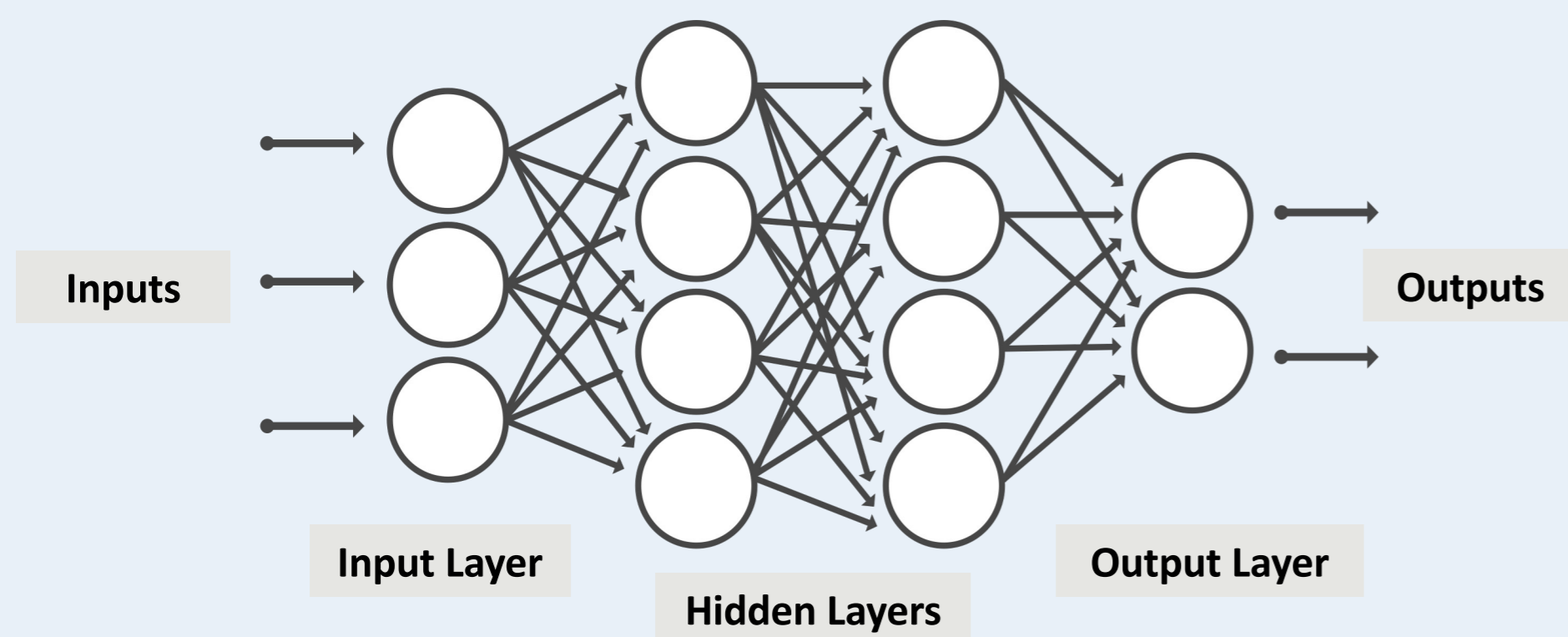


Artificial Intelligence in Teaching and Linguistic Research

What is AI?

Artificial Intelligence enables applied linguists to explore authentic language data at scale, uncovering patterns of use, variation, and meaning while fostering digital and methodological literacy.

- » **Artificial Intelligence (AI):** Computer systems that perform human-like tasks by recognizing patterns in data
 - 💡 They do not think, but identify statistical regularities
- » **Large Language Models (LLMs):** AI systems trained on massive text data to analyze or generate language
 - » Encoders (e.g. *BERT*, *RoBERTa*) analyze text
 - » Decoders (e.g. *GPT*) generate text → a.k.a. **generative AI**



AI as Generator

- » **For coding:** generating scripts for data processing or visualization
- » **For feedback:** offering suggestions and feedback based on defined assessment criteria
- » **For scaffolding:** simplifying, shortening, or restructuring texts to support comprehension and production

AI as Assistant

CORDIAL Project (2025–2028)

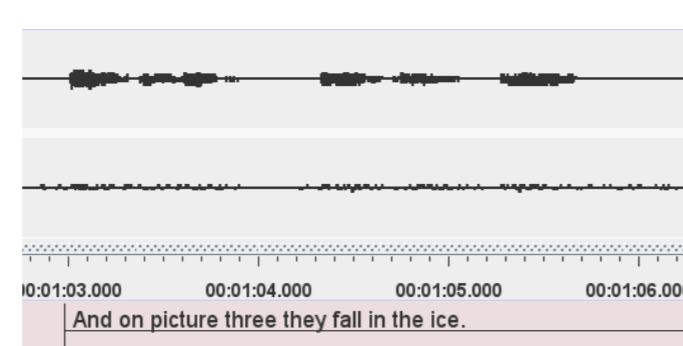
Funded by *vielfältig.nachhaltig.digital (VND)*.

- » Development of *CorpusMentor*, an AI assistant integrated into **BonnCorpora**
- » Enables students to ask corpus questions in natural language
- » Generates corpus queries, frequency counts, and visualizations
- » Promotes **critical data literacy** and **methodological reflection**

AI as Transcriber

- » **Speech-to-text:** WhisperX¹ used for accurate, time-aligned transcription of interviews and learner speech
- » **Image-to-text:** LLM-based tools applied to digitize handwritten or printed texts

navy. The recent experiments on the old *Bo-*
~~his~~ proved how little obsolete armour serves
 to keep out modern projectiles, three minutes
 hammering by the guns of the *Majestic* having
 sufficed to reduce her to a mass of scrap-iron;



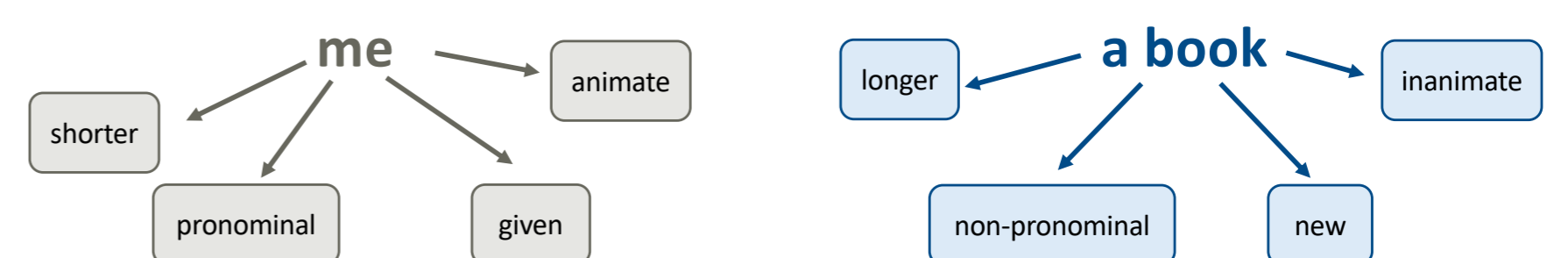
AI as Classifier

The English Dative Alternation (PhD project, Bethany Stoddard)

- » Investigates grammatical variation in English syntax
- » BERT classifier to identify syntactic structures

John gave **a book** to me → Double Object Construction
 John gave **me a book** → Prepositional Construction
 John gave away **a book** → Not relevant

- » Annotating properties of arguments



Populist Discourse on Twitter (PhD project, Julia Schilling)

- » Analyzes populist framing and style in political social media data
- » DeBERTa classifier for dimensions of populism



"We must **take back power** from the **corrupt elites** and return it to **the people**"

the people → People-centrism
the corrupt elites → Anti-elitism
take back power → Popular sovereignty

Public Discourse on COVID-19 Vaccination Uptake (2023-2026)

Funded by the Uni Hamburg *Hub of Computing and Data Science (HCDS)*.

- » Explores attitudes and themes in public health communication
- » RoBERTa model to classify sentiment in tweets/newspapers

BBC article announcing first vaccine:

"There are still **huge challenges** ahead, but **the announcement** has been **warmly welcomed**"²

huge challenges → Negative
the announcement → Neutral
warmly welcomed → Positive

- » Topic modeling (BERTopic): identifies patterns of words & phrases and groups them into topics

SIDE EFFECTS

"...sore arm, flu-like symptoms..."

"...managing post-vaccine symptoms..."

"...risk of myocarditis..."

"...vaccine safety concerns..."

SAFETY

APPOINTMENTS

"...wait 15 minutes before leaving..."

"...booking and availability..."

Acknowledgements & References

Thank you to the student assistants who have helped with the projects mentioned here!

References:

- Bain, M., Huh, J., Han, T., & Zisserman, A. (2023). *WhisperX: Time-accurate speech transcription of long-form audio*. INTERSPEECH 2023.
- Gallagher, J. (2020, Nov. 9th) *Covid vaccine: First 'milestone' vaccine offers 90% protection*. BBC News. <https://www.bbc.com/news/health-54873105>.