

# openai/gpt-5-nano-2025-08-07 — accuracy — prompt\_0b276d34e8 (cnf\_v1)

prompt\_template=prompts/\_template\_unified.j2 | parse\_family=contradiction

## Instruction excerpt:

Your task is to solve a propositional logic problem.

Choose the appropriate interpretation based on how the statements are rendered below.

- If you see facts like "p1." and rules like "if p2 and p3 then p4.", treat them as Horn facts and implications, and determine whether p0 can be derived.
- If you see disjunctions like "p1 is true or p2 is false." or compact forms like "p1 or not(p2).", treat them as CNF clauses, and determine whether the set is a contradiction (unsatisfiable) or satisfiable.

## Conventions

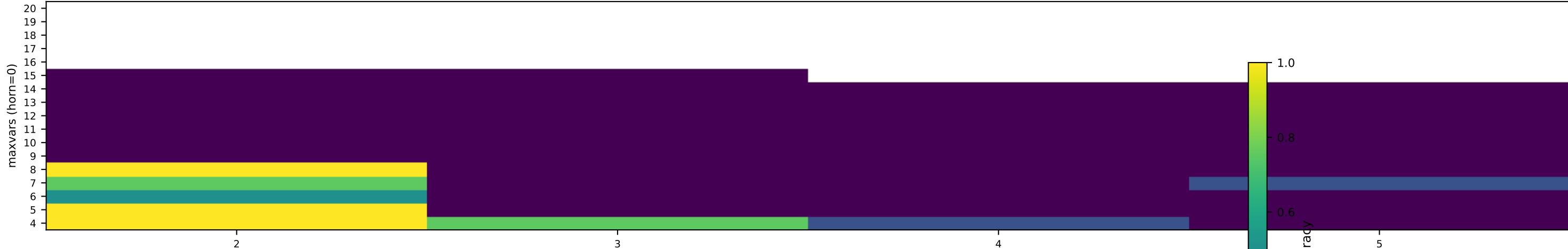
- Propositional variables are written as pN, where N is a number.
- All statements are jointly assumed true (conjoined).

...

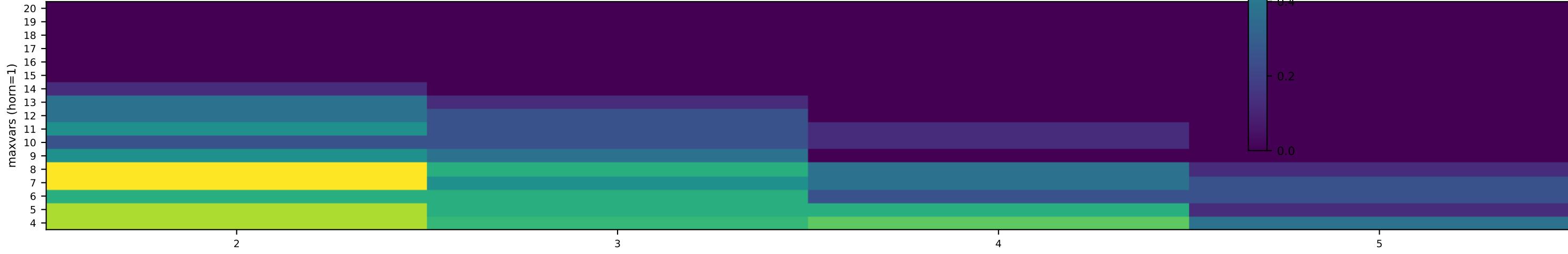
## Example (horn=1, low, maxvars=4, maxlen=2, satflag=1)

p4 is false.  
p2 is true.  
p3 is false or p1 is true.  
p3 is false or p4 is true.  
p2 is false or p1 is true.

nothink (n=185)



nothink (n=465)



# openai/gpt-5-nano-2025-08-07 — sat\_accuracy — prompt\_0b276d34e8 (cnf\_v1)

prompt\_template=prompts/\_template\_unified.j2 | parse\_family=contradiction

## Instruction excerpt:

Your task is to solve a propositional logic problem.

Choose the appropriate interpretation based on how the statements are rendered below.

- If you see facts like "p1." and rules like "if p2 and p3 then p4.", treat them as Horn facts and implications, and determine whether p0 can be derived.
- If you see disjunctions like "p1 is true or p2 is false." or compact forms like "p1 or not(p2).", treat them as CNF clauses, and determine whether the set is a contradiction (unsatisfiable) or satisfiable.

## Conventions

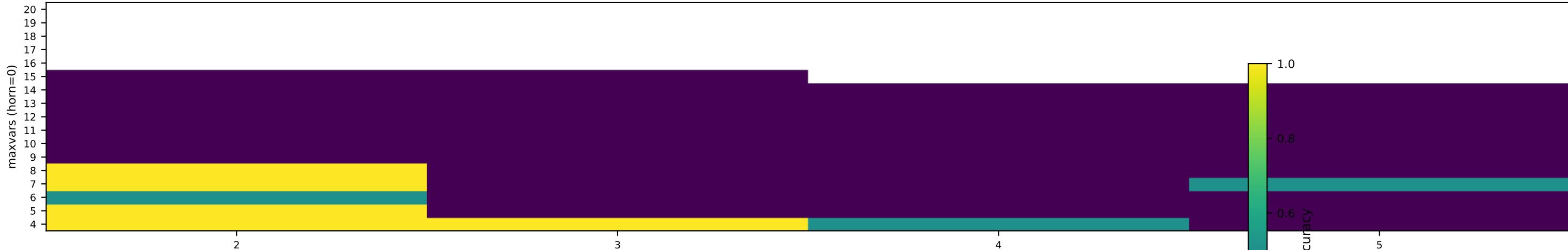
- Propositional variables are written as pN, where N is a number.
- All statements are jointly assumed true (conjoined).

...

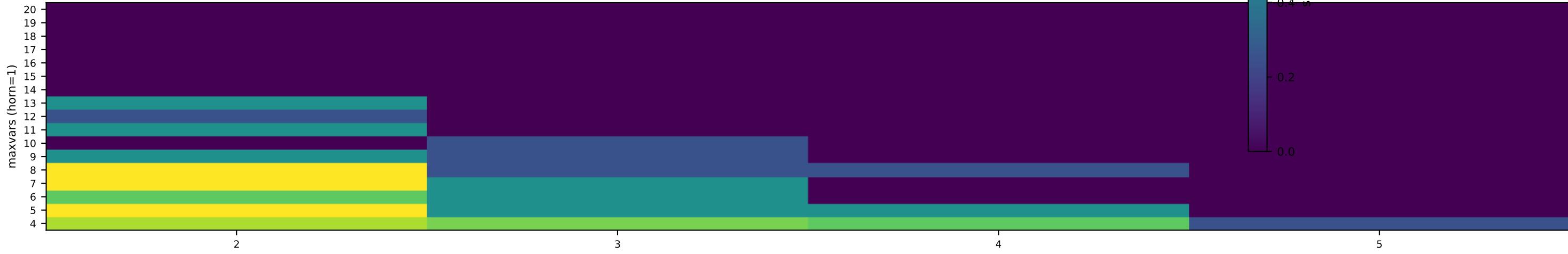
## Example (horn=1, low, maxvars=4, maxlen=2, satflag=1)

p4 is false.  
p2 is true.  
p3 is false or p1 is true.  
p3 is false or p4 is true.  
p2 is false or p1 is true.

nothink (n=185)



nothink (n=465)



# openai/gpt-5-nano-2025-08-07 — unsat\_accuracy — prompt\_0b276d34e8 (cnf\_v1) Example (horn=1, low, maxvars=4, maxlen=2, satflag=1)

prompt\_template=prompts/\_template\_unified.j2 | parse\_family=contradiction

## Instruction excerpt:

Your task is to solve a propositional logic problem.

Choose the appropriate interpretation based on how the statements are rendered below.

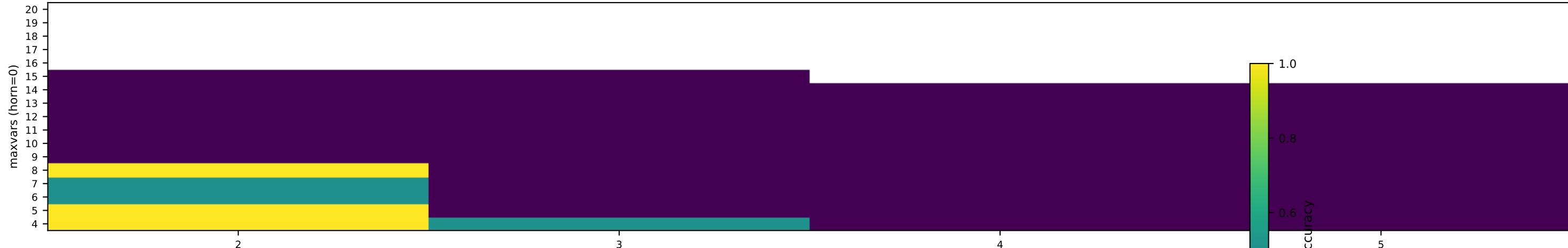
- If you see facts like "p1." and rules like "if p2 and p3 then p4.", treat them as Horn facts and implications, and determine whether p0 can be derived.
- If you see disjunctions like "p1 is true or p2 is false." or compact forms like "p1 or not(p2).", treat them as CNF clauses, and determine whether the set is a contradiction (unsatisfiable) or satisfiable.

## Conventions

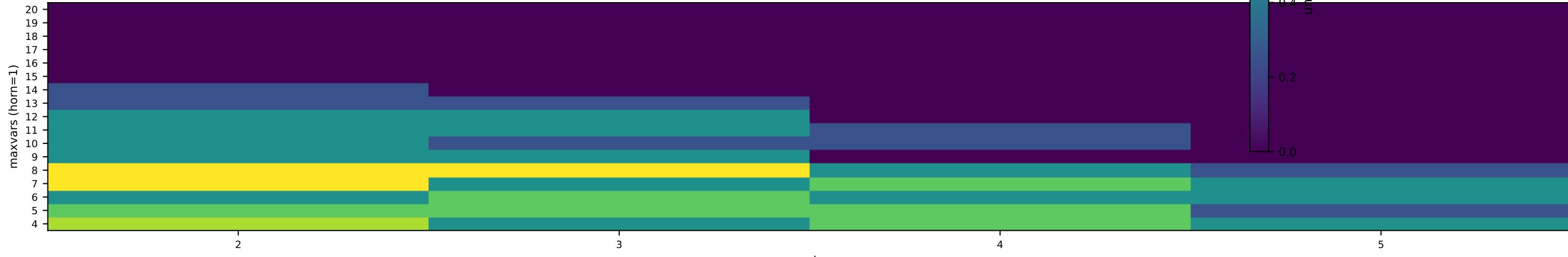
- Propositional variables are written as pN, where N is a number.
- All statements are jointly assumed true (conjoined).

...

nothink (n=185)



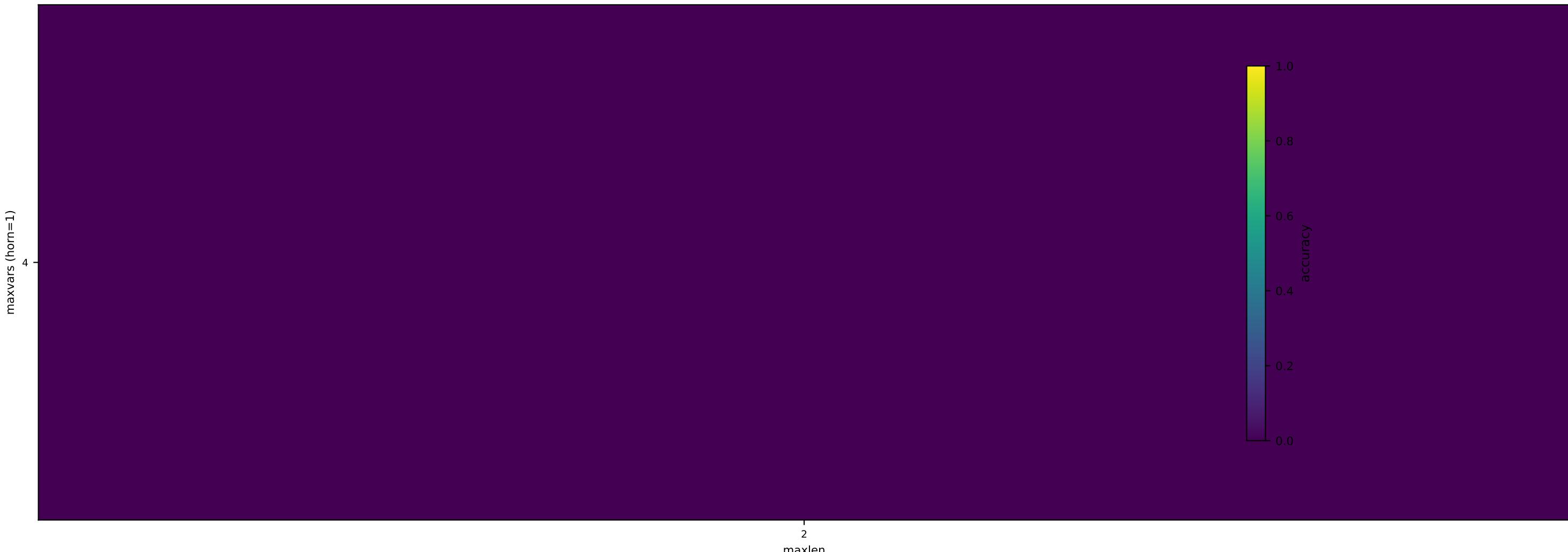
nothink (n=465)



prompt\_template= | parse\_family=yes\_no

**Instruction excerpt:**  
(no instruction text found)

nothink (n=1)

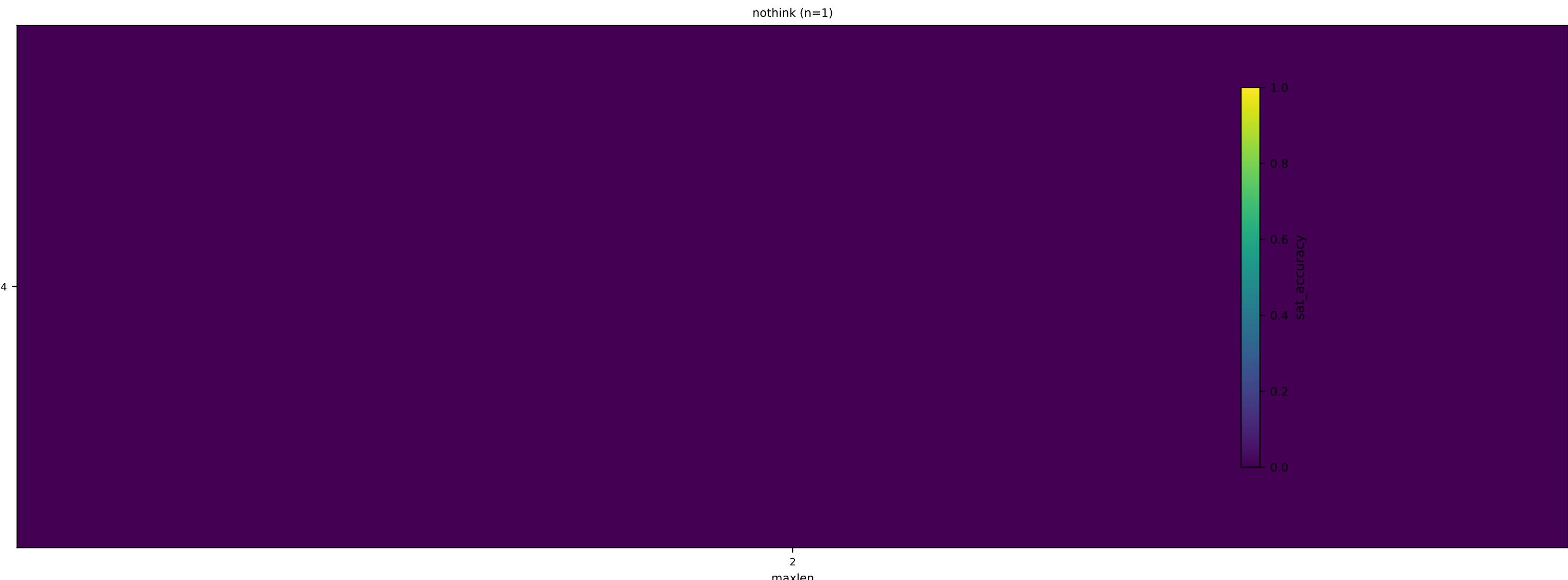


# openai/gpt-5-nano-2025-08-07 — sat\_accuracy — prompt\_154dcb992a (horn\_if\_then)

Example statements:  
(no example statements found)

prompt\_template= | parse\_family=yes\_no

**Instruction excerpt:**  
(no instruction text found)

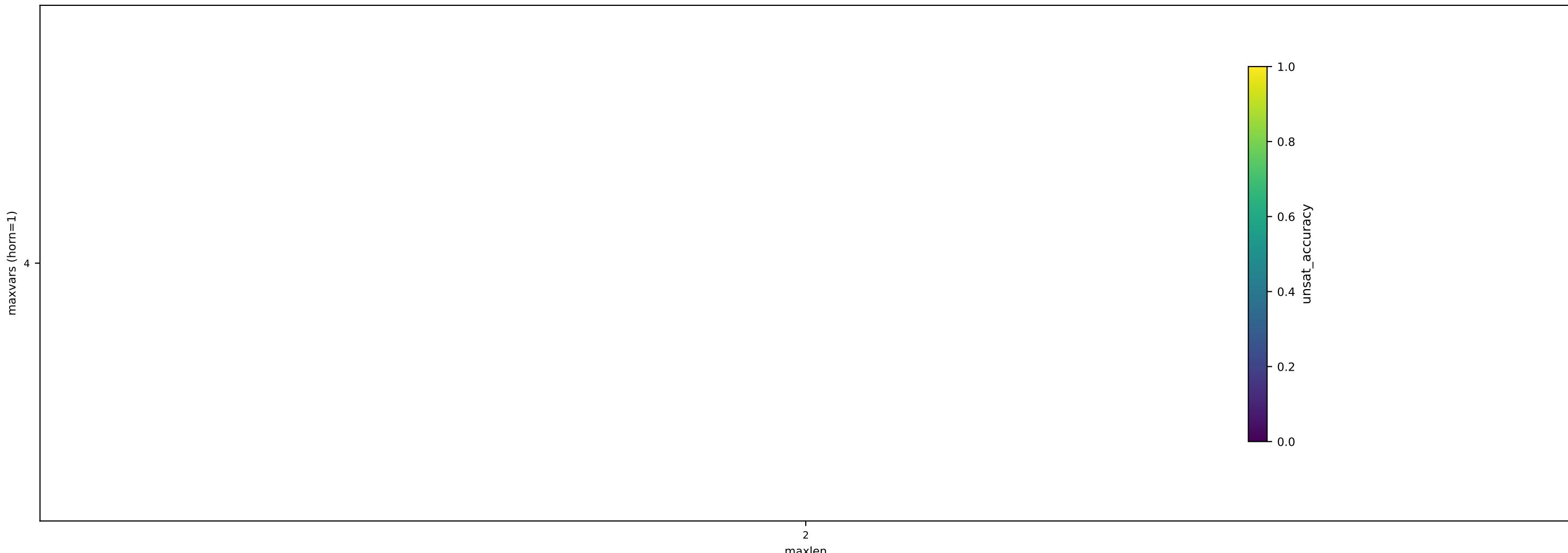


**openai/gpt-5-nano-2025-08-07 — unsat\_accuracy — prompt\_154dc992a (horn\_if\_then)** (no example statements found)

prompt\_template= | parse\_family=yes\_no

**Instruction excerpt:** (no instruction text found)

nothink (n=1)



# openai/gpt-5-nano-2025-08-07 — accuracy — prompt\_21889a86a3 (cnf\_v1)

prompt\_template=prompts/\_template\_unified.j2 | parse\_family=contradiction

## Instruction excerpt:

Your task is to solve a propositional logic problem.

Choose the appropriate interpretation based on how the statements are rendered below.

- If you see facts like "p1." and rules like "if p2 and p3 then p4.", treat them as Horn facts and implications, and determine whether p0 can be derived.
- If you see disjunctions like "p1 is true or p2 is false." or compact forms like "p1 or not(p2).", treat them as CNF clauses, and determine whether the set is a contradiction (unsatisfiable) or satisfiable.

## Conventions

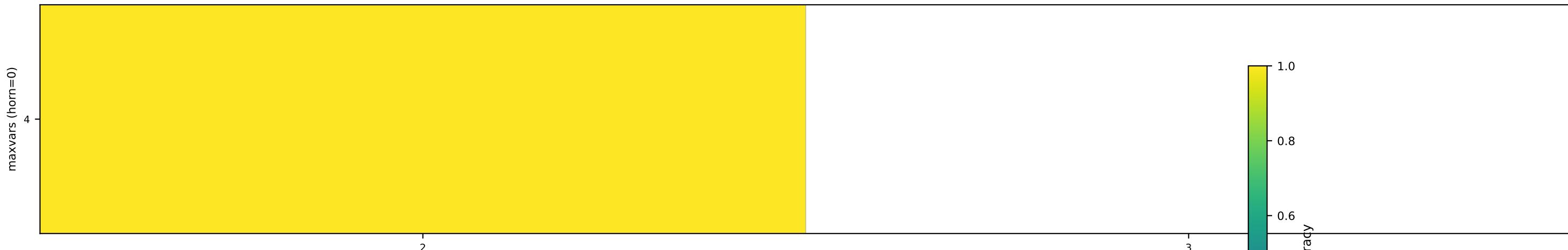
- Propositional variables are written as pN, where N is a number.
- All statements are jointly assumed true (conjoined).

...

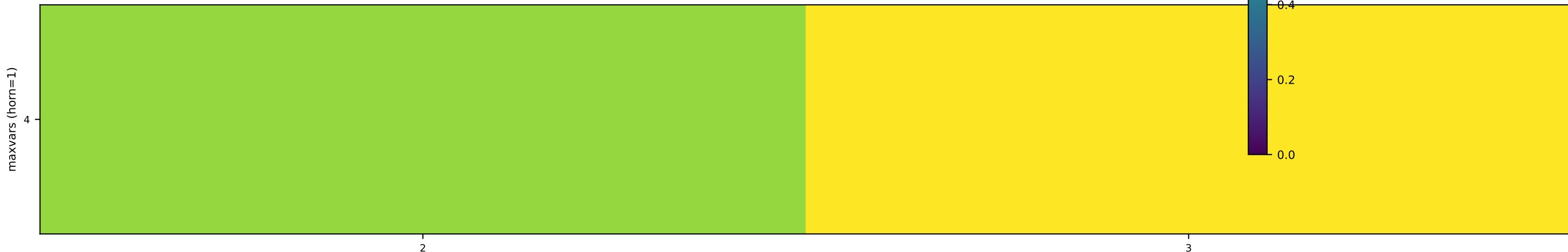
## Example (horn=1, low, maxvars=4, maxlen=2, satflag=1)

p4 is false.  
p2 is true.  
p3 is false or p1 is true.  
p3 is false or p4 is true.  
p2 is false or p1 is true.

nothink (n=4)



nothink (n=29)



# openai/gpt-5-nano-2025-08-07 — sat\_accuracy — prompt\_21889a86a3 (cnf\_v1)

prompt\_template=prompts/\_template\_unified.j2 | parse\_family=contradiction

## Instruction excerpt:

Your task is to solve a propositional logic problem.

Choose the appropriate interpretation based on how the statements are rendered below.

- If you see facts like "p1." and rules like "if p2 and p3 then p4.", treat them as Horn facts and implications, and determine whether p0 can be derived.
- If you see disjunctions like "p1 is true or p2 is false." or compact forms like "p1 or not(p2).", treat them as CNF clauses, and determine whether the set is a contradiction (unsatisfiable) or satisfiable.

## Conventions

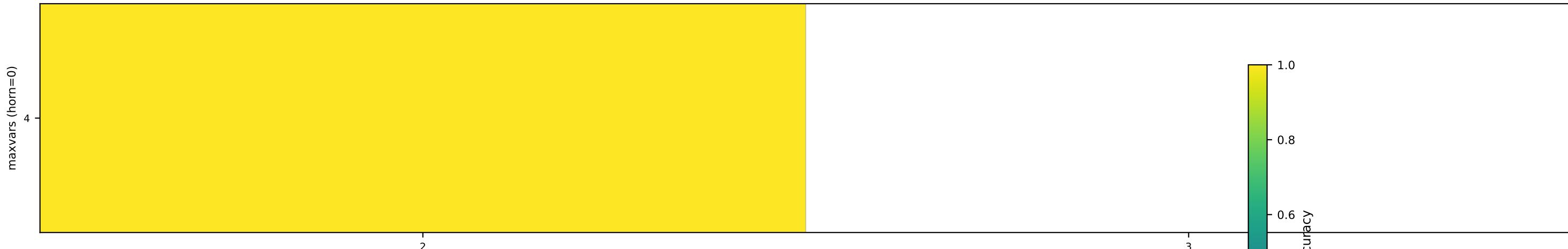
- Propositional variables are written as pN, where N is a number.
- All statements are jointly assumed true (conjoined).

...

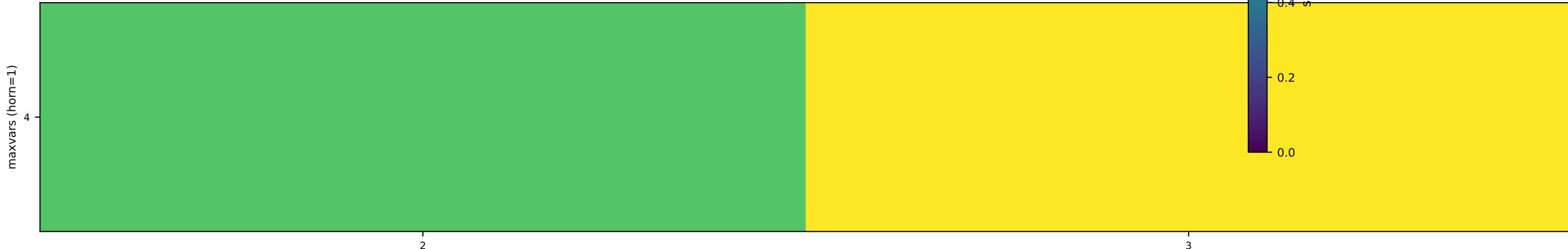
## Example (horn=1, low, maxvars=4, maxlen=2, satflag=1)

p4 is false.  
p2 is true.  
p3 is false or p1 is true.  
p3 is false or p4 is true.  
p2 is false or p1 is true.

nothink (n=4)



nothink (n=29)



# openai/gpt-5-nano-2025-08-07 — unsat\_accuracy — prompt\_21889a86a3 (cnf\_v1)

prompt\_template=prompts/\_template\_unified.j2 | parse\_family=contradiction

## Instruction excerpt:

Your task is to solve a propositional logic problem.

Choose the appropriate interpretation based on how the statements are rendered below.

- If you see facts like "p1." and rules like "if p2 and p3 then p4.", treat them as Horn facts and implications, and determine whether p0 can be derived.
- If you see disjunctions like "p1 is true or p2 is false." or compact forms like "p1 or not(p2).", treat them as CNF clauses, and determine whether the set is a contradiction (unsatisfiable) or satisfiable.

## Conventions

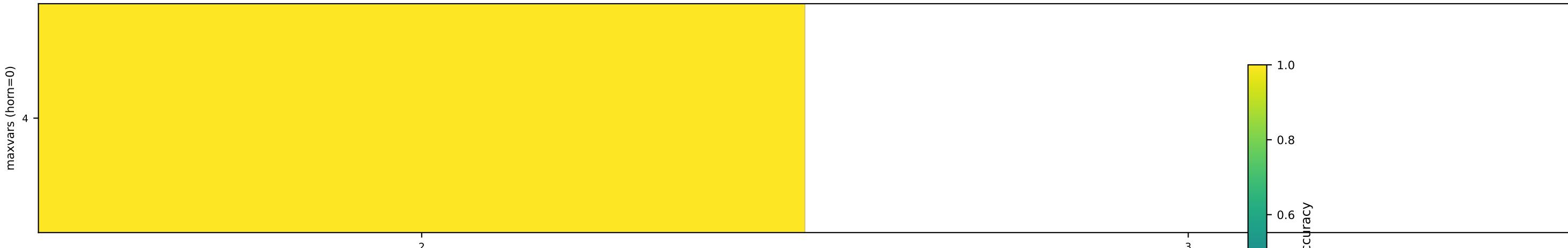
- Propositional variables are written as pN, where N is a number.
- All statements are jointly assumed true (conjoined).

...

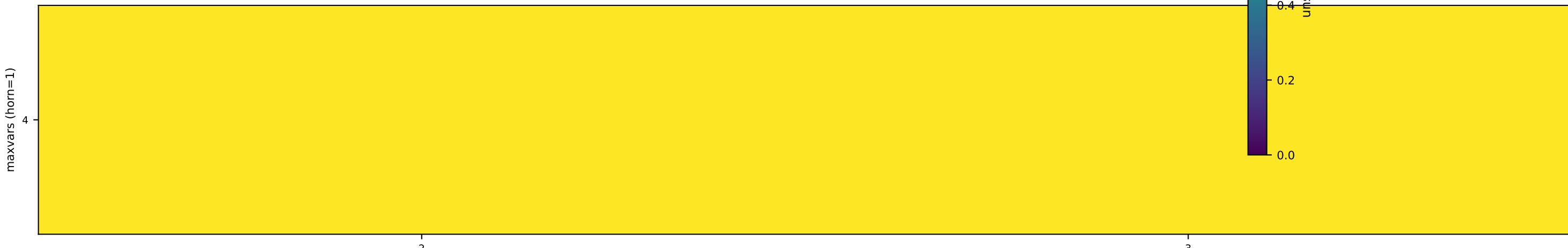
Example (horn=1, low, maxvars=4, maxlen=2, satflag=1)

p4 is false.  
p2 is true.  
p3 is false or p1 is true.  
p3 is false or p4 is true.  
p2 is false or p1 is true.

nothink (n=4)



nothink (n=29)



## openai/gpt-5-nano-2025-08-07 — accuracy — prompt\_2376d1fca7 (horn\_if\_then)

prompt\_template=prompts/\_template\_unified.j2 | parse\_family=yes\_no

### Instruction excerpt:

Your task is to solve a propositional logic problem.

Choose the appropriate interpretation based on how the statements are rendered below.

- If you see facts like "p1." and rules like "if p2 and p3 then p4.", treat them as Horn facts and implications, and determine whether p0 can be derived.
- If you see disjunctions like "p1 is true or p2 is false." or compact forms like "p1 or not(p2).", treat them as CNF clauses, and determine whether the set is a contradiction (unsatisfiable) or satisfiable.

Unified answer rule (mixed cases)

- Regardless of how the statements are rendered, output only a final single word: "yes" if p0 is derivable OR the set is a contradiction; otherwise "no".

Do not output any other words.

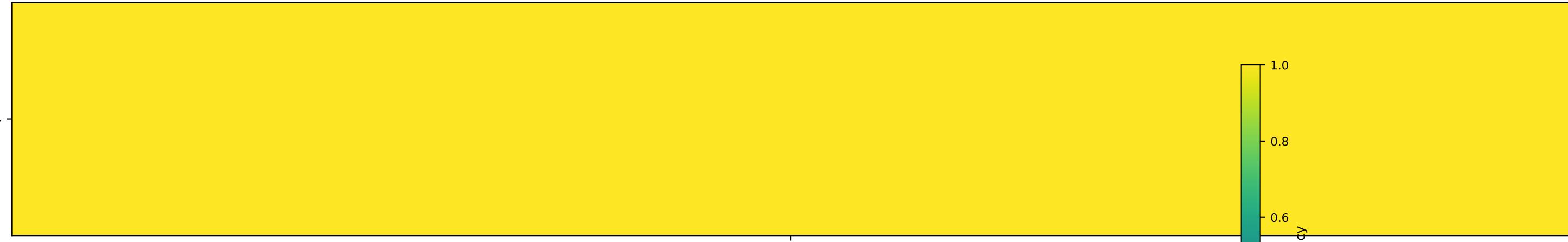
...

### Example (horn=1, low, maxvars=4, maxlen=2, satflag=1)

```
if p4 then p0.  
p2.  
if p3 then p1.  
if p3 then p4.  
if p2 then p1.
```

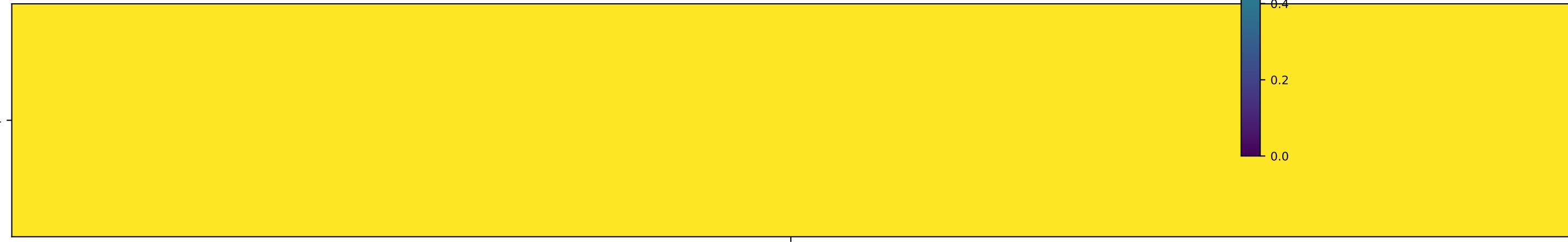
nothink (n=4)

maxvars (horn=0)



nothink (n=4)

maxvars (horn=1)



# openai/gpt-5-nano-2025-08-07 — sat\_accuracy — prompt\_2376d1fca7 (horn\_if\_then)

prompt\_template=prompts/\_template\_unified.j2 | parse\_family=yes\_no

## Instruction excerpt:

Your task is to solve a propositional logic problem.

Choose the appropriate interpretation based on how the statements are rendered below.

- If you see facts like "p1." and rules like "if p2 and p3 then p4.", treat them as Horn facts and implications, and determine whether p0 can be derived.
- If you see disjunctions like "p1 is true or p2 is false." or compact forms like "p1 or not(p2).", treat them as CNF clauses, and determine whether the set is a contradiction (unsatisfiable) or satisfiable.

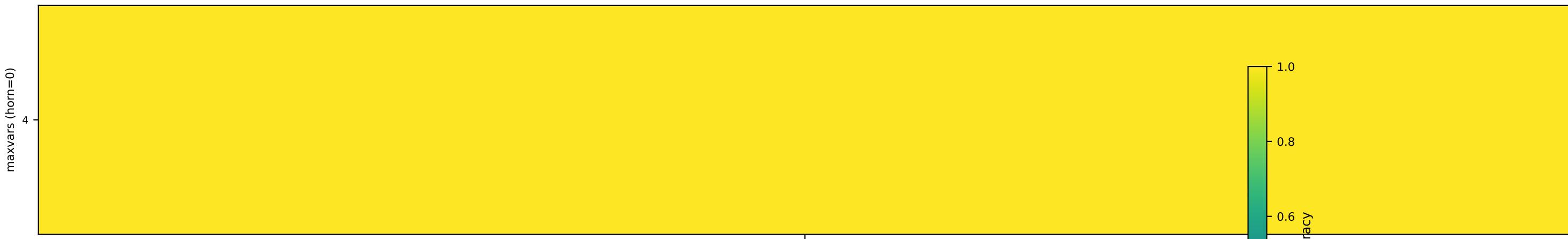
Unified answer rule (mixed cases)

- Regardless of how the statements are rendered, output only a final single word: "yes" if p0 is derivable OR the set is a contradiction; otherwise "no".
- Do not output any other words.

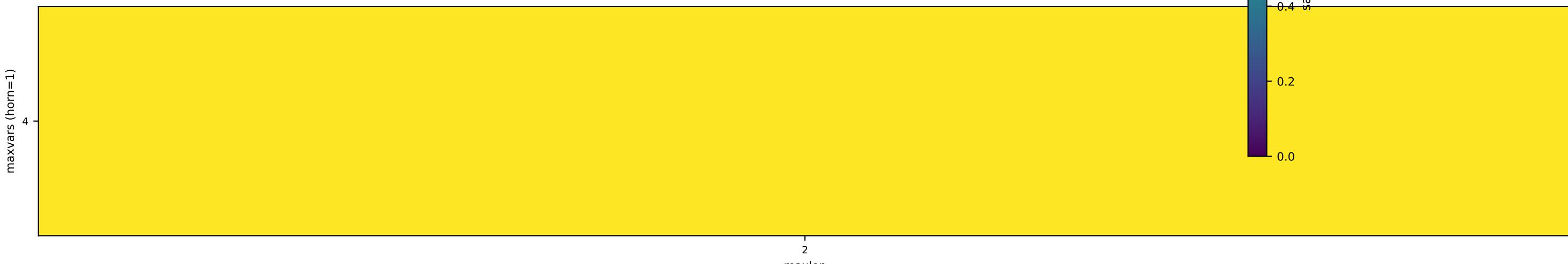
...

Example (horn=1, low, maxvars=4, maxlen=2, satflag=1)  
if p4 then p0.  
p2.  
if p3 then p1.  
if p3 then p4.  
if p2 then p1.

nothink (n=4)



nothink (n=4)



# openai/gpt-5-nano-2025-08-07 — unsat\_accuracy — prompt\_2376d1fca7 (horn\_if\_then)

prompt\_template=prompts/\_template\_unified.j2 | parse\_family=yes\_no

## Instruction excerpt:

Your task is to solve a propositional logic problem.

Choose the appropriate interpretation based on how the statements are rendered below.

- If you see facts like "p1." and rules like "if p2 and p3 then p4.", treat them as Horn facts and implications, and determine whether p0 can be derived.
- If you see disjunctions like "p1 is true or p2 is false." or compact forms like "p1 or not(p2).", treat them as CNF clauses, and determine whether the set is a contradiction (unsatisfiable) or satisfiable.

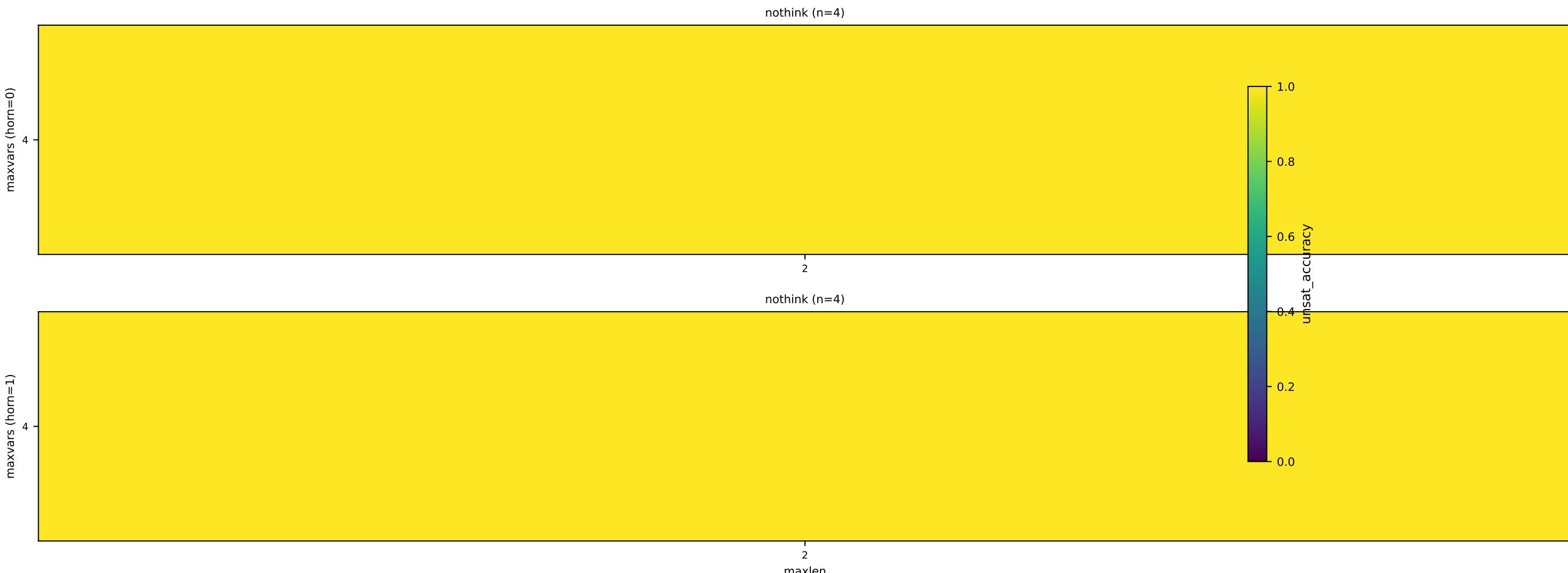
Unified answer rule (mixed cases)

- Regardless of how the statements are rendered, output only a final single word: "yes" if p0 is derivable OR the set is a contradiction; otherwise "no".

Do not output any other words.

...

```
example (horn=1, low, maxvars=4, maxlen=2, satflag=1)
if p4 then p0.
p2.
if p3 then p1.
if p3 then p4.
if p2 then p1.
```



## openai/gpt-5-nano-2025-08-07 — accuracy — prompt\_2e9c5ccddf (cnf\_v2)

prompt\_template=prompts/\_template\_unified.j2 | parse\_family=contradiction

### Instruction excerpt:

Your task is to solve a propositional logic problem.

Choose the appropriate interpretation based on how the statements are rendered below.

- If you see facts like "p1." and rules like "if p2 and p3 then p4.", treat them as Horn facts and implications, and determine whether p0 can be derived.
- If you see disjunctions like "p1 is true or p2 is false." or compact forms like "p1 or not(p2).", treat them as CNF clauses, and determine whether the set is a contradiction (unsatisfiable) or satisfiable.

### Conventions

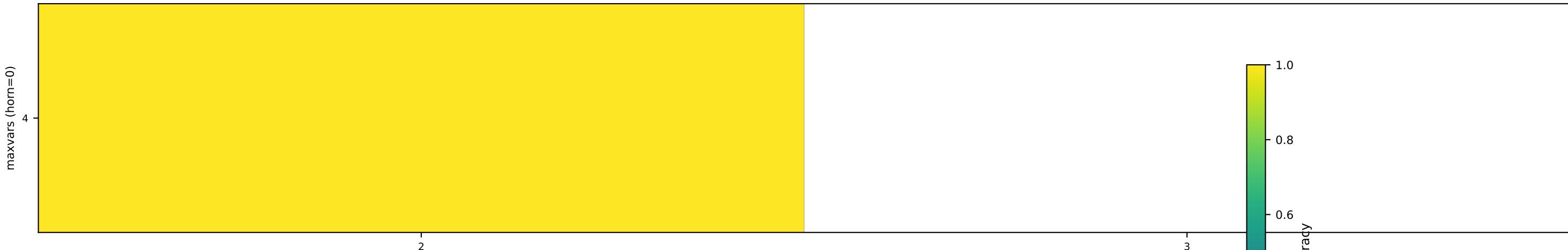
- Propositional variables are written as pN, where N is a number.
- All statements are jointly assumed true (conjoined).

...

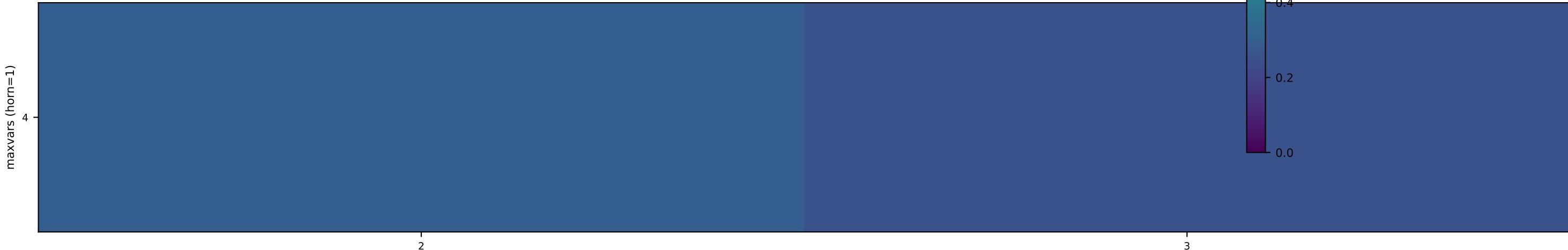
### Example (horn=1, low, maxvars=4, maxlen=2, satflag=1)

```
not(p4).
p2.
not(p3) or p1.
not(p3) or p4.
not(p2) or p1.
```

nothink (n=4)



nothink (n=24)



# openai/gpt-5-nano-2025-08-07 — sat\_accuracy — prompt\_2e9c5ccddf (cnf\_v2)

prompt\_template=prompts/\_template\_unified.j2 | parse\_family=contradiction

## Instruction excerpt:

Your task is to solve a propositional logic problem.

Choose the appropriate interpretation based on how the statements are rendered below.

- If you see facts like "p1." and rules like "if p2 and p3 then p4.", treat them as Horn facts and implications, and determine whether p0 can be derived.
- If you see disjunctions like "p1 is true or p2 is false." or compact forms like "p1 or not(p2).", treat them as CNF clauses, and determine whether the set is a contradiction (unsatisfiable) or satisfiable.

## Conventions

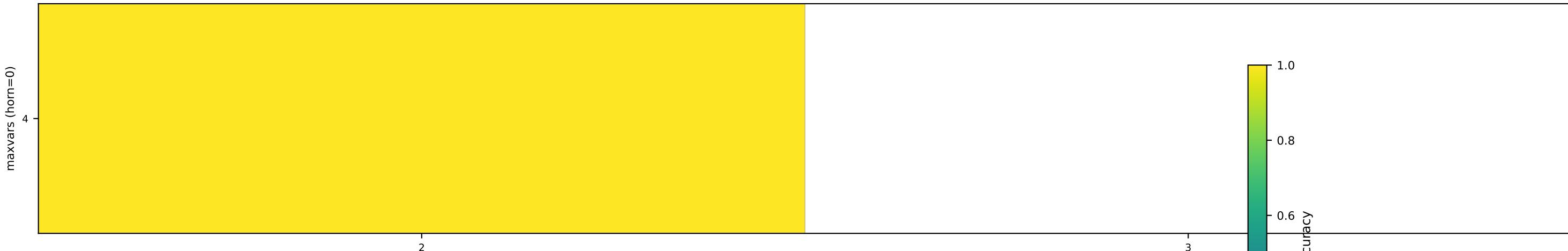
- Propositional variables are written as pN, where N is a number.
- All statements are jointly assumed true (conjoined).

...

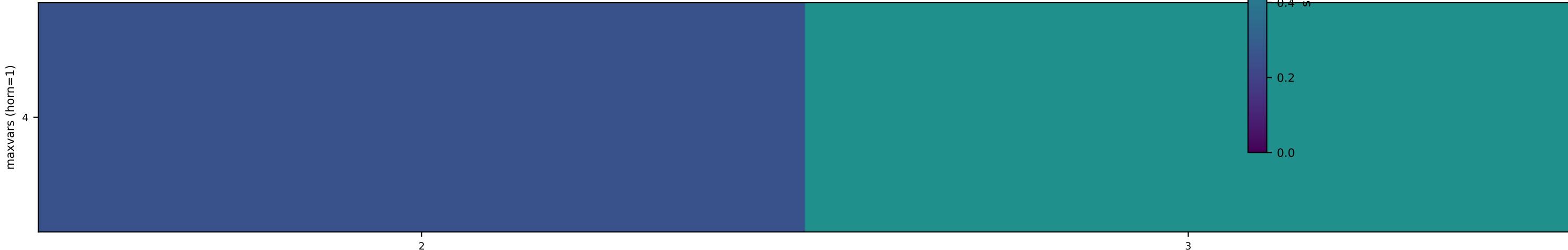
## Example (horn=1, low, maxvars=4, maxlen=2, satflag=1)

```
not(p4).
p2.
not(p3) or p1.
not(p3) or p4.
not(p2) or p1.
```

nothink (n=4)



nothink (n=24)



# openai/gpt-5-nano-2025-08-07 — unsat\_accuracy — prompt\_2e9c5ccddf (cnf\_v2)

prompt\_template=prompts/\_template\_unified.j2 | parse\_family=contradiction

## Instruction excerpt:

Your task is to solve a propositional logic problem.

Choose the appropriate interpretation based on how the statements are rendered below.

- If you see facts like "p1." and rules like "if p2 and p3 then p4.", treat them as Horn facts and implications, and determine whether p0 can be derived.
- If you see disjunctions like "p1 is true or p2 is false." or compact forms like "p1 or not(p2).", treat them as CNF clauses, and determine whether the set is a contradiction (unsatisfiable) or satisfiable.

## Conventions

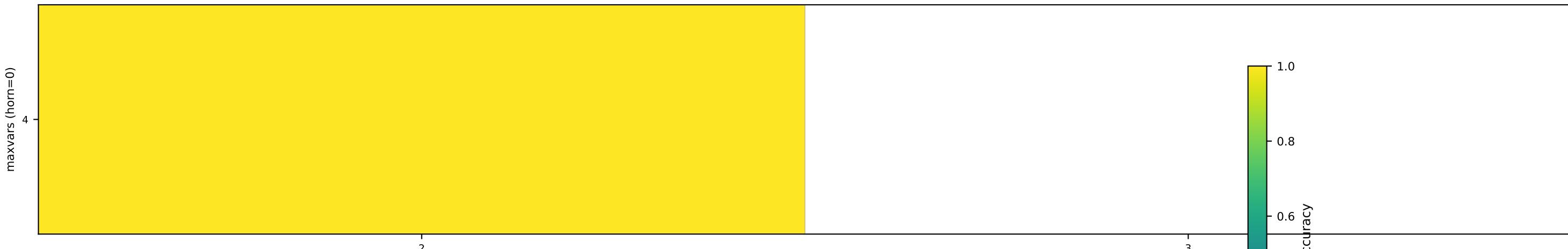
- Propositional variables are written as pN, where N is a number.
- All statements are jointly assumed true (conjoined).

...

## Example (horn=1, low, maxvars=4, maxlen=2, satflag=1)

```
not(p4).
p2.
not(p3) or p1.
not(p3) or p4.
not(p2) or p1.
```

nothink (n=4)



nothink (n=24)



# openai/gpt-5-nano-2025-08-07 — accuracy — prompt\_62ba908560 (horn\_if\_then)

prompt\_template=prompts/\_template\_unified.j2 | parse\_family=yes\_no

## Instruction excerpt:

Your task is to solve a propositional logic problem.

Choose the appropriate interpretation based on how the statements are rendered below.

- If you see facts like "p1." and rules like "if p2 and p3 then p4.", treat them as Horn facts and implications, and determine whether p0 can be derived.
- If you see disjunctions like "p1 is true or p2 is false." or compact forms like "p1 or not(p2).", treat them as CNF clauses, and determine whether the set is a contradiction (unsatisfiable) or satisfiable.

Unified answer rule (mixed cases)

- Regardless of how the statements are rendered, output only a final single word: "yes" if p0 is derivable OR the set is a contradiction; otherwise "no".

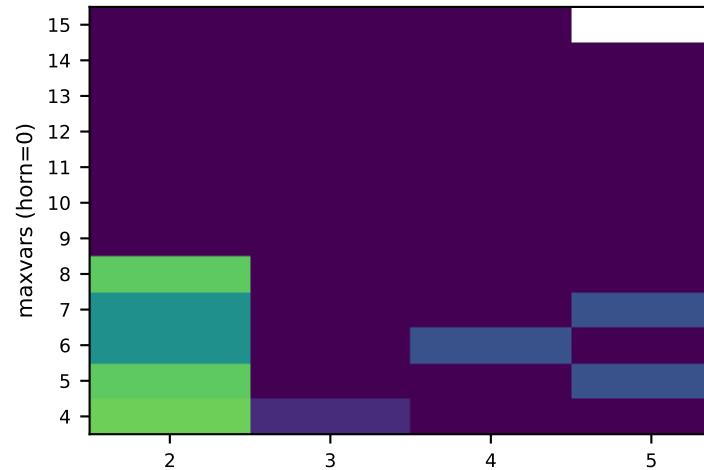
Do not output any other words.

...

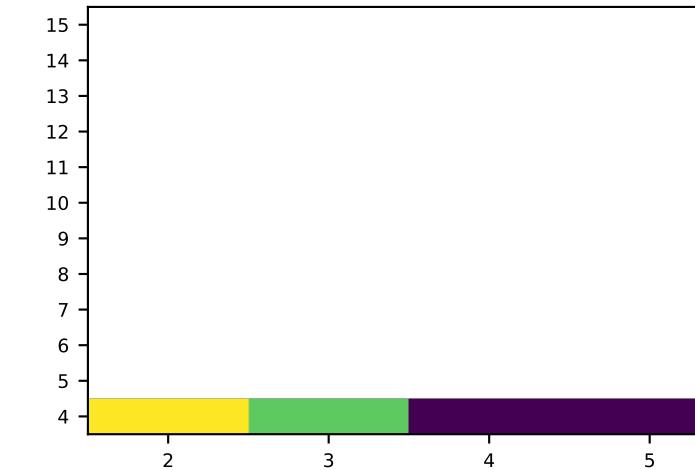
Example (horn=1, low, maxvars=4, maxlen=2, satflag=1)

```
if p4 then p0.  
p2.  
if p3 then p1.  
if p3 then p4.  
if p2 then p1.
```

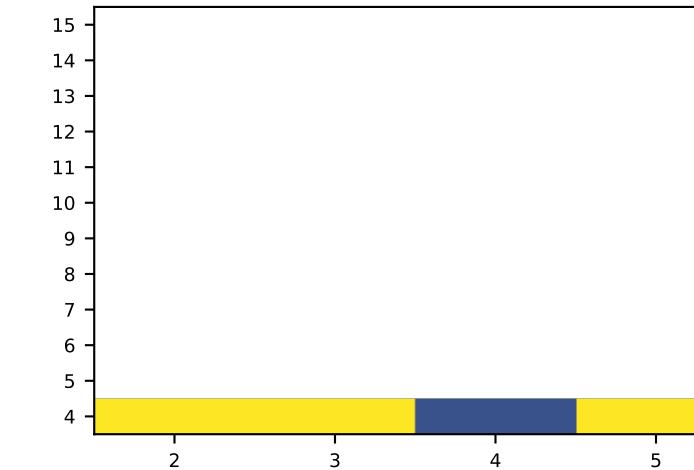
nothink (n=204)



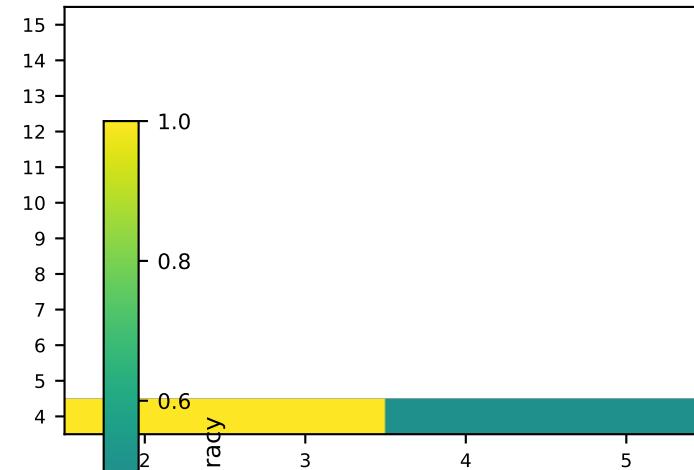
think-high (n=14)



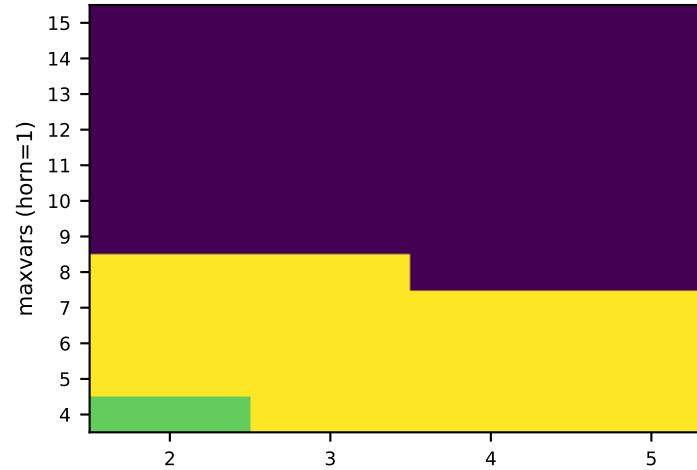
think-low (n=15)



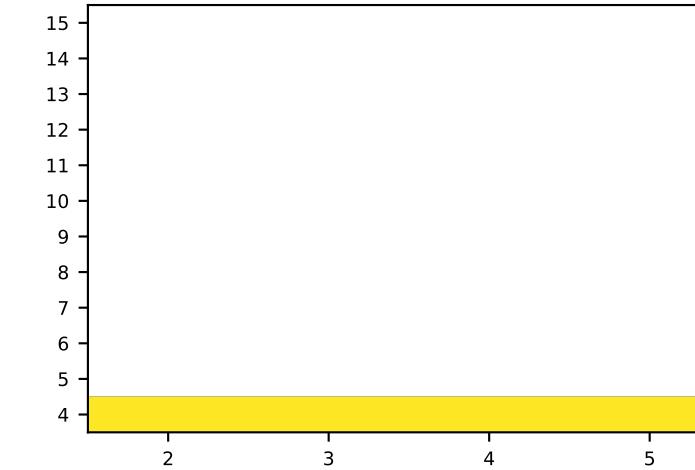
think-medium (n=14)



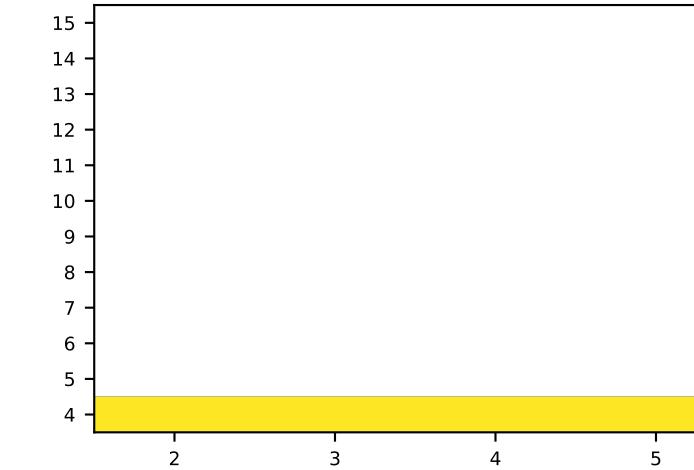
nothink (n=214)



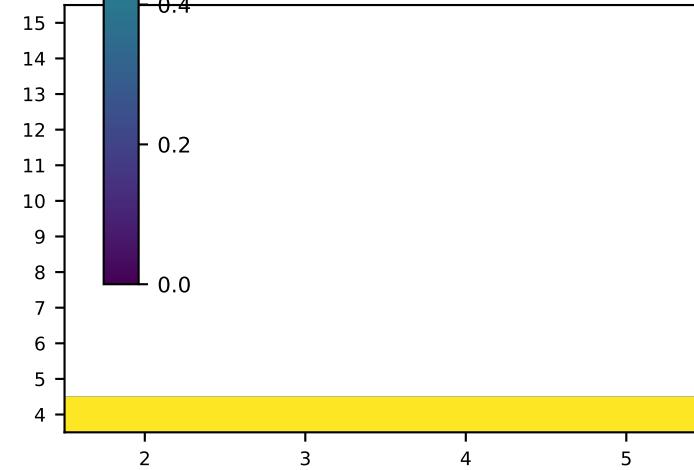
think-high (n=22)



think-low (n=22)



think-medium (n=22)



# openai/gpt-5-nano-2025-08-07 — sat\_accuracy — prompt\_62ba908560 (horn\_if\_then)

prompt\_template=prompts/\_template\_unified.j2 | parse\_family=yes\_no

## Instruction excerpt:

Your task is to solve a propositional logic problem.

Choose the appropriate interpretation based on how the statements are rendered below.

- If you see facts like "p1." and rules like "if p2 and p3 then p4.", treat them as Horn facts and implications, and determine whether p0 can be derived.
- If you see disjunctions like "p1 is true or p2 is false." or compact forms like "p1 or not(p2).", treat them as CNF clauses, and determine whether the set is a contradiction (unsatisfiable) or satisfiable.

Unified answer rule (mixed cases)

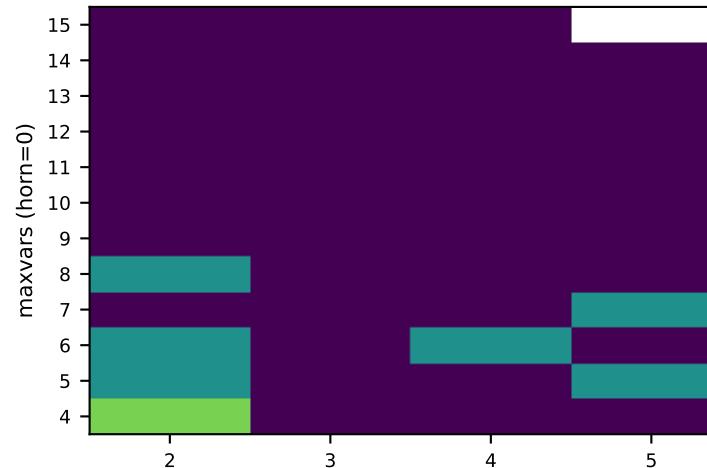
- Regardless of how the statements are rendered, output only a final single word: "yes" if p0 is derivable OR the set is a contradiction; otherwise "no".

Do not output any other words.

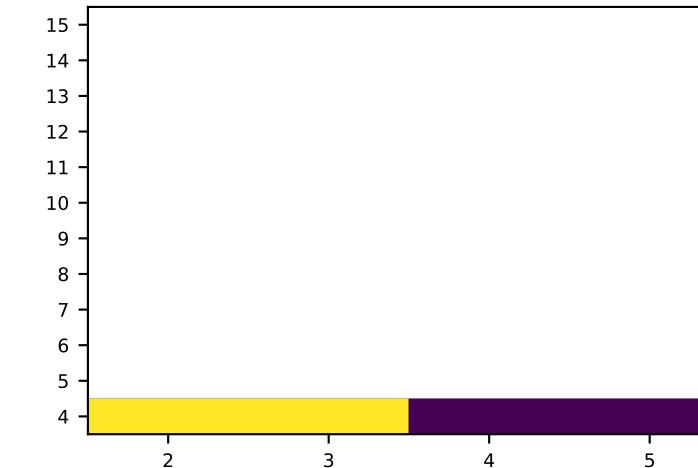
...

Example (horn=1, low, maxvars=4, maxlen=2, satflag=1)  
if p4 then p0.  
p2.  
if p3 then p1.  
if p3 then p4.  
if p2 then p1.

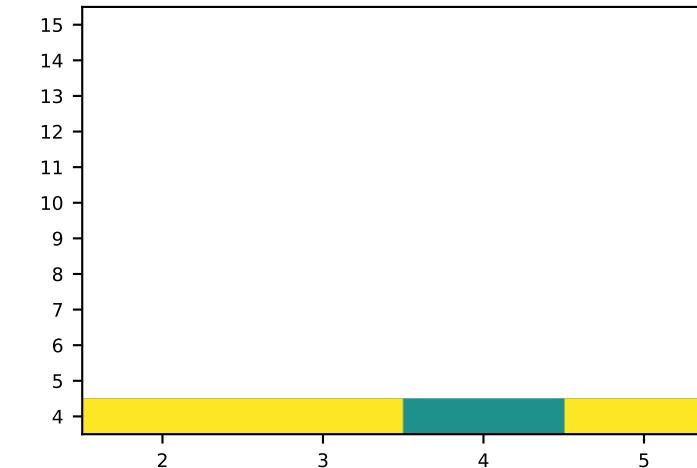
nothink (n=204)



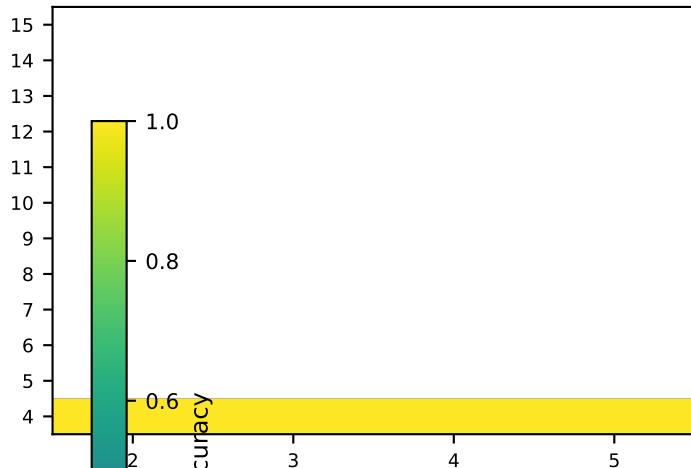
think-high (n=14)



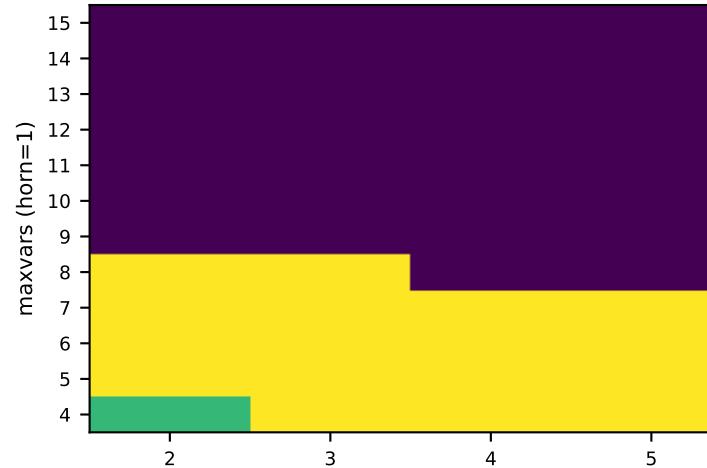
think-low (n=15)



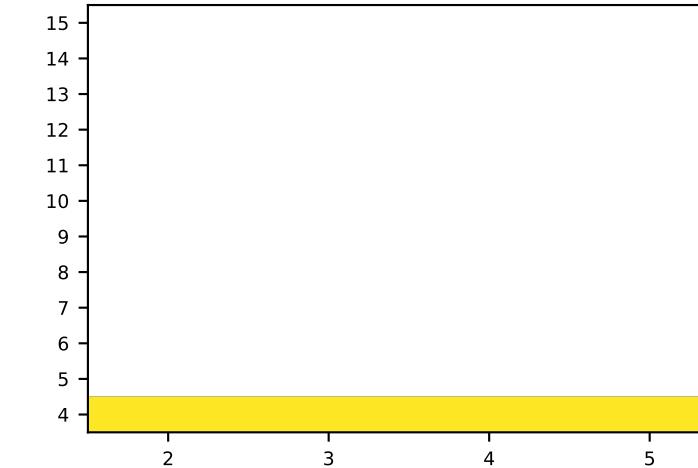
think-medium (n=14)



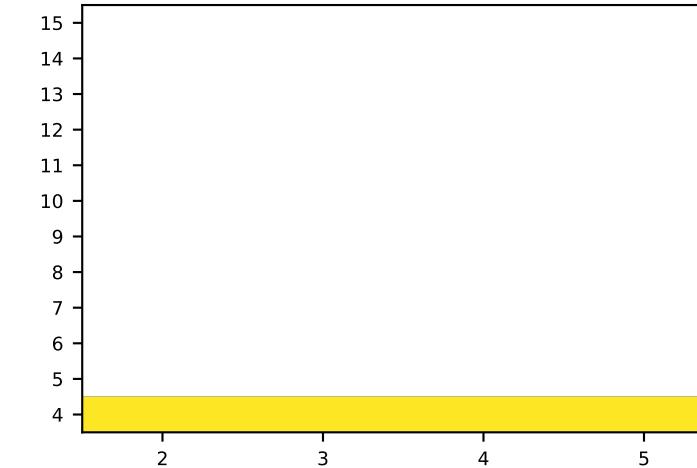
nothink (n=214)



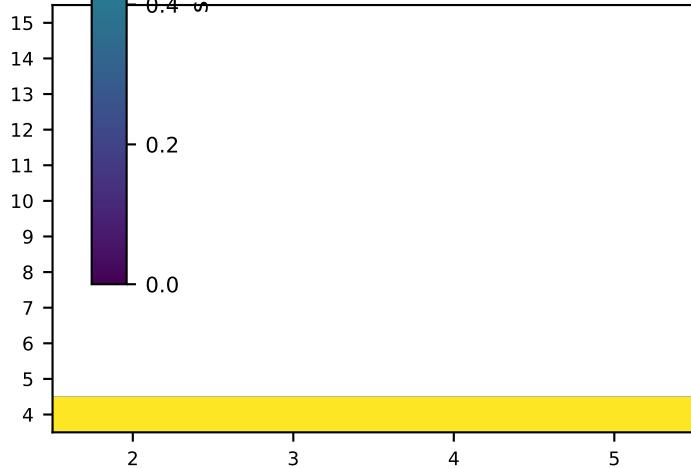
think-high (n=22)



think-low (n=22)



think-medium (n=22)



# openai/gpt-5-nano-2025-08-07 — unsat\_accuracy — prompt\_62ba908560 (horn\_if\_them)

prompt\_template=prompts/\_template\_unified.j2 | parse\_family=yes\_no

## Instruction excerpt:

Your task is to solve a propositional logic problem.

Choose the appropriate interpretation based on how the statements are rendered below.

- If you see facts like "p1." and rules like "if p2 and p3 then p4.", treat them as Horn facts and implications, and determine whether p0 can be derived.
- If you see disjunctions like "p1 is true or p2 is false." or compact forms like "p1 or not(p2).", treat them as CNF clauses, and determine whether the set is a contradiction (unsatisfiable) or satisfiable.

Unified answer rule (mixed cases)

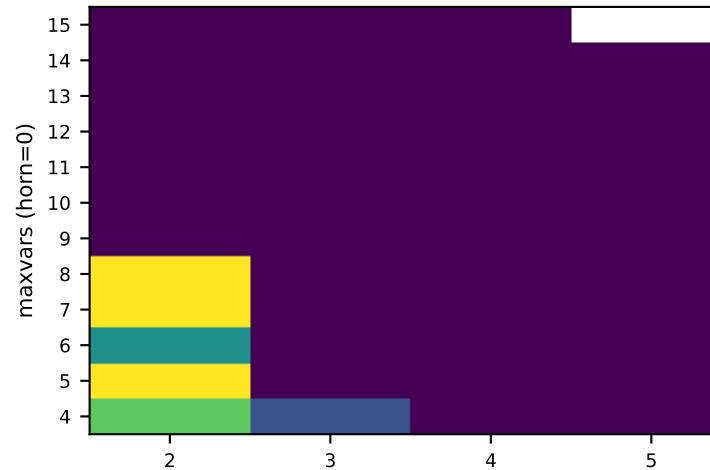
- Regardless of how the statements are rendered, output only a final single word: "yes" if p0 is derivable OR the set is a contradiction; otherwise "no".

Do not output any other words.

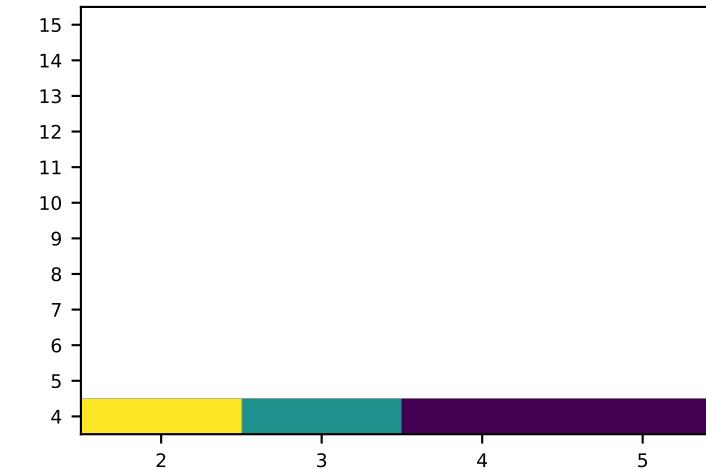
...

```
if p4 then p0.  
p2.  
if p3 then p1.  
if p3 then p4.  
if p2 then p1.
```

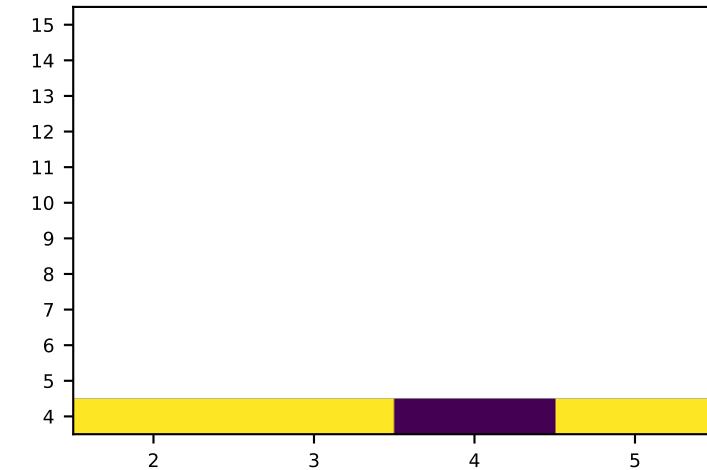
nothink (n=204)



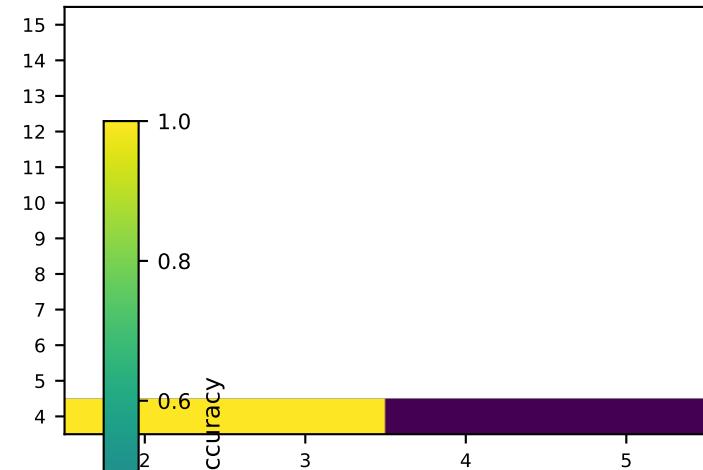
think-high (n=14)



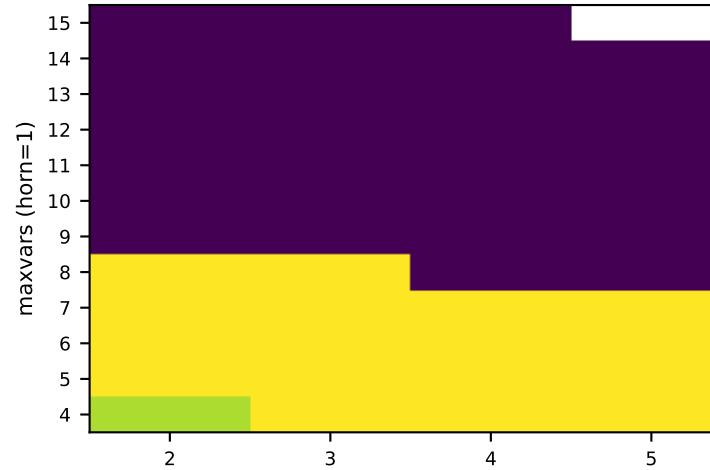
think-low (n=15)



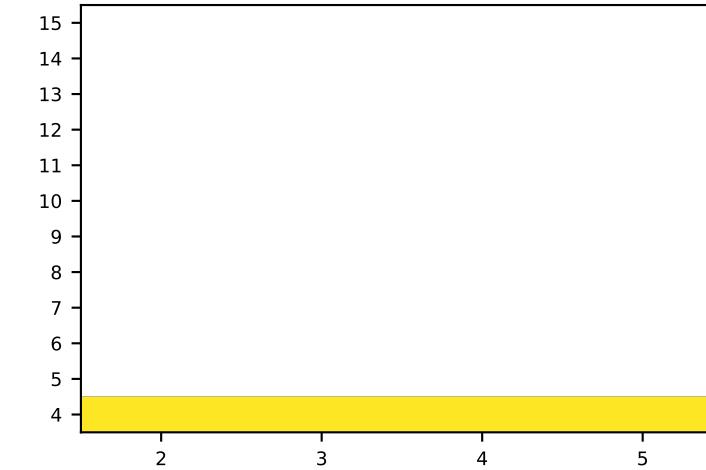
think-medium (n=14)



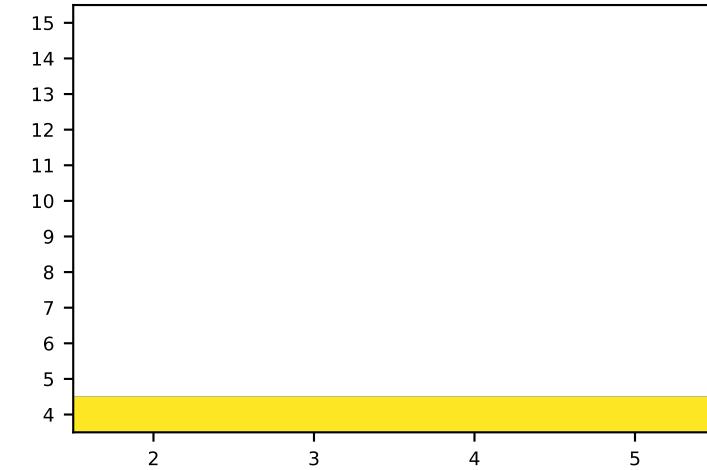
nothink (n=214)



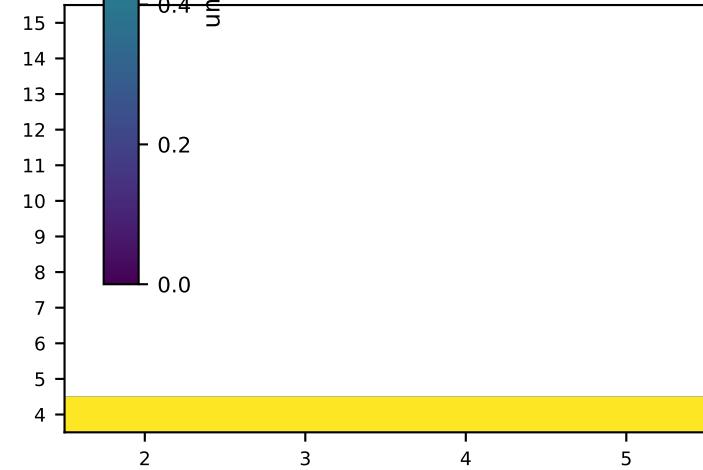
think-high (n=22)



think-low (n=22)



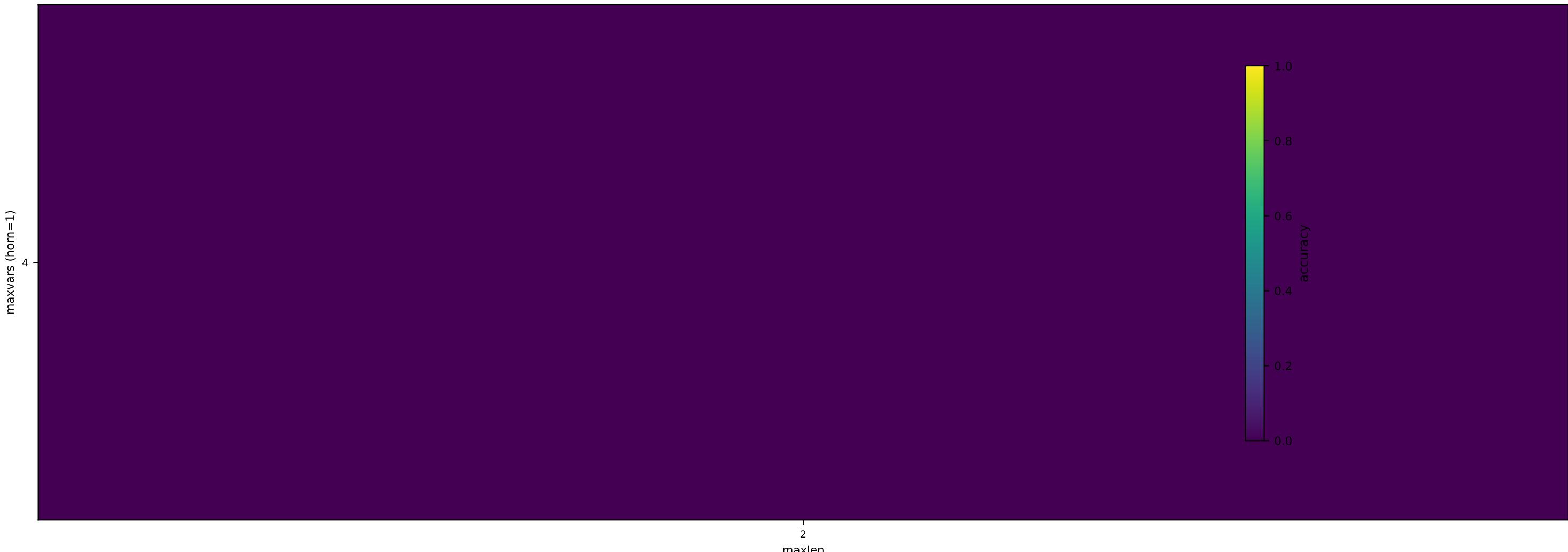
think-medium (n=22)



prompt\_template= | parse\_family=yes\_no

**Instruction excerpt:**  
(no instruction text found)

nothink (n=3)

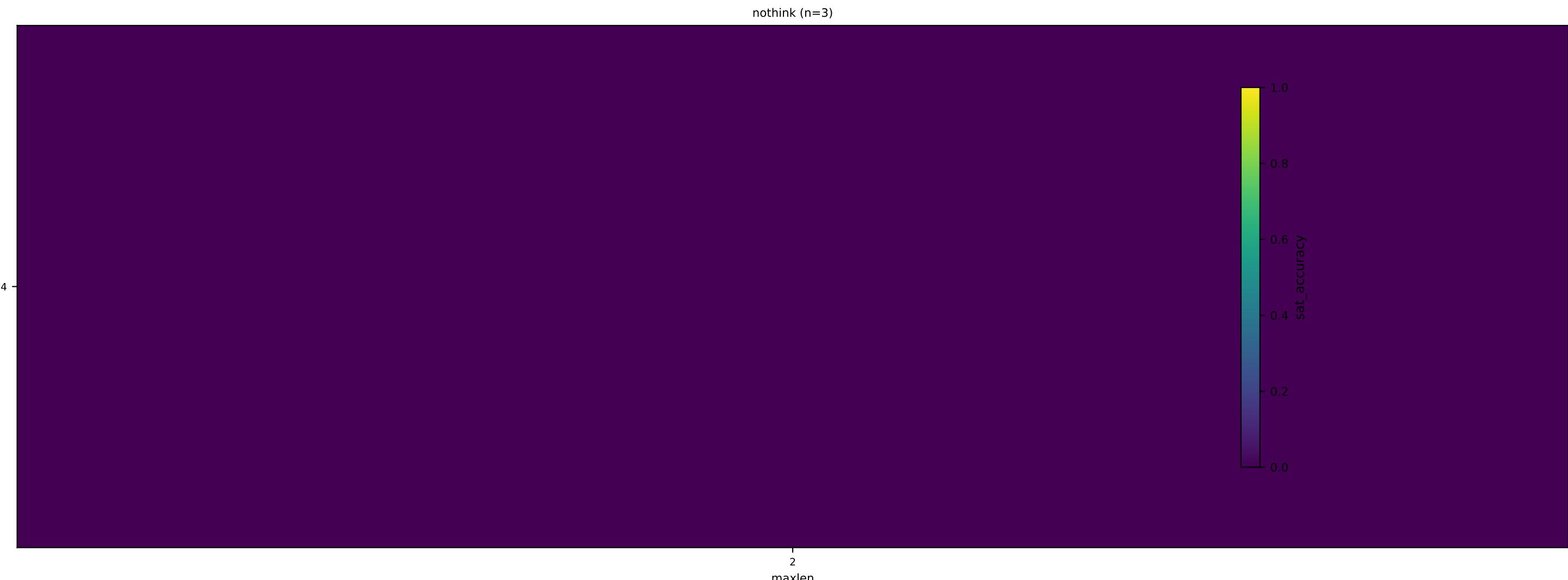


openai/gpt-5-nano-2025-08-07 — sat\_accuracy — prompt\_73ecab0579 (horn\_if\_then)

Example statements:  
(no example statements found)

prompt\_template= | parse\_family=yes\_no

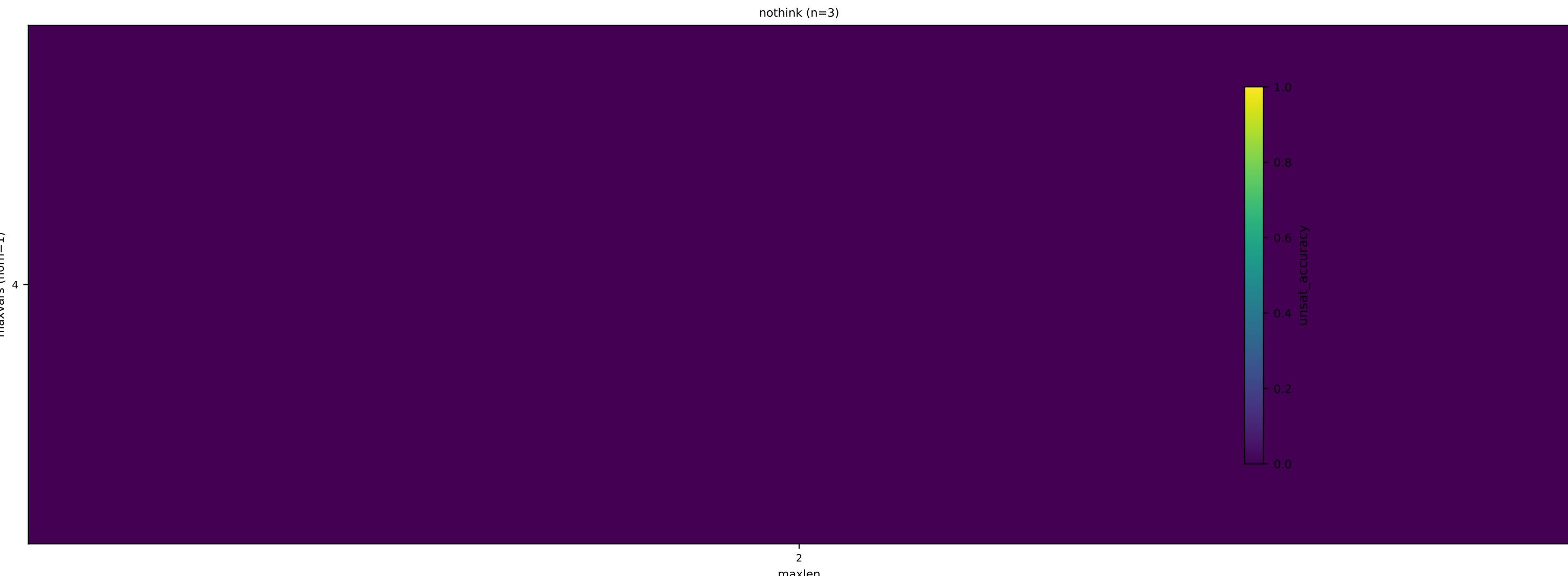
Instruction excerpt:  
(no instruction text found)



**openai/gpt-5-nano-2025-08-07 — unsat\_accuracy — prompt\_73ecab0579 (horn\_if\_them)** (no example statements found)

prompt\_template= | parse\_family=yes\_no

**Instruction excerpt:** (no instruction text found)



# openai/gpt-5-nano-2025-08-07 — accuracy — prompt\_7b28aa32dc (horn\_if\_then)

prompt\_template=prompts/\_template\_unified.j2 | parse\_family=yes\_no

## Instruction excerpt:

Your task is to solve a propositional logic problem.

Choose the appropriate interpretation based on how the statements are rendered below.

- If you see facts like "p1." and rules like "if p2 and p3 then p4.", treat them as Horn facts and implications, and determine whether p0 can be derived.
- If you see disjunctions like "p1 is true or p2 is false." or compact forms like "p1 or not(p2).", treat them as CNF clauses, and determine whether the set is a contradiction (unsatisfiable) or satisfiable.

Horn answer rule

- Output ONLY a single final word: "yes" if p0 is derivable, otherwise "no".

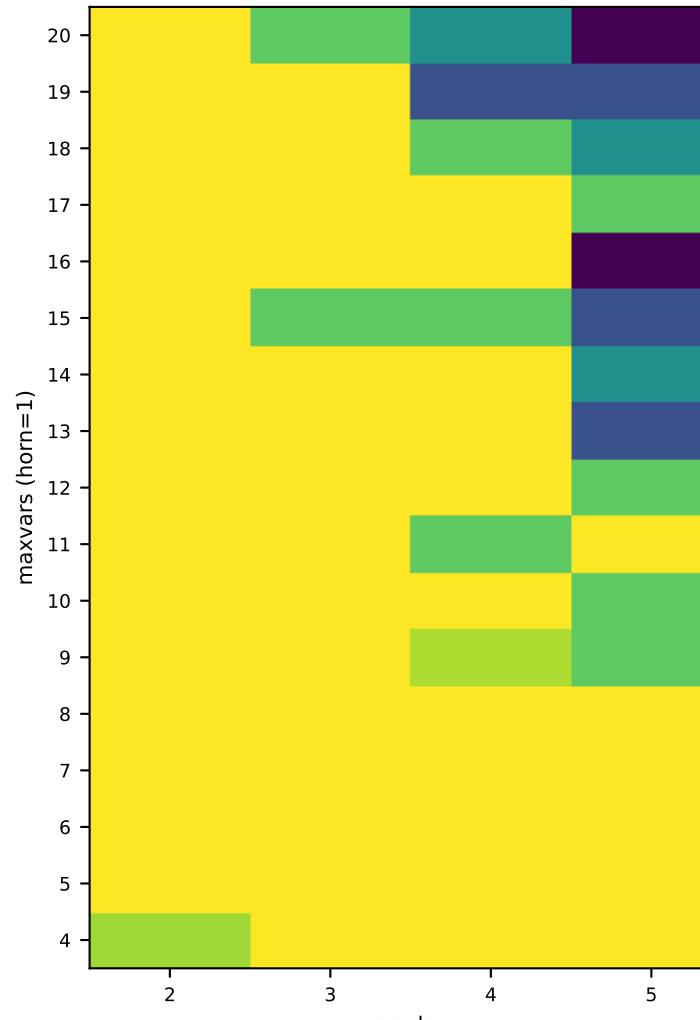
Do not output any other words.

...

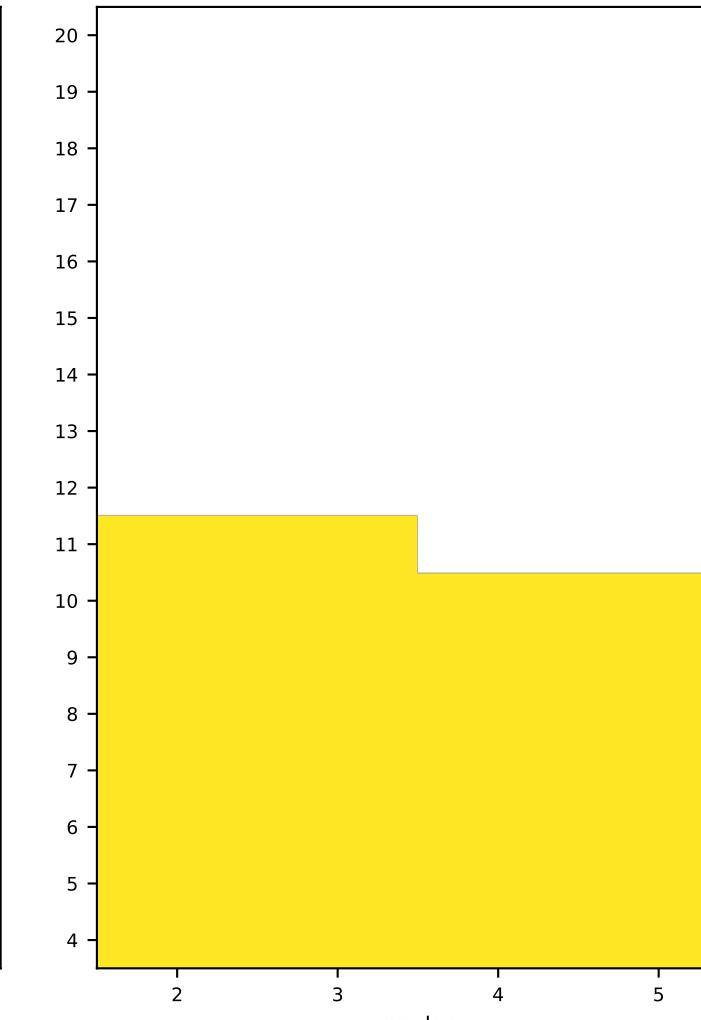
Example (horn=1, low, maxvars=4, maxlen=2, satflag=1)

```
if p4 then p0.  
p2.  
if p3 then p1.  
if p3 then p4.  
if p2 then p1.
```

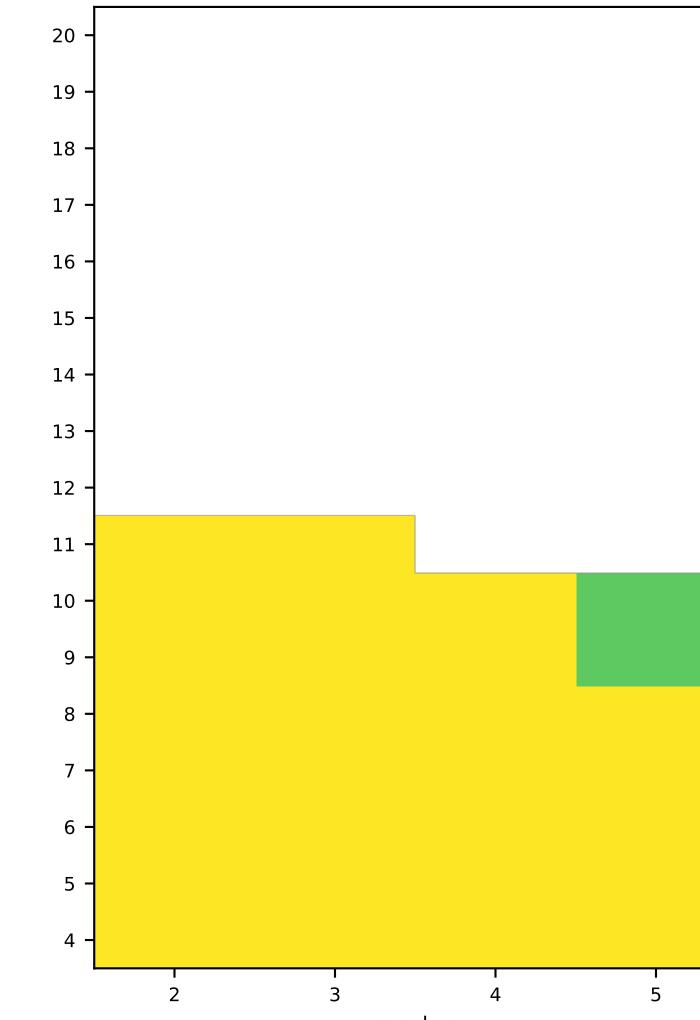
nothink (n=398)



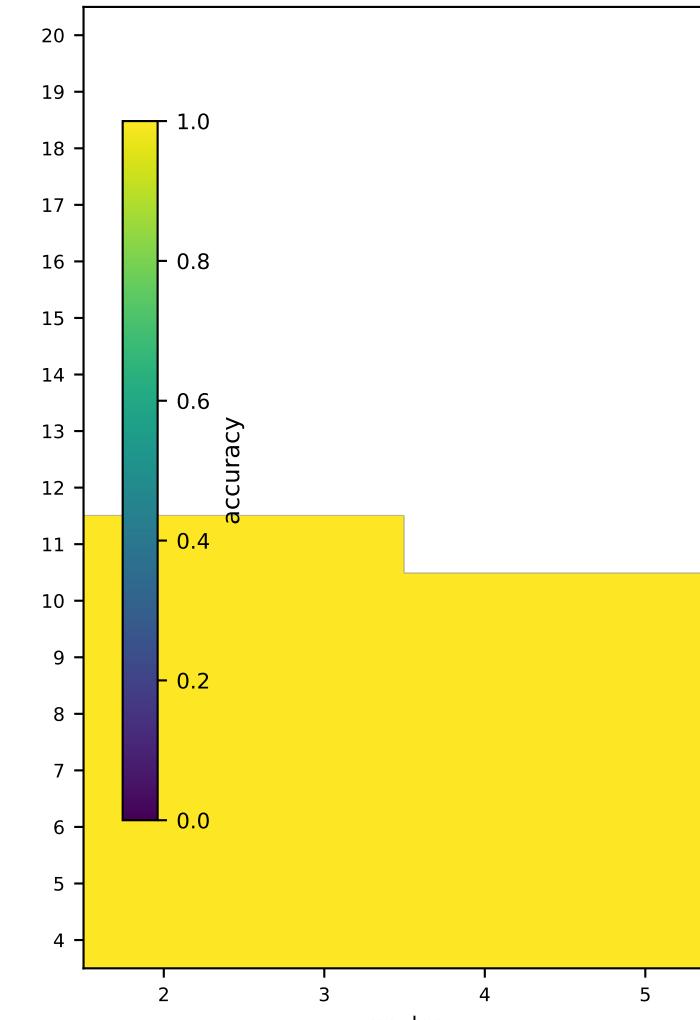
think-high (n=121)



think-low (n=121)



think-medium (n=121)



# openai/gpt-5-nano-2025-08-07 — sat\_accuracy — prompt\_7b28aa32dc (horn\_if\_then)

prompt\_template=prompts/\_template\_unified.j2 | parse\_family=yes\_no

## Instruction excerpt:

Your task is to solve a propositional logic problem.

Choose the appropriate interpretation based on how the statements are rendered below.

- If you see facts like "p1." and rules like "if p2 and p3 then p4.", treat them as Horn facts and implications, and determine whether p0 can be derived.
- If you see disjunctions like "p1 is true or p2 is false." or compact forms like "p1 or not(p2).", treat them as CNF clauses, and determine whether the set is a contradiction (unsatisfiable) or satisfiable.

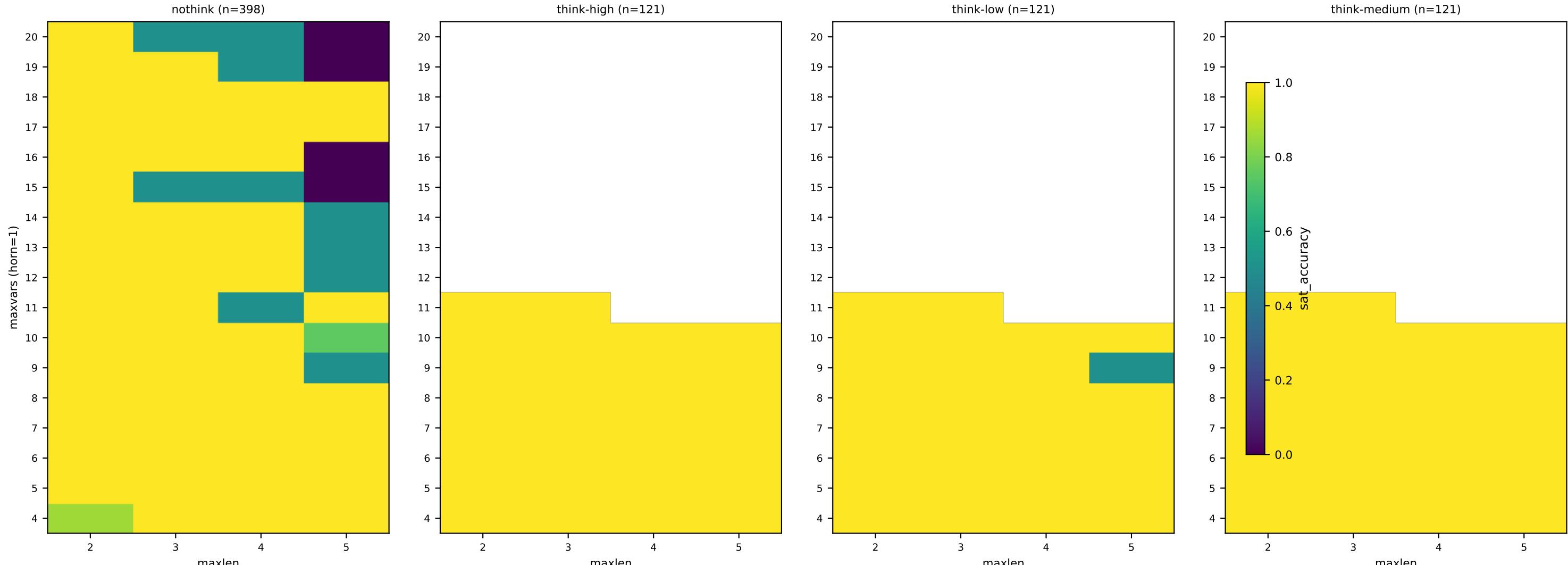
Horn answer rule

- Output ONLY a single final word: "yes" if p0 is derivable, otherwise "no".

Do not output any other words.

...

Example (horn=1, low, maxvars=4, maxlen=2, satflag=1)  
if p4 then p0.  
p2.  
if p3 then p1.  
if p3 then p4.  
if p2 then p1.



# openai/gpt-5-nano-2025-08-07 — unsat\_accuracy — prompt\_7b28aa32dc (horn\_if\_them)

prompt\_template=prompts/\_template\_unified.j2 | parse\_family=yes\_no

## Instruction excerpt:

Your task is to solve a propositional logic problem.

Choose the appropriate interpretation based on how the statements are rendered below.

- If you see facts like "p1." and rules like "if p2 and p3 then p4.", treat them as Horn facts and implications, and determine whether p0 can be derived.
- If you see disjunctions like "p1 is true or p2 is false." or compact forms like "p1 or not(p2).", treat them as CNF clauses, and determine whether the set is a contradiction (unsatisfiable) or satisfiable.

Horn answer rule

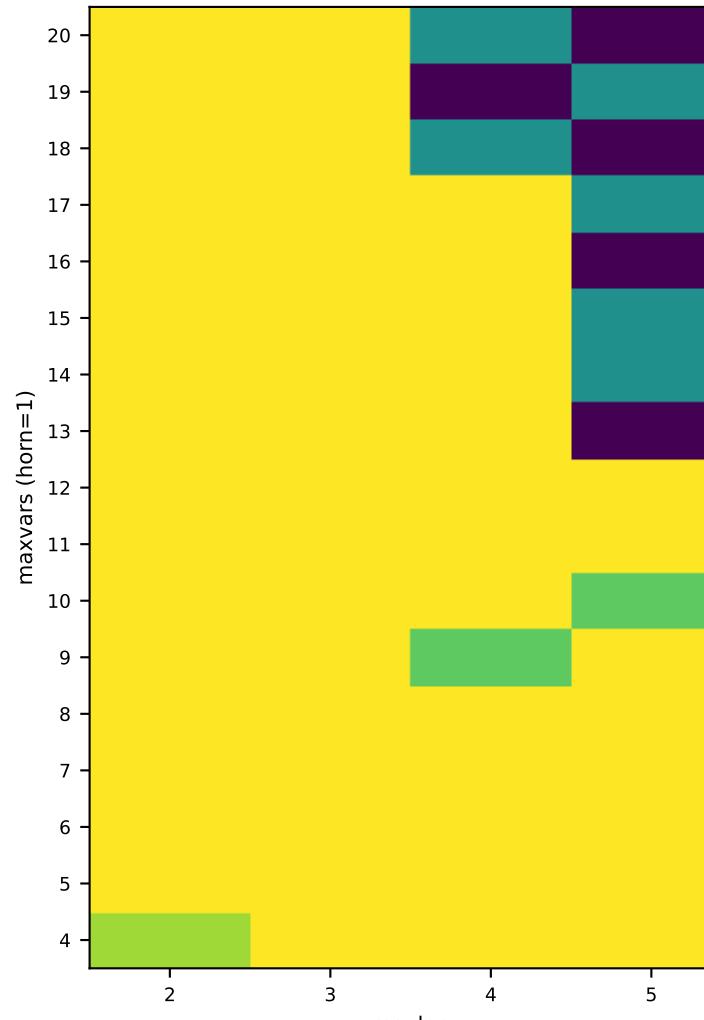
- Output ONLY a single final word: "yes" if p0 is derivable, otherwise "no".

Do not output any other words.

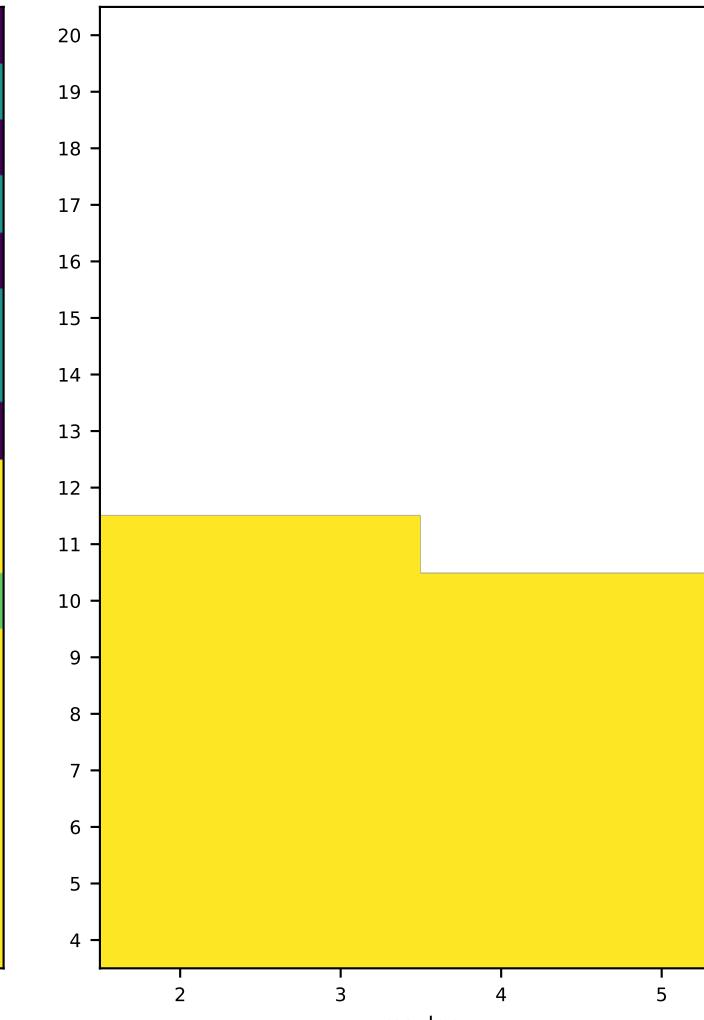
...

```
if p4 then p0.  
p2.  
if p3 then p1.  
if p3 then p4.  
if p2 then p1.
```

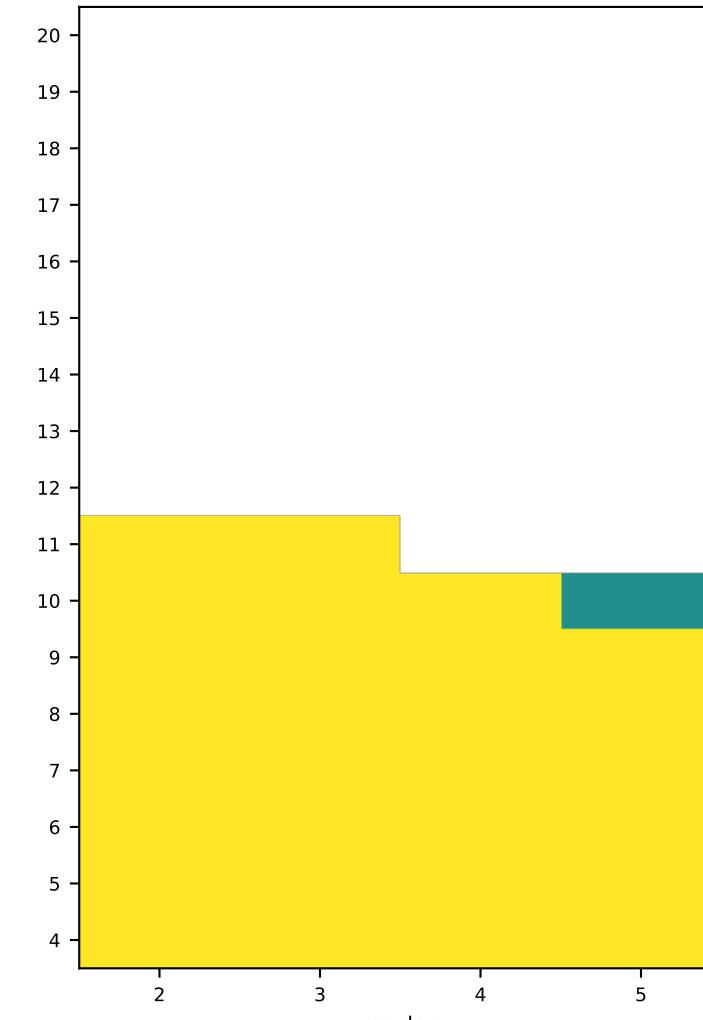
nothink (n=398)



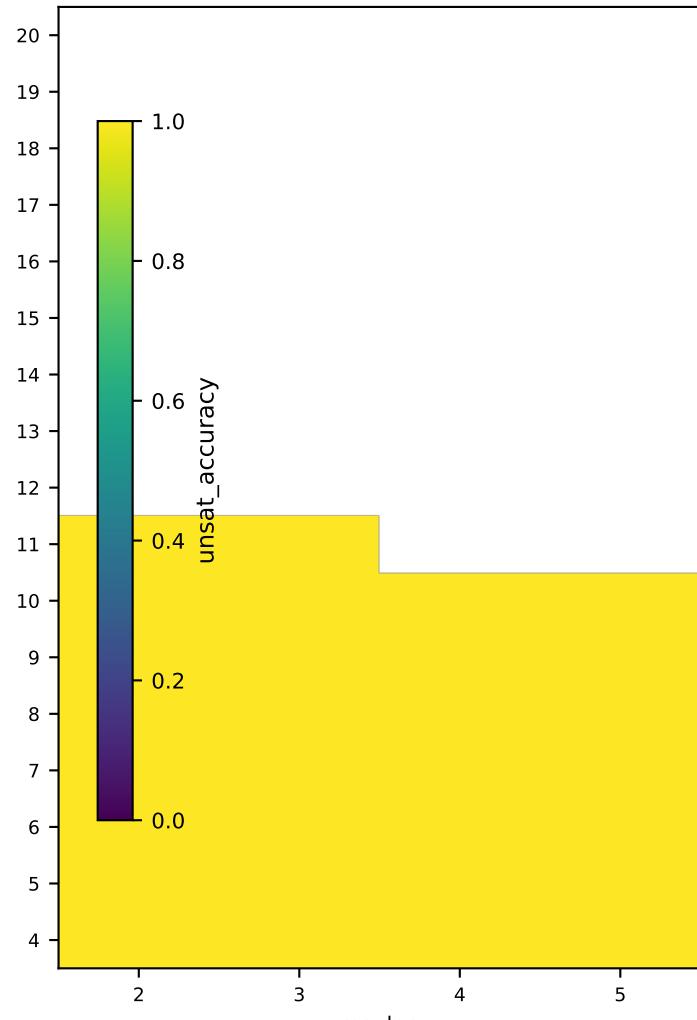
think-high (n=121)



think-low (n=121)



think-medium (n=121)



# openai/gpt-5-nano-2025-08-07 — accuracy — prompt\_c012d6f2e6 (cnf\_v2)

prompt\_template=prompts/\_template\_unified.j2 | parse\_family=contradiction

## Instruction excerpt:

Your task is to solve a propositional logic problem.

Choose the appropriate interpretation based on how the statements are rendered below.

- If you see facts like "p1." and rules like "if p2 and p3 then p4.", treat them as Horn facts and implications, and determine whether p0 can be derived.
- If you see disjunctions like "p1 is true or p2 is false." or compact forms like "p1 or not(p2).", treat them as CNF clauses, and determine whether the set is a contradiction (unsatisfiable) or satisfiable.

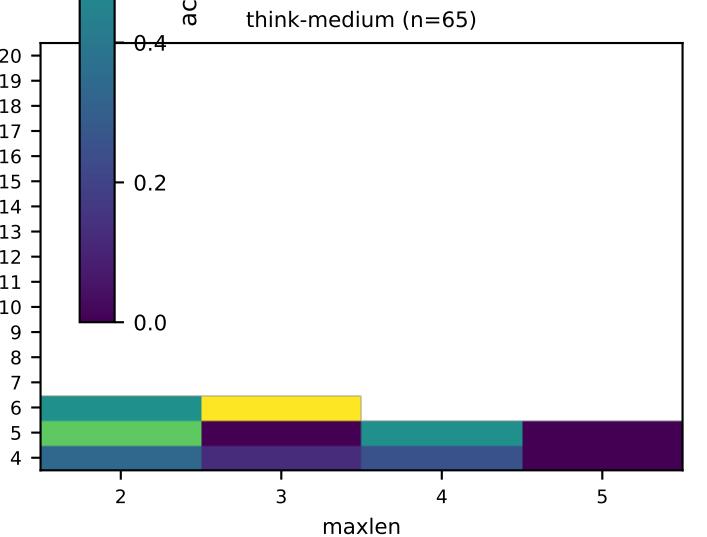
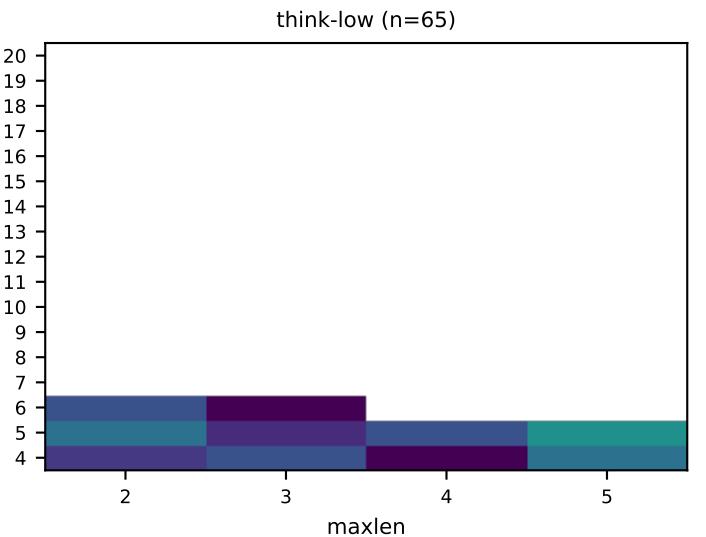
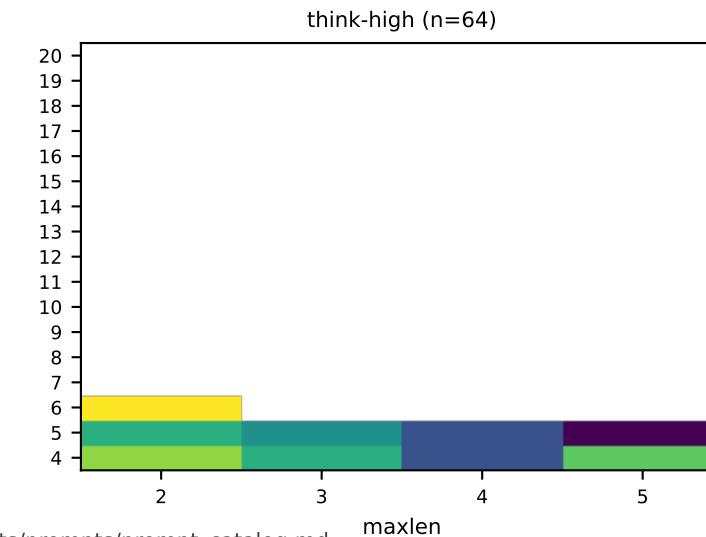
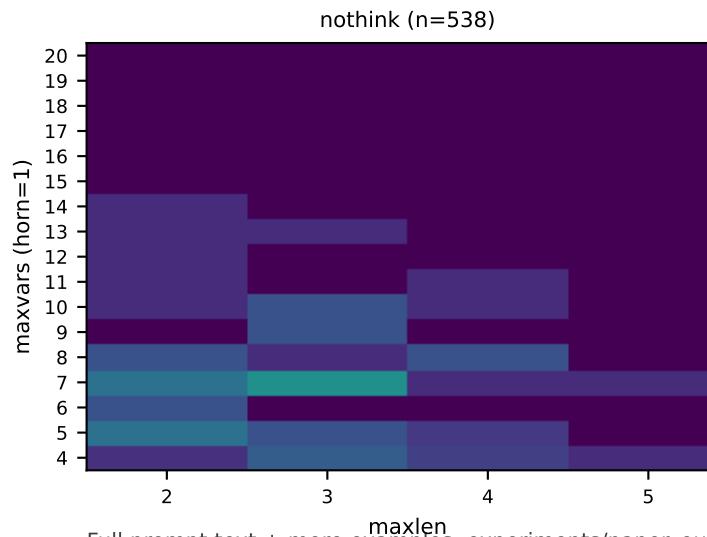
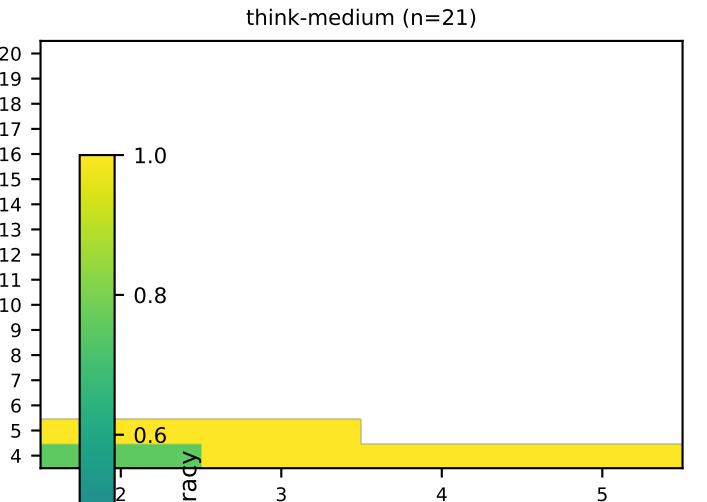
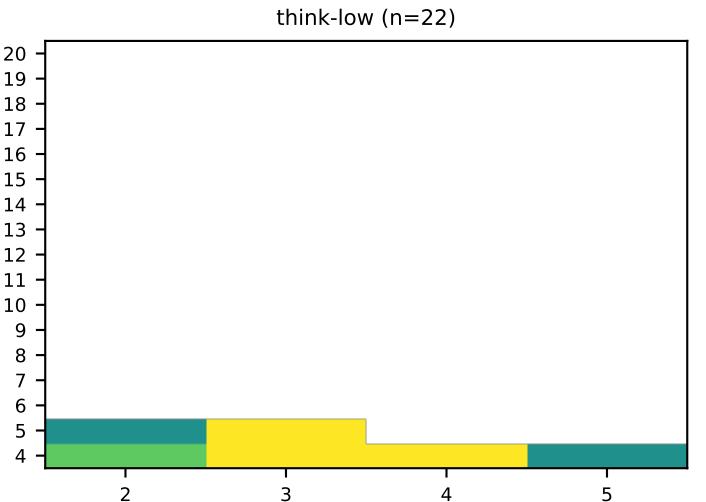
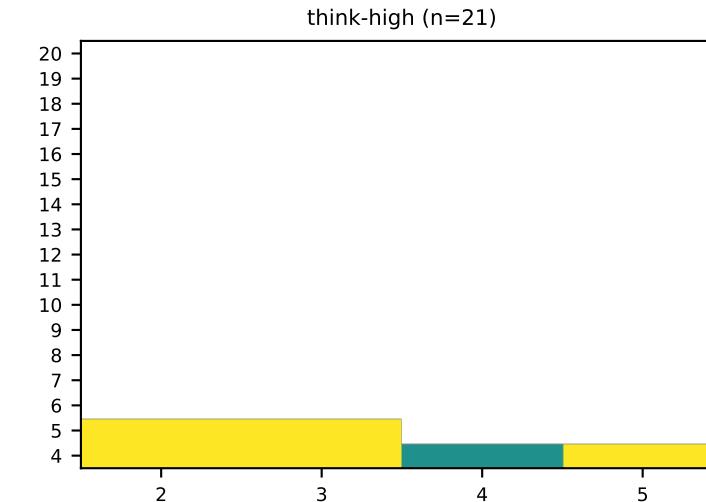
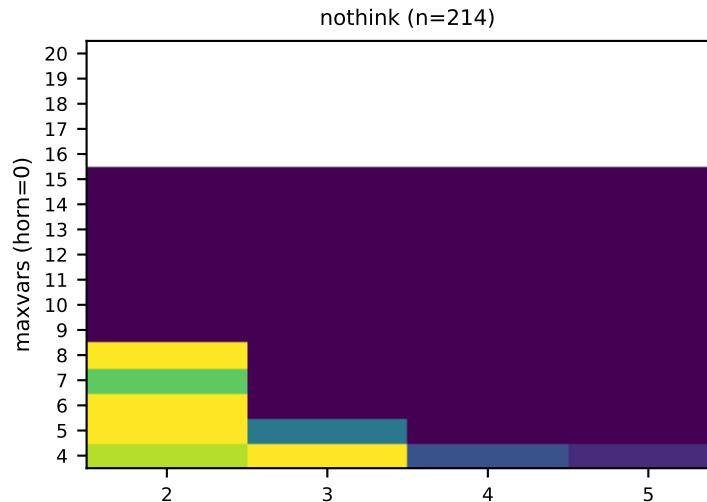
## Conventions

- Propositional variables are written as pN, where N is a number.
- All statements are jointly assumed true (conjoined).

...

## Example (horn=1, low, maxvars=4, maxlen=2, satflag=1)

```
not(p4).
p2.
not(p3) or p1.
not(p3) or p4.
not(p2) or p1.
```



# openai/gpt-5-nano-2025-08-07 — sat\_accuracy — prompt\_c012d6f2e6 (cnf\_v2)

prompt\_template=prompts/\_template\_unified.j2 | parse\_family=contradiction

## Instruction excerpt:

Your task is to solve a propositional logic problem.

Choose the appropriate interpretation based on how the statements are rendered below.

- If you see facts like "p1." and rules like "if p2 and p3 then p4.", treat them as Horn facts and implications, and determine whether p0 can be derived.
- If you see disjunctions like "p1 is true or p2 is false." or compact forms like "p1 or not(p2).", treat them as CNF clauses, and determine whether the set is a contradiction (unsatisfiable) or satisfiable.

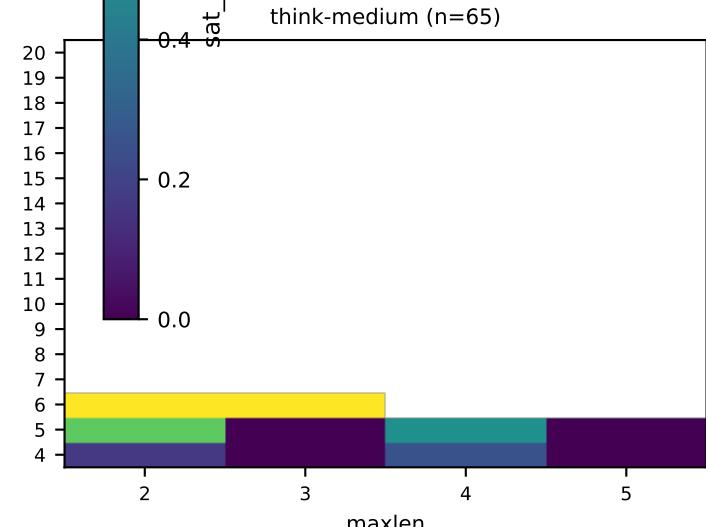
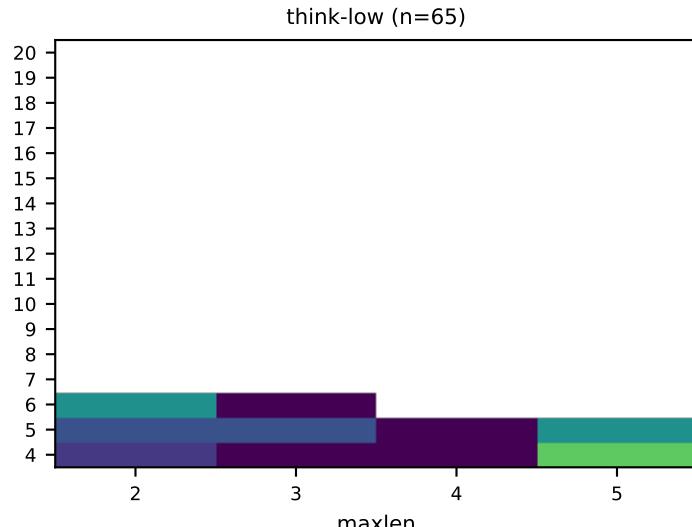
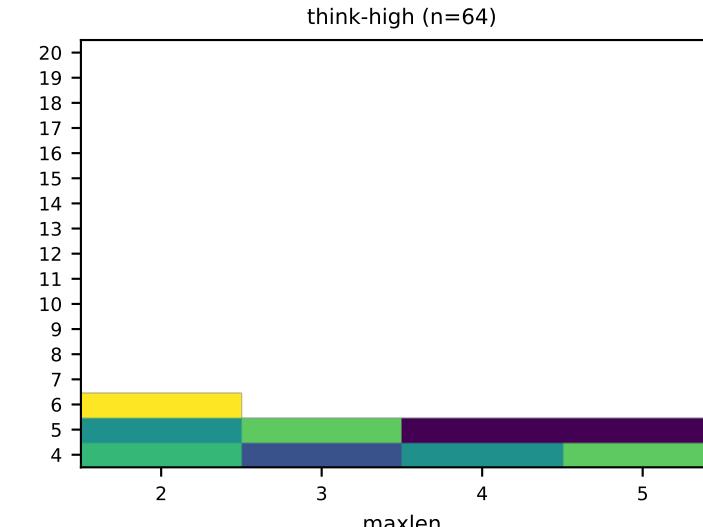
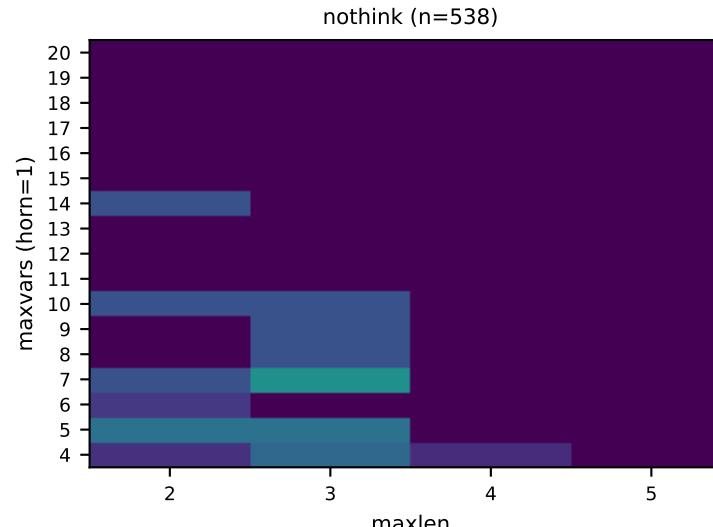
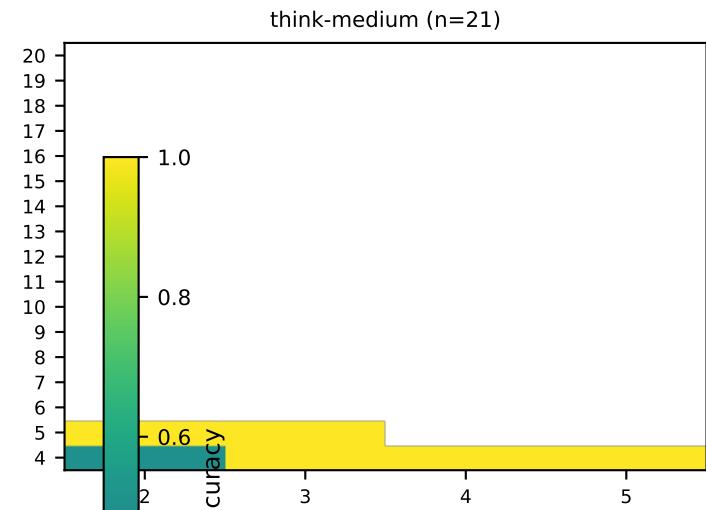
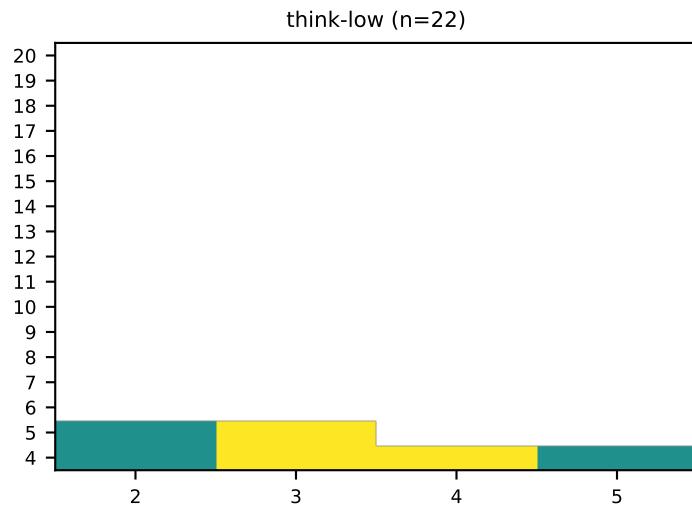
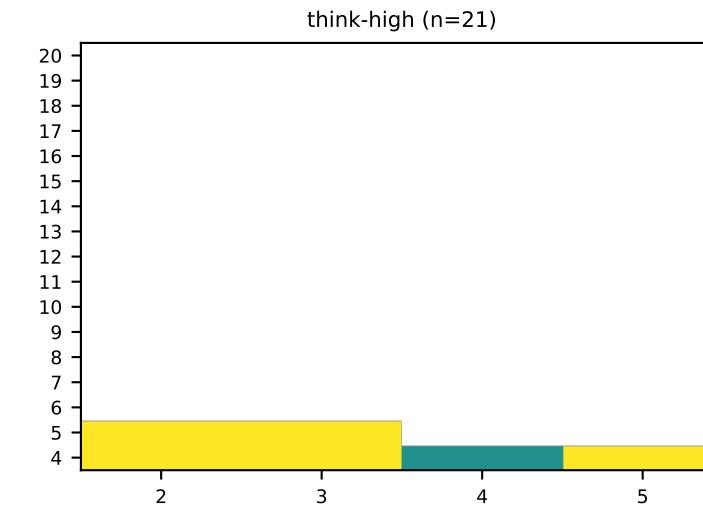
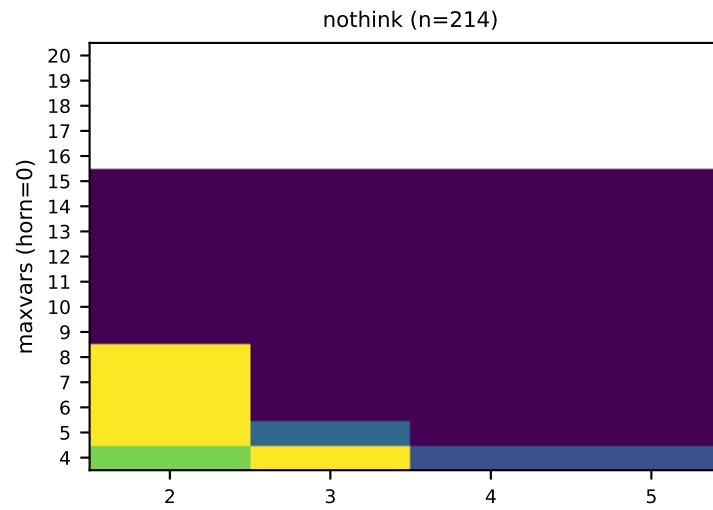
## Conventions

- Propositional variables are written as pN, where N is a number.
- All statements are jointly assumed true (conjoined).

...

## Example (horn=1, low, maxvars=4, maxlen=2, satflag=1)

```
not(p4).
p2.
not(p3) or p1.
not(p3) or p4.
not(p2) or p1.
```



# openai/gpt-5-nano-2025-08-07 — unsat\_accuracy — prompt\_c012d6f2e6 (cnf\_v2)

prompt\_template=prompts/\_template\_unified.j2 | parse\_family=contradiction

## Instruction excerpt:

Your task is to solve a propositional logic problem.

Choose the appropriate interpretation based on how the statements are rendered below.

- If you see facts like "p1." and rules like "if p2 and p3 then p4.", treat them as Horn facts and implications, and determine whether p0 can be derived.
- If you see disjunctions like "p1 is true or p2 is false." or compact forms like "p1 or not(p2).", treat them as CNF clauses, and determine whether the set is a contradiction (unsatisfiable) or satisfiable.

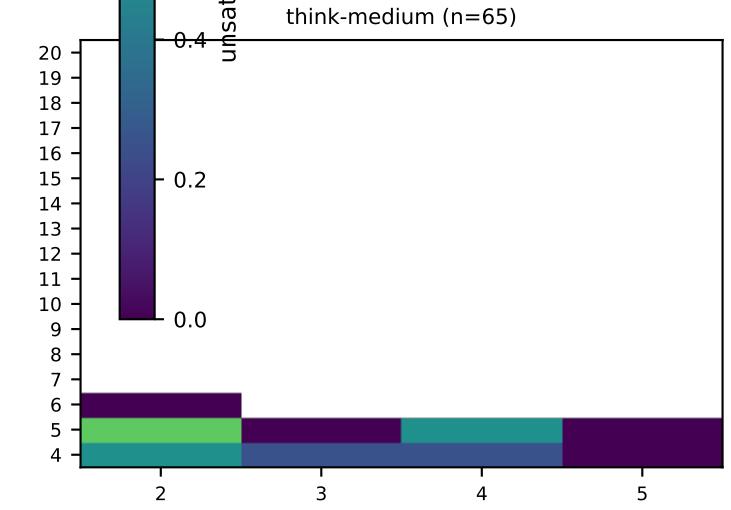
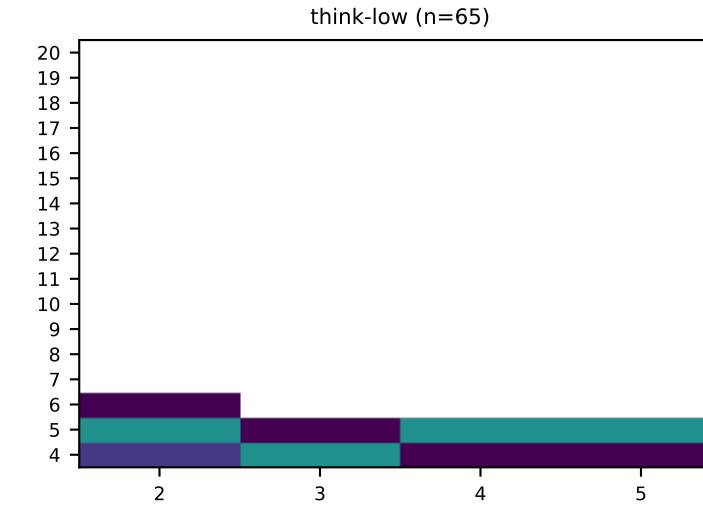
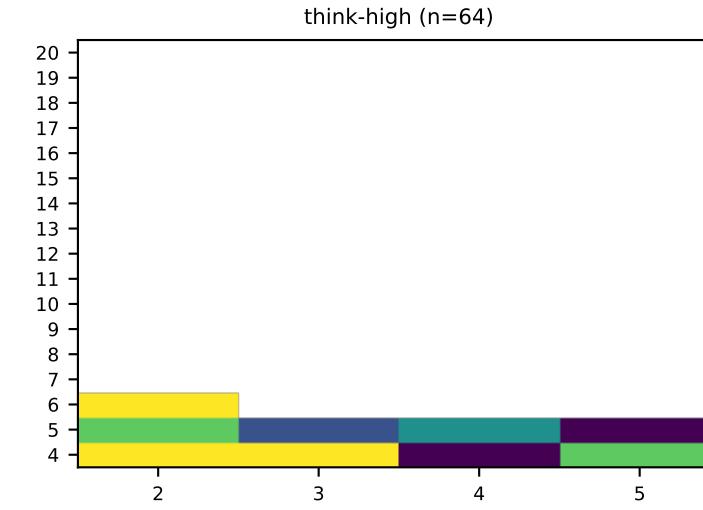
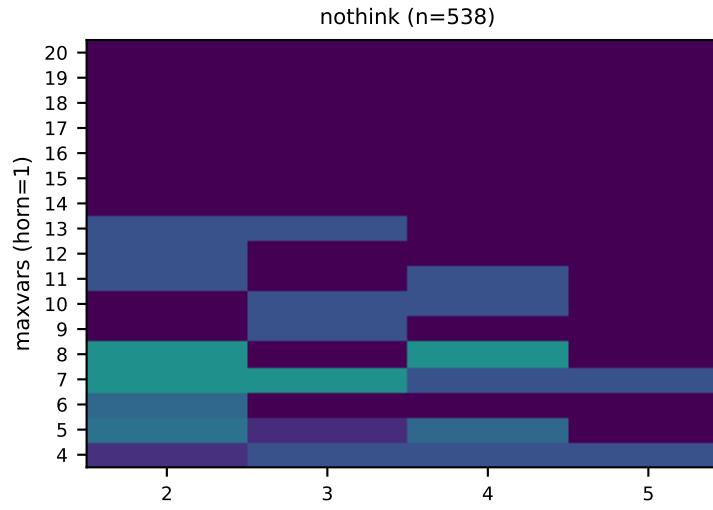
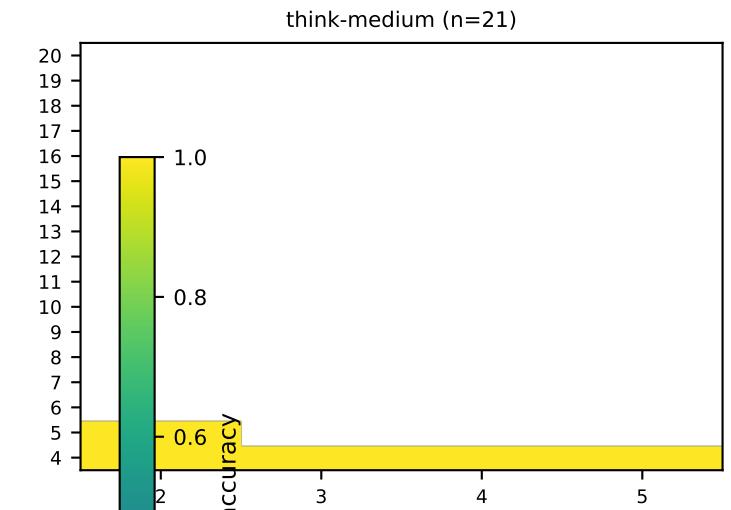
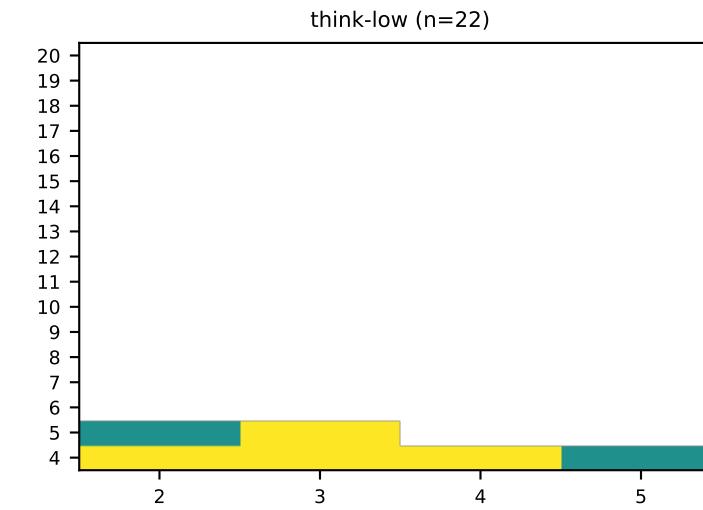
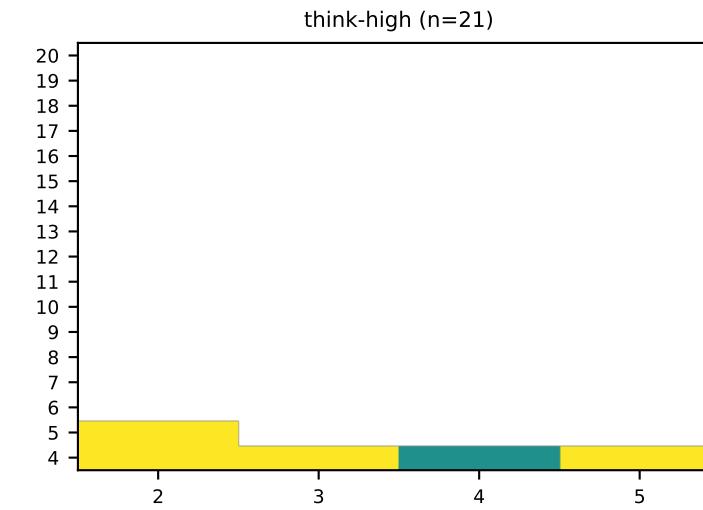
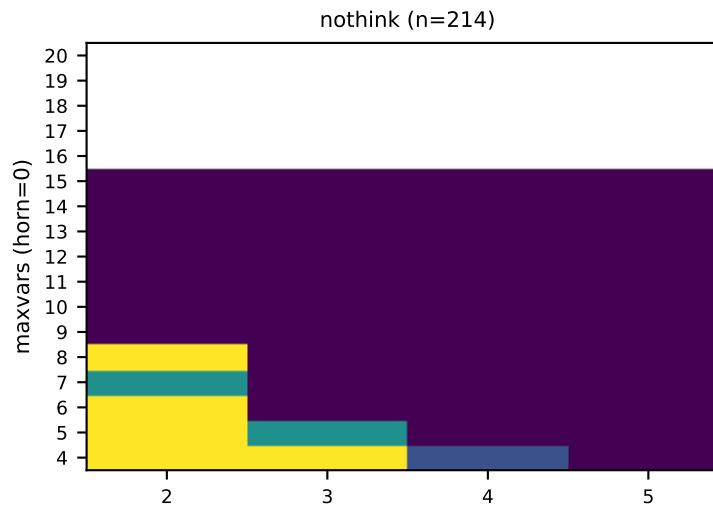
## Conventions

- Propositional variables are written as pN, where N is a number.
- All statements are jointly assumed true (conjoined).

...

## Example (horn=1, low, maxvars=4, maxlen=2, satflag=1)

```
not(p4).
p2.
not(p3) or p1.
not(p3) or p4.
not(p2) or p1.
```



# openai/gpt-5-nano-2025-08-07 — accuracy — prompt\_c1b2be97aa (horn\_if\_then)

prompt\_template=prompts/\_template\_unified.j2 | parse\_family=yes\_no

## Instruction excerpt:

Your task is to solve a propositional logic problem.

Choose the appropriate interpretation based on how the statements are rendered below.

- If you see facts like "p1." and rules like "if p2 and p3 then p4.", treat them as Horn facts and implications, and determine whether p0 can be derived.
- If you see disjunctions like "p1 is true or p2 is false." or compact forms like "p1 or not(p2).", treat them as CNF clauses, and determine whether the set is a contradiction (unsatisfiable) or satisfiable.

## Conventions

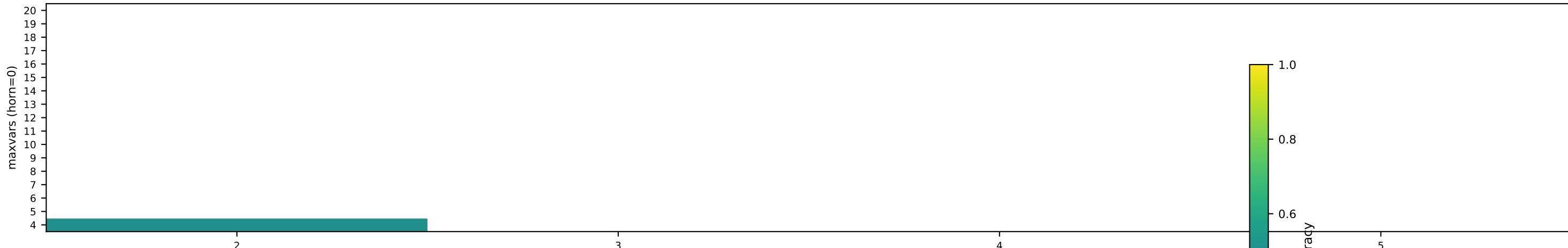
- Propositional variables are written as pN, where N is a number.
- All statements are jointly assumed true (conjoined).

...

## Example (horn=1, low, maxvars=4, maxlen=2, satflag=1)

```
if p4 then p0.  
p2.  
if p3 then p1.  
if p3 then p4.  
if p2 then p1.
```

nothink (n=2)



nothink (n=306)



# openai/gpt-5-nano-2025-08-07 — sat\_accuracy — prompt\_c1b2be97aa (horn\_if\_then)

prompt\_template=prompts/\_template\_unified.j2 | parse\_family=yes\_no

## Instruction excerpt:

Your task is to solve a propositional logic problem.

Choose the appropriate interpretation based on how the statements are rendered below.

- If you see facts like "p1." and rules like "if p2 and p3 then p4.", treat them as Horn facts and implications, and determine whether p0 can be derived.
- If you see disjunctions like "p1 is true or p2 is false." or compact forms like "p1 or not(p2).", treat them as CNF clauses, and determine whether the set is a contradiction (unsatisfiable) or satisfiable.

## Conventions

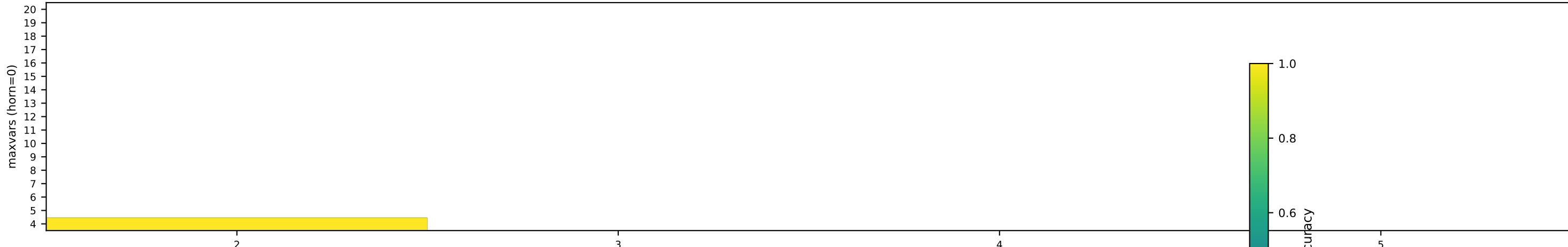
- Propositional variables are written as pN, where N is a number.
- All statements are jointly assumed true (conjoined).

...

Example (horn=1, low, maxvars=4, maxlen=2, satflag=1)

```
if p4 then p0.  
p2.  
if p3 then p1.  
if p3 then p4.  
if p2 then p1.
```

nothink (n=2)



nothink (n=306)



# openai/gpt-5-nano-2025-08-07 — unsat\_accuracy — prompt\_c1b2be97aa (horn\_if\_them) (horn=1, low, maxvars=4, maxlen=2, satflag=1)

prompt\_template=prompts/\_template\_unified.j2 | parse\_family=yes\_no

## Instruction excerpt:

Your task is to solve a propositional logic problem.

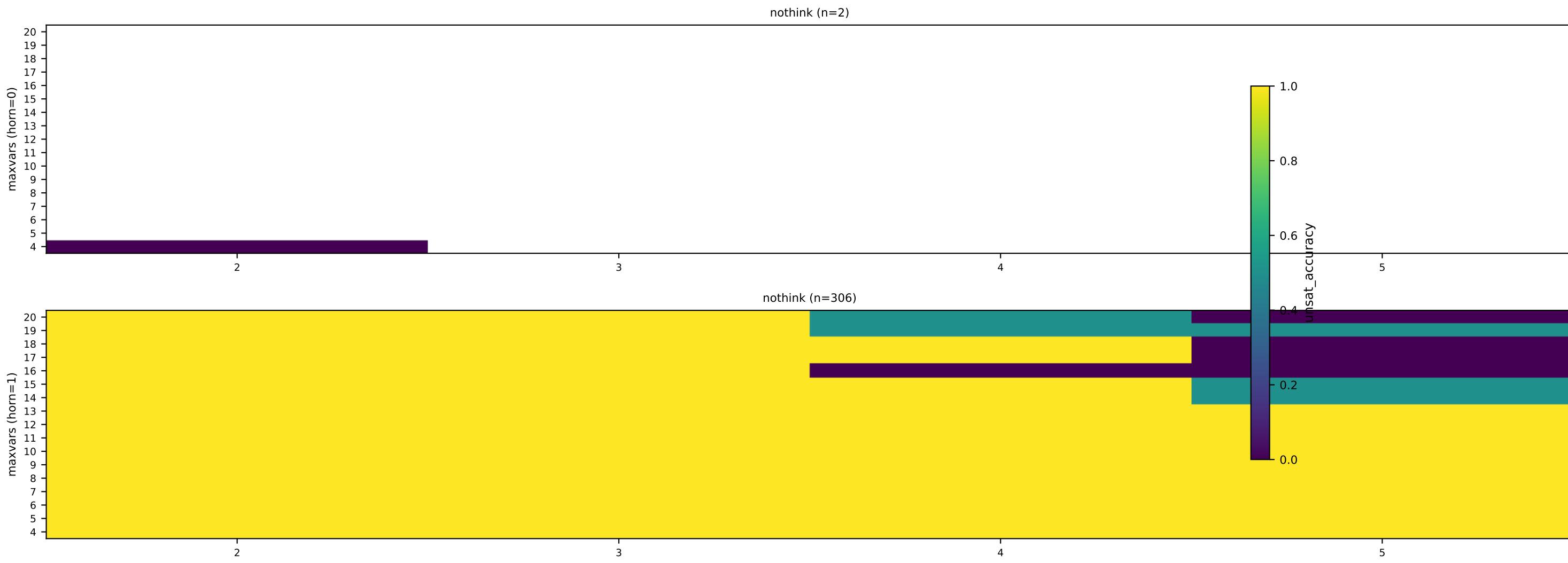
Choose the appropriate interpretation based on how the statements are rendered below.

- If you see facts like "p1." and rules like "if p2 and p3 then p4.", treat them as Horn facts and implications, and determine whether p0 can be derived.
- If you see disjunctions like "p1 is true or p2 is false." or compact forms like "p1 or not(p2).", treat them as CNF clauses, and determine whether the set is a contradiction (unsatisfiable) or satisfiable.

## Conventions

- Propositional variables are written as pN, where N is a number.
- All statements are jointly assumed true (conjoined).

...



## openai/gpt-5-nano-2025-08-07 — accuracy — prompt\_c6875730a1 (horn\_if\_then)

prompt\_template=prompts/exp6\_horn\_yesno.j2 | parse\_family=yes\_no

### Instruction excerpt:

Your task is to solve a problem in propositional logic containing both facts and if-then rules.

You will get a list of facts and if-then rules and have to determine whether a fact  $p_0$  can be derived from this list.

If a fact  $p_0$  can be derived, the last word of your answer should be 'yes', otherwise the last word should be 'no'.

Facts are represented as ' $pN$ ' where  $N$  is a number.

All the statements are either facts or if-then rules allowing to derive a single fact.

All the given statements are implicitly connected with 'and': they are all claimed to be true.

...

### Example (horn=1, low, maxvars=3, maxlen=3, satflag=1)

p1. p2. if  $p_1$  then  $p_0$ . Answer: yes.

Example 2. Statements: p1. p2. if  $p_1$  then  $p_9$ . Answer: no.

Example 3. Statements: p1. if  $p_1$  then  $p_2$ . if  $p_2$  then  $p_0$ . Answer: yes.

Example 4. Statements: p1. if  $p_1$  then  $p_3$ . if  $p_2$  and  $p_1$  then  $p_0$ . Answer: no.

Example 5. Statements: p1. if  $p_1$  then  $p_2$ . if  $p_2$  then  $p_3$ . if  $p_3$  then  $p_0$ .

Answer: yes.

Example 6. Statements: p1. if  $p_1$  then  $p_2$ . if  $p_2$  then  $p_1$ . if  $p_3$  then  $p_0$ .

Answer: no.

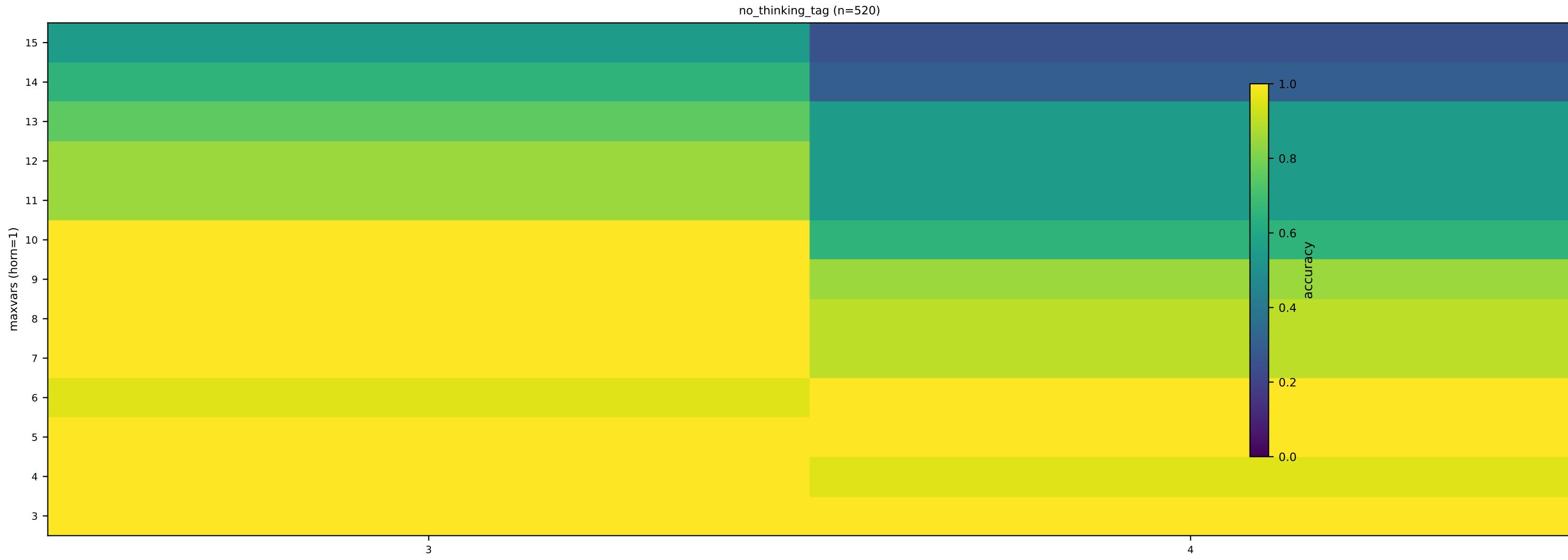
Example 7. Statements: p1. p3. if  $p_1$  then  $p_2$ . if  $p_2$  and  $p_3$  then  $p_4$ . if  $p_4$  then  $p_0$ . Answer: yes.

Example 8. Statements: p1. if  $p_1$  then  $p_2$ . if  $p_2$  and  $p_3$  then  $p_4$ . if  $p_4$  then  $p_0$ .

Answer: no.

Example 9. Statements: p6. p3. if  $p_3$  then  $p_1$ . if  $p_3$  then  $p_1$ . if  $p_4$  and  $p_5$

...



# openai/gpt-5-nano-2025-08-07 — sat\_accuracy — prompt\_c6875730a1 (horn\_if\_theory)

prompt\_template=prompts/exp6\_horn\_yesno.j2 | parse\_family=yes\_no

## Instruction excerpt:

Your task is to solve a problem in propositional logic containing both facts and if-then rules.

You will get a list of facts and if-then rules and have to determine whether a fact  $p_0$  can be derived from this list.

If a fact  $p_0$  can be derived, the last word of your answer should be 'yes', otherwise the last word should be 'no'.

Facts are represented as ' $pN$ ' where  $N$  is a number.

All the statements are either facts or if-then rules allowing to derive a single fact.

All the given statements are implicitly connected with 'and': they are all claimed to be true.

...

## Example (horn=1, low, maxvars=3, maxlen=3, satflag=1)

p1. p2. if p1 then p0. Answer: yes.

Example 2. Statements: p1. p2. if p1 then p9. Answer: no.

Example 3. Statements: p1. if p1 then p2. if p2 then p0. Answer: yes.

Example 4. Statements: p1. if p1 then p3. if p2 and p1 then p0. Answer: no.

Example 5. Statements: p1. if p1 then p2. if p2 then p3. if p3 then p0. Answer: yes.

Example 6. Statements: p1. if p1 then p2. if p2 then p1. if p3 then p0. Answer: no.

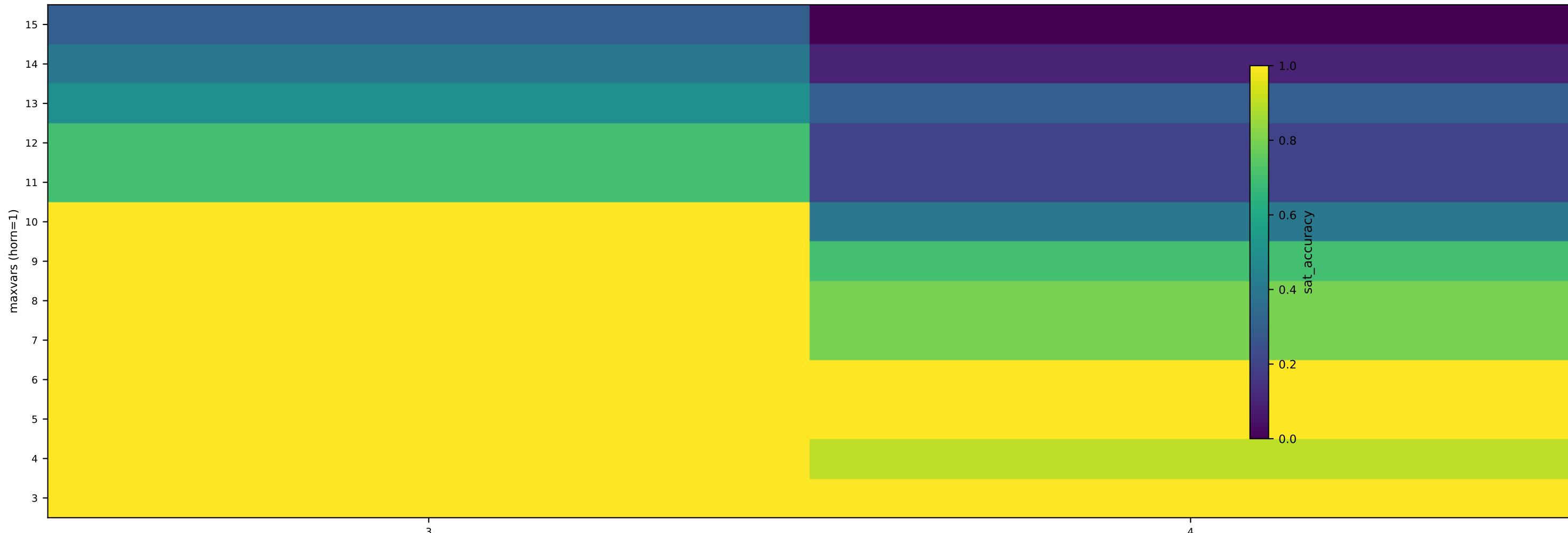
Example 7. Statements: p1. p3. if p1 then p2. if p2 and p3 then p4. if p4 then p0. Answer: yes.

Example 8. Statements: p1. if p1 then p2. if p2 and p3 then p4. if p4 then p0. Answer: no.

Example 9. Statements: p6. p3. if p3 then p1. if p3 then p1. if p4 and p5

...

no\_thinking\_tag (n=520)



# openai/gpt-5-nano-2025-08-07 — unsat\_accuracy — prompt\_c6875730a1 (horn\_if\_themple (horn=1, low, maxvars=3, maxlen=3, satflag=1))

prompt\_template=prompts/exp6\_horn\_yesno.j2 | parse\_family=yes\_no

## Instruction excerpt:

Your task is to solve a problem in propositional logic containing both facts and if-then rules.

You will get a list of facts and if-then rules and have to determine whether a fact  $p_0$  can be derived from this list.

If a fact  $p_0$  can be derived, the last word of your answer should be 'yes', otherwise the last word should be 'no'.

Facts are represented as ' $pN$ ' where  $N$  is a number.

All the statements are either facts or if-then rules allowing to derive a single fact.

All the given statements are implicitly connected with 'and': they are all claimed to be true.

...

p1. p2. if p1 then  $p_0$ . Answer: yes.  
Example 2. Statements: p1. p2. if p1 then  $p_0$ . Answer: no.  
Example 3. Statements: p1. if p1 then p2. if p2 then  $p_0$ . Answer: yes.  
Example 4. Statements: p1. if p1 then  $p_3$ . if  $p_2$  and  $p_1$  then  $p_0$ . Answer: no.  
Example 5. Statements: p1. if p1 then p2. if  $p_2$  then  $p_3$ . if  $p_3$  then  $p_0$ .  
Answer: yes.  
Example 6. Statements: p1. if p1 then p2. if  $p_2$  then p1. if  $p_3$  then  $p_0$ .  
Answer: no.  
Example 7. Statements: p1.  $p_3$ . if p1 then p2. if  $p_2$  and  $p_3$  then  $p_4$ . if  $p_4$  then  $p_0$ . Answer: yes.  
Example 8. Statements: p1. if p1 then p2. if  $p_2$  and  $p_3$  then  $p_4$ . if  $p_4$  then  $p_0$ .  
Answer: no.  
Example 9. Statements: p6.  $p_3$ . if  $p_3$  then p1. if  $p_3$  then p1. if  $p_4$  and  $p_5$   
...

