Serial Position Curves under Compressively Expanding and Contracting Schedules of Presentation

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Abstract : Psychological time, unlike physical time, is believed to be 'compressive' in the sense that the mental representations of a series of events may be internally arranged with ever decreasing inter-event spacing (looking back from the most recently encoded event). If this is true, the record within immediate memory of recent events is severely temporally distorted. Although this notion of temporal distortion of the memory record is captured within some theoretical accounts of human forgetting, notably temporal distinctiveness accounts, the way in which the fundamental nature of the distortion underpins memory and forgetting broadly is barely recognised or at least directly investigated. Our intention here was to manipulate the spacing of items for recall in order to 'reverse' this supposed natural compression within the encoding of the items. In Experiment 1 three schedules of presentation (expanding, contracting and fixed irregular temporal spacing) were created using logarithmic spacing of the words for both free and serial recall conditions. The results of recall of lists of 7 words showed statistically significant benefits of temporal isolation, and more excitingly the contracting word series (which we may think of as reversing the natural compression within the mental representation of the word list) showed best performance. Experiment 2 tested for effects of active verbal rehearsal in the recall task; this reduced but did not remove the benefits of our temporal scheduling manipulation. Finally, a third experiment used the same design but with Chinese characters as memoranda, in a further attempt to subvert possible verbal maintenance of items. One change to the design here was to introduce a probe item following the sequence of items and record response times to this probe. Together the outcomes of the experiments broadly support the notion of temporal compression within immediate memory.

Keywords : memory, serial position curves, temporal isolation, temporal schedules