

Zoom Meeting
w/ Florian Seitz (presenting author)
<https://unibas.zoom.us/j/95390635043>

Through the Window of My Mind:

Mapping Information Integration and the Cognitive Processes Underlying Self-Reported Risk Preference

Markus D. Steiner
markus.steiner@unibas.ch
University of Basel

Florian I. Seitz
florian.seitz@unibas.ch
University of Basel

Renato Frey
renato.frey@unibas.ch
University of Basel & Princeton University

Preprint available at
<https://psyarxiv.com/sa834/>

Abstract

Risk preferences shape major life outcomes and are thus routinely assessed with self-reports. We investigated the information-integration processes underlying self-reported risk preferences in two studies using the process-tracing method of aspect listing. The listed aspects predicted risk preferences better than socio-demographic variables, and cognitive modelling suggested that people report their risk preference by integrating the strength of evidence of multiple aspects sampled from memory. Across studies, the aspects' strength of evidence was stable thereby explaining the stability of self-reported risk preferences. In sum, our cognitive insights on self-reported risk preferences corroborate the internal validity of this measurement approach.

Introduction

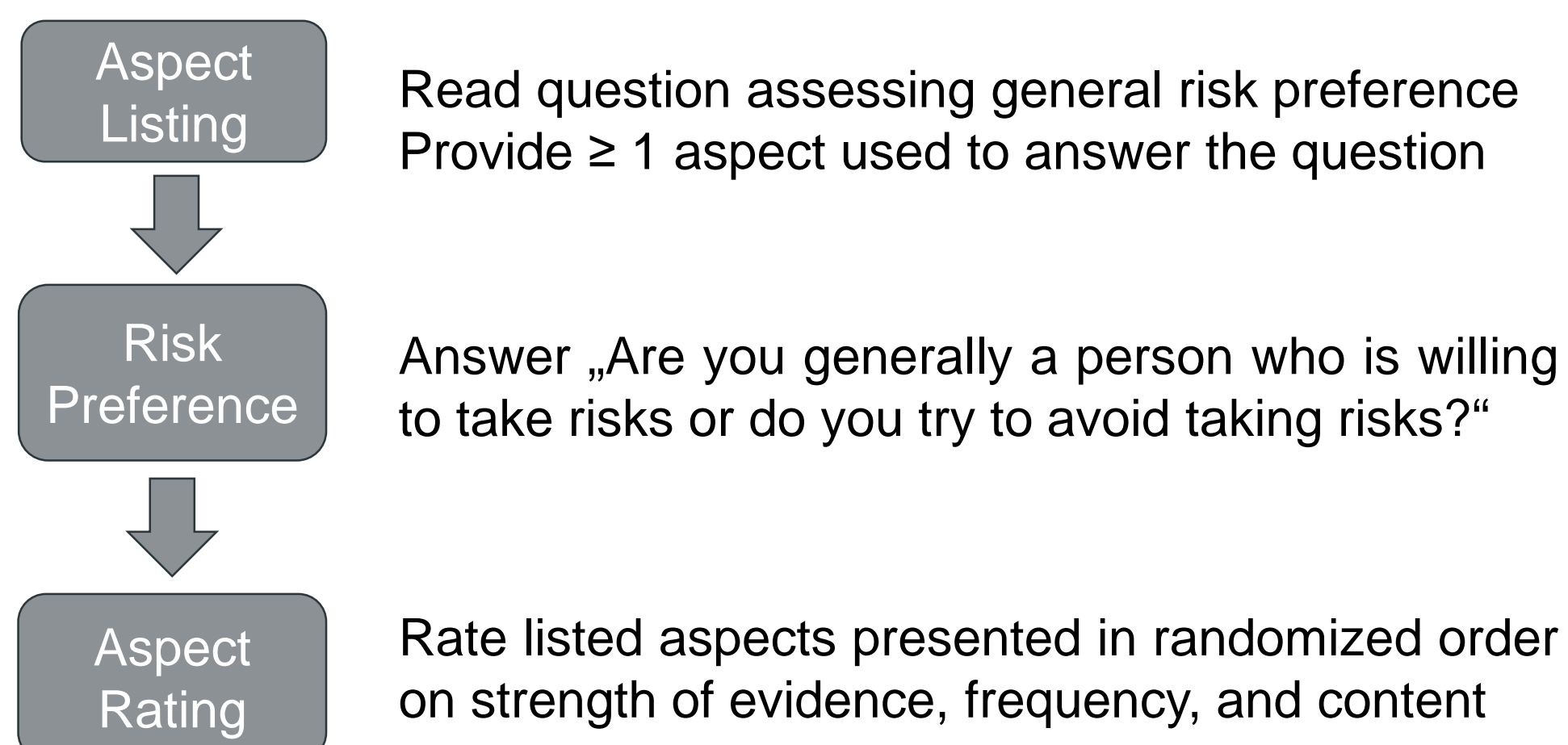
Risk preference assessments are crucial in both applied and scientific contexts. Often they are based on self-reports, which are stable over time and have high convergent validity. Yet, the **processes underlying self-reported risk preferences** remain widely unknown. Past research suggests the mechanisms how evidence sampled from memory may shape judgments:

- **Strength of evidence:** the evidence's extremeness in favor of a particular judgment,
- **Weight of evidence:** the amount of evidence on which a particular judgment is based,
- **Order of evidence:** the evidence's serial position in the series of considered evidence.

By studying the role of these properties of evidence we aimed to map the information-integration processes underlying self-reported risk preferences. To measure the considered evidence, we used the process-tracing method of **aspect listing**, where people report the evidence they retrieved from memory to judge their own risk preference in written form as aspects.

Methods

Design



Studies Overview

- Study 1:** MTurk ($N = 250$)
1. Can cognitive models explain self-reported risk preference?
 2. What are the contents of the aspects people base their judgment on?
- Study 2:** 1-Month-Retest of Study 1 (within subjects); MTurk ($N = 150$)
1. How stable are the properties and contents of the retrieved aspects?
 2. Can aspect stability explain the high stability of risk preference judgments?

Results

Study 1: Information Integration Processes in Self-Reported Risk Preference

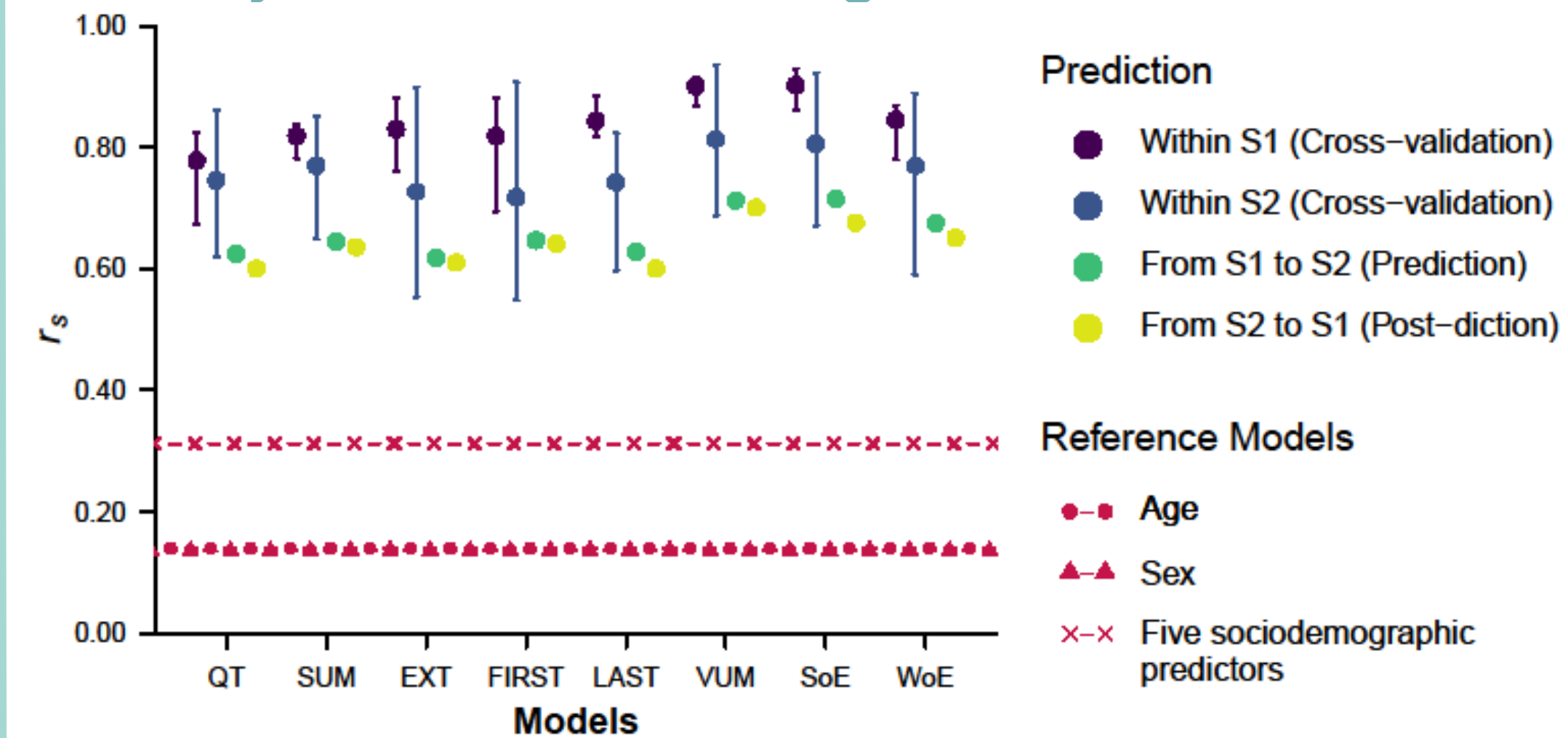


Fig. 1: Spearman correlations between self-reported risk preference and the predictions of various cognitive models based on the three properties of evidence (whiskers denote the range of r_s in the five folds of the cross-validation within studies). Across studies, the models used the aspects of one study to pre-/post-dict people's risk preferences in the other study.

All cognitive models predicted self-reported risk preferences well (out-of-sample r_s : .78-.90 within studies; .60-.71 between studies) and better than sociodemographic models. The **value updating model (VUM)** that weights and aggregates the aspects' strength of evidence performed best. Aspect listing further permitted quantifying the aspects' sources and contents; for details see [Paper](#).

Study 2: Stability of Aspects and of Self-Reported Risk Preference

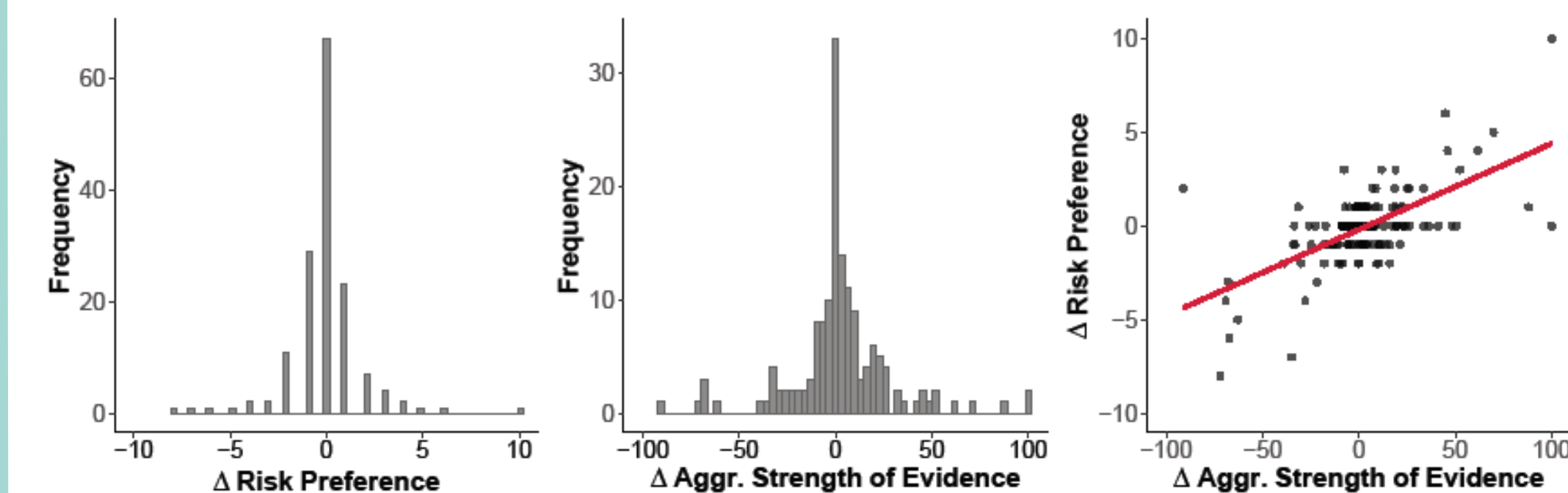


Fig. 2: Stability of self-reported risk preferences (left) and of the aspects' strength of evidence (middle) as within-subject differences across studies. The relation between changes in strength of evidence and changes in risk preference is shown in the right panel.

In accordance with past research, self-reported risk preferences were highly stable at a one-month interval ($r_s = .80$). Our results show that participants listed aspects of similar aggregated strength of evidence across studies ($r_s = .68$). Further, the **high evidence stability** was a **credible predictor for the high stability of self-reported risk preference** ($\beta = 0.63$, 95% CI [0.50, 0.75]; $r_s = .45$).

Discussion

By bridging two seemingly disparate methodological approaches—self-reports and formal models—we found that people likely judge their risk preference by a weighted aggregation of multiple aspects' strength of evidence. Moreover, our finding that people retrieve aspects with similar aggregate strength of evidence across time provides a cognitive explanation for the temporal stability of self-reported risk preferences. This suggests that self-reports are not “cheap talk”, but rather an **easy-to-use, psychologically sound measure** of risk preferences.