Introducing RPD: Supplementary Results

Stephen Bothwell, Justin DeBenedetto, Theresa Crnkovich,
Hildegund Müller, David Chiang

October 31$^{\text{st}}$, 2023[*]

1 Prelude

In this document, we provide tables which accumulate the best results from all explored random hyperparameter search settings. We record results across each of the four metrics defined in our paper. The relevant tables are for the ASP dataset and for the PSE-I dataset.

For each metric, we italicize the best result for a given model architecture. We instead bold the result if it is the best result for that metric across all models. Note that this means that bold values will only occur once per column (unless ties occur) across the each trio or duo of related tables.

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[*]The date presented here is the "last updated" date.

Model Components		Tagging Scheme		Scores		
Embedding	Encoder	Tagset	Link Type	Precision	Recall	F_1
Learned (Word)	BiLSTM	BIO	Token	*0.1588*	0.1255	*0.1403*
			Branch	0.1118	0.0884	0.0987
		BIOE	Token	0.0474	0.0512	0.0492
			Branch	0.0677	0.0605	0.0639
		BIOJ	Token	0.0699	0.0605	0.0648
			Branch	0.1163	0.0930	0.1034
		BIOM	Token	0.0837	0.0837	0.0837
			Branch	0.1294	0.1023	0.1143
		BIOJE	Token	0.0512	0.0512	0.0512
			Branch	0.0534	0.0326	0.0405
		BIOME	Token	0.0588	0.0372	0.0456
			Branch	0.1235	0.0930	0.1061
		BIOMJ	Token	0.1205	*0.1860*	0.1463
			Branch	0.0927	0.0884	0.0903
		BIOMJE	Token	0.0495	0.0512	0.0503
			Branch	0.0743	0.0605	0.0667
word2vec	BiLSTM	BIO	Token	0.0606	0.0651	0.0628
			Branch	0.0730	0.0605	0.0662
		BIOE	Token	0.0644	0.0698	0.0670
			Branch	0.0824	0.0698	0.0756
		BIOJ	Token	0.0524	0.0512	0.0518
			Branch	0.1119	0.0744	0.0894
		BIOM	Token	0.1308	0.0651	0.0870
			Branch	0.1103	0.0698	0.0855
		BIOJE	Token	0.0750	0.0837	0.0791
			Branch	0.0648	0.0651	0.0650
		BIOME	Token	0.0877	0.0698	0.0777
			Branch	0.0779	0.0558	0.0650
		BIOMJ	Token	0.0719	0.0558	0.0628
			Branch	0.0833	0.0791	0.0811
		BIOMJE	Token	0.1478	0.0791	0.1030
			Branch	*0.2385*	*0.1209*	*0.1605*

Table 1: Model results on the ASP dataset using the Exact Parallelism Match metric (Part 1).

Model Components		Tagging Scheme		Scores		
Embedding	Encoder	Tagset	Link Type	Precision	Recall	F_1
Learned (Subword)	Transformer	BIO	Token	0.0027	0.0047	0.0034
			Branch	0.0000	0.0000	0.0000
		BIOE	Token	0.0090	0.0140	0.0109
			Branch	0.0000	0.0000	0.0000
		BIOJ	Token	0.0030	0.0047	0.0036
			Branch	0.0000	0.0000	0.0000
		BIOM	Token	*0.0609*	0.0326	0.0424
			Branch	0.0476	0.0233	0.0313
		BIOJE	Token	0.0034	0.0093	0.0050
			Branch	0.0000	0.0000	0.0000
		BIOME	Token	0.0145	0.0186	0.0163
			Branch	0.0460	0.0186	0.0265
		BIOMJ	Token	0.0578	*0.0744*	*0.0650*
			Branch	0.0496	0.0326	0.0393
		BIOMJE	Token	0.0113	0.0093	0.0102
			Branch	0.0280	0.0140	0.0186
Latin BERT	–	BIO	Token	0.2122	0.2419	0.2261
			Branch	0.2971	0.1907	0.2323
		BIOE	Token	0.2400	0.2233	0.2313
			Branch	0.1863	0.1395	0.1596
		BIOJ	Token	0.1838	0.1581	0.1700
			Branch	0.2083	0.1860	0.1966
		BIOM	Token	0.2245	0.2047	0.2141
			Branch	0.3558	0.2698	0.3069
		BIOJE	Token	0.1746	0.2047	0.1884
			Branch	0.3611	0.1814	0.2415
		BIOME	Token	0.3846	0.2325	0.2899
			Branch	0.3620	0.2744	0.3122
		BIOMJ	Token	**0.5147**	*0.3256*	**0.3989**
			Branch	0.4167	0.2791	0.3343
		BIOMJE	Token	0.3846	0.2326	0.2899
			Branch	0.3111	0.2605	0.2835

Table 2: Model results on the ASP dataset using the Exact Parallelism Match metric (Part 2).

Model Components		Tagging Scheme		Scores		
Embedding	Encoder	Tagset	Link Type	Precision	Recall	F_1
Latin BERT	BiLSTM	BIO	Token	0.3057	**0.3767**	0.3375
			Branch	0.3434	0.3163	0.3293
		BIOE	Token	0.3520	0.2930	0.3198
			Branch	0.3588	0.2837	0.3169
		BIOJ	Token	0.3439	0.3023	0.3218
			Branch	0.2807	0.2233	0.2487
		BIOM	Token	0.3653	0.2837	0.3194
			Branch	0.2709	0.2558	0.2632
		BIOJE	Token	0.3198	0.2930	0.3058
			Branch	0.2811	0.2837	0.2824
		BIOME	Token	0.3186	0.3023	0.3103
			Branch	0.3726	0.3674	0.3700
		BIOMJ	Token	*0.4650*	0.3395	*0.3925*
			Branch	0.3411	0.3395	0.3403
		BIOMJE	Token	0.4375	0.2930	0.3510
			Branch	0.3209	0.2791	0.2985
Latin BERT	Transformer	BIO	Token	0.2849	0.2465	0.2643
			Branch	0.2907	0.2326	0.2584
		BIOE	Token	0.2798	0.2512	0.2647
			Branch	0.2361	0.1581	0.1894
		BIOJ	Token	0.2760	0.2465	0.2604
			Branch	0.3154	0.1907	0.2377
		BIOM	Token	0.3830	0.2512	0.3034
			Branch	0.3906	0.2326	0.2915
		BIOJE	Token	0.2965	0.2372	0.2636
			Branch	0.2609	0.2233	0.2406
		BIOME	Token	0.3802	0.2140	0.2738
			Branch	0.4437	*0.3116*	*0.3661*
		BIOMJ	Token	*0.4874*	0.2698	0.3473
			Branch	0.4286	0.2791	0.3380
		BIOMJE	Token	0.4254	0.2651	0.3266
			Branch	0.4380	0.2465	0.3155

Table 3: Model results on the ASP dataset using the Exact Parallelism Match metric (Part 3).

Model Components		Tagging Scheme		Scores		
Embedding	Encoder	Tagset	Link Type	Precision	Recall	F_1
Learned (Word)	BiLSTM	BIO	Token	*0.2681*	0.2062	*0.2331*
			Branch	0.1808	0.1588	0.1690
		BIOE	Token	0.1399	0.1258	0.1325
			Branch	0.1836	0.1526	0.1667
		BIOJ	Token	0.2149	0.1546	0.1799
			Branch	0.1966	0.1649	0.1794
		BIOM	Token	0.2064	0.2000	0.2031
			Branch	0.2112	0.1794	0.1940
		BIOJE	Token	0.1405	0.1216	0.1304
			Branch	0.1697	0.1155	0.1374
		BIOME	Token	0.1897	0.1526	0.1691
			Branch	0.2243	0.2021	0.2126
		BIOMJ	Token	0.1769	*0.2722*	0.2145
			Branch	0.1578	0.1464	0.1519
		BIOMJE	Token	0.1313	0.1340	0.1327
			Branch	0.1213	0.1196	0.1205
word2vec	BiLSTM	BIO	Token	0.1554	0.1464	0.1507
			Branch	0.1547	0.1464	0.1504
		BIOE	Token	0.1646	0.1340	0.1477
			Branch	0.1974	0.1588	0.1760
		BIOJ	Token	0.1772	0.1443	0.1591
			Branch	0.2507	0.1856	0.2132
		BIOM	Token	0.2279	0.1278	0.1638
			Branch	0.2773	*0.2412*	*0.2580*
		BIOJE	Token	0.1422	0.1340	0.1380
			Branch	0.1989	0.2144	0.2063
		BIOME	Token	0.1806	0.1340	0.1538
			Branch	0.1892	0.1814	0.1853
		BIOMJ	Token	0.2037	0.1794	0.1908
			Branch	0.2060	0.1979	0.2019
		BIOMJE	Token	0.2718	0.1608	0.2021
			Branch	*0.3693*	0.1835	0.2452

Table 4: Model results on the ASP dataset using the Maximum Parallelism Branch Match metric (Part 1).

Model Components		Tagging Scheme		Scores		
Embedding	Encoder	Tagset	Link Type	Precision	Recall	F_1
Learned (Subword)	Transformer	BIO	Token	0.0103	0.0082	0.0092
			Branch	0.0163	0.0124	0.0141
		BIOE	Token	0.0169	0.0124	0.0143
			Branch	0.0127	0.0124	0.0126
		BIOJ	Token	0.0116	0.0082	0.0096
			Branch	0.0037	0.0041	0.0039
		BIOM	Token	*0.1728*	0.0680	0.0976
			Branch	0.1372	*0.2144*	*0.1673*
		BIOJE	Token	0.0060	0.0082	0.0069
			Branch	0.0095	0.0082	0.0088
		BIOME	Token	0.0996	0.1402	0.1164
			Branch	0.1612	0.1320	0.1451
		BIOMJ	Token	0.1316	0.1381	0.1348
			Branch	0.1389	0.0928	0.1112
		BIOMJE	Token	0.1270	0.1134	0.1198
			Branch	0.1111	0.1052	0.1081
Latin BERT	–	BIO	Token	0.3711	0.2907	0.3260
			Branch	0.4534	0.3010	0.3618
		BIOE	Token	0.4497	0.2948	0.3562
			Branch	0.3717	0.2928	0.3276
		BIOJ	Token	0.3763	0.2165	0.2749
			Branch	0.3480	0.3093	0.3275
		BIOM	Token	0.3729	0.2784	0.3188
			Branch	0.4248	0.3670	0.3938
		BIOJE	Token	0.3315	0.2433	0.2806
			Branch	0.5490	0.2887	0.3784
		BIOME	Token	0.5104	0.3031	0.3803
			Branch	0.4270	*0.3979*	0.4120
		BIOMJ	Token	**0.6090**	0.3629	*0.4548*
			Branch	0.4969	0.3320	0.3980
		BIOMJE	Token	0.5694	0.3299	0.4178
			Branch	0.4005	0.3237	0.3580

Table 5: Model results on the ASP dataset using the Maximum Parallelism Branch Match metric (Part 2).

Model Components		Tagging Scheme		Scores		
Embedding	Encoder	Tagset	Link Type	Precision	Recall	F_1
Latin BERT	BiLSTM	BIO	Token	0.3901	**0.4536**	0.4194
			Branch	0.4274	0.4309	0.4292
		BIOE	Token	0.5095	0.3876	0.4403
			Branch	0.4653	0.3876	0.4229
		BIOJ	Token	0.4885	0.3959	0.4374
			Branch	0.4315	0.3897	0.4095
		BIOM	Token	0.4762	0.4124	0.4420
			Branch	0.3464	0.4186	0.3791
		BIOJE	Token	0.4797	0.3649	0.4145
			Branch	0.4017	0.3918	0.3967
		BIOME	Token	0.4045	0.4454	0.4239
			Branch	0.4458	0.4495	0.4476
		BIOMJ	Token	*0.5562*	0.4082	**0.4709**
			Branch	0.4224	0.4268	0.4246
		BIOMJE	Token	0.5208	0.3876	0.4444
			Branch	0.4020	0.4103	0.4061
Latin BERT	Transformer	BIO	Token	0.4683	0.3196	0.3799
			Branch	0.4675	0.3258	0.3840
		BIOE	Token	0.4644	0.3093	0.3713
			Branch	0.4104	0.3258	0.3632
		BIOJ	Token	0.4863	0.3299	0.3931
			Branch	0.4571	0.3299	0.3832
		BIOM	Token	0.5089	0.3546	0.4180
			Branch	0.4802	0.3505	0.4052
		BIOJE	Token	0.4932	0.2990	0.3723
			Branch	0.4005	0.3526	0.3750
		BIOME	Token	0.5385	0.3031	0.3879
			Branch	0.5241	*0.4268*	*0.4705*
		BIOMJ	Token	*0.6030*	0.3320	0.4282
			Branch	0.5112	0.3753	0.4328
		BIOMJE	Token	0.5290	0.3196	0.3985
			Branch	0.5140	0.3402	0.4094

Table 6: Model results on the ASP dataset using the Maximum Parallelism Branch Match metric (Part 3).

Model Components		Tagging Scheme		Scores		
Embedding	Encoder	Tagset	Link Type	Precision	Recall	F_1
Learned (Word)	BiLSTM	BIO	Token	0.2980	0.1971	0.2373
			Branch	0.2686	0.1831	0.2176
		BIOE	Token	0.1804	0.1686	0.1743
			Branch	0.2304	0.1841	0.2046
		BIOJ	Token	0.2682	0.1478	0.1906
			Branch	0.2720	0.2014	0.2315
		BIOM	Token	0.2688	0.2222	0.2433
			Branch	0.2385	0.1734	0.2008
		BIOJE	Token	0.1755	0.1493	0.1613
			Branch	0.2334	0.1411	0.1759
		BIOME	Token	0.2680	0.1884	0.2213
			Branch	*0.3327*	0.2512	*0.2863*
		BIOMJ	Token	0.2129	*0.2894*	0.2452
			Branch	0.2409	0.1749	0.2026
		BIOMJE	Token	0.2455	0.2184	0.2311
			Branch	0.1839	0.2087	0.1955
word2vec	BiLSTM	BIO	Token	0.2257	0.1826	0.2019
			Branch	0.1953	0.1952	0.1952
		BIOE	Token	0.2252	0.1493	0.1795
			Branch	0.2639	0.1990	0.2269
		BIOJ	Token	0.1994	0.1222	0.1515
			Branch	0.2625	0.1700	0.2064
		BIOM	Token	0.3249	0.1618	0.2161
			Branch	0.3432	0.2164	*0.2655*
		BIOJE	Token	0.2006	0.1792	0.1893
			Branch	0.2420	0.2159	0.2282
		BIOME	Token	0.2850	0.1821	0.2222
			Branch	0.2578	0.2184	0.2365
		BIOMJ	Token	0.2886	0.1995	0.2359
			Branch	0.2378	*0.2232*	0.2303
		BIOMJE	Token	0.3294	0.1502	0.2064
			Branch	*0.4260*	0.1696	0.2426

Table 7: Model results on the ASP dataset using the Maximum Branch-Aware Word Overlap metric (Part 1).

Model Components		Tagging Scheme		Scores		
Embedding	Encoder	Tagset	Link Type	Precision	Recall	F_1
Learned (Subword)	Transformer	BIO	Token	0.0287	0.0237	0.0260
			Branch	0.0644	0.0454	0.0533
		BIOE	Token	0.0379	0.0256	0.0305
			Branch	0.0844	0.0633	0.0723
		BIOJ	Token	0.0254	0.0179	0.0210
			Branch	0.0445	0.0502	0.0472
		BIOM	Token	0.1965	0.0763	0.1100
			Branch	0.1746	*0.2449*	0.2039
		BIOJE	Token	0.0364	0.0585	0.0449
			Branch	0.0373	0.0338	0.0355
		BIOME	Token	0.1685	0.1874	0.1775
			Branch	*0.2637*	0.1763	*0.2113*
		BIOMJ	Token	0.2076	0.1705	0.1873
			Branch	0.2328	0.1324	0.1688
		BIOMJE	Token	0.2069	0.1512	0.1747
			Branch	0.2189	0.1937	0.2055
Latin BERT	–	BIO	Token	0.4209	0.3135	0.3594
			Branch	0.4862	0.3396	0.3999
		BIOE	Token	0.4952	0.3005	0.3740
			Branch	0.4110	0.3256	0.3633
		BIOJ	Token	0.4247	0.2222	0.2918
			Branch	0.4064	0.3618	0.3828
		BIOM	Token	0.4853	0.3024	0.3644
			Branch	0.5186	0.4184	0.4631
		BIOJE	Token	0.4254	0.2657	0.3271
			Branch	0.5795	0.3063	0.4008
		BIOME	Token	0.6034	0.3213	0.4193
			Branch	0.5097	*0.4560*	0.4814
		BIOMJ	Token	**0.6904**	0.3976	*0.5046*
			Branch	0.6407	0.3773	0.4749
		BIOMJE	Token	0.5761	0.3440	0.4307
			Branch	0.5540	0.4111	0.4720

Table 8: Model results on the ASP dataset using the Maximum Branch-Aware Word Overlap metric (Part 2).

Model Components		Tagging Scheme		Scores		
Embedding	Encoder	Tagset	Link Type	Precision	Recall	F_1
Latin BERT	BiLSTM	BIO	Token	0.4420	**0.5063**	0.4720
			Branch	0.4963	0.4507	0.4724
		BIOE	Token	0.5759	0.3928	0.4667
			Branch	0.4887	0.4169	0.4499
		BIOJ	Token	0.5611	0.3884	0.4590
			Branch	0.4749	0.4208	0.4462
		BIOM	Token	0.5289	0.4333	0.4764
			Branch	0.4617	0.4947	0.4776
		BIOJE	Token	0.5170	0.4029	0.4529
			Branch	0.4335	0.4270	0.4303
		BIOME	Token	0.4964	0.5010	*0.4987*
			Branch	0.5111	0.4768	0.4934
		BIOMJ	Token	0.5855	0.4251	0.4926
			Branch	0.4943	0.4599	0.4765
		BIOMJE	Token	*0.5926*	0.3816	0.4643
			Branch	0.4875	0.4884	0.4879
Latin BERT	Transformer	BIO	Token	0.5040	0.3329	0.4009
			Branch	0.4875	0.3382	0.3993
		BIOE	Token	0.4933	0.3391	0.4019
			Branch	0.4390	0.3425	0.3848
		BIOJ	Token	0.4713	0.3377	0.3935
			Branch	0.4773	0.3551	0.4072
		BIOM	Token	0.5728	0.3841	0.4598
			Branch	0.5831	0.4101	0.4816
		BIOJE	Token	0.4631	0.3092	0.3708
			Branch	0.4648	0.3865	0.4221
		BIOME	Token	0.6022	0.3401	0.4347
			Branch	0.5943	*0.4522*	**0.5136**
		BIOMJ	Token	0.5976	0.3609	0.4500
			Branch	*0.6318*	0.4285	0.5107
		BIOMJE	Token	0.5945	0.3662	0.4532
			Branch	0.6168	0.4019	0.4867

Table 9: Model results on the ASP dataset using the Maximum Branch-Aware Word Overlap metric (Part 3).

Model Components		Tagging Scheme		Scores		
Embedding	Encoder	Tagset	Link Type	Precision	Recall	F_1
Learned (Word)	BiLSTM	BIO	Token	0.3923	0.2594	0.3123
			Branch	0.3522	0.2401	0.2856
		BIOE	Token	0.3003	0.2807	0.2901
			Branch	0.3150	0.2517	0.2798
		BIOJ	Token	0.3970	0.2188	0.2822
			Branch	0.3640	0.2696	0.3097
		BIOM	Token	0.3571	0.2952	0.3232
			Branch	0.3369	0.2449	0.2836
		BIOJE	Token	0.3095	0.2633	0.2845
			Branch	0.3677	0.2222	0.2770
		BIOME	Token	0.3560	0.2502	0.2939
			Branch	*0.4063*	0.3068	*0.3496*
		BIOMJ	Token	0.2878	*0.3913*	0.3317
			Branch	0.3307	0.2401	0.2782
		BIOMJE	Token	0.3259	0.2899	0.3068
			Branch	0.2644	0.3000	0.2811
word2vec	BiLSTM	BIO	Token	0.3403	0.2754	0.3044
			Branch	0.2934	0.2932	0.2933
		BIOE	Token	0.3608	0.2391	0.2876
			Branch	0.3594	0.2710	0.3090
		BIOJ	Token	0.3215	0.1971	0.2444
			Branch	0.3497	0.2266	0.2750
		BIOM	Token	0.4093	0.2039	0.2721
			Branch	0.4207	0.2652	*0.3253*
		BIOJE	Token	0.3196	0.2855	0.3016
			Branch	0.3346	0.2986	0.3155
		BIOME	Token	0.3953	0.2527	0.3083
			Branch	0.3331	0.2821	0.3055
		BIOMJ	Token	0.3648	0.2522	0.2982
			Branch	0.3201	*0.3005*	0.3100
		BIOMJE	Token	0.4227	0.1928	0.2648
			Branch	*0.5024*	0.2000	0.2861

Table 10: Model results on the ASP dataset using the Maximum Word Overlap metric (Part 1).

Model Components		Tagging Scheme		Scores		
Embedding	Encoder	Tagset	Link Type	Precision	Recall	F_1
Learned (Subword)	Transformer	BIO	Token	0.1817	0.1498	0.1642
			Branch	0.1227	0.0865	0.1014
		BIOE	Token	0.2000	0.1353	0.1614
			Branch	0.1282	0.0961	0.1099
		BIOJ	Token	0.1816	0.1275	0.1498
			Branch	0.1578	0.1783	0.1674
		BIOM	Token	0.2637	0.1024	0.1475
			Branch	0.2012	*0.2821*	0.2349
		BIOJE	Token	0.1603	0.2575	0.1976
			Branch	0.1454	0.1319	0.1383
		BIOME	Token	0.2328	0.2589	0.2452
			Branch	*0.3085*	0.2063	0.2472
		BIOMJ	Token	0.2824	0.2319	*0.2546*
			Branch	0.2583	0.1469	0.1872
		BIOMJE	Token	0.2776	0.2029	0.2344
			Branch	0.2533	0.2242	0.2378
Latin BERT	–	BIO	Token	0.5156	0.3841	0.4402
			Branch	0.5539	0.3870	0.4556
		BIOE	Token	0.6178	0.3749	0.4666
			Branch	0.4774	0.3783	0.4221
		BIOJ	Token	0.5983	0.3130	0.4110
			Branch	0.4710	0.4193	0.4436
		BIOM	Token	0.5183	0.3420	0.4121
			Branch	0.5569	0.4493	0.4973
		BIOJE	Token	0.5862	0.3662	0.4508
			Branch	0.6325	0.3343	0.4374
		BIOME	Token	0.6343	0.3377	0.4407
			Branch	0.5491	*0.4913*	0.5186
		BIOMJ	Token	**0.7164**	0.4126	*0.5236*
			Branch	0.6628	0.3903	0.4913
		BIOMJE	Token	0.6205	0.3705	0.4640
			Branch	0.6022	0.4469	0.5130

Table 11: Model results on the ASP dataset using the Maximum Word Overlap metric (Part 2).

Model Components		Tagging Scheme		Scores		
Embedding	Encoder	Tagset	Link Type	Precision	Recall	F_1
Latin BERT	BiLSTM	BIO	Token	0.4964	**0.5686**	0.5301
			Branch	0.5362	0.4870	0.5104
		BIOE	Token	0.6298	0.4290	0.5103
			Branch	0.5340	0.4556	0.4917
		BIOJ	Token	0.6182	0.4280	0.5059
			Branch	0.5300	0.4696	0.4980
		BIOM	Token	0.5690	0.4662	0.5125
			Branch	0.5041	0.5401	0.5215
		BIOJE	Token	0.5933	0.4623	0.5197
			Branch	0.4929	0.4855	0.4892
		BIOME	Token	0.5299	0.5348	*0.5323*
			Branch	0.5401	0.5039	0.5214
		BIOMJ	Token	0.6228	0.4522	0.5239
			Branch	0.5296	0.4928	0.5101
		BIOMJE	Token	*0.6362*	0.4097	0.4984
			Branch	0.5198	0.5208	0.5203
Latin BERT	Transformer	BIO	Token	0.5852	0.3865	0.4655
			Branch	0.5571	0.3865	0.4564
		BIOE	Token	0.5875	0.4039	0.4787
			Branch	0.4848	0.3783	0.4250
		BIOJ	Token	0.5543	0.3971	0.4627
			Branch	0.5292	0.3937	0.4515
		BIOM	Token	0.6009	0.4029	0.4824
			Branch	0.6092	0.4285	0.5031
		BIOJE	Token	0.5948	0.3971	0.4762
			Branch	0.5119	0.4256	0.4648
		BIOME	Token	*0.6621*	0.3739	0.4779
			Branch	0.6165	*0.4691*	**0.5328**
		BIOMJ	Token	0.6528	0.3942	0.4916
			Branch	0.6538	0.4435	0.5285
		BIOMJE	Token	0.6259	0.3855	0.4771
			Branch	0.6353	0.4140	0.5013

Table 12: Model results on the ASP dataset using the Maximum Word Overlap metric (Part 3).

Model Components		Tagging Scheme		Scores		
Embedding	Encoder	Tagset	Link Type	Precision	Recall	F_1
Chinese BERT	–	BIO	Token	0.2404	0.3086	0.2703
			Branch	0.1262	0.1605	0.1413
		BIOE	Token	0.1590	0.3457	0.2179
			Branch	0.1826	0.2593	0.2143
		BIOJ	Token	0.1569	0.2963	0.2051
			Branch	0.1011	0.1111	0.1059
		BIOM	Token	0.1984	0.3086	0.2415
			Branch	0.3009	*0.4198*	*0.3505*
		BIOJE	Token	0.1622	0.2222	0.1875
			Branch	0.1607	0.2222	0.1865
		BIOME	Token	0.2414	0.3457	0.2843
			Branch	*0.3250*	0.3210	0.3230
		BIOMJ	Token	0.2286	0.2963	0.2581
			Branch	*0.3250*	0.3210	0.3230
		BIOMJE	Token	0.1606	0.2716	0.2018
			Branch	0.2364	0.3210	0.2723
Chinese BERT	BiLSTM	BIO	Token	0.3333	0.4321	0.3763
			Branch	0.2807	0.3951	0.3282
		BIOE	Token	0.3415	0.3457	0.3436
			Branch	0.3000	0.3333	0.3158
		BIOJ	Token	0.3119	0.4198	0.3579
			Branch	0.2857	0.2963	0.2909
		BIOM	Token	**0.4444**	0.3457	0.3889
			Branch	0.3636	0.3457	0.3544
		BIOJE	Token	0.2844	0.3827	0.3263
			Branch	0.3017	0.4321	0.3553
		BIOME	Token	0.3820	0.4198	0.4000
			Branch	0.3690	0.3827	0.3758
		BIOMJ	Token	0.3796	**0.5062**	**0.4339**
			Branch	0.3824	0.4815	0.4262
		BIOMJE	Token	0.3421	0.3210	0.3312
			Branch	0.3402	0.4074	0.3708

Table 13: Model results on the PSE-I dataset using the Exact Parallelism Match metric (Part 1).

Model Components		Tagging Scheme		Scores		
Embedding	Encoder	Tagset	Link Type	Precision	Recall	F_1
Chinese BERT	Transformer	BIO	Token	0.2609	0.2963	0.2775
			Branch	0.2500	0.2346	0.2420
		BIOE	Token	0.2388	*0.3951*	0.2977
			Branch	0.2532	0.2469	0.2500
		BIOJ	Token	0.2381	0.3704	0.2899
			Branch	0.1972	0.1728	0.1842
		BIOM	Token	0.3261	0.3704	0.3468
			Branch	0.2976	0.3086	0.3030
		BIOJE	Token	0.2832	*0.3951*	0.3299
			Branch	0.2391	0.2716	0.2543
		BIOME	Token	0.3973	0.3580	*0.3766*
			Branch	*0.3500*	0.3457	0.3478
		BIOMJ	Token	0.2621	0.3333	0.2935
			Branch	0.3048	*0.3951*	0.3441
		BIOMJE	Token	0.3784	0.3457	0.3613
			Branch	0.2892	0.2963	0.2927

Table 14: Model results on the PSE-I dataset using the Exact Parallelism Match metric (Part 2).

Model Components		Tagging Scheme		Scores		
Embedding	Encoder	Tagset	Link Type	Precision	Recall	F_1
Chinese BERT	–	BIO	Token	0.4495	0.4045	0.4258
			Branch	0.3014	0.3864	0.3386
		BIOE	Token	0.3248	0.4636	0.3820
			Branch	0.3435	0.4591	0.3930
		BIOJ	Token	0.3569	0.4136	0.3832
			Branch	0.2941	0.2955	0.2948
		BIOM	Token	0.3488	0.5136	0.4154
			Branch	0.4020	*0.5591*	*0.4677*
		BIOJE	Token	0.4010	0.3591	0.3789
			Branch	0.2941	0.3864	0.3340
		BIOME	Token	0.3785	0.5455	0.4469
			Branch	*0.4612*	0.4591	0.4601
		BIOMJ	Token	0.3946	0.4682	0.4283
			Branch	0.4397	0.4636	0.4513
		BIOMJE	Token	0.3202	0.4818	0.3848
			Branch	0.3616	0.5227	0.4275
Chinese BERT	BiLSTM	BIO	Token	0.4425	0.5772	0.5010
			Branch	0.4063	0.5818	0.4785
		BIOE	Token	*0.5482*	0.4909	0.5180
			Branch	0.4815	0.5318	0.5054
		BIOJ	Token	0.4627	0.5636	0.5082
			Branch	0.4657	0.5864	0.5191
		BIOM	Token	0.5369	0.4955	0.5154
			Branch	0.4571	0.5091	0.4817
		BIOJE	Token	0.4672	0.5500	0.5052
			Branch	0.4132	0.6272	0.4982
		BIOME	Token	0.4767	0.5591	0.5146
			Branch	0.4842	0.5591	0.5190
		BIOMJ	Token	0.4751	**0.6500**	**0.5489**
			Branch	0.4530	0.6136	0.5212
		BIOMJE	Token	0.5236	0.5045	0.5139
			Branch	0.4513	0.5682	0.5030

Table 15: Model results on the PSE-I dataset using the Maximum Parallelism Branch Match metric (Part 1).

Model Components		Tagging Scheme		Scores		
Embedding	Encoder	Tagset	Link Type	Precision	Recall	F_1
Chinese BERT	Transformer	BIO	Token	0.4944	0.4045	0.4450
			Branch	0.4718	0.4182	0.4434
		BIOE	Token	0.4574	0.5364	0.4937
			Branch	0.3958	0.4318	0.4130
		BIOJ	Token	0.4638	0.4955	0.4791
			Branch	0.4000	0.3909	0.3954
		BIOM	Token	0.4321	0.5500	0.4840
			Branch	0.4190	0.4818	0.4482
		BIOJE	Token	0.5270	0.5318	0.5294
			Branch	0.4146	0.4636	0.4378
		BIOME	Token	**0.5729**	0.5000	*0.5340*
			Branch	0.4176	0.5182	0.4625
		BIOMJ	Token	0.4079	0.5136	0.4547
			Branch	0.4202	*0.5836*	0.4896
		BIOMJE	Token	0.5111	0.5227	0.5169
			Branch	0.4195	0.5090	0.4600

Table 16: Model results on the PSE-I dataset using the Maximum Parallelism Branch Match metric (Part 2).

Model Components		Tagging Scheme		Scores		
Embedding	Encoder	Tagset	Link Type	Precision	Recall	F_1
Chinese BERT	–	BIO	Token	0.5273	0.5215	0.5244
			Branch	0.4724	0.5517	0.5090
		BIOE	Token	0.4370	0.5989	0.5053
			Branch	0.4794	0.6249	0.5426
		BIOJ	Token	0.4813	0.5333	0.5060
			Branch	0.5268	0.4866	0.5059
		BIOM	Token	0.4477	0.7069	0.5482
			Branch	0.5042	*0.7080*	0.5890
		BIOJE	Token	0.5176	0.4567	0.4852
			Branch	0.5112	0.6226	0.5614
		BIOME	Token	0.5312	0.6851	*0.5984*
			Branch	*0.6049*	0.5766	0.5904
		BIOMJ	Token	0.5460	0.6295	0.5848
			Branch	0.5824	0.6092	0.5955
		BIOMJE	Token	0.5000	0.6640	0.5704
			Branch	0.5072	0.6475	0.5688
Chinese BERT	BiLSTM	BIO	Token	0.5227	0.7161	0.6043
			Branch	0.5067	0.7881	0.6168
		BIOE	Token	0.5826	0.6042	0.5932
			Branch	0.5425	0.6939	0.6089
		BIOJ	Token	0.5733	0.7011	0.6308
			Branch	0.5503	0.6962	0.6147
		BIOM	Token	*0.6433*	0.6243	0.6342
			Branch	0.5628	0.6628	0.6087
		BIOJE	Token	0.5630	0.6605	0.6079
			Branch	0.5332	**0.7927**	0.6376
		BIOME	Token	0.5872	0.7352	*0.6529*
			Branch	0.5767	0.7215	0.6410
		BIOMJ	Token	0.5517	0.7912	0.6501
			Branch	0.5526	0.7000	0.6176
		BIOMJE	Token	0.6257	0.6073	0.6164
			Branch	0.5463	0.7551	0.6340

Table 17: Model results on the PSE-I dataset using the Maximum Branch-Aware Word Overlap metric (Part 1).

Model Components		Tagging Scheme		Scores		
Embedding	Encoder	Tagset	Link Type	Precision	Recall	F_1
Chinese BERT	Transformer	BIO	Token	0.5547	0.5031	0.5276
			Branch	0.5816	0.5268	0.5529
		BIOE	Token	0.5437	0.6889	0.6077
			Branch	0.5443	0.5881	0.5654
		BIOJ	Token	0.5673	0.6544	0.6077
			Branch	0.5144	0.5877	0.5486
		BIOM	Token	0.5334	0.6670	0.5928
			Branch	0.5201	0.6303	0.5699
		BIOJE	Token	0.5839	0.6663	0.6224
			Branch	0.4778	0.6073	0.5348
		BIOME	Token	**0.7030**	0.6674	**0.6847**
			Branch	0.5435	0.6939	0.6096
		BIOMJ	Token	0.5705	0.6839	0.6221
			Branch	0.5570	*0.7651*	0.6447
		BIOMJE	Token	0.6155	0.6778	0.6541
			Branch	0.5554	0.6379	0.5938

Table 18: Model results on the PSE-I dataset using the Maximum Branch-Aware Word Overlap metric (Part 2).

Model Components		Tagging Scheme		Scores		
Embedding	Encoder	Tagset	Link Type	Precision	Recall	F_1
Chinese BERT	–	BIO	Token	0.6238	0.6169	0.6203
			Branch	0.5046	0.5893	0.5437
		BIOE	Token	0.4957	0.6793	0.5731
			Branch	0.5071	0.6609	0.5739
		BIOJ	Token	0.5584	0.6188	0.5871
			Branch	0.5753	0.5314	0.5525
		BIOM	Token	0.4773	*0.7536*	0.5845
			Branch	0.5277	0.7410	0.6164
		BIOJE	Token	0.6162	0.5437	0.5777
			Branch	0.5420	0.6602	0.5953
		BIOME	Token	0.5469	0.7054	0.6161
			Branch	*0.6387*	0.6088	0.6234
		BIOMJ	Token	0.5846	0.6739	*0.6261*
			Branch	0.6022	0.6299	0.6157
		BIOMJE	Token	0.5415	0.7192	0.6178
			Branch	0.5243	0.6693	0.5880
Chinese BERT	BiLSTM	BIO	Token	0.5394	0.7391	0.6237
			Branch	0.5217	0.8115	0.6351
		BIOE	Token	0.6232	0.6464	0.6346
			Branch	0.5812	0.7433	0.6523
		BIOJ	Token	0.5887	0.7199	0.6477
			Branch	0.5678	0.7184	0.6343
		BIOM	Token	*0.6535*	0.6352	0.6443
			Branch	0.5934	0.6989	0.6418
		BIOJE	Token	0.5895	0.6916	0.6365
			Branch	0.5559	**0.8264**	0.6647
		BIOME	Token	0.6126	0.7670	*0.6812*
			Branch	0.5896	0.7375	0.6553
		BIOMJ	Token	0.5664	0.8123	0.6674
			Branch	0.5629	0.7130	0.6291
		BIOMJE	Token	0.6336	0.6149	0.6241
			Branch	0.5671	0.7839	0.6581

Table 19: Model results on the PSE-I dataset using the Maximum Word Overlap metric (Part 1).

Model Components		Tagging Scheme		Scores		
Embedding	Encoder	Tagset	Link Type	Precision	Recall	F_1
Chinese BERT	Transformer	BIO	Token	0.6417	0.5820	0.6104
			Branch	0.6201	0.5617	0.5895
		BIOE	Token	0.5845	0.7406	0.6534
			Branch	0.5911	0.6387	0.6140
		BIOJ	Token	0.6204	0.7157	0.6647
			Branch	0.5523	0.6310	0.5891
		BIOM	Token	0.5515	0.6897	0.6129
			Branch	0.5710	0.6920	0.6257
		BIOJE	Token	0.6367	0.7264	0.6786
			Branch	0.5300	0.6736	0.5932
		BIOME	Token	**0.7389**	0.7015	**0.7197**
			Branch	0.5651	0.7215	0.6338
		BIOMJ	Token	0.5893	0.7065	0.6426
			Branch	0.5699	*0.7828*	0.6596
		BIOMJE	Token	0.6357	0.7000	0.6663
			Branch	0.5811	0.6674	0.6212

Table 20: Model results on the PSE-I dataset using the Maximum Word Overlap metric (Part 2).