

# Models for quantum memory enhanced protocols

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- **Purification**
- **“Kwiat” scheme**

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## Key parameters

- **d** – node sep.
- **n** – no. of memories (including the electron spin as a memory)
- **0.3** – freq. conversion efficiency
- **0.3** – outcoupling efficiency (inc ZPL contrib.)
- **2  $\mu$ s** – entanglement generation clock rate
- **20  $\mu$ s** – memory gate time
- **1/400** – memory 1/e lifetime (in no. attempts)
  
- **10  $\mu$ s** – purification gate time
- **0.1** – SPDC source pair rate

# Models for quantum memory enhanced protocols

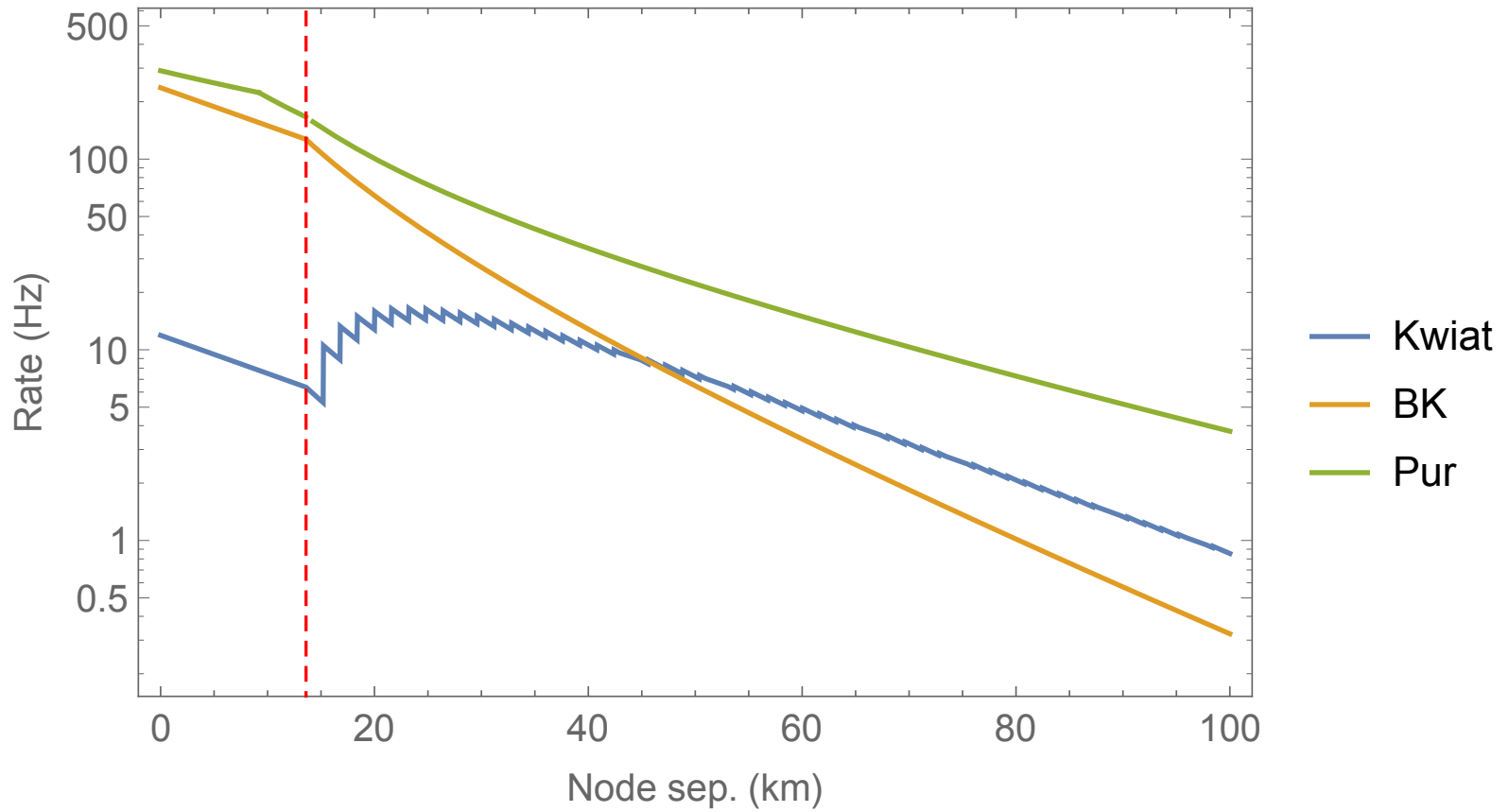
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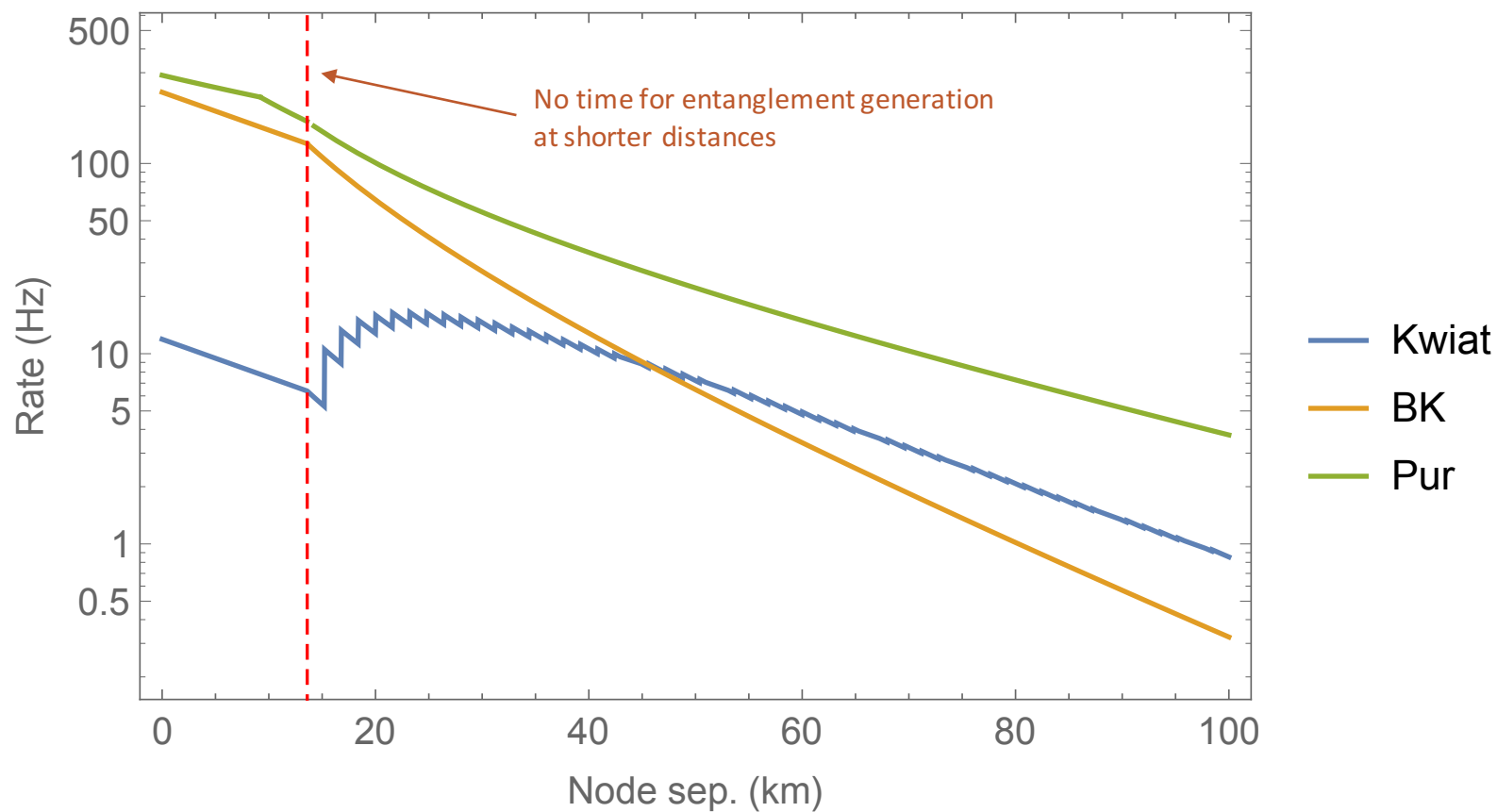
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Models shown assume that we are operating in the limit where  $p(\text{click per round}) \ll 1$

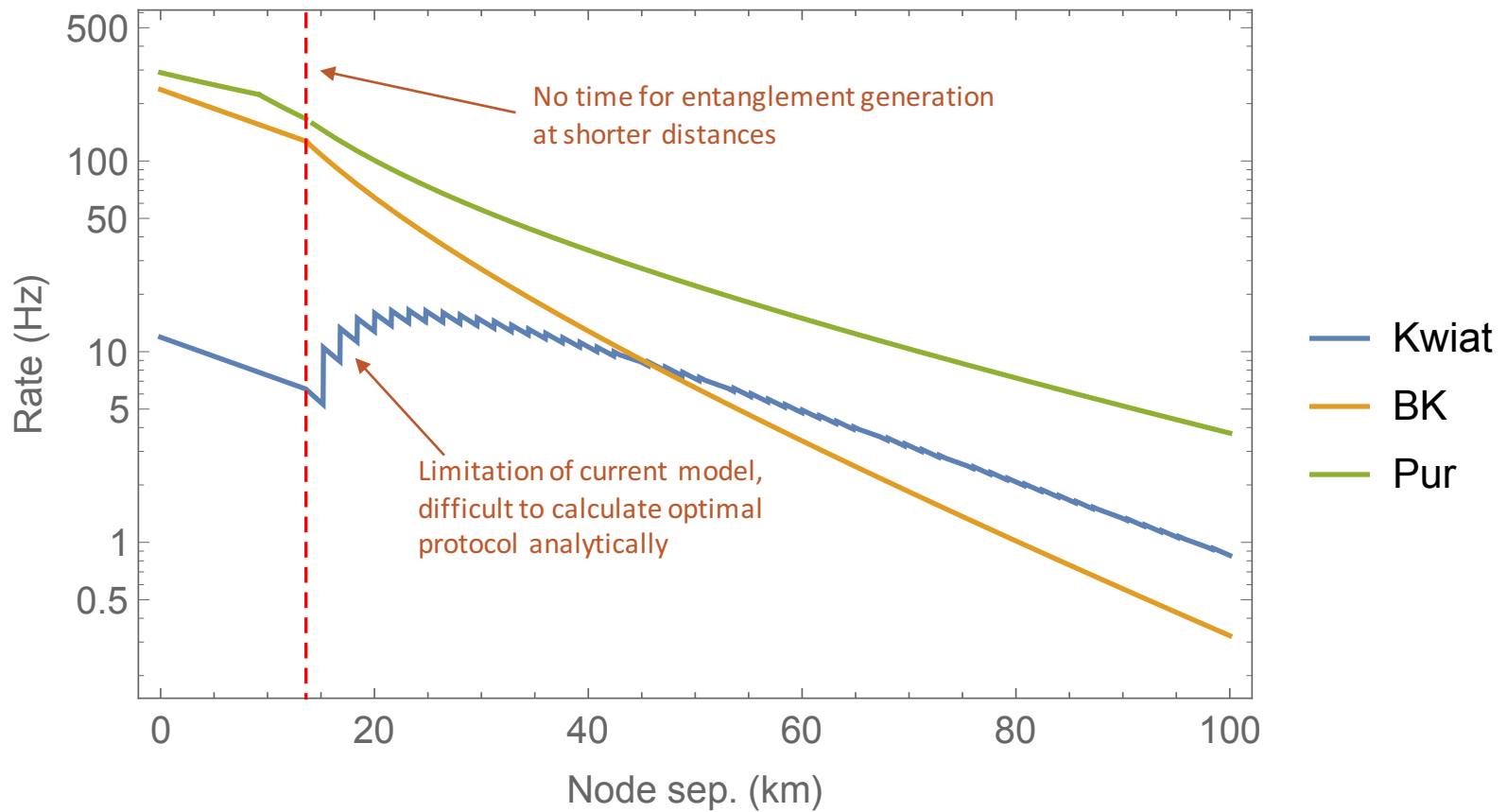
## Model with 4 memories



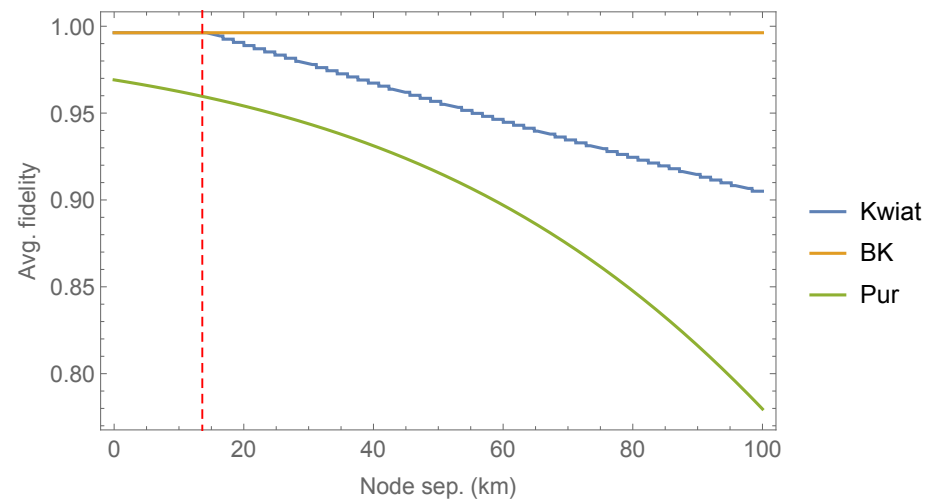
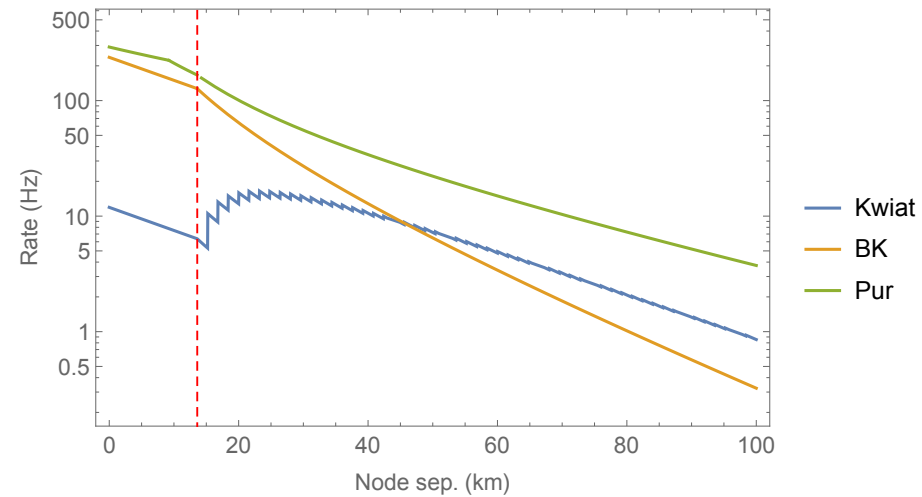
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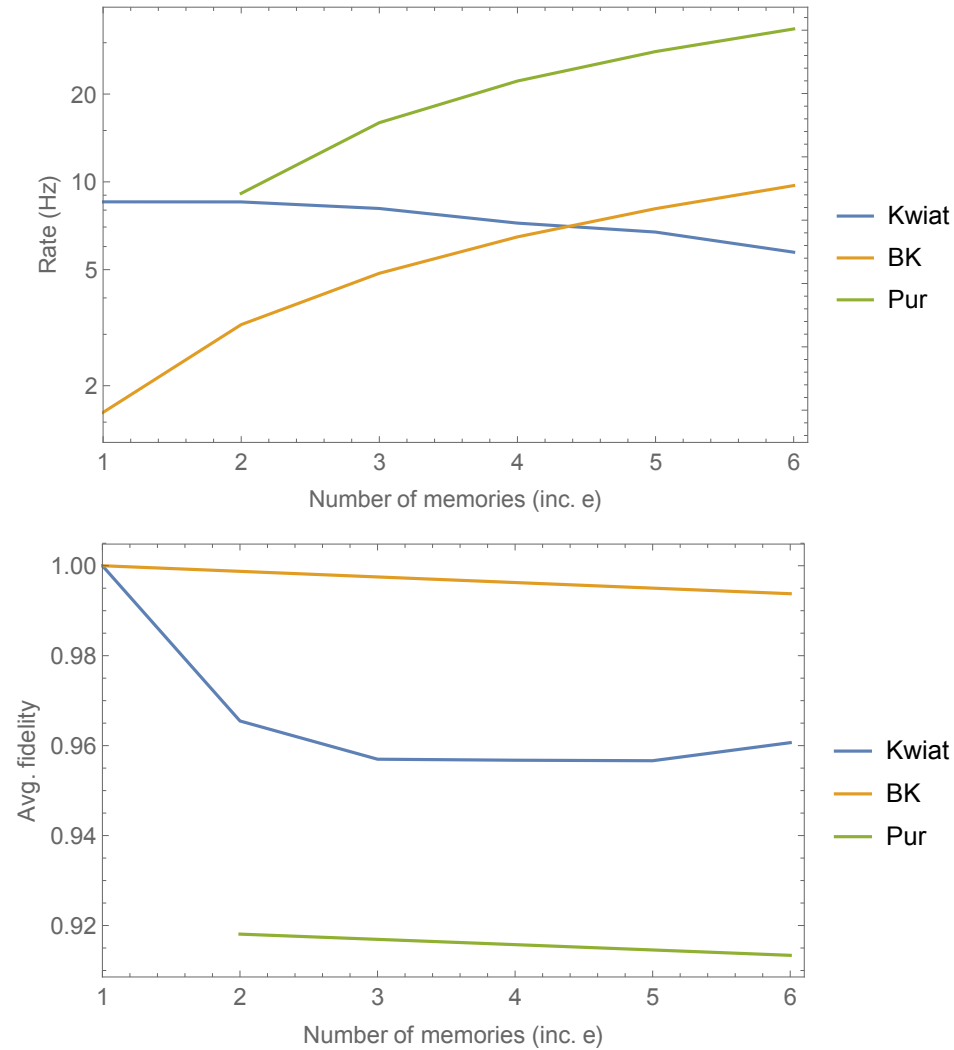
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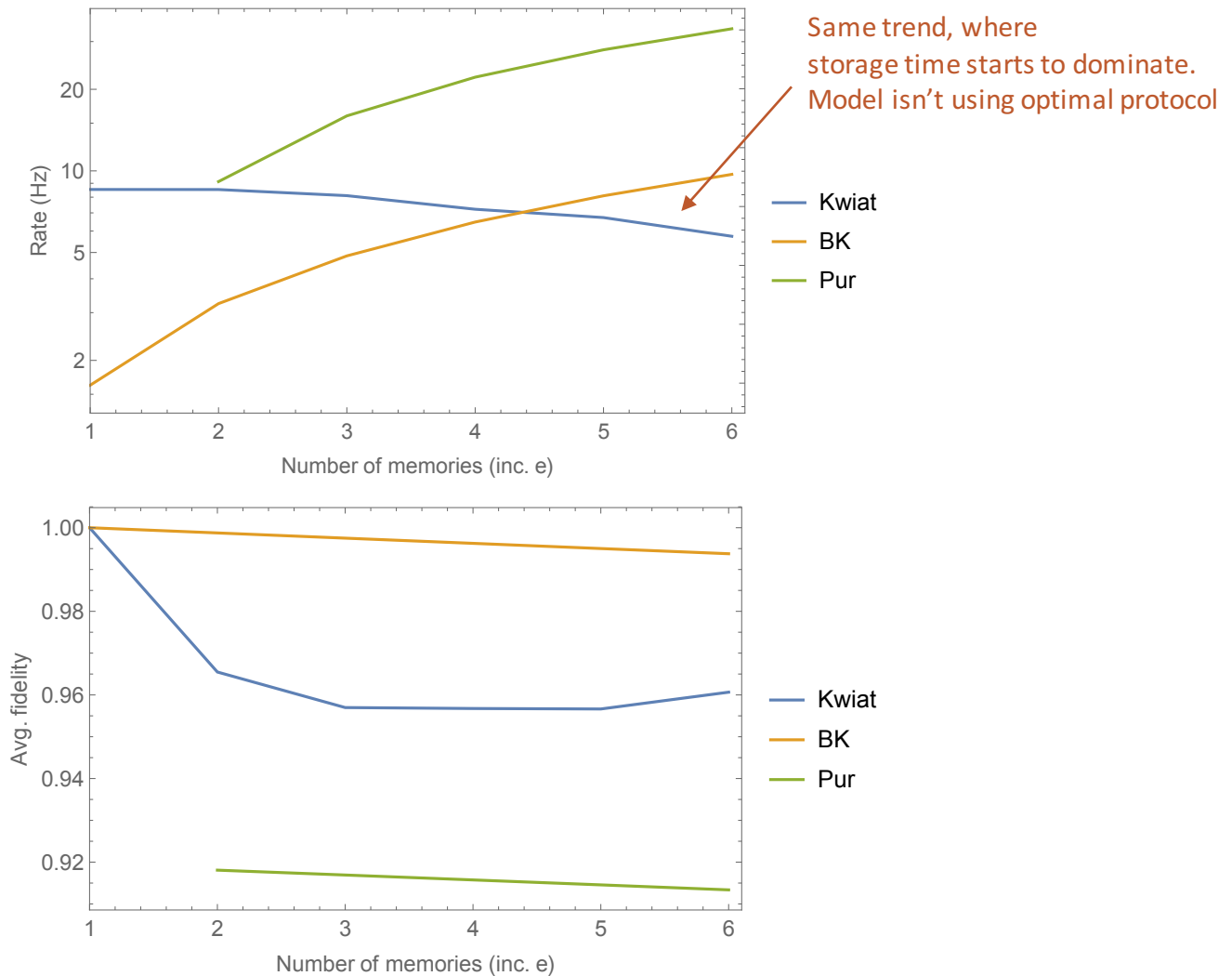


# Fix the distance, change the number of memories





# Fix the distance, change the number of memories



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