

ChatGPT and CxG

A Critique of the Model for Constructionist Research and Teaching and for the Transformative Development of Postcolonial Africa

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1 Introduction

Large language models (van Dis et al. 2023) in the form of AI chatbots, such as ChatGPT (<https://chat.openai.com/chat>), have received considerable public attention on social media and in the news. As van Dis et al. (2023: 224) have argued in a recent *Nature* comment paper, ‘this type of artificial intelligence (AI) technology will have huge implications on the way in which researchers work’. Now, the rise of any new technological advancement is often framed as either a ‘doom and gloom’ scenario (ChatGPT is ‘the greatest cheating tool ever invented’¹) or overhyped (‘This is the greatest learning tool of all time’²). Adopting a less emotional perspective, van Dis et al. instead claim that they are confident that science will find a way to benefit from conversational AI without losing the many important aspects that render scientific work one of the most profound and gratifying enterprises: curiosity, imagination and discovery (van Dis et al. 2023: 226). I agree that any scientific field needs to ‘find a way to benefit from conversational AI’, while at the same time drawing on and fostering the strengths of human researchers. I also maintain that AI has an important place in the transformative development agenda of postcolonial Africa. This chapter should therefore be seen as a first attempt to initiate a discussion amongst constructionist researchers and teachers about how and to what degree systems like ChatGPT can benefit the Construction Grammar enterprise and the

transformative development of postcolonial Africa. Note that I, of course, do not claim that all constructionist research or teaching will from now on have to use such dialogic AI systems. What I believe is that the options of ignoring or banning these AI systems are no longer realistic ones. So, in essence, this paper is a prompt to initiate ‘ChatCxG’ – the discussion how such systems can profit our research and teaching practices and put at the disposal of development stakeholders the strengths and weaknesses of this AI model (see also Torrent et al. 2024).

2 Open science methodology

ChatGPT is a large language model created by OpenAI that is able to ‘produce sophisticated and seemingly intelligent writing after training on a massive data set of text’ (van Dis et al. (2023: 224; see Brown et al. 2020 for more details). One of the greatest appeals of the system is that it is available in an interactive format. The user can ask questions or tell the model to carry out tasks. Drawing on its database, it will then try to construct a relevant answer. Chat 1, for example, shows a start of a session on Construction Grammar:

TH: *What is Construction Grammar?*

ChatGPT: *Construction Grammar is a theoretical framework in linguistics that treats language as a system of constructions, where each construction consists of a form-meaning pairing. It argues that the form and meaning of words, phrases, and sentences are not arbitrary but are motivated by systematic patterns and relationships. In construction grammar, language is seen as a dynamic, flexible, and adaptive system that is shaped by both usage and culture.*

Chat 1: Initiating a chat with ChatGP on Construction Grammar

Source: <https://osf.io/794c5>

The answer in Chat 1 is one that the user, obviously, also could have gleaned from a search engine. As we will see below, ChatGPT is considerably more powerful than any existing search engines (though it also comes with its own shortcomings). Now, currently, ChatGPT is still a bit of a black box³ and clearly much more research will be needed to fully uncover its abilities as well as shortcomings. A very clear disadvantage, however, is that [c]urrently, nearly all state-of-the-art conversational AI technologies are proprietary products of

a small number of big technology companies that have the resources for AI development. OpenAI is funded largely by Microsoft, and other major tech firms are racing to release similar tools. Given the near-monopolies in search, word processing and information access of a few tech companies, this raises considerable ethical concerns (van Dis et al. 2023: 225).

Open science was already an important movement even before the rise of ChatGPT (cf., e.g., Fecher and Friesike 2013; McKiernan et al. 2016). Now, however, new ethical issues arise. A text produced by the system is not simply taken verbatim from a single source. Instead, the AI combines the information it identifies as relevant to a prompt and generates a response that is novel (in so far at least that it does not reproduce full sentences but, based on statistical associations, productively combines words into novel sentences). Consequently, students or researchers could just copy-and-paste the answer of Chat 1 into their own essays or articles and pass it off as their own work – and no plagiarism software would identify the passage as problematic because it has been newly created (though other AI software is currently being developed whose function is to detect AI created text). There are many further ethical and philosophical problems concerning authorship as well as copyright associated with AI systems, e.g. the fact that the sources of the answer in Chat 1 are publications that are not revealed by ChatGPT (see van Dis et al. 2023: 225). Not all of these issues can be resolved in linguistic research alone, clearly a much wider discussion in the sciences and humanities is needed. For now, however, I call for a ‘code of conduct’ in linguistics in general and Construction Grammar in particular, that researchers and students document all the interactions with systems such as ChatGPT that were part of a research project, presentation, or publication/essay. Following van Dis et al.’s (2023: 225) call for ‘rules of accountability’, I make the following suggestion for AI constructionist research:

- **Suggestion I.** Follow the rules of open science. Document all interactions with a large language AI model such as, e.g. ChatGPT, and make these interactions available on open access repositories. In line with suggestion I, all interactions that were used as the basis of the current paper have been published in an Open Science Foundation repository (<https://osf.io/794c5>); see there for.mp4 files that summarize the full interactions with ChatGPT that form the basis of this paper. I believe that such an approach will not only make transparent the contribution of AI to essays, publications, and grant proposals – in the spirit of open science, it will also enable other researchers to critically assess and build on these findings.

3 ‘ChatCxG’ teaching: limitations and opportunities

Currently, papers that have fully been written by ChatGPT are still fairly straightforward to identify: the claims made in the paper are often generic and it will even invent references (van Dis et al. 2023: 224; see also Bret Devereaux on Twitter⁴). Take, for example, Chat 2 (from another chat; cf. the OSF repository), in which I asked ChatGPT to summarize and provide the table of contents of the *Oxford Handbook of Construction Grammar* (Hoffmann and Trousdale 2013):

TH: *Give me a short summary and table of contents of the following book: ‘The Oxford Handbook of Construction Grammar’ edited by Thomas Hoffmann and Graeme Trousdale*

ChatGPT: *‘The Oxford Handbook of Construction Grammar’ edited by Thomas Hoffmann and Graeme Trousdale is a comprehensive overview of the field of Construction Grammar, which is a linguistic framework that views grammar as a set of patterns of meaning and form in language use. The handbook brings together contributions from leading scholars in the field to provide a comprehensive and up-to-date overview of the theory and its applications.*

Here is a table of contents for the book:

1. *Introduction: Construction Grammar by Thomas Hoffmann and Graeme Trousdale*
2. *The Origins and Development of Construction Grammar by Charles J. Fillmore*
3. *Cognitive and Cultural Roots of Construction Grammar by Ronald W. Langacker*
4. *The Construction Grammar Approach to Vocabulary by Miriam Butt and Tracy Holloway King*
5. *The Construction Grammar Approach to Syntax by Graeme Trousdale*
6. *The Construction Grammar Approach to Discourse by Adele E. Goldberg*
7. *The Construction Grammar Approach to Semantics by Anna C. L. anti*
8. *The Construction Grammar Approach to Pragmatics by Erich R. Steinberg*
9. *The Construction Grammar Approach to Typology by Artemis Alexiadou*
10. *The Construction Grammar Approach to Diachronic Linguistics by Johannes Helmbrecht*

11. *The Construction Grammar Approach to Second Language Acquisition* by Lise M. Dobson
12. *The Construction Grammar Approach to Language Processing* by Gerhard Jäger
13. *The Construction Grammar Approach to Cognitive Linguistics* by Hans C. Boas
14. *The Construction Grammar Approach to Linguistic Analysis* by Thomas Hoffmann

This handbook provides an in-depth and up-to-date overview of Construction Grammar and its applications, and is an essential resource for anyone interested in the study of language and linguistics.

Chat 2: ChatGP's summary of the *Oxford Handbook of Construction Grammar*

Source: <https://osf.io/794c5>

A quick glance at the table of contents reveals the extent to which ChatGPT creatively rearranges information: The handbook does, of course, contain a paper by Charles Fillmore (2013), but it is not on 'The Origins and Development of Construction Grammar', but 'Berkely Construction Grammar'. In addition to this, Trousdale did not contribute an article on 'The Construction Grammar Approach to Syntax' nor did Goldberg one on 'The Construction Grammar Approach to Discourse'. Besides, Langacker, Butt and Holloway King, 'C. L. anti', Steinberg, Akexiadou, Helmbrecht, Dobson, and Jäger have no papers in the handbook (while a large number of actual authors, such as, e.g. Bybee, Gries, Michaelis or Hilpert are missing). Note that I do not primarily mention this as a way of catching plagiarism in student essays. Instead, I urge teachers to explicitly point out and discuss these shortcomings of ChatGPT with their students. In order to productively use ChatGPT as a tool for teaching and research, it is essential to make future users of the system aware of its shortcomings:

- **Suggestion II.** Explore with students the shortcomings of ChatGPT when it comes to producing verbatim factual information and references. The above-mentioned problems of ChatGPT with, for example, the exact reproduction of quotes and references has many potential sources, including the unknown nature of its training data (see van Dis et al. 2023: 224). In addition to that, the underlying large language model seems to be driven to productively create answers based on its statistical analysis of its training

data. This already brings us to one of the advantages of ChatGPT that can be exploited for teaching Construction Grammar:

One of the basic tenets of usage-based Construction Grammar (cf., e.g. Croft 2001; Goldberg 2006, 2019; Bybee 2010, 2013) is that more abstract, schematic constructions are entrenched in large parts due to the interaction of type and token frequency (though salience, obviously, also plays a role). Let us illustrate this with a textbook example. Hoffmann (2022: 48–9) argues that the type frequency of patterns such as *untrue*, *unfair*, *unhappy* leads to the entrenchment of the following constructional template:

(1) *un*-ADJ construction (Hoffmann 2022: 49)

FORM: PHONOLOGY: / Δn_1 -X₂/₃

MORPHOSYNTAX: [UN-₁ ADJ₂]_{ADJ3}

□

MEANING: SEMANTICS: 'not₁ A₂'₃

Now, as mentioned above, the one thing that ChatGPT excels at is pattern-detection. So, can we use this strength of ChatGPT for the teaching of constructions such as (1)? As the following interaction will show, it is in fact possible to tap into the model's pattern-detection abilities, but a lot depends on how we construct our prompts:

TH: *Provide the constructional template that underlies the words untrue, unfriendly, unhappy*

ChatGPT: *The constructional template that underlies the words 'untrue', 'unfriendly', and 'unhappy' is the prefix 'un-' followed by an adjective. This prefix conveys a negation or reversal of the meaning of the adjective that follows. In this template, the form of the words is motivated by the meaning they convey and the relationship they have with other words in the language. The form 'un-' and the meaning of negation or reversal are part of a larger pattern that exists in English, allowing speakers to generate and understand new words with a similar meaning structure.*

Chat 3: ChatGP's summary of the *Oxford Handbook of Construction Grammar*

Source: <https://osf.io/794c5>

In Chat 3 (which immediately followed the interaction given in Chat 1), I simply asked ChatGPT to give the constructional template for the pattern and it

provides the major properties of the FORM pole (un-‘followed by an adjective’) as well as the MEANING pole (‘This prefix conveys a negation or reversal of the meaning of the adjective that follows.’) identified in (1). Now, it is possible that Hoffmann (2022) or another publication discussing the phenomenon was part of ChatGPT’s training set (there is no public information available on this). More importantly, however, I want to emphasize that the dialogic nature of ChatGPT also crucially influences the answers that the model gives. In a next step, I requested a SignBased Construction Grammar (SBCG; Michaelis 2013; Sag 2012) analysis of the construction:

- TH:** *Give a Sign-based Construction Grammar analysis of the above constructional template*
- ChatGPT:** *In Sign-based Construction Grammar, a construction is analyzed as a combination of form and meaning, or ‘form-meaning pairings’, which are represented as signs. The form of a sign is represented by its phonological, morphological, and syntactic properties, while its meaning is represented semantically. The constructional template that underlies the words ‘untrue’, ‘unfriendly’, and ‘unhappy’ can be analyzed as follows:*
Form: UN- + ADJECTIVE
Meaning: NEGATION OR REVERSAL OF THE MEANING OF THE ADJECTIVE
This template can be represented as a sign with two elements: a form element (UN-) and a meaning element (NEGATION OR REVERSAL). The form element is realized as the prefix ‘un-’ in the words, and the meaning element is realized as the negation or reversal of the meaning of the adjective that follows.
In this analysis, the form and meaning of the words are seen as motivated by the systematic relationships and patterns that exist in the language. The template is part of a larger network of constructions that speakers of the language use to create and understand new words and phrases.

Chat 4: ChatGPT’s attempt at a sign-based Construction Grammar analysis

Source: <https://osf.io/794c5>

Clearly, the above result does not constitute a SBCG analysis (it is missing the crucial MOTHER MTR and DAUGHTERS DTRS nodes used to model derivational constructions in SBCG as well as virtually all attribute-values employed by the approach; see Sag 2012). Nevertheless, it turned out that this

was a crucial step in the interaction with ChatGPT, when I later asked the following question:

TH: *What about the words 'untrue', 'unbutton', 'unreal', 'untie', 'unfair', 'unhappy' do these instantiate one and the same or different constructions? Give a FORM and MEANING analysis of all constructions you can find:*

ChatGPT: *The words 'untrue', 'unbutton', 'unreal', 'untie', 'unfair', and 'unhappy' all instantiate different constructions. Here's a FORM and MEANING analysis of each construction:*

1. 'Untrue'

FORM: UN- + ADJECTIVE

MEANING: *Describes the opposite or negation of the state or condition described by the original adjective.*

2. 'Unbutton'

FORM: UN- + VERB

MEANING: *Describes the action of undoing or reversing the action described by the original verb.*

3. 'Unreal'

FORM: UN- + ADJECTIVE

MEANING: *Describes the opposite or negation of the state or condition described by the original adjective.*

4. 'Untie'

FORM: UN- + VERB

MEANING: *Describes the action of undoing or reversing the action described by the original verb.*

5. 'Unfair'

FORM: UN- + ADJECTIVE

MEANING: *Describes the opposite or negation of the state or condition described by the original adjective.*

6. 'Unhappy'

FORM: UN- + ADJECTIVE

MEANING: *Describes the opposite or negation of the state or condition described by the original adjective.*

In each of these words, the prefix 'un-' creates a new construction by modifying the meaning of the original word. The specific meaning of the construction is determined by the interaction between the 'un-' prefix and the original word, with the prefix negating or reversing the meaning of the original word. The

different constructions reflect the different ways in which the ‘un-’ prefix modifies the meaning of the original word in each case.

Chat 5: ChatGPT’s analysis of *un*-ADJ and *un*-V cxns

Source: OSF

Chat 5 shows that ChatGPT can be used for an exercise that teases apart tokens that instantiate the *Un*-ADJ construction (*untrue*, *unreal*, *unfair*, *unhappy*) from *unbutton* and *untie*, which are created by the homonymous *Un*-V construction (FORM: MORPHOSYNTAX: $[UN_{-1} V_{2}]_{V_3} \leftrightarrow$ MEANING: ‘reverse₁ V_{2,3}’; modelled on Hoffmann 2021: 81). As mentioned above, however, the phrasing and timing of a prompt crucially affect the answer ChatGPT offers. In another chat, after starting with the same question as in Chat 1 (‘What is Construction Grammar?’), I immediately proceeded to ask a question similar to the one of Chat 5:

TH: *Pretend that you are a Construction Grammar researcher. Now analyze the words ‘untrue’, ‘unbutton’, ‘unreal’, ‘untie’, ‘unfair’, ‘unhappy’ do these instantiate one and the same or different constructions? Give a FORM and MEANING analysis of all the constructions you can find.*

ChatGPT: *As a Construction Grammar researcher, I would analyze the words ‘untrue’, ‘unbutton’, ‘unreal’, ‘untie’, ‘unfair’, and ‘unhappy’ in terms of the form and meaning of the constructions they instantiate.*

Based on my analysis, I would say that all of these words instantiate the same construction, which can be described as follows:

FORM: UN- + Root

MEANING: Negative or reverse of the action or property described by the root

This construction is characterized by the prefix ‘un-’, which negates the meaning of the root that follows it. The form and meaning of this construction are productive, meaning that it can be applied to new words to create new meanings. For example, the construction ‘UN- + Root’ can be used to create words such as ‘unfasten’ or ‘unlock’ that have the same form and meaning as the words in the original set.

In terms of form and meaning analysis, I would describe each of the words as follows:

- *‘Untrue’: The form of this word is ‘UN- + True’, and the meaning is ‘not true’.*

- ‘Unbutton’: The form of this word is ‘UN- + Button’, and the meaning is ‘to undo the action of buttoning’.
- ‘Unreal’: The form of this word is ‘UN- + Real’, and the meaning is ‘not real’.
- ‘Untie’: The form of this word is ‘UN – + Tie’, and the meaning is ‘to undo the action of tying’.
- ‘Unfair’: The form of this word is ‘UN- + Fair’, and the meaning is ‘not fair’.
- ‘Unhappy’: The form of this word is ‘UN- + Happy’, and the meaning is ‘not happy’.

In conclusion, all of these words instantiate the same construction, with a form of ‘UN+ Root’ and a meaning of ‘Negative or reverse of the action or property described by the root’.

Chat 6: ChatGPT’s alternative analysis of *un*-ADJ and *un*-V cxns

Source: <https://osf.io/794c5>

As Chat 6 shows, while the analysis is comparable to the one offered in the chat in Chat 5, it also differs in its granularity: while Chat 5 focuses more on the differences of the two constructions, Chat 6 more resembles an attempt at providing a macro-construction for them. In line with current approaches to the network structure of the construction (cf. Diessel 2019), I would argue that Chat 5 is a cognitively more plausible analysis, since it treats the two constructions as giving rise to two taxonomic schematizations that might then be connected in the mind of speakers by a horizontal constructional link. Again, however, I want to stress the opportunities that ChatGPT offers for teaching Construction Grammar: having students analyse small data sets with ChatGPT will almost always lead to more than one single answer. Instead, students will be presented with slightly different results that can then serve as a prompt for an in-depth discussion of theoretical constructionist issues in class.

- **Suggestion III:** ChatGPT can productively be used for exercises that require pattern-detection, and whose results can then be the starting point for a discussion of the cognitive realism of the model’s analysis.

4 Potential applications for constructionist research

How can we potentially use ChatGPT’s pattern-detection skills for constructionist research? In the future, open access large language models will certainly

be available which researchers will be able train on their specific data sets, so that some of their data annotation and analysis can become automatized. Indeed, there is a growing body of NLP publications that investigate the linguistic structures of large language models (e.g., Manning et al. 2020; Wei et al. 2021; Weissweiler et al. 2022, 2023; see also Michaelov 2021 and Klava and Divjak 2016 on the cognitive plausibility of neural language models⁵). Already, however, even researchers without an NPL background can now draw on ChatGPT’s conversational LLM to run constructional analyses on patterns that exhibit type variation (see Torrent et al. 2024 for further details). Take, for example, *Knock Knock* jokes (Bergen and Binsted 2015) such as (2)–(4) (taken from <https://parade.com/944054/parade/knock-knock-jokes> (accessed 17 May 2025):

(2) A:	Knock, Knock.
B:	Who’s there?
A:	Luke.
B:	Luke who?
A:	Luke through the peep hole and find out.
(3) A:	Knock, Knock.
B:	Who’s there?
A:	Figs.
B:	Figs who?
A:	Figs the doorbell, it’s not working!
(4) A:	Knock, Knock.
B:	Who’s there?
A:	Woo.
B:	Woo who?
A:	Glad you’re excited, too!

Based on the type variation displayed by *Knock Knock* jokes, Hoffmann and Bergs (2023) suggest the following constructional representation (5) for this joke template:

(5)	FORM: PHONOLOGY:	A: /'nɒk 'nɒk/ B: /'huz ðeə/ A: X ₁ B: X ₁ /'hu/ A: Y [contains sth. phonetically similar to X ₁]
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MORPHOSYNTAX:	A: <i>knock_V knock_V</i>
□	B: <i>Who_{WH} is_{AUX} there_{OBL}?</i>
	A: <i>X₁</i>
	B: <i>X₁ Who_{WH}?</i> A: <i>Y</i>
MEANING:	SEMANTICS:
	PRAGMATICS: function=entertain

The constructional template in (5) has a dyadic nature that requires A and B to take specific turns in a question-and-answer format, with A initiating the joke by the sequence *knock knock*. At the same time, the template is relatively flexible (the punch line Y must only contain one word that is only loosely phonetically similar to X₁ and, as (2)-(5) exhibits great variation, which is why the SEMANTICS pole is completely open and only the PRAGMATICS function of entertaining is specified). Now, how can ChatGPT be used in studies that analyse constructional templates such as (5). Clearly, ChatGPT cannot (yet) replace researchers that decide which constructions to investigate. However, as Hoffmann and Bergs (2023) argue, large language models offer an independent empirical way of testing analyses such as (5) (see Torrent et al. (2024) for further support of this line of inquiry). While the template in (5) is purely based on the researchers’ intuitions, ChatGPT can be used to explore whether the large language model arrives at a similar schematic analysis of the pattern. The model can, therefore, be seen as one way of providing independent empirical support for one’s analysis. In Hoffmann and Bergs (2023), for example, when asked to provide a construction grammar analysis of Knock Knock jokes, ChatGPT offers an analysis that is perfectly compatible with the one provided in (5):

- TH:** *Give me a Construction Grammar analysis of Knock Knock jokes*
- ChatGPT:** *Construction Grammar is a framework for analyzing language that emphasizes the role of patterns and conventions in shaping our communication. In the case of ‘Knock Knock’ jokes, one could analyze the structure of the joke as a conversational template or ‘construction’ that follows a set pattern.*
- The first line of the joke (‘Knock, knock.’) serves as an invitation to engage in the conversation and sets up the listener’s expectation that a joke is coming.*
 - The second line (‘Who’s there?’) is a response to the knock and serves as a cue for the punchline to be delivered.*
 - The punchline is typically a word or phrase that is unexpected or plays on a familiar phrase.*

- *The final line of the joke ('[punchline] who?') serves to complete the punchline and provide the punchline by repeating the word or phrase from the previous line in the form of a question.*

For example, in the following knock knock joke:

'Knock, knock.'

'Who's there?'

'Boo.'

'Boo who?'

'Don't cry, it's just a joke!'

The first line 'Knock, knock.' is an invitation,

The second line 'Who's there?' sets the expectation that a punchline is coming. Third line 'Boo' is the punchline,

The final line 'Boo who?' finishes the punchline by repeating the word in the question and providing the punchline 'Don't cry, it's just a joke!'

This pattern of language use is a construction that speakers and listeners have learned and recognize as a 'knock knock' joke, which allows for efficient communication and understanding.

Chat 7: ChatGPT analysis of the *Knock Knock* Construction

Source: <https://osf.io/794c5>

In Chat 7, ChatGPT offers an analysis that is perfectly compatible with the constructional template in (5). As with our discussion of its use in teaching (cf. Section 3), however, the point of this example is not the specific details of the FORM and MEANING aspects of ChatGPT's analysis. Instead, I argue that even after being merely asked to give a Construction Grammar analysis of the joke, it automatically provided a schematic account that is in line with the analysis of *Knock Knock* jokes as abstract genre constructions in (5). Just like a human, ChatGPT, has thus extracted an abstract schematic construction based on the specific *Knock Knock* jokes found in its training data. This shows that large language models can be employed to offer corroborating evidence for the constructional analysis of linguistic patterns. This type of analysis is also available for other, even more schematic textual constructions. Hoffmann and Bergs (2023), asked ChatGPT for a Construction Grammar analysis of nursery rhymes (without providing any examples of the text type or any other additional information):

TH: *Give me a Construction Grammar analysis of nursery rhymes*

ChatGPT: *Construction Grammar is a framework for analyzing language that emphasizes the role of patterns and conventions in shaping our communication. In the case of nursery rhymes, one could analyze the structure of the rhymes as a set of conventions or 'constructions' that are recognizable and predictable.*

- *The title of the nursery rhyme sets the theme or topic of the rhyme.*
- *The verse structure, usually composed of four lines, with an alternating pattern of rhyme, creates a musical and memorable effect, helping young listeners to remember the rhyme.*
- *The repetition of words and phrases, both within and across verses, serves to reinforce the rhyme's main message and make it more memorable for listeners.*
- *The rhyme's simple vocabulary and grammar, make it accessible and easy to understand for young children.*

For example, in the nursery rhyme 'Mary Had a Little Lamb'

The title 'Mary Had a Little Lamb' sets the topic of the rhyme

The verse structure, composed of four lines, with an alternating pattern of rhyme

'Mary had a little lamb, little lamb, little lamb'

The repetition of words and phrases, 'Mary had a little lamb' 'little lamb' 'little lamb'

'Mary went' 'Mary went' 'Mary went' 'the lamb was sure to go'

The rhyme's simple vocabulary and grammar make it accessible and easy to understand for young children.

This pattern of language use is a construction that speakers and listeners have learned and recognize as a 'nursery rhyme', which allows for efficient communication and understanding. It also helps children to learn and remember language.

Chat 8: ChatGPT analysis of nursery rhymes construction

Source: <https://osf.io/794c5>

As Chat 8 shows, this time ChatGPT focuses on the FORM aspects of nursery constructions, but, interestingly, it also mentions that one of the functions of these types of poems is to 'help children to learn and remember language'. In another query, Hoffmann and Bergs (2023), therefore, asked it to give them the common meaning of nursery rhymes:

TH: *What is the common meaning of nursery rhymes?*

ChatGPT: *Nursery rhymes are a form of traditional poetry or folk literature that have been passed down through generations. The meaning of nursery rhymes can vary widely, as they can be used to tell stories, convey moral lessons, or simply entertain. Some nursery rhymes have clear meanings and messages, while others are more open to interpretation. Many nursery rhymes have their origins in folklore, and may contain references to historical events or people. Some have been altered over time, so the original meaning may have been lost. Some nursery rhymes also have darker, more violent origins and were used to teach children about death, punishment, and other serious topics. In general, nursery rhymes are often used as a tool to teach children language, literacy, and social skills, as well as to entertain and delight them.*

Chat 9: ChatGPT analysis of the common meaning of nursery rhymes

Source: <https://osf.io/794c5>

Chat 9 highlights the pragmatic functions associated with nursery rhymes genre constructions ('In general, nursery rhymes are often used as a tool to teach children language, literacy, and social skills, as well as to entertain and delight them.'). Moreover, it also summarizes the major semantic contents expressed by the constructions ('The meaning of nursery rhymes can vary widely, as they can be used to tell stories, convey moral lessons, or simply entertain'). As before, I am not advocating ChatGPT as a means of uncovering the specific constructional FORM and MEANING properties of a construction. Instead, I argue that the example shows that, based on its pattern-detecting abilities, the large language model analyses nursery rhymes in a way that is compatible with a constructional analysis of certain text types as abstract, schematic constructions (as claimed by, Östman 2005; Hoffmann and Bergs 2015, 2018, 2023). Generally speaking, I, would like to suggest that ChatGPT can play the following role in constructionist research (see also Torrent et al. 2024):

- **Suggestion VI.** ChatGPT can be used as additional, corroborating evidence for the constructional analyses of abstract constructions.

5 Conclusion

This chapter is intended as a first prompt for ChatCxG – the discussion of how Construction Grammarians can productively use this current state-of-

the-art dialogic large language model for teaching and research and for the transformative development of postcolonial Africa. There are many additional issues I haven't addressed in this article, such as the use of ChatGPT for writing code to query corpora or statistically analyse data (it is, for example, easy to get it to write R code for a Bayesian mixed effects logistic regression model).

Instead, I offered the four following suggestions for constructionist research and teaching and for the transformative development of postcolonial Africa:

1. **Suggestion I.** Follow the rules of open science. Document all interactions with a large language AI model such as, ChatGPT and make these interactions available on open access repositories.
2. **Suggestion II.** Explore with students the shortcomings of ChatGPT when it comes to producing verbatim factual information and references.
3. **Suggestion III.** ChatGPT can productively be used for exercises that require pattern-detection, and whose results can then be the starting point for a discussion of the cognitive realism of the model's analysis.
4. **Suggestion IV.** ChatGPT can be used as additional, corroborating evidence for the constructional analyses of abstract constructions.
5. **Suggestion V.** ChatGPT should be exploited for the transformative development of postcolonial Africa, but with the understanding that it has its shortcomings.

Others will surely add many further suggestions to the above list. I hope, however, that this paper serves as the prompt that gets our ChatCxG discussion started!

Notes

- 1 <https://www.scotsman.com/lifestyle/tech/what-is-chatgpt-why-have-schools-blocked-it-greatest-cheating-tool-ever-invented-prof-warns-4007003> [last accessed 5 February 2023].
- 2 https://www.reddit.com/r/OpenAI/comments/105jrn4/chatgpt_is_the_greatest_learning_tool_of_all_time/ [last accessed 5 February 2023].
- 3 As an anonymous reviewer pointed out, '[f]irst, the trained model itself is not made public, second, it is not clear what data the model was trained on exactly (an aspect that the authors address only briefly on page 6: "there is no public information available on this"), and third, even if both the model parameters and the data would be public it would be still a black box given that it is hard to understand an architecture involving 175 billion parameters spread over about 100 layers.'

- 4 <https://twitter.com/bretdevereaux/status/1623733408324288513?s=46&t=7oMC9mpp9A1OkjhkckbLjw> [last accessed 10 February 2023].
- 5 I am grateful to an anonymous reviewer who pointed me towards this line of work.

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