

## The Face Recall and Face Recognition: Description Accuracy Does Not Indicate Eyewitness Identification Accuracy

Adnan Fazlić<sup>1</sup>, Irma Deljkic<sup>2</sup>

University of Sarajevo, Faculty of Criminal Justice and Security Studies  
Bosnia and Herzegovina

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**Abstract:** Eyewitness testimonies are frequently considered crucial in criminal investigations. The impact of the initial description provided by an eyewitness on subsequent identification accuracy remains an understudied area. We employed a slightly modified version of Schooler and Engstler-Schooler's experimental approach to assess whether description quantity and quality are related to lineup identification accuracy. The sample comprised 99 undergraduate students from the University of Sarajevo. More than 50% of our participants made an accurate lineup identification, whereas they recalled and described only the general physical characteristics with minimal detail. No significant relationship between the quantity/quality of descriptions and identification accuracy was observed in terms of the total number of words, total number of details in the description, and individual characteristics that participants mentioned in the description. In other words, neither an extensive nor a detailed description effectively predicts lineup identification accuracy. Finally, our findings suggest that the recognition task is significantly less challenging for participants than the recall and description tasks because descriptions provide a general impression of an individual and lack detailed information. The findings of this study indicate that a more detailed and extensive description does not serve as a reliable indicator of lineup identification accuracy.

**Keywords:** perpetrator description, lineup identification accuracy, eyewitness identification, eyewitness testimony.

### INTRODUCTION

Eyewitness testimony is frequently considered crucial in criminal investigations and may occasionally be the only evidence for identifying perpetrators (Wells & Olson, 2003). Eyewitness statements are commonly used as compelling evidence and historically regarded as the gold standard of proof (Ling et al., 2021; Albright & Garrett, 2022). However, practitioners generally consider this evidence inaccurate and unreliable, particularly

<sup>1</sup> Corresponding author: afazlic@fkn.unsa.ba • <https://orcid.org/0000-0002-4419-1828> • Phone: +387 61 38 22 66

<sup>2</sup> ideljkic@fkn.unsa.ba • <https://orcid.org/0001-5699-6095>



for eyewitness identification (Wells, 2020). The importance of eyewitness testimony has led to numerous studies showing that various factors can affect perpetrator description accuracy (e.g. Berkowitz et al., 2020; Lockamyeir et al., 2020; Anakwah et al., 2020; Marr et al., 2021; Baić et al., 2022), as well as eyewitness identification accuracy (Fazlić et al., 2020; Bull Kovera & Evelo, 2020; Seale-Carlisle et al., 2022; Wixted & Wells, 2017). These findings have resulted in best practices for conducting eyewitness interviews and line-ups to maximise the reliability of eyewitness evidence (Wells et al., 2020). Despite these advancements, the impact of the initial description provided by an eyewitness on subsequent identification accuracy remains an understudied area, warranting further research (Fahsig et al., 2004).

Police officers routinely collect detailed suspect descriptions from eyewitnesses, covering attributes such as age, sex, race, height, physique, and distinctive features (Launay et al., 2021). These descriptions help to narrow the range of potential suspects and guide line-ups (Mickes, 2016). However, the verbal overshadowing effect indicates that describing a perpetrator can impair memory and reduce identification accuracy (Schooler & Engstler-Schooler, 1990; Meissner & Brigham, 2001; Alogna et al., 2014). Some studies have replicated this effect (e.g. Marmurek et al., 2021; Bacharach & Baker, 2024), while others have not or found a reversal (Sauerland et al., 2008; Vredeveldt et al., 2015). Despite these mixed findings, researchers continue to explore ways to mitigate the potential negative effects of verbal descriptions on eyewitness memory, while preserving their investigative value.

Building on these conflicting results, researchers have begun to apply alternative approaches to enquire about the influence of verbal descriptions on eyewitness memory. In analysing post-identification statements, two factors – description quality and amount of detail – can predict identification accuracy with 70% identification accuracy (Short & Dalby, 2007). Despite divergent findings (e.g. Meissner et al., 2007; Demarchi & Py, 2009; Pozzulo et al., 2009; Sheahan et al., 2017; Areh & Walsh, 2020; Handler & Frühholz, 2021), research shows that quantity and quality of description do not consistently affect identification accuracy. Also, Pozzulo et al. (2013) found that in this respect there are no differences between adults and adolescents (Generation Z). Inconsistent relationships between descriptive characteristics and identification accuracy impede the assessment of eyewitness reliability. The influence of verbal descriptions on accuracy remains complex and may depend on various factors.

This study explored the link between the quantity and quality of verbal descriptions and eyewitness identification accuracy, with the understanding that recalling and recognising human faces may involve different cognitive processes (Wells, 1984). As the first of its kind in Bosnia and Herzegovina, it aims to: (1) assess the quantity and quality of the description and its relationship to the accuracy of the lineup identification; (2) explore whether the eyewitness description features (quantity and quality of description) influence their ability to identify a suspect in a lineup accurately; (3) compare this study's findings globally, exploring cultural socialization's impact on memory processes and generational differences, particularly the cognitive challenges digitalization poses to Generation Z.



## METHODS

### EXPERIMENTAL APPROACH TO THE PROBLEM

The present study employed a slightly modified experimental design from Schooler and Engstler-Schooler (1990), which comprised a series of six experiments. Their findings demonstrated a detrimental effect of verbal description on subsequent identification of a target face. This phenomenon is referred to as verbal overshadowing. More specifically, the present study replicates the experimental (face verbalisation) conditions of Schooler and Engstler-Schooler's Experiment 2. Using a between-subjects experimental design with counterbalancing, this study explored the impact of eyewitness description quality and quantity (independent variables) on eyewitness identification accuracy (dependent variable). This experimental design is used to assess whether the quantity and quality of descriptions influence the accuracy of eyewitness identification, whilst controlling for order effects by counterbalancing the order of description and the filler task. It comprised two experiments, each consisting of four steps. In Experiment 1, participants first watched a 44-second mock bank robbery video and then spent five minutes describing the robber. Next, they completed a 20-minute filler task (an easy crossword puzzle), and finally, they identified the robber from a photo of eight people. Experiment 2 swapped the second (five-minute description) and third (20-minute filler task) steps. The study used the original Schooler and Engstler-Schooler's (1990) critical video and test photos, but the instructions and filler task were in the Bosnian language.

### PARTICIPANTS

The sample comprised undergraduate students from the University of Sarajevo – UNSA ( $N = 99$ ; 57 – male, 42 – female), with a mean age of 19.14 years ( $AM = 19.14$  years;  $SD = .808$ ) who participated individually but in groups of up to ten (for course credit). All the participants were first-year undergraduate students. Participants were randomly assigned to two experiments: Experiment 1 ( $N = 49$ ) and Experiment 2 ( $N = 50$ ). The characteristics of the two groups are presented in Table 1. The experimental groups were homogeneous in terms of sex, year of study, and age. Informed consent was obtained from all participants.

**Table 1. Characteristics of the Participants**

Variable	Category	Total		Experiment 1		Experiment 2	
		N	%	N	%	N	%
Gender	Male	57	57.6	26	53.1	32	62.0
	Female	43	42.4	23	46.9	19	38.0
		M		19.14		18.94	
Age	SD	.808		.659		.895	
	Min	18		18		18	
	Max	22		21		22	

*Note.* M – mean; SD – standard deviation; Min – minimum value; Max – maximum value; N – number of respondents.



## MEASUREMENTS AND PROCEDURES

The procedure for conducting Experiment 1 necessitated that the participants, before commencement, be informed that the experiment comprised several tasks. Initially, they were presented with a 44-second video depicting a simulated robbery. Subsequently, the participants were requested to describe the appearance of the perpetrator and provide their responses in written form on a specifically designed document. A five-minute duration was allocated for the completion of these tasks. After three minutes, participants in this experiment were instructed in all instances to continue describing to provide a more comprehensive description. The second task commenced upon the expiration of the time allocated to the aforementioned task. This task involved solving crossword puzzles for which each participant received a copy of the crossword form. The duration allocated for this task was 20 minutes. Upon completion of the previously mentioned task, the participants performed the final task, which involved identifying the person from the video in a set of photographs. Accordingly, eight photographs (1–8) of potential perpetrators from the video in the first task were presented to the participants via a monitor or projector. Participants were instructed to circle one number from 1 to 8, corresponding to the photograph that they believed depicted the perpetrator. Additionally, if any participant believed that the perpetrator was not represented in any of the photographs, they had the option of circling the number 9.

The procedure for Experiment 2 involved the same tasks and periods for their completion; however, this procedure included a permutation of the second (describing the perpetrator) and third (solving the crosswords) tasks from Experiment 1. The final phase of Experiment 2's procedure was identical to that outlined in the procedure for Experiment 1 and involved identifying the perpetrator from one of the eight presented photographs.

Attributes from the verbal descriptions were extracted and coded by a single researcher. The coder was familiar with the coding procedure, study objectives, and specific criteria for evaluating the quality and quantity of descriptions. Each description was coded according to the established criteria (1 = correct, 2 = partly correct, 3 = incorrect) to ensure consistency in the evaluation of the quantity and quality of the descriptions. To ensure coding reliability and consistency, despite having one coder, several measures were implemented. These included recoding a subset of descriptions (approximately 10–20%) by the same individual after a time period to evaluate temporal consistency. The coder regularly examined the rubric to maintain adherence to coding criteria and reduce potential bias.

## STATISTICAL ANALYSES

Initial data entry into the database preserved the original form of the participants' responses. They were then classified into various distinct groups based on the perpetrator's characteristics, including hair, forehead, ears, eyebrows, eyes, nose, facial hair, mouth shape, jaw shape, clothes, gender, build, race, face shape, and teeth. Following this, each category of individual description for which information was gathered was evaluated against the actual description of the perpetrator.

Responses were categorised according to their level of accuracy in describing the offender's actual appearance. A correct description was assigned a code of 1, a partly correct de-



scription was given a code of 2, and an incorrect description was coded as 3. Participants who failed to provide any description were deemed unable to characterise certain aspects of the offender and were omitted from the analysis. In the photo identification lineup, the correct position is 6.

Statistical analyses were performed using IBM SPSS Statistics (Version 21.0) (IBM Corp, 2012). Descriptive statistics for each variable/category was calculated, including the mean, standard deviation (SD), minimum (Min), and maximum (Max). The analysis focused on the descriptions provided by participants regarding the individual depicted in the video. Specifically, the term “words pertaining to facial features” refers to all words used to describe the facial appearance of the person shown, regardless of whether the description was accurate. To assess the number of correct details, a flexible approach was adopted. For example, since the individual in the video had dark brown hair and eyes, any description approximating the hair colour (e.g., “dark hair”, “dark brown hair”, “black hair”, “brown hair”) or eye colour (e.g., “dark eyes”, “brown eyes”) was considered correct. In contrast, incorrect descriptions were those that did not reasonably describe the person’s appearance (e.g., “light hair”, “blonde hair”, “grey hair”, “blue eyes”, “green eyes”). This approach was consistently applied when analysing the descriptions in both experiments.

An independent samples t-test was used to compare the mean values of the quantity of descriptions between the groups of participants who made accurate and inaccurate lineup identifications. In this context, the mean values of the total number of words in the description, the total number of words in the description pertaining to the facial features, the total number of correct details in the description, and the total number of incorrect details in the description were considered. Additionally, a chi-square test of independence was used to examine the relationship between the accuracy of the description and lineup identification.

## RESULTS

Descriptive statistical analysis was specifically directed towards the quantification of descriptions in terms of four key parameters: a) the number of words in the description, b) the number of words pertaining to facial features, c) the number of accurate details, and d) the number of inaccurate details. The results revealed that, on average, participants used 35.1 words to describe the individual, with 18.1 words, on average, dedicated to the facial characteristics of the person. In terms of accuracy, the mean number of correct details was 7.6, while the mean number of incorrect details was 10.5. These findings indicate that approximately half of the words in the descriptions were related to facial characteristics. Moreover, the data suggest that participants tended to include slightly more incorrect details than correct ones in their descriptions (see Table 2).



**Table 2. Quantitative Analysis of the Description**

Description quantity	M	SD	Min	Max
The number of words in the description	35.1	18.9	6	79
The number of words in the description pertaining to the facial features	18.1	12.1	0	60
The number of accurate details	7.6	5.3	0	37
The number of inaccurate details	10.5	9.3	0	50

Note. M – mean; SD – standard deviation; Min – minimum value; Max – maximum value.

Furthermore, as part of the analysis of the descriptions obtained in the experiment, attention was also given to the facial features most frequently included in the descriptions by participants from the experimental groups. The analysis revealed that participants most often described the following five characteristics: gender, hair, facial hair, clothing, and eyes (see Table 3).

**Table 3. Description Accuracy**

Variable	Frequency		Accuracy (%)		
	N	%	Correct	Partly correct	Incorrect
Hair	89	89.9	39.3	58.4	2.2
Forehead	6	6.1	66.7	33.3	0.0
Ears	3	3.0	0.0	33.3	66.7
Eyebrows	15	15.2	40.0	40.0	20.0
Eyes	41	41.4	58.5	31.7	9.8
Nose	14	14.1	14.3	50.0	35.7
Facial hair	83	83.8	50.6	42.2	7.2
Mouth shape	5	5.1	60.0	20.0	20.0
Jaw shape	2	2.0	50.0	0.0	50.0
Clothes	81	81.8	11.1	74.1	14.8
Gender	97	98.0	100.0		0.0
Build	12	12.1	58.3	8.3	33.3
Race	6	6.1	83.3	0.0	16.7
Face shape	9	9.1	11.1	44.4	44.4
Teeth	0	0			

Note. N = number of descriptions including corresponding attribute.



An independent samples t-test was used to compare the total word count in descriptions with the lineup identification accuracy. The difference in word count between participants who made accurate identifications ( $M = 31.9$ ;  $SD = 18.1$ ) and those who made inaccurate identifications ( $M = 38.4$ ;  $SD = 19.3$ ) was not statistically significant ( $t [97] = -1.72$ ,  $p > 0.05$ ). Similarly, no significant difference was found in the word count for facial characteristics between the accurate ( $M = 17.7$ ;  $SD = 12.9$ ) and inaccurate groups ( $M = 18.6$ ;  $SD = 11.3$ ) ( $t [97] = -0.37$ ,  $p > 0.05$ ). For the qualitative aspect of the verbal description, no significant difference was found in the correct details ( $t [97] = -1.06$ ,  $p > 0.05$ ) between those who accurately identified the target ( $M = 7.1$ ;  $SD = 5.8$ ) and those who did not ( $M = 8.2$ ;  $SD = 4.9$ ). Additionally, there was no significant difference in incorrect details ( $t [97] = .09$ ,  $p > 0.05$ ; correct identification:  $M = 10.6$ ;  $SD = 9.9$ ; incorrect identification:  $M = 10.4$ ;  $SD = 8.7$ ). These results indicate that the quantity and quality of verbal descriptions did not differ significantly between accurate and inaccurate identifications.

The statistical relationship between the description and lineup identification accuracy was subsequently examined. Specifically, a chi-square test of independence was conducted to ascertain whether correct, partly correct, or incorrect descriptions of certain characteristics could serve as indicators of correct or incorrect identification in the lineup. The results did not reveal a statistically significant relationship (Table 4).

**Table 4. Relationship Between the Description and Lineup Identification Accuracy**

Described feature	Description accuracy	Identification accuracy		Test of differences	
		Total			
		Accurate N (%)	Inaccurate N (%)		
Hair	Correct	19 (21.3)	16 (18.0)	$\chi^2(2) = 2.23$ , $p = .33$	
	Partly correct	27 (30.3)	25 (28.1)		
	Incorrect		2 (2.2)		
Forehead	Correct	2 (33.3)	2 (33.3)	$\chi^2(1) = 0.94$ , $p = .76$	
	Partly correct	2 (33.3)			
	Incorrect				
Ears	Correct			a	
	Partly correct	1 (33.3)			
	Incorrect	2 (66.7)			
Eyebrows	Correct	1 (6.7)	5 (33.3)	$\chi^2(2) = 5.97$ , $p = .05$	
	Partly correct	2 (13.3)	4 (26.7)		
	Incorrect	3 (20.0)			



	Correct	11 (26.8)	13 (31.7)	
Eyes	Partly correct	5 (12.2)	8 (19.5)	$\chi^2(2) = 1.65, p = .44$
	Incorrect	3 (7.3)	1 (2.4)	
	Correct	1 (7.1)	1 (7.1)	
Nose	Partly correct	3 (21.4)	4 (28.6)	$\chi^2(2) = 0.58, p = .97$
	Incorrect	2 (14.3)	3 (21.4)	
	Correct	18 (21.7)	24 (28.9)	
Facial hair	Partly correct	19 (22.9)	16 (19.3)	$\chi^2(2) = 1.48, p = .48$
	Incorrect	2 (2.4)	4 (4.8)	
	Correct	1 (20.0)	2 (40.0)	
Mouth shape	Partly correct	1 (20.0)	0 (0.0)	$\chi^2(2) = 2.22, p = .33$
	Incorrect		1 (20.0)	
	Correct		1 (50.0)	
Jaw shape	Partly correct			$\chi^2(1) = 0.00, p = 1.00$
	Incorrect	1 (50.0)		
	Correct	4 (4.9)	5 (6.2)	
Clothes	Partly correct	29 (35.8)	31 (38.3)	$\chi^2(2) = 2.22, p = .33$
	Incorrect	8 (9.9)	4 (4.9)	
	Correct	48 (49.5)	49 (50.5)	
Gender	Incorrect			<sup>a</sup>
	Correct	5 (41.7)	2 (16.7)	
Build	Partly correct		1 (8.3)	$\chi^2(2) = 2.01, p = .37$
	Incorrect	2 (16.7)	2 (16.7)	
	Correct	1 (16.7)	4 (66.7)	
Race	Partly correct			$\chi^2(1) = 0.00, p = 1.00$
	Incorrect		1 (16.7)	
	Correct	1 (11.1)		
Face shape	Partly correct	2 (22.2)	2 (22.2)	$\chi^2(2) = 1.12, p = .57$
	Incorrect	3 (33.3)	1 (11.1)	
	Correct			

Note. N – number of respondents; <sup>a</sup> – the lack of variability in respondents' answers precluded the possibility of examining discrepancies in the frequency of answers in the identification accuracy.



No statistically significant relationship between the description and lineup identification accuracy was observed, even when the results were analysed through the lenses of Experiments 1 and 2. The temporal interval between description and photo lineup identification, as well as the delay between viewing the video and providing the description, did not demonstrate a statistically significant influence on the outcomes.

## DISCUSSION

The primary finding of the present study indicates that participants found the human face recognition task to be easier than the recall and description tasks. This observation supports the idea that face recall and face recognition are distinct cognitive processes with differing demands. While recall requires the active generation and retrieval of facial identity, recognition relies on a familiarity judgment of the currently viewed face (Griffin & Motta-Mena, 2021). These results reaffirm that the human face is a highly informative, complex, and non-verbal stimulus. Describing a face involves recalling detailed features and translating them into words, a process that is cognitively demanding and constrained by memory capacity. In contrast, human faces are processed holistically, meaning they are perceived as unified wholes rather than as a collection of individual features. This holistic processing enables the brain to quickly and subconsciously assess familiarity, making recognition easier. Unlike recall, recognition relies on matching a face to an existing memory, even when that memory lacks precise details. In the present study, just over 50% of participants accurately identified the perpetrator in the lineup, while their descriptions contained only general physical characteristics with minimal detail. Given this relatively low descriptive detail and the fact that participants were describing an unfamiliar face, it is reasonable to infer that they relied on relative judgment processing rather than absolute processing during the lineup identification task (Wells, 1984). This suggests that recognition tasks engage different and less effortful cognitive processes compared to recall and description tasks.

The perpetrator descriptions in our study primarily reflect a general impression, with only a small portion of the descriptions focusing on details specifically related to the perpetrator's identity. This finding complements previous research (e.g., Fahsig et al., 2004; Pozzulo et al., 2018). Despite a slightly increased word count in the descriptions, the additional quantity did not result in higher-quality or more detailed descriptions. These results are consistent with prior studies showing no correlation between the quantity and quality of descriptions (e.g., Demarchi & Py, 2009). Importantly, our findings suggest that neither the extensiveness nor the detail of a description significantly influences lineup identification accuracy. This lack of relationship between the quantity or quality of descriptions and identification accuracy persists both in terms of the total number of words and the specific characteristics mentioned in the descriptions. These findings may be explained by the verbal overshadowing effect (Schooler & Engstler-Schooler, 1990), which occurs when describing a human face impairs subsequent face recognition, irrespective of the quality or quantity of the description provided. Additionally, the attractiveness and distinctiveness of a face may play a significant role in face recognition. For example, Yamaguchi and Sugimori (2024) found that attractive and distinctive faces are remembered and recognized more effectively than faces lacking these traits. In our study, participants did not comment



on the perceived attractiveness or distinctiveness of the perpetrator's face. Future research should incorporate these factors to better understand their impact on both facial descriptions and identification accuracy.

The cultural background of witnesses plays a significant role in shaping memory reports (Anakwah et al., 2020). Therefore, the findings of our study were interpreted within the cultural context of Bosnia and Herzegovina. While there is no consensus in the literature, some studies suggest that Bosnia and Herzegovina retains the elements of collectivism, a legacy of its socialist past in the former Yugoslavia, distinguishing it from predominantly individualistic cultures in Europe (Klarin et al., 2012). Based on this, we hypothesized that the results of our study might exhibit unique cultural characteristics. However, our findings did not differ significantly from the studies conducted in individualistic cultures. It is important to note that our participants were the members of Generation Z, and future research should explore potential generational differences, particularly between older generations and Generation Z in Bosnia and Herzegovina.

The generational aspect was also considered in interpreting our findings. Previous research indicates that Generation Z, as digital natives, may possess specific cognitive traits (Szymkowiak et al., 2021). We hypothesized that participants from this generation might display unique patterns in their responses. However, our results align with those of Pozzulo et al. (2013), particularly regarding the average number of details in descriptions and the characteristics most frequently mentioned (e.g., clothing, hair). Similarly, earlier studies involving older generations (e.g., Kuehn, 1974) reported comparable results, suggesting that generational affiliation may not significantly influence eyewitness descriptions.

This study has notable limitations that must be addressed. One limitation is the experimental structure, particularly the shorter time delays compared to real-life scenarios. In police investigations, eyewitness identification often occurs after substantial temporal delays – measured in days, weeks, or even months – between the crime, the description, and the lineup identification. In our study, all participants provided descriptions and completed identifications within 25 minutes of viewing the video. While our analysis found no significant effect of the time interval, these short delays do not reflect real-world conditions, leaving open the possibility that results might differ with longer, more realistic intervals.

Additionally, the method of data collection poses a limitation. Unlike police interviews, our study did not involve questioning participants to elicit descriptions, which may have influenced the level of detail provided. Future research should address these limitations by incorporating longer time delays and methods more closely aligned with actual police practices. Such adjustments could offer deeper insights into the reliability and accuracy of eyewitness descriptions and identifications in real-world contexts.

## CONCLUSIONS

This study provides valuable insights into the cognitive processes underlying face recall and recognition and highlights their distinct demands. The findings revealed that face recognition tasks are significantly easier than recall and description tasks, supporting the notion that these are separate cognitive processes. Human faces, as complex non-verbal stimuli, are processed holistically, enabling rapid familiarity assessments during recogni-



tion. Participants in the experiment appeared to rely on relative judgment processing during lineup identification, engaging in less effortful cognitive strategies than those required for recall and description tasks.

The study also found no significant influence of the quantity or quality of descriptions on lineup identification accuracy. Although conducted in Bosnia and Herzegovina with Generation Z participants, the findings did not differ significantly from those of the studies conducted in other cultures or older generations. This suggests that cultural and generational factors may have less of an impact on eyewitness descriptions and identifications than previously assumed.

These findings have significant implications for law enforcement and the criminal justice system, emphasising the complex nature of eyewitness testimony. These results suggest that caution should be exercised when using detailed witness descriptions as predictors of lineup identification accuracy. Instead, such descriptions may be utilised more effectively to narrow the pool of suspects and construct lineups. Understanding the limitations of eyewitness accounts and their underlying cognitive processes is critical for developing more effective eyewitness identification procedures. This approach has the potential to enhance the accuracy of suspect identification and reduce the risk of wrongful convictions resulting from unreliable eyewitness testimonies.

Despite the limitations mentioned earlier, this study advances our understanding of the cognitive processes involved in face recognition, recall, and description, as well as their implications for eyewitness testimony. Future research should explore factors such as face attractiveness, distinctiveness, and potential cultural and generational differences in larger and more diverse samples. Such efforts will refine understanding of these complex processes and enhance their practical applications in investigative contexts.

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