The Relationship between Abilities and Album Coordination to the Abilities of Pencak Silat Sabit Kick

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ABSTRACT

Mastery of pencak silat techniques is the most basic complement, without neglecting other elements such as physical, tactical and mental conditions. The purpose of this study was to determine the relationship between agility and ankle coordination on the ability of pencak silat kicks. This research method is a correlation research. In this study, the population consisted of 15 students participating in the pencak silat extracurricular activity. In this study, the sampling technique used for the extracurricular students at the Korpri Vocational High School was a total sampling of 15 students. Then the research instrument used an agility test and an ankle coordination test as well as a Sabit kick ability test. Based on the results of data analysis, description, testing of research results, and discussion, it can be concluded that there is a significant relationship between agility and sabit kick abilities of extracurricular Pencak Silat Students at Korpri Vocational School, with a value of $rx1.y = 0.693 > r (0.05)(12) = 0.532$. There is a significant relationship between ankle coordination and the sabit kick ability of students of the Pencak Silat extracurricular at Korpri Vocational School with a value of $rx2.y = 0.866 > r (0.05)(12) = 0.532$. There is a significant relationship between agility and ankle coordination on the ability to kick the Pencak Silat sabit kick at Korpri Vocational High School, with a value of $Ry (x1.x2) = 0.911 > R (0.05)(12) = 0.532$.

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INTRODUCTION

Self-defense is a human self-defense system that has existed since ancient times (Ediyono & Widodo, 2019). Humans in prehistoric times had to maintain their survival by fighting ferocious animals and hunting, which in the end humans developed martial arts (Saputra et al., 2018). By learning self-defense, it is no longer possible to be harassed or always

put down by others because self-defense is also able to change attitudes and behavior, depending on whether it will change positively or negatively depending on how we study or the martial arts school we follow. (Kusumo & Lemy, 2021). It is better if self-defense should also be used for good things such as helping people who are being abused, helping people in trouble, helping the family, the most important thing is that we always defend the truth because with that we will be more respected by others (Mufarriq, 2021).

Pencak Silat is one of the original cultures of the Indonesian nation, where it is strongly believed by its warriors and martial arts experts that the Malay community at that time created and used this martial art since prehistoric times (Widiastuti, 2014). Because at that time humans had to face harsh nature with the aim of surviving by fighting ferocious animals and hunting which in the end humans developed self-defense moves (Kusumo & Lemy, 2021).

Mastery of techniques is the most basic equipment, without neglecting other elements such as physical, tactical and mental conditions (Kamarudin & Zulrafli, 2020). To achieve good performance in pencak silat, the existing techniques must be well mastered. The basic techniques that must be mastered are kicks, punches, dodges and blocks (Amrullah et al., 2020). To achieve optimal performance, these basic techniques must be carried out with strong, fast, precise movements and coordination (Nandana, 2020). Overall physical and fitness aspects that give a person the ability to lead a productive life and be able to adapt to all forms of challenges to physical conditions (Ridhwan & Hariyanto, 2021).

Pencak silat competitions can be divided into four categories, namely, the fight category, the singles category, the doubles category, and the team category (Trisnowiyanto, 2016). Pencak silat category sparring is a match featuring two fighters from different camps and facing each other using elements of defense and attack, namely dodging, parrying, hitting and attacking at predetermined targets and knocking out the opponent. (Hartati et al., 2019). For the singles category, doubles category, the team category is a martial arts competition that displays powerful, precise and steady demonstrations of defensive and attacking moves within three minutes. (Hambali et al., 2020). Attacks and defenses carried out by fighters in the sparring category include kicking and punching techniques at predetermined targets as well as parrying or dodging attacks from opponents and followed by slams. (Nabila et al., 2021).

MATERIALS AND METHODS

Research Approach
This research is a correlation study that aims to determine the relationship between agility and ankle coordination on the ability of the pencak silat sabit kick for extracurricular students of Pencak Silat SMK Korpri. Correlation research is a statistical analysis technique regarding the relationship between two or more variables (DeCuir–Gunby, 2011).

In this study, the population was 15 students of pencak silat extracurricular activities. In connection with this study, the sample used was the entire population who took part in

pencak silat extracurricular activities, so the sample in this study is often referred to as the total sampling (Peers, 1996).

The conditions stated above, in this study the sampling technique used for the extracurricular students of pencak silat at the Korpri Vocational School was a total sampling of 15 students.

Data Coolection Insturments
### Research Instruments
Agility Test

This agility test uses the Dodgingrun test, which is to change direction as much as possible or as quickly as possible (I. Indrayogi, 2020). The level of reliability of this test is r = 0.93, the level of validity of the test = 0.82, and the level of objectivity of the test is r = 0.99,
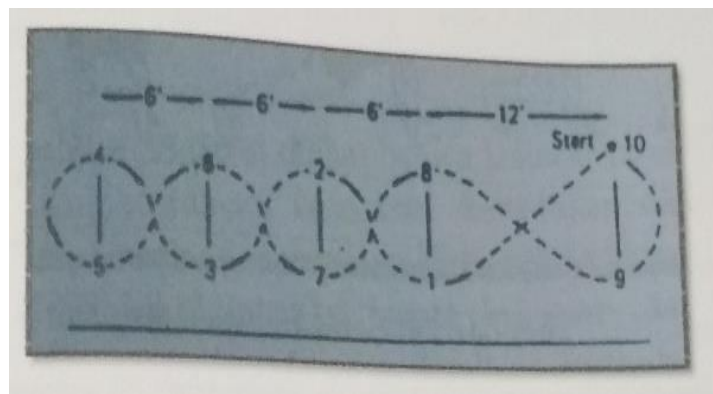
Figure 1. Field of Dodging test run

Ankle Coordination Test

This test uses the Mitchell Soccer Test (Saputra et al., 2018). The test field which consists of the target area is made with a flat wall line with a length of 2.44 m and a height of 1.22 m from the floor. The kick area is made in front of the target to form a rectangle with a size of 3.65 m and 4.23 m. the kick area is 1.83 m from the target wall. This test has a validity of 0.860 and a reliability of 0.871.
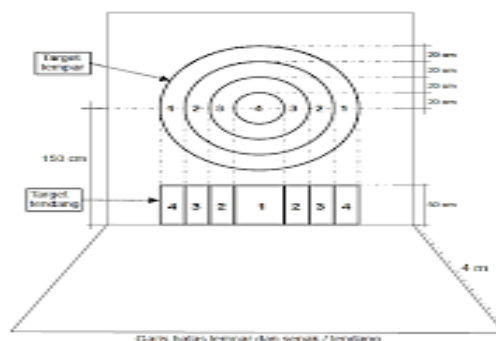
Figure 2. Ankle Coordination Test

Sabit Kick ability test

This test uses 2 tests (Subekti et al., 2020) namely by measuring the speed of pencak silat kicks and measuring the agility of pencak silat kickst.

Table 1. Sabit Kick Speed Assessment

Category	Man	Women
Very Good	>24	>25
Good	19-23	20-24
Enough	16-18	17-19
Deficient	13-15	15-16
Less Once	<12	<14

Pencak Silat Kick Agility Measurement Test

Table 2. Agility Assessment

Category	Man	Women
Very Good	>24	>25
Good	19-23	20-24
Enough	16-18	17-19
Deficient	13-15	15-16
Less Once	<12	<14

Data Collection Techniques and Tools

Data collection techniques or tools used in this study are as follows:

The documentation method is finding data about things or variables in the form of notes, transcripts, books, newspapers, magazines, inscriptions, meeting minutes, calendars, agendas, and so on.

Observation Method. Observations were used to collect data during the process of teaching and learning activities taking place, namely assessing the affective and psychomotor aspects of students in the experimental class.

Test Method. The test is used to measure the presence or absence and the magnitude of the ability of the object being studied. The test is a series of questions or exercises as well as other tools used to measure skills, intelligence knowledge, abilities or talents possessed by individuals or groups (FAROOQ, 2022).

Data analysis techniqu

To obtain a conclusion and description of the problem under study, data analysis is an important step in research. The data that has been collected means nothing if it is not processed, because it needs analysis of the data. In this study two variables will be compared, so the difference test will be carried out by analyzing the Coefficient of Determination (R^2). The decision to accept or reject the hypothesis at a significance level of 5%.

Correlation Analysis

To test the significant level of the correlation coefficient ® obtained using a comparison between rcount and rtable, with a significant level of 0.05. The provisions used are: If rcount < rtable or $p < 0.05$, then there is a significant relationship between leg length strength (X_1) and leg power strength (X_2) with sabit kick speed (Y) so that Ho is accepted and Ha is rejected. If rcount < rtable or $p > 0.05$, then there is no significant relationship between leg length (X_1) and leg power strength (X_2) with sabit kick speed (Y) so Ho is rejected and Ha is accepted.

Regresi Linier

Simple linear regression is based on a functional or causal relationship between one independent variable and one dependent variable. The general equation for simple linear regression is:

$$Y = a + bX$$

In an effort to answer the problems in this study, multiple regression analysis was used (Multiple Regression). Regression analysis is basically a study of the dependence of the dependent variable (bound) with one or more independent variables (explanatory/independent variables), with the aim of estimating and/or predicting the population means or the values of the dependent variables based on the values of the independent variables is known. For regressions where the independent variables consist of two or more, the regression is also called multiple regression. Because the independent variables above have more than two variables, the regression in this study is called multiple regression. The regression equation in this study is to find out how much the relationship or influence of the independent or free variables, namely flexibility (X1), eye-hand-foot coordination (X2), on kick coordination (Y). The mathematical formula of multiple regression used in this study is:

$Y = a + b1X1 + b2X2 + b3X3 + e$

The hypothesis is a temporary answer to the research problem. The analysis used to test the proposed hypothesis is that there is a relationship between the independent variable (X1, X2) and the dependent variable (Y).

RESULTS AND DISCUSSION

Results

This research was conducted at Korpri Vocational High School with 15 students who took part in the Pencak Silat extracurricular as research subjects. After the data is collected, it is then analyzed, and the results of the descriptive analysis of the research variables are presented below.

Table 3. Research Result Data

NO	Agility (x1)	Ankle coordination (x2)	Sabit kicks ability (y)
1	12.42	12	43
2	13.21	11	45
3	10.39	15	47
4	13.04	13	42
5	12.39	13	42
6	11.40	11	40
7	12.24	12	41
8	11.21	14	47
9	12.40	12	43
10	12.20	13	44

11	11.55	12	40
12	13.65	10	44
13	10.27	15	50
14	10.34	14	49
15	10.25	15	50

Source: Research Results 2022

Agility

Agility is the fastest time obtained from two opportunities to do the Zigzag Run Test or zig-zag run according to the location of the cones/markers from the start line to the finish line with the units used in minutes or seconds. The results of a descriptive analysis of the agility of students who take part in the pencak silat extracurricular activity are briefly presented in the following table.

Table 4. Agility Descriptive Statistics (X1)

No	Central Tendesy	Results
1	Mean Agilty	11.79
2	Median Agilty	12.20
3	Mode Agilty	10.25
4	Standart Deviation	1.128
5	Varians	1.237
6	Minimum (Pastest)	10.25
7	Maksimum (Oldtest)	13.65

Source: Research Results 2022

The table above shows that the agility of Pencak Silat extracurricular students at Korpri Vocational Schools, obtained an average of 11.79", with the fastest achievement being 10.25" and the longest being 13.65".
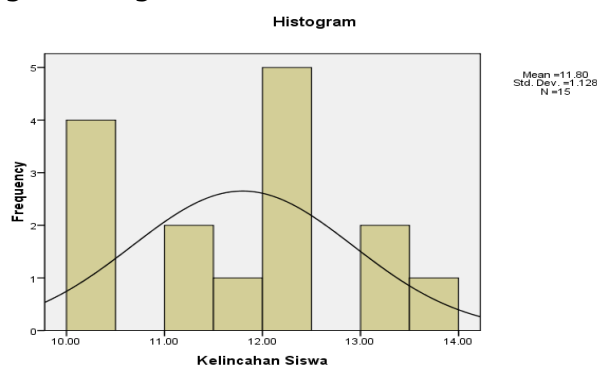

Figure 3. Histogram of student agility results

Ankle Coordination

Eye-foot coordination is the ability to integrate eye gaze and foot movements simultaneously in carrying out a movement. Ankle coordination in this study was measured through the Mitcel Soccer Test where in 20 seconds a person can make as many movements as possible to bounce the ball off the wall using his feet. The results of the descriptive analysis of eye-to-foot coordination of Pencak Silat extracurricular students at Korpri Vocational School are briefly presented in the following table.

Tabel 5. Statistik Deskriptif Koordinasi Mata Kaki (X_2)

No	Central Tendency	Results
1	Mean Agility	12.80
2	Median Agility	13.00
3	Mode Agility	12
4	Standart Deviation	1.568
5	Varians	2.457
6	Minimum (Pastest)	10
7	Maksimum (Oldtest)	15

Source: Research Results 2022

The table above shows that ankle coordination in Pencak Silat extracurricular participants at Korpri Vocational Schools, obtained an average of 12.80, with the highest score being 15 and the lowest being 10.

When displayed in the form of a histogram graphic can be seen in the following picture:
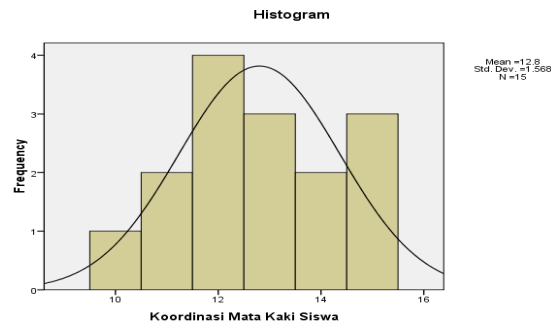
Figure 4. Histogram of Ankle Coordination results

Sabit Kick Ability

Sabit kick is a kick that is done with one leg from the side pointing inward the movement is similar to a sabit or sabit , with the impact of the instep and toes. From the analysis of sabit kick speed data for Pencak Silat extracurricular students at Korpri Vocational High School, the lowest (minimum) score is 40, the highest (maximum) score is 50, the mean (mean) is 44.47, the median value is 44.00, the value that occurs frequently (mode) 40, standard deviation (SD) 3,420 The full results can be seen in the following table:

Table 6. Descriptive Statistics of Sabit Kick Ability (Y)

No	Central Tendency	Results
1	Mean Agility	44.47
2	Median Agility	44.00
3	Mode Agility	40
4	Standart Deviation	3.420
5	Varians	11.695
6	Minimum (Pastest)	40
7	Maksimum (Oldtest)	50

Source: Research Results 2022

The table above shows that the ability of the Pencak Silat sabit kick on Pencak Silat extracurricular students at Korpri Vocational High School, obtained an average of 44.47 ", with the fastest achievement being 40" and the longest being 50".

Prerequisite Test Results

Normality testing uses the Kolmogorof-Sminorv test. This test will test the hypothesis that the sample comes from a normally distributed population, to accept or reject the hypothesis by comparing the Asymp values Sig with 0.05. The criteria Accept the hypothesis if Asymp. Sig is greater than 0.05, if it does not meet these criteria then the hypothesis is rejected. X1 Normality Test Results with Y

Table 7. Results of normality test calculations (X1.Y)

No	Tested Data	Kolmogorov-Smirnov[a]		Information
		Statistik	Sig.(p)	
1	X1	0,669	0,762	Normal
2	Y	0,597	0,868	Normal

Source: Research Results 2022

From the table above the price of Asymp the sig of variable X1 is 0.762 and Y is 0.868. Because the Asymp.Sig values of both variables are all greater than 0.05, the hypothesis that the sample is based on a normally distributed population is accepted. From this information, the variable data in this study can be analyzed using a nonparametric test statistical approach.
X2 Normality Test Results with Y

Table 8. Results of normality test calculations (X2.Y)

No	Tested Data	Kolmogorov-Smirnov[a]		Information
		Statistik	Sig.(p)	
1	X2	0,627	0,597	Normal
2	Y	0,827	0,869	Normal

Source: Research Results 2022

From the table above the price of Asymp the sig of variable X2 is 0.597 and Y is 0.869. Because the price of Asymp. The sig of the two variables are all greater than 0.05, so the hypothesis that the sample is based on a normally distributed population is accepted. From this information, the variable data in this study can be analyzed using a nonparametric test statistical approach.

Linearity Test

The relationship linearity test used in this study used the different F test, which produced F_{count} (Deviation from Linearity). The results of the linearity test in summary can be seen in the following table.

Table 9. Linearity Test Results

No	Functional Relations	F_{count}	P	Conclusion
1	Relationship between Agility (X1) and Sabit Kick Ability (Y)	6,402	0,14	Linear
2	Agility Relationship (X2 with Scythe Kick Ability (Y)	3,594	0,51	Linear

Source: Research Results 2022

Note: Fcount is F Deviation from Linearity, which means deviation from linearity, if p > 0.05 means not deviating or linear.

Based on the linearity test presented in the table above, it is known that Fcount on the relationship between Agility (X1) and Sabit Kick Ability (Y) of 6.402 with p > 0.05, thus the functional relationship is linear. Fcount results on the relationship between Ankle Coordination (X2) and Sabit Kick Ability (Y) of 3.594 with p> 0.05, thus the functional relationship is linear.

Hypothesis Test Results

Analysis of the research data used to test the hypothesis consists of a simple correlation analysis. To clarify the relationship between the independent variable and the dependent variable, a simple linear regression analysis and multiple regression analysis were carried out, the results are as follows.

Correlation Between Agility and Sabit Kick Ability of Pencak Silat Extracurricular Students at Korpri Vocational School

The first hypothesis test is "There is a significant relationship between agility and the sabit kick ability of Pencak Silat Extracurricular Students at Korpri Vocational School". The results of hypothesis testing using multiple regression analysis can be seen in the following table.

Table 10. Correlation Results of Agility (X1) Against Sabit Kick Ability (Y)

Variable	r_{count}	$r_{table\ (df12;00,5)}$	Concluison
X1.Y	0,693	0,004	Significant

Source: Research Results 2022

Based on the results of the analysis above, the correlation coefficient of leg length with sabit kick speed of 0.693 is positive, meaning that the greater the value that influences the greater the value of the result. The significance test of the correlation coefficient was carried out by consulting the value of r_{count} with r_{table}, at α = 5% with N = 12, a r_{table} of 0.532 was obtained. Because the correlation coefficient between rx1.y = 0.693 > r (0.05) (12) = 0.532, it means that the correlation coefficient is significant. Thus the hypothesis that reads "There is a significant relationship between agility and the sabit kick ability of extracurricular Pencak Silat Students at Korpri Vocational School" is accepted.

The Correlation Between Ankle Coordination and Sabit Kick Ability of Pencak Silat Extracurricular Students at Korpri Vocational High School

Table 11. Correlation Coefficient of Ankle Coordination (X2) with Sabit Kicking Ability with Sabit Kicks (Y)

Variable	r_{count}	$r_{table\ (df12;00,5)}$	Conclusion
X2.Y	0,866	0,532	Significant

Source: Research Results 2022

Based on the results of the analysis above, the correlation coefficient for the coordination of the ankle with the speed of the sabit kick is 0.866 which is positive, meaning that the greater the value that influences the greater the value of the result. The significance test of the correlation coefficient was carried out by consulting the value of r_{count} with r_{table}, at $α = 5\%$ with $N = 12$, a r_{table} of 0.532 was obtained. Because the correlation coefficient between rx2.y = 0.866> r(0.05)(12) = 0.532, it means that the correlation coefficient is significant. Thus the hypothesis which reads "There is a significant relationship between ankle coordination and sabit kick speed of extracurricular students of Pencak Silat Korpri Vocational School", is accepted.

The Correlation Between Agility and Ankle Coordination on the Ability of Sabit Kicking of Pencak Silat Extracurricular Students at Korpri Vocational School

The third hypothesis test is "There is a significant relationship between agility and ankle coordination on the sabit kick ability of extracurricular students of Pencak Silat Korpri Vocational School". The results of hypothesis testing using multiple regression analysis can be seen in the following table.

Table 12. Correlation Coefficient between Agility (X1) and Ankle Coordination (X2) Against Sabit Kick Ability (Y)

Variable	r_{count}	$F_{count\ (df12;00,5)}$	$f_{table\ (0,05;2;9)}$	Conclusion
X1.X2.Y	0,911	29,357	4.256	Significant

Source: Research Results 2022

Based on the results of the analysis above, the correlation coefficient between arm muscle strength and leg muscle power with sabit kick speed is 0.911. The significance test of the correlation coefficient was carried out by consulting the value Fcount 29.357> Ftable at a significance level of 5% and degrees of freedom 2;9, namely 4.256, and Ry (x1.x2) = 0.911> R(0.05)(12) = 0.532, meaning the coefficient the correlation is significant.

From the results above, it can be concluded that the null hypothesis which states "There is no relationship between Agility and Ankle Coordination on the sabit kick ability of Students of the Pencak Silat Extracurricular Vocational School of Korpri" is rejected and the original hypothesis states "Ankle Agility and Coordination on Student's sabit kick ability Korpri Vocational High School Pencak Silat extracurricular" was accepted. Thus the hypothesis which reads "There is a significant relationship between agility and ankle

coordination on the sabit kick ability of extracurricular students of Pencak Silat SMK Korpri", is accepted.

Discussion

This study aims to determine the relationship between agility and ankle coordination on sabit kick abilities of extracurricular Pencak Silat Students at Korpri Vocational School. The research results are explained as follows:

Correlation between Agility and Sabit Kick Ability Pencak Silat extracurricular students at Korpri Vocational High School

Data analysis and testing of the first hypothesis in this study, this study proves that there is a significant relationship between agility and Sabit Kick Ability in Pencak Silat Extracurricular Students at Korpri Vocational School. This significant relationship means that the better the agility, the better the sabit kick ability of Pencak Silat Extracurricular Students at Korpri Vocational School, and conversely the less good agility, the less good sabit kick ability at Pencak Silat Extracurricular Students at Korpri Vocational School.

The Correlation between Ankle Coordination and Sabit Kick Ability of Pencak Silat Extracurricular Students at Korpri Vocational School

Based on the results of data analysis and hypothesis testing, this study proves that there is a significant relationship between ankle coordination and sabit kick ability in Pencak Silat Extracurricular Students at Korpri Vocational School. This significant relationship means that the better the ankle coordination, the better the sabit kick ability of the Pencak Silat Extracurricular Students at Korpri Vocational School, and conversely the less good ankle coordination, the less good the sabit kick ability at Pencak Silat Extracurricular Students at Korpri Vocational School..

Correlation between Agility and Ankle Coordination on Sabit Kick Ability in Pencak Silat Extracurricular Students at Korpri Vocational School

Based on the results of the study, it was found that there was a significant relationship between Agility and Ankle Coordination on the sabit kick ability of the Pencak Silat Extracurricular Students at Korpri Vocational School, with Ry (x1.x2) = 0.911> $R(0.05)(12)$ = 0.532.

Pencak silat is a branch of martial arts which is currently in great demand by the public (Nandana, 2020). Where pencak silat has advantages where as a provision for oneself to be able to have the ability to protect oneself with the art of movement (Syaifullah & Doewes, 2020). Every sport has its own specialties that must be mastered, but all must go through good practice. The provision of talent and interest is no exception as the main factor for achieving skills and achievements. Pencak silat has been included in the physical education learning curriculum now as a means of popularizing and increasing achievement (Irawan et al., 2021).

Sabit kick is a basic kick technique that can be used for a wider range or distance (Kolovelonis et al., 2011). So that the supporting factors must be owned by students. Based on the research that has been conducted with the aim of knowing the relationship

between agility and ankle coordination on the sabit kick ability, it can be seen how much the contribution of these factors is to achieving the level of skill or speed of sabit kick (Ulfah & Walton, 2019). Where a movement in pencak silat must involve many limbs to participate in the movement and must produce an ideal body position in order to be able to make maximum movements and not harm oneself (Flora babang et al., 2020).

CONCLUSION

Based on the results of data analysis, description, testing of research results, and discussion, it can be concluded that: There is a significant relationship between agility and sabit kick abilities of Pencak Silat Extracurricular Students at Korpri Vocational School, with a value of $rx1.y = 0.693 > r\ ((0.05)(12)) = 0.532$. There is a significant relationship between ankle coordination and the sabit kick ability of students of the Pencak Silat extracurricular at Korpri Vocational School with a value of $rx2.y = 0.866 > r\ (0.05)(12) = 0.532$. There is a significant relationship between agility and ankle coordination on the ability to kick the Pencak Silat sabit kick at Korpri Vocational High School, with a value of $Ry\ (x1.x2) = 0.911 > R\ (0.05)(12) = 0.532$.

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