

Supplemental table. Energy consumption and CPU time for item permutation - Need for an optimised item selection algorithm

	Different item combinations	Estimated CPU time ¹	Energy required ²	CO2 Emission ³
Random selection of 20 / 97 items ^a	2.72×10^{20}	~ twenty trillion years	2.8 million TWh	26 thousand Tt
Random selection of 4 items for each domain ^b	6.25×10^{18}	~500 billion years	65,000 TWh	605 Tt
100,000 random combinations of items (5 per domain)	100,000	2.89 days	~1 kWh	9.7g
Ant colony optimization		~ 4 hours	60Wh	0.6g

Note. Possible combinations were calculated using formulae ^a $\binom{97}{20}$ and ^b $\binom{26}{5} \times \binom{23}{5} \times \binom{25}{5} \times \binom{25}{5}$

¹ CPU time was assessed using the R function proc.time. For a standard home computer (Core(TM) i7-8550U CPU 1.99 GHz) the average CPU time per item combination was 2.5 sec.

² Intel referenced power consumption of the aforementioned processor as 15W

³ For Switzerland CO₂ emissions have been estimated as 9.3g per produced kWh.