



Politecnico
di Torino
SmartData@PoliTO



March 27th, 2025, 5:00 PM CEST

SmartTalk: Covivio, Sala Grande

<https://smartdata.polito.it/category/smarttalks/>



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Large-Scale Constraint Generation - Can LLMs Parse Hundreds of Constraints?

ABSTRACT

Recent research has explored the constrained generation capabilities of **Large Language Models (LLMs)** when explicitly prompted by few **task-specific requirements**. In contrast, we introduce Large-Scale Constraint Generation (LSCG), a new problem that evaluates whether LLMs can parse a large, fine-grained, generic list of constraints.

To examine the LLMs' ability to handle an increasing number constraints, we create a practical instance of LSCG, called Words Checker. We evaluate the impact of model characteristics (e.g., size, family) and steering techniques (e.g., Simple Prompt, Chain of Thought, Best of N) on performance. In addition, we propose **FoCusNet**, a small and dedicated model that **parses the original list of constraints** into a smaller subset to help the LLM focus on relevant constraints. Experiments reveal that existing solutions suffer a significant performance drop as the number of constraints increases, with FoCusNet showing at least an 8-13% accuracy boost.



Season 5