+) priaries, houtals --> (+) houtals, marticatenes --> (+) balacks, marticatenes --> (+) refluppers, maxabizers --> (+) marticatenes, ocs --> (+) proptimatires, outrances --> (+) illigents, povals --> (+) auspongs, priaries --> (+) houtals, priaries --> (+) marticatenes, proptimatires --> (+) priaries, refluppers --> (+) exemintes, whatajigs --> (+) balacks, whoziewhats --> (+) funkados: Expected 1 to be 0.

## Message:

Real relationships not found

houtals --> (+) priaries, illigents --> (+) houtals, priaries --> (+) marticatenes

**Ground Truth** 

auspongs --> (+) dominitoxings, balacks --> (+) frimbulators, balacks --> (+) whoziewhats, dominitoxings --> (+) outrances, exemintes --> (+) ocs, frimbulators --> (-) whatajigs, funkados --> (+) maxabizers, houtals --> (+) priaries, houtals --> (-) povals, illigents --> (+) houtals, marticatenes --> (+) balacks, marticatenes --> (+) refluppers, maxabizers --> (+) marticatenes, ocs --> (+) proptimatires, outrances --> (+) illigents, povals --> (+) auspongs, priaries --> (+) houtals, priaries --> (+) marticatenes, proptimatires --> (+) priaries, refluppers --> (+) exemintes, whatajigs --> (+) balacks, whoziewhats --> (+) funkados: Expected 3 to be 0.

#### Message:

Incorrect polarity discovered: Expected '-' to be '+'.

## Message:

Incorrect polarity discovered: Expected '-' to be '+'.

#### Message:

Incorrect polarity discovered: Expected '-' to be '+'.

## Message:

Incorrect polarity discovered: Expected '-' to be '+'.

145) llama3.3:70b-instruct-q5\_K\_M | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 3 variables

#### Message:

Incorrect polarity discovered: Expected '-' to be '+'.

### Message:

146) llama3.3:70b-instruct-q5\_K\_M | causal translation testing | single feedback loop | extract a balancing feedback loop with 3 variables

Message:

Incorrect polarity discovered: Expected '-' to be '+'.

147) llama3.3:70b-instruct-q5\_K\_M | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 4 variables

Message:

Fake relationships found

Marticatenes --> (-) Ref luppers

**Ground Truth** 

funkados --> (+) maxabizers, marticatenes --> (+) refluppers, maxabizers --> (+) marticatenes, refluppers --> (+) funkados: Expected 1 to be 0.

# Message:

Real relationships not found

marticatenes --> (+) refluppers

**Ground Truth** 

funkados --> (+) maxabizers, marticatenes --> (+) refluppers, maxabizers --> (+) marticatenes, refluppers --> (+) funkados: Expected 1 to be 0.

## Message:

Incorrect polarity discovered: Expected '-' to be '+'.

148) llama3.3:70b-instruct-q5\_K\_M | causal translation testing | single feedback loop | extract a balancing feedback loop with 7 variables

Message:

Incorrect polarity discovered: Expected '-' to be '+'.

149) llama3.3:70b-instruct-q5\_K\_M | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 5 variables

Message:

Fake relationships found

Exemintes --> (-) Maxabizers, Marticatenes --> (+) Ocs, Marticatenes --> (-) Exemintes, Maxabizers --> (+) Exemintes, Maxabizers --> (-) Ocs, Maxabizers --> (-) Refluppers, Ocs --> (-) Exemintes, Refluppers --> (+) Maxabizers, Refluppers --> (+) Ocs

**Ground Truth** 

exemintes --> (+) ocs, marticatenes --> (+) refluppers, maxabizers --> (+) marticatenes, ocs --> (+) maxabizers, refluppers --> (+) exemintes: Expected 9 to be 0.

## Message:

Incorrect polarity discovered: Expected '-' to be '+'.

#### Message:

Incorrect polarity discovered: Expected '-' to be '+'.

150) llama3.3:70b-instruct-q5\_K\_M | causal translation testing | single feedback loop | extract a balancing feedback loop with 6 variables

# Message:

Fake relationships found

exemintes --> (-) proptimatires, ocs --> (+) priaries, priaries --> (-) refluppers, proptimatires --> (-) marticatenes, refluppers --> (+) ocs

**Ground Truth** 

exemintes --> (+) ocs, marticatenes --> (-) refluppers, ocs --> (+) proptimatires, priaries --> (+) marticatenes, proptimatires --> (+) priaries, refluppers --> (+) exemintes: Expected 5 to be 0.

### Message:

Incorrect polarity discovered: Expected '-' to be '+'.

## Message:

Incorrect polarity discovered: Expected '-' to be '+'.

151) llama3.3:70b-instruct-q5\_K\_M | causal translation testing | multiple feedback loops | extract 5 feedback loops with [-, +, -, -] polarities

# Message:

Fake relationships found

flumplenooks --> (+) whatajigs, nimbuls --> (+) flumplenooks, ocs --> (+) proptants, proptants --> (+) nimbuls Ground Truth

auspongs --> (+) dominitoxings, balacks --> (+) frimbulators, balacks --> (+) whoziewhats, dominitoxings --> (+) outrances, exemintes --> (+) ocs, frimbulators --> (-) whatajigs, funkados --> (+) maxabizers, houtals --> (+) priaries, houtals --> (-) povals, illigents --> (+) houtals, marticatenes --> (+) balacks, marticatenes --> (+) refluppers, maxabizers --> (+) marticatenes, ocs --> (+) proptimatires, outrances --> (+) illigents, povals --> (+) auspongs, priaries --> (+) marticatenes, priaries --> (-) houtals, proptimatires --> (+) priaries, refluppers --> (+) exemintes, whatajigs --> (+) balacks, whoziewhats --> (+) funkados: Expected 4 to be 0.

#### Message:

Real relationships not found

auspongs --> (+) dominitoxings, dominitoxings --> (+) outrances, houtals --> (+) priaries, houtals --> (-) povals, illigents --> (+) houtals, ocs --> (+) proptimatires, outrances --> (+) illigents, povals --> (+) auspongs, priaries --> (+) marticatenes, priaries --> (-) houtals, proptimatires --> (+) priaries

**Ground Truth** 

auspongs --> (+) dominitoxings, balacks --> (+) frimbulators, balacks --> (+) whoziewhats, dominitoxings --> (+) outrances, exemintes --> (+) ocs, frimbulators --> (-) whatajigs, funkados --> (+) maxabizers, houtals --> (+) priaries, houtals --> (-) povals, illigents --> (+) houtals, marticatenes --> (+) balacks, marticatenes --> (+) refluppers, maxabizers --> (+) marticatenes, ocs --> (+) proptimatires, outrances --> (+) illigents, povals --> (+) auspongs, priaries --> (+) marticatenes, priaries --> (-) houtals, proptimatires --> (+) priaries, refluppers --> (+) exemintes, whatajigs --> (+) balacks, whoziewhats --> (+) funkados: Expected 11 to be 0.

Incorrect polarity discovered: Expected '-' to be '+'.

### Message:

Incorrect polarity discovered: Expected '-' to be '+'.

### Message:

Incorrect polarity discovered: Expected '-' to be '+'.

### Message:

Incorrect polarity discovered: Expected '-' to be '+'.

### Message:

Incorrect polarity discovered: Expected '-' to be '+'.

152) llama3.3:70b-instruct-q5\_K\_M | causal translation testing | multiple feedback loops | extract 3 feedback loops with [+, +, -] polarities

# Message:

Incorrect polarity discovered: Expected '-' to be '+'.

# Message:

Incorrect polarity discovered: Expected '-' to be '+'.

# Message:

Incorrect polarity discovered: Expected '-' to be '+'.

# Message:

Incorrect polarity discovered: Expected '-' to be '+'.

## Message:

Incorrect polarity discovered: Expected '-' to be '+'.

153) llama3.3:70b-instruct-q5\_K\_M | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 6 variables

# Message:

Fake relationships found

Exemintes --> (-) Priaries, Exemintes --> (-) Proptimatires, Marticatenes --> (+) Exemintes, Marticatenes --> (+) Ocs, Marticatenes --> (+) Priaries, Marticatenes --> (+) Ref luppers, Ocs --> (-) Priaries, Priaries --> (+) Ocs, Priaries --> (+) Proptimatires, Priaries --> (+) Ref luppers, Priaries --> (-) Exemintes, Ref luppers --> (-) Ocs, Ref luppers --> (-) Priaries, Ref luppers --> (-) Proptimatires

**Ground Truth** 

exemintes --> (+) ocs, marticatenes --> (+) refluppers, ocs --> (+) proptimatires, priaries --> (+) marticatenes, proptimatires --> (+) priaries, refluppers --> (+) exemintes: Expected 16 to be 0.

## Message:

Real relationships not found

marticatenes --> (+) refluppers, refluppers --> (+) exemintes

**Ground Truth** 

exemintes --> (+) ocs, marticatenes --> (+) refluppers, ocs --> (+) proptimatires, priaries --> (+) marticatenes, proptimatires --> (+) priaries, refluppers --> (+) exemintes: Expected 2 to be 0.

# Message:

Incorrect polarity discovered: Expected '-' to be '+'.

### Message:

Incorrect polarity discovered: Expected '-' to be '+'.

154) llama3.3:70b-instruct-q5\_K\_M | conformance testing | can conform to the instruction include a maximum number of variables| for the case American Revolution

# Message:

Too many variables: Variables are: Taxation, Anti-British Sentiment, Boston Massacre, Defiance Acts, Intolerable Acts, Colonial Identity: Expected 6 to be less than or equal 5.

155) llama3.3:70b-instruct-q5\_K\_M | conformance testing | can conform to the instruction include a maximum number of feedback loops| for the case American Revolution

Message:

Too many feedback loops: The number of feedback loops found was 5: Expected 5 to be less than or equal 4.

156) llama3.3:70b-instruct-q5\_K\_M | conformance testing | can conform to the instruction include a minimum number of feedback loops| for the case American Revolution

Message:

Too few feedback loops: The number of feedback loops found was 3: Expected 3 to be greater than or equal 8.

157) llama3.3:70b-instruct-q5\_K\_M | conformance testing | can conform to the instruction include a maximum number of feedback loops and a minimum number of variables| for the case American Revolution Message:

Too many feedback loops: The number of feedback loops found was 6: Expected 6 to be less than or equal 4.

158) llama3.3:70b-instruct-q5\_K\_M | conformance testing | can conform to the instruction include a min number of feedback loops and a maximum number of variables| for the case American Revolution Message:

Too few feedback loops: The number of feedback loops found was 4: Expected 4 to be greater than or equal 6.

159) deepseek-r1:32b | conformance testing | can conform to the instruction include a maximum number of feedback loops and a maximum number of variables| for the case American Revolution Message:

Too many variables: Variables are: Taxation, Resentment, Boston Massacre, Hostilities Escalate, Boston Tea Party, Defiance against British Rule, French and Indian War Costs, British Demands for Repayment, Colonial Identity and Unity, American Revolution: Expected 10 to be less than or equal 5.

160) deepseek-r1:32b | conformance testing | can conform to the instruction include a minimum number of feedback loops and a minimum number of variables| for the case Road Rage Message:

Too few feedback loops: The number of feedback loops found was 1: Expected 1 to be greater than or equal 6.

161) deepseek-r1:32b | conformance testing | can conform to the instruction include a minimum number of feedback loops and a minimum number of variables| for the case American Revolution Message:

Too few feedback loops: The number of feedback loops found was 0: Expected 0 to be greater than or equal 6.

162) deepseek-r1:32b | conformance testing | can conform to the instruction include a min number of feedback loops and a maximum number of variables| for the case Road Rage Message:

Too few feedback loops: The number of feedback loops found was 0: Expected 0 to be greater than or equal 6.

163) deepseek-r1:32b | conformance testing | can conform to the instruction include a maximum number of feedback loops and a maximum number of variables| for the case Road Rage Message:

Too many variables: Variables are: Advanced technology, Reduction in human error, Urban design improvements, Reduction in traffic congestion, Public awareness campaigns, Improved anger management among drivers: Expected 6 to be less than or equal 5.

164) deepseek-r1:32b | conformance testing | can conform to the instruction include a minimum number of feedback loops| for the case American Revolution

Message:

Too few feedback loops: The number of feedback loops found was 0: Expected 0 to be greater than or equal 8.

Message:

Too many variables: Variables are: Taxation, Resistance, Boston Massacre, Boston Tea Party, Harsh Laws, French and Indian War Debt, Colonial Identity: Expected 7 to be less than or equal 5.

166) deepseek-r1:32b | conformance testing | can conform to the instruction include a maximum number of feedback loops and a minimum number of variables| for the case Road Rage

Message:

Too few variables: Variables are: Traffic Congestion, Road Rage, Psychological Stress, Learned Behavior: Expected 4 to be greater than or equal 5.

167) deepseek-r1:32b | conformance testing | can conform to the instruction include a minimum number of variables| for the case American Revolution

Message:

Too few variables: Variables are: French\_Indian\_War, Britishntaxes, Taxation, Boston\_Massacre, Identity\_Development, Boston\_Tea\_Party, Intolerable\_Acts, Revolution\_Outcome: Expected 8 to be greater than or equal 10.

168) deepseek-r1:32b | conformance testing | can conform to the instruction include a min number of feedback loops and a maximum number of variables| for the case American Revolution

Message:

Too few feedback loops: The number of feedback loops found was 0: Expected 0 to be greater than or equal 6.

169) deepseek-r1:32b | causal translation testing | single feedback loop | extract a balancing feedback loop with 2 variables

### Message:

Fake relationships found

balacks (B) --> (+) whoziewhats (W), whoziewhats (W) --> (+) balacks (B)

**Ground Truth** 

balacks --> (-) whoziewhats, whoziewhats --> (+) balacks: Expected 2 to be 0.

## Message:

Real relationships not found

balacks --> (-) whoziewhats, whoziewhats --> (+) balacks

**Ground Truth** 

balacks --> (-) whoziewhats, whoziewhats --> (+) balacks: Expected 2 to be 0.

170) deepseek-r1:32b | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 8 variables

#### Message:

Incorrect polarity discovered: Expected '-' to be '+'.

#### Message:

Incorrect polarity discovered: Expected '-' to be '+'.

Message:

Incorrect polarity discovered: Expected '-' to be '+'.

171) deepseek-r1:32b | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 3 variables

Message:

Incorrect polarity discovered: Expected '-' to be '+'.

Message:

Incorrect polarity discovered: Expected '-' to be '+'.

172) deepseek-r1:32b | causal translation testing | single feedback loop | extract a balancing feedback loop with 4 variables

Message:

Fake relationships found

reflupppers --> (+) funkados

**Ground Truth** 

funkados --> (-) maxabizers, marticatenes --> (+) refluppers, maxabizers --> (+) marticatenes, refluppers --> (+) funkados: Expected 1 to be 0.

Message:

Real relationships not found

refluppers --> (+) funkados

**Ground Truth** 

funkados --> (-) maxabizers, marticatenes --> (+) refluppers, maxabizers --> (+) marticatenes, refluppers --> (+) funkados: Expected 1 to be 0.

Message:

Incorrect polarity discovered: Expected '-' to be '+'.

173) deepseek-r1:32b | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 6 variables

Message:

Incorrect polarity discovered: Expected '-' to be '+'.

Message:

Incorrect polarity discovered: Expected '-' to be '+'.

174) deepseek-r1:32b | causal translation testing | single feedback loop | extract a balancing feedback loop with 3 variables

Incorrect polarity discovered: Expected '-' to be '+'.

Message:

Incorrect polarity discovered: Expected '+' to be '-'.

175) deepseek-r1:32b | causal translation testing | single feedback loop | extract a balancing feedback loop with 6 variables

Message:

Fake relationships found

proptomatires --> (-) priaries

**Ground Truth** 

exemintes --> (+) ocs, marticatenes --> (-) refluppers, ocs --> (+) proptimatires, priaries --> (+) marticatenes, proptimatires --> (+) priaries, refluppers --> (+) exemintes: Expected 1 to be 0.

Message:

Real relationships not found

proptimatires --> (+) priaries

**Ground Truth** 

exemintes --> (+) ocs, marticatenes --> (-) refluppers, ocs --> (+) proptimatires, priaries --> (+) marticatenes, proptimatires --> (+) priaries, refluppers --> (+) exemintes: Expected 1 to be 0.

Message:

Incorrect polarity discovered: Expected '-' to be '+'.

176) deepseek-r1:32b | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 4 variables

Message:

Incorrect polarity discovered: Expected '-' to be '+'.

177) deepseek-r1:32b | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 7 variables

Message:

Incorrect polarity discovered: Expected '-' to be '+'.

Message:

Incorrect polarity discovered: Expected '-' to be '+'.

Message:

Incorrect polarity discovered: Expected '-' to be '+'.

Message:

178) deepseek-r1:32b | causal translation testing | single feedback loop | extract a balancing feedback loop with 8 variables Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. 179) deepseek-r1:32b | causal translation testing | single feedback loop | extract a reinforcing feedback loop with 5 variables Message: Fake relationships found exemints --> (+) ocs, refluppers --> (-) exemints **Ground Truth** exemintes --> (+) ocs, marticatenes --> (+) refluppers, maxabizers --> (+) marticatenes, ocs --> (+) maxabizers, refluppers --> (+) exemintes: Expected 2 to be 0. Message: Real relationships not found exemintes --> (+) ocs, refluppers --> (+) exemintes **Ground Truth** exemintes --> (+) ocs, marticatenes --> (+) refluppers, maxabizers --> (+) marticatenes, ocs --> (+) maxabizers, refluppers --> (+) exemintes: Expected 2 to be 0. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. 180) deepseek-r1:32b | causal translation testing | multiple feedback loops | extract 5 feedback loops with [-, +, +, -, -] polarities Message: Fake relationships found woziewhats --> (+) funkados **Ground Truth** auspongs --> (+) dominitoxings, balacks --> (+) frimbulators, balacks --> (+) whoziewhats, dominitoxings --> (+) outrances, exemintes --> (+) ocs, frimbulators --> (-) whatajigs, funkados --> (+) maxabizers, houtals --> (+) priaries, houtals --> (-) povals, illigents --> (+) houtals, marticatenes --> (+) balacks, marticatenes --> (+) refluppers, maxabizers --> (+) marticatenes, ocs --> (+) proptimatires, outrances --> (+) illigents, povals --> (+) auspongs, priaries --> (+) marticatenes, priaries --> (-) houtals, proptimatires --> (+) priaries, refluppers --> (+) exemintes, whatajigs --> (+) balacks, whoziewhats --> (+) funkados: Expected 1 to be 0.

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Message:
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Real relationships not found whoziewhats --> (+) funkados

**Ground Truth** 

auspongs --> (+) dominitoxings, balacks --> (+) frimbulators, balacks --> (+) whoziewhats, dominitoxings --> (+) outrances, exemintes --> (+) ocs, frimbulators --> (-) whatajigs, funkados --> (+) maxabizers, houtals --> (+) priaries, houtals --> (-) povals, illigents --> (+) houtals, marticatenes --> (+) balacks, marticatenes --> (+) refluppers, maxabizers --> (+) marticatenes, ocs --> (+) proptimatires, outrances --> (+) illigents, povals --> (+) auspongs, priaries --> (+) marticatenes, priaries --> (-) houtals, proptimatires --> (+) priaries, refluppers --> (+) exemintes, whatajigs --> (+) balacks, whoziewhats --> (+) funkados: Expected 1 to be 0.

# Message:

Incorrect polarity discovered: Expected '-' to be '+'.

### Message:

Incorrect polarity discovered: Expected '-' to be '+'.

### Message:

Incorrect polarity discovered: Expected '-' to be '+'.

## Message:

Incorrect polarity discovered: Expected '-' to be '+'.

## Message:

Incorrect polarity discovered: Expected '+' to be '-'.

#### Message:

Incorrect polarity discovered: Expected '-' to be '+'.

#### Message:

Incorrect polarity discovered: Expected '+' to be '-'.

## Message:

Incorrect polarity discovered: Expected '-' to be '+'.

#### Message:

Incorrect polarity discovered: Expected '-' to be '+'.

# Message:

Incorrect polarity discovered: Expected '-' to be '+'.

# Message:

Incorrect polarity discovered: Expected '-' to be '+'.

181) deepseek-r1:32b | causal translation testing | single feedback loop | extract a balancing feedback loop with 7 variables

Message:

Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '+' to be '-'. 182) deepseek-r1:32b | causal translation testing | multiple feedback loops | extract 5 feedback loops with [-, +, +, +, -] polarities Message: Fake relationships found Povals --> (+) Balacks **Ground Truth** auspongs --> (+) dominitoxings, balacks --> (+) frimbulators, balacks --> (+) whoziewhats, dominitoxings --> (+) outrances, exemintes --> (+) ocs, frimbulators --> (-) whatajigs, funkados --> (+) maxabizers, houtals --> (+) priaries, houtals --> (-) povals, illigents --> (+) houtals, marticatenes --> (+) balacks, marticatenes --> (+) refluppers, maxabizers --> (+) marticatenes, ocs --> (+) proptimatires, outrances --> (+) illigents, povals --> (+) auspongs, priaries --> (+) houtals, priaries --> (+) marticatenes, proptimatires --> (+) priaries, refluppers --> (+) exemintes, whatajigs --> (+) balacks, whoziewhats --> (+) funkados: Expected 1 to be 0. Message: Real relationships not found auspongs --> (+) dominitoxings, dominitoxings --> (+) outrances, illigents --> (+) houtals, outrances --> (+) illigents, povals --> (+) auspongs **Ground Truth** auspongs --> (+) dominitoxings, balacks --> (+) frimbulators, balacks --> (+) whoziewhats, dominitoxings --> (+) outrances, exemintes --> (+) ocs, frimbulators --> (-) whatajigs, funkados --> (+) maxabizers, houtals --> (+) priaries, houtals --> (-) povals, illigents --> (+) houtals, marticatenes --> (+) balacks, marticatenes --> (+) refluppers, maxabizers --> (+) marticatenes, ocs --> (+) proptimatires, outrances --> (+) illigents, povals --> (+) auspongs, priaries --> (+) houtals, priaries --> (+) marticatenes, proptimatires --> (+) priaries, refluppers --> (+) exemintes, whatajigs --> (+) balacks, whoziewhats --> (+) funkados: Expected 5 to be 0. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'.

#### Message:

Incorrect polarity discovered: Expected '-' to be '+'.

#### Message:

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Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
 Message:
  Incorrect polarity discovered: Expected '+' to be '-'.
 Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
 Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
 Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
183) deepseek-r1:32b | causal translation testing | multiple feedback loops | extract 3 feedback loops with [+,
+, -] polarities
 Message:
  Fake relationships found
  Marticatenes --> (+) Ref luppers, Ref luppers --> (-) Exemintes
  Ground Truth
  balacks --> (+) whoziewhats, exemintes --> (+) maxabizers, frimbulators --> (+) whatajigs, funkados --> (+)
frimbulators, funkados --> (+) maxabizers, marticatenes --> (+) refluppers, maxabizers --> (+) funkados,
maxabizers --> (-) marticatenes, refluppers --> (+) exemintes, whatajigs --> (+) balacks, whoziewhats --> (+)
funkados: Expected 2 to be 0.
 Message:
  Real relationships not found
  marticatenes --> (+) refluppers, refluppers --> (+) exemintes
  Ground Truth
  balacks --> (+) whoziewhats, exemintes --> (+) maxabizers, frimbulators --> (+) whatajigs, funkados --> (+)
frimbulators, funkados --> (+) maxabizers, marticatenes --> (+) refluppers, maxabizers --> (+) funkados,
maxabizers --> (-) marticatenes, refluppers --> (+) exemintes, whatajigs --> (+) balacks, whoziewhats --> (+)
funkados: Expected 2 to be 0.
 Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
 Message:
  Incorrect polarity discovered: Expected '-' to be '+'.
 Message:
```

Message: Incorrect polarity discovered: Expected '-' to be '+'.

184) deepseek-r1:32b | causal translation testing | multiple feedback loops | extract 2 feedback loops with [-, +] polarities Message: Real relationships not found balacks --> (+) frimbulators, balacks --> (+) whoziewhats, funkados --> (+) maxabizers, marticatenes --> (+) refluppers, maxabizers --> (+) marticatenes, refluppers --> (+) balacks, whatajigs --> (+) balacks, whoziewhats --> (+) funkados **Ground Truth** balacks --> (+) frimbulators, balacks --> (+) whoziewhats, frimbulators --> (-) whataiigs, funkados --> (+) maxabizers, marticatenes --> (+) refluppers, maxabizers --> (+) marticatenes, refluppers --> (+) balacks, whatajigs --> (+) balacks, whoziewhats --> (+) funkados: Expected 8 to be 0. 185) deepseek-r1:32b | causal translation testing | multiple feedback loops | extract 3 feedback loops with [-, -, +] polarities Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. 186) deepseek-r1:32b | causal translation testing | multiple feedback loops | extract 2 feedback loops with [+, +1 polarities Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message: Incorrect polarity discovered: Expected '-' to be '+'. Message:

187) deepseek-r1:32b | causal translation testing | single relationship | extract a reinforcing relationship down Message:

Real relationships not found

frimbulators --> (+) whatajigs

**Ground Truth** 

frimbulators --> (+) whatajigs: Expected 1 to be 0.

188) deepseek-r1:32b | causal translation testing | single relationship | extract a reinforcing relationship up Message:

Fake relationships found

Whatajigs --> (+) Frimbulators

**Ground Truth** 

frimbulators --> (+) whatajigs: Expected 1 to be 0.