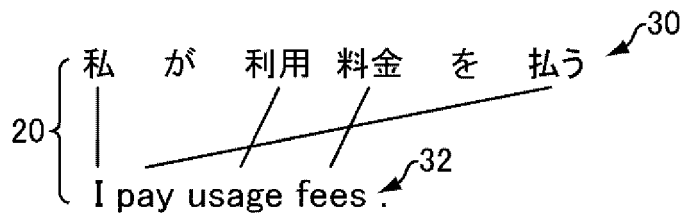
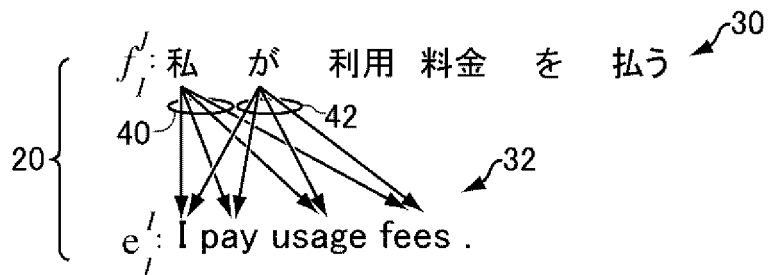


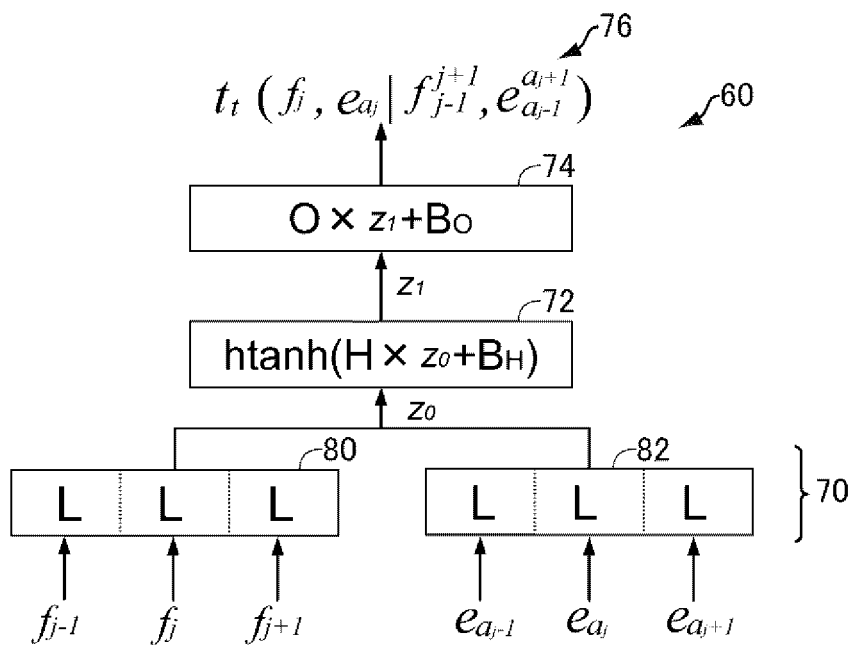
[図1]



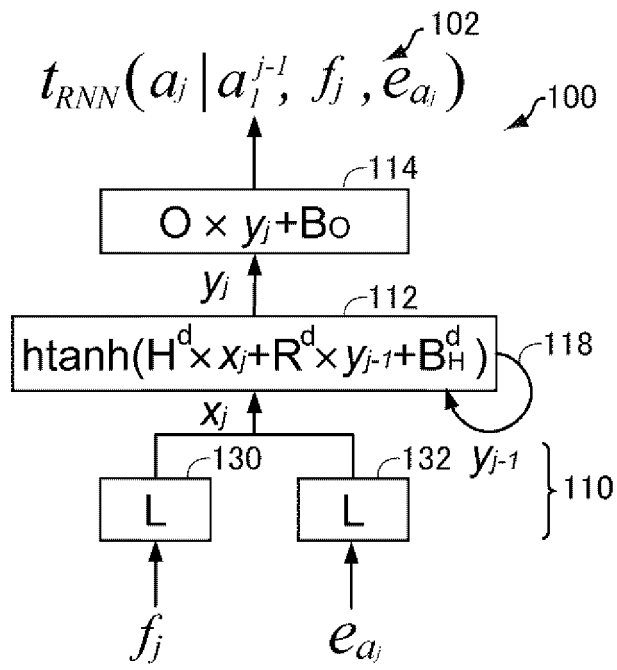
[図2]



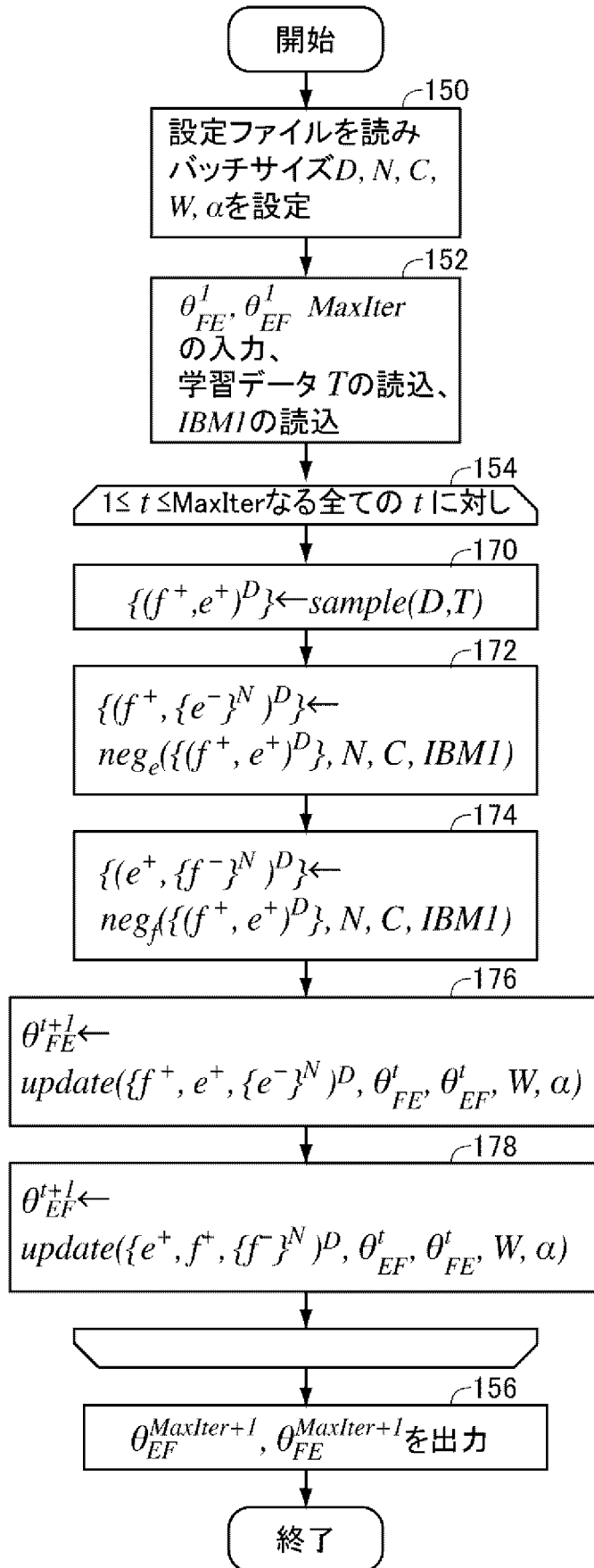
[図3]



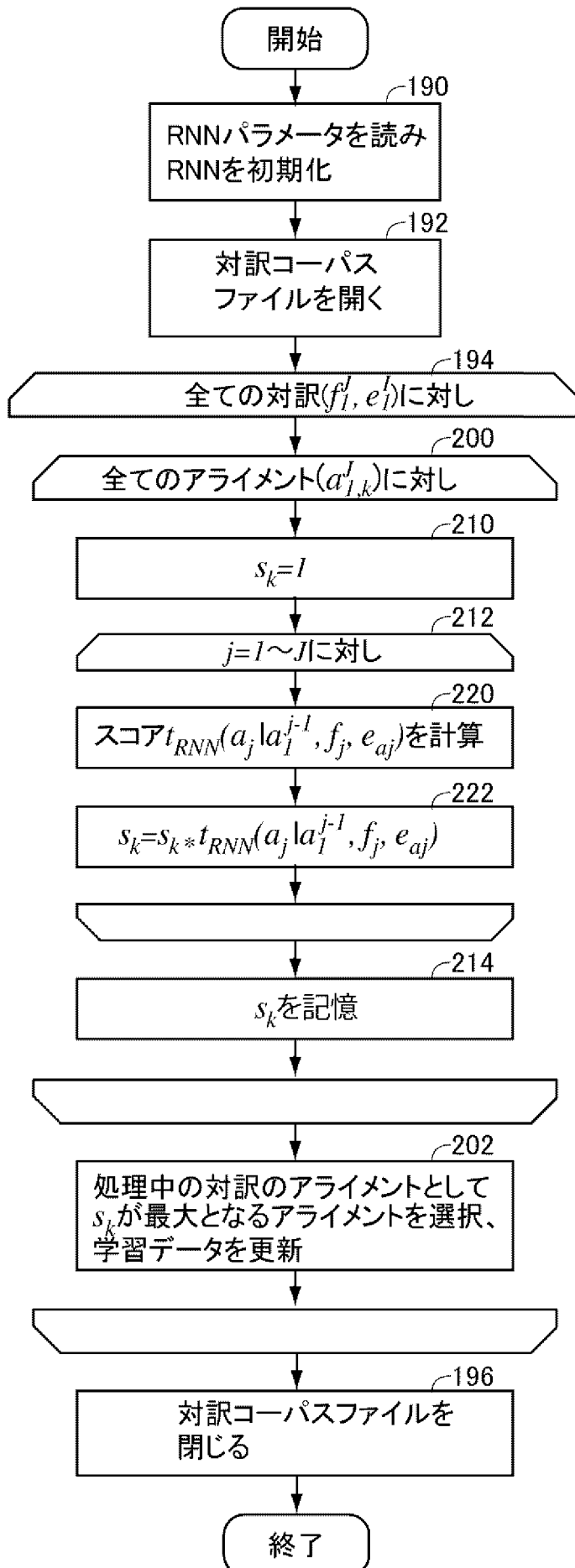
[図4]



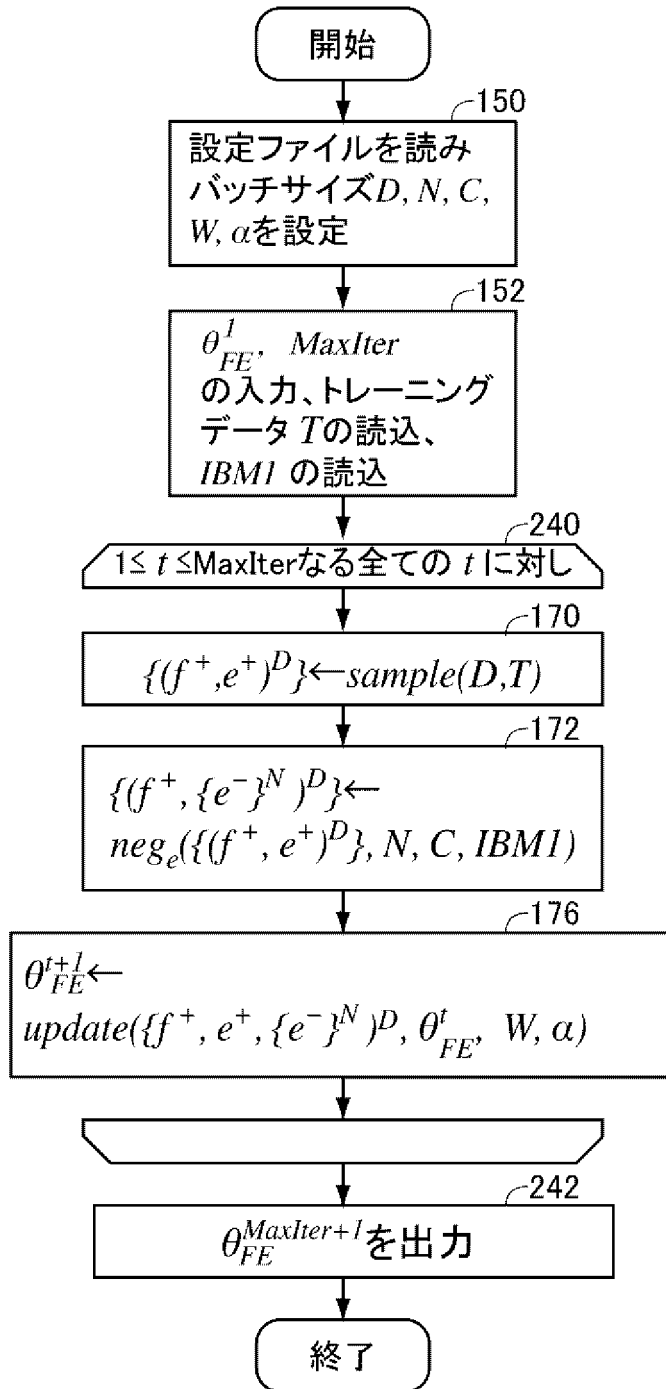
[図5]



[図6]



[図7]



[図8]

		Train	Dev	Test
BTEC		9K	0	960
Hansards		1.1M	37	447
FBIS	NIST 03	240K	878	919
	NIST 04			1,597
IWSLT		40K	2,501	489
NTCIR		3.2M	2,000	2,000

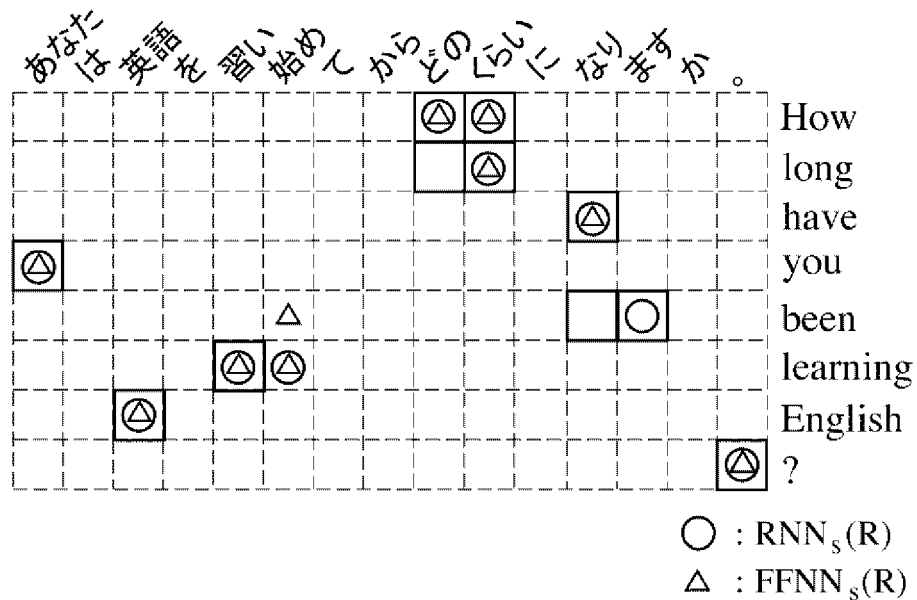
[図9]

アライメント	BTEC	Hansards
IBM 4	0.4859	0.9029
$FFNN_s(I)$	0.4770	0.9020
$RNN_s(I)$	0.5053 ⁺	0.9068
$RNN_{s+c}(I)$	0.5174 ⁺	0.9202 ⁺
RNN_u	0.5307 ⁺	0.9037
RNN_{u+c}	0.5562⁺	0.9275⁺
$FFNN_s(R)$	0.8224	-
$RNN_s(R)$	0.8798 ⁺	-
$RNN_{s+c}(R)$	0.8921⁺	-

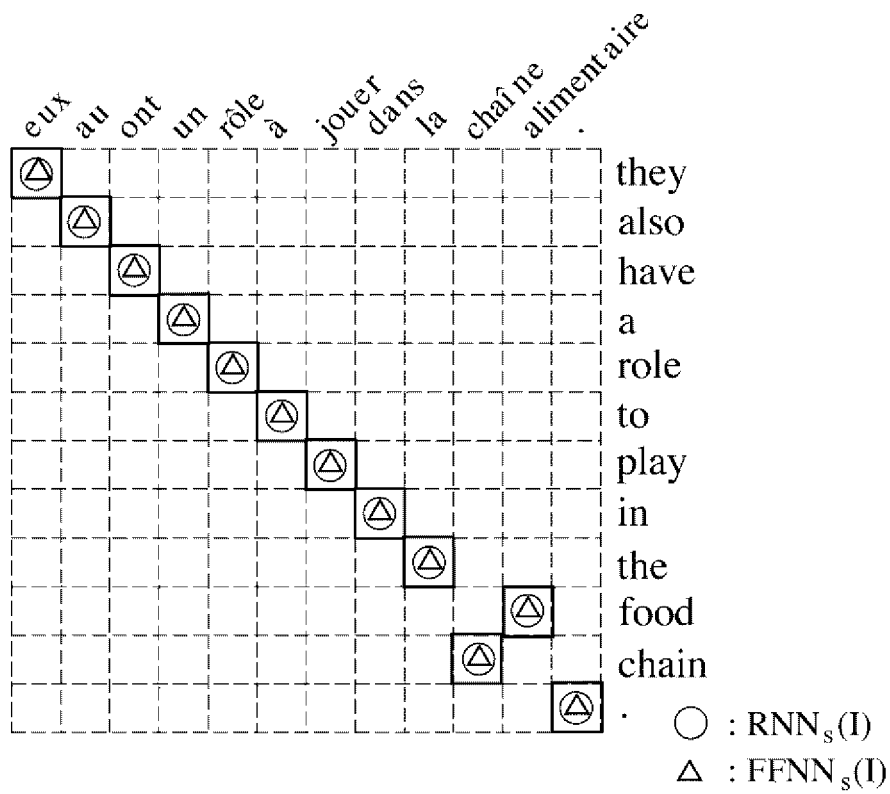
[図10]

アライメント	IWSLT	NTCIR	FBIS	
			NIST 03	NIST 04
IBM 4 _{all}	46.47	27.91	25.90	28.34
IBM 4		27.25	25.41	27.65
$FFNN_s(I)$	46.38	27.05	25.45	27.61
$RNN_s(I)$	46.43	27.24	25.47	27.56
$RNN_{s+c}(I)$	46.51	27.12	25.55	27.73
RNN_u	47.05 [*]	27.79 [*]	25.76 [*]	27.91 [*]
RNN_{u+c}	46.97 [*]	27.76 [*]	25.84 [*]	28.20 [*]

[図11]



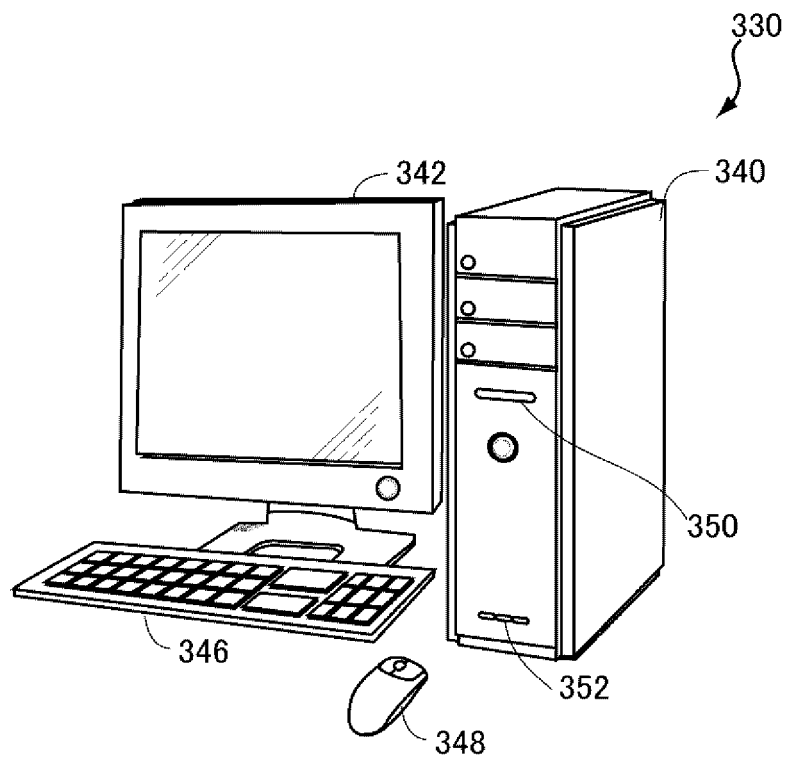
[図12]



[図13]

アライメント	40K	9K	1K
IBM 4	0.5467	0.4859	0.4128
RNN_{u+c}	0.6004	0.5562	0.4842
$RNN_{s+c} (R)$	-	0.8921	0.6063

[図14]



[図15]

