Collocation Research Based on Corpora Collected from Secondary School Textbooks in Japan and in the UK

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Abstract

The aim of this paper is to analyze verb-noun English collocations extracted from a history textbook for secondary school pupils used in the UK and from English textbooks for 10th graders in Japan. To conduct the research on collocation, the following research questions are set up: (a) What kind of collocations are used in the history textbook? (b) How many collocations are used in the history textbook? (c) How often do the same collocations appear in the textbook? and (d) What are differences between collocations in the history textbook in the UK and those in English textbooks in Japan?

The main finding shows that collocations are disregarded in both textbooks in terms of the kinds and the number of collocations. It may be natural that in history textbooks collocations are not so often used to explain various events in world history. However, English textbooks should much more pay attention to usage of collocations to cultivate learners' better command of English. In conclusion, English textbooks for 10th graders in Japan should include more variety of collocations to help the learners to develop larger vocabulary as the importance of collocation teaching for learners has been emphasized for the last two decades.

Keywords: corpus, collocation, second language acquisition (SLA)

1. Introduction

For the last two decades English collocation has been studied extensively from the pragmatic standpoint on the recognition that its knowledge is essential for advanced level of communication in English. Various approaches of acquiring it are suggested for non-native

speakers of English whose own languages are not direct-translationally equivalent to many English collocations. I argue that English collocations should be explicitly learned to develop their English communicative ability.

While a lot of collocation researches are carried out in other countries to date, English collocations themselves tend to be disregarded in Japan. This is proved by the description of collocation in the government guidelines for teaching in the Ministry of Education, Culture, Sports, Science and Technology (MEXT, 2003): "Basic collocations should be chosen for instruction." This vague description never explains which collocations are basic and how many collocations should be selected. Accordingly, English textbooks for Japanese learners are compiled by those who do not have clear concept and consensus on what collocations to include.

Collocation research conducted by Koya (2004a) also shows that the textbook writers disregard the collocation learning of Japanese learners of English. For example, four secondary school English textbooks on the same level pay little attention to collocations, do not refer to the collocations which are frequently used in *Bank of English*, and treat each collocation only once or twice (Koya, 2004a). They do not use collocations repeatedly to help learners to build-up their collocational knowledge. Koya's other collocation researches[1] also reveal that textbook writers neglect that learners should develop their collocational ability.

However, the question aroused after the research was what kind of collocations and how many will appear in textbooks on other subjects such as history and mathematics used to develop pupils' basic knowledge. It is because textbooks which do not aim at pupils' English proficiency may show more natural usage of collocations reflecting daily conversations of native speakers of English, while English textbooks are generally content-based and collocations, which help pupils facilitate their fluency of English conversation are subordinated to the content of English textbooks.

Therefore, this paper will extract collocations from a history textbook[2] for secondary school pupils used in the UK and compare those collocations with those included in secondary school English textbooks in Japan (Koya, 2004a). The finding is expected to help teaching collocations more effectively in English classes at secondary schools and also to help English textbook writers to compile English textbooks as materials to compensate current secondary school English textbooks in Japan.

2. Methodologies

2.1 Research questions

This research focuses on the following four questions:

1. What kind of collocations are used in the history textbook?

2. How many collocations are used in the history textbook?

3. How often do the same collocations appear in the textbook?

4. What are differences between collocations in the history textbook in the UK and those in English textbooks in Japan?

2.2 Materials

As different history textbooks seem to be used at different schools in the UK, a history textbook in this research, *Contrasts and Connections* is selected in terms of the following two points: one is that it is the bestseller in the UK and the other is that it is compiled by the Schools Council as a project of National Curriculum in the UK. This book covers The Roman Empire, Medieval Realms and Islamic Civilizations, from 500 BC to AD 1500 and reconsiders the nature of history and its relevance in secondary schools.

English I textbooks for the 10th graders are used in order to answer the research question 4. They are selected in that the majority of 10th graders are supposed to use them at schools and that English knowledge acquired with these textbooks will become the basis for them. Four textbooks are selected in that they are the bestsellers and are used by many students at schools "Nikkyohan Co, Ltd.," data 1999: *Milestone English course I, One World English course I*, *Sunshine English course I* and *Unicorn English course I*. They are all revised in 2003, according to the new government guideline for teaching in MEXT administered in 2003.

Table 1. Total tokens and types in a history textbook in the UK and English I textbooks in Japan

	history textbook in the UK	English I textbooks in Japan			
	Contrasts & Connections	Unicorn I	Milestone I	Sunshine I	One World I
Total Tokens	70839	7910	7144	5978	6290
Total Types	6693	1627	1509	1394	1399
Lexical Density	9.45	20.57	21.12	23.32	22.24

Table 1 shows total types, total tokens and lexical density of all the textbooks used in this research. While the history book has almost ten times as many vocabulary items in all as

English I textbooks, number of separate vocabulary items in the history book is four to five times more than them. In other words, lexical density in the history book is very low, compared with those in English I textbooks and events of world history are expressed with limited unique words oriented in them such as *crusade* and *castle*.

2.3 Choices of collocations

Among variable word combinations, only verb-noun collocations were targeted in this research because of the most frequently used combinations. In order to specify collocations which are used in the history book, the following steps were taken. Firstly, all the nouns which appear in the target history book are extracted by means of *World Smith*, a KWIC concordance soft program. Secondly, the nouns are arranged in descending order from the highest frequency nouns to the lowest frequency ones and nouns which appear more than six times are targeted.[3] By doing so, 515 nouns were found. Thirdly, using these nouns as nodes, the collocates (verbs) are selected with reference to *COBUILD English Collocations on CD-ROM*, *Oxford Collocations Dictionary for Students of English* (2002) and *the BBI Dictionary of English Word Combinations* (1997).[4] Targeted are 170 noun-verb combinations considered as collocations among these three dictionaries. They are selected to answer the research questions 1 to 3 (See Table 2).

In order to answer the research question 4, collocations are selected in the following steps from the above mentioned four English I textbooks. Firstly, nouns and transitive verbs which appear in the target textbooks are extracted by means of KWIC concordance. Secondly, considering them as nodes, the collocates are selected in *COBUILD English Collocations on CD-ROM*. By doing so, 204 collocations were found. Thirdly, checking 204 collocations by *the BBI Dictionary of English Word Combinations* (1997) and *Oxford Collocations Dictionary for Students of English* (2002), 107 collocations were selected. Finally, 13 collocations listed as new and important word combinations in word lists of the respective textbooks were added to the 107 collocations. The total of 120 collocations were targeted in this research (See Table 3).

Table 2. Selected collocations extracted from a history textbook

	F.N	Nodes (N)	Collocates (V)		F.N	Nodes (N)	Collocates (V)		F.N	Nodes (N)	Collocates (V)		F.N	Nodes (N)	Collocates (V)
1	135	time	spend	43	21	throne	ascend	85	11	threat	pose	127	8	race	run
2	135	time	waste	44	20	trial	stand	86	10	bath	take	128	8	race	win
3	135	time	take	45	18	condition	improve	87	10	birth	give	129	8	spice	add
4	95	evidence	find	46	18	way	find	88	10	bridge	build	130	7	advance	make
5	95	evidence	give	47	17	message	get	89	10	crime	commit	131	7	advantage	take
6	77	part	take	48	17	message	send	90	10	eye	catch	132	7	arrow	shoot
7	77	part	play	49	17	message	leave	91	10	eye	turn	133	7	care	take
8	76	book	publish	50	17	message	deliver	92	10	game	play	134	7	contact	make
9	66	place	take	51	16	friend	make	93	10	game	win	135	7	copy	make
10	60	money	make	52	15	face	make	94	10	mark	make	136	7	document	sign
11	60	money	raise	53	15	language	speak	95	10	mark	leave	137	7	door	open
12	60	money	spend	54	15	language	use	96	10	payment	make	138	7	door	close
13	51	tax	pay	55	15	language	learn	97	10	payment	receive	139	7	door	lock
14	51	tax	raise	56	15	medicine	take	98	10	success	achieve	140	7	hole	make
15	51	tax	cut	57	14	capture	evade	99	10	success	make	141	7	hole	drill
16	47	list	make	58	14	difference	resolve	100	10	victory	win	142	7	judgement	exercise
17	45	crusade	launch	59	14	difference	make	101	9	action	take	143	7	judgement	make
18	43	job	get	60	14	difference	tell	102	9	anger	express	144	7	judgement	pass
19	42	law	pass	61	13	room	make	103	9	boat	take	145	7	meeting	hold
20	42	picture	get	62	13	sins	commit	104	9	coin	toss	146	7	profit	make
21	42	picture	paint	63	13	sins	forgive	105	9	matter	discuss	147	7	sentence	impose
22	42	picture	take	64	12	impression	give	106	9	tactics	use	148	7	sentence	pass
23	41	castle	build	65	12	impression	make	107	9	tactics	employ	149	7	skill	need
24	39	rule	make	66	12	impression	get	108	8	advice	give	150	7	skill	develop
25	38	mosque	build	67	12	impression	create	109	8	advice	offer	151	7	skill	learn
26	38	record	set	68	12	meal	eat	110	8	advice	take	152	7	solution	find
27	37	head	shake	69	12	meal	make	111	8	attitude	take	153	7	walk	take
28	37	head	turn	70	12	position	take	112	8	beer	drink	154	6	clock	put
29	32	stage	set	71	12	reign	end	113	8	charge	take	155	6	course	take
30	32	stage	reach	72	12	rent	pay	114	8	charge	drop	156	6	decision	take
31	31	attack	launch	73	12	wood	cut	115	8	charge	deny	157	6	decision	make
32	30	journey	make	74	11	effect	take	116	8	charge	face	158	6	dough	make
33	29	answer	give	75	11	gates	lock	117	8	duty	do	159	6	faith	lose
34	29	answer	get	76	11	influence	use	118	8	love	make	160	6	faith	put
35	26	example	set	77	11	influence	exert	119	8	loyalty	show	161	6	faith	keep
36	26	view	take	78	11	letter	send	120	8	mountains	climb	162	6	mention	make
37	25	hand	take	79	11	letter	write	121	8	opinions	express	163	6	mercy	show
38	25	map	draw	80	11	letter	receive	122	8	permission	get	164	6	mouth	open
39	24	method	use	81	11	letter	get	123	8	property	buy	165	6	possession	take
40	24	statement	make	82	11	scene	set	124	8	protection	provide	166	6	riot	run
41	22	business	do	83	11	school	leave	125	8	protection	give	167	6	sacrifice	make
42	21	night	spend	84	11	statue	erect	126	8	protection	offer	168	6	stock	buy
												169	6	subject	change
												170	6	tales	tell

Table 3. Selected collocations extracted from English I textbooks

	Nodes (N)	Collocates (V)		Nodes (N)	Collocates (V)		Nodes (N)	Collocates (V)		Nodes (N)	Collocates (V)
1	action	take	31	example	give	61	message	leave	91	take	time
2	answer	give	32	face	problem	62	message	deliver	92	take	care
3	answer	get	33	face	make	63	message	receive	93	take	look
4	ask	question	34	find	way	64	money	spend	94	take	advantage
5	break	make	35	follow	path	65	money	raise	95	take	account
6	break	take	36	get	rid	66	open	door	96	talent	show
7	break	deadlock	37	give	advice	67	open	eye	97	train	take
8	build	house	38	give	way	68	part	take	98	turn	take
9	buy	share	39	give	information	69	part	play	99	turn	attention
10	buy	house	40	goal	achieve	70	place	take	100	walk	take
11	buy	stock	41	job	get	71	play	role	101	win	election
12	carry	weight	42	job	take	72	pleasure	take	102	win	title
13	catch	fish	43	job	find	73	point	make	103	win	championship
14	catch	eye	44	life	make	74	point	see	104	win	game
15	catch	glimpse	45	light	shed	75	point	reach	105	win	race
16	catch	train	46	line	draw	76	produce	result	106	make	mistake
17	catch	bus	47	lose	weight	77	read	paper	107	make	progress
18	catch	breath	48	lose	money	78	receive	treatment	108	make	friends
19	chance	give	49	lose	time	79	receive	support	109	take	pride
20	chance	take	50	lose	sight	80	record	set	110	make	call
21	change	make	51	love	make	81	research	do	111	make	laws
22	change	name	52	make	difference	82	seat	take	112	lose	temper
23	check	make	53	make	money	83	seat	lose	113	give	speech
24	close	eye	54	make	sense	84	seat	win	114	make	speech
25	decide	fate	55	make	way	85	send	message	115	make	joke
26	discuss	issue	56	make	decision	86	send	letter	116	make	reservation
27	discuss	matter	57	make	use	87	send	postcard	117	spend	time
28	eat	food	58	meet	standard	88	step	take	118	take	picture
29	example	set	59	meet	requirement	89	stop	put	119	take	test
30	example	follow	60	message	get	90	story	tell	120	take	trip

106-120   collocations clearly mentioned in respective textbooks

2.4 Procedure

The following procedure was adopted:

1. Textbooks were computerized to facilitate this quantitative research.

2. The frequency of use of the target collocations and the context in each textbook were examined by means of *TXTANA*, a concordance software program.

3. Results

3.1 The features of collocations targeted in the history textbook

In order to answer research questions 1, 2 and 3, the frequency of the use of target collocations is checked by means of *TXTANA*, a concordance software program. Firstly, Table 4 shows two main features in terms of types of collocations. One is that while collocations in the targeted history textbook are generally familiar ones in the present daily life, a few are related to the historical events. For example, *build castle, launch crusade, build mosque, commit sins, win victory, use tactics and run riot* are unique for history.

The other is that this textbook has 63 types, almost one third of 170 collocations which are almost one third of collocations, indicating that world events are not necessarily described with collocational expressions.

Table 4 also shows the number and the frequency of target collocations in the history textbook. 63 (37 %) of 170 target collocations are used in the textbooks. This number is less than it is expected. Moreover, the total number of words in this text is 144, which means the same collocation is not repeated so often. In fact, more than half of number of separate collocations are repeated only once and only eight collocations appear more than five times: *pay tax, make list, take attitude, play part, make money, make journey, build castle* and *write letter*. Findings of the experiments by Crothers and Suppes (1967), Kachroo (1962), Salling (1959) show that words repeated more than five times are acquired by almost all the informants but more than half of words repeated only once or twice are not learned. It is obvious that this history textbook does not intend to teach collocations.

Thus, in the target history textbook, the use of collocations with which events in the world history are presented is very limited and taken no account of. This result may be natural because targeted is a history textbook whose main aim is to describe and explain historical events.

Table 4. Frequency of Collocations appearing in a history book (in descending order)

F.C	F.N	Nodes (N)	Collocates (V)	F.C	F.N	Nodes (N)	Collocates (V)	F.C	F.N	Nodes (N)	Collocates (V)
15	51	tax	pay	1	135	time	waste	1	8	advice	give
8	47	list	make	1	135	time	take	1	8	advice	take
8	8	attitude	take	1	95	evidence	give	1	8	opinions	express
6	77	part	play	1	77	part	take	1	7	advance	make
6	60	money	make	1	45	crusade	launch	1	7	judgement	make
6	30	journey	make	1	43	job	get	1	7	meeting	hold
5	41	castle	build	1	42	law	pass	1	7	skill	learn
5	11	letter	write	1	42	picture	paint	1	6	possession	take
4	135	time	spend	1	39	rule	make	1	6	riot	run
4	10	birth	give	1	38	mosque	build				
3	95	evidence	find	1	29	answer	give				
3	66	place	take	1	26	view	take				
3	60	money	raise	1	24	statement	make				
3	24	method	use	1	22	business	do				
3	18	way	find	1	17	message	get				
3	12	rent	pay	1	16	friend	make				
3	6	decision	make	1	13	sins	commit				
2	25	map	draw	1	12	impression	make				
2	21	night	spend	1	12	meal	eat				
2	17	message	send	1	12	wood	cut				
2	15	language	speak	1	11	gates	lock				
2	15	language	use	1	10	crime	commit				
2	12	impression	give	1	10	eye	turn				
2	11	threat	pose	1	10	game	play				
2	10	payment	make	1	10	victory	win				
2	8	beer	drink	1	9	boat	take				
2	7	care	take	1	9	tactics	use				

Tokens of collocations = 144
Types of collocations = 63

F.C = Frequency of collocations
F.N = Frequency of nouns
Nodes (N) = Nodes (Nouns)
Collocates (V) = Collocates (Verbs)

3.2 Collocations in the history textbook in the UK versus in English textbooks in Japan

Table 5 shows which collocations and how many appear among those selected from English I textbooks for 10th graders in the targeted history textbook in the UK and the English I textbooks in Japan. While the contents and total tokens and types of words in both textbooks are completely different, surprisingly 18 of the 70 collocations are the same in both textbooks, which is almost half of total types of collocations in them.

Types of collocations in the history textbook are slightly less than those in English I textbooks. English I textbooks are more than those in the history textbook. It is because words such as *bus, share, stock, postcard* and *call* which comprise collocations did not exist in those days. It is natural that contents of the textbook control the use of words and collocations.

As a whole, collocations are disregarded in both textbooks in terms of the kinds and the number of collocations. History textbooks may have no problem for the fact that collocations are not so often used to explain historical happenings, but English textbooks should much more pay attention to usage of collocation to cultivate learners' better command of English.

Table 5. Frequency of collocations selected from English I Textbooks in Japan

	Collocations		F.C in H.T	F.C in E.T		Collocations		F.C in H.T	F.C in E.T
1	action	take	0	2	61	message	leave	0	0
2	**answer**	**give**	1	2	62	message	deliver	0	0
3	answer	get	0	0	63	message	receive	0	0
4	ask	question	0	2	64	money	spend	0	0
5	break	make	0	0	65	**money**	**raise**	3	2
6	break	take	0	0	66	open	door	0	0
7	break	deadlock	0	0	67	open	eye	0	1
8	build	house	0	0	68	**part**	**take**	1	1
9	buy	share	0	0	69	part	play	6	0
10	buy	house	0	0	70	**place**	**take**	3	1
11	buy	stock	0	0	71	**play**	**role**	2	1
12	carry	weight	0	0	72	pleasure	take	0	0
13	catch	fish	0	0	73	point	make	0	1
14	catch	eye	0	0	74	point	see	0	0
15	catch	glimpse	0	0	75	point	reach	0	0
16	catch	train	0	1	76	produce	result	0	0
17	catch	bus	0	0	77	read	paper	0	0
18	catch	breath	0	0	78	receive	treatment	0	0
19	chance	give	0	0	79	receive	support	0	1
20	chance	take	0	0	80	record	set	0	0
21	change	make	1	0	81	research	do	0	1
22	change	name	0	1	82	**seat**	**take**	1	1
23	check	make	0	0	83	seat	lose	0	0
24	close	eye	0	1	84	seat	win	0	0
25	decide	fate	0	0	85	**send**	**message**	2	1
26	discuss	issue	0	0	86	send	letter	0	0
27	discuss	matter	0	0	87	send	postcard	0	0
28	eat	food	0	4	88	**step**	**take**	2	4
29	example	set	0	0	89	stop	put	0	0
30	example	follow	0	0	90	story	tell	4	0
31	example	give	0	0	91	take	time	0	0
32	face	problem	2	0	92	**take**	**care**	2	2
33	face	make	0	1	93	take	look	0	1
34	**find**	**way**	3	2	94	take	advantage	0	0
35	follow	path	0	0	95	take	account	0	0
36	get	rid	5	0	96	talent	show	0	0
37	give	advice	1	0	97	train	take	0	1
38	give	way	1	0	98	turn	take	0	0
39	**give**	**information**	2	1	99	turn	attention	0	0
40	goal	achieve	0	0	100	walk	take	0	0
41	**job**	**get**	1	2	101	win	election	0	0
42	job	take	0	0	102	win	title	0	0
43	job	find	0	0	103	win	championship	0	0
44	life	make	1	0	104	win	game	0	0
45	light	shed	0	0	105	win	race	0	0
46	line	draw	2	0	106	**make**	**mistake**	2	4
47	lose	weight	0	0	107	make	progress	0	0
48	lose	money	0	0	108	make	friends	1	0
49	lose	time	0	0	109	take	pride	0	2
50	lose	sight	0	2	110	make	call	0	2
51	love	make	0	0	111	make	laws	0	1
52	make	difference	0	0	112	lose	temper	0	1
53	**make**	**money**	6	2	113	give	speech	0	1
54	make	sense	0	1	114	**make**	**speech**	3	4
55	make	way	3	0	115	make	joke	0	1
56	make	decision	0	1	116	make	reservation	0	2
57	**make**	**use**	1	1	117	**spend**	**time**	4	4
58	meet	standard	0	0	118	take	picture	0	1
59	meet	requirement	0	0	119	**take**	**test**	1	2
60	message	get	1	0	120	take	trip	0	1
						Tokens		68	71
						Types		30	43

F.C in H.T = Frequency of Collocations in a Historical Textbook in the UK
F.C in E.T = Frequency of Collocations in English Textbooks in Japan

3.3 Summary

The results analyzed by the means of *TXTANA* can be summarized as follows:

1. On the whole, the targeted history textbook includes such collocations as *play part, make money,* and *give birth* which are used in the present daily life.

2. Some unique collocations, *build castle, launch crusade*, and *use tactics* related to events in world history can be found in it.

3. Collocations appearing in the textbook are not repeated many times: more than half of collocations used in it are repeated once.

4. The targeted history textbook and the targeted English I textbooks have two similarities: almost the same number of collocations and half of the collocations appearing in them are common.

5. The type of collocations in the history textbook is a half less than that in the English I textbooks. It may be because objects for some words such as *train* and *bus* which comprise target collocations did not exist in those days.

4. Conclusion

This research focuses on comparison of the collocations in the history textbooks used in the UK and in English I textbooks for 10th graders in Japan. To analyze the history textbooks in the UK in terms of collocations is because a large variety of collocations are expected to be used even in the textbooks of other subjects than English textbooks, reflecting large vocabulary and collocations of native speakers of English in the English speaking country. However, the findings are different from my expectation: limited number and type of collocations. They may be natural because in fact the history textbook is content-oriented and the contents of it seem to dominate words, collocations and expressions.

Compared with collocations in the history textbook which does not focus on expressions, collocations found in English I textbooks for Japanese learners are almost the same in number although they are compiled obviously in order to help the learners of English develop their communication ability. English textbooks should include more variety of collocations to help the learners develop larger vocabulary as Bahns (1993), Gitsaki and Taylor (1999), and Howarth (1998) emphasize the importance of collocation teaching for learners.

5. Limitations

This research has the following two limitations:

1. The limited selection of targeted history book in the UK.

2. The limited selection of collocations based on more than six-time frequency of nouns appearing in the history textbook

Considering limitation 1, visiting a website, 'Amazon.UK' was the only way to search which history textbook is a best seller. Based on it, the target textbook was selected. However, the problem is the textbook covers worldwide events only from 500 BC to AD 1500 and to cover events from AD 1500 onward the other two textbooks are said to be needed. It was impossible to treat these three textbooks at the same time in the limited time.

As for limitation 2, nouns appearing in the history textbook are too many to check all the verb-noun combinations in the limited time. In this research, the combinations from the highest frequency nouns to six-time frequency nouns are searched and targeted, but more combinations from-five time frequency nouns should remain to be checked.

These limitations should be overcome in the near future.

6. Further research

In addition to the further research based on the limitations mentioned in 5, there is one more question which should be clarified in further research.

One is how collocations are treated in English textbooks for nonspecific learners of English? Not only Japanese learners of English but also non native speakers of English in other countries should have difficulty mastering collocations. Mackin (1978) claims that collocations are so numerous that it is difficult for non-native speakers of English to rule out any methodical teaching or acquisition of them and learners can acquire some degree of collocational competence in years of study, reading and observation of the language.

Notes

1. Koya conducted the other two kinds of corpus-based collocation research: comparison of verb-noun collocations between six English I textbooks aiming at 10th graders who have different English proficiency levels (2003) and between revised English I textbooks and former English I textbooks (2004b).

2. In this research a history textbook is selected among various subject textbooks, because it treats historical events and happenings closer to people's daily lives, so that they may be explained in more natural usage of phrases and collocations of native speakers of English than other subject textbooks.

3. This is because the high frequency nouns are thought to have more possibility that they are connected with collocates. As the work to check collocates by means of *COBUILD English Collocations on CD-ROM* is time consuming, more than six time frequency words are targeted. This may be the limitation in this research.

4. *COBUILD English Collocations on CD-ROM* and *Oxford Collocations Dictionary for Students of English* are corpus based dictionaries, whose examples are taken from *the Bank of English*, which shows high frequency spoken and written word combinations used in the daily life of native speakers of English. *The BBI Dictionary of English Word Combinations* is however, based on the native speakers' intuition, not corpus based. As both type of dictionaries are thought to be worth checking, they are used to select collocations in this research.

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