2 Fundamentals of Decision Making

In institutions ranging from private households, to companies, and public administration, people on whichever hierarchical level are responsible for certain domains, and thus make decisions on a daily basis. As some responsibilities are of a rather simple structure and of comparatively small impact, e.g. buying rolls at the bakery, or ordering a cup of coffee at the café around the corner\(^1\), the decision making takes place mostly in an intuitive way. Yet, there are many responsibilities which are of a complex structure or of great impact on the well-being of man and/or matter, and hence require careful preparation and analysis prior to implementing a decision. For a family, a complex decision is for instance whether, where, when, and how to build a home. A complex decision for a company executive is to determine which kinds of products to produce, or, respectively, which services to offer in which quantities at which price and with how many employees working on them. Governments take care of e.g. health-care programs or environmental protection legislation, and adopt defense strategies, while international organizations develop activities which affect peace, freedom, and prosperity on a global level.

Independent of their scope and their possible impacts these four examples unvaryingly exhibit the characteristics of a decision problem: The first and crucial constituent is the presence of a rational individual, the

\(^1\) And then again maybe this is not as simple: “The whole purpose of places like Starbucks is for people with no decision-making ability whatsoever to make six decisions just to buy one cup of coffee — short, tall — light, dark — caf, decaf — lofat, nonfat — etc.”, JOE FOX (TOM HANKS) in You’ve Got Mail.
so-called decision maker, who is endowed with (a) certain ideals, motives or desires — which are concretized in the form of goals or objectives — and (b) the freedom to choose. Whenever the situation arises that at least one decision maker encounters a situation, which demands, or invites to make a choice between two or more mutually exclusive alternatives on the basis of his underlying objectives, this constitutes a decision problem.²

It is the raison d'être of decision theory to assist decision makers in analyzing, structuring, and solving their decision problem.³ There are, however, three approaches to this theory:

(1) The logic of decision making focuses on the analysis of a decision problem by showing ways to structure the problem, and possibilities to solve it, with the aim of deducing logical implications of rational choice.

(2) The descriptive decision theory seeks to explain decisions made in real-life situations as well as observed behavior in individuals and groups on the basis of the hypothesis of rational choice in order to be in a position to make prognoses.

(3) It is the object of consideration in the prescriptive decision theory to make recommendations for designing a consistent — according to whichever terms — system of objectives as well as for suitable decisions implied by this system.⁴

