Sample Generated Distractors

Stem: "The attraction between all objects in the universe is known as _____."
Key: "gravity".

Probase CSG +

#	RevUP	ED	EmbSim+CF	BERT	LR+RF	LR+LM	DS
1	resistivity	gravimetry	magnetic	friction	friction	friction	friction
2	radar	family	vibration	pressure	impact	microgravimetry	resistivity
3	seismic	heat	gravity survey	vibration	pressure	pressure	magnetic

WordNet CSG +

#	RevUP	ED	EmbSim+CF	BERT	LR+RF	LR+LM	DS
1	ground state	activity	flux	attraction	self-discipline	self-discipline	magnetism
2	coriolis force	affinity	attraction	stress	magnetism	stationariness	tension
3	bond	gravitation	aerodynamic lift	tension	tension	activity	stress

Stem: "In our wildflower population, the pool of _____ remains constant from one generation to the next ."
Key: "genes".

Probase CSG +

#	RevUP	ED	EmbSim+CF	BERT	LR+RF	LR+LM	DS
1	protein	gender	protein	genetics	tissue	enzyme	antigenes
2	transposable dna sequence	gender IDs	RNA	growth factor	spore	tissue	DNA
3	complex dna sequence	genetics	peptides	metabolism	gender	disease	virus

WordNet CSG +

#	RevUP	ED	EmbSim+CF	BERT	LR+RF	LR+LM	DS
1	string	nexus	codon	sequence	cycle	cycle	sequence
2	chain	line	sequence	progression	stations	sequence	codon
3	train	run	cistron	factor	sequence	cascade	factor

Stem: "_____ else besides temperature has an effect on the phase of a substance."
Key: "pressure".

Probase CSG +

#	RevUP	ED	EmbSim+CF	BERT	LR+RF	LR+LM	DS
1	reaction temperature	presence	hydrogen pressur	temperature	voltage	voltage	humidity
2	reaction time	base	steam pressure	steam pressure	humidity	duration	reagent
3	work up	reagent	temperature	hydrogen pressure	temperature	humidity	solvent

WordNet CSG +

#	RevUP	ED	EmbSim+CF	BERT	LR+RF	LR+LM	DS
1	vapor pressure	air pressure	osmotic pressure	gas pressure	polymorphism	energy	energy
2	osmotic pressure	gas pressure	vapor pressure	air presence	power	allotropism	valency
3	hydrostatic head	vapor pressure	gas pressure	force	energy	polymorphism	hypertonicity

As can be seen from above samples, unsupervised methods such as RevUP and BERT are likely to generate distractors that have overlap with the key (e.g. xx pressure in third example) so as to maximize respective ranking criteria. While CSG+DS together generate more natural and plausible distractors that mostly belonging to the same concept level as the key. Probase achieve slightly better performance than Word-Net when used to generate distractors for questions whose key are common nouns or technical terminologies due to its larger capacity. For keys with verb/adjective/adverb POS tag, WordNet can provide more reasonable distractors than Probase.