



News - December 5, 2023 - 4 min

# A Reformulated Antidote—Now With Generative AI!



Leveraging the latest advances in artificial intelligence (AI), Antidote Web's corrector can now generate suggestions for reformulating one or more sentences in your text. We caught up with two members of Druide's management team to find out more about how this new feature came to be and where it's going.

**Maud Pironneau** leads the teams in charge of training data for deep learning and quality assessment of AI-generated results.

**Jasmin Lapalme** leads development in deep learning, including generative AI, with several infernal computer specialist teams.

## Druide has been specializing in AI since the company's founding in 1993. What did the technology look like 30 years ago, and why is it making headlines today?

**Jasmin Lapalme (JL):** AI has been around way longer than 30 years, but the term wasn't used much in the '90s. It has become something of a buzzword recently with the promises of generative AI, which can produce new text and images.

Nowadays there are three branches to AI, and Antidote makes use of them all. Let me explain:

**1. Symbolic AI**  
Information processing in this branch is based on rules and conditions, kind of like a decision tree. Antidote uses it for things like determining subject-verb agreement: If a noun meets all the criteria to be classified as a sentence's subject and as plural, then the word that meets all the criteria to be classified as the verb must also be plural.

**2. Probabilistic AI**  
The rise of Big Data led to the development of this branch, in which data sets are compiled and analyzed to identify trends.

Antidote's big data consists of an eight-billion-word corpus (390 million sentences) that we compiled from thousands of reliable, individual sources like newspaper websites and digital libraries. Among other applications, we use this technology in Antidote's [dictionary of combinations](#) to identify words that are strongly associated and appear together frequently and spontaneously in natural language.

**3. Neural AI**  
Research in this branch has made machine learning possible with computational engines that mimic the way networks of neurons process information in the brain—it's where deep learning and generative artificial intelligence come into play. The most recent and best-known example of generative AI is without a doubt ChatGPT, which generates text responses to users' questions or instructions.

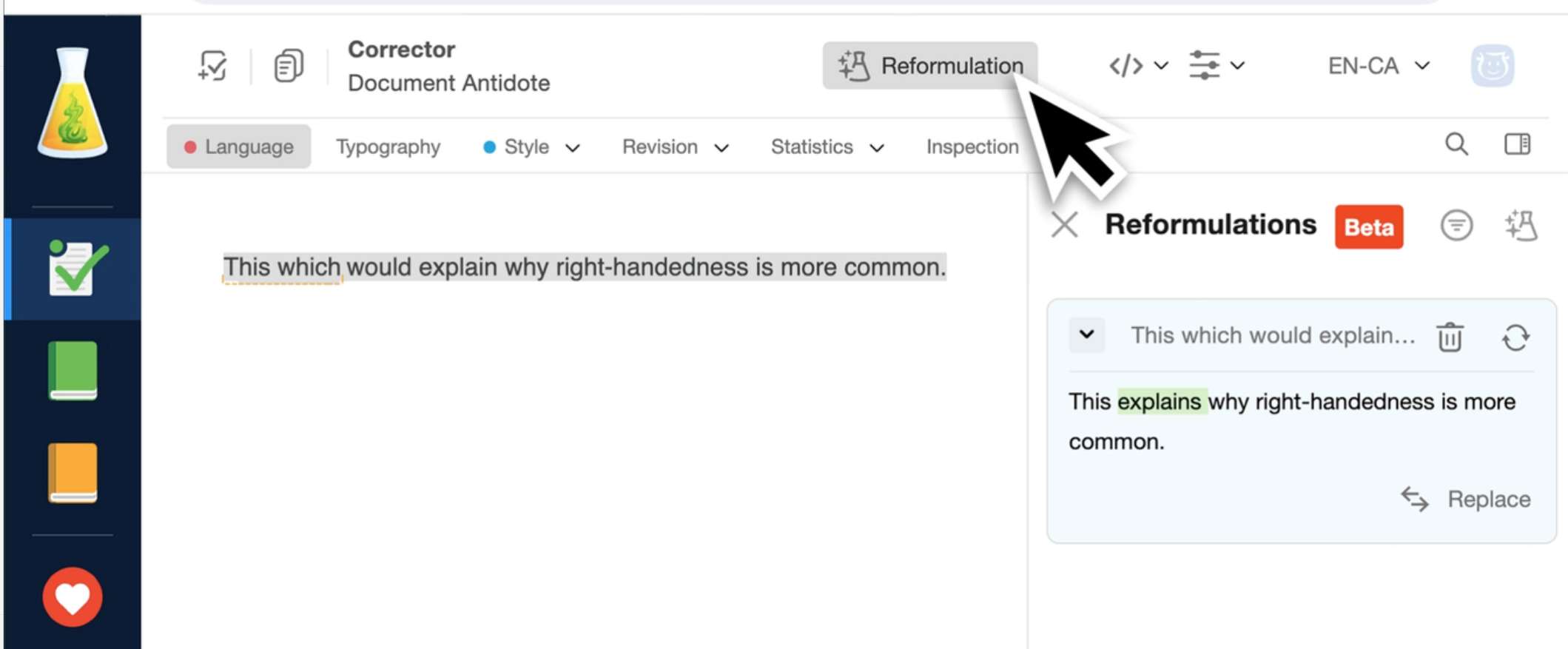
Antidote began implementing deep learning with the release of its eleventh edition in 2021. The technology makes it possible to add words and missing punctuation to a text. And now Antidote has harnessed generative AI to offer its new *Reformulation* feature.

## What Is *Reformulation*?

**Maud Pironneau (MP):** *Reformulation* gives users access to a new type of writing assistance. Antidote now has the power to perfect texts beyond error detection by suggesting potential rewordings while remaining faithful to your ideas and writing style.

**JL:** It's a huge plus! Generative AI helps us overcome the limitations imposed by syntax—an element of grammar that has always been very difficult for software to analyze. We've reached a level of correction today that was unthinkable just a few years ago.

**MP:** To give you a more concrete example of what's possible with Antidote: You can now use the *Reformulation* feature to resolve discontinuities flagged by the application. Discontinuities are bits of text the corrector marks with dotted orange underlining to indicate where it has trouble analyzing the text.



And if you're writing in a non-native language, be it English or French, you'll find *Reformulation* useful for giving your text a more natural feel, so it reads more fluently.

## How does sentence reformulation in Antidote differ from other generative AI solutions?

**MP:** Antidote and programs like ChatGPT address different but complementary needs. AI chatbots invent or transform text, but Antidote's sentence reformulation doesn't do the writing for you—it always leaves you in control. It's specifically designed to offer suggestions that reflect your ideas and style. This new feature won't add extra embellishments or make unnecessary corrections.

**JL:** You get a level of quality that you won't find with text generators, because they don't have the power of Antidote behind their AI engines. They're based on mass content aggregation, rather than a compilation of verified sources.

**MP:** For example, if “added bonus” or “free gift” figure prominently in a neural engine's training corpus, it'll reproduce these expressions without any regard for the fact that they're redundant. Antidote will detect the issue and underline the offending text thanks to the symbolic and probabilistic engines that overlie our neuronal AI.

Sentence Reformulation Examples

Resolving a Discontinuity

This which would explain why right-handedness is more common.  
→ This explains why right-handedness is more common.

Correcting an Inaccuracy

Highlight the skills you have to lend to the publicity of the project.  
→ Highlight the skills that you can bring to the promotion of the project.

Improving the Style

House prices increase when more time is spent at home.  
→ House prices increase when people spend more time at home.

## So Antidote has its very own generative AI engine?

**MP:** Absolutely! Druide's linguists and experts in deep learning have developed a technology unique to Antidote. We have around 30 people in the AI teams at our Montréal offices, and we work with an open-source language model that we've refined.

**JL:** And we decided to build everything on our own servers. We have total control over the technology. Since we don't depend on a third party, we can offer our customers a more stable and reliable service. But above all, we can control its quality.

**MP:** Text generated by *Reformulation* is processed by Antidote, which keeps tabs on the quality. User-configured settings, like the regional language variety, will be automatically applied to the suggested reformulations.

## How does Antidote go about making suggestions for reformulation?

**MP:** Antidote puts forward one reformulation suggestion at a time and tops out at three per iteration of the command. But behind the scenes, it generates several, and an additional algorithm selects the best three. Why three? Our tests have shown that neither the quality nor the diversity of the suggestions improve beyond that number.

**JL:** When you think about it, the ease of use is perhaps the most striking aspect from a technical point of view: Massive servers, huge language models, complex algorithms and unprecedented computing power deliver just the right sentence reformulation with the click of a button.

## Why make *Reformulation* available in beta only through Antidote Web?

**JL:** Because the technology is ready, and we couldn't wait to share it with our customers! Since Antidote Web is a cloud-hosted service, we were able to implement the feature quickly. It's virtually impossible to run a generative AI engine on the computers most people have at home, but we can make it easily accessible in the cloud. What's more, if people want to take part in beta testing, they won't need to install or update anything—the *Reformulation* button is right there!

**MP:** The possibilities for reformulation are so vast... We've done lots and lots of testing, and now we're inviting everyone to try it out with us! The feedback we get will help us improve the feature, which will be included in the next edition of Antidote.

## Become a Beta Tester

All you need is access to Antidote Web—included as part of the [Antidote+](#) package for individuals and available as a [subscription for organizations](#).

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