

Re-imagining Translation Productivity

Unleashing the power of AI and LLMs

Tracey Byrne
RWS Linguistic AI



Sentiments around AI

This is Amazing

Now we can really do more



This is Scary

We'll lose our jobs



**This is a
Distraction**

Our goals are not
about this



This is Boring

I'll do something else



AGENDA



Current Landscape

What's Possible Now

The Future...



AI

is revolutionizing the way we create, collect, manage, translate, analyse and make sense of content, in any language, globally



A Technical Take

DETERMINISTIC MODEL

built by hand and doesn't scale



Playing your favorite song

Setting the timer

Sorry.. I don't know how to do that..



STATISTICAL MODEL

can be built by machine at huge scale



Sure... here is your answer

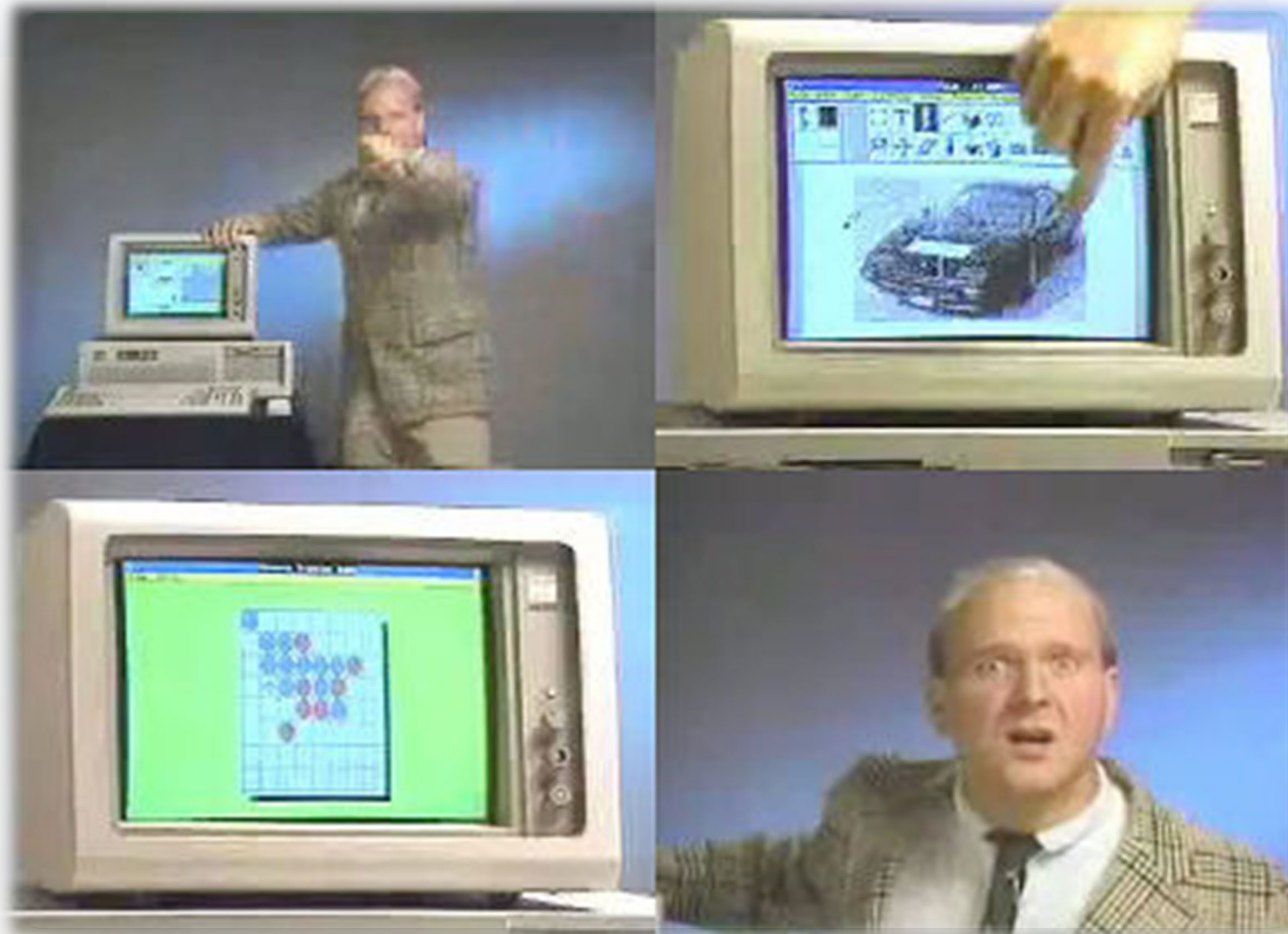
And another answer

And another one

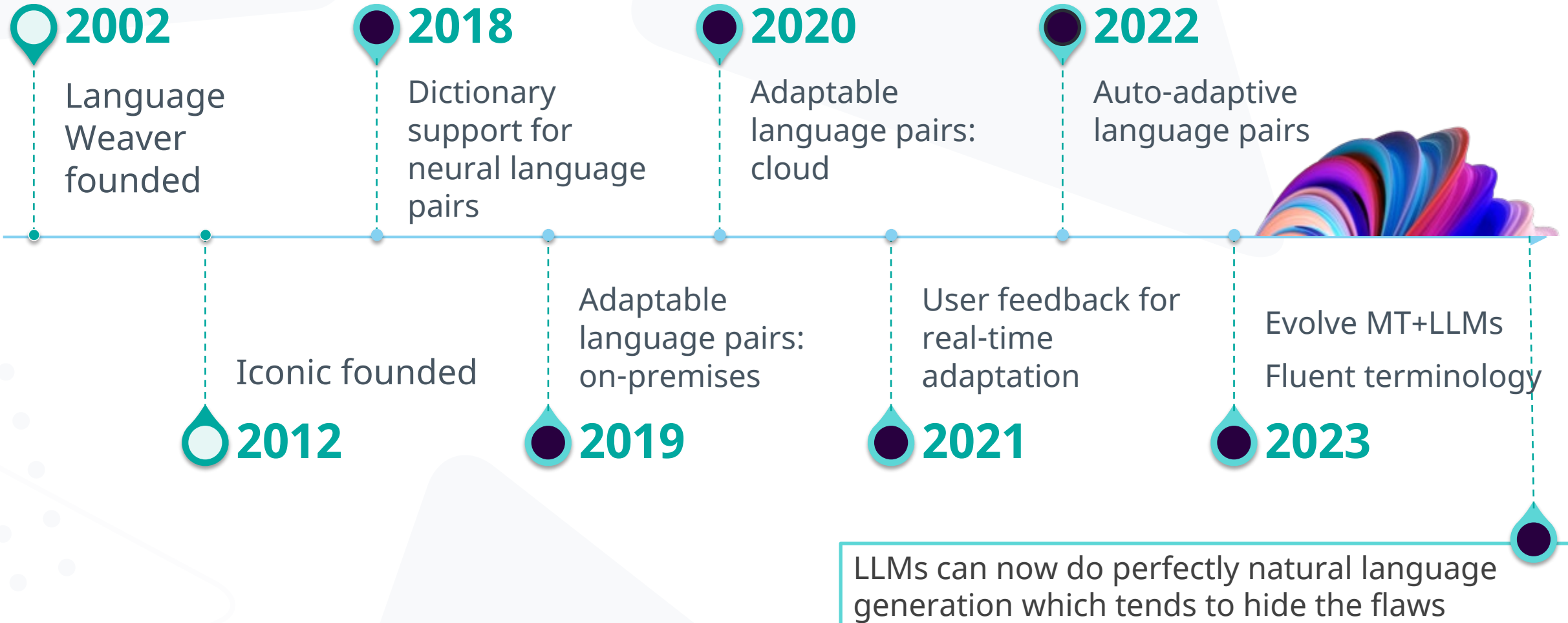
For anything you want



What to Ask?



We know "AI"... via Machine Translation



Generative AI in the Translation Value Chain

CONTENT CREATION

authoring help, creating (more) content, content variation (by target audience), easy multimedia

PREPARATION

content classification, file format conversion, term extraction, entity identification/PIIs, improper language detection

CONTENT QUALITY

tone inconsistency, readability

TRANSLATION

automatic translation, transcreation (poems, literature, ...), combining TM, terms and MT in one, translation variations

Linguistic Services TRANSLATION QUALITY

automatic post-editing, quality checks, quality assessment and classification

What's Possible Now

AI Translator
Professional



Smart Quality
Review



Generative Translation
(AI combining all Resources)



Evolve: Automated
Post-Editing



Trados Copilot Smart Help



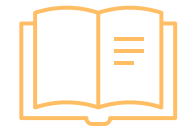
MT Quality Estimation



Adaptive Neural
MT



Fluent Terminology



Multilingual Content
Summarization



Semantic AI



And so much more....



SMART HELP:

Your Copilot to Search and Learn about Trados



SMART HELP:

Your Copilot to Search and Learn about Trados



Trados Copilot

The following conversation is with an artificial intelligence (AI) model and responses may not always be completely accurate. Use your own judgement when interpreting and applying the information provided.

DP: How do I make a project secure?

To make a project secure, you can create a restricted project by selecting a project template with the download file restriction enabled. This will prevent all users except administrators, lead project managers, project managers, customer requesters, and engineers from downloading the project files locally. Restricted projects have a lock in front of them.

Learn more:

- [Creating restricted projects in Trados Customer Portal](#)
- [Restricted and Unrestricted projects](#)
- [Project creation and tracking](#)
- [Creating restricted projects from Trados Enterprise](#)

Show citations

Trados Copilot

Vous allez converser avec un modèle d'intelligence artificielle (IA) dont les réponses peuvent parfois manquer de précision. Faites preuve de discernement lors de l'interprétation et de l'utilisation des informations fournies.

DP: Puis-je créer un modèle de coût comportant un coût linguistique minimum?

Oui, vous pouvez créer un modèle de coût avec un coût linguistique minimum en utilisant l'option "Coût minimum" dans la section "Coûts conditionnels" du modèle de coût. Vous pouvez spécifier un coût minimum pour chaque langue et chaque projet en fonction du nombre de mots ou du coût total.

En savoir plus :

- [Creating pricing models for vendor order templates](#)
- [Creating pricing models for Engineering tasks](#)

Afficher les citations

Trados Copilot

次の会話は人工知能 (AI) モデルによるものであり、回答は厳密に正確であるとは限りません。提供された情報についてはご自身の判断で解釈および適用してください。

DP: プロジェクトを作成するにはどうすればよいですか?

プロジェクトを作成するには、Trados Enterprise のプロジェクトビューに移動し、新しいプロジェクトを選択します。必要なプロジェクトの詳細を入力し、場所を選択します。プロジェクトテンプレートを選択し、プロジェクトのソース言語とターゲット言語を選択します。利用可能なカスタムフィールドを表示または編集します。ファイルをアップロードし、これらを参照ファイルとして扱うか、翻訳可能なファイルとして扱うかを管理します。翻訳エンジンを追加するか、ゼロから作成します。価格モデルを追加するか、ゼロから作成します。ワークフローを追加するか、ゼロから

詳細な説明:

- [Creating project templates](#)
- [Creating projects from Trados Enterprise](#)
- [Project creation](#)

引用元の表示

SMART PROJECTS: Settings and Insights from Similar Projects

The screenshot displays the 'New Project' window in Trados Copilot, divided into two main sections: 'New Project' settings and 'Trados Copilot' insights.

New Project Settings:

- Name:** Sample Project Package
- Location:** Select a location
- Description:** (Empty text area)
- Project Template:** Select a template. A suggestion is shown: 'Based on similar projects we suggest the following template: PhotoPrinter Template EN-DE 2023'. A red arrow points to this suggestion.
- Source Language:** (Empty text field)
- Target Languages:** (Empty text field)
- Schedule template:** Select project managers
- Due:** 14 Dec 2020
- Project Managers:** Select project managers. A suggestion is shown: 'For similar projects, you assigned the following person: John Smith'. A red arrow points to this suggestion.

Trados Copilot Insights:

- We found 3 similar projects:**

NAME	MATCH
Project Marketing 2023_PhotoPrinter	High
Canon Printer_Model IP 2023_Printer	High
Photo Printer_client 2023_march	High

- Project templates used in similar projects:**

NAME	PROJECT	Use
Template Marketing Printers	Project Marketing ...	Use
Canon Printer 2023_SimpleTranslation	Client Printer 2023...	Use

- On-time delivery for similar projects:**

EARLY	ON-TIME	LATE
70%	20%	10%

- Project managers for similar projects:**

NAME	Use
John Smith	Use
PG ProjectManagers Group	Use

At the bottom of the 'New Project' window, there are buttons for 'Back', 'Next', 'Create & Start', 'Create', and 'Cancel'. A red arrow points from the 'Workflow' step in the top navigation bar to the 'Trados Copilot' insights panel.

CONTENT ANALYZER: Automated Domain Analysis

Content Analysis

Detected Domains

- Travel
- Arts
- Life Science: Other

Entities

- New York Hilton Midtown
- NYC
- Broadway
- Manhattan
- Hotel
- Hilton
- P Higgins
- Hilton
- 3 hours

Keywords

- hilton
- hotel
- room
- staff
- t

Translation
Assign task 1/2

Configure task: Translation

German (Germany) Ana Mihai

French (France)

Luis Lopes

Users	Groups	Fit
Luis Lopes	Root	42% Fit ✓
Ana Mihai	Root	14% Fit
Richard Hendricks	Root	

Automated QA Check

Linguistic Review

Only show users with matching service type

Smart Assignment

Dynamic Assignment

Workflow template *

Translation & Customer Review [TQA]

This workflow template includes steps for a Vendor to review and adjust the initial quote & for the Customer to approve this quote.

Don't show the description again

Dynamic Assignment *

Basic

Preprocessing

- File Type Detection

Engineering

AI PROFESSIONAL:

Interactive Assistance from Generative AI

The screenshot displays the Microsoft Translator application interface. The main window shows a translation of a sentence: "The cardiac surgeon performed an open heart surgery to fix a damaged blood vessel." The translation is provided in Italian: "Il cardiocirurgo ha eseguito un intervento a cuore aperto per riparare un vaso sanguigno danneggiato." The interface includes a ribbon with various tools like Project Settings, Copy, Paste, Batch Tasks, and Concordance Search. A sidebar on the left contains navigation icons. The bottom right corner shows the AI Professional Companion panel, which provides translation suggestions and a selected model (gpt-4).

Translation Results - Language Weaver - Generic AI Professional

Project Settings

The **cardiac surgeon** performed an open heart surgery to fix a damaged blood vessel.

1	The cardiac surgeon performed an open heart surgery to fix a damaged blood vessel.	NMT	Il cardiocirurgo ha eseguito un intervento a cuore aperto per riparare un vaso sanguigno danneggiato.
2	The cardiac surgeon performed an open heart surgery to fix a damaged blood vessel.	NMT	Il cardiologo ha eseguito un'operazione coronarica per riparare un'arteria danneggiata.

Language Weaver - Generic

Translation Results - Language... Fragment Matches - Language... Concordance Search Comments(0) TQAs(0) Messages(0)

DevTesting.doc.sdxiff [Translation]

1	The cardiac surgeon performed an open heart surgery to fix a damaged blood vessel.	NMT	Il cardiocirurgo ha eseguito un intervento a cuore aperto per riparare un vaso sanguigno danneggiato.	P
2	The doctor provided a prescription for my sleeping disorder , advising me to take the medication before bedtime.			P
3	The engineer designed a sturdy suspension bridge over the wide river.			P
4	The CEO announced a new business strategy in the corporate meeting .			P
5	The veterinarian prescribed medication for the dog's skin disease.			P
6	The attorney proposed a negotiation to resolve the contract dispute .			P

DevTesting.doc DevTesting.doc

Term Recognition

- cardiac surgeon Dev Testing
- cardiologo
- open heart surgery Dev Testing
- operazione coronarica
- blood vessel Dev Testing
- arteria

AI Professional Companion

Prompt: Default translation

Translation Suggestions: 1

Il **cardiocirurgo cardiologo** ha eseguito un **intervento a cuore aperto** un'operazione coronarica per riparare un vaso sanguigno danneggiato un'arteria danneggiata.

Selected Model: gpt-4 Partial Tag Text

SMART REVIEW: AI-powered Evaluation of Translations

The screenshot displays the Trados Studio interface for a project named 'Trados Studio - Sample Project'. The main window shows a translation of 'Getting Started' from English to German. The source text is on the left, and the target text is on the right. The target text is evaluated with a score of 100%.

Source Text (English-German):

- Getting Started
- Finding a location for your photo printer**
Place the photo printer on a flat, clean and dust-free surface, **in a dry location**, and *out of direct sunlight*.
- Allow at least 12 cm clearance from the back of the photo printer for the paper to travel.
- When connecting power or USB cables, keep the cables clear of the paper path to the front and rear of the photo printer.
- For proper ventilation, **make sure** the top and back of the photo printer are not blocked.
- Allow enough space on all sides of the photo printer to let you connect and disconnect cables, change the color cartridge, and add paper.
- Connecting and turning on the power**
Shape Note:
Use only the AC power adapter included with your photo printer.
Other adapters can damage your camera, photo printer, or computer.
To connect and turn on the power, follow these steps:
Step
Notes
Connect the AC power cord to the AC power adapter, then to the back of the photo printer.
The AC power cable included with your photo printer may not require assembly, and may be different from the one shown.
Plug the AC power cable into a power outlet.
Press the On / Off button to turn the power on.
The photo printer initializes and the On/Off button glows steady green.

Target Text (German):

Erste Schritte

Geeigneten Aufstellungsort für Ihren Fotodrucker finden

Plazieren Sie den Fotodrucker auf einer flachen, sauberen und staubfreien Oberfläche, und stellen Sie ihn an einem trockenen Ort auf, der keinem direkten Sonnenlicht ausgesetzt ist.

Lassen Sie zur Rückseite des Fotodruckers einen Abstand von mindestens 12 cm, damit das Papier transportiert werden kann.

Achten Sie beim Anschließen von Strom- oder USB-Kabeln darauf, dass die Kabel nicht im Papierweg zur Vorder- und Rückseite des Fotodruckers liegen. Stellen Sie für eine ordnungsgemäße Belüftung sicher, dass die Ober- und Rückseite des Fotodruckers nicht blockiert sind.

Lassen Sie auf allen Seiten des Fotodruckers genügend Platz, damit Sie Kabel anschließen und trennen, die Farbpatrone wechseln und Papier nachlegen können.

Anschließen und Einschalten der Stromversorgung

Verwenden Sie ausschließlich das mit Ihrem Fotodrucker gelieferte Netzteil.

Um den Strom anzuschließen und einzuschalten, gehen Sie wie folgt vor:

Netzkabel
Drücken Sie die Ein- /Aus-Taste, um das Gerät einzuschalten.

Evaluation Summary:

- Score: 100%
- Message: "The translation 'Erste Schritte' perfectly preserves the meaning of 'Getting Started' in German. There are no issues with the translation."
- Buttons: Evaluate again, Evaluation statistics

Footer: All segments: INS 29.22% / 60.30% / 6.5.48% | Chars: 14 / 0/1001

LANGUAGE WEAVER: Automatic Post-editing

Exit Feedback Editor Download WarrenWeaver 1.docx - English to French, GenericQE Auto Post-Edit

Search segments... Segment Status: All Quality Estimation: All

1	WARREN WEAVER AND THE LAUNCHING OF MACHINE TRANSLATION	WARREN WEAVER ET LE LANCEMENT DE LA TRADUCTION AUTOMATIQUE
2	BRIEF BIOGRAPHICAL NOTE	BRÈVE NOTICE BIOGRAPHIQUE
3	JOHN HUTCHINS	JOHN HUTCHINS
4	The memorandum written by Warren Weaver in 1949 is perhaps the single most influential publication in the earliest days of machine translation.	Le mémorandum rédigé par Warren Weaver en 1949 est peut-être la publication la plus influente dans les premiers jours de la traduction automatique.
5	Written before most people had any idea of what computers might be capable of, it was the direct stimulus for the beginnings of research in the United States.	Écrit avant que la plupart des gens aient une idée de ce que les ordinateurs pourraient faire, c'était le stimulus direct pour les débuts de la recherche aux États-Unis.
6	The background	Le contexte
7	Warren Weaver was born on the 17th July 1894 in the small Wisconsin town of Reedsburg, into a family descended from German 18th century immigrants.	Warren Weaver est né le 17 juillet 1894 dans la petite ville de Reedsburg dans le Wisconsin, dans une famille descendante d'immigrants allemands du 18e siècle.
8	Fascinated by all things mechanical and electric, in 1912 he entered the University of Wisconsin to study civil engineering.	Fasciné par toutes les choses mécaniques et électriques, en 1912, il est entré à l'Université du Wisconsin pour étudier le génie civil.
9	In late 1931 he was invited to apply for the directorship of the Natural Sciences Division of the Rockefeller Foundation, the post he was to fill with great distinction for the next 27 years.	À la fin de 1931, il a été invité à postuler à la direction de la Division des sciences naturelles de la Fondation Rockefeller, poste qu'il devait occuper avec une grande distinction pour les 27 prochaines années.
10	Among his first actions was the inauguration of a programme to support quantitative experimental biology and molecular biology, not just in the United States but in Europe and elsewhere, with crucial and far-reaching consequences (Weaver 1970).	Parmi ses premières actions, il a lancé un programme de soutien à la biologie expérimentale quantitative et à la biologie moléculaire, non seulement aux États-Unis mais aussi en Europe et ailleurs, avec des conséquences cruciales et profondes (Weaver, 1970).
11	He collaborated with Richard Courant in plans for strengthening advanced mathematics research in the United States, and the establishment of the Courant Institute of New York University.	Il a collaboré avec Richard Courant à des plans de renforcement de la recherche en mathématiques avancées aux États-Unis et à la création du Courant Institute de l'Université de New York.
12	The home of the Courant Institute at New York University is Warren Weaver Hall.	Le stade du Courant Institute de l'Université de New York est Warren Weaver Hall.
13	During the War, at the invitation of Vannevar Bush - the pioneer of the mechanical and electronic analogue calculator - Weaver joined the Office of Scientific Research and Development, directing the work of several hundred mathematicians on operations research.	Pendant la guerre, à l'invitation de Vannevar Bush, pionnier de la calculatrice analogique mécanique et électronique, Weaver a rejoint le Bureau de la recherche scientifique et du développement, dirigeant les travaux de plusieurs centaines de mathématiciens sur la recherche opérationnelle.
14	In this position, he had close contacts with many of the American computing pioneers, such as Howard	À ce poste, il a eu des contacts étroits avec de nombreux pionniers américains de l'informatique, tels que

Translation Quality
Good
Adequate
Poor

Segments: 30 Go to segment: 1 1 30 Changes saved

LANGUAGE WEAVER: Input and Output Improvements

Generic Model – input pre-processed by LLM / output post-processed to be more formal

English ▾

helo how are you?
It's acutally teh time to write something that sounds wierd
We'll remein togehter untill teh end of times

French ▾ Generic GenericQE ⓘ ⚙️

Bonjour, comment vous portez-vous aujourd'hui ?
Il est temps à présent de rédiger quelque chose qui peut paraître singulier.
Nous demeurerons ensemble jusqu'à la fin des temps.

Source pre-processed by LLM to improve and fix the input before translation

English ▾

helo how are you?
It's acutally teh time to write something that sounds wierd
We'll remein togehter untill teh end of times

French ▾ Generic GenericQE ⓘ ⚙️

Bonjour, comment allez-vous ?
Il est en fait temps d'écrire quelque chose qui semble étrange.
Nous resterons ensemble jusqu'à la fin des temps.

LANGUAGE WEAVER:

Adapt the use of Terminology in MT

German



English



Generic 8.6.2



Choose Label



Der ist zwar nur halb so groß, wie die Leipziger Anlage, aber für die Heimfans besser zu erreichen.

Sie verkauft Muscheln am Meeresstrand.

Er hat das Auto abgestellt und ist ausgestiegen.

Although it is only half the size of the Leipzig facility, it is easier for home team fans to reach it.

She sells seashells on the sea shore.

He stopped the car and got off.

SOURCE (GERMAN)

TARGET (ENGLISH)

abstellen

stop

Meeresstrand

Sea Shore

Muschel

Seashell

Heimfan

Home Team Fan

besser

Easy

- Fluent
- Proper capitalization
- Inflections
- Grammar correctness

What Else can we use LLMs For?

AI LQA

Evaluating the translation quality

SOURCE OPTIMIZATION

Improving the source text in terms of language and style

TERM EXTRACTION

Extracting key term candidates from a source text

VOICE CONVERSION

Converting formal language into informal

BEST TRANSLATION

Identifying the best translation for a single source segment out of multiple available translations in the translation memory

VARIANCE GENERATION

Providing multiple translation variants for a given source

SMART TERM CHECK

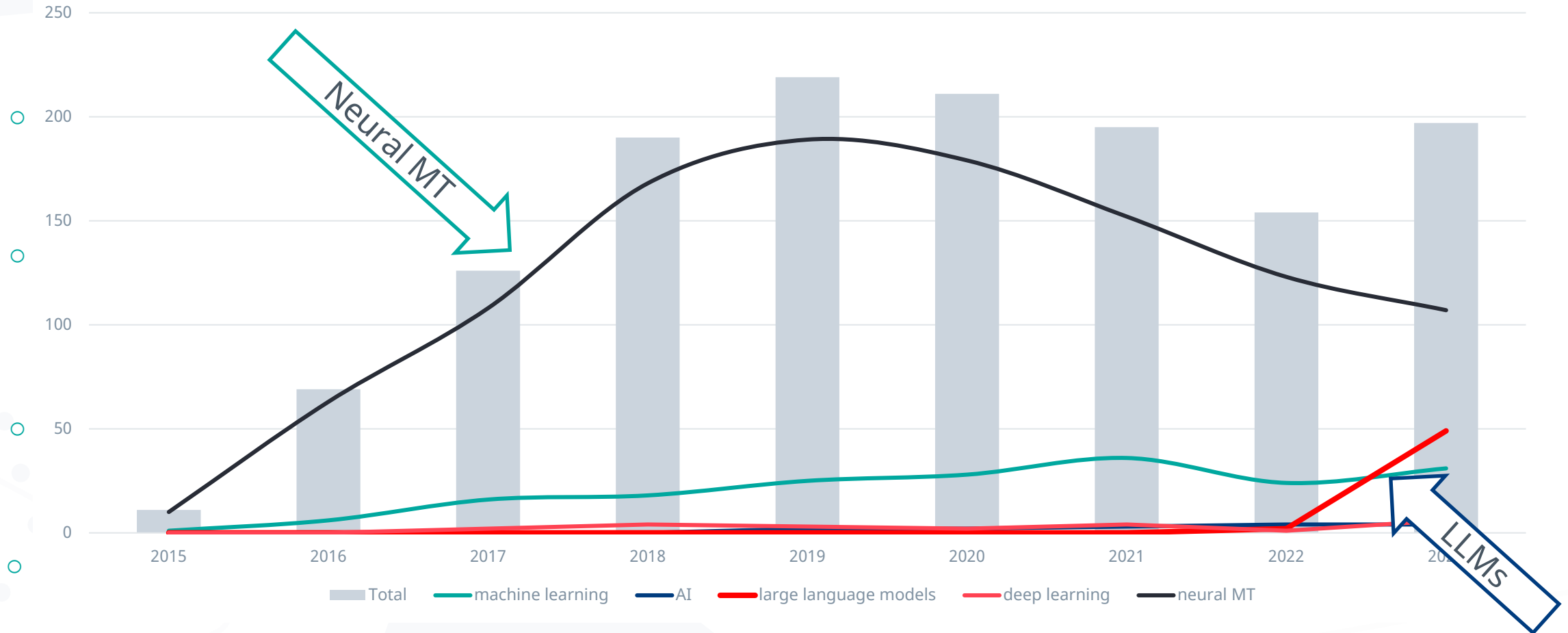
Detecting terminology issues

TERM CHANGE IMPLEMENTATION

Replacing an outdated term by a new one

Research, Past and Present

Number of research articles for "AI" in translation – stats from ArXiv as of January 2024





Fear?

Human replaced by AI

Human - AI
Collaboration



GENUINE INTELLIGENCE

The future of human-machine collaboration

What does the Future Hold?



Orchestration



System 1 vs.
System 2 Thinking



Multimodal

Orchestration

> Entering new AgentExecutor chain...

I need to find out the year of birth and the first company he founded.

Action: Search

Action Input: Year of birth and first company of Elon Musk

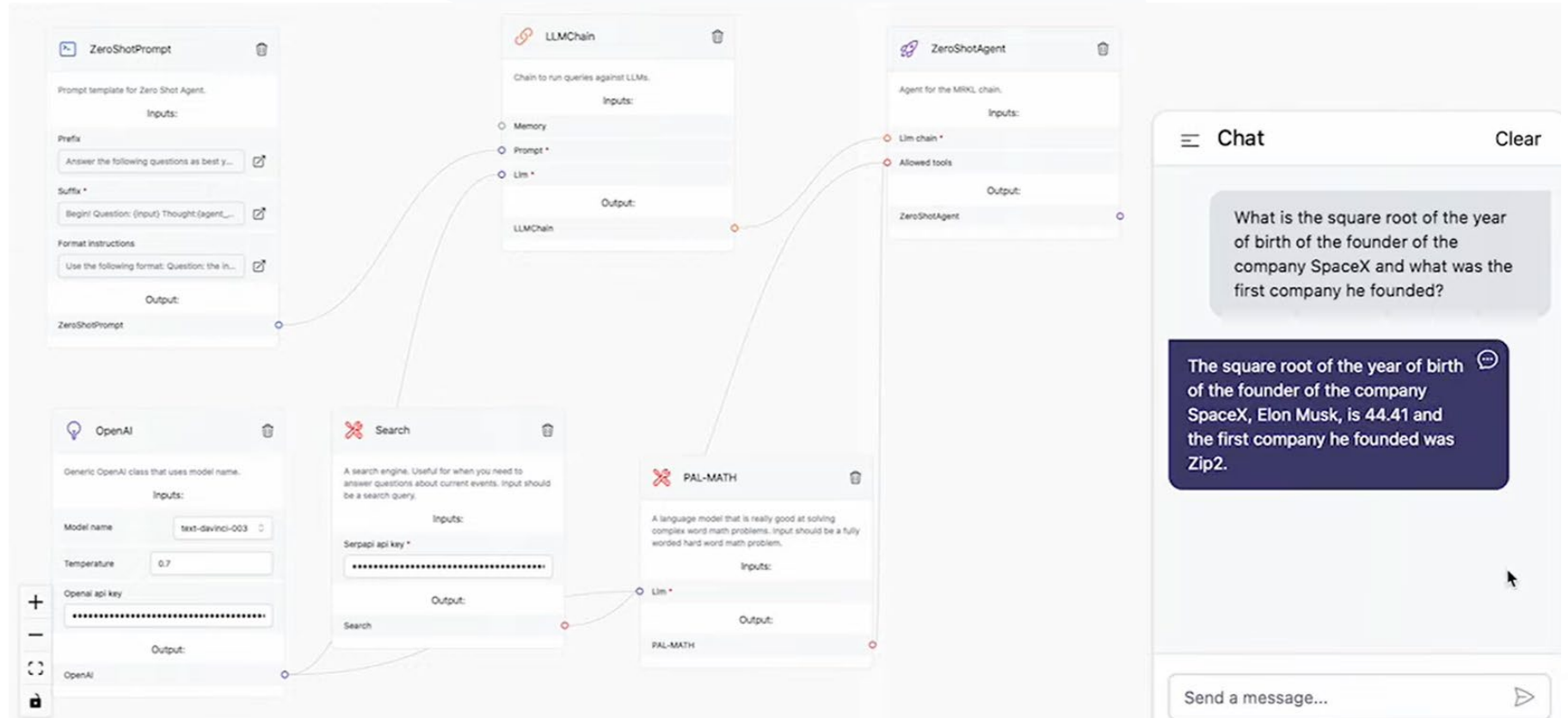
Observation: Elon Musk ; Born: June 28, 1971 (age 51) Pretoria South Africa ; Founder: PayPal SpaceX Zip2 ; Early life. Musk was born to a South African father ...

Thought: I need to find out the square root of the year of birth

Action: PAL-MATH

Action Input: What is the square root of 1971

Observation: name 'solution' is not



Source: <https://www.youtube.com/watch?v=zjxDHaWt-6o>

Analytical "System 2" Thinking

"What is the impact of climate change on global temperatures?"

SYSTEM 1

The Language Model, using its vast database of information, **quickly** generates a response based on patterns and associations it has learned...

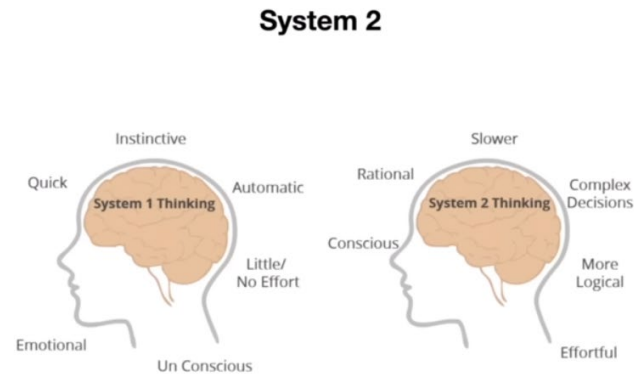
"Climate change leads to rising global temperatures, which can result in more extreme weather events and disruptions to ecosystems."

System 1: quick, but **not** simple

SYSTEM 2

Better answer by considering the complexities of climate science, examining various contributing factors, and evaluating empirical evidence

This might include discussing greenhouse gas emissions, feedback loops, historical temperature records, and the potential long-term consequences of climate change

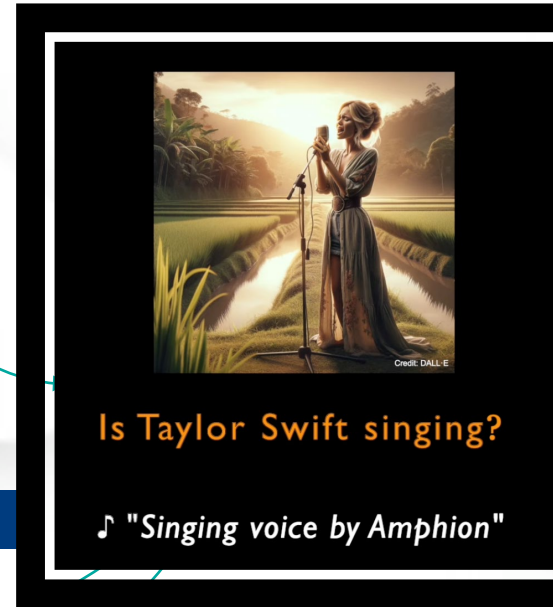
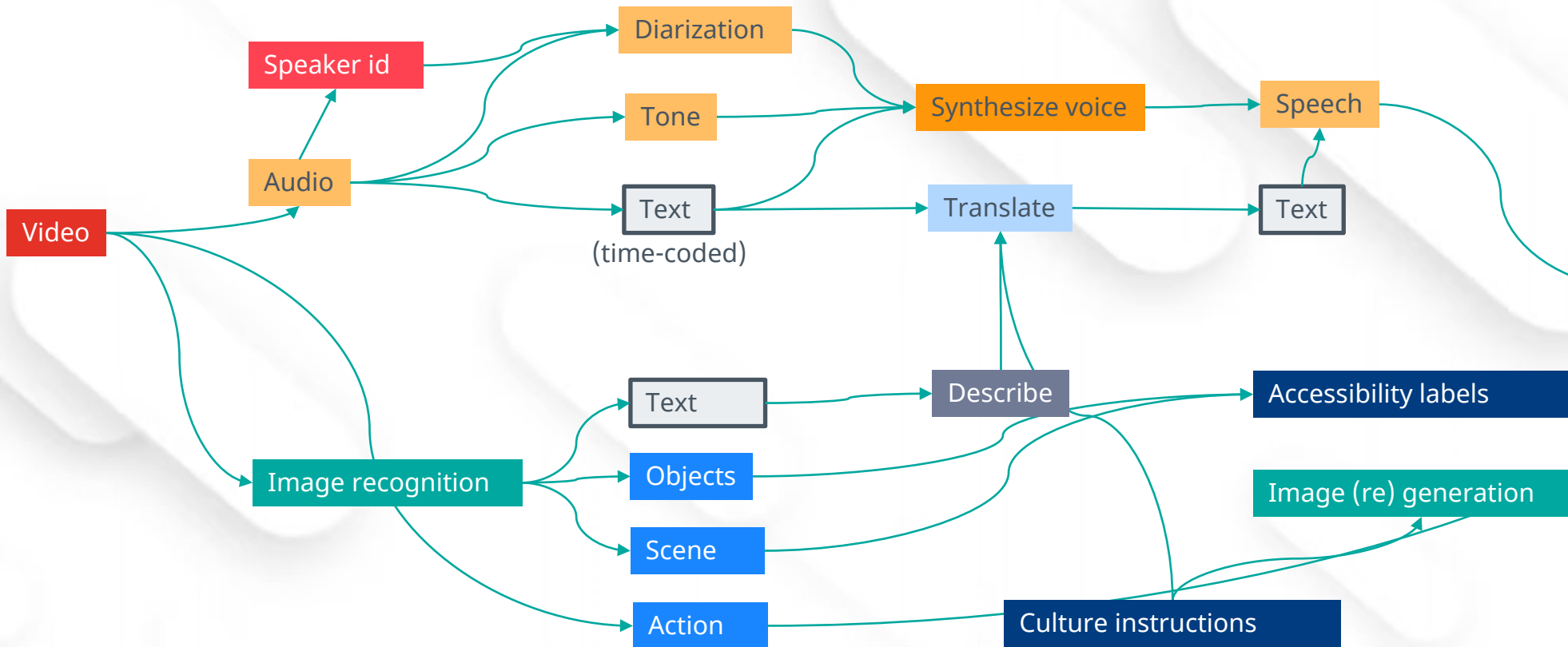


$2 + 2 =$

$17 \times 24 =$

THINKING,
FAST AND SLOW
DANIEL
KAHNEMAN

Multimodal



<https://www.youtube.com/watch?v=1aw0HhcgqvQ&t=32s>

Where Next?

1000+ ideas

Business Applications embedding Generative AI



- Human experience makes language truly resonate
- In all transformation leaps, we continue to see human specialists persist
- Immense potential of generative AI in the translation space
- GenAI enables a wider spectrum of professionals to utilize generative AI effectively
- Together, we can bridge the gap between languages, cultures, and people, creating a more interconnected world



Questions?

LEARN MORE:

<https://www.rws.com/artificial-intelligence/>