Advice Giving and Taking

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Abstract

Increasingly, people have to make personal decisions following some kind of consultation, e.g., decisions about medical treatment, genetic testing, and financial investment. One approach suggested to deal with such problems is decision analysis. For reasons discussed in the paper, an alternative approach is proposed, advice giving and taking. This approach focuses on the difference in substantial expertise between consultant and client, implying in particular three features: Consultants match options to clients rather than analyse the consequences of many alternatives; consultants and clients discuss one single option rather than multiple options; and, clients reject or accept the consultants advice depending on the quality of the recommended option as well as on their trust in the consultant.

"Examples of dyadic decisions"

(1) An unmarried woman of 49 years has been informed that mammography has revealed a small tumor in her left breast. She has a meeting with a surgeon who has been recommended to her. The surgeon tells her that she will have to undergo biopsy immediately in order for him to take a sample from the tissue to see whether it is malignant or not. If the tumor is malignant, then she will have to decide between plastic surgery, where the malignant tissue will be replaced by a silicon transplant, and mastectomy, where the entire breast will be removed. The surgeon informs her about studies with partly contradictory results of the treatments concerning the risk of a relapse. He tells her that he has only performed plastic surgery on breasts and has never performed a mastectomy. Later on, the woman talks to friends who have been in the same situation, and she tries to get further information from journals and books.

(2) A 40 year old university professor, married and father of two children, is concerned about his and his wife’s provision for old age. He thinks he should invest part of a modest inheritance, and maybe he and his wife should also invest part of their monthly incomes on a regular basis. Recently he heard about investment opportunities supported by new tax regulations. He makes an appointment with the investment adviser at his local bank. The adviser offers several investment opportunities, asks a few questions, and then proposes to either invest in real estate or to buy shares in the tank ship industry. She talks about distributing losses over several tax years, special subsidies, different discounts, market risks, and many other factors. Finally, after some further questions, she suggests real estate. The professor is confused and tells the adviser that he will discuss the suggestion with his wife.

(3) A couple has read an article in a magazine that included a paragraph on the genetic basis of cystic fibrosis (also known as mukoviszidosis). In the woman’s family, one of the relatives is affected by that disease. The couple go for a meeting in a genetic counseling institution. The counselor tells them that cystic fibrosis is a disease caused by mutations of a certain gene; that the disease affects the lungs and digestive system of babies, children and young adults; that people with CF have sticky mucus in their lungs and are particularly prone to chest infections, that they have difficulty in digesting foods and may later develop liver problems. Treatment can help but does not cure the condition. For the disease to develop, a defective gene must be inherited from each parent. About 1 in 20 of the white population are carriers of the gene; the disease occurs in about 1 in 2,000 babies born. If both parents are carriers, the risk of any baby having the disease is 1 in 4.
The change in the gene that is responsible for about 85% of the cases can now be detected. The couple will have to decide on whether or not to take a test.

The last example is perhaps most suited to put you in the mood of counselor and client in such situations. I would be surprised if you would not hope never to find yourself as parents in such a situation which is obviously cognitively and emotionally highly demanding and stressful. You might hope that you yourself would be able to make a rational decision - although you might not be sure what "rational" means in this context. You might also hope never to find yourself in the situation of a counselor who has to find the optimal strategy for informing the parents and helping them to make the decision. If you consider the other problems I have described, you might know from your own experience, or can easily imagine, how confusing and demanding the situation of a patient in a hospital or of a customer in a bank can be. You have to understand more information than you can cope with, you have to deal with emotional issues you have never dealt with before - and yet you have to make an important decision. Ideally, it should be an "informed rational decision".

We find ourselves more and more often in situations where we are expected to make "informed rational decisions". As patients, as clients, as customers. The concept of the "informed citizen" has become a key element in our political systems. The British sociologist Antony Giddens, among others, has pointed out that the consequences of the modern "information society" are increasing opportunities for choice but also cognitive demands which can not be met; in this dilemma, he says, "trust" regains crucial significance (Giddens, 1990).

In this paper, I will take medical treatment, financial investment, and genetic screening as prototypes of certain complex personal decision problems. To many, these are situations for which decision analysis is perfectly appropriate. I will argue, however, that specific features of those dyadic consulting situations render decision analysis inappropriate - for such situations. I will propose an alternative approach to analysing and aiding decision making, drawing on conceptions different from the traditional expected utility approach (which represents the heart of decision analysis).

My aim is threefold: To bring into focus an important area largely ignored by prescriptive decision research; to draw attention to the interaction between consultants and clients; and to advance the development of supporting techniques for this kind of dyadic decisions.

In the following, I will use the term consultant as the generic term for the expert, including physicians, investment advisers, genetic counselors, and so forth; and the term client as the generic term for the affected layperson, be it a patient, a customer, or a parent.

"At a first glance - how could we deal with such problems?"

The concept of "informed decision making" is based on the assumption that people want to make their own choice and that people know better than others what is good for themselves. The concept carries the expectation that, in situations like the ones I have described, we can make our choices (relatively) "autonomously" and "rationally". But are these assumptions and expectations realistic? First, clients have to make their choice within a social setting, interacting with somebody who is an expert in the subject matter and in discussing such matters - how autonomously can a client behave given these conditions? Second, clients are swamped with new, unfamiliar, complex, and confusing information - how rationally can a client think under such conditions? Thus, "autonomy" and "rationality" reflect either illusions (if taken as valid descriptions), or hopes (if taken as goals which can be achieved), or ideals (if taken as unachievable goals which should direct advising efforts and ward off paternalism).

Would it then be possible to promote autonomy and rationality by reverting to decision research and using the tools of decision analysis? At a first glance, these situations seem natural candidates for the application of decision analysis: There are options, events, consequences, uncertainties, values, risks and opportunities. The problems have high stakes, they have a complicated structure, decisions need to be justified, there are no overall experts, and there is no correct solution. These are the conditions for which decision analysis is being recommended (e.g., Keeney, 1982; Keeney, 1992). And decision analysis has been applied, particularly in the context of obtaining a patient’s "informed consent" to medical treatment.
"At a second glance: arguments against decision analysis"

There are a variety of arguments against applying decision analysis to the situations I have described. Most of these problems have been discussed by proponents and opponents of decision analysis, primarily in the medical domain, less often in relation to genetic screening; but, to my knowledge and surprise, never in relation to financial investment. I will sketch just a few of the most crucial problems (cp. Fischhoff, 1985; Brock & Wartman, 1990; Merz & Fischhoff, 1990; Ubel & Loewenstein, 1997).

(a) One argument is that key components of decision analysis can only arbitrarily be formalized, for instance, when the range and time horizon of events are practically unlimited. To take my example of genetic screening, what are the potential economic, social, emotional and physical consequences for a child born with CF, and what are they for the parents, for the rest of the family, and for the social system? Who can tell how seriously the disease will turn out to affect a particular person, and which treatments will be discovered? Many scenarios would have to be developed assuming different degrees of seriousness and kinds of treatment; and scenarios of a life with a healthy child, and of a life without a child should also be explored. Obviously, the set of relevant aspects and the time horizon can only be restricted with considerable arbitrariness.

Furthermore, quantification often does not make much sense when relevant information is very ambiguous: With genetic problems, we might expect that a treatment for curing a certain disease will be developed, but no one knows at what point. With investment problems, no one knows how the stock market or the value of the dollar will develop within the next three years. How can you incorporate such information, and the perceived ambiguity itself?

Quantification is further questionable when imagining outcomes and utilities is difficult: with medical and genetic problems, outcomes like living with a severe physical handicap and living for twenty years with a child suffering from CF, are nearly impossible to imagine accurately. But even with investment problems, time preferences, for instance, make the anticipation of utilities difficult.

(b) Another argument is that elements and rationale of decision analysis are difficult to communicate, for instance, when the structure of the problem is very complex. The problem with investment plans is that there are many kinds of funds, bonds, and stocks, with different rates of return, terms, charges, interest rates; can this be communicated to an average investor? Nor is it easy for a woman to grasp what it means when she is told that, say, only 5% of breast cancer is genetically determined and that carriers of the gene have a higher risk of developing breast cancer, but do not necessarily develop the cancer.

We also know that communication is difficult when information is probabilistic (like false positives and false negatives), and when probabilistic information needs to be combined (like base rate and case information).

(c) And yet another argument is that some components of the situation elude the decision analytic approach altogether, for instance, the fact that clients have no mental reference framework in such unfamiliar situations. For them, these are unique problems. They do not have the relevant factual knowledge, and they do not even have the knowledge required to think about the problem, to understand the information, and to ask the appropriate questions.

Decision analysis also fails to capture the fact that the knowledge itself can have an effect on one’s future, such as the knowledge provided by a genetic test that one carries the gene for multiple sclerosis or for breast cancer. Such knowledge might be particularly consequential if no treatment is available for the disease.

Finally, the decision analytic approach does not capture the fact that the decision process itself can have an effect on the outcome. It has been shown that people who had thought carefully before making their decisions were later less satisfied with the outcomes, whatever they be, than people who had not given their decisions much thought (e.g., Wilson & Schooler, 1991).

Briefly, these (and many more) difficulties to quantify, to communicate, and to incorporate important aspects of the situation, all suggest "abandoning expected utility as the criterion for decision making, and moving to alternative models of choice", as Ubel & Loewenstein (1997) conclude. And indeed, the scepticism regarding the applicability of decision analysis in the situations I have described is an "expressed" attitude in the medical literature, and a "revealed" attitude in genetic counselling.
and investment advice, as evidenced by the little use which these fields make of decision analysis.

"A third glance: constraints for a realistic alternative"

A realistic approach has to acknowledge the fact that the dyadic situations discussed in this paper are different in important respects from those situations where the decision analytic approach can be applied successfully.

Take the example of surgeons, trained in decision analysis, who have to decide whether to operate on a patient immediately or to wait for more test results. In this case, the decision makers are experts in the subject matter (facts and values) and are also the experts in the procedure to arrive at a decision. Furthermore, they make the decision, legally and substantially; they represent the (only) locus of the decision.

Now take the example of a group of managers who have to decide on whether or not to enter the market with a new product and who have turned to a decision consultant. In this case, the decision makers are clients who are surely experts in the subject matter but who are not experts in the procedure to arrive at a decision. The consultant is the procedural expert. But clearly the decision will be determined primarily by the clients because of their expertise in the subject matter; although the consultant will have some impact, the locus of the decision is with the clients.

Finally, take the examples of a patient who has to decide whether to undergo surgery, the professor who wants to make an investment, and the parents who consider taking a screening test. In all these cases, the decision makers are clients who are neither experts in the subject matter nor are they experts in decision making procedures. As a result, they do not primarily determine the decision. Such clients understandably and justifiably expect and get a substantial recommendation from the consultant who thus represents the real locus of the decision.

Everyone will agree that clients in these last situations are no experts with respect to the facts. However, many proponents of decision analysis argue that clients are the only experts with respect to (their) values. This is only partly true. Consultants know a lot about people’s values and trade-offs, and they know to which consequences choices have led clients in the past. They might know, for instance, that 90% of the couples, when informed that they are both carriers of the CF gene, give their concern about a child’s life first priority; that most middle-aged professors who ask for investment advice declare that their goal is a revenue adding later to their pension; that the majority of parents who take the genetic screening test are at first very ambivalent but later very glad to have taken it. In other words, consultants have explicit or implicit statistical knowledge about their clients’ values.

I propose that consultants and clients are both aware of their different levels of expertise, and that this awareness implies a shared understanding of the goal of their meeting: The consultants are prepared to give advice because they know that the clients expect them to. Attempts to optimize this process have to recognize the different identities of expert-consultant on the one hand and layperson-client on the other hand. I will outline the basic features of a model which, I believe, is more adequate to the problem (in that it does not pretend the degree of preciseness assumed in decision analysis), and fits better the capabilities and expectations of clients and consultants (in that it does not pretend the partnership assumed in decision analysis).

"The basic features of the AG&T model"

Figure 1 shows the major steps, or modules, of the Advice Giving and Taking process.

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<td>Identification of an option (or several options)</td>
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<td>Evaluation of the consultant’s advice and decision to accept or to reject</td>
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Figure 1: Modules of Advice Giving and Taking
(a) The first step is the same as in all other approaches. Meetings between consultants and clients start off with a description of the problem which can be put forward either by the client, such as with genetic or with financial problems, or by the physician, such as with medical problems. If clients are not familiar with the consultant’s technical terms and phrases, their confusion begins right here. And generally, clients are not familiar with the consultants’ language because they encounter the situation for the first time.

The provision of factual information by the consultant increases the confusion. My introductory examples were intended to illustrate the difficulty of this task. The consultants are usually aware of the communication problem, but they do not know how to overcome it, and therefore do not check to see how much their clients have managed to understand. Certainly at this stage the participants in the meeting realize the asymmetry in their relation: that the consultant is the competent expert in the subject-matter, whereas the client is the confused layperson trying to keep up with the discussion. But this is what most clients anticipate anyway.

The elicitation of a client’s relevant knowledge focuses on needs, goals, and values. In a German bank, for instance, the investment adviser asks customers to rate the personal importance of flexibility, of investing given assets, of protecting their family, of keeping the standard of living after retirement, of acquiring real estate, and a few other goals. Usually, factual information will also have to be elicited. For instance, the investment adviser will demand information about your income or your spouse’s income, about potential inheritance, and the like. An interesting aspect is the clients’ attitude towards risk. Investment advisers in German banks are required by law to assess explicitly the customer’s attitude towards risk; in some banks, they meet these requirements by asking customers to classify themselves - "I am risk averse", "I am risk prone"! But consultants not only ask questions but also help clients to think about issues which they have never thought about before; for instance, by telling them what other clients have said or felt or experienced. Consultants thus reveal that they know more about the clients’ conditions and values than the clients themselves knew before the meeting. But again, this kind of information is probably what the clients expected, in fact, even hoped for.

(b) The second step is for consultants to identify an option or a set of options. Consultants must use the information elicited from clients and apply their procedural knowledge and professional experience to this information. I propose that, with a first guess, consultants will try to identify one single option only.

Apparently the predominant strategy is to categorize the clients and their problem and to select the best option associated with the respective category. An investment adviser will use the information about the client’s economic status and goals to categorize the client (for instance, as a married professor with young children, middle-aged, few assets, interested primarily in keeping the standard of living after retirement). The adviser will then pick the option which the bank considers the best for clients belonging to this category (e.g., government bonds). If the adviser finds several options, he or she will pick the one or the ones which have proven most successful in the past. For a physician, the medical, social, and personal information about a patient will serve as the basis to recognize which option has usually been chosen for similar cases and has produced the best outcomes for patients in the past.

For experienced consultants, it might take no time at all to find the right option: they simply compare the given case to the different categories of cases that they have seen in the past, or that they have prestored in the knowledge base of their computer, find the one category that matches the given case and retrieve the option that is generally applied to this particular category. For less experienced (or equipped) consultants, on the other hand, the strategy might involve a deliberate and directed search process.

Of course, this categorizing-and-matching strategy does not necessarily produce the solution directly. The client or the problem might have special features, and then consultants will have to examine how good the match is between the given case and the category to which it seems most similar. Depending on the degree of match / mismatch, the consultant will have to adjust the option according to the specific features of client and problem - or to pick another option.

This conception resembles closely approaches labeled matching theories by Lipshitz (1994). These theories focus on decisions which involve the recognition of the situation as one for which a best course of action exists, or for which there is a certain course of action that can be
modified to suit the situation. In one way or another, these assumptions are characteristic of the approaches proposed, for instance, by March in his Obligatory Action theory (March, 1981), by Klein in his Recognition-Primed Decision model (Klein, 1989), and by Beach in his Image Theory (Beach, 1990). In these approaches, the process is usually considered as a rapid, almost automatic process, not really intended and controlled; typical examples are decisions taken by commanders in a fire department or the airforce. In the situations I am discussing, however, the process is time-independent and not automatic, categorizing and matching are intended and controlled.

(c) The third step for the consultant is to offer the option as a piece of advice, as the course of action which he or she would recommend. In other words, the consultant presents the output of the search, not the way the recommendation was arrived at.

The advice may come in different forms: For instance, the consultant might actually present one single option only, without mentioning alternative options ("I recommend that we remove this tooth ... "). Or the consultant might name several options but recommend one of them as the best one ("You can buy funds A, buy stocks B, or government bonds C, I recommend the bonds"). Or the consultant might give several options without an explicit recommendation ("You can take the genetic test for breast cancer or you may not want to take the test, I can not tell you what to do "). But even in the last case the consultant is often asked to express an opinion ("what do you think?") and to make a recommendation ("what should I do?"). Clients come for substantial advice and demand advice, if only to compare it with their own conclusions.

At several moments during their communication, but most likely in this third part, there is an opportunity for consultants to reassess the situation, to reevaluate the advice which they have tentatively given. Reassessment may be triggered off by a consultant’s own discovery of features of the client or of the problem that prove the advice to be inappropriate. But reassessment may also be stimulated by questions and objections of the client who listens to advice and arguments. It is at this point that the openness and flexibility of consultants are of particular importance. For instance, do they follow a search-for-dominance strategy and bolster their first choice, or are they able and willing to modify the advised option or even look for a new one.

Consultants will usually explain and justify the recommendation, and they will do this with arguments (Lipshitz, 1993). This strategy has a long tradition and has been described in various forms by decision researchers (e.g., Janis & Mann, 1978, Montgomery, 1989, and Simonson, 1989). Justifications based on a matching-and-argument strategy are relatively simple and will therefore be easier for a client to comprehend. Consultants justify a recommendation with arguments such as "... because most people in your position and at your age choose to buy bonds these days ...", or "... because the number of cells in your blood is very low and thus there is a high danger of an infection", or "... because from what you said it seems that it would be extremely difficult for you to cope with knowing that you have the changed gene". In other words, the consultant does not show how he or she got to that recommendation but recruits only the arguments in favor of the recommended option. Only if the advised option implies considerable risks will the consultant also list the arguments against it.

(d) Finally, if the process runs as described, it has an important consequence: Clients do not choose one out of several alternatives in view of their consequences for their health, family, or pension; rather, one specific option is recommended to them by an expert in the subject-matter, and they must decide whether to accept or to reject the recommended option.

The client considers and evaluates advice on several attributes. One of these attributes is the perceived quality of the advised option. But the client will also evaluate the advice on other attributes. Figure 2 shows one possible set of attributes. More specifically, the decision to accept or reject the advice is a function of the evaluation on two sets of attributes, option-related attributes and person-related attributes. Option-related attributes are the perceived quality of the recommended option as judged, on the one hand, by the adviser [based on pro and con arguments], and, on the other hand, as judged by the client him- or herself [based on plausibility, perceived soundness, risks, benefits]. Person-related attributes are, on the one hand, the perceived quality of the judgments provided by the consultant [credibility] and, on the other hand, provided by the client him- or herself [confidence]. The symbols in the cells of figure 2 represent high potetical judgments, ranging from +++ = very positive, to --- = very negative.
decision to accept or to reject advice

<table>
<thead>
<tr>
<th>option-related attributes: quality of advised option as judged by</th>
<th>person-related attributes: quality of judgments provided by</th>
</tr>
</thead>
<tbody>
<tr>
<td>consultant (expert)</td>
<td>client (lay-person)</td>
</tr>
</tbody>
</table>

| accept advice | +++ | + + | +++ | + + |
| + + | - - | +++ | + |

| reject advice | + + | + + | - - | 0 |
| + + | - - | - - | - |

Figure 2: A multiattribute structure for evaluating a consultant’s advice

An important implication of the model is that the behavior of clients can no longer be explained by their evaluations of the options alone. Acceptance as well as rejection of a recommended option can result from quite different evaluations:

Take a look at the first row of the table: In this case, a client will accept the recommended option because the evaluations of both consultant and client are positive, the client considers the consultant trustworthy, and has confidence in his or her own judgment. In the case shown in the second row, the client might also accept the recommended option but this time although he or she personally evaluates the option negatively; however, the consultant is perceived as very trustworthy, and thus the client follows the advice. This pattern might be typical for situations when patients have to decide about a medical treatment: They think the recommended option is terrible, but they trust their doctor.

An analogous pattern may be observed in case of a rejection. Look at the third row of the table: clients might reject a recommended option although it seems good because they do not trust the consultant. This pattern might be frequent in situations of financial investment. Or, as shown in the fourth row, clients might reject the advice because they neither appreciate the option nor trust the consultant.

Such a multiattribute model suggests a number of questions. In particular, how are these attributes weighted? March (1994) has argued that confidence and trust are often more important to decision makers than accuracy, that is, a thorough analysis of the advised option. Sniezek has demonstrated experimentally the importance of trust and confidence in the acceptance of advice. In a study of private investors, Oehler (1995) found that the quality of advisers in a bank were rated as more important than the bank’s conditions and offers.

This multiattribute model of the last step within the general process model resembles the dual-process theories popular in research on persuasion: Petty and Cacioppo’s (1986) elaboration-likelihood model and Chaiken’s (1980) heuristic-systematic model. In both models, individuals are assumed to process a message carefully if they are motivated and able to do so. Given these circumstances (i.e., if the "central route" or "systematic processing" are applied), whether persuasion occurs will be primarily determined by the strength of the argument. In advice giving and taking situations, this process should be observed when a client focuses on option-related attributes, i.e. the quality of the advised option. But if individuals are unable or unmotivated to process carefully (i.e., if the "peripheral route" or "heuristic processing" are applied), cues, heuristics, and other factors besides the pure consideration of the argument will determine whether persuasion occurs. One important factor of that type has been shown to be the credibility of the source. In advice giving and taking situations, this process should be observed when a client relies primarily on person-related attributes, i.e. the quality of judgments.

I have described the AG&T model in its most parsimonious form. Clearly, the process can be extended by other components (e.g., compatibility tests, coping strategies), and it can be supported by existing techniques (e.g., elicitation methods, imagination techniques). Furthermore, I have described the process in a linear fashion; in reality, the process has many loops and iterations, between and within the four modules. In the first module, for instance, describing the problem, providing information, and eliciting knowledge will usually take place in a back-and-forth interactive conversation between consultant and client.
The empirical observation of inconsistencies between a client`s evaluation of an option and the client`s decision is one potential starting point to examine the proposed model: if the behavior cannot be explained as the result of an evaluation of options, can it be explained by the influence of trust and credibility?

"Challenges for research"

The AG&T model leaves open many questions and poses many theoretical and technical challenges for further descriptive and prescriptive research.

(a) Challenges for descriptive research. One such challenge is the concept of advice. The role of advice has attracted little attention in decision research, with some notable recent exceptions (e.g., Harvey & Fischer, 1997, Sniezek & Buckley, 1995). In situations of advice giving and taking, the basis of a person`s decision is the preferential judgment of another person, the recommendation of a particular option. But do clients interpret advice as a choice the consultant has made? Do they compare their own way of looking at the problem and their own strategy for solving it, with the way they believe the consultant views and approaches the problem? Can we learn something about the ongoing processes from their questions, comments, objections? How do people reconstruct the way a consultant has generated the advice? When and why do clients accept or reject advice? How important for clients` final decisions is their ability to understand and comprehend how the consultant generated the recommended option? Decision research tells us little about these factors and their effects.

A second challenge is to specify the models used for arriving at decisions and the models used for communicating advice by consultant and client. Which decision model fits best clients` behavior (and conceptions) in which situations? Perhaps they evaluate advice in medical decision situations but several options in financial decision situations? Which models do consultants use intuitively for inferring or picking an option for recommendation? Does a physician use a decision analytic approach in situations of high scientific uncertainty but use a matching approach in familiar situations? Furthermore, what are the models that consultants use to explain and justify their advice? And which strategies do clients believe their physicians and advisers use for generating advice?

A third challenge is to study how consultants solve their own personal and professional conflicts and whether and how clients recognize these conflicts. For instance, investment advisers are clearly torn between the search for the optimal investment for the client, and other (personal and institutional) goals such as selling specific funds, stocks, bonds, real-estate, etc. Physicians are often in conflict between informing their patients very comprehensively and minimizing the risk of a liability suit. And genetic counselors might be in conflict between their personal ethical or religious attitudes and their clients` attitudes; they might then abstain from giving advice or they might even explicitly refuse to give advice. What kind of rules or regulations could minimize the influence of consultants` values and interests, without forcing them to advise against their conscience or their employer`s interest?

The last challenge I would like to point out is the social contextualization of the decision situation. This is more unexplored territory on our research map. The current literature mostly deals with situations where the decision expert is in the easy position of being able to lean back: his or her role is that of the procedural expert only who helps to explore and evaluate alternative options but has no real responsibility or power in the situation. The social setting of the situations I have discussed is obviously different: The physician, the geneticist, the financial expert are experts in specific fields; clients see them as authorities whose advice they would be foolish not to consider carefully. In these cases, the expert has considerable influence, though little explicit responsibility. Factors such as trust and credibility, perceived competence and partiality, or perceived attempts on the side of the expert to push their interests through, become influential in clients` decisions. The interaction between experts and laypersons in decision situations needs to be studied if we want to understand their behaviors and improve the interaction as well as the actual decision making process (Fischhoff, 1985).

(b) Challenges for prescriptive research. One challenge concerns clients` behavior towards advice. Let us assume that clients` behavior can be explained successfully with the proposed multiattribute model. What follows for strategies to support clients? Doubtless, the most important task remains to inform clients optimally about the recommended option. Above that, however, the competence and trustworthiness of consultants will have to be improved. Consultants must learn to explain and justify
their advice; they must learn not just to give the routine option that is applicable to the client´s category; and they must learn to be open to questions and objections, and to declare openly how much or how little experience they have. Finally, support for clients could be provided by regulations that transcend the interaction of one individual consultant and one individual client: Clients could be encouraged to seek and compare recommendations by other consultants; institutions could be set up to which people could turn for a comparison of differing recommendations (a Multiple Advocacy system suggested by Janis & Mann, 1978); the training for consultants could be improved and consultants could be supervised. The existence of such regulations and institutions could have an effect on consultants´ behavior and increase their credibility; they also could give clients more cognitive control and increase their autonomy of decision.

We also need to develop procedures for supporting clients´ use of their own individual knowledge: how to find access to that relevant knowledge, how to explore the whole range of possibilities, how to imagine new situations, how to trade-off values, how to remember past and anticipate future feelings. The last factor is important but will often need to be combined with a debiasing procedure that makes the client aware of the difference between utilities anticipated in the present and experienced in the future. The less consultants are in a position to make use of clearly defined quantitative methods such as exist in decision analysis, the more they will need methods that help the client to prevent feelings of guilt or regret for not having made the decision carefully enough should there be a negative outcome.

Another task, focused on the consultant´s behavior as portrayed in the second step of the model (matching the client and picking an option), is to develop methods for examining and improving the various adjustments that a consultant will have to perform to account for the client´s individuality. The consultant might start with a general categorical knowledge and experience but will then have to proceed to adjust certain factors, say, the average probability of a disease, the average time horizon, or the average monthly saving rate, depending on the client´s physical, social, or financial features. We know little about how such adjustment processes are performed, and even less about how they should be performed.

A more technical but important challenge for prescription is to develop better methods for presenting complex information and for examining empirically how the information is mentally encoded and stored, which pieces of information people understand and which ones they remember. Here we can draw in particular on the many studies in the context of medical information and risk communication, although the focus there has tended to be on the communication of risks (e.g., Fischhoff, 1987). We also need to study how information about benefits is mentally represented and used. And we need to study how the different kinds of uncertainties in factual data can be communicated efficiently (e.g., Lipshitz, 1997). Otherwise increasing information will only increase clients´ feelings of helplessness. We need to study when and how consultants should provide standards for comparison, e.g., how the majority of people or how reference groups weigh the relevant goals, how they evaluate the available options, and how people view situations in hindsight. In situations that are new and unique, such comparative information might be an important aid to thinking about goals and values and preferences.

"Some intermediate reflections"

Thinking about the Advice Giving and Taking perspective has reminded me of a few aspects of decision research which we sometimes tend to forget. The first point is that we need to be wary of proposing decision analysis - in its pure or a weaker form - as the one and only prescriptive methodology for solving decision problems. We need to know what the conditions are for a successful and justifiable application, and we need to make sure that these conditions are met in the problem we are dealing with. Decision analysis is a useful tool when the consultant is only a procedural analyst, helping clients "raise their consciousness" and "discover" or "construct" their preferences. But decision analysis is of rather limited use when consultants are also experts in the subject-matter, when relevant information can not reasonably be quantified, and when clients are unable to understand or unwilling to accept the rationale of decision analysis. Given these conditions, we need to look for an alternative methodology - which does not mean throwing away all the concepts and procedures of decision analysis.

Another point is that we should see the various descriptive theories and models of decision behavior as approaches that are valid only for certain categories of situations and domains. They are complementary and not mutually exclusive. We all too often overgeneralize the validity of our theories to the grand world and do not
examine whether they might only be valid in small worlds with very specific conditions or with very specific populations. A lottery type theory is obviously well suited for describing behavior in some situations, but a recognition type theory, a matching type theory, a story type theory and other theories might be better approaches for describing behavior in other situations. We need to put more effort into specifying the conditions under which our theories apply.

My third point concerns the significance of people’s explicit, or at least explicable, ideas of their own decision making processes. Of course, the value of a theory for explaining decision behavior does not depend on whether people believe that they are behaving in the way described in the theory. We do not hold that people can inform us about their perceptual processes, their construction of mental models, or their recall and recognition strategies. Why should we rely on people’s intuitions about their decision processes? Basically, we are indifferent about what people believe they are doing. It might please us if people talk in terms of our theories, but that is not significant for the power of the theory. However, in the situations I have discussed, I think it is indeed important that people can think and talk explicitly in terms of the decision making model that the consultant applies; at least, clients should not reject the model. In situations of advice giving and taking, consultant and client must operate within a shared model of decision making (Phillips, 1984) if they want to communicate and cooperate effectively.

"Summary and conclusions"

To summarize, these are the major features of the model:

Expertise: Consultants are the experts in all respects, and clients expect them to be experts. Consultants and clients have different identities associated with different behaviors and expectations of behavior.

Decision strategy of consultants: The consultant does not develop a decision jointly with the client, but uses prestored knowledge and the information gathered during their meeting to identify an appropriate option. Consultants’ strategy is matching options to clients rather than analysing the consequences of many alternatives.

Advice giving strategy of consultants: Consultants offer one option as a piece of advice, and justify the recommendation with arguments. Consultants and clients discuss a single option rather than multiple options.

Advice taking strategy of clients: Clients evaluate the consultant’s advice, and then reject or accept it. Both the quality of the recommended option and trust and credibility determine the final decision.

Social contextualization: The interaction between consultant and client does not only depend on the individuals involved but also on legal, institutional, and political regulations.

The ultimate question is, of course: how can consultants help clients make the decision that is best for them, and how can they help them make it in a way that is best for them. My thesis is that this cannot be achieved by pretending that clients have a competence and motivation which in reality most of them do not have, and which they know they do not have. The Joint-Decision-Making approach proposes that consultants help clients to understand all relevant information, to understand the structure of their problem, to trade-off values, and then calculate the expected values of the available options. The Advice-Giving&Taking approach proposes that consultants make a justifiable recommendation regarding the decision and help clients to understand the recommended option; and that clients ask for advice, examine the advised option, ask other people, and take a look at the person who gave that recommendation.

The AG&T approach neither cuts back the rights of clients nor reduces the liability and responsibility of consultants. Clients have every right to be comprehensively informed and to make their independent decision. The approach also leaves clients every opportunity to ask for information and to make decisions against advice they are given without having to fear negative sanctions.

Starting from a realistic conception we can define realistic goals for an optimization of advice giving and taking. This is a wide field for decision research and the application of decision research. More and more often people will have to make important decisions for themselves about medical treatment, about genetic diagnosis, about financial investments, and similar issues. The empirical analysis of the processes of advice giving and taking, the design of appropriate social and legal regulations, the training and supervision of consultants, the evaluation and examination of consultants’ behavior in cases of liability charges - all these are interesting, useful, and profitable tasks.
References