

Can ML automate the process of formalized constructs creation from natural language ?



Abstract : In both societal and business contexts, people's behavior is often guided by normative texts written in natural language. Examples include laws governing society and organizational policies. These documents share common features, stemming from formal procedures and containing norms. Another shared characteristic is the challenge of interpretation, leading to multiple, sometimes conflicting, understandings. To enhance transparency , formalized constructs can be employed to make these interpretations explicit. An example is the Flint Ontological Language.

However, a significant hurdle arises from the time-intensive process of creating normative models from natural language expressions. Addressing this challenge, our project focuses on automating the extraction of formalized constructs from natural language by leveraging the power of transformer based machine learning models.



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PROBLEM STATEMENT

Manual creation of formalized constructs from natural language is a difficult and time consuming task. Our project aims to automate this process by leveraging machine learning methods.



PROBLEM DECOMPOSITION

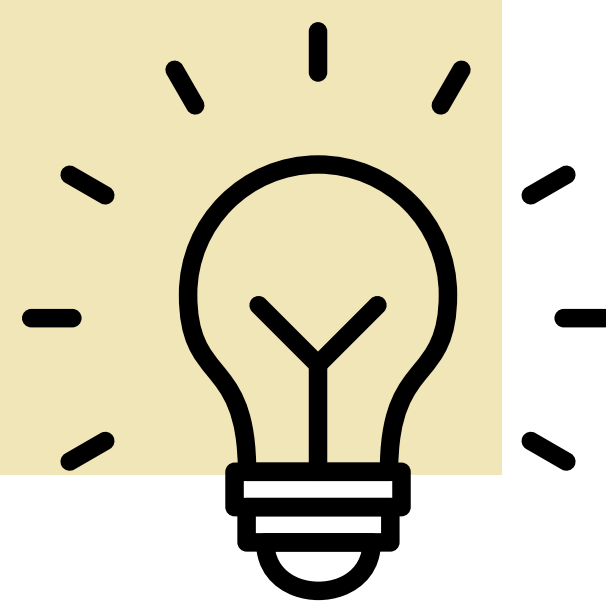
Our solution narrows down the problem. Instead of working on all kinds of normative text, we chose to focus on game rules, which inherently contain norms.

Subsequently, we conduct tests to determine the feasibility of transferring the knowledge gained from analyzing game rules to other domains, such as business regulations.

OUR SOLUTION

To address this problem, we developed a system that assists users in automatically constructing normative models in Flint language from natural language while providing feedback to enhance the accuracy of underlying predictive models over time.

A typical use case involves an expert inputting normative text in natural language. The system uses pre trained models to predict the formalized constructs, initiating a dialogue between the user and the system to refine and finalize the frames. The accurate representations are then stored for future training iterations, contributing to continuous improvement in the system's performance.



LIMITATIONS

METHODOLOGY

1.Data Collection
We collected sentences we found throught the web

2.Data Annotation

2.Model Training

2.Application

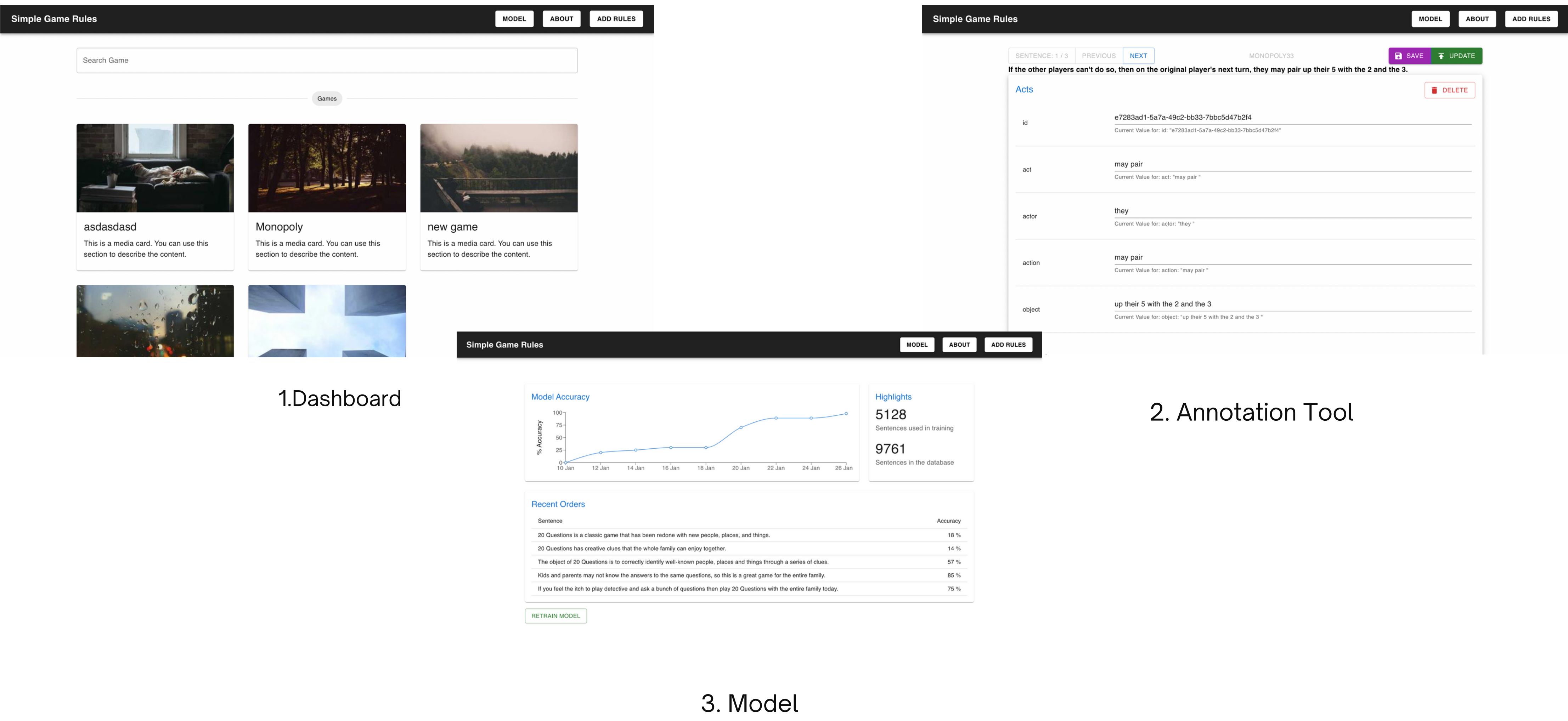
2.Validation

how in more detail:

above are combined to check transferability

THE SYSTEM

We describe our application and what it does. Also describe the system architecture.



CONCLUSION

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