

LEARNING L2 GRAMMAR CONSTRUCTIONS THROUGH AUDIO-VISUAL INPUT: THE ROLE OF APTITUDE

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AUDIO-VISUAL INPUT AND LANGUAGE LEARNING

Original version TV has the potential of providing learners with large amounts of spoken input (Webb, 2014)

The addition of captions benefits language learners (Vanderplank, 2016)



POSITIVE EFFECTS OF AUDIO-VISUAL INPUT

- **Vocabulary** (Montero Perez, 2020; Pujadas & Muñoz, 2019; Suárez & Gesa, 2019)
- **Comprehension** (Rodgers & Webb, 2017)
- **Pronunciation** (Wisniewska & Mora, 2020)
- **Grammar** (Cintrón-Valentín et al., 2021; Lee & Révész, 2020; Pattemore & Muñoz, 2020)

ON-SCREEN TEXT MODES

- Captions



ON-SCREEN TEXT MODES

- Captions
- Textually **enhanced** captions(TE)



ON-SCREEN TEXT MODES

- Captions
- Textual enhancement
- **No Captions**



GRAMMAR AND AUDIO-VISUAL INPUT

Artificial audio-visual materials:

TE captions > Unenhanced captions (Lee & Révész, 2018) > No Captions (Lee & Révész, 2020)

Captioned videos (with TE vocabulary/grammar) > No captions (Cintrón-Valentín et al., 2019; Cintrón-Valentín & García-Amaya, 2021)

Authentic audio-visual input:

Frequent viewers had better grammar constructions knowledge (Kusyk & Sockett, 2014)

Captions > No Captions (Pattemore & Muñoz, 2020)

INDIVIDUAL DIFFERENCES AND AUDIO-VISUAL INPUT

Proficiency

Higher proficiency advantage (e.g. Pujadas & Muñoz, 2019; Suárez & Gesa, 2019)

Language competency threshold (Danan, 2004)

Working memory

Higher WM capacity, better vocabulary recognition (Montero Perez, 2020)

Higher WM capacity is needed to process uncaptioned audio-visual input (Pattemore & Muñoz, 2020)

LANGUAGE LEARNING APTITUDE

Specific talent/set of abilities that predicts capacity, readiness, rate, and speed of language learning.

(Wen et al., 2016)

Aptitude scores are moderately associated with grammar learning (see a meta analysis by Li, 2016)

Aptitude is multicomponential (MLAT, LLAMA).

Little research on how each subtest (i.e. aptitude component tapped by the test) influences language learning rate.

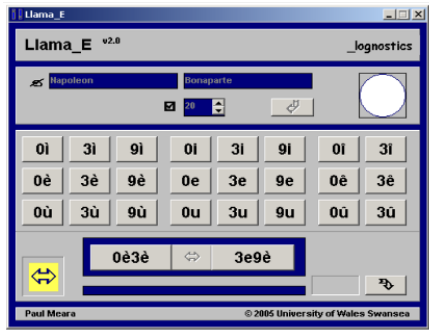
APTITUDE MEASUREMENT - LLAMA



B: Associative memory



D: Patterns recognition in spoken language



E: sound-symbol association



F: Analytical ability to inference and learn grammatical structures

APTITUDE AND ON-SCREEN TEXT

LLAMA measures two kinds of language learning aptitude (Grañena, 2013, 2019)

1. Explicit learning aptitude (B, E, F): rote learning

2. Implicit learning aptitude (D): implicit induction, memorization (and proceduralization and explicit memory - Suzuki, 2021)



B: Vocabulary learning
(word + image)



D: Phonetic memory
(no subtitles)



E: Sound-symbol
correspondence
(subtitles in L2)

APTITUDE AND AUDIO-VISUAL INPUT

Aptitude plays a role in processing audio-visual input, especially in vocabulary.

Aptitude more relevant when proficiency levels are lower and when tasks are more cognitively demanding (Suárez & Gesa, 2019; Gesa & Suárez, 2019).

In younger populations (MLAT-EC), aptitude sub-tests and overall score correlate with vocabulary gains with subtitled audiovisual input (Gesa & Suárez, 2018).

AUDIO-VISUAL INPUT, APTITUDE, AND GRAMMAR

- No effect of aptitude on grammar learning by Captions and No Captions groups (Pattemore @ Muñoz, 2020)
- May have been overpowered by WM and proficiency

THE STUDY

RESEARCH QUESTIONS

1. To what extent does sustained exposure to audio-visual input affect L2 grammar constructions learning?
2. To what extent does language learning aptitude have an effect on this learning?
 - 2a. To what extent does LLAMA global score predict learning?
 - 2b. To what extent do separate LLAMA subtests predict learning?

PREDICTIONS

1. Language learning aptitude could have an effect on No Captions group's learning (as additional support).
2. The TE group are likely to rely the least on their language learning aptitude.
3. LLAMA F should have an effect on grammar constructions learning.
4. LLAMA D is likely to affect No Captions condition more.

PARTICIPANTS

107 Catalan/Spanish bilingual participants

A1-C1 proficiency (CEFR)

Captions (n=39)

No Captions (n=29)

Textually enhanced captions (n=39)



TV SERIES



CONSTRUCTION GRAMMAR

- The basic units of grammar
- Inseparability of lexis and grammar (Römer, 2009)
- Grammatical patterns that combine two or more morphemes lexically (Goldberg, 2003)

TARGET GRAMMAR CONSTRUCTIONS

- A total of 27 target constructions

6 Fully-filled (e.g. *do for a living*)

11 Partially-filled (with at least one variable slot, e.g. *the Xer the Yer*)

10 Fully-schematic (e.g. *passive*)

(Fried, 2015)

INSTRUMENTS

- LLAMA language aptitude test (Meara, 2005)
LLAMA B, LLAMA D, LLAMA E, LLAMA F
- Productive grammar exercises for the pre-/post tests

EXAMPLE OF PRE- / POST TEST

Examples of the pre- and post-tests' items.

A. Complete each sentence with **two to five words**, including the word in **bold**

1. I really liked that lesson.

LIKE I _____ that lesson.

2. I want to go on holiday, but I haven't got enough money.

WISH I _____ enough money to go on holiday.

3. John is making some coffee for us.

IS The coffee _____ by John.

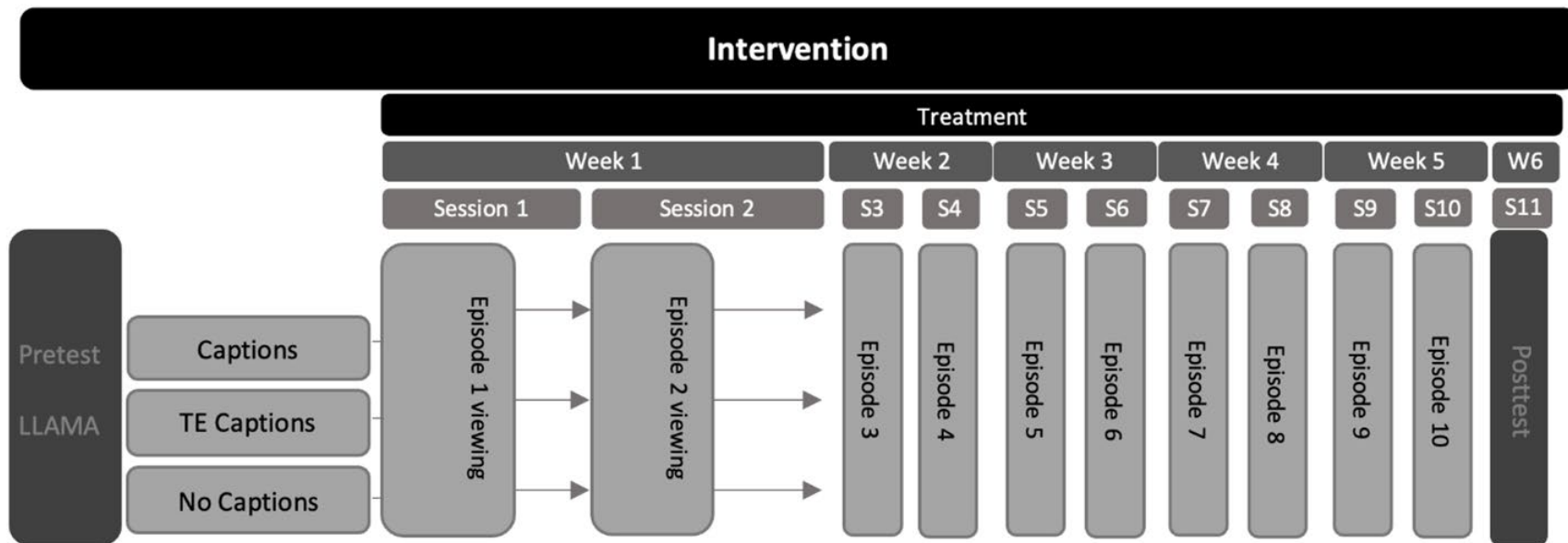
B. Complete the sentences using a form of the words in brackets

4. This time tomorrow he _____ (watch) a new episode of his favourite show.

5. You are home early. I thought you _____ (will) play tennis with Alex all afternoon long.

6. _____ (old) he gets, _____ (tall) he grows.

PROCEDURE



RESULTS

DATA ANALYSIS IN SPSS

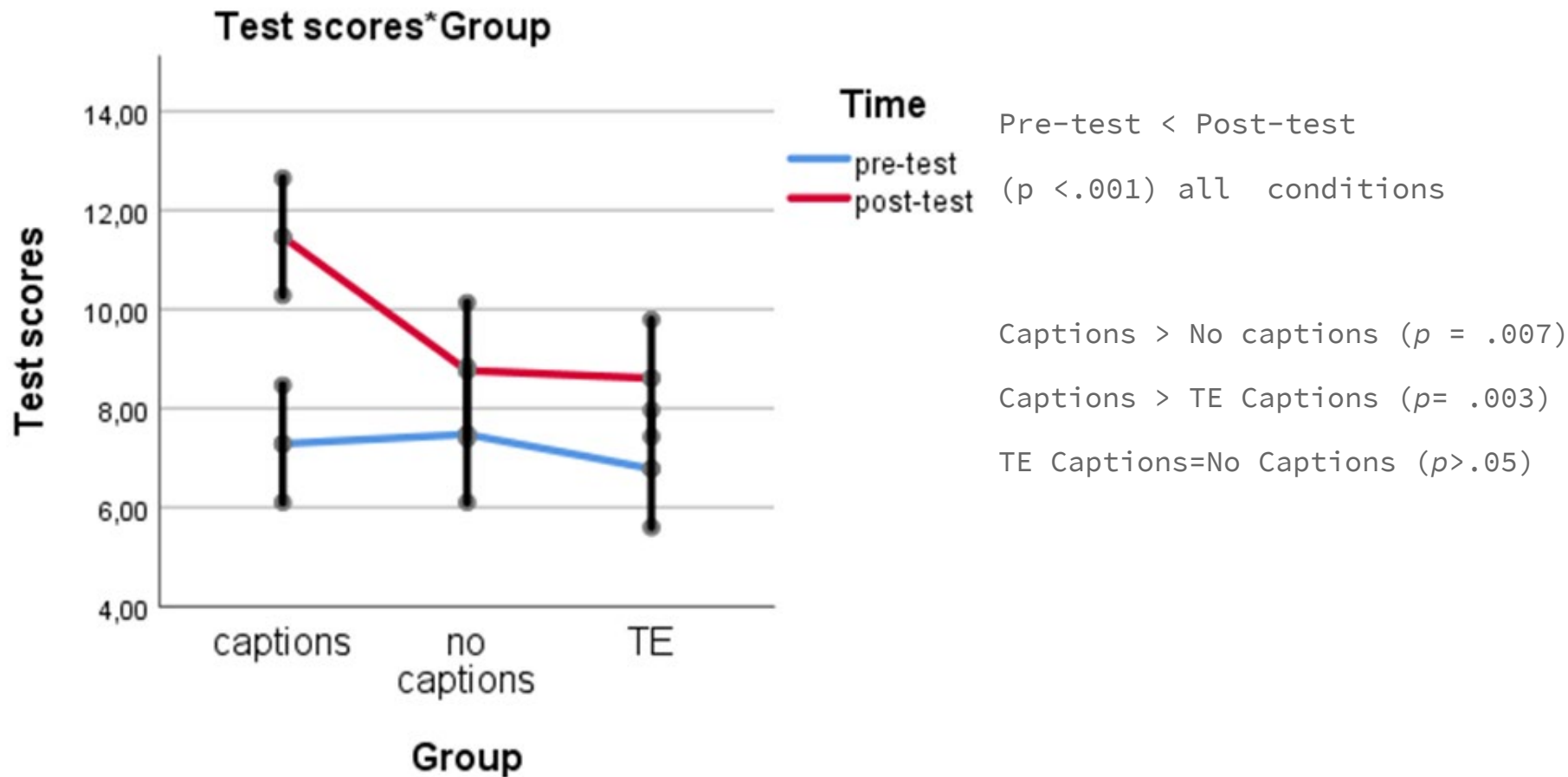
Low and high aptitude levels (median split)

Linear model for repeated measures

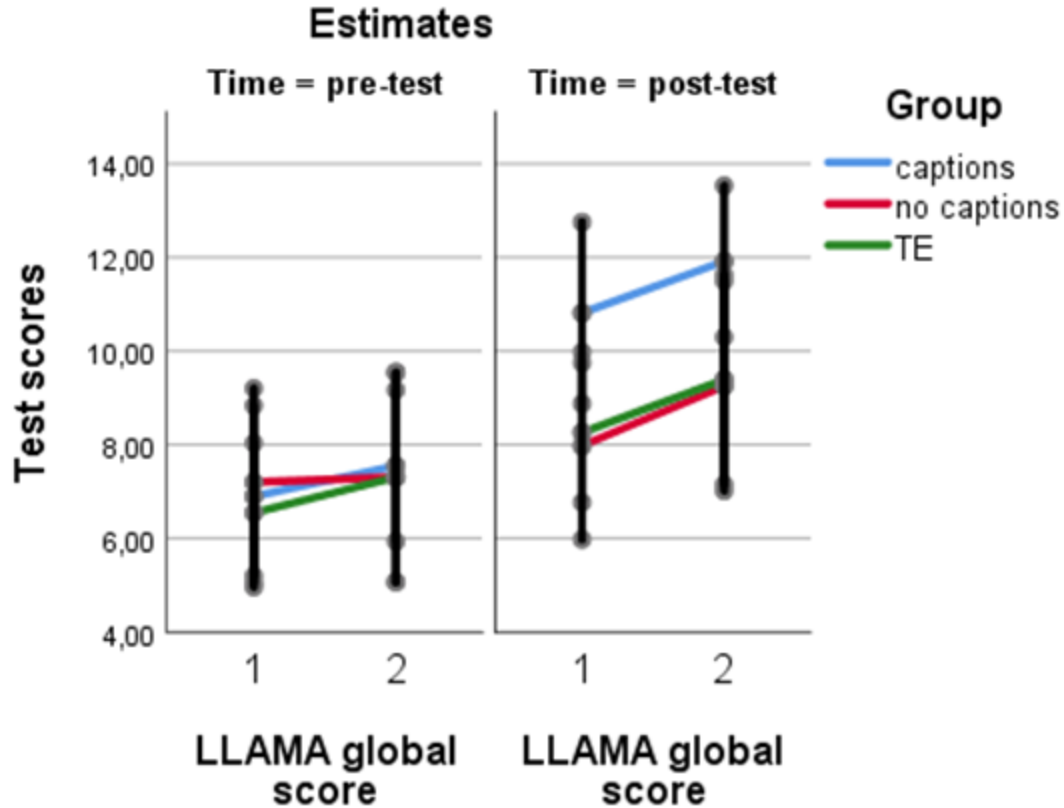
DV: Test scores

IV: Condition, LLAMA level, Time (pre-test or post-test)

RQ1: LEARNING FROM SUSTAINED EXPOSURE



RQ2A: LLAMA GLOBAL SCORE



LLAMA level*Condition

$F(4, 618) = 4.656, p = .001$

WITHIN GROUPS PRE-TEST – POST-TEST COMPARISON

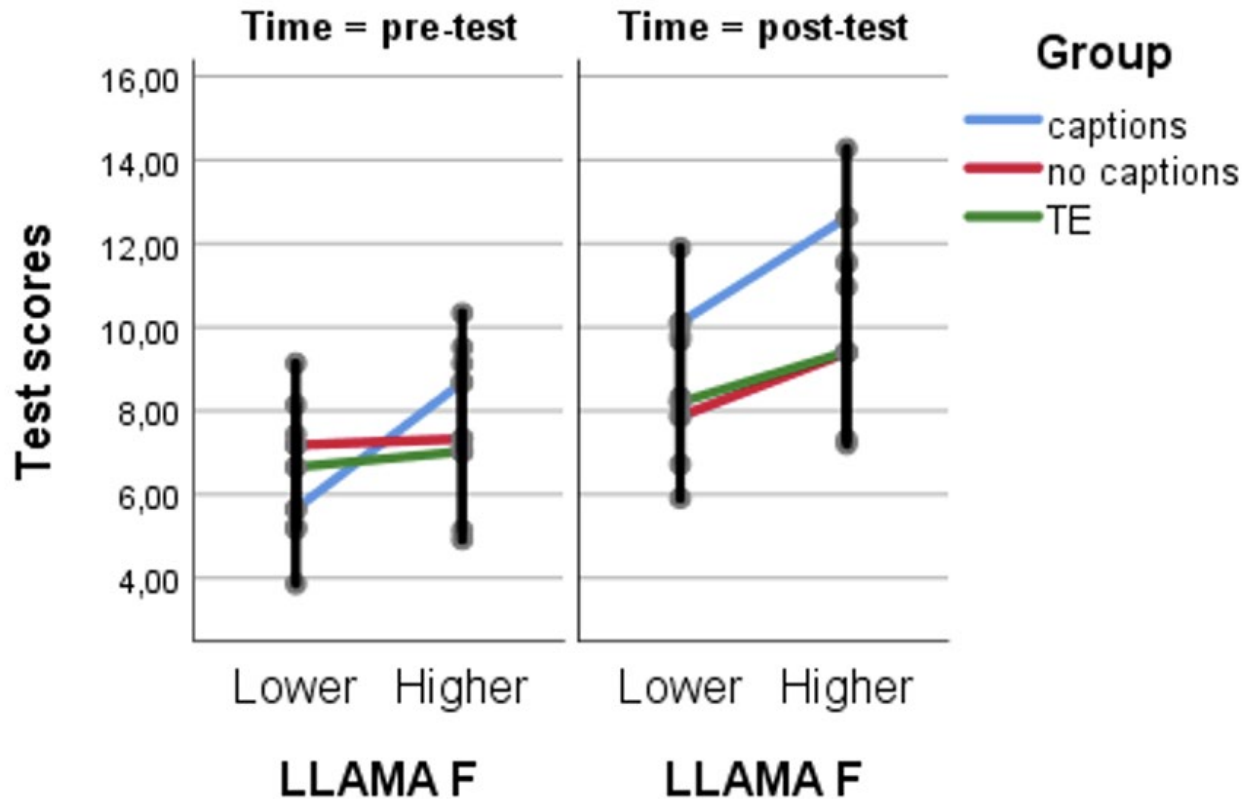
Aptitude level	Condition	Estimate (SE)	t	Adj. Sig
Lower Aptitude	Captions	3.917 (.704)	5.560	<.001
	No Captions	.778 (.728)	1.069	.285
	TE Captions	1.716 (.542)	3.164	.002
Higher Aptitude	Captions	4.362 (.588)	7.425	<.001
	No Captions	1.944 (.813)	2.390	.017
	TE Captions	2.083 (.813)	2.561	.011

BETWEEN GROUPS POST-TEST SCORES COMPARISON

Aptitude level	Condition	Estimate (SE)	t	Adj. Sig
Lower aptitude	Captions – No Captions	2.835 (1.418)	1.999	.046
	Captions – TE Captions	2.553 (1.245)	2.051	.041
	TE Captions – No Captions	.281 (1.271)	.221	.825
Higher Aptitude	Captions – No Captions	2.663 (1.405)	1.895	.059
	Captions – TE Captions	2.524 (1.405)	1.796	.073
	TE Captions – No Captions	.139 (1.611)	.086	.931

RQ2B: LLAMA SUBTESTS

Estimates



LLAMA F level*Condition

$F(4, 618) = 5.408, p < .001$

WITHIN GROUPS PRE-TEST – POST-TEST COMPARISON

LLAMA F levels	Group	Estimate (SE)	t	Adj.Sig.
Lower aptitude	Captions	4.463 (.663)	6.727	<.001
	No Captions	.689 (.727)	.948	.344
	TE Captions	1.551 (.552)	2.810	.005
Higher Aptitude	Captions	3.937 (.614)	6.409	<.001
	No Captions	2.056 (.813)	2.530	.012
	TE Captions	2.385 (.781)	3.055	.002

DISCUSSION
AND
CONCLUSIONS

SUMMARY RQ1

- Positive effect of audio-visual input on three conditions
- Stronger benefit of unenhanced captions
- Probable cognitive overload caused by an excessive amount of TE captions did not let them outscore no captions group

(see Pattemore & Muñoz, under review)

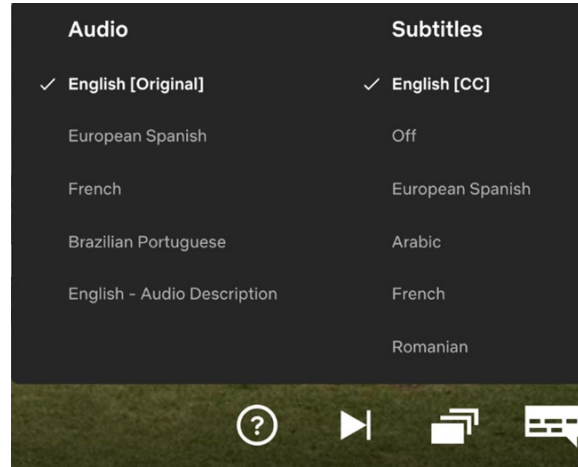
SUMMARY RQ2

- Higher aptitude is needed to process uncaptioned input
- Captions and TE captions groups' scores were not affected by aptitude levels (low/high)
- Captions (both enhanced and unenhanced) level the playing ground
- When the aptitude level is low, unenhanced captions are recommended (Captions-TE Captions difference)
- Grammatical inferencing aptitude plays a role

LIMITATIONS AND FURTHER RESEARCH

- Number of textually enhanced constructions might have affected the learning
- Different types of constructions might yield different results
(Pattemore & Muñoz, under review)
- The effects of aptitude on each type of construction might differ as well (implicit vs explicit)
- Interplay between aptitude, WM and proficiency (Pattemore & Muñoz, 2020)

IMPLICATIONS AND CONCLUSIONS



- Audio-visual input as a useful tool for grammar construction learning, especially with unenhanced captions
- A higher aptitude level needed to handle no captions
- Captions (and subtitles) common situation in extramural exposure to audio-visual input that can be exploited formally

THANK YOU!!!

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