

Appendix A

(Feature generation rule)

Table A1. Trigger features

Feature name	Def	Example
#Sentence feature		
bow	Token count	bow_-induced
nameCount	Count of token	nameCount_9
ne_bow	Count of token which satisfies isName = True	ne_bow_ATF-2
#main features		
POS	About part of speech	POS_MD
txt	Txt content of token	txt_A-activated:
nonstem	Remaining part after Porter stemmer	nonstem_ation
stem	Stem got by Porter Stemmer	nonstem_ancies
#linearorder feature		
linear	About linear order of the sentence which contains this token	linear_-1_POS_CC linear_-1_txt_'nuclea' linear_-1_isName linear_-1_annType_protein
#content feature		
upper	Letter case	upper_case_middle upper_case_start
has	Digital info of token	has_digits has_fslash has_hyphen has_hyphenated_digit
dt	Double letter in token	dt_s+
tt	Triple letter in token	tt_lop
#attached edge feature		
t1Hin	In edge	t1Hin_Extinction
t1HOut	Out ege	t1HOut_Surfactant
#chain feature		
chain	Dependency information along with its direction info in chains	chain_dist_dist_1-frw_advcl-frw_conj_and-rev_prep_in
dep	Distance char in chain	dep_dist_dist_1conj_with
dist	Distance char in chain	dist_3_txt_densitometry

Table A2. Edge features

Feature name	Def	Example
#EntityFeatures		
e1_txt e2_txt	Txt of Nodes info	e1_txt_transfection
e1_POS e2_POS	Pos of nodes info	e1_POS_NNS
e1_annType e2_annType	Class info of nodes	e1_annType_e1_Entity

e1_strength e2_strength	Normalization value of anntype	e1_strength_Binding
e1_InteractionWord_e2_	isName=true of false for nodes	e1_InteractionWord_e2_Entity e1_InteractionWord_e2_InteractionWord
eTypes	Anntype of nodes	eTypes_Binding_Binding
selfLoop	selfLoop=1 if the two nodes is the one	
#PathLengthFeatures		
len	Length of the shortest path	
len_tokens	Length value of the shortest path	len_tokens_15
#TerminusTokenFeature (It could be omitted, since they are totally repeate in #EntityFeatures)		
#SingleElementFeature		
dep_Forward dep_Reverse	Dependency between e1 and e2	dep_Reverse_appos
internalPOS internalTxt internalDep	Count thee POS, txt, dep info in the shortest path.	internalPOS_AUX internalTxt_CAMs internalDep_abbrev
#PathGram		
tokenPath	annotation type in the shortest path between e1 and e2.	tokenPath_Binding_e1_Binding_ _Binding_
tok	Pos, txt between e1 and e2, along with direction of dependency	tok_FFFFPOS_AUX tok_FFFFtxt_Addition tok_FFFFannType_Binding
depGram	Dep between e1 and e2, along with direction of dependency	depGram_RFFF_nsubj_prep_for _prep_of_amod
dep_[RF]{2,4}[0-3]	Dep info in a sliding windows between e1 and e2, along with direction of dependency	dep_RR0_prep_upon dep_RR1_dep
edge_directions	The direction of dependency in the shorted path	edge_directions_FFFFFFFF
other	Annotation type info in the shorted path	e1_Binding_depGram_FFFF_abbrev_nsubjpass_amod_hyphen_Protein
#PathEdgeFeature		
txt	The existence of txt	txt_weak
POS	The existence of POS	POS_VB
annType	annotation type in the shortest path	annType_e1_Binding
gov	Txt, POS and anntype in the adjacent nodes in the shortest path	gov_NNPS_JJ
triple	triple_Binding_advcl_Binding:	triple_Binding_advcl_Binding:
dep	Dep info in the adjacent nodes in the shortest path	Dep_prep_over
#SentenceFeature		
count	Count the occurrence of Anntype in the sentence which contain the shortest path.	count_Transcription
#GENIA		
GENIA	One is for entity1: isname=false Second is e1 s isname=true Third is e2 s isname=false Forth is e2 isnae=true	GENIA_regulation_of_event GENIA_regulation_of_protein GENIA_nested_event GENIA_target_protein

Appendix B

(Feature combination experiment)

Table B1. Trigger feature contribution with combination

#One feature class			
Name of feature classes	F-score(%)	Size of features	Average contribution
1	None	18998	0
2	42.05	24944	0.001685776
3	3.5	73744	4.74615E-05
4	27.11	8573	0.003162254
5	7.33	100561	7.28911E-05
6	5.48	178345	3.0727E-05
#Two feature class combination			
Name of feature classes	F-score(%)	Size of features	Average contribution
1&2	0	43942	0
1&3	0	92742	0
1&4	45.39	27571	0.001646295
1&5	0.91	119559	7.6113E-06
1&6	3.1	197343	1.57087E-05
2&3	24.38	98688	0.000247041
2&4	36.65	33517	0.001093475
2&5	28.27	125505	0.00022525
2&6	16.76	203289	8.24442E-05
3&4	22.29	82317	0.000270782
3&5	5.94	174305	3.40782E-05
3&6	4.2	252028	1.66648E-05
4&5	27.57	109134	0.000252625
4&6	23.48	186918	0.000125617
5&6	7.56	278906	2.71059E-05
#Three feature class combination			
Name of feature classes	F-score(%)	Size of features	Average contribution
1&2&3	0.11	117686	9.34691E-07
1&2&4	47.82	52515	0.000910597
1&2&5	6.35	144503	4.39437E-05
1&2&6	5.85	222287	2.63173E-05
1&3&4	45.13	101315	0.000445442
1&3&5	1.98	193303	1.0243E-05
1&3&6	2.24	271087	8.26303E-06
1&4&5	49.44	128132	0.000385852
1&4&6	45.51	205916	0.000221012
1&5&6	7.5	297904	2.51759E-05
2&3&4	41.05	107261	0.000382711
2&3&5	21.27	199249	0.000106751
2&3&6	16.26	277033	5.86934E-05
2&4&5	35.42	134078	0.000264175
2&4&6	33.03	211862	0.000155903
2&5&6	17.05	303850	5.61132E-05
3&4&5	24.38	182878	0.000133313
3&4&6	20.76	260662	7.96434E-05
3&5&6	5.96	352650	1.69006E-05
4&5&6	23.35	287479	8.12233E-05
#Four feature class combination			
Name of feature classes	F-score(%)	Size of features	Average contribution
1&2&3&4	49.16	126259	0.000389358
1&2&3&5	7.02	218247	3.21654E-05
1&2&3&6	5.77	296031	1.94912E-05

1&2&4&5	50.71	153076	0.000331273
1&2&4&6	48.82	230860	0.00021147
1&2&5&6	15.47	322848	4.79173E-05
1&3&4&5	49.74	201876	0.000246389
1&3&4&6	46.7	279660	0.000166988
1&3&5&6	7.48	371648	2.01266E-05
1&4&5&6	46.73	306477	0.000152475
2&3&4&5	38.12	377594	0.000100955
2&3&4&6	36.33	285606	0.000127203
2&3&5&6	16.96	377594	4.4916E-05
2&4&5&6	32.47	312423	0.00010393
3&4&5&6	21.13	361223	5.84957E-05
#Five feature class combination			
Name of feature classes	F-score(%)	Size of features	Average contribution
1&2&3&4&5	51.34	226820	0.000226347
1&2&3&4&6	50.19	304604	0.000164771
1&2&3&5&6	16.37	396592	4.12767E-05
1&2&4&5&6	49.9	331421	0.000150564
1&3&4&5&6	47.1	380221	0.000123875
2&3&4&5&6	34.22	386167	8.86145E-05
#Six feature class combination			
Name of feature classes	F-score(%)	Size of features	Average contribution
1&2&3&4&5&6	51.21	405165	0.000126393

Table B2. Edge feature contribution with combination

#One feature class			
Name of feature classes	F-score(%)	Size of features	Average contribution
1	27.97	4313	0.00648505
2	0	25	0
4	17.67	2593	0.0068145
5	18.45	441684	4.1772E-05
6	13.09	25038	0.00052281
7	7.83	33	0.23727273
8	23.03	4	5.7575
#Two feature class combination			
Name of feature classes	F-score(%)	Size of features	Average contribution
1&2	18.55	4338	0.00427616
1&4	24.17	6906	0.00349986
1&5	24.19	445997	5.4238E-05
1&6	22.09	29351	0.00075261
1&7	32.91	4346	0.00757248
1&8	23.46	4317	0.00543433
2&4	0	2618	0
2&5	0	441709	0
2&6	22.42	25063	0.00089455
2&7	0	58	0
2&8	0	29	0
4&5	27.15	444277	6.1111E-05
4&6	15.48	27631	0.00056024
4&7	14.68	2626	0.00559025
4&8	26.43	2597	0.01017713
5&6	13	466722	2.7854E-05
5&7	18.2	441717	4.1203E-05
5&8	27.42	441688	6.208E-05
6&7	10.84	25071	0.00043237
6&8	12.66	25042	0.00050555
7&8	5.06	37	0.13675676
#Three feature class combination			
Name of feature classes	F-score(%)	Size of features	Average contribution
1&2&4	23.03	6931	0.00332275

1&2&5	31.98	446022	7.17E-05
1&2&6	44.2	29376	0.00150463
1&2&7	2.85	4371	0.00065202
1&2&8	25.69	4342	0.00591663
1&4&5	25.51	448590	5.6867E-05
1&4&6	19.4	31944	0.00060731
1&4&7	29.88	6939	0.0043061
1&4&8	24.43	6910	0.00353546
1&5&6	8.26	471035	1.7536E-05
1&5&7	22.66	446030	5.0804E-05
1&5&8	23.28	446001	5.2197E-05
1&6&7	24.5	29384	0.00083379
1&6&8	15.66	29355	0.00053347
1&7&8	18.74	4350	0.00430805
2&4&5	25.92	444302	5.8339E-05
2&4&6	30.53	27656	0.00110392
2&4&7	0	2651	0
2&4&8	0	2622	0
2&5&6	42.01	466747	9.0006E-05
2&5&7	3.4	441742	7.6968E-06
2&5&8	0	441713	0
2&6&7	18.51	25096	0.00073757
2&6&8	18	25067	0.00071808
2&7&8	0	62	0
4&5&6	8.84	469315	1.8836E-05
4&5&7	29.14	444310	6.5585E-05
4&5&8	30.45	444281	6.8538E-05
4&6&7	19.45	27664	0.00070308
4&6&8	17.25	27635	0.00062421
4&7&8	26.31	2630	0.0100038
5&6&7	14.26	466755	3.0551E-05
5&6&8	7.69	466726	1.6476E-05
5&7&8	28.11	441721	6.3637E-05
6&7&8	17.95	25075	0.00071585
#Four feature class combination			
Name of feature classes	F-score(%)	Size of features	Average contribution
1&2&4&5	38.84	448615	8.6578E-05
1&2&4&6	44.51	31969	0.00139229
1&2&4&7	13.84	6964	0.00198736
1&2&4&8	31.17	6935	0.00449459
1&2&5&6	46.1	471060	9.7864E-05
1&2&5&7	28.96	446055	6.4925E-05
1&2&5&8	37.21	446026	8.3426E-05
1&2&6&7	41.74	29409	0.00141929
1&2&6&8	44.08	29380	0.00150034
1&2&7&8	8.6	4375	0.00196571
1&4&5&6	20.05	473628	4.2333E-05
1&4&5&7	28.76	448623	6.4107E-05
1&4&5&8	24.42	448594	5.4437E-05
1&4&6&7	23.34	31977	0.0007299
1&4&6&8	19.01	31948	0.00059503
1&4&7&8	24.22	6943	0.00348841
1&5&6&7	20.78	471068	4.4113E-05
1&5&6&8	7.89	471039	1.675E-05
1&5&7&8	18.84	446034	4.2239E-05
1&6&7&8	1.8	29388	6.1249E-05
2&4&5&6	46.13	469340	9.8287E-05
2&4&5&7	8.18	444335	1.841E-05
2&4&5&8	23.92	444306	5.3837E-05
2&4&6&7	23.8	27689	0.00085955
2&4&6&8	39.53	27660	0.00142914
2&4&7&8	0	2655	0
2&5&6&7	35.26	466780	7.5539E-05
2&5&6&8	47.42	466751	0.0001016

2&5&7&8	0	441746	
2&6&7&8	10.19	25100	0.00040598
4&5&6&7	2.33	469348	4.9643E-06
4&5&6&8	17.78	469319	3.7885E-05
4&5&7&8	32.1	444314	7.2246E-05
4&6&7&8	6.24	27668	0.00022553
5&6&7&8	10.84	466759	2.3224E-05
#Five feature class combination			
Name of feature classes	F-score(%)	Size of features	Average contribution
1&2&4&5&6	49.02	473653	0.00010349
1&2&4&5&7	35.65	448648	7.9461E-05
1&2&4&5&8	39.6	448619	8.8271E-05
1&2&4&6&7	43.96	32002	0.00137366
1&2&4&6&8	50.23	31973	0.00157101
1&2&4&7&8	23.85	6968	0.00342279
1&2&5&6&7	44.19	471093	9.3803E-05
1&2&5&6&8	51.18	471064	0.00010865
1&2&5&7&8	34.37	446059	7.7053E-05
1&2&6&7&8	41.78	29413	0.00142046
1&4&5&6&7	22.81	473661	4.8157E-05
1&4&5&6&8	18.97	473632	4.0052E-05
1&4&5&7&8	25.81	448627	5.7531E-05
1&4&6&7&8	14.4	31981	0.00045027
1&5&6&7&8	5.4	471072	1.1463E-05
2&4&5&6&7	42.79	469373	9.1164E-05
2&4&5&6&8	49.26	469344	0.00010496
2&4&5&7&8	3.7	444339	8.327E-06
2&4&6&7&8	26.31	27693	0.00095006
2&5&6&7&8	44.17	466784	9.4626E-05
4&5&6&7&8	11.28	469352	2.4033E-05
#Six feature class combination			
Name of feature classes	F-score(%)	Size of features	Average contribution
1&2&4&5&6&7	47.29	473686	9.9834E-05
1&2&4&5&6&8	51.81	473657	0.00010938
1&2&4&5&7&8	36.85	448652	8.2135E-05
1&2&4&6&7&8	50.33	32006	0.00157252
1&2&5&6&7&8	51.29	471097	0.00010887
1&4&5&6&7&8	14.22	473665	3.0021E-05
2&4&5&6&7&8	48.32	469377	0.00010294
#Seven feature class combination			Average contribution
1&2&4&5&6&7&8	52.16	473690	0.000110114
#Eight feature class combination			Average contribution
1&2&3&4&5&6&7&8	51.21	477834	0.000107171

Appendix C

(Quantitative algorithm for evaluating contribution of feature class)

Table C1. Testing combination with Trigger features with fixed Edge features

	Rank	Fixed Trigger features Testing combination with Edge features	AEE1(1)	AEE1(2)	AEE1(3)	AEE1(4)	AEE1(5)	AEE1(6)
51.34	1	1&2&3&4&5	1	1	1	1	1	0
51.21	2	1&2&3&4&5&6	1	1	1	1	1	0.5
50.71	3	1&2&4&5	1	1	0.667	1	1	0.3333
50.19	4	1&2&3&4&6	1	1	0.75	1	0.75	0.5
49.9	5	1&2&4&5&6	1	1	0.6	1	0.8	0.6
49.74	6	1&3&4&5	1	0.8333	0.667	1	0.833	0.5
49.44	7	1&4&5	1	0.7143	0.571	1	0.857	0.4286
49.16	8	1&2&3&4	1	0.75	0.625	1	0.75	0.375
48.82	9	1&2&4&6	1	0.7778	0.556	1	0.667	0.4444
47.82	10	1&2&4	1	0.8	0.5	1	0.6	0.4
47.1	11	1&3&4&5&6	1	0.7273	0.545	1	0.636	0.4545
46.73	12	1&4&5&6	1	0.6667	0.5	1	0.667	0.5
46.7	13	1&3&4&6	1	0.6154	0.538	1	0.615	0.5385
45.51	14	1&4&6	1	0.5714	0.5	1	0.571	0.5714
45.39	15	1&4	1	0.5333	0.467	1	0.533	0.5333
45.13	16	1&3&4	1	0.5	0.5	1	0.5	0.5
42.05	17	2	0.941	0.5294	0.471	0.941	0.471	0.4706
41.05	18	2&3&4	0.889	0.5556	0.5	0.944	0.444	0.4444
38.12	19	2&3&4&5	0.842	0.5789	0.526	0.947	0.474	0.4211
36.65	20	2&4	0.8	0.6	0.5	0.95	0.45	0.4
36.33	21	2&3&4&6	0.762	0.619	0.524	0.952	0.429	0.4286
35.42	22	2&4&5	0.727	0.6364	0.5	0.955	0.455	0.4091
34.22	23	2&3&4&5&6	0.696	0.6522	0.522	0.957	0.478	0.4348
33.03	24	2&4&6	0.667	0.6667	0.5	0.958	0.458	0.4583
32.47	25	2&4&5&6	0.64	0.68	0.48	0.96	0.48	0.48
28.27	26	2&5	0.615	0.6923	0.462	0.923	0.5	0.4615
27.57	27	4&5	0.593	0.6667	0.444	0.926	0.519	0.4444
27.11	28	4	0.571	0.6429	0.429	0.929	0.5	0.4286
24.38	29	2&3	0.552	0.6552	0.448	0.897	0.483	0.4138
24.38	30	3&4&5	0.533	0.6333	0.467	0.9	0.5	0.4
23.48	31	4&6	0.516	0.6129	0.452	0.903	0.484	0.4194
23.35	32	4&5&6	0.5	0.5938	0.438	0.906	0.5	0.4375
22.29	33	3&4	0.485	0.5758	0.455	0.909	0.485	0.4242
21.27	34	2&3&5	0.471	0.5882	0.471	0.882	0.5	0.4118
21.13	35	3&4&5&6	0.457	0.5714	0.486	0.886	0.514	0.4286
20.76	36	3&4&6	0.444	0.5556	0.5	0.889	0.5	0.4444
17.05	37	2&5&6	0.432	0.5676	0.486	0.865	0.514	0.4595
16.96	38	2&3&5&6	0.421	0.5789	0.5	0.842	0.526	0.4737
16.76	39	2&6	0.41	0.5897	0.487	0.821	0.513	0.4872
16.37	40	1&2&3&5&6	0.425	0.6	0.5	0.8	0.525	0.5
16.26	41	2&3&6	0.415	0.6098	0.512	0.78	0.512	0.5122
15.47	42	1&2&5&6	0.429	0.619	0.5	0.762	0.524	0.5238
7.56	43	5&6	0.419	0.6047	0.488	0.744	0.535	0.5349
7.5	44	1&5&6	0.432	0.5909	0.477	0.727	0.545	0.5455
7.48	45	1&3&5&6	0.444	0.5778	0.489	0.711	0.556	0.5556
7.33	46	5	0.435	0.5652	0.478	0.696	0.565	0.5435
7.02	47	1&2&3&5	0.447	0.5745	0.489	0.681	0.574	0.5319
6.35	48	1&2&5	0.458	0.5833	0.479	0.667	0.583	0.5208
5.96	49	3&5&6	0.449	0.5714	0.49	0.653	0.592	0.5306
5.94	50	3&5	0.44	0.56	0.5	0.64	0.6	0.52
5.85	51	1&2&6	0.451	0.5686	0.49	0.627	0.588	0.5294
5.77	52	1&2&3&6	0.462	0.5769	0.5	0.615	0.577	0.5385
5.48	53	6	0.453	0.566	0.491	0.604	0.566	0.5472

4.2	54	3&6	0.444	0.5556	0.5	0.593	0.556	0.5556
3.5	55	3	0.436	0.5455	0.509	0.582	0.545	0.5455
3.1	56	1&6	0.446	0.5357	0.5	0.571	0.536	0.5536
2.24	57	1&3&6	0.456	0.5263	0.509	0.561	0.526	0.5614
1.98	58	1&3&5	0.466	0.5172	0.517	0.552	0.534	0.5517
0.91	59	1&5	0.475	0.5085	0.508	0.542	0.542	0.5424
0.11	60	1&2&3	0.483	0.5167	0.517	0.533	0.533	0.5333
0	61	1	0.492	0.5082	0.508	0.525	0.525	0.5246
0	62	1&2	0.5	0.5161	0.5	0.516	0.516	0.5161
0	63	1&3	0.508	0.5079	0.508	0.508	0.508	0.5079
		AEE1 value computation	40.83	39.938	32.99	52.23	36.12	30.086

Table C2. Testing combination with Edge features with fixed Trigger features

F-score (%)	Rank	Fixed Trigger features Testing combination with Edge features	AEE1(1)	AEE1(2)	AEE1(4)	AEE1(5)	AEE1(6)	AEE1(7)	AEE1(8)
52.16	1	1&2&4&5&6&7&8	1	1	1	1	1	1	1
51.81	2	1&2&4&5&6&8	1	1	1	1	1	0.5	1
51.29	3	1&2&5&6&7&8	1	1	0.6667	1	1	0.66667	1
51.18	4	1&2&5&6&8	1	1	0.5	1	1	0.5	1
50.33	5	1&2&4&6&7&8	1	1	0.6	0.8	1	0.6	1
50.23	6	1&2&4&6&8	1	1	0.6667	0.6667	1	0.5	1
49.26	7	2&4&5&6&8	0.85714	1	0.7143	0.7143	1	0.42857	1
49.02	8	1&2&4&5&6	0.875	1	0.75	0.75	1	0.375	0.875
48.32	9	2&4&5&6&7&8	0.77778	1	0.7778	0.7778	1	0.44444	0.8889
47.42	10	2&5&6&8	0.7	1	0.7	0.8	1	0.4	0.9
47.29	11	1&2&4&5&6&7	0.72727	1	0.7273	0.8182	1	0.45455	0.8182
46.13	12	2&4&5&6	0.66667	1	0.75	0.8333	1	0.41667	0.75
46.1	13	1&2&5&6	0.69231	1	0.6923	0.8462	1	0.38462	0.6923
44.51	14	1&2&4&6	0.71429	1	0.7143	0.7857	1	0.35714	0.6429
44.2	15	1&2&6	0.73333	1	0.6667	0.7333	1	0.33333	0.6
44.19	16	1&2&5&6&7	0.75	1	0.625	0.75	1	0.375	0.5625
44.17	17	2&5&6&7&8	0.70588	1	0.5882	0.7647	1	0.41176	0.5882
44.08	18	1&2&6&8	0.72222	1	0.5556	0.7222	1	0.38889	0.6111
43.96	19	1&2&4&6&7	0.73684	1	0.5789	0.6842	1	0.42105	0.5789
42.79	20	2&4&5&6&7	0.7	1	0.6	0.7	1	0.45	0.55
42.01	21	2&5&6	0.66667	1	0.5714	0.7143	1	0.42857	0.5238
41.78	22	1&2&6&7&8	0.68182	1	0.5455	0.6818	1	0.45455	0.5455
41.74	23	1&2&6&7	0.69565	1	0.5217	0.6522	1	0.47826	0.5217
39.6	24	1&2&4&5&8	0.70833	1	0.5417	0.6667	0.95833	0.45833	0.5417
39.53	25	2&4&6&8	0.68	1	0.56	0.64	0.96	0.44	0.56
38.84	26	1&2&4&5	0.69231	1	0.5769	0.6538	0.92308	0.42308	0.5385
37.21	27	1&2&5&8	0.7037	1	0.5556	0.6667	0.88889	0.40741	0.5556
36.85	28	1&2&4&5&7&8	0.71429	1	0.5714	0.6786	0.85714	0.42857	0.5714
35.65	29	1&2&4&5&7	0.72414	1	0.5862	0.6897	0.82759	0.44828	0.5517
35.26	30	2&5&6&7	0.7	1	0.5667	0.7	0.83333	0.46667	0.5333
34.37	31	1&2&5&7&8	0.70968	1	0.5484	0.7097	0.80645	0.48387	0.5484
32.91	32	1&7	0.71875	0.9688	0.5313	0.6875	0.78125	0.5	0.5313
32.1	33	4&5&7&8	0.69697	0.9394	0.5455	0.697	0.75758	0.51515	0.5455
31.98	34	1&2&5	0.70588	0.9412	0.5294	0.7059	0.73529	0.5	0.5294
31.17	35	1&2&4&8	0.71429	0.9429	0.5429	0.6857	0.71429	0.48571	0.5429
30.53	36	2&4&6	0.69444	0.9444	0.5556	0.6667	0.72222	0.47222	0.5278
30.45	37	4&5&8	0.67568	0.9189	0.5676	0.6757	0.7027	0.45946	0.5405
29.88	38	1&4&7	0.68421	0.8947	0.5789	0.6579	0.68421	0.47368	0.5263
29.14	39	4&5&7	0.66667	0.8718	0.5897	0.6667	0.66667	0.48718	0.5128
28.96	40	1&2&5&7	0.675	0.875	0.575	0.675	0.65	0.5	0.5
28.76	41	1&4&5&7	0.68293	0.8537	0.5854	0.6829	0.63415	0.5122	0.4878
28.11	42	5&7&8	0.66667	0.8333	0.5714	0.6905	0.61905	0.52381	0.5
27.97	43	1	0.67442	0.814	0.5581	0.6744	0.60465	0.51163	0.4884
27.42	44	5&8	0.65909	0.7955	0.5455	0.6818	0.59091	0.5	0.5
27.15	45	4&5	0.64444	0.7778	0.5556	0.6889	0.57778	0.48889	0.4889
26.43	46	4&8	0.63043	0.7609	0.5652	0.6739	0.56522	0.47826	0.5
26.31	47	4&7&8	0.61702	0.7447	0.5745	0.6596	0.55319	0.48936	0.5106
26.31	48	2&4&6&7&8	0.60417	0.75	0.5833	0.6458	0.5625	0.5	0.5208
25.92	49	2&4&5	0.59184	0.7551	0.5918	0.6531	0.55102	0.4898	0.5102
25.81	50	1&4&5&7&8	0.6	0.74	0.6	0.66	0.54	0.5	0.52

25.69	51	1&2&8	0.60784	0.7451	0.5882	0.6471	0.52941	0.4902	0.5294
25.51	52	1&4&5	0.61538	0.7308	0.5962	0.6538	0.51923	0.48077	0.5192
24.5	53	1&6&7	0.62264	0.717	0.5849	0.6415	0.5283	0.49057	0.5094
24.43	54	1&4&8	0.62963	0.7037	0.5926	0.6296	0.51852	0.48148	0.5185
24.42	55	1&4&5&8	0.63636	0.6909	0.6	0.6364	0.50909	0.47273	0.5273
24.22	56	1&4&7&8	0.64286	0.6786	0.6071	0.625	0.5	0.48214	0.5357
24.19	57	1&5	0.64912	0.6667	0.5965	0.6316	0.49123	0.47368	0.5263
24.17	58	1&4	0.65517	0.6552	0.6034	0.6207	0.48276	0.46552	0.5172
23.92	59	2&4&5&8	0.64407	0.661	0.6102	0.6271	0.47458	0.45763	0.5254
23.85	60	1&2&4&7&8	0.65	0.6667	0.6167	0.6167	0.46667	0.46667	0.5333
23.8	61	2&4&6&7	0.63934	0.6721	0.623	0.6066	0.47541	0.47541	0.5246
23.46	62	1&8	0.64516	0.6613	0.6129	0.5968	0.46774	0.46774	0.5323
23.34	63	1&4&6&7	0.65079	0.6508	0.619	0.5873	0.47619	0.47619	0.5238
23.28	64	1&5&8	0.65625	0.6406	0.6094	0.5938	0.46875	0.46875	0.5313
23.03	65	8	0.64615	0.6308	0.6	0.5846	0.46154	0.46154	0.5385
23.03	66	1&2&4	0.65152	0.6364	0.6061	0.5758	0.45455	0.45455	0.5303
22.81	67	1&4&5&6&7	0.65672	0.6269	0.6119	0.5821	0.46269	0.46269	0.5224
22.66	68	1&5&7	0.66176	0.6176	0.6029	0.5882	0.45588	0.47059	0.5147
22.42	69	2&6	0.65217	0.6232	0.5942	0.5797	0.46377	0.46377	0.5072
22.09	70	1&6	0.65714	0.6143	0.5857	0.5714	0.47143	0.45714	0.5
20.78	71	1&5&6&7	0.66197	0.6056	0.5775	0.5775	0.47887	0.46479	0.493
20.05	72	1&4&5&6	0.66667	0.5972	0.5833	0.5833	0.48611	0.45833	0.4861
19.45	73	4&6&7	0.65753	0.589	0.589	0.5753	0.49315	0.46575	0.4795
19.4	74	1&4&6	0.66216	0.5811	0.5946	0.5676	0.5	0.45946	0.473
19.01	75	1&4&6&8	0.66667	0.5733	0.6	0.56	0.50667	0.45333	0.48
18.97	76	1&4&5&6&8	0.67105	0.5658	0.6053	0.5658	0.51316	0.44737	0.4868
18.84	77	1&5&7&8	0.67532	0.5584	0.5974	0.5714	0.50649	0.45455	0.4935
18.74	78	1&7&8	0.67949	0.5513	0.5897	0.5641	0.5	0.46154	0.5
18.55	79	1&2	0.68354	0.557	0.5823	0.557	0.49367	0.4557	0.4937
18.51	80	2&6&7	0.675	0.5625	0.575	0.55	0.5	0.4625	0.4875
18.45	81	5	0.66667	0.5556	0.5679	0.5556	0.49383	0.45679	0.4815
18.2	82	5&7	0.65854	0.5488	0.561	0.561	0.4878	0.46341	0.4756
18	83	2&6&8	0.6506	0.5542	0.5542	0.5542	0.49398	0.45783	0.4819
17.95	84	6&7&8	0.64286	0.5476	0.5476	0.5476	0.5	0.46429	0.4881
17.78	85	4&5&6&8	0.63529	0.5412	0.5529	0.5529	0.50588	0.45882	0.4941
17.67	86	4	0.62791	0.5349	0.5581	0.5465	0.5	0.45349	0.4884
17.25	87	4&6&8	0.62069	0.5287	0.5632	0.5402	0.50575	0.44828	0.4943
15.66	88	1&6&8	0.625	0.5227	0.5568	0.5341	0.51136	0.44318	0.5
15.48	89	4&6	0.61798	0.5169	0.5618	0.5281	0.51685	0.4382	0.4944
14.68	90	4&7	0.61111	0.5111	0.5667	0.5222	0.51111	0.44444	0.4889
14.4	91	1&4&6&7&8	0.61538	0.5055	0.5714	0.5165	0.51648	0.45055	0.4945
14.26	92	5&6&7	0.6087	0.5	0.5652	0.5217	0.52174	0.45652	0.4891
14.22	93	1&4&5&6&7&8	0.6129	0.4946	0.5699	0.5269	0.52688	0.46237	0.4946
13.84	94	1&2&4&7	0.61702	0.5	0.5745	0.5213	0.52128	0.46809	0.4894
13.09	95	6	0.61053	0.4947	0.5684	0.5158	0.52632	0.46316	0.4842
13	96	5&6	0.60417	0.4896	0.5625	0.5208	0.53125	0.45833	0.4792
12.66	97	6&8	0.59794	0.4845	0.5567	0.5155	0.53608	0.45361	0.4845
11.28	98	4&5&6&7&8	0.59184	0.4796	0.5612	0.5204	0.54082	0.45918	0.4898
10.84	99	6&7	0.58586	0.4747	0.5556	0.5152	0.54545	0.46465	0.4848
10.84	100	5&6&7&8	0.58	0.47	0.55	0.52	0.55	0.47	0.49
10.19	101	2&6&7&8	0.57426	0.4752	0.5446	0.5149	0.55446	0.47525	0.495
8.84	102	4&5&6	0.56863	0.4706	0.549	0.5196	0.55882	0.47059	0.4902
8.6	103	1&2&7&8	0.57282	0.4757	0.5437	0.5146	0.5534	0.47573	0.4951
8.26	104	1&5&6	0.57692	0.4712	0.5385	0.5192	0.55769	0.47115	0.4904
8.18	105	2&4&5&7	0.57143	0.4762	0.5429	0.5238	0.55238	0.47619	0.4857
7.89	106	1&5&6&8	0.57547	0.4717	0.5377	0.5283	0.5566	0.4717	0.4906
7.83	107	7	0.57009	0.4673	0.5327	0.5234	0.5514	0.47664	0.486
7.69	108	5&6&8	0.56481	0.463	0.5278	0.5278	0.55556	0.47222	0.4907
6.24	109	4&6&7&8	0.55963	0.4587	0.5321	0.5229	0.55963	0.47706	0.4954
5.4	110	1&5&6&7&8	0.56364	0.4545	0.5273	0.5273	0.56364	0.48182	0.5
5.06	111	7&8	0.55856	0.4505	0.5225	0.5225	0.55856	0.48649	0.5045
3.7	112	2&4&5&7&8	0.55357	0.4554	0.5268	0.5268	0.55357	0.49107	0.5089
3.4	113	2&5&7	0.54867	0.4602	0.5221	0.531	0.54867	0.49558	0.5044
2.85	114	1&2&7	0.55263	0.4649	0.5175	0.5263	0.54386	0.5	0.5
2.33	115	4&5&6&7	0.54783	0.4609	0.5217	0.5304	0.54783	0.50435	0.4957
1.8	116	1&6&7&8	0.55172	0.4569	0.5172	0.5259	0.55172	0.50862	0.5
0	117	2	0.54701	0.4615	0.5128	0.5214	0.54701	0.50427	0.4957

0	118	2&4	0.54237	0.4661	0.5169	0.5169	0.54237	0.5	0.4915
0	119	2&5	0.53782	0.4706	0.5126	0.521	0.53782	0.4958	0.4874
0	120	2&7	0.53333	0.475	0.5083	0.5167	0.53333	0.5	0.4833
0	121	2&8	0.52893	0.4793	0.5041	0.5124	0.52893	0.49587	0.4876
0	122	2&4&8	0.52459	0.4836	0.5082	0.5082	0.52459	0.4918	0.4918
0	123	2&5&8	0.52033	0.4878	0.5041	0.5122	0.52033	0.4878	0.4959
0	124	2&7&8	0.51613	0.4919	0.5	0.5081	0.51613	0.49194	0.5
0	125	2&4&7	0.512	0.496	0.504	0.504	0.512	0.496	0.496
0	126	2&4&7&8	0.50794	0.5	0.5079	0.5	0.50794	0.5	0.5
0	127	2&5&7&8	0.50394	0.5039	0.5039	0.5039	0.50394	0.50394	0.5039
		AEE1 value computation	77.5994	83.84	68.451	74.877	77.7612	56.0854	66.347

Appendix D

(Feature combination experiment with modified features)

Table D1. The combination experiment after choosing modified features in Trigger detection

	Original	4'	6'	4' & 6'
Title:Trigger_Features_Combination		ft	some-chain	Some-chain-ft
Trigger-c	200000	250000	200000	250000
Edge-c	28000	28000	28000	28000
Beta	0.65	0.7	0.65	0.65
# One Feature class				
Name	F-score(%)	F-score(%)	F-score(%)	F-score(%)
1	0	0	0	0
2	42.05	37.11	40.49	40.5
3	3.5	3.16	3.67	3.67
4	27.11	29.25	28.36	28.43
5	7.33	7.43	11.29	11.29
6	5.48	5.15	3.05	3.05
# Two feature class Combination				
Name of feature classes	F-score(%)	F-score(%)	F-score(%)	F-score(%)
1&2	0	0	0	0
1&3	0	0.11	0.22	0.22
1&4	45.39	46.09	44.97	44.95
1&5	0.91	1	6.16	6.16
1&6	3.1	3.52	0.22	0.22
2&3	24.38	18.11	15.4	15.35
2&4	36.65	39.57	37.8	37.85
2&5	28.27	21.8	20.36	20.35
2&6	16.76	13.28	10.37	10.36
3&4	22.29	23.26	22.04	21.99
3&5	5.94	5.34	6.99	6.97
3&6	4.2	4.24	2.8	2.79
4&5	27.57	29.2	25.35	25.35
4&6	23.48	23.71	28.8	28.8
5&6	7.56	7.33	8.05	8.06
# Three feature class Combination				
Name of feature classes	F-score(%)	F-score(%)	F-score(%)	F-score(%)
1&2&3	0.11	0.11	0.22	0.22
1&2&4	47.82	47.45	47.04	47.07
1&2&5	6.35	4.05	11.34	11.34
1&2&6	5.85	4.35	1.2	1.2
1&3&4	45.13	46.53	46.05	46.05
1&3&5	1.98	2.43	7.41	7.41
1&3&6	2.24	2.01	1.13	1.13
1&4&5	49.44	49.66	47.81	47.76
1&4&6	45.51	46.2	46.92	47
1&5&6	7.5	8.02	6	6
2&3&4	41.05	42.26	38.23	38.27
2&3&5	21.27	16.66	17.24	17.21
2&3&6	16.26	13.72	9.98	9.99
2&4&5	35.42	37.17	33.57	33.58
2&4&6	33.03	34.47	37.4	37.43
2&5&6	17.05	13.72	16.14	16.14
3&4&5	24.38	24.76	21.33	21.3
3&4&6	20.76	20.87	24.33	24.35
3&5&6	5.96	5.86	5.92	5.92
4&5&6	23.35	24.09	25.35	25.55
# Four feature class Combination				
Name of feature classes	F-score(%)	F-score(%)	F-score(%)	F-score(%)
1&2&3&4	49.16	48.79	48.69	48.6

1&2&3&5	7.02	5.44	15.01	15.02
1&2&3&6	5.77	4.55	1.81	1.81
1&2&4&5	50.71	50.92	50.33	50.44
1&2&4&6	48.82	48.94	48.33	48.38
1&2&5&6	15.47	11.91	10.21	10.21
1&3&4&5	49.74	50.36	46.44	46.47
1&3&4&6	46.7	46.93	46.51	46.51
1&3&5&6	7.48	8.72	6.17	6.17
1&4&5&6	46.73	47.95	48.13	48.1
2&3&4&5	38.12	39.52	32.94	32.92
2&3&4&6	36.33	37.87	37.09	37.06
2&3&5&6	16.96	13.39	14.09	14.1
2&4&5&6	32.47	33.53	34	34.01
3&4&5&6	21.13	21.77	22.28	22.33
# Five feature class Combination				
Name of feature classes	F-score(%)	F-score(%)	F-score(%)	F-score(%)
1&2&3&4&5	51.34	52.21	51.61	51.61
1&2&3&4&6	50.19	50.57	50.14	50.14
1&2&3&5&6	16.37	14.19	11.45	11.45
1&2&4&5&6	49.9	51.03	51.15	51.05
1&3&4&5&6	47.1	48.37	48.12	48.13
2&3&4&5&6	34.22	36.18	33.64	33.64
# Six feature class Combination				
Name of feature classes	F-score(%)	F-score(%)	F-score(%)	F-score(%)
1&2&3&4&5&6	51.21	51.62	51.93	51.99

Table D2. The combination experiment after choosing modified features in Edge detection (with fixed best Trigger features)

		2'+best Trigger	7'+best Trigger	2'&7'+best Trigger
Title:Edge_Features_Combination	Original	pathlength	sentence	pathlength-sentence
Trigger-c	200000	250000	200000	250000
Edge-c	28000	20000	2000	2500
beta	0.65	0.7	0.7	0.7
# One feature class				
Name of feature classes	F-score(%)	F-score(%)	F-score(%)	F-score(%)
1	27.97	25.8	24.37	22.6
2	0	0	0	0
4	17.67	12.88	18.15	15.53
5	18.45	9.12	9.46	11.96
6	13.09	6.68	14.68	7.27
7	7.83	14.25	8.7	12.03
8	23.03	21.41	21.41	21.41
# Two feature class Combination				
Name of feature classes	F-score(%)	F-score(%)	F-score(%)	F-score(%)
1&2	18.55	24.47	28.15	27.05
1&4	24.17	22.2	21.65	13.25
1&5	24.19	6.08	9.15	4.12
1&6	22.09	5.15	15.51	5.3
1&7	32.91	25.96	24.42	25.15
1&8	23.46	21.88	22.51	21.96
2&4	0	0	0	0
2&5	0	0.33	4.83	1.18
2&6	22.42	22.57	23.79	23.05
2&7	0	0	0	0
2&8	0	0	0	0
4&5	27.15	31.35	29.15	31.46
4&6	15.48	5.31	5.71	5.71
4&7	14.68	17	15.12	12.78
4&8	26.43	27.4	28.11	27.43
5&6	13	3.89	4.25	3.16
5&7	18.2	22.45	21.94	12.5

5&8	27.42	33.15	32.68	32.33
6&7	10.84	5.94	10.46	7.05
6&8	12.66	15.61	17.79	6.28
7&8	5.06	15.4	9.58	12.16
# Three feature class Combination				
Name of feature classes	F-score(%)	F-score(%)	F-score(%)	F-score(%)
1&2&4	23.03	31.36	34.65	34.66
1&2&5	31.98	37.74	38.9	38.73
1&2&6	44.2	45.75	45.6	45.37
1&2&7	2.85	15.5	15.58	16.71
1&2&8	25.69	32.77	36.67	35.26
1&4&5	25.51	11.3	9.99	5.31
1&4&6	19.4	6.84	7.15	7.36
1&4&7	29.88	25.62	25.42	25.86
1&4&8	24.43	22.96	23.18	21.86
1&5&6	8.26	3.85	4.25	3.91
1&5&7	22.66	18.49	5.59	5.19
1&5&8	23.28	18.67	18.85	9.72
1&6&7	24.5	16.6	14.58	15.7
1&6&8	15.66	16.67	17.39	9.04
1&7&8	18.74	24.17	14.94	19.99
2&4&5	25.92	15.59	26.12	25.82
2&4&6	30.53	29.01	29.3	30.31
2&4&7	0	0	0	0
2&4&8	0	0	0	0
2&5&6	42.01	42.77	43.17	42.16
2&5&7	3.4	5.35	4.43	4.66
2&5&8	0	0.45	0	1.76
2&6&7	18.51	20.08	18.17	19.39
2&6&8	18	19.06	19.68	19.15
2&7&8	0	0	0	0
4&5&6	8.84	5.72	8.83	9.16
4&5&7	29.14	29.26	30.15	28.54
4&5&8	30.45	36.46	35	34.09
4&6&7	19.45	8.67	15.33	9.12
4&6&8	17.25	5.37	5.48	6.31
4&7&8	26.31	29.12	23.63	25.84
5&6&7	14.26	6.13	5.15	4.27
5&6&8	7.69	9.3	9.87	13.98
5&7&8	28.11	30.27	31.15	29.73
6&7&8	17.95	4.63	4.35	3.36
# Four feature class Combination				
Name of feature classes	F-score(%)	F-score(%)	F-score(%)	F-score(%)
1&2&4&5	38.84	42.7	43.35	43.38
1&2&4&6	44.51	45.18	44.67	44.61
1&2&4&7	13.84	25.83	25.64	27.23
1&2&4&8	31.17	37.66	38.36	38.71
1&2&5&6	46.1	49.16	48.47	48.45
1&2&5&7	28.96	35.87	35.38	35.22
1&2&5&8	37.21	38.03	39.23	39.25
1&2&6&7	41.74	44.41	44.24	43.89
1&2&6&8	44.08	49.82	50.03	49.56
1&2&7&8	8.6	25.98	25.31	25.4
1&4&5&6	20.05	5.96	6.06	5.13
1&4&5&7	28.76	21.42	11.91	8.91
1&4&5&8	24.42	27.99	27.97	23.06
1&4&6&7	23.34	12.61	17.06	10.01
1&4&6&8	19.01	9.07	17.41	8.56
1&4&7&8	24.22	24.29	10.5	19.99
1&5&6&7	20.78	6.61	5.47	5.7
1&5&6&8	7.89	5.27	8.99	4.9
1&5&7&8	18.84	18.27	7.59	16.14
1&6&7&8	1.8	15.81	8.34	6.12
2&4&5&6	46.13	47.23	47.88	47.14
2&4&5&7	8.18	8.27	8.32	9.6

2&4&5&8	23.92	24.19	26.31	25.38
2&4&6&7	23.8	24.64	23.57	23.98
2&4&6&8	39.53	34.2	40.05	39.71
2&4&7&8	0	0	0	0
2&5&6&7	35.26	37.03	34.64	34.45
2&5&6&8	47.42	48.21	47.94	47.61
2&5&7&8	0	0	0	0.45
2&6&7&8	10.19	17.57	13.64	15.07
4&5&6&7	2.33	5.83	6.35	5.92
4&5&6&8	17.78	14.75	23.43	20.69
4&5&7&8	32.1	33.8	36.41	33.83
4&6&7&8	6.24	5.75	5.85	9.27
5&6&7&8	10.84	7.55	8.46	3.38
# Five feature class Combination				
Name of feature classes	F-score(%)	F-score(%)	F-score(%)	F-score(%)
1&2&4&5&6	49.02	50.91	50.15	50.54
1&2&4&5&7	35.65	39.64	40.55	40.94
1&2&4&5&8	39.6	41.5	42.25	41.93
1&2&4&6&7	43.96	43.72	43.61	43.54
1&2&4&6&8	50.23	51.04	50.59	50.86
1&2&4&7&8	23.85	33.98	33.94	34.73
1&2&5&6&7	44.19	46.45	46.38	46.28
1&2&5&6&8	51.18	51.13	50.65	51.09
1&2&5&7&8	34.37	37.14	36.84	37.22
1&2&6&7&8	41.78	50.34	49.04	48.28
1&4&5&6&7	22.81	5.75	5.44	5.81
1&4&5&6&8	18.97	14.17	13.55	12.87
1&4&5&7&8	25.81	23.61	12.93	15.72
1&4&6&7&8	14.4	15.21	7.15	8.26
1&5&6&7&8	5.4	5.75	4.47	4.16
2&4&5&6&7	42.79	44.18	42.27	43.25
2&4&5&6&8	49.26	50.42	50.48	50.2
2&4&5&7&8	3.7	4.34	4.25	6.12
2&4&6&7&8	26.31	28.52	26.57	28.08
2&5&6&7&8	44.17	45.5	43.32	43.39
4&5&6&7&8	11.28	16.14	6.74	9.12
# Six feature class Combination				
Name of feature classes	F-score(%)	F-score(%)	F-score(%)	F-score(%)
1&2&4&5&6&7	47.29	49.64	49.36	49.13
1&2&4&5&6&8	51.81	52.29	51.44	51.85
1&2&4&5&7&8	36.85	38.86	39.04	39.18
1&2&4&6&7&8	50.33	51.79	51.7	51.81
1&2&5&6&7&8	51.29	51.61	51.45	51.65
1&4&5&6&7&8	14.22	15.09	4.13	5.11
2&4&5&6&7&8	48.32	48.82	48.17	48.1
# Seven class Combination				
Name of feature classes	F-score(%)	F-score(%)	F-score(%)	F-score(%)
1&2&4&5&6&7&8	52.16	52.37	52.47	52.68

Appendix E

(Feature combination experiment with modified features)

Table E2. Contribution of sole Trigger feature

#Sentence feature	f-score (%)	Feature size	Contribution of sole feature	
bow	N/A	15962		
nameCount	N/A	15		
ne_token	N/A	3021		
#main features				
POS	1.52	47	0.03234	★★
txt	35.5	13727	0.00259	★
nonstem	6.43	154	0.04175	★★
stem	35.45	11016	0.00322	★
#linear order				
linear	3.5	73744	4.7E-05	
#content				
upper	0	2	0	
has	0	4	0	
dt	20.13	1172	0.01718	★★
tt	27.63	7395	0.00374	★
#attached edge				
t1HIn	2.4	47410	5.1E-05	
t1HOut	7.69	53151	0.00014	
chain				
chain	5.47	136239	4E-05	
dep	3.57	1148	0.00311	★
dist	8.26	40958	0.0002	
total	51.21	405165	0.00013	

Table E2. Contribution of sole Edge feature

	Feature size	f-score (%)	Feature size	Contribution of sole feature	
#EntityFeatures	4319		4319		
e1_txt	1218				
e2_txt	2828	11.08	4046	0.002738507	
e1_POS	22				
e2_POS	25	8.32	47	0.177021277	
e1_annType	25				
e2_annType	26	46.44	51	0.910588235	★
e1_strength	31				
e2_strength	31	0	62	0	
e1_InteractionWord_e2_	2	27.31	2	13.655	★★
eTypes	110	13.91	110	0.126454545	
selfLoop	1	0	1	0	
#PathLengthFeatures	25				
len	1	0	1	0	
len_tokens	24	32.16	24	1.34	★
#TerminusTokenFeatures(thisfeature class is totally repeated with ones in #EntityFeatures)	4144		4144	0	
tokTerm1_txt	1218				
tokTerm2_txt	2828	11.08	4046	0.002738507	
tokTerm1_POS	22				
tokTerm2_POS	25	8.32	47	0.177021277	
tokTerm1_annType	25				
tokTerm2_annType	26	1.31	51	0.025686275	
#SingleElementFeatures	2593		2593	0	

dep_Forward	105			
dep_Reverse	123	6.85	228	0.03004386
internalPOS	29	0	29	0
internalTxt	2225	13.69	2225	0.006152809
internalDep	111	1.31	111	0.011801802
#PathGrams	441684		441684	0
tokenPath	8009	N/A	8009	#VALUE!
tok_	22543	6.81	22543	0.000302089
depGram_	26897	18.41	26897	0.000684463
dep_[RF]{2,4}[0-3]	3886	15.19	3886	0.003908904
edge_directions	746	30.17	746	0.040442359
Special	376797 + 2806	21.46	379603	5.65327E-05
#PathEdgeFeature	25038		25038	0
txt	2535	13.55	2535	0.005345168
POS	32	18.18	32	0.568125 ★
annType	33	1.67	33	0.050606061
gov	15176	5.13	15176	0.000338034
triple	7135	15.4	7135	0.002158374
dep_	127	18.78	127	0.147874016
#SentenceFeatures	33		33	
count	33	7.83	33	0.237272727
#GENIA	4	23.03	4	5.7575 ★★
total	477840			