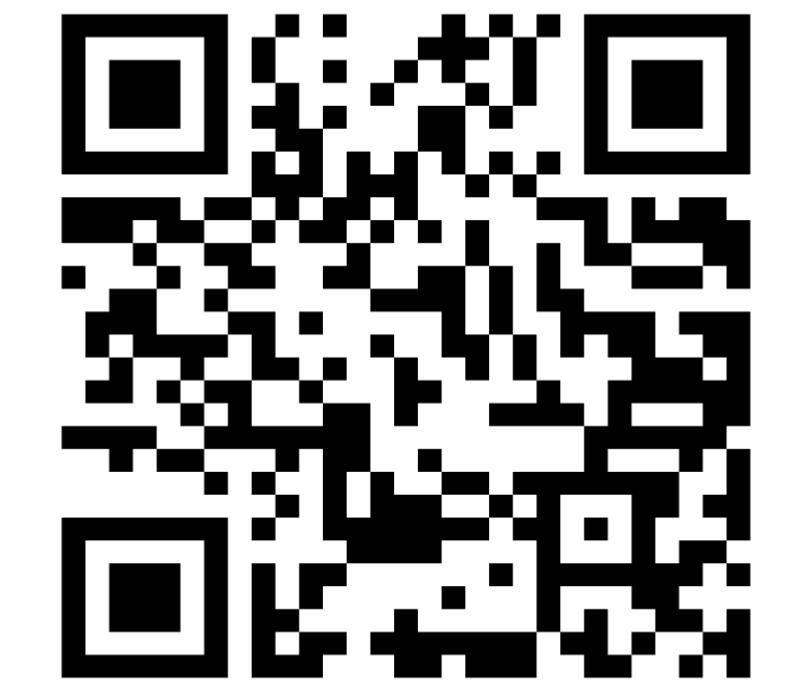
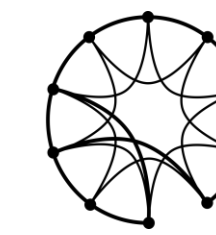




Quantifying Common Sense: A Framework for Individual and Collective Assessment



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Introduction

The project aims to quantify common sense at both individual and collective levels, testing its variability across different demographic groups and languages. Our work expands upon the framework proposed by Mark Whiting and Duncan Watts by leveraging computational methods, incorporating multilingual support, and implementing new user interaction features, extending its applications in diverse, global contexts.

Approach

Internationalization of Main Experiment Website

- Enabled multilingual support in 10 languages to seamlessly adapt UI based on users' language preferences.
 - Supported languages:** Arabic, Bengali, English, Spanish, French, Hindi, Japanese, Russian, Chinese
- Enhanced tracking and analysis of language-specific data on the backend.
 - Adapted backend to ensure accurate retrieval and storage of multilingual statements and user responses.

Translation and Normalization of Statements

- Automated text processing and translation workflows with Amazon Translate, Pandas, and GitHub Actions for translating statement files and resolving inconsistencies (ie. duplicate statements caused by translations).
- Leveraged OpenAI API and Python libraries to clean and normalize statement files to render statements in a consistent state on the application's UI.

Change Answers Feature Enhancement

Key Features:

- Introduced timestamped toggles to allow users to update answers
- Displayed community consensus through agreement percentages
- Implemented /changeanswers and /getAgreementPercentage endpoints.
- Allows users to change their answers anytime, enhancing flexibility.

State Synchronization and Bug Fixes:

- Updated state synchronization to prevent overwriting during backend calls.
- Fixed a bug where toggling two columns simultaneously was not possible.

Data Filtering Improvements:

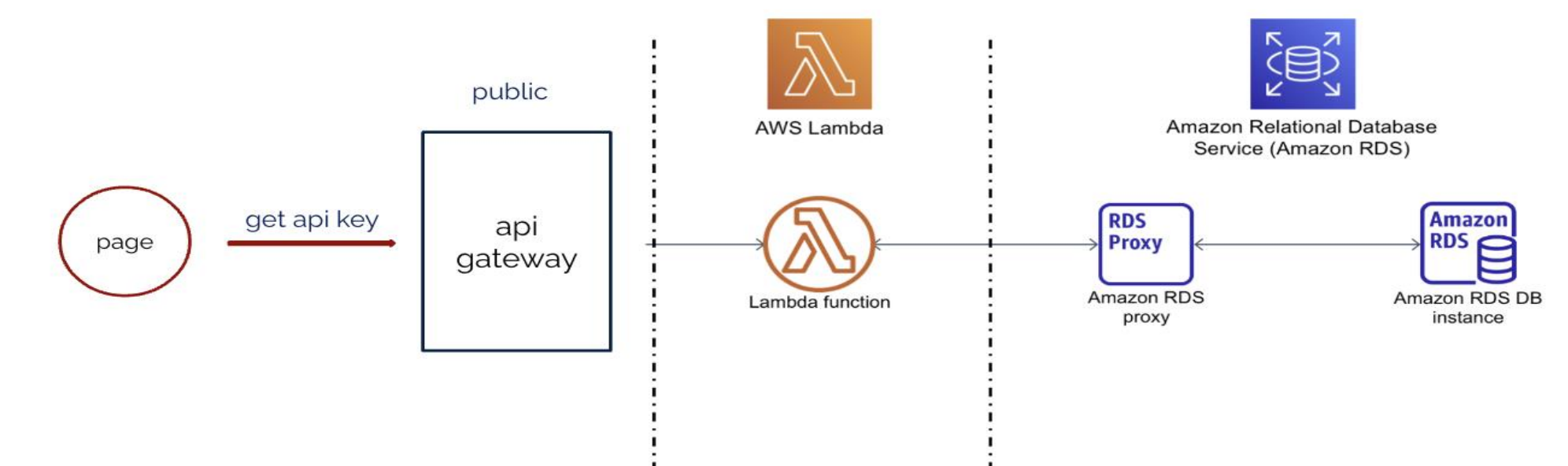
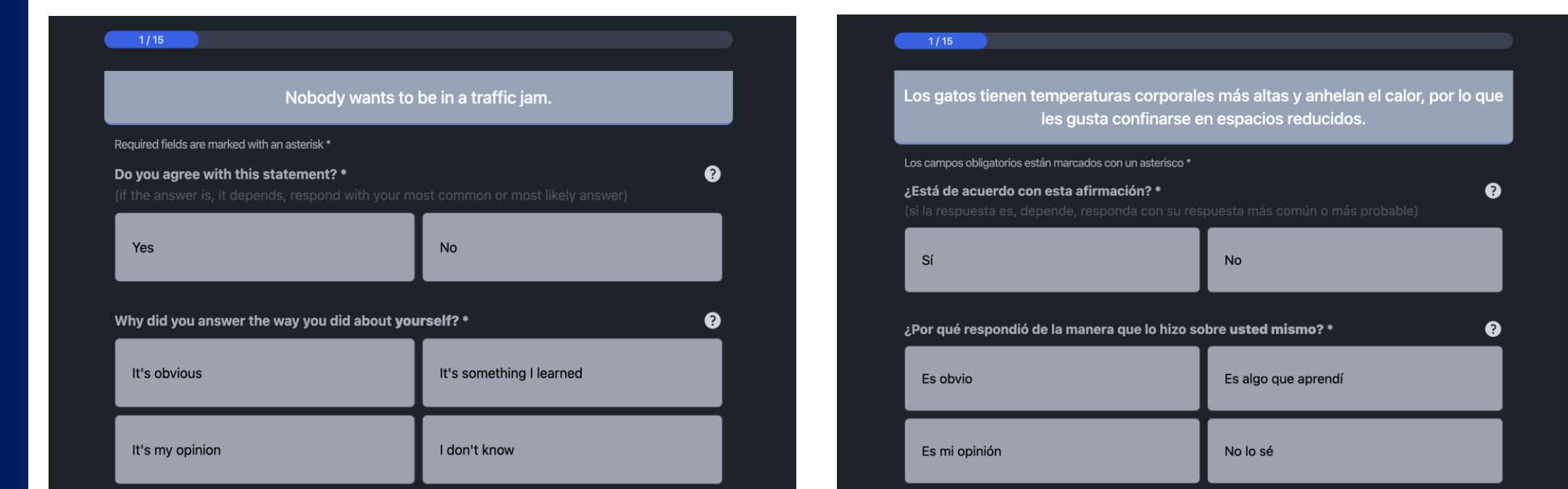
- Revised filtering mechanism to ensure updates focus on the most recent statement using createTime() instead of id

AWS Database to a Private API

- Under SEAS/CETS request, database should be private
- Is currently public for Observable, but this causes security issues
- In order to extend this system to be generalizable & have real time dashboards, it's helpful to have access to all its inner workings through API's

Results

The integration of multilingual support provides opportunities to study **all** humans to make comprehensive conclusions about collective common sense. Additionally, the implementation of change answer features and agreement percentages improves user engagement and data accuracy.



Motivation

Understanding common sense is necessary for both social science and AI, yet it remains poorly defined and elusive among humans. Our motivation was two-fold: first, to extend the reach of the original framework to a global audience by supporting multiple languages; second, to enhance user interactivity and track the evolution of individual and collective responses over time. These efforts aim to facilitate better research insights by capturing more diverse data.

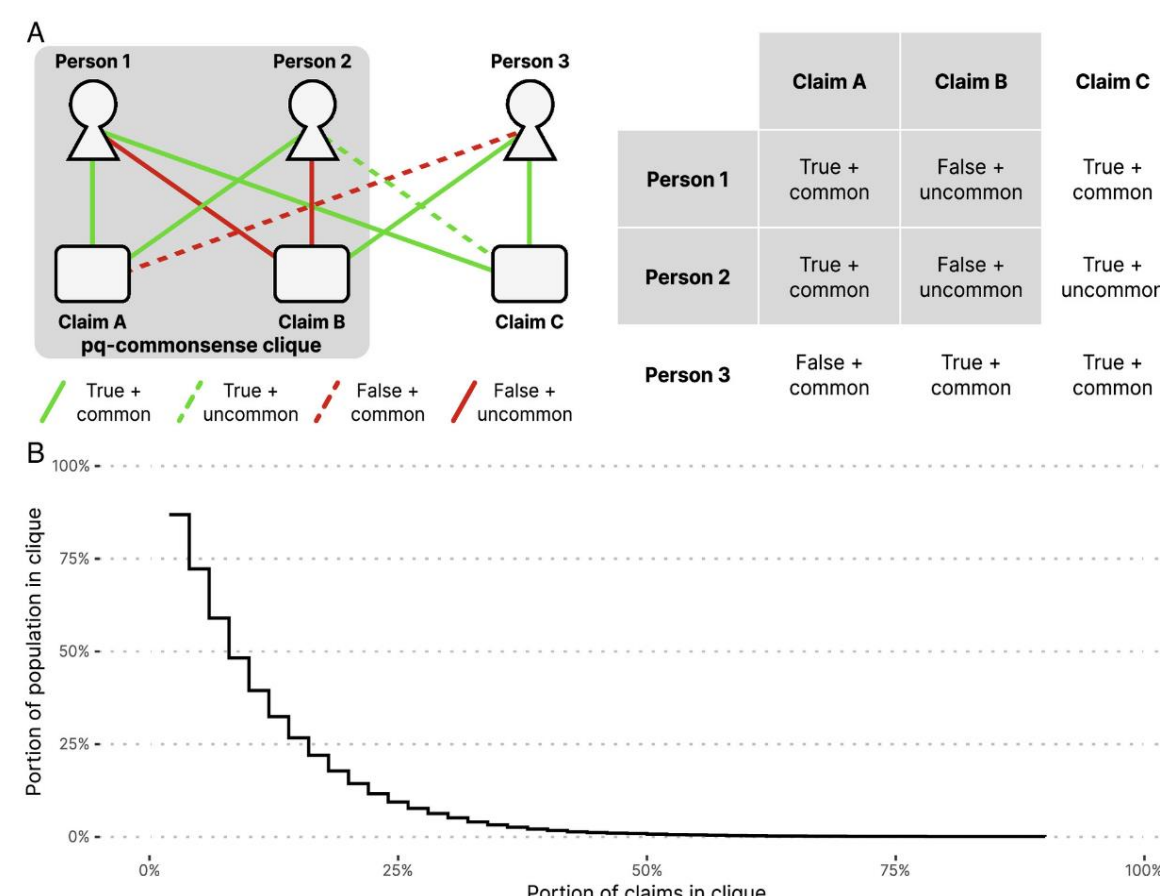


Figure 5 from Mark Whiting and Duncan Watts' paper, *A framework for quantifying individual and collective common sense*

Next Steps

Future work will focus on scaling experiments across diverse regions globally to better accommodate the wide range of languages already supported, and also utilizing change answers to get consistent data across recurring users. As our platform's features grow, we will prioritize cost optimization strategies to manage increased experimentation costs while maximizing insights extracted from user data.