Exploiting ChatGPT to simplify Italian bureaucratic and professional texts

Walter Paci (University of Florence), *Lorenzo Gregori* (University of Florence), *Giovanni Acerboni* (L'Ink Scrittura Professionale), *Alessandro Panunzi* (University of Florence) & *Maria Roberta Perugini* (MRPerugini law firm)

walter.paci(at)unifi.it, lorenzo.gregori(at)unifi.it, alessandro.panunzi(at)unifi.it, acerboni(at)scritturaprofessionale.it, mrp@mrperugini.it

Abstract

This paper investigates the use of ChatGPT, a large language model, for simplifying long sentences and nominal clusters in professional texts belonging to administrative and legal domains. We apply three prompt engineering techniques – zero-shot learning, few-shot learning, and Chain-of-Thought reasoning – to generate alternative sentences from a corpus of Italian texts. We evaluate the generated sentences using a survey with expert and non-expert readers of bureaucratic and legal Italian, focusing on ease of understanding, coherence, and preferences in rephrasing. Our results show that ChatGPT can effectively address the linguistic challenges outlined by UNI 11482:2013 Standard, and that complex prompting techniques yield better outcomes than simpler ones. We also discuss the implications of our findings for the optimization of text understanding and simplification using large language models.

Keywords

Large Language Models, ChatGPT, bureaucratic and professional texts, rephrasing, prompt engineering

1 Introduction

Automatic Text Simplification (ATS) is a text-to-text generation task aimed to modify a piece of text to make it easier to understand for a target user group while retaining its essential meaning. The simplification process involves textual, syntactic, and lexical levels and requires rewriting capabilities (Bott and Saggion 2012). Moreover, it depends on the type of language of the source text, and the type of readers the simplification is made for: ATS can be applied (1) to technical and domain-specific contents (e.g. medical, bureaucratic, legal), which can be hardly understandable by non-experts (and sometimes by experts as well), (2) or to facilitate reading to people with poor language skills (e.g. non-native speakers, people with cognitive impairment). Our analysis focuses on (1).

Despite its complexity, this task has been addressed by computational linguistics since the 90s; various systems and methods for ATS have been developed in different contexts (see Shardlow 2014; Saggion and Hirst 2017; Al-Thanyyan and Azmi 2021). These studies were conducted mainly on English while significantly fewer resources were developed for other languages, including Italian.

In Italy, the text simplification problem has been firstly addressed through the development of readability indices, which provide an estimation of text complexity based on lexical and syntactic features. Two famous examples of these indices are Gulpease (Lucisano and Piemontese 1988) and READ-IT (Dell'Orletta et al. 2011). The first Italian ATS tool was ERNESTA (Barlacchi and Tonelli 2013),

a system specifically designed to simplify stories for children with poor reading skills. Scarton and Specia (2017) developed MUSST, an open-source multilingual tool for syntactic simplification trained on three languages, including Italian, that uses a modular approach to tackle language analysis, transformation, and generation. Finally, Palmero Aprosio et al. (2019) and Megna et al. (2021) developed two general-purpose systems based on an encoder-decoder transformers architecture reaching state-of-the-art performances in Italian ATS.

A radical change in ATS occurred in 2023 with the advent of Large Language Models (LLMs), which dramatically increased the quality of generated texts. The first available results of ATS using LLMs show that, with some prompt engineering, LLMs outperform previous systems for both lexical and syntactic simplification (Feng et al. 2023; North et al. 2023). Nozza and Attanasio (2023) performed an extensive evaluation of different LLMs for ATS on Italian administrative texts. This research shows that (1) readability indices do not produce a trustable score in the context of Italian administrative texts generated through LLMs, and (2) among the available LLMs, ChatGPT exhibited the best performances in ATS on this kind of texts.

The current work focuses on using LLMs for bureaucratic/legal language simplification in Italian. In particular, ChatGPT is tested with different prompt engineering techniques on two linguistic phenomena that are typical of this type of language: long sentences and nominal clusters. Two groups of experts and non-experts manually evaluated results to measure the quality of simplified texts.

1.1 UNI Standard

Italy has a long history of administrative, bureaucratic, and legal language that have developed elaborate linguistic structures around their applications, some of which have become endemic to these language varieties.

The problem of bureaucratic texts understandability in Italy has been highlighted in 1994 by Sabino Cassese, the *Ministro della Funzione Pubblica* ('Minister of Public Service'[1]), who published the *Stylistic code of written communications used by public administrations* (Cassese 1994). Then, various works of bureaucratic and legal language analyses have been conducted (e.g., Mortara Garavelli 2001; Covino 2001; Cortelazzo and Pellegrino 2003; Raso 2005; Gualdo and Telve 2011; Acerboni and Panunzi 2020). In 2013, UNI, the *Ente Italiano di Normazione* ('Italian Organization for Standardization'), created the UNI standard 11482:2013 *Elementi strutturali e aspetti linguistici delle comunicazioni scritte delle organizzazioni*[2] ('Structural elements and linguistic aspects of organizations' written communication'). This standard fixes some indicators to identify issues in textual documents, like the maximum number of recommended words (40) and of indirect objects per sentence (4 per verb), among others.

[1] All translations contained in this work are ours.

[2] http://store.uni.com/catalogo/index.php/uni-11482-2013.html?josso_back (last accessed on 18/06/2024)

1.2 The CITPRO corpus

CITPRO is a private digital resource owned by Giovanni Acerboni, which gathers bureaucratic and legal documents collected in over 20 years of work as a consultant for professional writing. The corpus contains about 5,000 documents belonging to public administration or private companies, comprising ~100 million words. The corpus is divided into 5 major categories:

- *norme* ('norms'): national and local laws and acts;
- *processi* ('processes'): legal acts;
- *comunicazioni* ('notices'): news and press releases;
- *regolamenti* ('rules'): rules, policies, contracts;
- *documenti tecnici* ('technical documents'): manuals, projects, expert reports, and other technical documents.

The corpus has been employed to create the test dataset for our experiment (see §2).

2 Methodology

This preliminary work aims to explore the capabilities of ChatGPT's pre-training in addressing two issues highlighted by the UNI guidelines: (i) long sentences and (ii) nominal clusters.

According to the UNI guidelines outlined in §1.1, a sentence is considered long if it has more than 40 words. See the following example.

(1) L'eventuale invio deve avvenire a mezzo di raccomandata con ricevuta di ritorno, mentre la presentazione diretta è effettuata mediante deposito al protocollo comunale della domanda in duplice originale, di cui un esemplare viene restituito al richiedente, previa apposizione di timbro a data da parte dell'ufficio comunale ricevente.

'The possible submission must be done via registered mail with a return receipt, while the direct submission is carried out by depositing the application in duplicate at the municipal protocol office, of which one copy is returned to the applicant, after affixing a date stamp by the receiving municipal office.'

On the other hand, we say that a sentence contains a nominal cluster when there is a long sequence of juxtaposed prepositional and noun phrases that depends, directly or indirectly, on a single verb.

(2) [L'obiettivo è di] aumentare *la consapevolezza dei danni legati al fumo di tabacco, dei benefici conseguenti alla cessazione dell'abitudine al fumo e della correlazione tra fumo, alimentazione ed attività fisica per il mantenimento di una buona condizione di salute cardiovascolare e, quindi, della salute della persona, comunque nel rispetto del principio di autodeterminazione del singolo e delle collettività.*

> '[The goal is to] increase *awareness of the harms associated with tobacco smoking, the benefits of quitting the habit, and the correlation between smoking, diet, and physical activity for maintaining good cardiovascular health and, therefore, personal health, always in respect of the principle of individual and collective self-determination.*'

We created a dataset of 120 sentences, 60 for each task. These sentences were randomly extracted from CITPRO.

To analyze the capability of ChatGPT in simplifying long sentences and nominal clusters, we used three prompts refined through prompt engineering techniques, as described in the following chapter, generating a total of 360 sentences. These techniques were tested on ChatGPT-3.5 updated as of August 3, 2023, through the free demo interface accessible from the OpenAI website.

2.1 ChatGPT Prompting

Prompt engineering (PE) is a recent discipline that deals with writing, refining, and optimizing inputs, or prompts, to encourage generative Artificial Intelligence (AI) models to create specific, high-quality outputs (Chen et al. 2023). PE helps mold the model's output, ensuring a meaningful and coherent answer generated by the model. Effective PE combines technical knowledge with a deep understanding of natural language, vocabulary, and context to produce optimal outputs with few revisions.

In this work we used three prompting techniques with no reinforcement learning: (i) zero-shot learning (Wei et al. 2021), (ii) few-shot learning (Brown et al. 2020), and (iii) Chain-of-Thought reasoning (Wei et al. 2022).

To do a prompt in a zero-shot fashion means formulating a prompt that just asks a question or describes a task in natural language. There is no need to add any information regarding what and how we want the model to reply, nor do we have to give any example to guide and elicit a specific answer: we simply ask the model to do something in natural language. On the other hand, to do few-shot learning on generative AI we must provide to the model one or more demonstrations through prompting, to steer it to better performance. The demonstrations serve as conditioning for subsequent examples where we would like the model to generate a response. Providing demonstrations means writing questions along with their possible correct answers. This kind of prompting technique enables in-context learning. More difficult tasks can require augmenting the number of demonstrations (e.g., 3-shot, 5-shot, 10-shot, etc.), as we did in our experiment (see Appendix 1). Lastly, Chain-of-thought (CoT) prompting enables complex reasoning capabilities using intermediate reasoning steps. The input prompt comprehensively describes the steps needed to solve a complex task and provide a correct answer.

Table 1. Prompting techniques for long sentences and nominal clusters simplification.

Long sentences	Nominal clusters
Zero-shot	Few-shot with 1 example
Few-shot with 1 example	Few-shot with 3 examples
Few-shot with 3 examples	Chain-of-Thoughts

For each of the two tasks, we tried three different approaches: for long sentences, we created three prompts using different prompting techniques, i.e., respectively, zero-shot, 1-shot, and 3-shot learning; for nominal clusters, we created three other prompts using 1-shot learning, 3-shot learning, and Chain-of-Thought prompting. CoT has been applied only to nominal clusters because it is a complex task that requires many intermediate reasoning steps to be solved, while long sentences are self-evident. For the few-shot examples, we used sentences rewritten by an expert so, for both tasks, we used a total of six manually revised sentences. See Appendix 1 for the examples.

2.2 Evaluation Survey

Generated sentences have been evaluated by humans, to check their readability ease, and content preservation against the original sentences. Judgments have been collected from two unbalanced groups of experts and non-experts of bureaucratic and legal language. We used Google Forms to collect evaluation data.

Two kinds of surveys have been created: a screening one with personal information like age, expertise, and education level and an evaluation one with a questionnaire of 36 questions.

Being a first, preliminary work on ChatGPT capabilities on our tasks of interest, the survey was privately distributed to people around our working group and its completion was voluntary. We consider as experienced evaluators law students, lawyers, and administrative language experts. We chose participants with different ages and educational levels to capture a broad spectrum of perspectives, enhancing the validity and applicability of our experimental findings.

Table 2: Number of expert and non-expert evaluators.

Expertise	**#**	**%**
People with experience	25	71,4%
People without experience	10	28,6%
Total	**35**	**100%**

Table 3: Evaluators' age screening.

Age	**#**	**%**
61+ years old	3	8,6%
46-60 years old	9	25,7%
31-45 years old	10	28,6%
18-30 years old	13	37,1%
Total	**35**	**100%**

Table 4: Evaluators' educational level

Education Level	**#**	**%**
PhD or higher degree	9	25,7%
Master's degree	10	28,6%
Bachelor's degree	5	14,3%
High school degree	10	28,6%
Primary school degree	1	2,9%
Total	**35**	**100%**

The evaluation questionnaire was divided into three distinct sections, each addressing specific aspects of our study. The first section featured 12 questions focused on judging the ease of reading for both the generated and original texts. The second section delved into coherence, encompassing an additional 12 questions designed to assess the coherence of generated texts in comparison to their original counterparts. The final section comprised 12 questions centered around participants' preferences in selecting the optimal rephrasing of an original sentence, generated through different prompting techniques. You can find examples of the three different kinds of questions asked in Appendix 2.

3 Results

Regarding long sentences, the analysis of expert and non-expert responses unveiled interesting data. Experts consistently reported a nearly equivalent mean simplicity score for both generated and original texts (Figures 1-2), suggesting perceived complexity even from those who must deal with this kind of texts daily. On the other hand, non-expert participants exhibited a higher degree of variability in their scores (Figures 1-2). Notably, they identified higher complexity in the original texts while simultaneously perceiving the generated ones as simpler. This disparity in non-expert perceptions underscores the subjective nature of linguistic evaluation and provides valuable insights into how different audience segments may interpret the complexity of sentences. Moreover, this result highlights the importance of considering the rater's expertise as a fundamental parameter for this kind of analysis. It also confirms that specialistic knowledge should have a pivotal role in the design of a simplification task: as text complexity depends on the reader's expertise, the simplification process should be tailored on the possible readers.

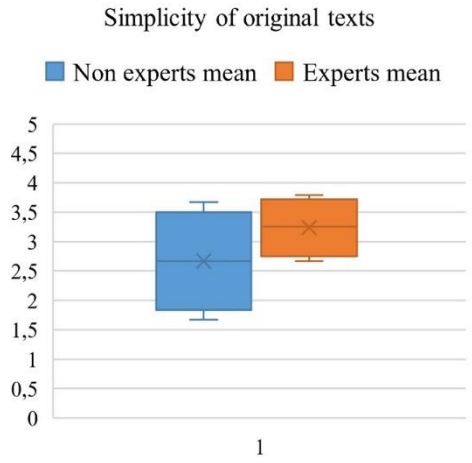


Figure 1: Perceived simplicity of original texts the long sentences simplification task.

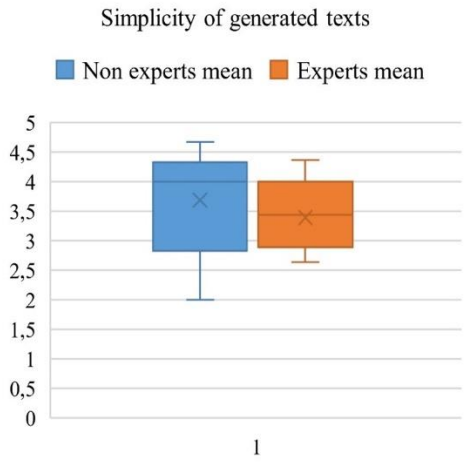


Figure 2: Perceived simplicity of generated texts for the long sentences simplification task.

About coherence and meaning preservation of ChatGPT's rephrasings, we found out that non-experts' judgments exhibited greater variability and showed slightly higher mean scores compared to those of experts (Figure 3). This observation was substantiated by a higher standard deviation among non-experts.

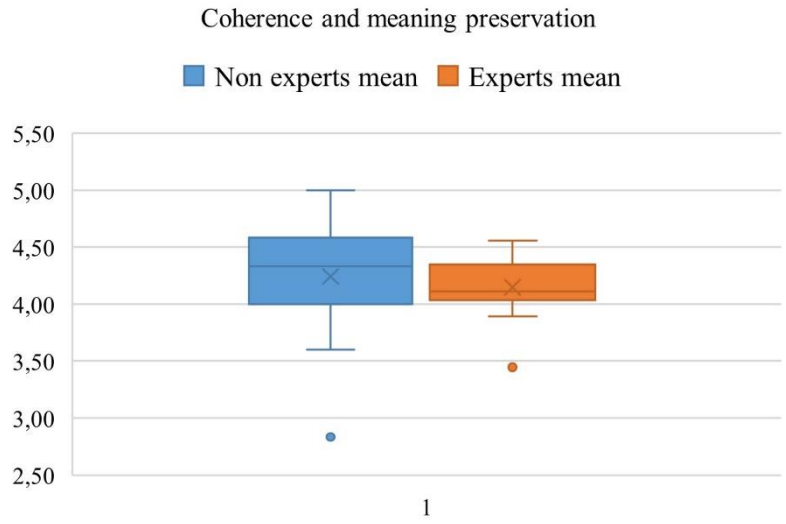


Figure 3: Perceived coherence and meaning preservation of original texts in the long sentences simplification task.

A progressive performance increase has been found from zero-shot to 3-shot in the rephrasing selection task (Figure 4). The texts generated with 3-shot prompting have been preferred by both experts and non-experts, who chose the simplification obtained by this prompting technique 36.23% and 34.85% of times, respectively.
These findings underscored the importance of participant expertise and the effectiveness of different prompting strategies in influencing preferences and evaluations of rephrased content.

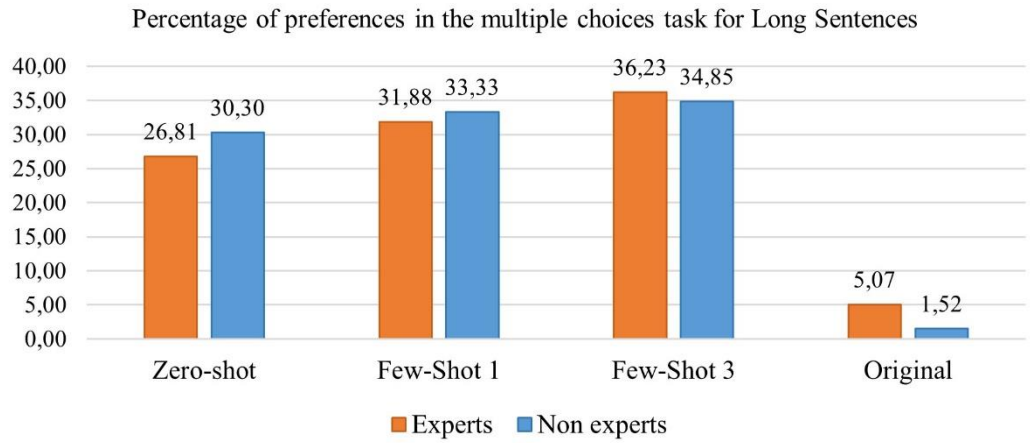


Figure 4: Results of multiple choices task for long sentences.

Regarding evaluating nominal clusters within our experiment, the distinctions between expert and non-expert assessments were evident. Non-experts consistently perceived texts as complex to read, attributing lower values of simplicity for original texts. In contrast, experts, accustomed to the nuances of this language variety, reported higher levels of simplicity for original texts (Figure 5). Interestingly, both experts and non-experts found generated texts to be generally easy to read. (Figure 6)

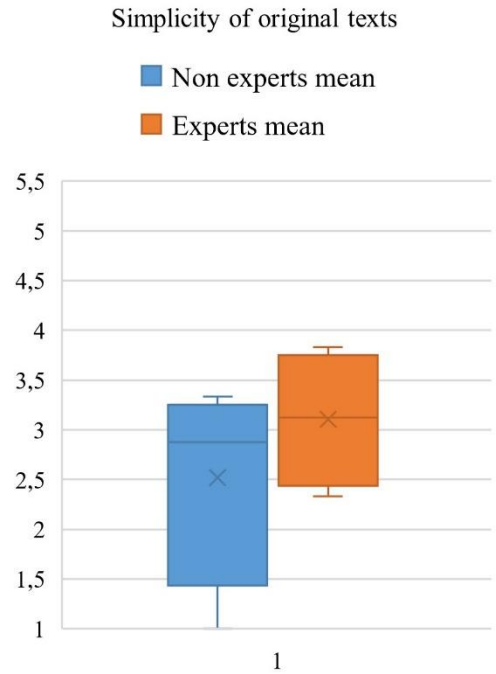


Figure 5: Perceived simplicity of original texts for the nominal clusters simplification task.

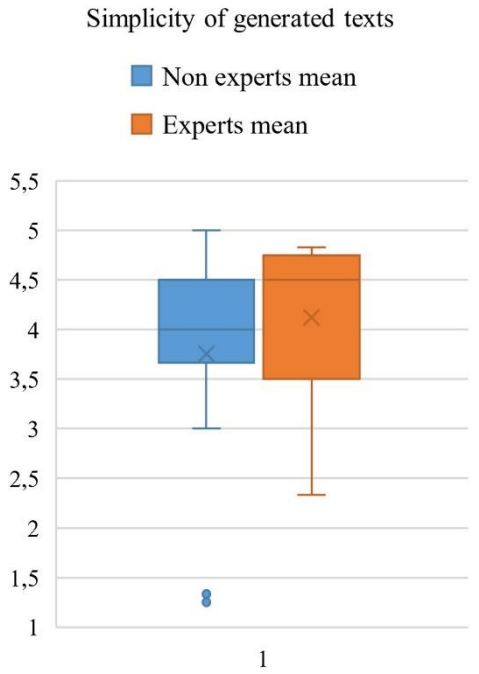


Figure 6: Perceived simplicity of generated texts for the nominal clusters simplification task.

The evaluation of coherence and meaning preservation showed differences between expert and non-expert judgments (Figure 7). Non-experts deemed generated texts

to be coherent and effective in preserving the meaning of the original texts more frequently than experts, emphasizing a perspective rooted in their diverse linguistic experiences.

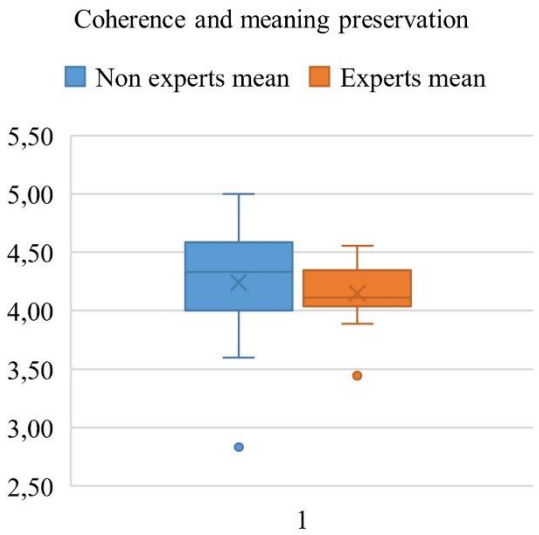


Figure 7: Perceived coherence and meaning preservation of original texts in the nominal clusters simplification task.

A divergence in preferences emerged during the multiple-choice task (Figure 8). Non-experts exhibited a preference for the 3-shot rephrasing 35.42% of the time, while experts leaned towards the CoT rephrasing, choosing it 40.74% of the time. Notably, the original sentence garnered preference 8.33% of the time among non-experts and 12.96% among experts. Interestingly, no discernible pattern of performance improvement or deterioration was evident from 1-shot to CoT prompting, underscoring the complexity of participant preferences, and the need for a complete understanding of rephrasing strategies in the context of nominal clusters.

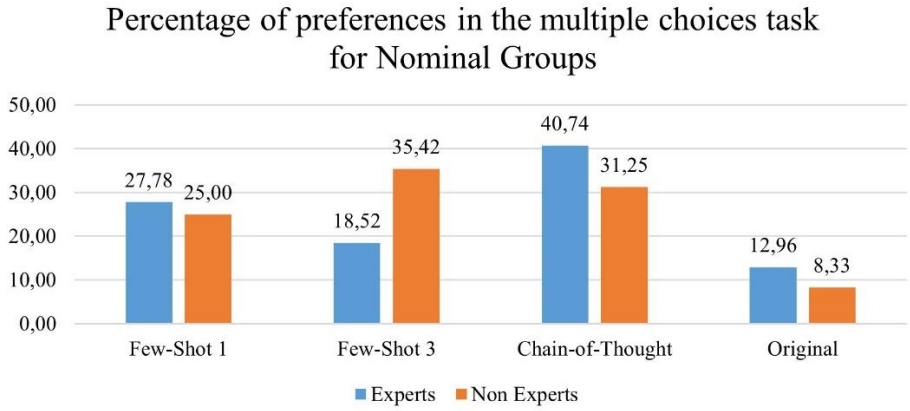


Figure 8: Results of multiple choices task for nominal clusters.

4 Conclusion

In this preliminary investigation, we aimed to explore the capabilities of ChatGPT in addressing linguistic challenges outlined by UNI 11482:2013 Standard, specifically focusing on long sentences and nominal clusters. Our dataset comprised 120 sentences extracted from CITPRO, an Italian corpus of professional texts belonging to administrative and legal domains. We employed three prompt engineering techniques – zero-shot learning, few-shot learning, and Chain-of-Thought reasoning – yielding 360 sentences for analysis using ChatGPT-3.5 as of August 3, 2023.

Evaluation data were collected through a Google Forms survey, distinguishing between experts and non-experts of bureaucratic and legal Italian. The questionnaire, featuring 36 questions, was structured into three sections, addressing ease of reading, coherence, and preferences in rephrasing.

Concerning long-sentence evaluation results, expert evaluations showed consistent perceptions of complexity in both generated and original texts, contrasting with non-experts who exhibited variability. Non-experts identified higher complexity in originals and perceived generated texts as simpler, highlighting the subjective nature of linguistic evaluation and emphasizing the need for a diverse evaluator sample based also on their literacy degree. In coherence analysis, non-experts displayed greater variability and slightly higher mean scores than experts, emphasizing the nuanced nature of their assessments.

In the task of selecting optimal long sentence rephrasing, a linear increase in performance was observed, with a preference for the 3-shot technique among both experts (36.23%) and non-experts (34.85%), highlighting the impact of prompting strategies on preferences.

Regarding nominal clusters evaluation, distinctions between expert and non-expert assessments were evident, with non-experts perceiving original texts as more complex. Both groups found generated texts easy to read. In the multiple-choice task, non-experts favored 3-shot rephrasing (35.42%), while experts preferred CoT rephrasing (40.74%). Interestingly and differently from what we have seen with long sentences, no clear performance pattern emerged from 1-shot to CoT prompting, emphasizing the task complexity.

Finally, these findings demonstrated a greater ease from expert readers in comprehending specialized text compared to their non-expert counterparts, albeit still encountering complexity. The introduction of generated text resulted in substantial improvements in readability for both expert and non-expert participants. Complex prompting techniques exhibited a higher efficacy in facilitating comprehension and simplification when compared to their simpler counterparts. Additionally, our findings underscored the suitability of LLMs as effective tools for our tasks, showcasing their potential to enhance readability and accessibility in various linguistic contexts. Although these results are preliminary, they provide valuable insights into the effectiveness of different approaches in the optimization of text understanding and simplification.

References

Acerboni, Giovanni & Panunzi, Alessandro. 2020. La scrittura professionale. In Baldi, Benedetta (ed.), *Comunicare ad arte per costruire contenuti e promuovere eventi*, 221–236. Bologna: Zanichelli.

Al-Thanyyan, Suha & Azmi, Aqil. 2021. Automated text simplification: a survey. *ACM Computing Surveys* 54(2). 1–36.

Barlacchi, Gianni & Tonelli, Sara. 2013. Ernesta: A Sentence Simplification Tool for Children's Stories in Italian. In Gelbukh, Alexander (ed.), *Computational Linguistics and Intelligent Text Processing*. *Proceedings of the 14th International Conference CICLing 2013* (Samos, March 24-30, 2013), 476–487. Berlin: Springer.

Bott, Stefan & Saggion, Horacio. 2012. Automatic simplification of Spanish text for e-accessibility. In Miesenberger, Klaus & Karshmer, Arthur & Penaz, Petr & Zagler, Wolfgang (eds), *Computers Helping People with Special Needs*. Lecture Notes in Computer Science 7382. 527–534. Berlin-Heidelberg: Springer.

Brown, Tom & Mann, Benjamin & Ryder, Nick & Subbiah, Melanie & Kaplan, Jared & Dhariwal, Prafulla & Neelakantan, Arvind & Shyam, Pranav & Sastry Girish & Askell, Amanda et al. 2020. Language models are few-shot learners. *Advances in Neural Information Processing Systems* 33. 1877–1901.

Cassese, Sabino. 1994. Codice di stile delle comunicazioni scritte ad uso delle pubbliche amministrazioni. *Proposta e materiali di studio. Quaderni del Dipartimento per la Funzione Pubblica*, n. 8. Roma, Istituto Poligrafico e Zecca dello Stato, Libreria dello Stato.

Chen, Banghao & Zhang, Zhaofeng & Langrené, Nicolas & Zhu, Shengxin. 2023. Unleashing the potential of prompt engineering in Large Language Models: a comprehensive review. *ArXiv*. https://doi.org/10.48550/arXiv.2310.14735 (last accessed on 16/07/2024)

Cortelazzo, Michele & Pellegrino, Federica. 2003. *Guida alla scrittura istituzionale*. Bari: Laterza.

Covino, Sandra. 2001. La scrittura professionale. Ricerca, prassi, insegnamento, *Atti del I Convegno di Studi* (Perugia, October 23-25, 2000). Firenze: Olschki Editore.

Dell'Orletta, Felice & Montemagni, Simonetta & Venturi, Giulia. 2011. READ–IT: Assessing readability of Italian texts with a view to text simplification. In *Proceedings of the Second Workshop on Speech and Language Processing for Assistive Technologies* (Edinburgh, July 30, 2011), 73–83. Edinburgh: Association for Computational Linguistics.

Feng, Yutao & Qiang, Jipeng & Li, Yun & Yuan, Yunhao & Zhu, Yi. 2023. Sentence simplification via large language models. *ArXiv*. arXiv:2302.11957 (last accessed on 16/07/2024)

Gualdo, Riccardo & Telve, Stefano. 2011. *Linguaggi specialistici dell'italiano*. Roma: Carocci.

Lucisano, Pietro & Piemontese, Maria Emanuela. 1988. Gulpease: una formula per la predizione della leggibilità di testi in lingua italiana. *Scuola e città*. 110–124.

Megna, Angelo Luigi & Schicchi, Daniele & Lo Bosco, Giosuè & Pilato, Giovanni. 2021. A controllable text simplification system for the Italian language. In *2021 IEEE 15th International Conference on Semantic Computing* (ICSC) (Laguna Hills, January 27-29, 2021), 191–194.

Mortara Garavelli, Bice. 2001. *Le parole e la giustizia, Divagazioni grammaticali e retoriche su testi giuridici italiani.* Torino: Einaudi.

North, Kai & Ranasinghe, Tharindu & Shardlow, Matthew & Zampieri, Marco. 2023. Deep Learning approaches to lexical simplification: A survey. *ArXiv.* arXiv:2305.12000. (last accessed on 16/07/2024)

Nozza, Debora, & Attanasio, Giuseppe. 2023. Is it really that simple? Prompting Language Models for Automatic Text Simplification in Italian. In Boschetti, Federico & Lebani, Gianluca E. & Novielli, Nicole (eds), *Proceedings of the 9th Italian Conference on Computational Linguistics CLiC-it 2023* (Venezia, November 30-December 2, 2023).

Palmero Aprosio, Alessio & Tonelli, Sara & Turchi, Marco & Negri, Matteo & Di Gangi, Mattia. 2019. Neural text simplification in low-resource conditions using weak supervision. In *Proceedings of the NeuralGen Workshop*: *Methods for Optimizing and Evaluating Neural Language Generation* (Minneapolis, June 6, 2019), 37–44. Association for Computational Linguistics.

Raso, Tommaso. 2005. *La scrittura burocratica. La lingua e l'organizzazione del testo*. Roma: Carocci.

Saggion, Horacio. 2017. Automatic text simplification. In Hirst, Graeme (ed.), *Synthesis lectures on Human-Language Technologies*. Toronto: Morgan & Claypool Publishers.

Scarton, Carolina & Palmero Aprosio, Alessio & Tonelli, Sara & Wanton Martín, Tamara & Specia, Lucia. 2017. MUSST: A multilingual syntactic simplification tool. In *Proceedings of the International Joint Conference on Natural Language Processing IJCNLP 2017, System Demonstrations* (Tapei, 27 November – 1 December 2017), 25–28. Association for Computational Linguistics.

Shardlow, Matthew. 2014. A survey of automated text simplification. *International Journal of Advanced Computer Science and Applications* 4(1), 58–70.

Wei, Jason & Bosma, Maarten & Zhao, Vincent Y. & Guu, Kelvin & Wei Yu, Adams & Lester, Brian & Du, Nan & Dai, Andrew M. & Le, Quoc V. 2021. Finetuned language models are zero-shot learners. *ArXiv*. https://doi.org/10.48550/arXiv.2109.01652

Wei, Jason & Xuezhi, Wang & Schuurmans, Dale & Bosma, Maarten & Ichter, Brian & Xia, Fei & Chi, Ed & Le, Quoc & Zhou, Denny. 2022. Chain-of-thought prompting elicits reasoning in large language models. *ArXiv*. https://doi.org/10.48550/arXiv.2201.11903. (last accessed on 16/07/2024)

Appendix 1

A) Long sentences

Zero-shot prompt

Riscrivi le frasi seguenti, dividendo i periodi con più di 40 parole in periodi con meno parole. Non eliminare il contenuto concettuale di quanto scritto tra parentesi o virgole e preserva le indicazioni burocratiche e legislative. Non alterare le citazioni dirette, solitamente riportate tra virgolette. Tieni conto di quanto viene detto, quando presenti, nei contesti destro e sinistro.

'Rewrite the following sentences, dividing each phrase with more than 40 words into shorter sentences. Do not eliminate the conceptual content of what is written within parentheses or commas and preserve bureaucratic and legislative indications. Do not alter direct quotes, usually enclosed in quotation marks. Consider what is said, when present, in both the right and left contexts.'

Few-shot (1) prompt

Frase Lunga: *Vengono anche esaminate le altre innovazioni apportate dal decreto-legge alla disciplina IVA ed, in particolare, la soppressione di due obblighi dichiarativi per i commercianti al minuto; l'aumento dell'aliquota applicabile ad alcuni servizi radiotelevisivi; la proroga di regimi transitori riguardanti i servizi radiotelevisivi ed i servizi resi tramite mezzi elettronici; la più generalizzata applicazione del regime speciale della vendita di documenti di viaggio e di sosta*.

'Long Sentence: The other innovations introduced by the decreto legge in the VAT regulations are also examined and, specifically, the elimination of two reporting obligations for retail traders is considered; the increase in the applicable rate for certain audiovisual services; the extension of transitional regimes concerning audiovisual services and services provided through electronic means; the widespread application of the special regime for travel and parking documents sale.'

Frase Corta: *Vengono anche esaminate le altre innovazioni apportate dal decreto-legge alla disciplina dell'IVA. La prima è la soppressione di due obblighi dichiarativi per i commercianti al minuto. La seconda è l'aumento dell'aliquota applicabile ad alcuni servizi radiotelevisivi. La terza la proroga di regimi transitori riguardanti i servizi radiotelevisivi ed i servizi resi tramite mezzi elettronici. La quarta è la più generalizzata applicazione del regime speciale della vendita di documenti di viaggio e di sosta.*

'Short Sentence: The other innovations introduced by the decreto legge in the VAT regulations are also examined. Firstly, the elimination of two reporting obligations for retail traders is considered. Secondly, there is an increase in the applicable rate for certain audiovisual services. Additionally, the extension of transitional regimes

concerning audiovisual services and services provided through electronic means is also addressed. Furthermore, there is a more widespread application of the special regime for the sale of travel and parking documents.'

Frase Lunga: *[frase da analizzare]*
'Long Sentence: [sentence that must be simplified]'

Frase Corta:
'Short Sentence:'

Few-shot (3) prompt

Frase Lunga: *Vengono anche esaminate le altre innovazioni apportate dal decreto-legge alla disciplina IVA ed, in particolare, la soppressione di due obblighi dichiarativi per i commercianti al minuto; l'aumento dell'aliquota applicabile ad alcuni servizi radiotelevisivi; la proroga di regimi transitori riguardanti i servizi radiotelevisivi ed i servizi resi tramite mezzi elettronici; la più generalizzata applicazione del regime speciale della vendita di documenti di viaggio e di sosta.*

'Long Sentence: The other innovations introduced by the decreto legge in the VAT regulations are also examined and, specifically, the elimination of two reporting obligations for retail traders is considered; the increase in the applicable rate for certain audiovisual services; the extension of transitional regimes concerning audiovisual services and services provided through electronic means; the widespread application of the special regime for travel and parking documents sale.'

Frase Corta: *Vengono anche esaminate le altre innovazioni apportate dal decreto-legge alla disciplina dell'IVA. La prima è la soppressione di due obblighi dichiarativi per i commercianti al minuto. La seconda è l'aumento dell'aliquota applicabile ad alcuni servizi radiotelevisivi. La terza la proroga di regimi transitori riguardanti i servizi radiotelevisivi ed i servizi resi tramite mezzi elettronici. La quarta è la più generalizzata applicazione del regime speciale della vendita di documenti di viaggio e di sosta.*

'**Short Sentence:** The other innovations introduced by the decreto legge in the VAT regulations are also examined. Firstly, the elimination of two reporting obligations for retail traders is considered. Secondly, there is an increase in the applicable rate for certain audiovisual services. Additionally, the extension of transitional regimes concerning audiovisual services and services provided through electronic means is also addressed. Furthermore, there is a more widespread application of the special regime for the sale of travel and parking documents.'

Frase Lunga: *Con lo scopo, inoltre, di semplificare gli obblighi procedimentali e contabili connessi all'applicazione del tributo, il decreto ha soppresso, con il comma 2 dell'art. 16, per i commercianti al minuto, sia l'obbligo di trasmettere in via telematica i dati relativi ai corrispettivi incassati, sia, con il comma 4 dello*

stesso articolo, l'obbligo di memorizzare su supporto elettronico le operazioni effettuate tramite distributori automatici.

'Long Sentence: Additionally, to simplify procedural and accounting obligations related to tax application, the decree, through paragraph 2 of Article 16, has abolished, for retail traders, both the obligation to electronically transmit data on collected revenues and, with paragraph 4 of the same article, the obligation to electronically store operations carried out through vending machines.'

Frase Corta: *Inoltre, con lo scopo di semplificare gli obblighi procedimentali e contabili connessi all'applicazione del tributo, i commi 2 e 4 dell'art. 16 del decreto hanno soppresso due obblighi per i commercianti al minuto. In primo luogo, non sono più obbligati a trasmettere in via telematica i dati relativi ai corrispettivi incassati. In secondo luogo, non sono più obbligati a memorizzare su supporto elettronico le operazioni effettuate tramite distributori automatici.*

'Short Sentence: Furthermore, to simplify procedural and accounting obligations related to tax application, paragraphs 2 and 4 of Article 16 of the decree have eliminated two obligations for retail traders. Firstly, they are no longer required to transmit data on collected revenues electronically. Secondly, they are no longer obliged to electronically store operations carried out through vending machines.'

Frase Lunga: *In sostanza, la norma estende genericamente a tutte le cessioni di beni e le prestazioni di servizi effettuate dai suddetti soggetti IVA il differimento dell'esigibilità dell'imposta che il secondo periodo del quinto comma dell'art. 6 del d.p.r. n. 633 del 1972 già prevede per le cessioni di beni e le prestazioni di servizi effettuate nei confronti dello Stato e di altri enti pubblici, nonché per ulteriori, specifiche operazioni.*

'Long Sentence: Essentially, the regulation broadly extends the deferral of tax liability to all sales of goods and service provisions made by the mentioned VAT subjects, deferral that was already provided by the second period of the fifth paragraph of Article 6 of Legislative Decree No. 633 of 1972 and applicable to sales of goods and service provisions made to the State and other public entities, as well as additional specific operations.'

Frase Corta: *In sostanza, la norma estende genericamente a tutte le cessioni di beni e le prestazioni di servizi effettuate dai suddetti soggetti IVA il differimento dell'esigibilità dell'imposta. La quale era già prevista dal quinto comma dell'art. 6 del d.p.r. n. 633 del 1972 per le cessioni di beni e le prestazioni di servizi effettuate nei confronti dello Stato e di altri enti pubblici, nonché per ulteriori, specifiche operazioni.*

'**Short Sentence:** Essentially, the regulation broadly extends the deferral of tax liability to all sales of goods and service provisions made by the mentioned VAT subjects. This, regulation was already provided by the fifth paragraph of Article 6 of Legislative Decree No. 633 of 1972, applies to sales of goods and service

provisions made to the State and other public entities, as well as additional specific operations.'

Frase Lunga: *[frase da analizzare]*
'Long Sentence: [sentence that must be simplified]'

Frase Corta:
'Short Sentence:'

B) ***Nominal clusters***

Few-shot (1) prompt

Frase con Cumulo Nominale: *L'art. 7 del provvedimento consente ad alcuni soggetti IVA – che saranno individuati da un apposito decreto ministeriale, con riferimento probabilmente al loro ridotto volume d'affari – di differire il calcolo dell'imposta dovuta all'Erario fino al momento dell'incasso della stessa dai soggetti cui è stata addebitata (c.d. sistema dell'IVA per cassa).*

'**Sentence with a Nominal Cluster:** Article 7 of the provision allows certain VAT subjects – to be identified by a specific ministerial decree, probably concerning their reduced turnover – to defer the calculation of the tax due to the Treasury until the moment of its collection from the parties to whom it was charged (so-called cash basis VAT system).'

Frase senza Cumulo Nominale: *Un prossimo decreto ministeriale individuerà i soggetti IVA (probabilmente quelli che hanno un volume d'affari ridotto) ai quali l'art. 7 del provvedimento consente di differire il calcolo dell'imposta dovuta all'Erario fino a quando non viene incassata dai soggetti a cui era stata addebitata (si tratta del sistema dell'IVA per cassa).*

'**Sentence without a Nominal Cluster:** A forthcoming ministerial decree will identify VAT subjects (likely those with a reduced turnover) to whom Article 7 of the provision allows deferring the calculation of the tax due to the Treasury until it is collected from the parties to whom it was charged (this is the cash basis VAT system).'

Frase con Cumulo Nominale: *[frase da analizzare]*
'Sentence with a Nominal Cluster: [sentence that must be simplified]'

Frase senza Cumulo Nominale:
'Sentence without a Nominal Cluster:'

Few-shot (3) prompt

Frase con Cumulo Nominale: *L'art. 7 del provvedimento consente ad alcuni soggetti IVA – che saranno individuati da un apposito decreto ministeriale, con riferimento probabilmente al loro ridotto volume d'affari – di differire il calcolo dell'imposta dovuta all'Erario fino al momento dell'incasso della stessa dai soggetti cui è stata addebitata (c.d. sistema dell'IVA per cassa).*

'Sentence with a Nominal Cluster: Article 7 of the provision allows certain VAT subjects – to be identified by a specific ministerial decree, probably regarding their reduced turnover – to defer the calculation of the tax due to the Treasury until the moment of its collection from the parties to whom it was charged (so-called cash basis VAT system).'

Frase senza Cumulo Nominale: *Un prossimo decreto ministeriale individuerà i soggetti IVA (probabilmente quelli che hanno un volume d'affari ridotto) ai quali l'art. 7 del provvedimento consente di differire il calcolo dell'imposta dovuta all'Erario fino a quando non viene incassata dai soggetti a cui era stata addebitata (si tratta del sistema dell'IVA per cassa).*

'Sentence without a Nominal Cluster: A forthcoming ministerial decree will identify VAT subjects (likely those with a reduced turnover) to whom Article 7 of the provision allows deferring the calculation of the tax due to the Treasury until it is collected from the parties to whom it was charged (this is the cash basis VAT system).'

Frase con Cumulo Nominale: *Pertanto l'individuazione della grande manutenzione andrà effettuata con riferimento a quelle situazioni che, oltre ad essere caratterizzate da una fermata dell'impianto o di una sua sezione normalmente di almeno una settimana, comportano importanti riflessi sia sull'organizzazione del lavoro sia, soprattutto, sulle procedure in materia di sicurezza.*

'**Sentence with a Nominal Cluster:** Therefore, the identification of major maintenance must be carried out with reference to situations that, in addition to being characterized by a shutdown of the facility or one of its sections usually lasting at least one week, have significant impacts both on the organization of work and, above all, on safety procedures.'

Frase senza Cumulo Nominale: *Pertanto, la grande manutenzione dovrà essere individuata per le situazioni in cui si ferma un impianto o una sua sezione per almeno una settimana, condizionando l'organizzazione del lavoro e soprattutto le procedure di sicurezza.*

'Sentence without a Nominal Cluster: Therefore, major maintenance must be identified for situations in which a facility or one of its sections stops for at least

one week, influencing both the organization of work and, especially, safety procedures.'

Frase con Cumulo Nominale: *Il Ministero, verificati i requisiti, comunica all'impresa, entro 60 gg dalla scadenza del termine di presentazione dell'istanza, il riconoscimento con l'importo del credito effettivamente spettante o il diniego dell'agevolazione.*

'Sentence with a Nominal Cluster: The Ministry, verifying the requirements, informs the company, within 60 days from the deadline for submitting the application, the recognition of the credit amount that is actually due or the denial of the subsidy.'

Frase senza Cumulo Nominale: *Dopo aver verificato i requisiti, il Ministero comunica all'impresa, entro 60 gg dal giorno in cui scade la presentazione dell'istanza, se ha riconosciuto l'importo del credito effettivamente spettante o se ha negato l'agevolazione.*

*'***Sentence without a Nominal Cluster:** After checking the requirements, the Ministry informs the company, within 60 days from the day the application deadline expires, whether it has recognized the amount of credit that is actually due or if it denied the subsidy.'

Frase con Cumulo Nominale: *[frase da analizzare]*
'Sentence with a Nominal Cluster: [sentence that must be simplified]'

Frase senza Cumulo Nominale:
'Sentence without a Nominal Cluster:'

C) Chain-of-Thought prompt

Semplifica il cumulo nominale presenti nel seguente testo.
'Simplify the nominal cluster present in the following text.'

"Vengono anche esaminate le altre innovazioni apportate dal decreto-legge alla disciplina IVA ed, in particolare, la soppressione di due obblighi dichiarativi per i commercianti al minuto; l'aumento dell'aliquota applicabile ad alcuni servizi radiotelevisivi; la proroga di regimi transitori riguardanti i servizi radiotelevisivi ed i servizi resi tramite mezzi elettronici; la più generalizzata applicazione del regime speciale della vendita di documenti di viaggio e di sosta."

Per poter semplificare il cumulo nominale presente in questo testo è necessario procedere passo dopo passo: per prima cosa, identifichiamo le azioni che vengono svolte. In questo caso, la parte di testo che dice ciò che viene fatto è "Vengono anche esaminate le altre innovazioni...". Successivamente, dobbiamo esaminare se ci sono oggetti o enti che subiscono l'azione descritta dal verbo. Se si dà questo

caso, allora vuol dire che il verbo è in diatesi passiva. Per poter semplificare un cumulo nominale, è preferibile utilizzare verbi in forma attiva. Quindi, la frase può essere riscritta come "Esaminiamo anche le altre innovazioni ...".
A questo punto, vediamo se il testo presenta participi passati con valore aggettivale. Nel testo abbiamo "... innovazioni apportate dal decreto-legge..." che svolge implicitamente la funzione di subordinata relativa: infatti, la frase potrebbe essere riscritta nel seguente modo: "...innovazioni che sono state apportate dal decreto-legge". Poi, identifichiamo nel testo se ci sono sostantivi che indicano un'azione e che possono quindi essere sostituiti dal relativo verbo. Per esempio, nel testo abbiamo "la soppressione", che può essere sostituito con "sopprimere", "l'aumento" con "aumentare", "la proroga" con "prorogare", "l'applicazione" con "applicare", "vendita" con "vendere". Tutti questi sostantivi indicano azioni apportate dal decreto-legge. Quindi possiamo utilizzare "decreto-legge" come loro soggetto; ad esempio "il decreto-legge sopprime i due obblighi dichiarativi per i commercianti al minuto.", "il decreto-legge aumenta l'aliquota applicabile ad alcuni servizi radiotelevisivi", "il decreto-legge proroga i regimi transitori riguardanti i servizi radiotelevisivi ed i servizi resi tramite mezzi elettronici", "il decreto-legge applica in modo più generalizzato il regime speciale per vendere documenti di viaggio e di sosta". Essendo "decreto-legge" il soggetto di tutte queste frasi consecutive, possiamo sottintenderlo. Fatte tutte queste operazioni, il testo deve essere riscritto cercando di utilizzare quanto più possibile i verbi in forma attiva e dividendo i concetti in frasi brevi separate da connettivi semplici come "inoltre, infine, poi, etc."
Una possibile riscrittura senza cumulo nominale della frase, quindi, potrebbe essere: "Esaminiamo anche le altre innovazioni che il decreto-legge apporta alla disciplina dell'IVA. Innanzitutto, sopprime due obblighi dichiarativi per i commercianti al minuto. Poi, aumenta l'aliquota applicabile ad alcuni servizi radiotelevisivi. Inoltre, proroga i regimi transitori dei servizi radiotelevisivi ed elettronici. Infine, applica in modo più generalizzato il regime speciale per vendere documenti di viaggio e di sosta."

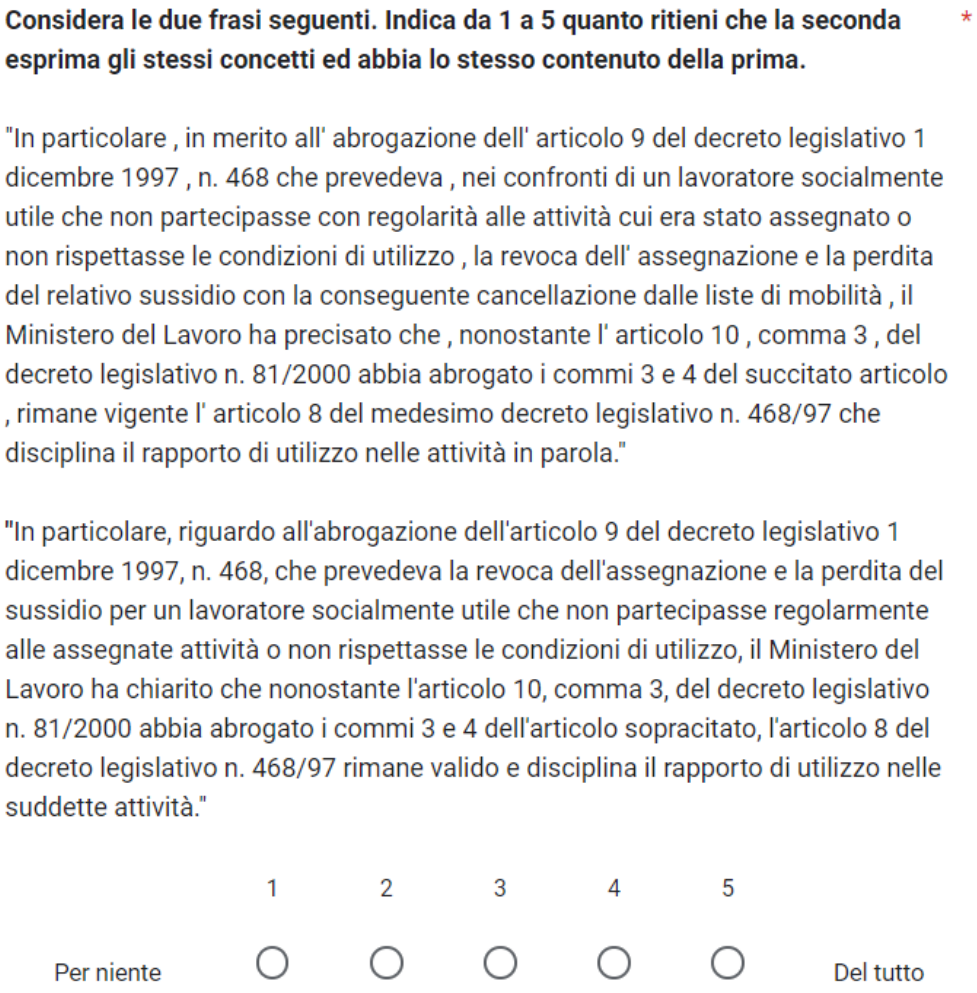
'To simplify the nominal cluster in this text, it is necessary to proceed step by step: first, identify the actions being taken. In this case, the part of the text that describes what is being done is "Vengono anche esaminate le altre innovazioni..." Next, examine whether objects or entities are undergoing the action described by the verb. If so, it means the verb is in the passive tense. To simplify nominal clusetrs, it is preferable to use verbs in the active form. Therefore, the sentence can be rewritten as "Esaminiamo anche le altre innovazioni ..."
Next, you must check if the text contains past participles with adjectival value. In the text, we have "... innovazioni apportate dal decreto-legge..." implicitly performing the function of a relative clause. The phrase could be rewritten as ...innovazioni che sono state apportate dal decreto-legge" Then, we have to identify if there are nouns indicating an action that can be replaced by the corresponding verb. For example, in the text, we have "la soppressione" that can be replaced with "sopprimere," "l'aumento" with "aumentare", "la proroga" with "prorogare", "l'applicazione" with "applicare", "vendita" with "vendere". All these nouns indicate actions brought about by the "decreto-legge". Therefore, we can use

"decreto-legge" as their subject; for example, il decreto-legge sopprime i due obblighi dichiarativi per i commercianti al minuto.", "il decreto-legge aumenta l'aliquota applicabile ad alcuni servizi radiotelevisivi", "il decreto-legge proroga i regimi transitori riguardanti i servizi radiotelevisivi ed i servizi resi tramite mezzi elettronici", "il decreto-legge applica in modo più generalizzato il regime speciale per vendere documenti di viaggio e di sosta". With "decreto-legge" as the subject in all these consecutive sentences, it can be implied. After these operations, the text should be rewritten, trying to use verbs in the active form as much as possible and dividing concepts into short sentences separated by simple connectors such as "inoltre, infine, poi, etc."
A possible rewritten sentence without nominal clusters, therefore, could be: "Esaminiamo anche le altre innovazioni che il decreto-legge apporta alla disciplina dell'IVA. Innanzitutto, sopprime due obblighi dichiarativi per i commercianti al minuto. Poi, aumenta l'aliquota applicabile ad alcuni servizi radiotelevisivi. Inoltre, proroga i regimi transitori dei servizi radiotelevisivi ed elettronici. Infine, applica in modo più generalizzato il regime speciale per vendere documenti di viaggio e di sosta."'

Semplifica il cumulo nominale presente nel seguente testo.
[frase che si vuole analizzare]

'Simplify the nominal cluster present in the following text.
[sentence that must be simplified]'

Appendix 2



Considera le due frasi seguenti. Indica da 1 a 5 quanto ritieni che la seconda esprima gli stessi concetti ed abbia lo stesso contenuto della prima. *

"In particolare , in merito all' abrogazione dell' articolo 9 del decreto legislativo 1 dicembre 1997 , n. 468 che prevedeva , nei confronti di un lavoratore socialmente utile che non partecipasse con regolarità alle attività cui era stato assegnato o non rispettasse le condizioni di utilizzo , la revoca dell' assegnazione e la perdita del relativo sussidio con la conseguente cancellazione dalle liste di mobilità , il Ministero del Lavoro ha precisato che , nonostante l' articolo 10 , comma 3 , del decreto legislativo n. 81/2000 abbia abrogato i commi 3 e 4 del succitato articolo , rimane vigente l' articolo 8 del medesimo decreto legislativo n. 468/97 che disciplina il rapporto di utilizzo nelle attività in parola."

"In particolare, riguardo all'abrogazione dell'articolo 9 del decreto legislativo 1 dicembre 1997, n. 468, che prevedeva la revoca dell'assegnazione e la perdita del sussidio per un lavoratore socialmente utile che non partecipasse regolarmente alle assegnate attività o non rispettasse le condizioni di utilizzo, il Ministero del Lavoro ha chiarito che nonostante l'articolo 10, comma 3, del decreto legislativo n. 81/2000 abbia abrogato i commi 3 e 4 dell'articolo sopracitato, l'articolo 8 del decreto legislativo n. 468/97 rimane valido e disciplina il rapporto di utilizzo nelle suddette attività."

	1	2	3	4	5	
Per niente	○	○	○	○	○	Del tutto

Consider the following two sentences. Indicate from 1 to 5 how much do you think the latter expresses the same concepts and has the same content as the former.

[original sentence]

[generated sentence]

	1	2	3	4	5	
Not at all	○	○	○	○	○	Completely

Considera la frase seguente: *

"Il Ministero, verificati i requisiti, comunica all'impresa, entro 60 gg dalla scadenza del termine di presentazione dell'istanza, il riconoscimento con l'importo del credito effettivamente spettante o il diniego dell'agevolazione."

Quale, tra le frasi che trovi qui sotto, ritieni che mantenga lo stesso significato della frase precedente ma pensi che sia più chiara in lettura e più semplice da capire?

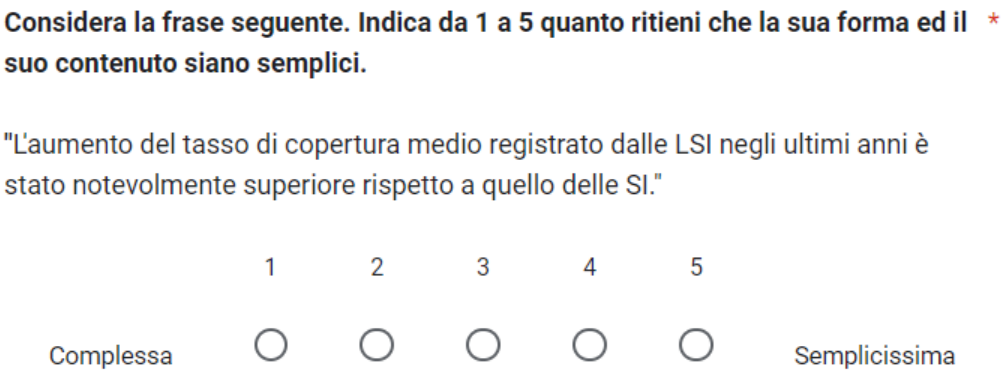
- ◯ Dopo aver verificato i requisiti, il Ministero comunica all'impresa, entro 60 giorni dalla scadenza del termine di presentazione dell'istanza, se le spetta effettivamente l'importo del credito o se le viene negata l'agevolazione.
- ◯ Dopo aver verificato i requisiti, entro 60 giorni dalla scadenza del termine di presentazione dell'istanza, il Ministero comunica all'impresa il riconoscimento dell'importo effettivamente spettante come credito o il diniego dell'agevolazione.
- ◯ Il Ministero comunica all'impresa, entro 60 giorni dalla scadenza dell'istanza, il riconoscimento del credito effettivamente spettante o il diniego dell'agevolazione, previa verifica dei requisiti.
- ◯ È più chiara e semplice la frase presente nella domanda.

Consider the following sentence

[original sentence]

Which of the following sentence do you think preserves the meaning of the previous one, but you think is easier to read and to understand?

[multiple choice between 3 options regarding sentences generated through different prompting techniques depending on the task that is being analyzed and 1 option stating that the original sentence is the easiest to read and understandable]



Consider the following sentence. Indicate from 1 to 5 how much do you think its content and its structure are easy [to understand].

[Sentence that could be generated or original]