

LanguageARC – Researching Variation in Multiple Languages through Citizen Science

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Introduction

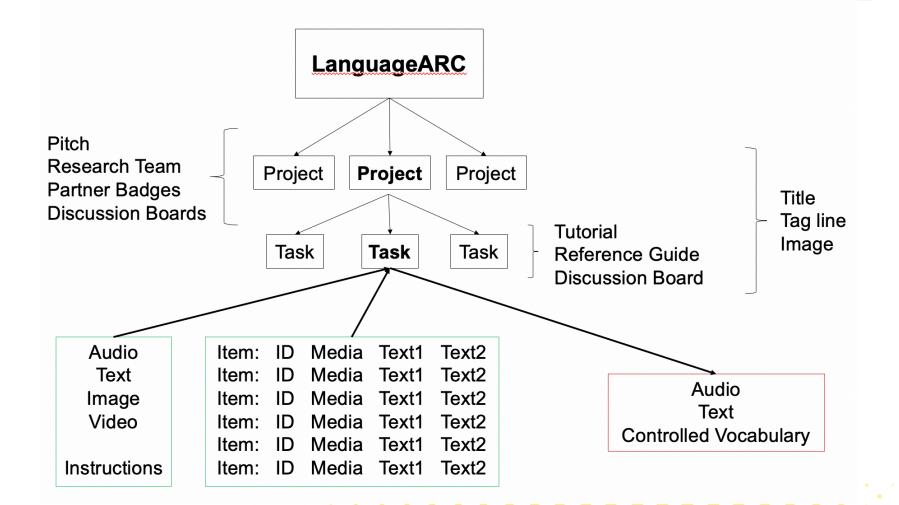
- Motivation:
 - Despite significant advances, the amount and variety of Language Resources (LRs) falls short of need
 - Current approaches fall short due to the overall amount of effort required and due to limited funding (amount and duration)
- New Approach:
 - National Science Foundation infrastructure research grant NIEUW (NSF CRI CI-NEW #1730377)
 - Project augments existing data sources by offering novel incentives -opportunities to learn, compete, promote a linguistic variety and make real
 contributions to science on a significantly larger scale with less effort.
 - Similar approaches proven successful in other fields such as the > 540 million judgments submitted by > 2.1 million volunteers at the citizen science website Zooniverse.org
 - LDC's own language identification game, NameThatLanguage.org collected 644,803 HITs from 58,712 players since December 2018 (~336K/year)

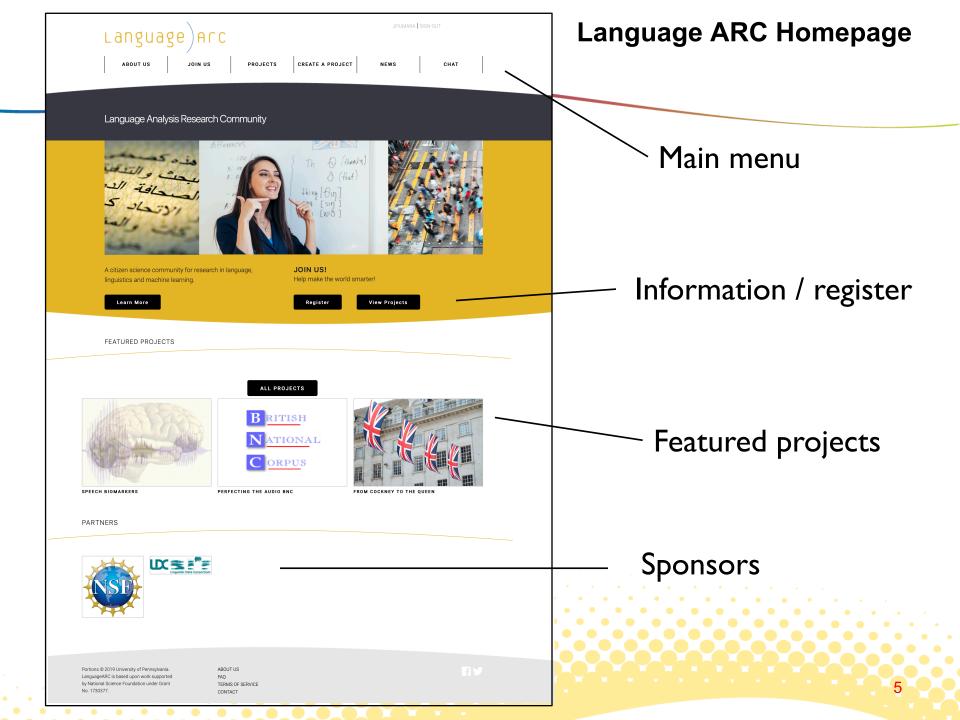


- "Citizen Science" for Linguistics
 - <u>Citizen Science</u>: crowdsourced contributions to scientific research made by amateurs or nonprofessionals
 - <u>Citizen Linguists</u>: general public participates in language science by contributing linguistic judgments, annotations and language data
- LanguageARC (https://languagearc.org):
 - Citizen Linguist web portal that connects researchers and general public by creating community around research projects designed specifically to collect linguistic data and judgements
 - Based upon an LDC software toolkit already used in > 100 collection and coding tasks that yielded > 1,000,000 judgements.
 - Annotation and collection toolkit revised and simplified for both researchers and contributors:
 - Annotation tasks can be built with no coding or programming knowledge required
 - Simplified tool and interface geared towards short discrete tasks many which can be completed on a smart phone
 - Public since September 2019, currently has 14 projects with 34 tasks



LanguageARC Structure





Language)arc

JOIN US

SIGN IN/REGISTE

NEWS

СНАТ

Registration

6

Sign up

ABOUT US

Screen name

Need not be your real name. Must be at least four characters in length and contain only letters, numbers, hyphens, underscores, or periods.

PROJECTS

CREATE A PROJECT

Acknowledgement Name (optional)

The name that will appear if a project acknowledges contributors, for example, in publications or presentations. Need not be your real name.

Email

Used to send verification link and periodic notices of updates. Never shared.

Password

At least 8 characters. We will never share your password in any way.

Confirm Password

Minimum information needed to create account

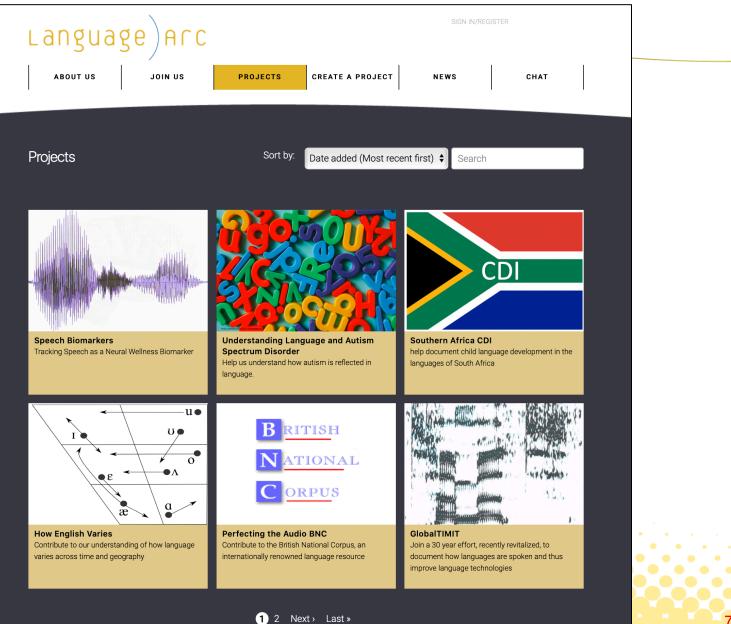
Optional demographic information

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List or	nly year as four digit number. Do not include day or month. Ex., 1984
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ву	signing up you agree to our <u>Terms of Service</u> (required)
You w	ill receive an activation email at the email address you entered above. If you do not receive an email in
	box, please check your Spam folder. If you cannot find an email in your Inbox or Spam folder, please
contac	tus.
	Sign up



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Projects





Projects



PERFECTING THE AUDIO BNC

Contribute to the British National Corpus, an internationally renowned language resource

Log In / Register to Start

The English language is a critical part of the heritage of the UK, like its history, great houses, museums and culture but even more so as it touches each citizen's life daily. The British National Corpus (BNC) documents the ways in which English is used across the UK via 100 million words of collected text, audio recordings of more than 7400 informal conversations made by members of the public around the turn of the millennium, and over 750 recordings made in specific social contexts (business, education, leisure, and public settings).

One of the first of its kind, the BNC has inspired dozens of national corpus collections in countries around the world. The BNC's recorded conversations have been carefully transcribed and 'time-aligned' via human language technologies that add time-stamps to the transcript to indicate where in the audio recordings each word and phrase is uttered. Unfortunately, these alignments are not perfect. This project combines computer algorithms and human expertise — yours if you join — to identify, classify and correct the imperfections. The BNC conversations are already freely available to teachers, researchers now and for posterity. Your corrections will improve this internationally valuable resource.

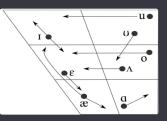




University of Oxford

Phonetics Laboratory

ANNOTATE NEWS CHAT



ABOUT

OUR RESEARCH TEAM

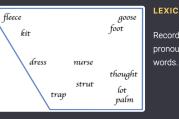
NEWS

CHAT

HOW ENGLISH VARIES

Contribute to our understanding of how language varies across time and geography

Tasks



LEXICAL SETS Record yourself pronouncing a series of words.

Continue

Continue

Continue

Continue



Record yourself reading short literary passages (7 passages available).

READING PASSAGES

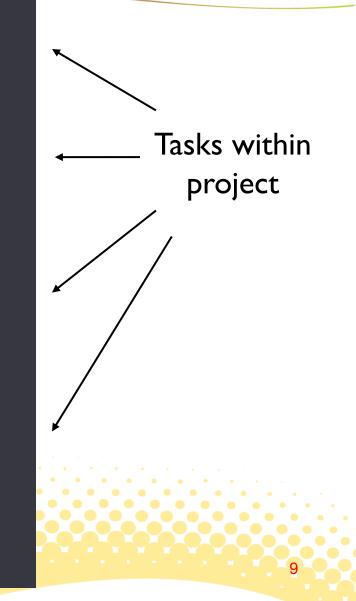
Once upon a time ...



DIAPIX TASK

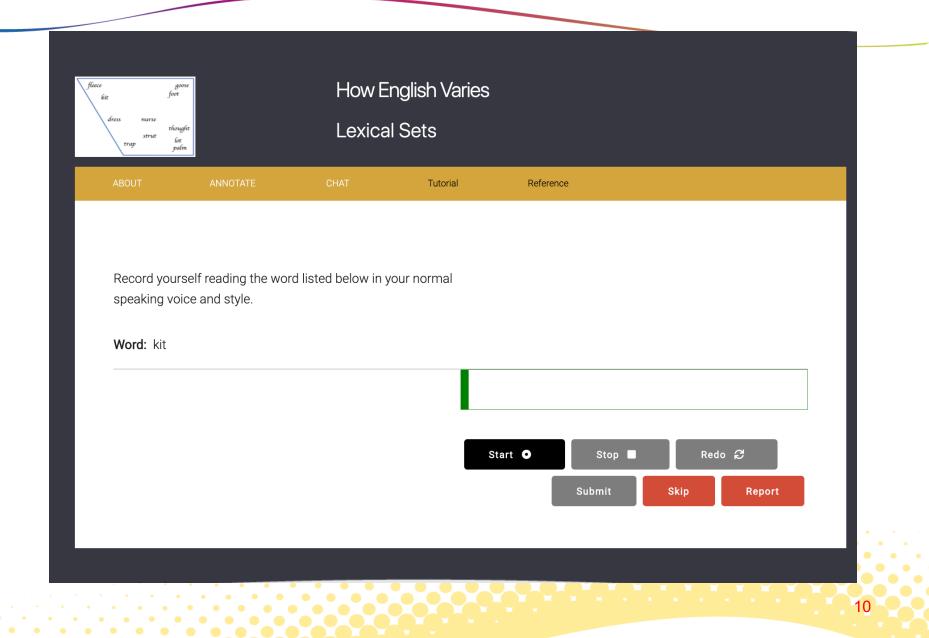
Identify differences in 13 sets of paired images.

Projects





Projects



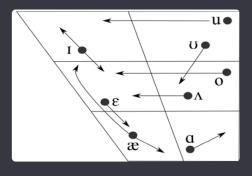


- Language ARC supports a variety of project and task types
 - Language data collection, annotation/judgements
 - Input: text, audio, image, video --> Output: text entry, audio recording upload, fixed choice button or check box answers
- Task related to linguistic variation and clinical language research
 - Variation: How English Varies, Global TIMIT, From Cockney to the Queen, Discovering Grammar Through Translation, Varieties of Arabic, Object Naming
 - Clinical: Speech Biomarkers, Understanding Language & Autism Disorder, Dark Triad Personality Survey



Projects: Linguistic Variation





HOW ENGLISH VARIES

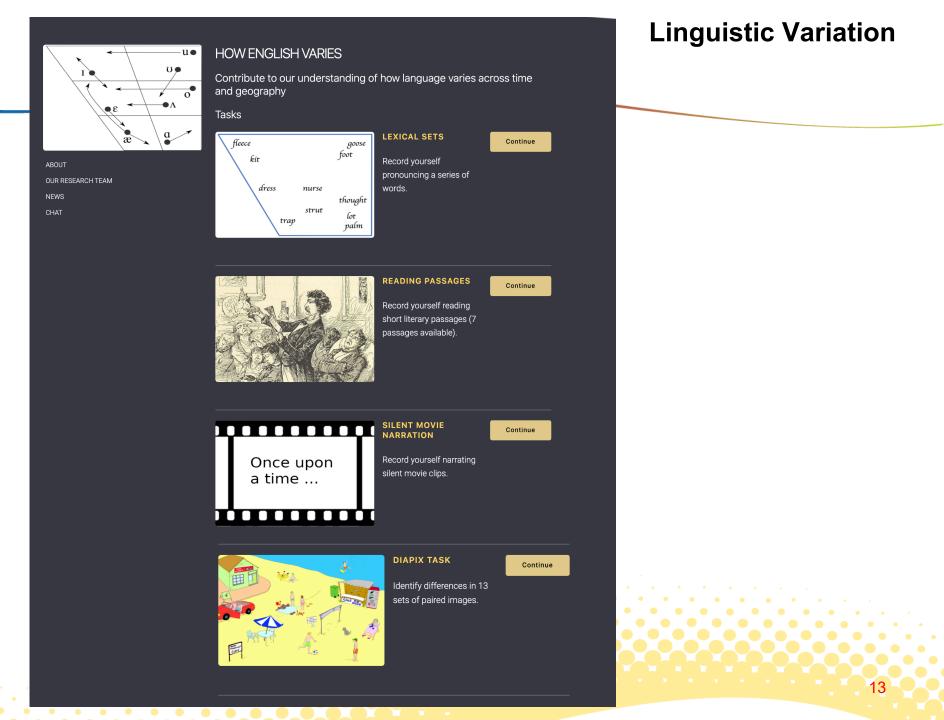
Contribute to our understanding of how language varies across time and geography

Start Now

For the past 50+ years, linguists have studied the ways a language can vary in the different regions in which it is spoken and also according to the demographics and attitudes of its speakers and the situations in which they find themselves. This work has been limited by the need to go into the field to collect data. Today you can help researchers by engaging in simple spoken language activities using your normal voice and style.

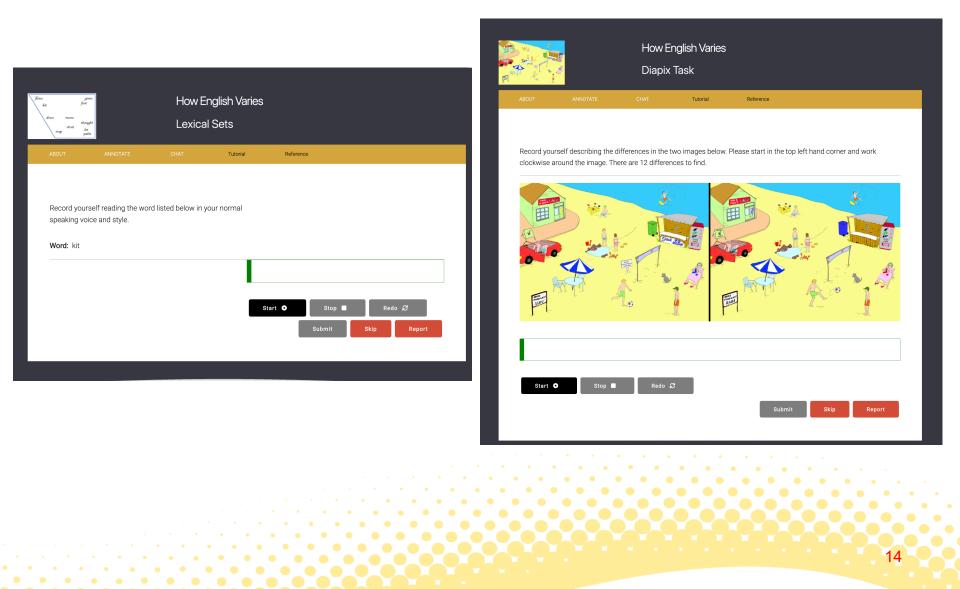
ANNOTATE

CHAT





Linguistic Variation Projects

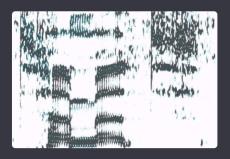




Projects: Linguistic Variation

Global TIMIT elicits phonetically diverse speech





ANNOTATE CHAT EDIT CREATE NEW TASK

GLOBALTIMIT

Join a 30 year effort, recently revitalized, to document how languages are spoken and thus improve language technologies

Start Now

TIMIT is the name of dataset that has probably had the greatest impact on speech technologies; a Google Scholar search in December 2019 found ~ 23,400 hits, that is, a very large number of scholarly papers mentioning the dataset. To create TIMIT, researchers asked 600 speakers from around the US to each read 10 sentences that were selected or constructed to represents the sounds of English. GlobalTIMIT is adjusting the method to make collection more efficient and expand the scope so we can create similar datasets for many more of the world's languages starting with a broader representation of English.



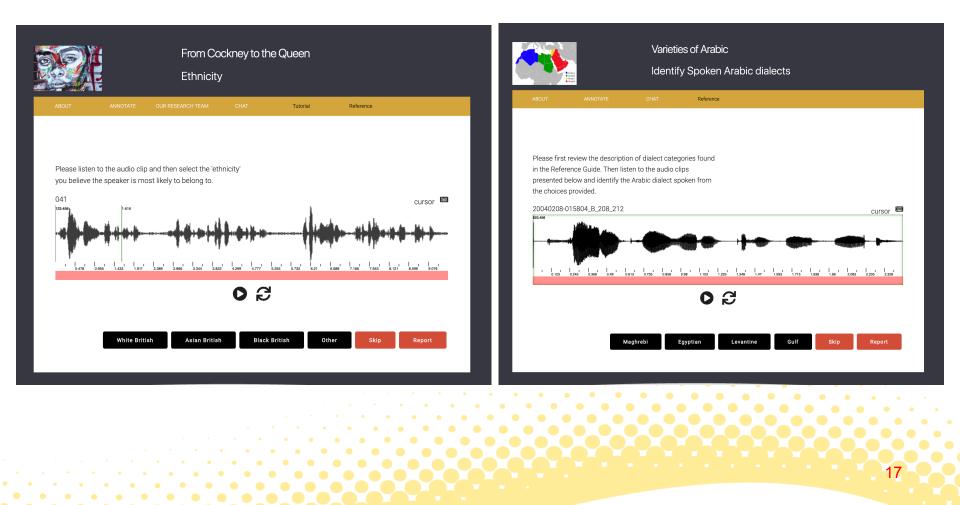
Global TIMIT elicits phonetically diverse speech

		Globa Origin		nglish, Part 1			
ABOUT	ANNOTATE	CHAT	Tutorial	Reference			
record yours your normal	g the Tutorial at least elf reading aloud the voice. Don't ask me to carry	two sentences	in this set in				
				Start O	Stop 🔲	Redo 🞜	
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Projects: Linguistic Variation

Audio annotation tasks: ID dialect, ethnicity, etc.





Linguistic Data Consortium

UNDERSTANDING LANGUAGE AND AUTISM SPECTRUM DISORDER

Help us understand how autism is reflected in language.

Start Now

YOU CAN CONTRIBUTE TO AUTISM RESEARCH.

Autism Spectrum Disorder (ASD) is a complex developmental disorder that affects approximately 1.5% of the population. Although there are overlapping symptoms including impairment of social communication and the presence of repetitive behaviors, ASD is highly heterogeneous in presentation and phenotypically complex. Given this complexity, the application of techniques from computational analysis and "big data" have great potential to improve scientific understanding and clinical diagnosis of ASD. Researchers from the Center for Autism Research at the Children's Hospital of Philadelphia and the Linguistic Data Consortium at the University of Pennsylvania have been applying human language technologies to the study of ASD with promising results. However, in order to identify and study the linguistic and communication patterns of individuals on the autism spectrum, researchers need extensive data from neurotypical individuals as well.

You can help advance our understanding by answering the 50-question Autism Spectrum Quotient (AC) questionnaire and participating in a series of language related tasks that will be aggregated with those of other participants to show how the whole population performs on these tasks. This data can then be compared with the performance of clinical populations collected in other settings. *Please note that in these tasks we do not diagnose participants and we ask that you please not mention any diagnosis you may have received or suspect*.

This AC questionnaire was created by the Autism Research Center at the University of Cambridge.

Children's Hospital of Philadelphia Center for Autism Research

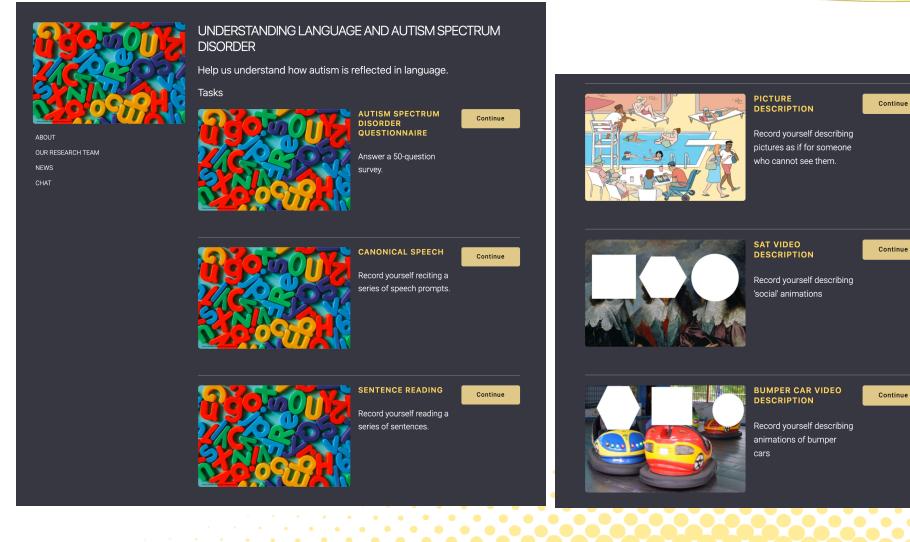
Center for Autism Research, Children's Hospital of Philadelphia

ANNOTATE OUR RESEARCH TEAM

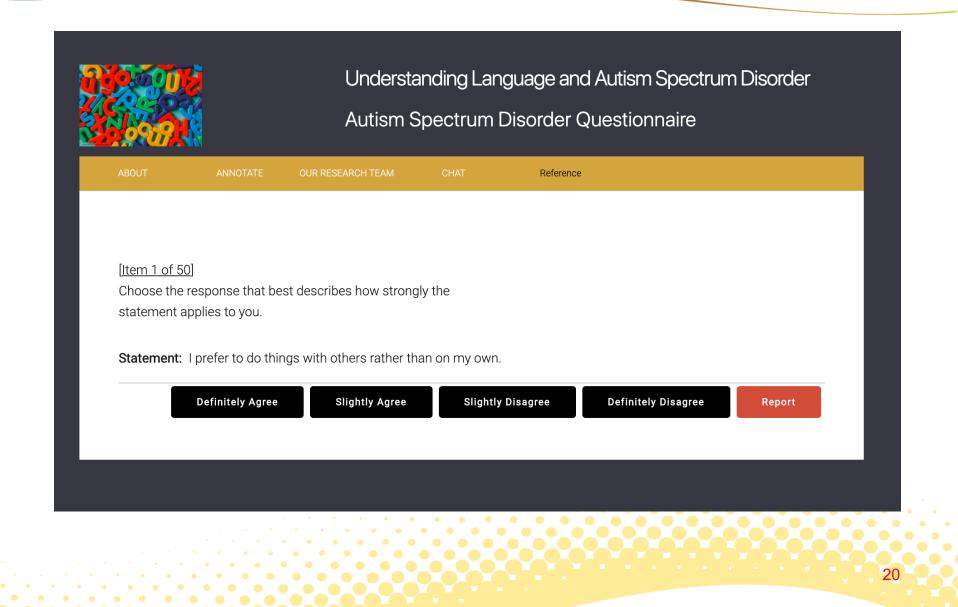
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CHAT

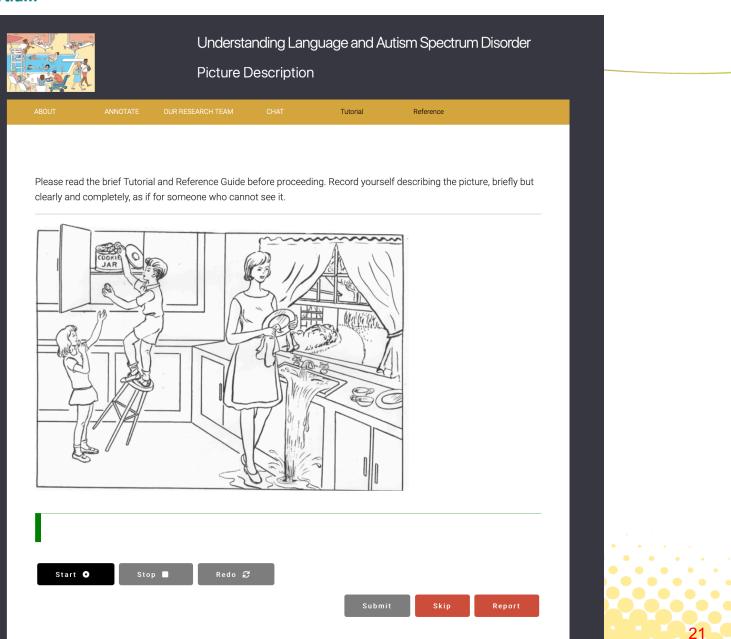


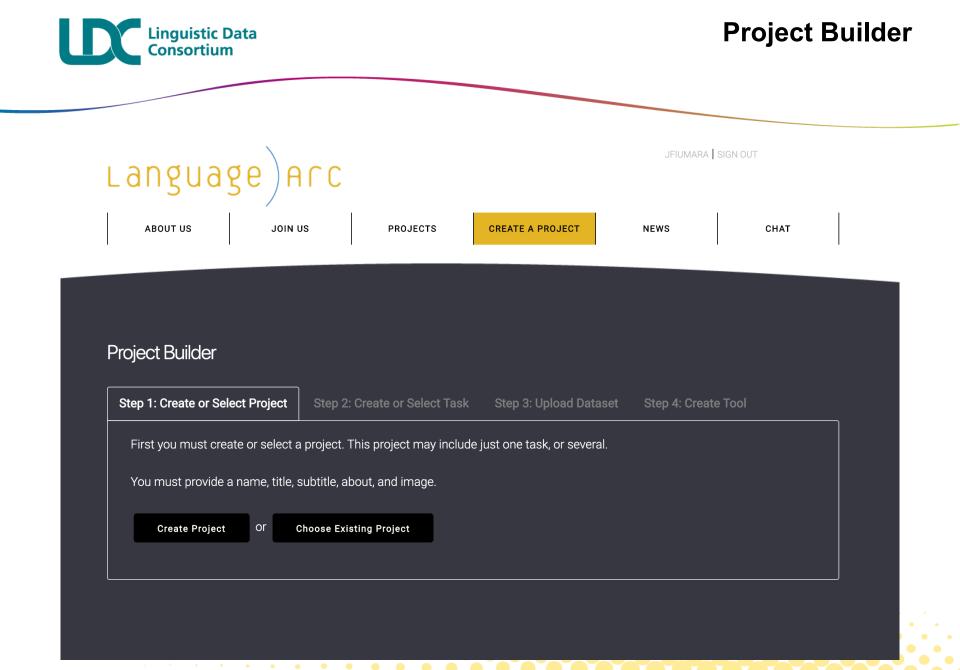














Project Builder

Step 2

Step I

New Project

Name (short internal name, used in menus, globally unique)

Title (displayed on Project Page, globally unique)

Subtitle (displayed on Project Page)

About your project and tasks (accepts markdown)

News / Blog URL (leave blank if none)

Project Image File (displayed on project page)
Choose File No file chosen

Image Filename (if in project assets)

Project Assets

No assets uploaded. Upload Assets
Choose Files No file chosen

Create Project Forums

- Announcements
- General Discussion
- Questions for Research Team
- Help and Technical Support

Research Team Members

Add Researcher

New Task

Task Name (short internal name, used in menus, unique within project)

Task Title (unique within project)

Task Description (accepts markdown)

Tutorial (accepts markdown)

Reference Guide (accepts markdown)

Order of items assignment

"In order" - every contributor gets items in the same order "Random" - every contributor gets the same items in a unique, randomized order

O In Order ○ Random

When contributor reaches end of dataset

Within or across contributors?

"Within contributors" means each user will eventually be assigned all items, either in order or randomly as selected above "Across contributors" means items will be assigned across users based on order (user 1 might get items 1-10, then user 2 gets 11-20); no user gets the same item unless ITEM_LIMIT is set.

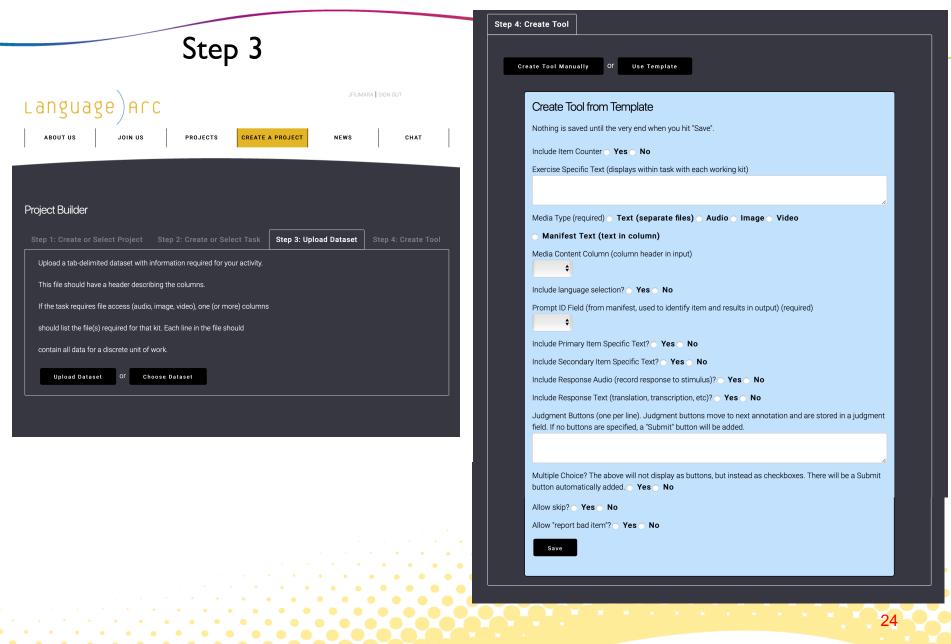
• Within contributors
• Across contributors

Task Image (optional)Choose Fileno file selected



Step 4

Project Builder





User Home

Edit Profile Task List Task Action Project Start Now Sept Questionnaire Text New Task Creation ProjectOwner Project **Download Report** Continue Sept Questionnaire Text Questionnaire with Exit Project Download Report Start Now Sept Questionnaire Text Questionnaire Test with Project Auto Restart **Download Report** Start Now Varieties of Arabic TD Create Task Test Sep29 **Download Report** Start Now Varieties of Arabic One more Test As TD Download Report Start Now Varieties of Arabic Third Time is the Charm PD Test **Download Report**

Dashboard

25



Reports

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		13	Published 46	Published	83	50	3 US	PA	Havertown	5e5804d200000000000000000	107	2020-08-10	17:51:59	+0000	Slightly Agree 3	5
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-		13	Published 46	Published	83	50	3 US	PA	Havertown	5e5804d200000000000000000	77	2020-08-10	17:51:08	+0000	Slightly Disagree	26
-		13	Published 46	Published	83	50	3 US	PA	Havertown	5e5804d20000000000000000	74	2020-08-10	17:51:04	+0000	Slightly Disagree	25
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4		13	Published 46	Published	83	50	3 US	PA	Havertown	5e5804d20000000000000000	35	2020-08-10	17:50:12	+0000	Definitely Agree	12
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Audio recordings

27

Project0008 > Task0029 >			
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0000001671-20200927T002902Z-5.wav	*** 6	688 KB	a month ago
0000001671-20200927T002700Z-5.wav	*** 4	432 KB	a month ago
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0000001657-20200816T210348Z-5.wav	*** 3	344 KB	3 months ago
0000001657-20200816T210335Z-5.wav	*** 3	336 KB	3 months ago
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Current Stats

- Language ARC stats
 - Language ARC launched to general public in October 2019
 - 10 Projects open to public
- Language ARC has collected > 31,000 contributions overall
 - How English Varies
 - Lexical Sets 3138
 - Reading Passages 238
 - Silent Movie Narration 16
 - Diapix Task 68
 - GlobalTIMIT
 - 636 sentences
 - Dark Triad
 - Survey 5637
 - Picture Description 28