Appendix for Paper: A Neural Span-Based Continual Named Entity Recognition Model

Permutations of Tasks

As described, we follow the existing 6 permutations of tasks on OntoNotes from recent works, and randomly sample 4 permutations on Few-NERD to factor out the influence of the learning order as shown in Tab. 1.

	6	OntoNot	tac Darm	utotions	(\)		
6 OntoNotes Permutations (⇒)							
1: ORG	PER	GPE	DATE	CARD	NORP		
2: DATE	NORP	PER	CARD	ORG	GPE		
3: GPE	CARD	ORG	NORP	DATE	PER		
4: NORP	ORG	DATE	PER	GPE	CARD		
5: CARD	GPE	NORP	ORG	PER	DATE		
6: PER	DATE	CARD	GPE	NORP	ORG		
4 Few-NERD Permutations (⇒)							
1: LOC	PER	ORG	OTH	PROD	BUID	ART	EVET
2: ORG	PROD	ART	EVET	OTH	PER	LOC	BUID
3: PROD	EVET	OTH	PER	ART	LOC	BUID	ORG
4: BUID	OTH	PROD	PER	ORG	LOC	ART	EVET

Table 1: Different permutations of tasks used on OntoNotes and Few-NERD.

Fine-grained Entity Types on Few-NERD

All the fine-grained entity types on Few-NERD will be used in our evaluation, as shown in Tab. 2. The corresponding coarse-grained entity types are bold.

	bodiesofwater		
	GPE		
	island		
location	mountain		
location			
	other		
	park		
	road/railway/highway/transit		
	actor		
	artist/author		
	athlete		
	director		
person	other		
	politician		
	scholar		
	soldier		
	company		
	education		
	government/governmentagency		
	media/newspaper		
	other		
organization	politicalparty		
	religion		
	showorganization		
	sportsleague		
	1 -		
	sportsteam		

award biologything chemicalthing currency disease educationaldegree god language law livingthing medical airplane car food game other ship software train weapon airport hospital hotel library other restaurant sportsfacility theater broadcastprogram film music other painting writtenart attack/battle/war/militaryconflict disaster election other protest		
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language law livingthing medical airplane car food game other ship software train weapon airport hospital hotel library other restaurant sportsfacility theater broadcastprogram film music other painting writtenart attack/battle/war/militaryconflict disaster election other protest	other	
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livingthing medical airplane car food game other ship software train weapon airport hospital hotel library other restaurant sportsfacility theater broadcastprogram film music other painting writtenart attack/battle/war/militaryconflict disaster election other protest		language
medical airplane car food game other ship software train weapon airport hospital hotel library other restaurant sportsfacility theater broadcastprogram film music other painting writtenart attack/battle/war/militaryconflict disaster election other protest		law
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product pro		medical
product food game other ship software train weapon airport hospital hotel library other restaurant sportsfacility theater broadcastprogram film music other painting writtenart attack/battle/war/militaryconflict disaster election other protest		airplane
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product other ship software train weapon airport hospital hotel library other restaurant sportsfacility theater broadcastprogram film music other painting writtenart attack/battle/war/militaryconflict disaster election other protest		food
ship software train weapon airport hospital hotel library other restaurant sportsfacility theater broadcastprogram film music other painting writtenart attack/battle/war/militaryconflict disaster election other protest		game
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weapon airport hospital hotel library other restaurant sportsfacility theater broadcastprogram film music other painting writtenart attack/battle/war/militaryconflict disaster election other protest		
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airport hospital hotel library other restaurant sportsfacility theater broadcastprogram film music other painting writtenart attack/battle/war/militaryconflict disaster election other protest		weapon
build hospital hotel library other restaurant sportsfacility theater broadcastprogram film music other painting writtenart attack/battle/war/militaryconflict disaster election other protest		
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sportsfacility theater broadcastprogram film music other painting writtenart attack/battle/war/militaryconflict disaster election other protest	build	1
theater broadcastprogram film music other painting writtenart attack/battle/war/militaryconflict disaster election other protest		restaurant
art broadcastprogram film music other painting writtenart attack/battle/war/militaryconflict disaster election other protest		sportsfacility
event film music other painting writtenart attack/battle/war/militaryconflict disaster election other protest		1 1
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event other painting writtenart attack/battle/war/militaryconflict disaster election other protest		
event other painting writtenart attack/battle/war/militaryconflict disaster election other protest		music
event writtenart attack/battle/war/militaryconflict disaster election other protest		other
event writtenart attack/battle/war/militaryconflict disaster election other protest		painting
event attack/battle/war/militaryconflict disaster election other protest		
event disaster election other protest	event	
event election other protest		
other protest		
protest		
1 500115		sports

Table 2: The fine-grained entity types on Few-NERD

Performance w.r.t Different Permutations

To investigate the impact on the final performance of whether an entity type is learned earlier or later, we further plot the performances regarding all permutations on both datasets in Split-All setup of SpanKL. Similarly, we also use an extra black dashed curve to denote the Macro-F1 score over all entity types learned so far.

As shown in Fig. 1, we can observe that most entity types have a similar performance eventually although start to be learned at different steps. The final Macro-F1 scores in different orders also converge to a stable point. We can presume that the result at the final step of a certain permutation is already relatively representative for evaluation on CL.

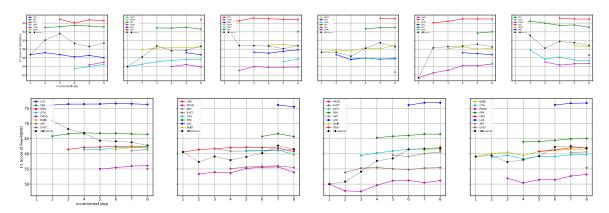


Figure 1: F1 curves of different entity types on OnteNotes and Few-NERD (rows) with different learning order (columns) indicated by downward in legends.