SUMMARY

My thesis consisted of three main research chapters. The first involves collaboration in two studies that dealt with the development and validation of a psychometric scale for domain-specific risk-taking (dissertation chapter 2). The second builds on that work, utilizing the scale to examine the role of risk taking as a cue in mate choice as well as extending the risk scale by introducing evolutionarily more valid domains of risk (dissertation chapter 3). The third concerns the adaptive problem of foraging for resources and the simple mechanisms that people use to decide when to give up on one task and switch to another (dissertation chapter 4). In the following, I will briefly summarize the main chapters and their findings.

Dealing With Uncertainty in Domains of Everyday Life: Beyond a Trait View of Risk-Taking
In the second chapter, we overcame the difficulties of an appropriate measurement of risk-taking by suggesting domain related within-individual differences in attitudes towards risk. A German-language scale was derived from an English version and validated on 532 participants. The scale contains 40 items in five distinct domains of risk taking: ethical, recreational, health, social, and financial. The scale comes in three available subscales assessing tendencies to engage in risky behaviors, perceptions of risk, and expected benefits from such behaviors. Applying all three subscales allows for the use of a risk-return framework to interpret risk-taking propensity. Our results based on evidence of reliability, convergent validity, and test-retest reliability suggested that the developed scale is an ideal tool for the assessment of such domain-specific risk propensity.

In additional study, we investigated risk propensity across individuals, groups of individuals and domains of risk-taking. Instead of collecting data among homogenous university students, we challenged our new instrument by looking at heterogeneous groups of risk takers that are chosen for their high/low engagement in risky behaviors. We hypothesized that people seeking (or avoiding) extreme risks in one domain, will show no extra tendency to be risk-seekers (or –avoiders) in other domains. We selected groups of people whose risk attitude is extreme in various domains: recreational (e.g. skydivers, scuba-divers, and mountain climbers), health (e.g. gym attendees and smokers), and financial risk-takers (e.g. casino gamblers and

brokers). Our results not only confirmed our predictions, but also showed how the pitfalls associated with aggregating data across participants from different underlying populations can be avoided.

Dealing with Uncertainty Regarding Mate Quality: Is Risk-Taking Used as a Cue in Mate Choice?

In the third chapter, we investigated if male risk-taking can be seen as a form of competitive advertising in which young men who take (and survive) risks are more attractive as mates because their ability to take these risks is an honest cue of quality. We investigated this in three studies. The first study, asked young women to rate the attractiveness of specific risky behaviors of men. Our newly developed domain-specific risk inventory allowed us to distinguish whether risk-taking is generally attractive or only in certain domains. Women reported recreational and social risk-taking as attractive, but other domains of risk-taking as unattractive (ethics, gambling, and health) or neutral (investment). In a second study we switched experimental conditions and learned that men reported the same risk-taking domains as attractive in women as women reported in men. This could explain why each sex accurately predicts what the other finds attractive. Both studies were also run in parallel in the United States and yielded strikingly similar results. In a third study, both members of 25 couples reported their likelihood of engaging in specific risky behaviors, their perception of these risks, and how attractive they would have found these behaviors in their partner to contrast two possible choice mechanisms. One hypothesis was that, for instance, a woman afraid of heights would be particularly impressed by a man oblivious to such risks. Instead we found positive assortment for risk taking and a strong negative relationship that holds between the perceived riskiness of a behavior and how attractive it as judged.

In the last part of chapter three, we report first results on the development of a risk scale that focuses on the re-occuring risk domains our ancestors faced. We selected five new risk-taking domains (i.e. health and fertility, between-group competition, within-group competition, mating and mate attraction, and survival and physical risks) and created a novel set of questionnaire items that can be seen as modern analogues to the risks our ancestors faced.

Dealing with Uncertainty in Resources: Simple Rules for Human Foraging

In the fourth chapter, we studied the information processing mechanisms that underlie human foraging behavior in variable resource environments (i.e. evenly dispersed, Poisson, and aggregated resource distributions). Specifically, we tested whether the heuristic rules evolved to

direct animals when to leave a food patch also underlie human decision making in the same context, and whether humans in an internal-search task (e.g. information in memory) use the same rules as in a external-search task (e.g. physical objects). We did this by setting up two experiments, which differ in whether search is external or internal, but whose environmental parameters were matched. In both tasks, we did not only investigate how well the simple rules we proposed fit to the patch-leaving rules participants use, but also whether participants could adapt their patch-leaving rules to the different kinds of environments we created.

In the first experiment, our fishing task, participants were presented with a virtual landscape on a computer screen allowing them to "forage" at a pond. If they stayed they caught fish at stochastic intervals depending on the number of fish left in that pond; if they chose to leave, then it took them time to walk to the next pond. Our results demonstrated that people use patch-leaving rules that are ecologically rational in an aggregated environment (i.e. an incremental rule), but they did not adjust them accurately to the environments. In the second experiment, foraging for fish was replaced by searching for solutions to a word puzzle. In a modified anagram search task, people generated meaningful words out of random letter sequences. Here, participants also used patch-leaving rules that were ecologically rational in an aggregated environment, but our results could not clearly differentiate between two potential patch-leaving rules (i.e. the incremental rule and the giving-up-time rule).