

Experience The New AI

Next Generation Artificial Intelligence

Education License

What is this tool?

This 'symbolic' language model has been architected around brain science. In doing so, it solves the problems statistical approaches have with accuracy and energy efficiency. This tool provides an introduction to the architecture and its capabilities with a limited vocabulary that will be expanded as funding is available. Early users of the system may be able to participate in the system's future development to further its usefulness as well as informing us how the brain works and how to emulate that on machines.

Who is this for?

This tool is designed for those in **universities or higher education organizations** such as:

- Researchers for experimental work, e.g., computer scientists, linguists, and postdocs
- Students of language to see how the world's languages work
- Software developers requiring a symbolic language model for accuracy and energy efficiency

Features

- ✓ See how language breaks down into meaning
- ✓ See how human-like question and answer dialogs are enabled for conversation
- ✓ See how accurate answers are enabled from context in conversation
- ✓ See how human-like disambiguation occurs in context

Ambiguous Phrases		BACK	LAST MATCH	
Text Display	Count	Name		
the	1	the		M
the man	1	PCR-ADD-DET		M
the man saw	1	PCR-ADD-DET		M
the man	1	SS-REF-ALL		M
the man saw	1	SS-REF-ALL		M
the man saw	1	PCR-HEA-STM		M
the man saw	1	STA-ALL-SEE		M
the man saw the old red italian car	1	PCS-ADD-DCA		M
the man saw the old red italian car	1	STA-ALL-SEE		M

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Semantics Engine

Text to meaning

The screenshot displays the 'Predicate-wide details' for the sentence 'the man saw the old red italian car'. It includes a 'Full text' section, a 'Text matched Operators' section with attributes like 'statement', 'positive polarity', and 'past', and a 'Phrase Name' 'STA-ALL-SEE'. Below this is the 'Full semantic representation (Logical structure)' showing 'see' (the man, the old red italian car). The 'Predicate arguments' section lists the 'Predicate class' as 'Two-role State Basic', the 'Partial logical structure' as 'see' (the man, the old red italian car), and the 'Predicate' as 'see' with a link to 'Definitions (1)'. The 'Location' is 'the man' with a link to 'Definitions (1)', and the 'Theme' is 'the old red italian car' with a link to 'Definitions (1)'.

Accurate and Precise AI - with RRG

This engine converts text to words, then to their meaning, and then it matches them against known phrases.

When no new phrases are matched, the matching stops, leaving access to select the best matches.

Access to every matching step is available to see the disambiguation taken as phrases resolve valid meanings.

The semantics engine allows the intermediate matches to be inspected, providing a fully explainable AI model.

Pragmatics Engine

Meaning - context - generator

This engine handles conversation in which statements are treated as new context and questions are used to answer based on stored context.

Duplicate entries are reported by the context engine.

Responses are obtained from the generation engine.

The pragmatics engine includes the generation and context engines.

The goal of the conversation engine is to use the components that have been identified in the Role and Reference Grammar (RRG) linguistic framework to operate with a language.

The screenshot shows a 'Conversation' log with a series of user inputs and system responses. User inputs include: 'Beth and John flew to London yesterday.', 'They ate a snack on the plane.', 'She carried a briefcase on the plane.', 'He had his backpack.', 'It was large.', and 'Who flew to London?'. System responses include: 'uh huh', 'OK. I chose 'Beth and John' out of (Beth and John) to mean 'They'.', 'OK. I chose 'Beth' out of (Beth) to mean 'She'.', 'OK. I chose 'John' out of (John) to mean 'He'.', 'OK. I chose 'his backpack' out of (a snack, a briefcase, his backpack) to mean 'It'.', and 'beth and john did'.

This screenshot continues the conversation log. User inputs include: 'What did she have on the plane?', 'What did he have?', 'What was large?', 'Who had a large backpack?', and 'Who had what?'. System responses include: 'yesterday', 'a briefcase', 'his backpack', 'his backpack was', 'john did', and 'beth: a briefcase and john: his backpack'.

Help text in conversation

Generation Engine

Meaning to target language

The generation engine converts a meaning representation into the target language by selecting valid phrases that cover the response needed, and then populates the phrases with words.

The same meaning will generate into **any target language**.

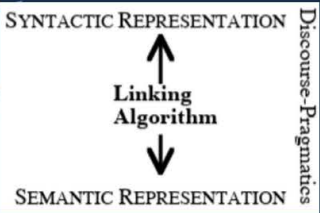
Phrases and words are only selected from the target language to convey the meaning.

Note: today's education license version is currently only loaded with English.

Text entry	Matched results	Target language
The dog bites the cat	Inuwa nekoo kamimasu	Japanese
The dog bites the cat	犬は猫を噛みます	Japanese
The dog bites the cat	いぬはねこをかみます	Japanese
The dog bites the cat	Kay-ka koyangi-lul mul-eo-yo	Korean
The dog bites the cat	개가 고양이를 물어요	Korean
The dog bites the cat	개가 고양이를 물어	Korean
The dog bites the cat	개가 고양이를 물니다	Korean

Text entry	Matched results	Target language
The dog bites the cat	The domestic dog bites the cat	English
The dog bites the cat	Der Hund beißt die Katze	German
The dog bites the cat	El perro muerde la gato	Spanish
The dog bites the cat	Der Hund beißt die Katze	German
The dog bites the cat	Beißt der Hund die Katze	German
The dog doesn't bite the cat	Die Katze beißt der Hund nicht	German
The dog doesn't bite the cat	Beißt der Hund die Katze nicht	German
The dog hadn't bitten the cat	Der Hund hatte die Katze nicht gebissen	German
Hadn't the dog bitten the cat	Hatte der Hund die Katze nicht gebissen	German
The dog bites the cat	狗咬猫	Mandarin
The dog bites the cat	Le chien mord le chat	French

Generation into target language



RRG Model



Context Engine

Context validates meaning

The context engine stores the meaning of the conversation: who said what.

Proforms are resolved by using the tracking of each kind of proform against the order received.

To learn knowledge, the context engine must ensure that referents are correctly identified from context and that duplicate meaning isn't stored. Questions can be resolved from context as well to enable unambiguous resolution.

Conversation

The man bought a car from the dealer for one dollar. ❶

uh huh

Who sold the car? ❷

the dealer did

Who received the car?

the man did

Who did the man pay for the car?

the dealer

Who was the car sold by?

the dealer

Did the man pay Beth for the car?

No, the dealer.

Was the man presented with the car

Yes, he was.

What was the man presented with

a car

Conversation

the fish is off. the light is off. the party is off.

uh huh

what is off

the fish, the light and the party is

what is cancelled

the party is

what is bad

the fish is

is the party on

No, but it is off.

is the party cancelled

Yes, it is.

what is off

the fish, the light and the party is

Generalization with
meaning and sequences

Resolution in conversation

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Dog showing what
robotics must do
(dog not included)



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