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1984 to the plan of hiking and picnic. When the user discusses preparing sandwiches and lemonade with the agent, "*I can make sandwiches for us! I also have a very good recipe for homemade lemonade! Do you like lemonade?*", HAHT can remember information mentioned in the history conversations, such as the user likes reading and outdoor activities and it has adopted a book-lover persona before. HAHT can leverage these historical contexts and generate more human-like, context-relevant, and history-aware responses: "*I love lemonade! I'm sure we can find a lot of good recipes for sandwiches too. Sandwiches and lemonade are perfect for going outdoors and reading books.*".

## A Appendix

### A.1 Complete Case Study

Table 7 shows the complete content of the case study in section 5.5. The conversations were conducted by two crowd workers. For training purposes, the utterances from the first crowd worker are denoted as user utterances, whereas those from the second crowd worker are denoted as agent utterances. An MSC model aims to generate responses that are as close as possible to the second crowd worker's utterances.

In history session 1, the user and the agent briefly talk about themselves, such as, their hobbies, and the job of their parents. In history session 2, they talk about the book that they are reading and some memories about reading books. In the current conversation, their discussions vary from the book