Spontaneous Thought Dynamics:

Identifying the Characteristics and Correlates of Thought Transitions Using the Think-Aloud Method

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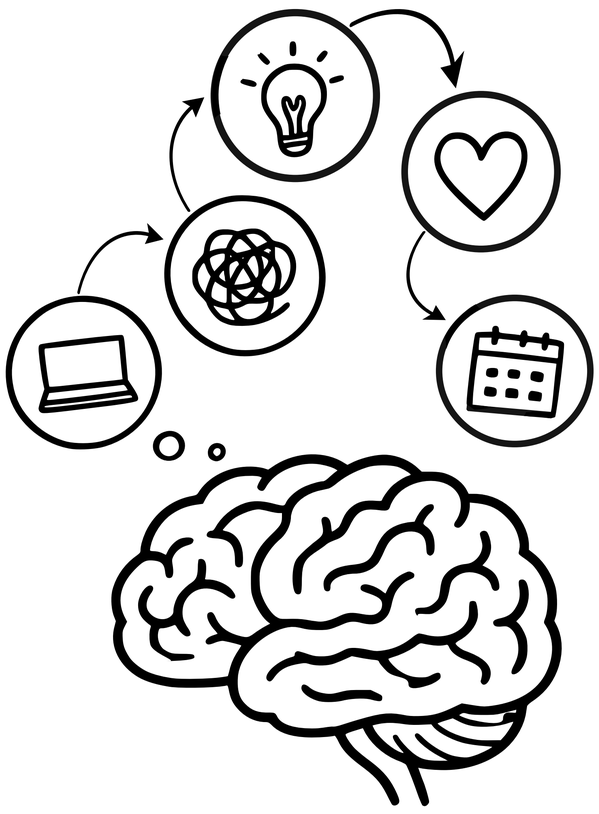


Introduction

Spontaneous thoughts occupy much of our waking life, yet their temporal dynamics are poorly understood[1].

Recent work proposes a '*clump-and-jump*' organization with clusters of related thoughts punctuated by abrupt switches[2]. This organization is consistent with event segmentation theory, which hierarchically organizes experience into coarse events comprising multiple fine sub-events[3].

Thought dynamics seem also related to clinical traits[1], as repetitive negative thoughts (ruminations) are related to depression–anxiety, whereas highly variable, distractible streams are related to ADHD[4].

Despite recent advances, key methodological challenges persist, and we still lack evidence on which characteristics actually trigger transitions and determine their type (coarse- or fine-grained transition).

What drives the type and frequency of thought transitions?

METHOD

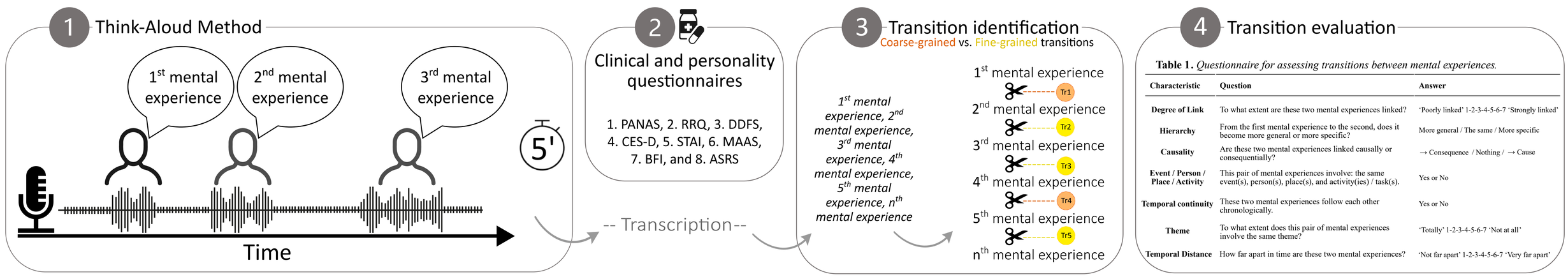
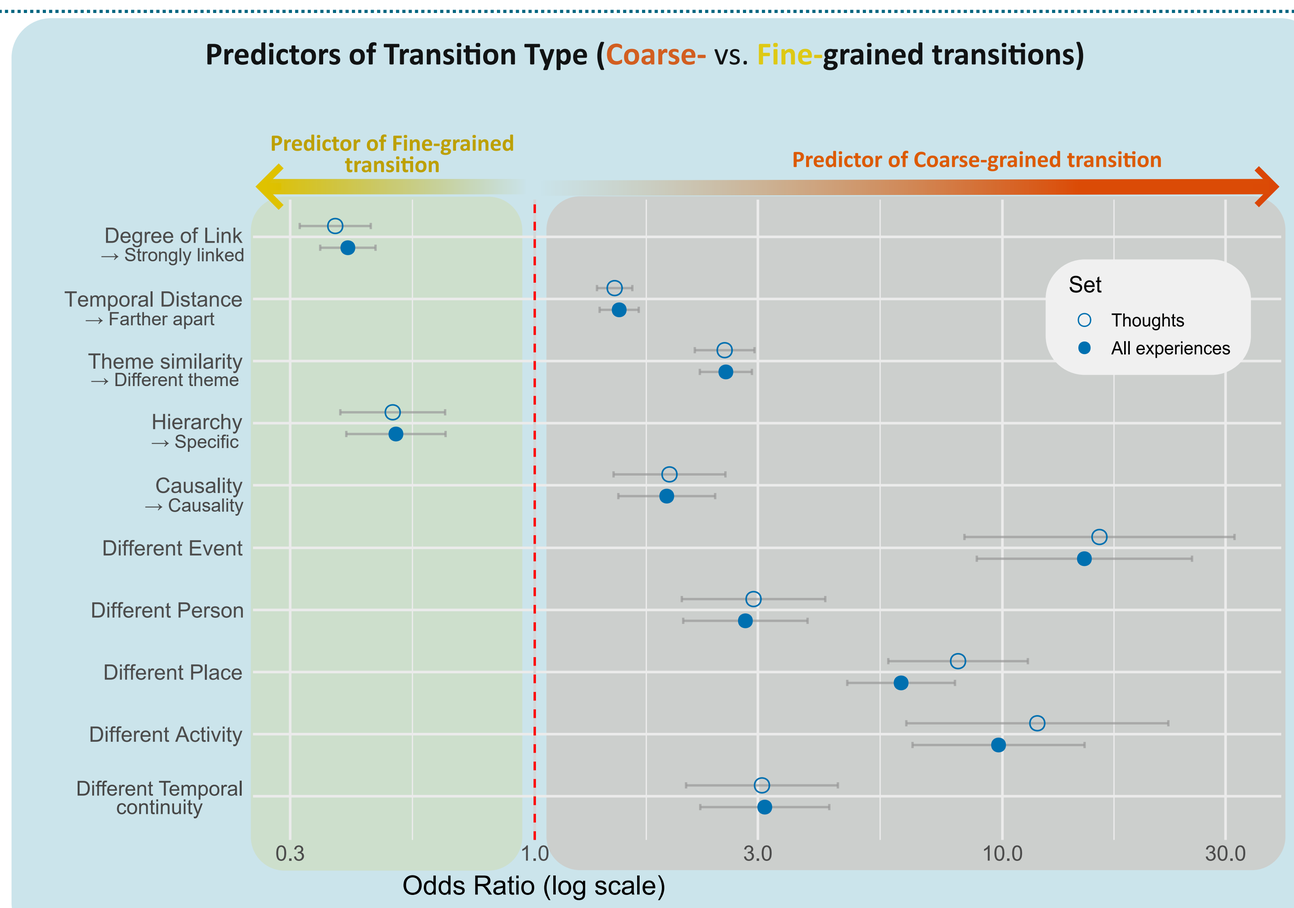


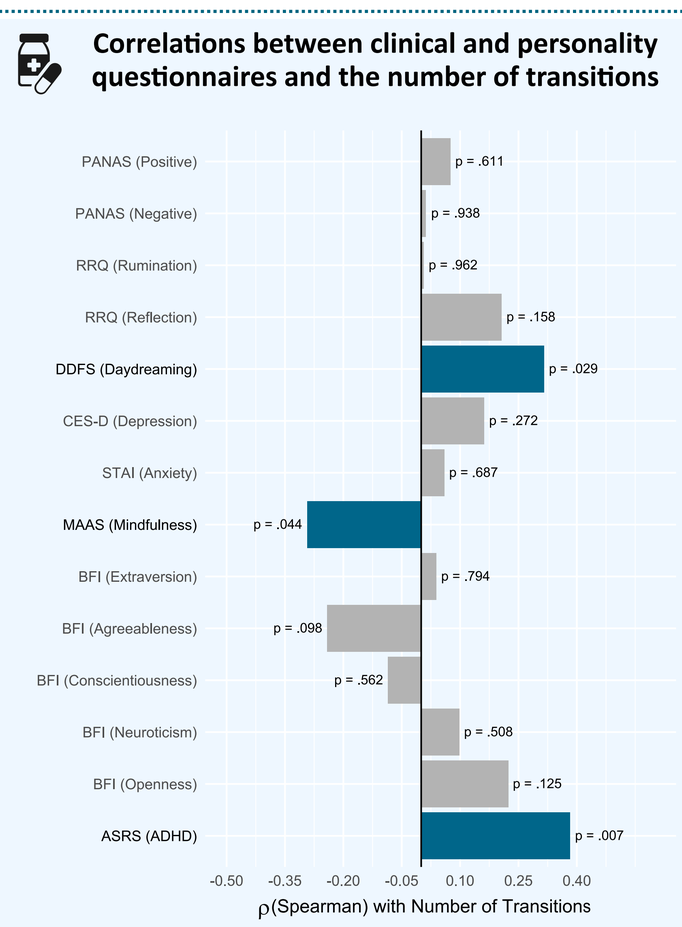
Table 1. *Questionnaire for assessing transitions between mental experiences.*

Characteristic	Question	Answer
Degree of Link	To what extent are these two mental experiences linked?	'Poorly linked' 1-2-3-4-5-6-7 'Strongly linked'
Hierarchy	From the first mental experience to the second, does it become more general or more specific?	More general / The same / More specific
Causality	Are these two mental experiences linked causally or consequentially?	→ Consequence / Nothing / → Cause
Event / Person / Place / Activity	This pair of mental experiences involve: the same event(s), person(s), place(s), and activity(ies) / task(s).	Yes or No
Temporal continuity	These two mental experiences follow each other chronologically.	Yes or No
Theme	To what extent does this pair of mental experiences involve the same theme?	'Totally' 1-2-3-4-5-6-7 'Not at all'
Temporal Distance	How far apart in time are these two mental experiences?	'Not far apart' 1-2-3-4-5-6-7 'Very far apart'

RESULTS

48 young adults (M_{age} = 19.1 years; SD = 0.96)





Conclusion

Coarse vs. **Fine**

Coarse-grained transitions are predicted (from highest to lowest odds ratios) by: **changes** in **event**, **activity**, and **place**; breaks in **temporal continuity**; changes in the **persons involved**; shifts toward **lower theme similarity**, **causal linkage**, and **greater temporal distance**.

Fine-grained transitions are predicted by **stronger links** and shifts toward **more specific content**.

These dynamic aspects are reflected in individual differences: higher ADHD tendencies and more frequent daydreaming correlate with more transitions, whereas greater mindfulness is associated with fewer transitions.

Our findings support **a hierarchical and clustered organization** of spontaneous thought, highlight **factors that contribute to self-reported thought transitions,** and underscore the **relevance of these dynamics to individual differences**.

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