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Behavioural Decision Making and Suggestional Processes

Abstract

Common features between the domains of behavioural decision making and suggestional processes are discussed. These features are allocated in two aspects. First, behavioural decision making and suggestional processes are traditionally considered to provoke inadequate human behaviour. In this article arguments are put forward against this interpretation: Actions induced by non-rational decisions and / or by suggestional processes often have adaptive functions. Second, two common thematic issues are discussed ((1) utility functions in behavioural decision making, (2) ambiguity avoidance) that could be investigated empirically within an integrated framework of behavioural decision making and suggestional processes.

Key words: Psychology, Rationality, Behavioural decision making, Suggestional processes, Philosophy of decision sciences

1. Introduction

In the title of this article two fields of psychological research are mentioned that seem to be completely different: behavioural decision making (BDM) and Suggestional Processes (SP). Both concepts are psychological. Consequently, they explain and predict individual behaviour. Nevertheless there are hardly any research projects that consider results and literature from both fields. The main purpose of this article is to outline the common aspects. Two links will be claimed: The first affects the predominant evaluation of both fields: They are often considered in a pessimistic way. The second link affects the overlapping contents of these two domains.

2. Suggestional processes and behavioural decision making are judged pessimistically

My thesis is that both fields of research are usually considered in a pessimistic way. In order to prove this, I will try to point this out by analyzing the predominant perspectives on BDM and SP. I will begin to confirm my thesis regarding of the domain of BDM and I will continue with SP in the next paragraph..

2.1 Behavioural Decision Making

BDM refers to the actual decision making of people. How people *should decide* is a topic of normative decision making, behavioural decision making is about how people actually *do decide*. In everyday-life these decisions often deviate from normatively correct decisions. Normatively correct decisions are qualified after applying a yardstick which is accepted according to the state of the art. The most acknowledged yardstick is to calculate the subjective *expected utility* of each option (SEU, Edwards, 1954). This arithmetic procedure can be written as follows:

$$SEU_i = \sum_{j=1}^n p_j u_j$$

The subjective *expected utility* for a given option i is calculated by weighing the utilities u of every option's consequences (from j to n) with their probabilities p . Summing up these products yield the subjective probability for option i . It is normatively correct to choose the option connected with the highest expected utility. In fact, people do not opt for this normatively correct option. They decide to prefer less optimal choices. A lot of these deviations from the SEU-principle are not random, they are systematic: This means that people use another yardstick than the expected utility scale. For example, many of these deviations from normative decision making are due to a cost-benefit-tradeoff between negative feelings about investing time and the result of the decision: Imagine you arrive at the station just a few minutes before your train departs. You go to the station's book store to buy a book for the train journey. After a few glances you are likely to buy a book on a topic which interests you at a reasonable price. It is very likely that this book store sells a lot of books on a more interesting topic at the same or even lower price. But you accept a suboptimal option because you do not spend enough time on integrating and calculating all the information necessary to find the optimal book.

As a normative decision analyst you have to be **pessimistic** about this outcome. But let us have a look at the aspect of ecological validity. Identifying the optimal instead of one suboptimal book would mean to invest time and to miss the train, which means a loss of time and probably even money. So you prefer a book which meets your requirements although there are probably better options. Simon called this behavior the principle of *satisficing*. In our example you do not concentrate on the single decision problem finding a book but if you are concerned about effective time management for the whole day, looking for the optimal book would mean to organize your travel itinerary in an ineffective

manner. In this context I would like to line out the arguments of the British philosopher Jon Elster. He uses the metaphor of Ulysses and the Sirens to analyze this behaviour (Elster, 1979). Ulysses knew that he had to pass the the Sirens who lured sailors into coming closer. This inevitably meant that their ships got wrecked because of dangerous cliffs. Ulysses anticipated being attracted by the Sirens and steering his ship closer to them by the time he reached their place. So he decided to make a rational pre-commitment. Ulysses had his hands tied against the ship's mast in order to prevent him from changing his ship's course and thus going into the dangerous Sirens' waters. What have this metaphor and our example of buying a book in common? In both cases an essential goal to be reached is anticipated. In order to fulfil the goal's requirements (reaching the train or passing the sirens) a not rational behavior is performed earlier (not choosing the optimal book, having one's hands tied against the mast). Consequently, Ellsberg (1979) and Simon (1978) claim that humans are maximizers in general although they behave locally inconsistent in single situations.

In the early years of decision research the normative, pessimistic perspective on human decision making was predominant. Not choosing the optimal option was regarded to be faulty in general. In the early 80s there was a shift to an **optimistic** perspective. According to this view choosing a non-optimal option does not necessarily mean to behave inadequately (cp. the book store example in the above paragraph). The arguments between the advocats of the pessimistic and the optimistic view are outlined by Jungermann (1986), who characterizes these two perspectives as *two camps on rationality*. According to optimists' view suboptimal decision making is often more functional in everyday-life than normatively correct decision making. And in the field of behavioral decision making this optimistic view is nowadays is prominent than the pessimistic one.

2.2 Suggestional processes

SP usually were and still are considered to be negative. Within this domain the pessimistic view is dominant. Mankind is considered to be better off if it resists suggestional processes. This perspective is not surprising at all: Let us have a look at the characteristics of a definition for suggestive phenomena according to Gheorghiu (1996): *Suggestive phenomena can modify existing feelings, judgements and behaviour or initiate new psychological processes. Other possible reactions are suppressed.* These features of suggestion contradict the classical ideas of the period of enlightenment. Thereafter human are capable of behaving rationally. Often they behave irrationally because their „true“ judgements are biased by suggestions. The sources of these modifications and initiations are often outside the individual, they reflect an influence from other persons. Even if in a given situation a third person is not involved, the modification of feelings, judgements and behaviour might be due to believes and values adopted previously during socialization. Suppressing other possible reactions results in a loss of degrees of freedom, which also seems to be an undesirable outcome. Gheorghiu (1996, 2000a) argues that suggestional processes can have positive adaptive functions. One of these affects coping with destabilizing tendencies. If a dangerous or emotionally stressing situation occurs, suggestional processes can initiate defense-mechanisms. Another positive function is to allow acting in a complex environment. In situations that are completely unstructured, suggestional processes can suggest which option to choose. The problem to buy a book at the station is an example, though it is of course quite a harmless situation. A suggestion might be to take a book which is on the bestsellers‘ shelf. Of course the buyer knows that getting on the bestsellers‘ list is not only a matter of good literature but of social artefacts. Nevertheless, obviously people who bought this book are recommending it for some reason. So the buyer’s suggestion also proposes that he will not regret the purchase as well. Still there is one big difference in this respect between the domain of BDM and suggestion. The shift to a more optimistic view in the field of decision making was initiated by Simon (1954) more than 40 years ago and became popular in behaviour orientated business science within the last two decades (Selten, 1978; Simon, 1978; Thaler, 1980; Hogarth & Reder, 1986; Johnson, 1989)¹, whereas with regard to the SP’s domain the pessimistic and skeptic view is still predominant (Gheorghiu, 2000b). But it is both very likely and desirable (arguments are provided by Gheorghiu, 1989) that there will be a shift to a more optimistic perspective in the near future.

From a skeptical perspective one might argue that the promotion an optimistic view on non-rational behaviour in the domain of SP (as well as in BDM) interferes with the goal to do research which is in line with scientific principles. The advocats who prefer the pessimistic view on non-rational behavior make the same analytic mistake regardless whether it is in the domain of decisions or suggestions. In both fields human behaviour is regarded to be ineffective, the difference between optimal and factual performance is a bias which is attributed to people. The advocats of the optimistic camp check whether the bias is in research². This means that the yardstick with which performance is measured is not the same yardstick which is relevant in everyday life. A classical example of applying a wrong yardstick in psychological research is demonstrated in figure 1.

insert figure 1 about here

3. Common issues of BDM and SP

The second topic of this paper refers to the question which phenomena are common issues of both domains. Some recent papers already researched a construct known from decision psychology within the context of suggestion: Fiedler et al. (2000) and Pohl (2000) report on their experiments in which they tested whether there is an effect of suggestional processes on applying the anchoring and adjustment heuristic (Tversky & Kahneman, 1974). In my paper I will only mention two decision psychological constructs as possible candidates for integration with research on suggestional processes: value function and ambiguity avoidance. As the articles of Fiedler et al. and Pohl prove there are other common topics as well. But I will only discuss value function and ambiguity avoidance because they are central aspects of decision psychology.

insert figure 2 about here

3.1 Value function

The value-function is part of the prospect theory developed by Kahneman & Tversky (1979). Prospect theory is the most prominent theory of behavioural decision making. It explains and predicts human decision behaviour. In order to achieve this, prospect theory modifies the SEU-theory in some aspects. One aspect affects the value function which is

shown in figure 2: The x-dimension represents the „real value“ of an option, e. g. a certain amount of money. On the right are the gains, on the left the losses. The y-dimension represents the subjective weighing for this value made by the individual who has to make a decision.

The implications of this function are intuitively logical. Two million dollars are twice as much as one million dollar. But you do not appreciate two million dollars twice as much. That is also the reason why christmas gifts are usually not wrapped together into one package, the summed up enjoyment of all small packages is greater than the enjoyment of a single big package. Consequently the shape of the utility function is decelerated. The second implication of this function is that negative outcomes are weighed more negatively than positive outcomes positively. So you feel more regret after losing 100 dollars than enjoyment after winning 100 dollars.

But what can be the function of research on suggestion in this context? The problem of the value function is that it is to some extent immune against falsification. Even though the shape of this function has been replicated numerous times, you cannot predict two features. One feature is the intersection of the x- and y-axis. The difference between a gain and a loss is not defined by the sign of the value. Imagine you used to receive 100 dollars on your birthday from your grandmother in the last years. This year you only get 50 dollars. Even though you have got now an additional 50 dollars more, you experience it as a loss because you took 100 dollars for granted. Your subjective point of reference is not 50, it is 100 dollars. The second feature you cannot predict is the scaling of the x-dimension. Suppose you want to predict the subjective value of 100 and 200 dollars. If you are lucky your test subject is not too wealthy. Then you can predict that 200 dollars are not twice as much valued as 100 dollars. If the subject is richer, he values 200 dollars about twice as much as 100 dollars. This is because close at the intersection the value function is linear. Suggestion research can help to predict the subjective point of reference and the scaling.

These aspects - pushing the reference point and stretching the scale units - are two important factors of efficient advertising, manipulating the point of reference and the scaling. Almost all of the sales techniques described in the well known book *Influence* by Cialdini (1993) can be described in terms of the value function. Cialdinis examples of suggestive influences can be interpreted in terms of pushing the point of reference or

stretching or shortening the units of the scale. If a salesman offers an item at a reduced price he intends to push the client's reference point that defines an outcome as a loss or a gain. As an example buying an item for 100 dollars is a loss of money for you. But if it is offered to you at a price of 50 dollars instead of 100 dollars you have to spend 50 dollars of your personal income. But you can personally frame this purchasing as a gain of 50 dollars. If you express it in terms of the value function (see figure 2) buying an item at a reduced price is not a loss that is located in the left part of the x-dimension but a gain, for which you are willing to pay. Pretending that an item is short in supply is another promotion trick. Applying this technique means that the units on the x-axis are stretched to the right. The fact that you own this item and others does not add to its value. This tendency is supported by the negative value function for losses. If you do not get the item because it is already out of supply you experience this as a loss. This loss is valued more negatively than the rational positive evaluation of possessing this item implies. In all, finally you are willing to pay a high price for the product as long as it is still available.

3.2 Ambiguity avoidance

Ambiguity means that you know that important information is missing. For some reason it is not possible to get the information. Within research of decision making coping with ambiguity is an important topic. We know that people tend to prefer less ambiguous situations even if these situations are from a normatively perspective of minor or the same value. Probably the best known empirical investigation confirming this behaviour was performed by Ellsberg (1961). He used a decision task as follows: Imagine that you win five dollars if you select randomly a white ball out of a bowl. There are two bowls. Bowl A contains 50 white balls and 50 red balls. The other bowl B contains 100 balls. You do not know how many of them are red and how many are white. Now you have to decide on this scale what you will do. Rationally you should feel indifferent between the non-ambiguous bowl A and the ambiguous bowl B. Of course you do not know the number of white balls in bowl B. But rationally you are expected to make a „conservative guess“. This would imply that you assume the same numbers as in bowl A: 50 white and 50 red balls. But most people tend to prefer bowl A, that is why this behaviour is called ambiguity avoidance.

Gheorghiu (1996) proposes that suggestional processes help the individual to cope with ambiguity. Thereafter suggestional processes reduce ambiguity and allow to react though

the ambiguity of the situation has not yet been solved. The question arises whether there is a correlation between ambiguity avoidance as demonstrated in the experiment by Ellsberg.³

4. Conclusion

In this talk similarities between the domains of behavioural decision making and suggestional processes were discussed. There is no doubt that both disciplines were regarded not to be serious scientific disciplines. Also it is evident that both domains address to some extent the same constructs. Nevertheless, it has not yet been empirically tested whether there is a strong correlation between behaviour or judgements measured within a decision psychological context and data measured on basis of a suggestional paradigm. In this paper an attempt has been made to raise interest for the relationship between the two domains and to give some input for empirical research.

¹ This trend has also been acknowledged by the Nobel Prize Committee. Two scientists, who promoted new rationality concepts received this award in 1978 (Herbert Simon) and in 1994 (Reinhard Selten).

² The expressions „bias in people“ and „bias in research“ are used by Jungermann (1986) to characterize the pessimistic and the optimistic view in the domain of BDM.

³ Right now experiments are done by the author to examine the relationship between behaviour shown in the Ellsberg task and in motor suggestibility exercises.

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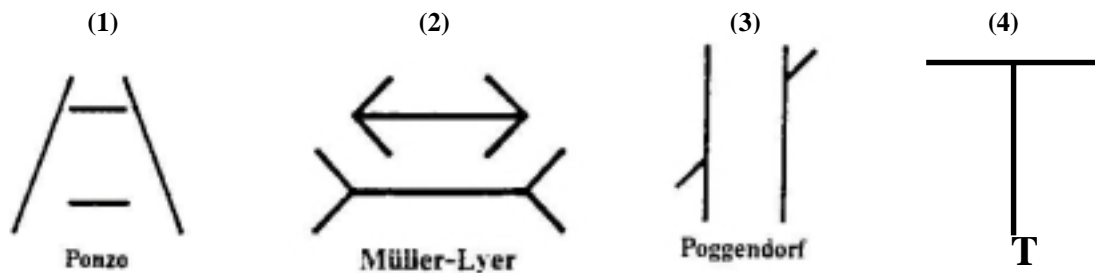
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figures:

figure 1: Visualization of the pessimistic and optimistic view

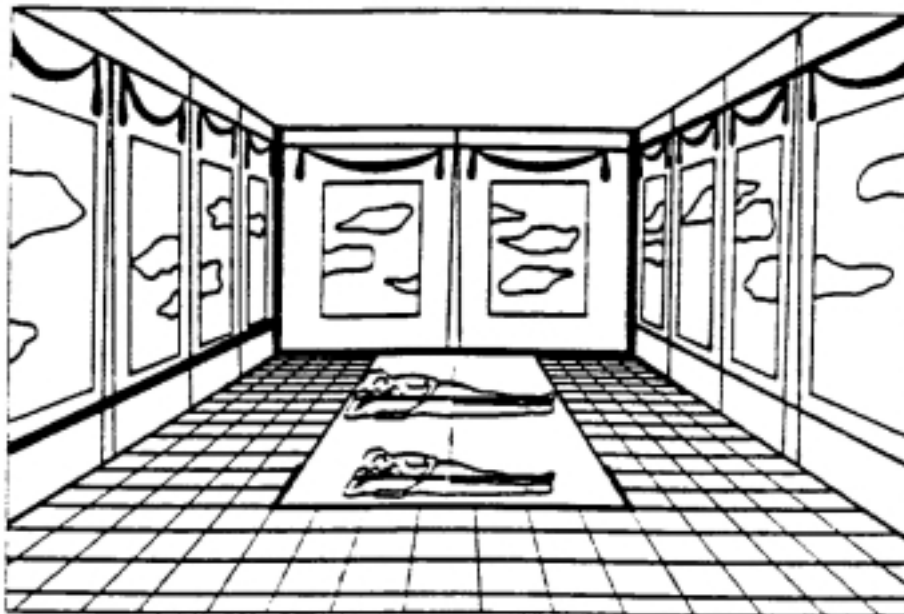
figure 2: Value function in prospect theory

Not only between the domains of BDM and SP a debate can be claimed between a pessimistic view attributing biases to people and an optimistic perspective attributing biases to research. In order to convince the reader I demonstrate this controversy for the domain of optical illusions. I do this for two reasons. First, the difference between the pessimistic and the optimistic position is very essential for this paper. Second, in respect of optical illusions this difference is easier to demonstrate because optical stimuli can be applied which is not possible in the fields of BDM and SP.



Classical optical illusions also suggest that human perception is faulty. Four of them are presented above. People make systematic mistakes when they judge e.g. the length of the two horizontal lines in fig. 1 (Ponzo-illusion). The lower one is perceived to be shorter; in fact both lines are of the same length. Consequently one could conclude pessimistically that human perception is faulty. This illusion as well as others is displayed on two-dimensional paper. But people live in three-dimensional spaces as shown below in fig. 5. Two women can be seen. Although they are of the same length in the drawing you conclude that the lower one is not as tall as the upper one who is further away. So provided that you transfer fig. 1 into a three-dimensional context it makes sense to judge the upper line to be longer than the lower one. Fig. 2 (Mueller-Lyer-illusion) suggests that the lower line is longer than the upper one. In fact they are of the same length, like the front edge of the carpet and the line indicating the transition from the floor to the room's rear wall in fig. 5. But in reality this line cannot be shorter than the carpet's edge, otherwise the carpet would not fit into the room. In fig. 3 (Poggendorf-illusion) the lower left and upper right line seem to be vertically displaced, in fact they are not. In the three-dimensional room (fig. 5) the lines indicating the transition floor/left wall and ceiling/right wall are also not displaced, but in fact the floor is of course lower than the ceiling. The vertical line in fig. 4 (T-illusion) seems to be longer than the horizontal one though they have same length. In fig. 5 the rear edge of the carpet is of the same length as the carpet's middle line stretching from the rear to the front edge, in reality the latter one is of course longer.

(5)



Conclusion: Figures 1 to 4 suggest that people's perception is biased (pessimistic view). In fact research is biased because of its implication that people have to orientate within two dimensional space (optimistic view).

figure 1: Visualization of the pessimistic and optimistic view (fig. 1 - 3 and 5 from Wolf, 2000)

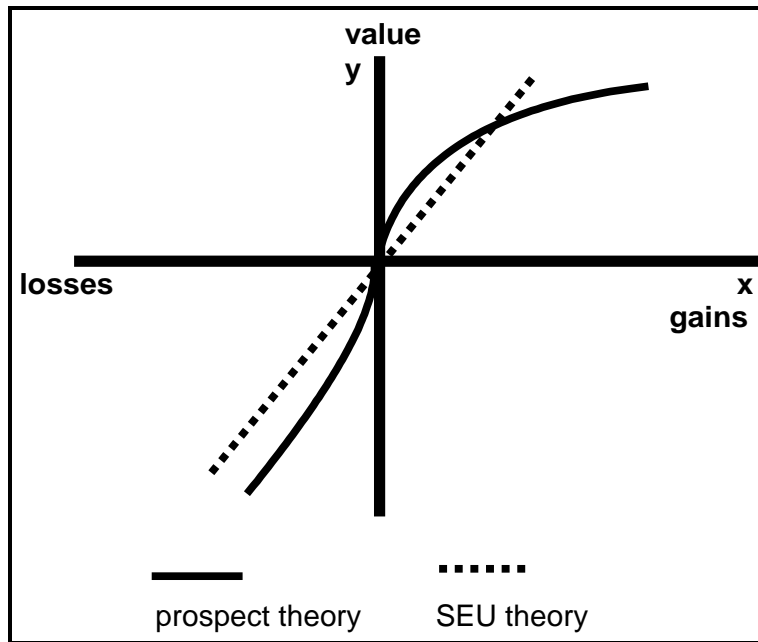


figure 2: Value function in prospect theory

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