

## Question

Are synaesthesia-type specific memory advantages stable over time or short-lived?

## Background

Previous studies have shown enhanced retention of visual material for grapheme-colour synaesthetes.

In a first session we could show that such memory advantages differ in types of synaesthesia.

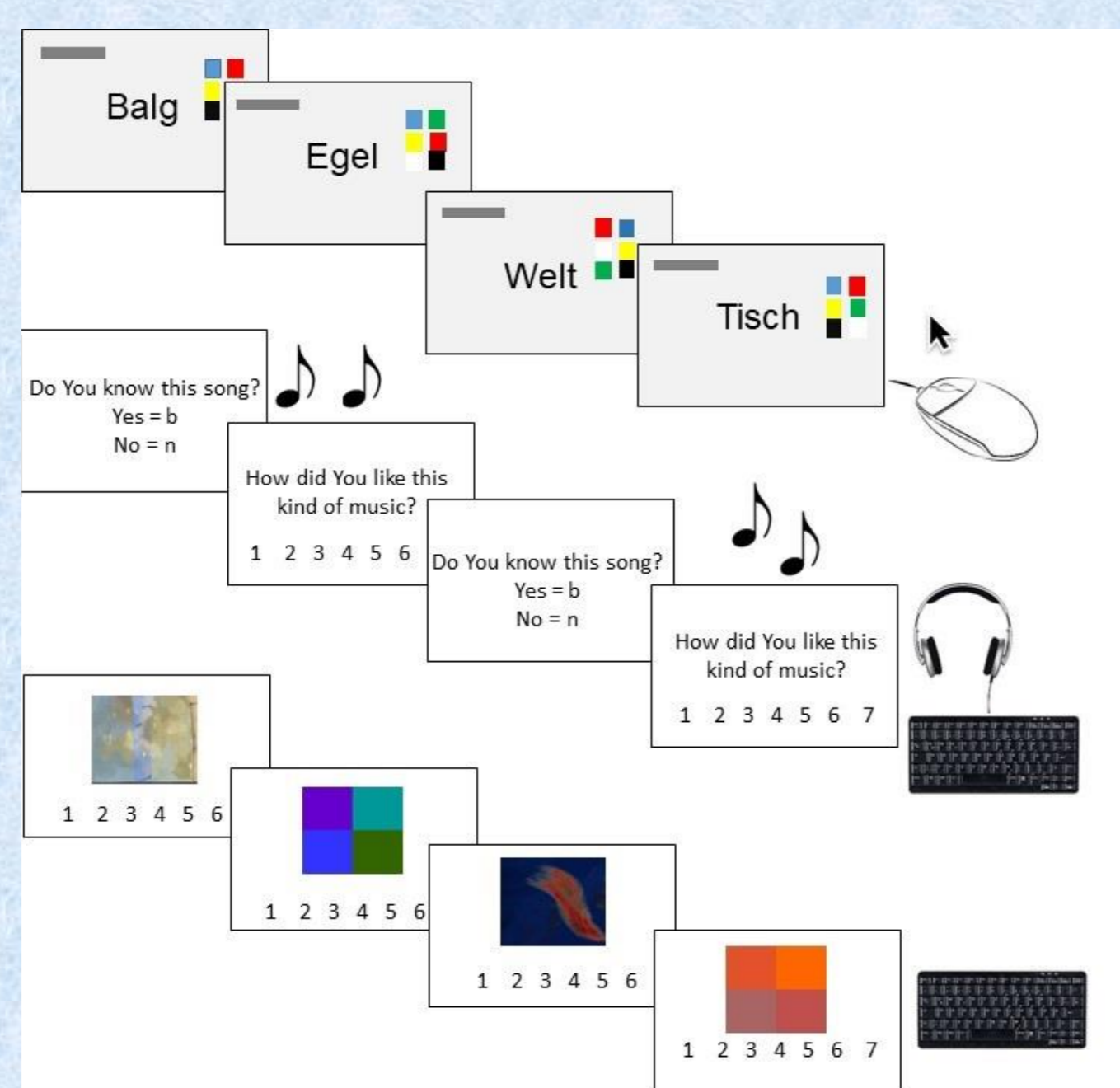
The present study investigated the longevity of these synaesthesia-type specific memory advantages found in this first session.

General and synaesthesia-type specific memory performance was compared for four different types of synaesthesia: 21 **grapheme-colour- (GC)**; 18 **sound-colour- (SC)**; 21 **grapheme-colour-and-sound-colour- (GCSC)** and 20 **sequence-space (SS)** synaesthetes and their matched controls were tested. Recognition tests included word, music and colour stimuli. Each participant completed session 1: after 1 hour and session 2 after 1 year.

## Method

80 synaesthetes and 80 healthy controls matched by age and gender.

### Session 1: Study-Phase

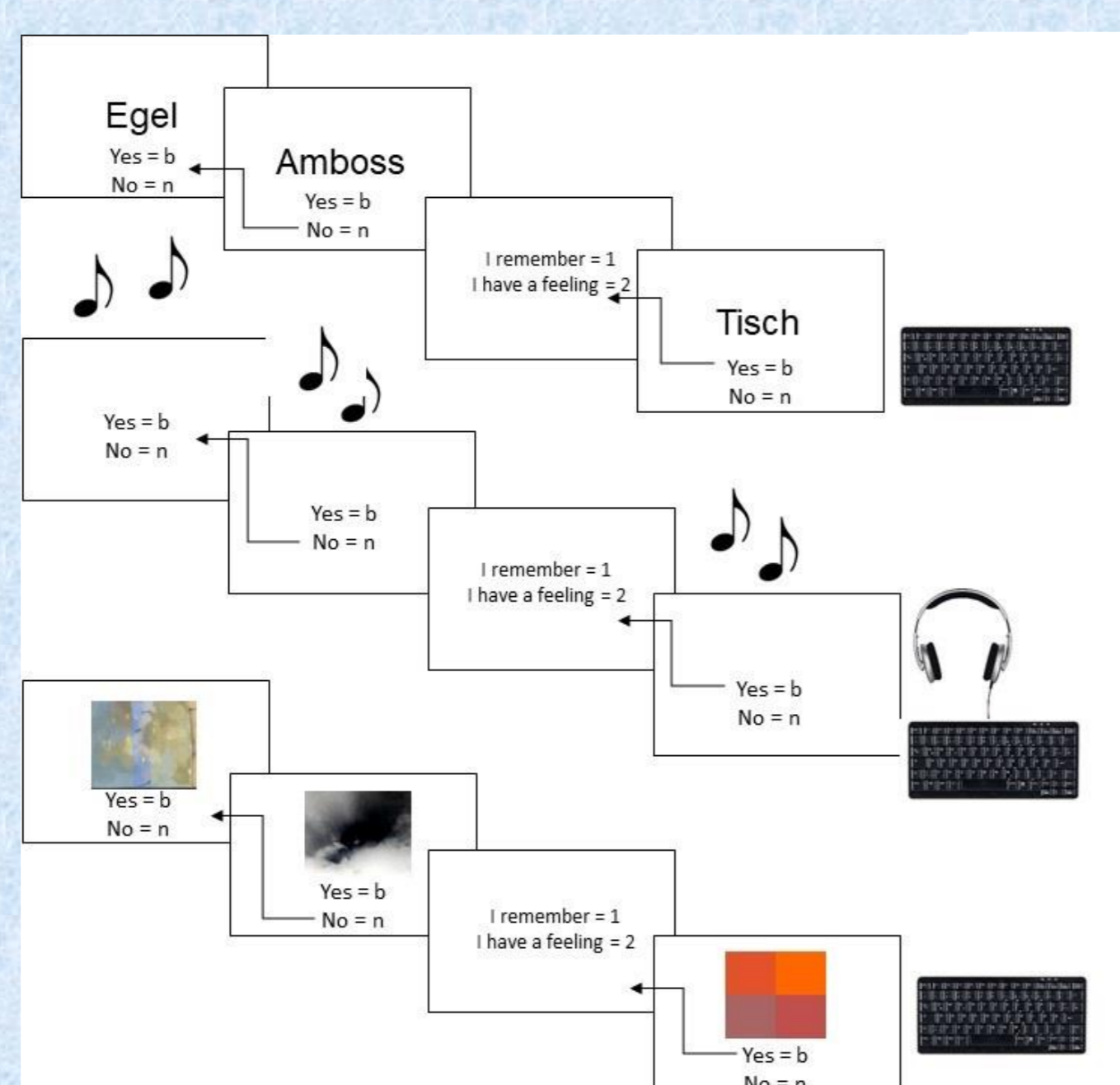


Colour assignment for high and low frequent German words.

Liking of 10 sec. extracts from 10 musical genres.

Liking of coloured squares and abstract designs.

### Session 1: Recognition after 1 hour



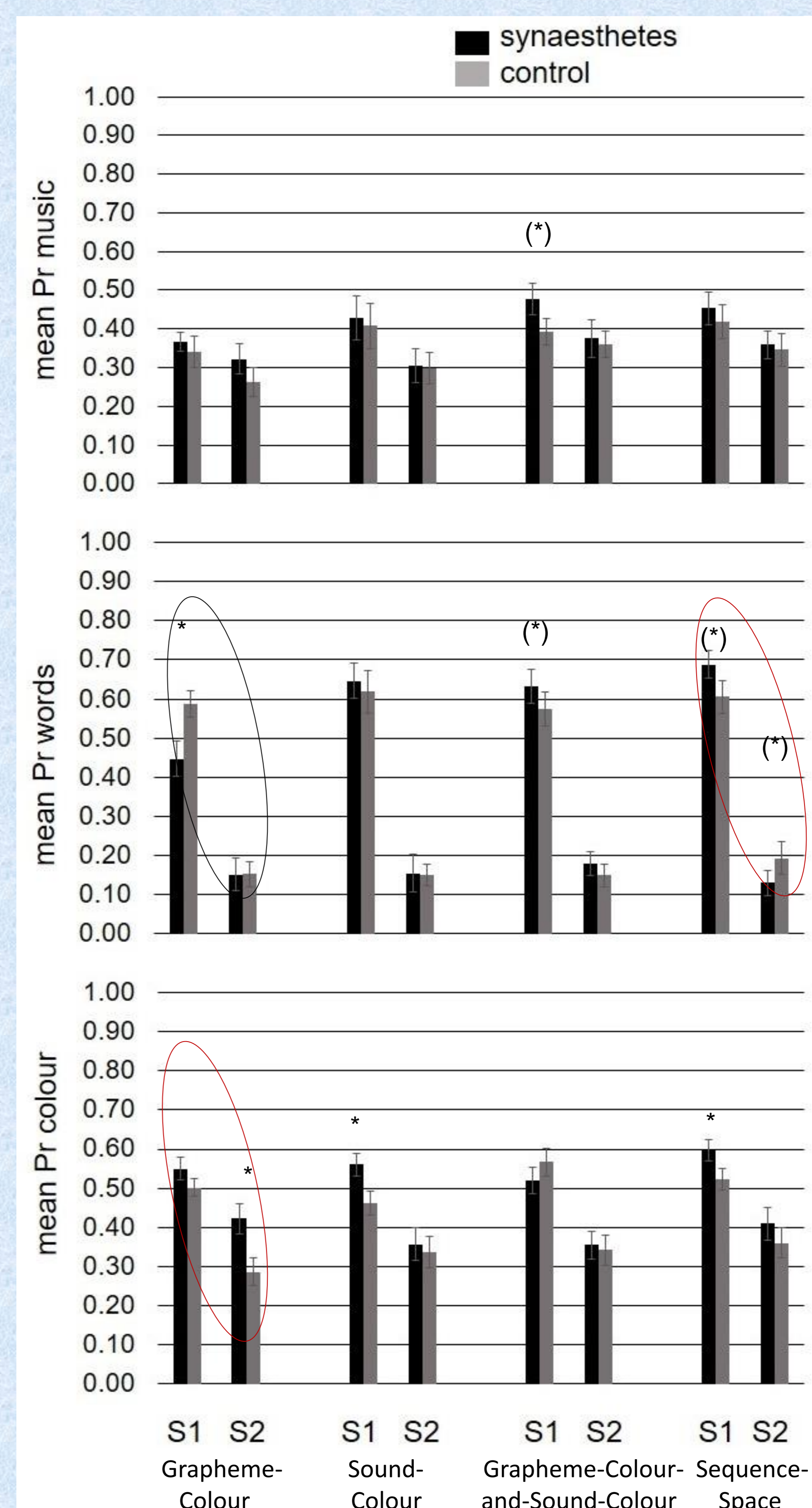
Recognition of high and low frequent studied words and lures.

Recognition of studied pieces and lures.

Recognition of studied coloured squares and abstract designs and lures.

### Session 2: after 1 year

## Results



1. A marginal inducer-specific advantage for GCSC synaesthetes in session 1 was not stable.
2. A tendentious concurrent-specific advantage for GC synaesthetes in session 1 was stable and approached significance in session 2. Decay was significantly lower. For SC synaesthetes the concurrent-specific advantage was not stable.
3. A general advantage for SS synaesthetes in session 1 was not stable. Decay for words was significantly higher.

## Conclusion

1. The stable concurrent-specific memory advantage implicates enhanced colour processing and retention.
2. The unstable inducer-specific advantage might result from short-lived network activation.
3. Differences between types of synaesthesia indicate different mechanisms underlying these memory advantages.