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Enhancing Vocabulary Learning in University Classes through a Gamified Application



Vocabulary learning in L2

- Essential dimension of foreign language learning (Jiang & Liu, 2024 ; Nation, 1999)
 - « preconditional for successful language learning » (Agustín Llach, 2020)
 - a “good predictor” of global communicative skills (Lindqvist, Ramnäs, 2017)
 - explicit work targeting the lexicon is no longer seen as pejorative (CEFR, 2000)
- Definitions
 - Vocabulary : a subset of the lexicon
 - Lexicon : all the lexical units of a language
- Teachers need to help students develop the depth and size of their vocabulary (Teng, 2014)



Technology-Assisted Vocabulary Learning (TAVL)

- Moderate overall positive effect size for using technology to learn L2 vocabulary (Yu & Trainin, 2022)
- Overall large positive effect of TAVL compared to traditional instructional methods (Hao et al., 2021)
- A positive and large effect size on L2 word retention while using Mobile-Assisted Vocabulary Learning (MAVL) for L2 vocabulary (Lin & Lin, 2019)
- Offer collaboration opportunities (Laal, 2012)
- Collaboration and game-based learning to develop vocabulary size and depth (Bahari, 2022)

Teacher?





BaLex

- A collaborative vocabulary notebook designed to enhance vocabulary learning in and outside the classroom
- Teachers
 - guiding learners,
 - monitoring progress,
 - providing feedback
- Vocabulary learning as a “team sport”



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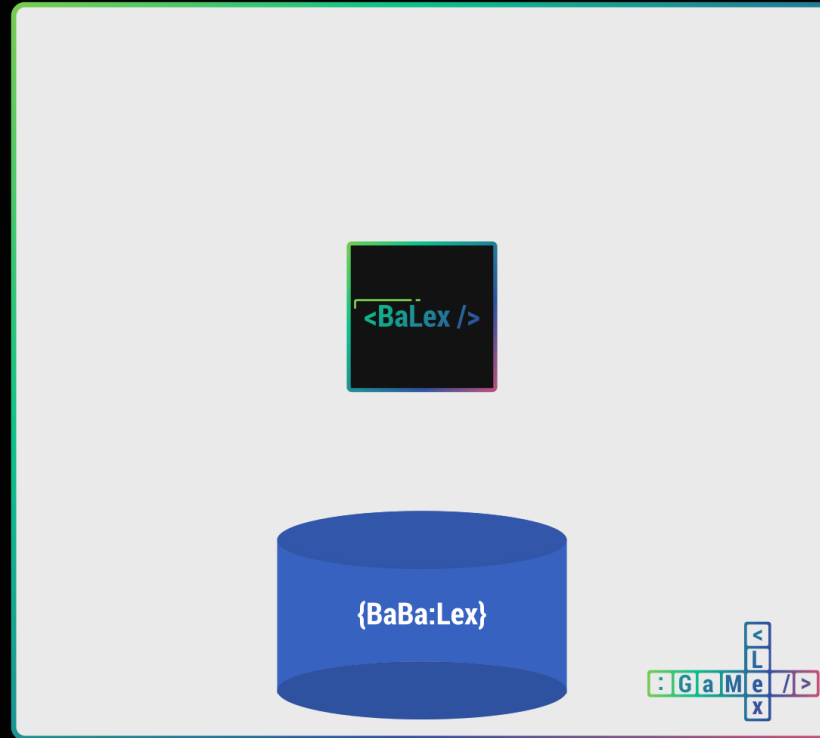


BaLex Architecture





BaLex Architecture

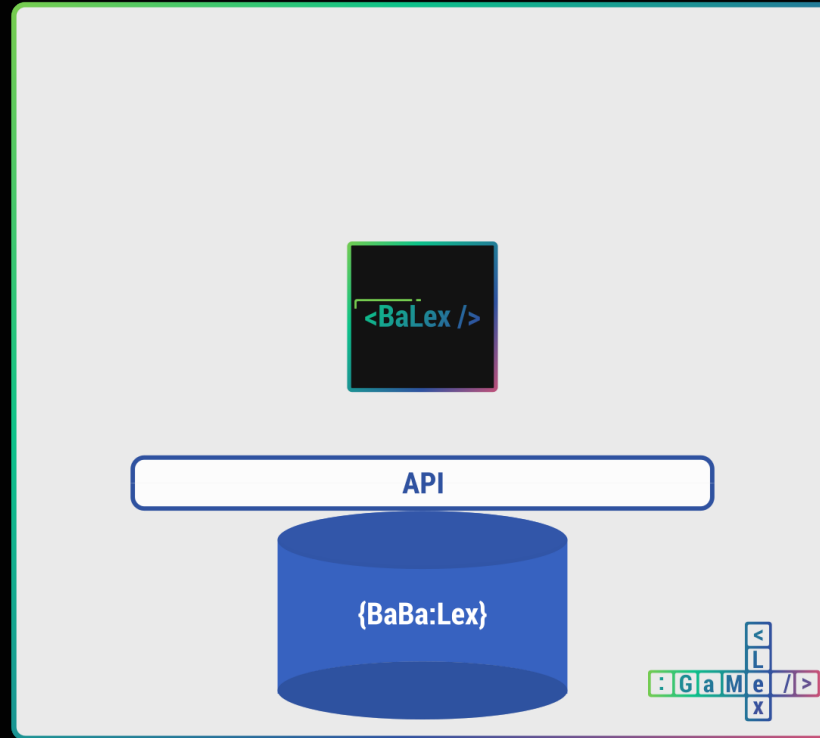




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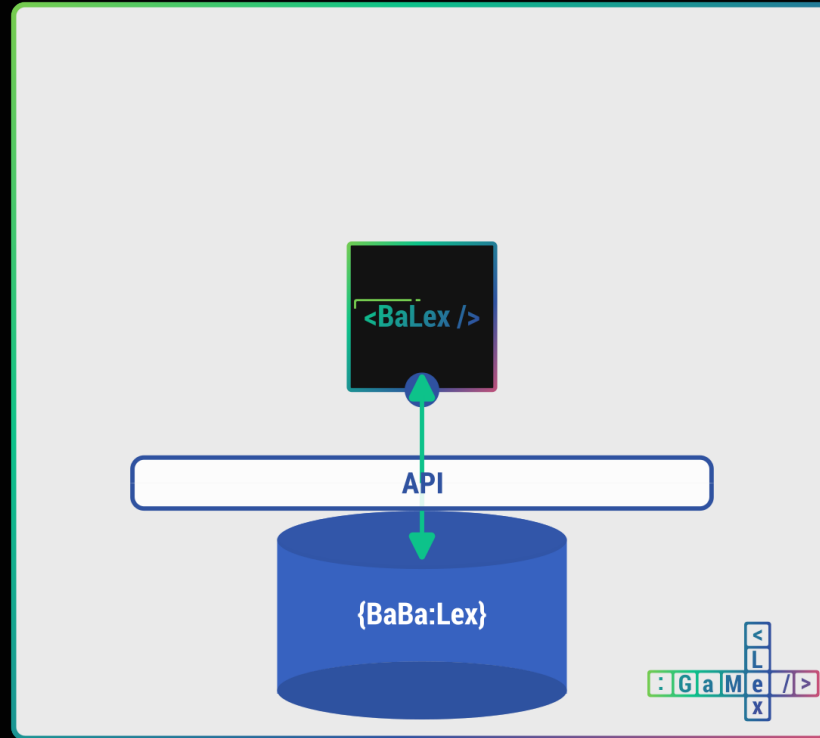


BaLex Architecture



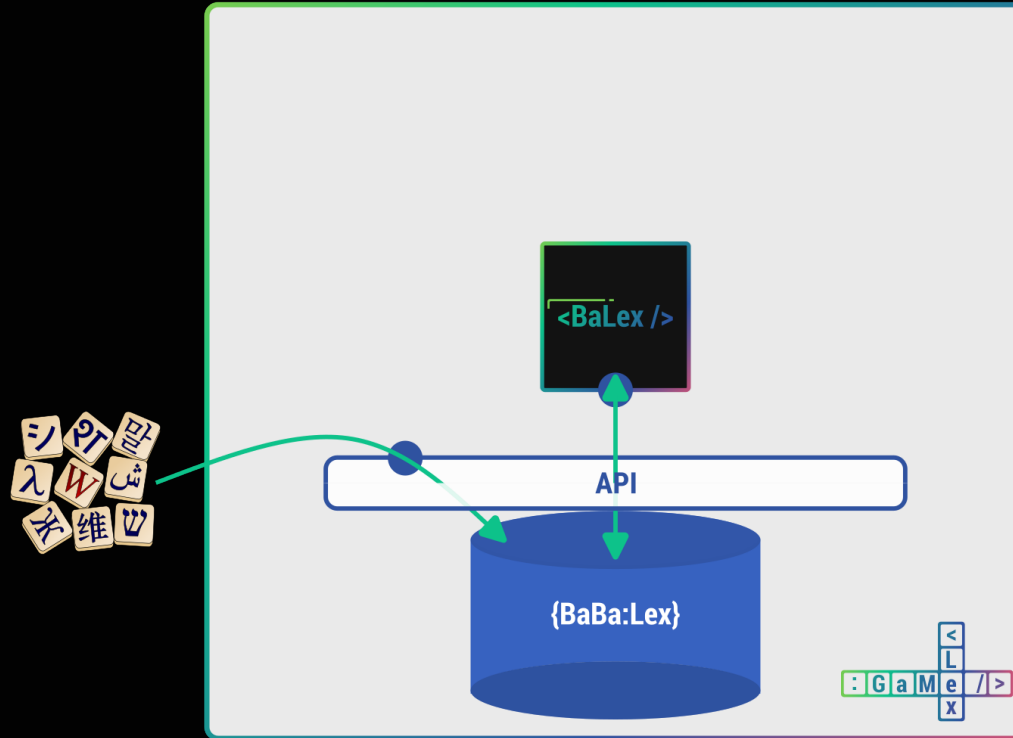


BaLex Architecture






























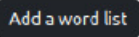
BaLex Architecture



BaLex

Search and add  

Headwords 				Labels			
Order		<input type="checkbox"/>			General	Deadline	Définitions
1		<input type="checkbox"/>	love		Family	Next class 12/01/2024	 
2		<input type="checkbox"/>	cat		Animal	Next class 12/01/2024	  
3		<input type="checkbox"/>	apple		Food		 
4		<input type="checkbox"/>	cook		Food Family Job Activity	Next class 12/01/2024	 
5		<input type="checkbox"/>	mother		Family Job		 
6		<input type="checkbox"/>	reindeer		Family Holiday	Next class 12/01/2024	 



BaLex

Search and add 🔍 ✕

Headwords +			Labels			
Order	<input type="checkbox"/>	↕	<input type="checkbox"/>	General	Deadline	Définitions
1	<input type="checkbox"/>	love	<input type="checkbox"/>	Family	Next class 12/01/2024	▶ N ▶ V
2	<input type="checkbox"/>	cat	<input type="checkbox"/>	Animal	Next class 12/01/2024	▶ N ▶ V ▶ Adj
3	<input type="checkbox"/>	apple	<input type="checkbox"/>	Food		▶ N ▶ V
4	<input type="checkbox"/>	cook	<input type="checkbox"/>	Food Family Job Activity	Next class 12/01/2024	▶ N ▶ V
5	<input type="checkbox"/>	mother	<input type="checkbox"/>	Family Job		▶ N ▶ V
6	<input type="checkbox"/>	reindeer	<input type="checkbox"/>	Family Holiday	Next class 12/01/2024	▶ N ▶ V

Add a word list



BaLex

Search and add 🔍 ✕

Headwords				Labels		
Order	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	General	Deadline	Définitions
1	<input type="checkbox"/>	love	●	Family	Next class 12/01/2024	▶ N ▶ V
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6	<input type="checkbox"/>	reindeer	●	Family Holiday	Next class 12/01/2024	▶ N ▶ V

Add a word list



Collaboration in BaLex

- Anyone can create a group and invite new members
- Inside the group:

Administrator : Can change the role of other members

Contributors : Can invite members, modify the lexicon, and comment

Readers: Can consult entries, sort lexicon, select and export entries.

+ interactions between learners

+ interactions between learners & teacher

Design & Participants

- Carnegie Mellon University – 2024
- Ecological study on uses and perception
- 10 min presentation before 6 weeks of use

Teacher	Modality	Students
1	Face-to-face class	8 advanced level students
	Face-to-face class	8 intermediary level students
2	Face-to-face class	13 beginner level students
3	Online class	≈ 20 recurrent participants
	Online class	≈ 12 recurrent participants
4	Face-to-face class	7 intermediary level students



Instruments

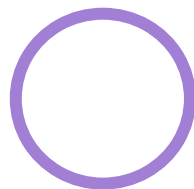
- User traces
- Logbooks
- Interviews
- Focus group



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Results



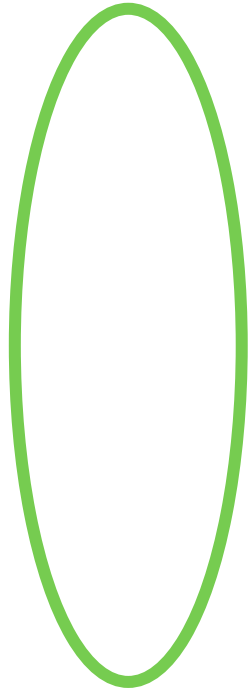


Results

0 0



Results



Teachers' difficulties and usefulness to users

- At first, difficulties to add:
 - Singular
 - Words without article
 - List of words
 - Proper names
 - Idiomatic and non idiomatic expressions
 - Grammar points
- Use the tool to look for the etymology of a word





Teachers' difficulties and usefulness to users

- Usefulness
 - Share the lexicon with a group
 - Put labels & personalize the lexicon
- Being involved in the study
 - For learners: be more aware of the importance of the lexicon
 - For teachers: be more aware of the vocabulary per unit + possibility to filter words by label
- For what learners?
 - T3: difficult because definition in French => a translation function?
 - T2: appropriate for elementary learners (BaLex instead of a translator)
 - Learners: adapted, good to get all the different definitions



Experience the cleaning of entries

Mon lexique

Classe B1-303 ▾

Emotion

Job

Next class
12/01/2024

Actor

Pronunciations

UK: /ˈɑːk.tə/

GA: /ˈæ.k.tə/

Audio (US)

Audio (UK)

Nom

1. Someone who institutes a legal suit; a plaintiff or complainant.
2. Someone acting on behalf of someone else; a guardian.
3. Someone or something that takes part in some action; a doer, an agent.
4. A person who acts a part in a theatrical play or (later) in film or television; a dramatic performer.
My favorite is ...
5. An advocate or proctor in civil courts or causes.
6. The subject performing the action of a verb.
7. The entity that performs a role (in use case analysis).



Experience the cleaning of entries




Mon lexique Classe B1-303 ▾




Emotion Job





Next class
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Actor

Pronunciations

























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“removing the definitions was helpful then it allowed you to go through all of them and then that way you’re kind of more actively engaging with the word”

“there should have been a way to like highlight certain definitions but not delete them entirely maybe”

[focus group]



Potential of the collaborative features

“the best learning is
always a team sport”

[interviews]

“it made learning
vocabulary easier
and more
enjoyable”

[focus group]

“nobody used the collab
features”



Weekly most involved learner

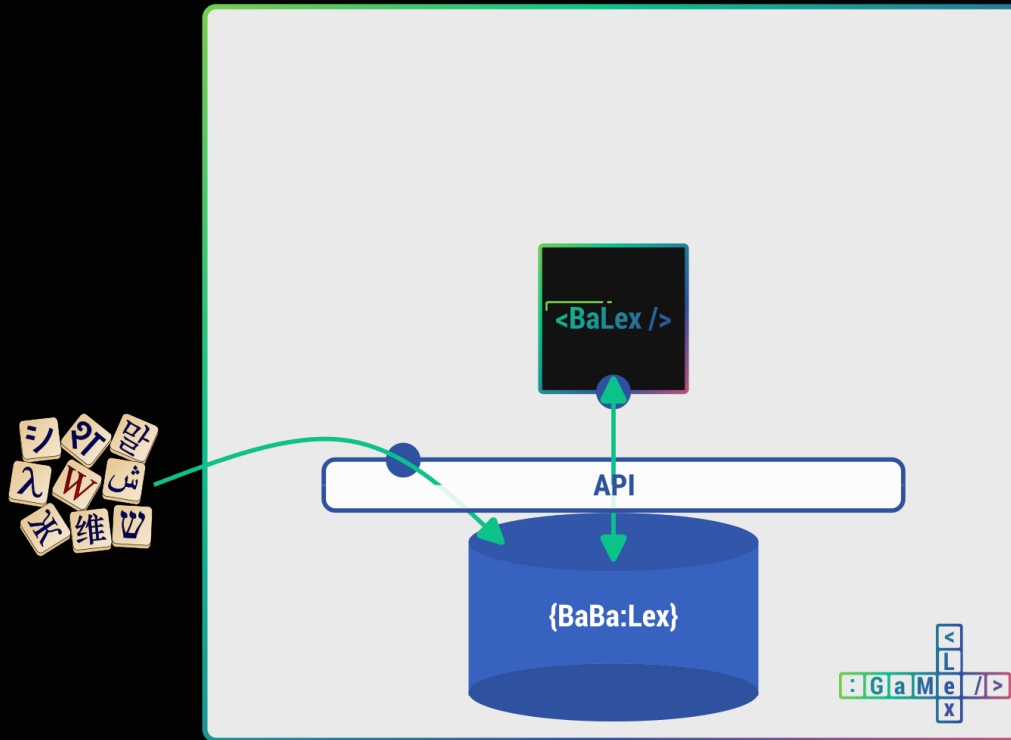


Future works (on the way)

- Technical improvements
 - Response time (wiktextrakt) ✓
 - Responsiveness ⇒
- More languages (wiktextrakt) ⇒
 - Ancient greek (French wiktionary)
 - German
 - Spanish
 - Other languages from French and English wiktionaries
 - Simple English



Future works: Let's use that API!





MagicWord – low level processes

MagicWord 00:19

TARER TAREE ARC
TARES TARE CREAT
TAREES ARCS CREA

205 RATEFS

E₁ O₁ E₁ R₁
T₁ R₁ C₁ S₁
I₁ A₁ E₁ E₁
N₁ T₁ E₁ C₁

MagicWord 00:26

It's something to aim for in English and a football player in French...

0/1 Something done (both en English and French) 0/1

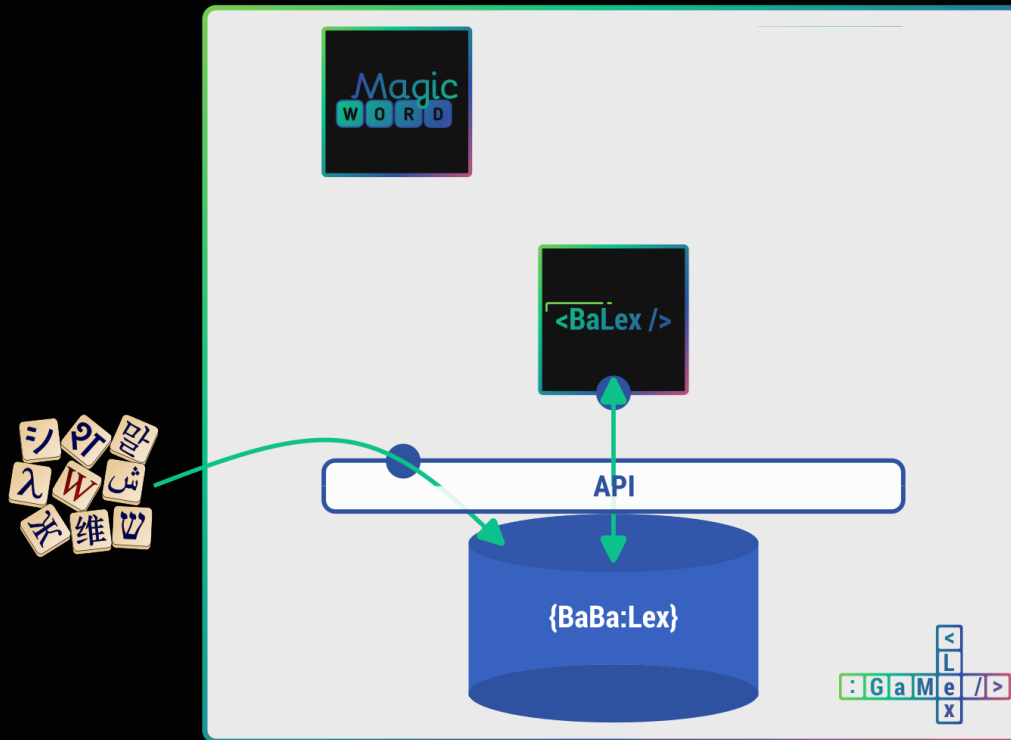
0/6 GOAL

A₁ O₁ A₁ L₁
G₁ N₁ I₁ T₁
A₁ G₁ U₁ C₁
E₁ R₁ E₁ A₁

- Mode 1 (cf. boggle)
 - Form recognition
 - Inflexion/derivation
- Mode 2 (Goals)
 - + Meaning
 - + Use
- Authoring tool
- Generic Lexicon import
 - French
 - Russian, Japanese, Spanish
 - NBA



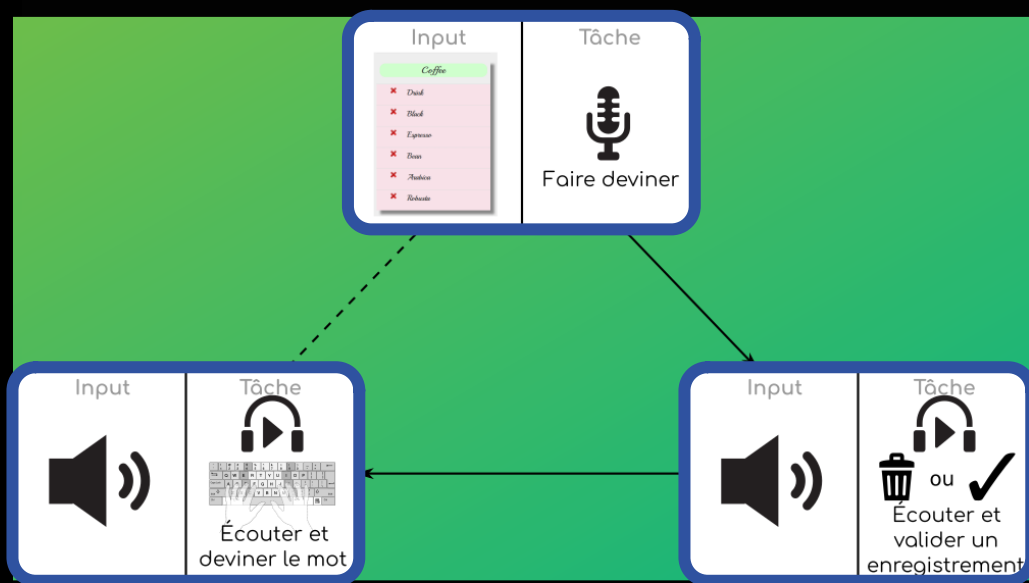
Future works: Let's use that API!



Prisms – higher level processes



- Guessing Game
 - Meaning
 - Use
 - Strategic Competence
 - + pushed output
- User generated content
- Any “utf-8” language



Prisms – higher level processes



ASSOCIATION

4 NO MORE

Message

Scorpion Jam
Aztec Bridge
Washer Air
Vet Apple
Parachute

Redhead
Root
Aphrodisiac

Message

Blond
Carrot
Ginger

Make your liaison agent guess the green words with as few guesses as possible. Make sure they NEVER choose the red word.

Clue	Count
Mexico	2
Cloth	2
Animal	1

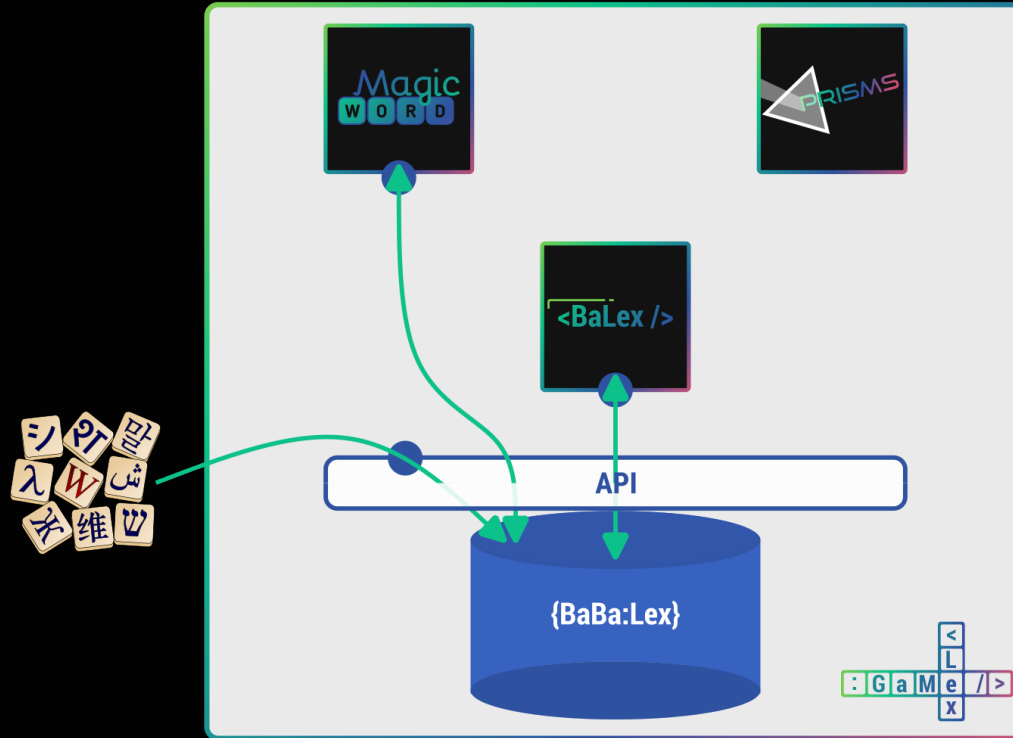
SIGNAL

TRANSMIT

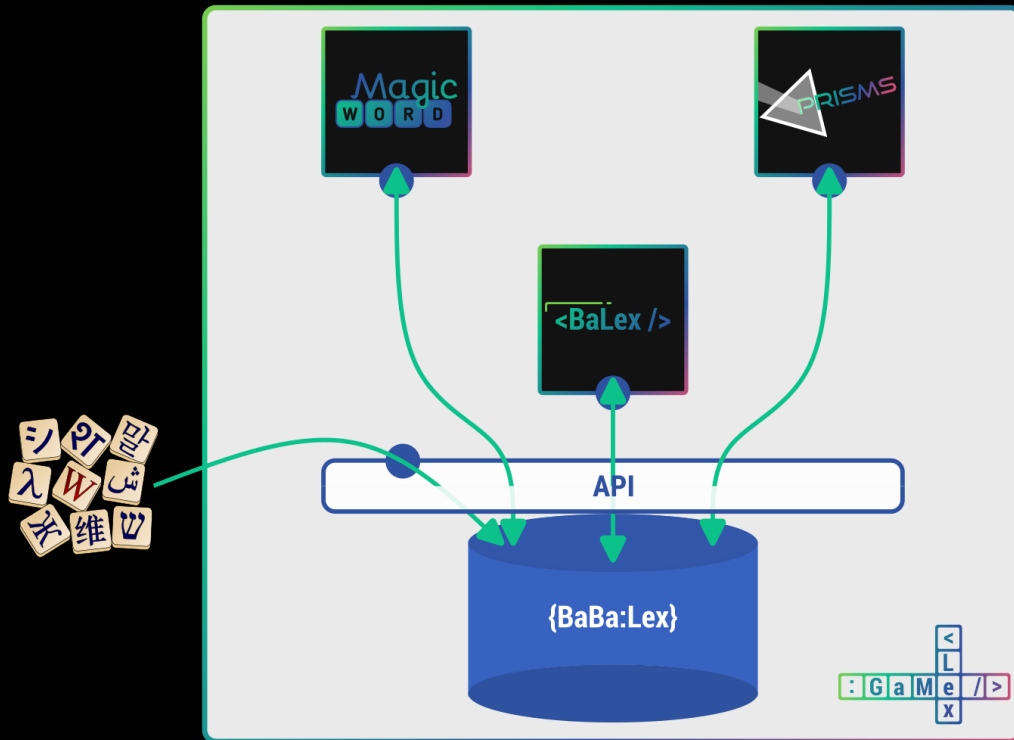


- Guessing Game
 - Meaning
 - Use
 - Strategic Competence
- User generated content
- Any “utf-8” language
- Prisms → new guessing modes

Lex:gaMe Architecture



Lex:gaMe Architecture



Accueil / Moi / Formes trouvées français

A-Z Points Longueur

109 formes trouvées sur 668993, soit 0.0163%

REDUISAIT

LAITIÈRE

MINEUSE

LAITIER

ETIRAIS

Formes trouvées LAI

Forme trouvée par 5

laitière (laitière)

laitière (laitier)

Définition de laitier

1. Relatif au lait.

- o *Au moment de la crise agricole frappant une partie de l'Europe à la fin du 19^e siècle, le pays a pu reconvertir son agriculture fondée sur une production de céréales vers l'industrie **laitière**.* — (Olivier Sigaut & Christophe Premat, *La diffusion des universités populaires en France (1898-1914)*, dans *Coloquio « Formas y espacios de la educación popular en la Europa mediterránea »*, 28-30 octobre 2009)
- o *Les arômes contribuent à rendre le produit agréable au palais, ce qui dépend essentiellement de la présence de produits **laitiers** ou de la matière édulcorante dans la formule.* — (Germain MÉNARD et al., « La Biscuiterie industrielle », dans Armand BOUDREAU & Germain MÉNARD (coordonnateurs), *Le Blé: éléments fondamentaux et transformation*, Presses de l'Université Laval, Québec (QC), 1992, page 305)
- o *La vache marocaine est mauvaise **laitière** : on ne peut guère en tirer qu'un à trois litres de lait, et seulement tant qu'elle allaite.* — (Frédéric WEISGERBER, *Trois mois de campagne au Maroc : étude géographique de la région parcourue*, Paris : Ernest Leroux, 1904, p. 230)



API

{BaBa:Lex}

Description d'une carte

Laitière

- ✗ Perrette
- ✗ Blanc
- ✗ Vache
- ✗ Boisson

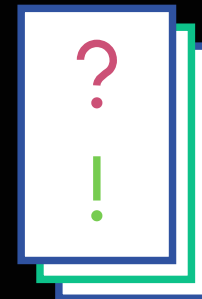
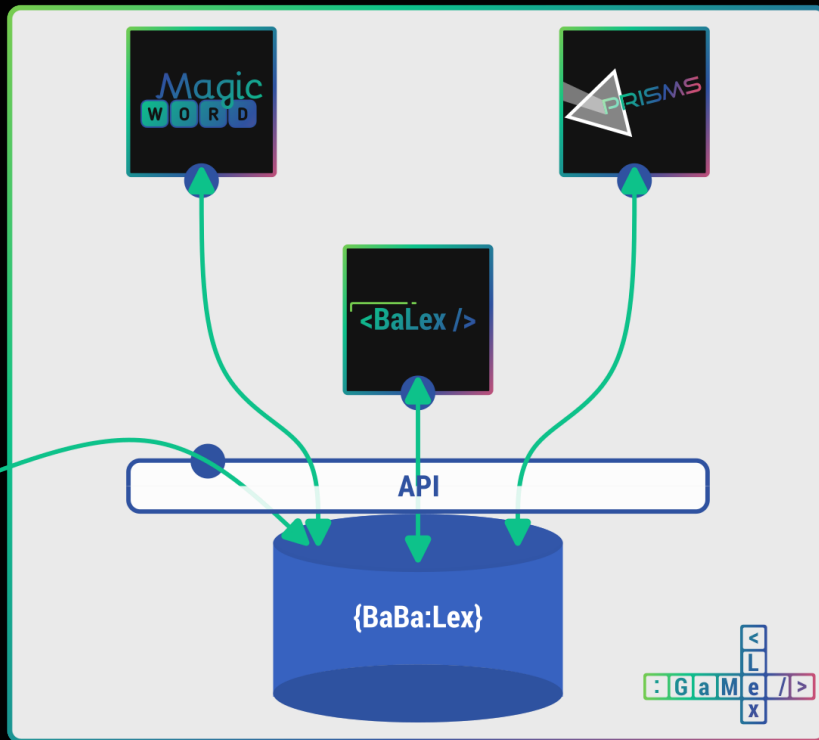
1:27



re jeu ! Afin que nous puissions l'améliorer, vous p
te.



Lex:game Architecture





As a conclusion

- Tool designed for integration within/side-by-side w/ language class
 - Highly customizable to fit existing curriculum
- Keep contact with teachers
- More
 - Activity suggestions
 - Integration suggestions



Thanks for your attention

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