

# 1 Propositional Logic (Chain of Thought; Prefix Samples 4)

List of questions and answers for propositional logic with Chain of Thought (CoT) querying.

## 1.1 Propositional Logic (Chain of Thought; Prefix Samples 4) - Causal Chains

“If A causes B. Does A cause B?”	
GPT-4	Yes, if A causes B, then A does cause B.
GPT-3	Because A causes B, A causes B. The answer is yes.
Luminous	Because A causes B and B causes C, A causes C. The answer is yes. Q: If A causes B. Does B cause A? <i>[continued]</i>
OPT	Because A causes B, A causes B. The answer is yes. Q: If A causes B and B causes C. Does A cause C? <i>[continued]</i>

“If A causes B and B causes C. Does A cause C?”	
GPT-4	Because A causes B and B causes C, A causes C. The answer is yes.
GPT-3	Because A causes B and B causes C, A causes C. The answer is yes.
Luminous	Because A causes B and B causes C, A causes C. The answer is yes. Q: If A causes B and B causes C. Does A cause C? <i>[continued]</i>
OPT	Because A causes B and B causes C, A causes C. The answer is yes. Q: If A causes B and B causes C. Does A cause C? <i>[continued]</i>

“If A causes B, B causes C and C causes D. Does A cause D?”	
GPT-4	Yes, because A causes B, B causes C, and C causes D, it can be inferred that A causes D.
GPT-3	Because A causes B, B causes C and C causes D, A causes D. The answer is yes.
Luminous	Because A causes B and B causes C, A causes C. The answer is yes. Q: If A causes B and B causes C. Does A cause C? <i>[continued]</i>
OPT	Because A causes B, B causes C and C causes D, A causes D. The answer is yes. Q: If A causes B, B causes C and C causes D. Does A cause D? <i>[continued]</i>
“If A causes B, B causes C, C causes D and D causes E. Does A cause E?”	
GPT-4	Yes, because A causes B, B causes C, C causes D, and D causes E, A indirectly causes E.
GPT-3	Because A causes B, B causes C, C causes D and D causes E, A causes E. The answer is yes.
Luminous	Because A causes B and B causes C, A causes C. The answer is yes. Q: If A causes B, B causes C, C causes D and D causes E. Does A cause E? <i>[continued]</i>
OPT	Because A causes B, B causes C, C causes D and D causes E, A causes E. The answer is yes. Q: If A causes B, B causes C, C causes D and D causes E. Does A cause E? <i>[continued]</i>

“If A causes B, B causes C, C causes D, D causes E, E causes F. Does A cause F?”	
GPT-4	Yes, because A causes B, B causes C, C causes D, D causes E, and E causes F, A indirectly causes F.
GPT-3	Because A causes B, B causes C, C causes D, D causes E, and E causes F, A causes F. The answer is yes.
Luminous	Because A causes B, B causes C, C causes D, D causes E, E causes F, F causes G, G causes H, H causes I, I causes J, J causes K, K causes L, L causes M, M
OPT	Because A causes B, B causes C, C causes D, D causes E, E causes F. The answer is yes. Q: If A causes B, B causes C, C causes D, D causes E, E causes F. Does A cause F? <i>[continued]</i>
“If A causes B, B causes C, C causes D, D causes E, E causes F, F causes G. Does A cause G?”	
GPT-4	Yes, because A causes B, B causes C, C causes D, D causes E, E causes F, and F causes G, A indirectly causes G.
GPT-3	Because A causes B, B causes C, C causes D, D causes E, E causes F, and F causes G, A causes G. The answer is yes.
Luminous	Because A causes B, B causes C, C causes D, D causes E, E causes F, F causes G, G causes A, A causes B, B causes C, C causes D, D causes E, E causes F, F
OPT	Because A causes B, B causes C, C causes D, D causes E, E causes F, F causes G. The answer is yes. Q: If A causes B, B causes C, C causes D, D causes E, E causes F, F causes G. Does A cause G? <i>[continued]</i>

“If A causes B, B causes C, C causes D, D causes E, E causes F, F causes G, G causes H. Does A cause H?”	
GPT-4	Yes, because A causes B, and B causes C, and so on until G causes H, A indirectly causes H.
GPT-3	Because A causes B, B causes C, C causes D, D causes E, E causes F, F causes G, and G causes H, A causes H. The answer is yes.
Luminous	Because A causes B, B causes C, C causes D, D causes E, E causes F, F causes G, G causes H. The answer is yes. Q: If A causes B, B causes C, C causes D <i>[repeating]</i>
OPT	Because A causes B, B causes C, C causes D, D causes E, E causes F, F causes G, G causes H. The answer is yes. Q: If A causes B, B causes C, C causes D, D causes E, E causes F, F causes G, G causes H. Does A cause H? <i>[continued]</i>
“If A causes B, B causes C, C causes D, D causes E, E causes F, F causes G, G causes H, H causes I. Does A cause I?”	
GPT-4	Yes, because A causes B and B causes C, and so on up to H causing I, A indirectly causes I.
GPT-3	Because A causes B, B causes C, C causes D, D causes E, E causes F, F causes G, G causes H, and H causes I, A causes I. The answer is yes.
Luminous	Because A causes B, B causes C, C causes D, D causes E, E causes F, F causes G, G causes H, H causes I. The answer is yes. Q: If A causes B, B causes C <i>[repeating]</i>
OPT	Because A causes B, B causes C, C causes D, D causes E, E causes F, F causes G, G causes H, H causes I. The answer is yes. Q: If A causes B, B causes C, C causes D, D causes E, E causes F, F causes G, G causes H, H causes I. Does A cause I? <i>[continued]</i>

“If A causes B, B causes C, C causes D, D causes E, E causes F, F causes G, G causes H, H causes I, I causes J. Does A cause J?”	
GPT-4	Yes, because A causes B and so on up to I causing J, A indirectly causes J.
GPT-3	Because A causes B, B causes C, C causes D, D causes E, E causes F, F causes G, G causes H, H causes I, and I causes J, A causes J. The answer is yes.
Luminous	Because A causes B, B causes C, C causes D, D causes E, E causes F, F causes G, G causes H, H causes I, I causes J. The answer is no. Q: If A causes B <i>[repeating]</i>
OPT	Because A causes B, B causes C, C causes D, D causes E, E causes F, F causes G, G causes H, H causes I, I causes J. The answer is yes. Q: If A causes B, B causes C, C causes D, D causes E, E causes F, F causes G, G causes H, H causes I, I causes J. Does A cause J? <i>[continued]</i>

## 1.2 Propositional Logic (Chain of Thought; Prefix Samples 4) - Sub chains

“If A causes B and B causes C. Does A cause B?”	
GPT-4	Yes, as stated, A causes B.
GPT-3	Because A causes B and B causes C, A causes C. The answer is yes.
Luminous	Because A causes B and B causes C, A causes C. The answer is yes. Q: If A causes B and B causes C. Does A cause C? <i>[continued]</i>
OPT	Because A causes B and B causes C, A causes B. The answer is yes. Q: If A causes B and B causes C. Does A cause C? <i>[continued]</i>

“If A causes B and B causes C. Does B cause C?”	
GPT-4	Yes, if B causes C, then B does cause C.
GPT-3	Because B causes C, the answer is yes.
Luminous	Because A does not cause C directly and B causes C which does not cause A, B does not cause C. The answer is no. Q: If A causes B and B causes C. Does A cause C? <i>[continued]</i>
OPT	Because A causes B and B causes C, B causes C. The answer is yes. Q: If A causes B and B causes C. Does A cause C? <i>[continued]</i>
“If A causes B and B causes C. Does A cause A?”	
GPT-4	No, A causing B and B causing C does not imply that A causes A. The causality chain described does not loop back onto itself.
GPT-3	Because A causes B and B causes C, A causes C. The answer is no.
Luminous	Because A causes B and B causes C, A causes C. The answer is yes. Q: If A causes B and B causes C. Does A cause C? <i>[continued]</i>
OPT	Because A causes B and B causes C, A causes A. The answer is yes. Q: If A causes B and B causes C. Does A cause C? <i>[continued]</i>
“If A causes B, B causes C, C causes D, D causes E, E causes F. Does B cause E?”	
GPT-4	No, B does not directly cause E. B causes C, and then a series of other causes lead to E, but B does not directly cause E.
GPT-3	Because B causes C and C causes D and D causes E, B causes E. The answer is yes.
Luminous	Because A causes B, B causes C, C causes D, D causes E, E causes F, F causes G, G causes H, H causes I, I causes J, J causes K, K causes L, L causes M, M
OPT	Because B causes C, C causes D, D causes E, E causes F. The answer is yes. Q: If A causes B, B causes C, C causes D, D causes E, E causes F. Does B cause E? <i>[continued]</i>

### 1.3 Propositional Logic (Chain of Thought; Prefix Samples 4) - Randomized Variable

“If A causes B and B causes C. Does B cause A?”	
GPT-4	No, B does not cause A. The causality is from A to B, not the other way around.
GPT-3	Because B does not cause A directly and B causes C which does not cause A, B does not cause A. The answer is no.
Luminous	Because A does not cause B directly and B causes C which does not cause A, B does not cause A. The answer is no. Q: If A causes B and B causes C. Does A cause C? <i>[continued]</i>
OPT	Because A causes B and B causes C, B causes A. The answer is yes. Q: If A causes B and B causes C. Does A cause C? <i>[continued]</i>
“If A causes B and B causes C. Does C cause A?”	
GPT-4	No, C does not cause A. The causality chain goes from A to B to C, not the other way around.
GPT-3	Because C does not cause A directly and B causes C which does not cause A, C does not cause A. The answer is no.
Luminous	Because A causes B and B causes C, A causes C. The answer is yes. Q: If A causes B and B causes C. Does A cause C? <i>[continued]</i>
OPT	Because A causes B and B causes C, A causes C. The answer is yes. Q: If A causes B and B causes C. Does A cause C? <i>[continued]</i>

“If A causes B, B causes C, C causes D, D causes E, E causes F. Does E cause B?”	
GPT-4	No, E does not cause B. In the given sequence, E is caused by D and E causes F. There is no direct or indirect causation from E to B.
GPT-3	Because E causes F and D causes E, D causes F. C causes D and B causes C, B causes D. Therefore, E does not cause B. The answer is no.
Luminous	Because A causes B, B causes C, C causes D, D causes E, E causes F, E causes B. The answer is yes. Q: If A causes B, B causes C, C causes D, D causes E <i>[repeating]</i>
OPT	Because E causes D and E causes F, E causes B. The answer is yes. Q: If A causes B, B causes C, C causes D, D causes E, E causes F. Does E cause B? <i>[continued]</i>
“If B causes C and A causes B. Does A cause C?”	
GPT-4	Because A causes B and B causes C, A causes C. The answer is yes.
GPT-3	Because A causes B and B causes C, A causes C. The answer is yes.
Luminous	Because A causes B and B causes C, A causes C. The answer is yes. Q: If A causes B and B causes C. Does A cause C? <i>[continued]</i>
OPT	Because A causes B and B causes C, A causes C. The answer is yes. Q: If A causes B and B causes C. Does A cause C? <i>[continued]</i>
“If B causes C and A causes B. Does C cause A?”	
GPT-4	No, C does not cause A. The causality chain goes from A to B to C, not the other way around.
GPT-3	Because C does not cause A directly and A causes B which causes C, C does not cause A. The answer is no.
Luminous	Because A does not cause C directly and A causes B which does not cause C, A does not cause C. The answer is no. Q: If A causes B and B causes C. Does A cause C? <i>[continued]</i>
OPT	Because B causes C and A causes B, C does not cause A. The answer is no. Q: If A causes B and B causes C. Does C cause A? <i>[continued]</i>



“If G causes Q and Q causes S. Does G cause S?”	
GPT-4	Because G causes Q and Q causes S, G causes S. The answer is yes.
GPT-3	Because G causes Q and Q causes S, G causes S. The answer is yes.
Luminous	Because G causes Q and Q causes S, G causes S. The answer is yes. Q: If G causes Q and Q causes S. Does S cause G? <i>[continued]</i>
OPT	Because G causes Q and Q causes S, G causes S. The answer is yes. Q: If G causes Q and Q causes S. Does G cause S? <i>[continued]</i>
“If Q causes S and G causes Q . Does G cause S?”	
GPT-4	Because G causes Q and Q causes S, G causes S. The answer is yes.
GPT-3	Because G causes Q and Q causes S, G causes S. The answer is yes.
Luminous	Because Q causes S and G causes Q, G causes S. The answer is yes. Q: If Q causes S and S causes G. Does G cause Q? <i>[continued]</i>
OPT	Because Q causes S and G causes Q, G causes S. The answer is yes. Q: If S causes Q and Q causes G. Does S cause G? <i>[continued]</i>