

DAILY ENGLISH READING

2026-07-28 · C1 · 30 minutes

Can an LLM turn study design into reproducible analysis code?

Why selected: THESEUS separates probabilistic interpretation from deterministic execution: free text becomes constrained JSON, reviewed fields become R code, and humans approve changes before analysis.

READING ORDER

0-3	Preview title, numbers and questions
3-15	Read main article sections
15-20	Read supporting source 1
20-25	Read supporting source 2
25-30	Complete speaking task

SOURCES

MAIN: THESEUS - <https://academic.oup.com/jamiaopen/article/9/4/ooag131/8729191>

SUPPORT: Strategus - <https://ohdsi.github.io/Strategus/>

SUPPORT: TARGET - <https://target-guideline.org/>

BRIEF BACKGROUND

The authors evaluated eight LLMs on 15 OHDSI and 15 non-OHDSI studies. Primary-analysis accuracy ranged from 0.93 to 0.97 in OHDSI studies and from 0.82 to 0.95 outside OHDSI. Complex descriptions produced more field-level errors. Strategus supplies standardized execution, while TARGET supports transparent reporting.

KEY VOCABULARY

target trial emulation	目标试验模拟
causal inference	因果推断
analytic specification	分析规格说明
constrained schema	受约束的数据模式
deterministic conversion	确定性转换
time-at-risk	风险观察窗口
propensity-score adjustment	倾向评分调整
outcome model	结局模型
field-level sensitivity	字段级敏感度
false positive	假阳性
human-in-the-loop	人在回路
side-by-side comparison	并排比较
reproducible workflow	可复现工作流
package environment	软件包环境
standardized substrate	标准化底座

USEFUL PHRASES

1. translate free text into structured specifications
2. operate within a constrained schema
3. separate interpretation from execution
4. preserve a human review gate
5. make assumptions explicit and auditable

COMPREHENSION QUESTIONS

1. What are the two stages of THESEUS?
2. Why is code generation deterministic?
3. How did OHDSI and non-OHDSI results differ?
4. Why is side-by-side review important?
5. How do Strategus and TARGET help?

RETELLING PROMPTS

30 sec: problem -> two-stage solution -> result

45 sec: free text -> JSON -> review -> R code

60 sec: adapt the architecture to an ADaM spec workflow

5-MINUTE SPEAKING TASK

Design an AI-assisted ADaM specification generator. Define allowed fields, deterministic validations, human approval and field-level evaluation metrics.

ONE SENTENCE TO KEEP

The safest path from natural language to executable analysis is structured interpretation followed by deterministic conversion and explicit human review.