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ABSTRACT

The explanatory cornerstone of most currently viable social theories is a strict cost-gain assumption. The clearest formal explication of this view is contained in subjective expected utility models (SEU), in which individuals are assumed to scale their subjective likelihood estimates of decisional consequences and the personalistic worth or utility of each outcome in a choice set. In this study, subjects were trained on assumptionally satisfactory probability and utility scales, and asked to play a central actor in a number of uncertain decision situations modified to include numerical estimates of decisional components. Response format (probability or utility estimation), sex of subjects, order of items, and sex role of items (male or female) were varied in a repeated measures design. Results indicated subjects made SEU-consistent rational decisions over items, but that males responding to female-appropriate decision situations did not. The results supported the validity of SEU models as a base for social theory and replicated two earlier experiments. (Author/PC)

Decisions Under Uncertainty III: Rationality Issues, Sex Stereotypes, and Sex Role Appropriateness

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Regardless of the theoretical phraseology enlisted, the explanatory cornerstone of most currently viable social theories is a strict cost-gain assumption. The clearest formal explication of this view is contained in subjective expected utility models (SEU), in which individuals are assumed to scale their subjective likelihood estimates of decisional consequences and the personalistic worth or utility of each outcome in a choice set. SEU contends that people behave as if they weighted each outcome's utility by its likelihood, summed these computations for each decisional alternative, and selected that for which the SEU was maximal.

Unfortunately, most research on the validity of SEU for explaining even simple choice acts shows dubious results at best (Bonoma, 1973). Whether the adequacy of SEU-like models is assessed regarding humans' ability to meet formal SEU assumptional requirements, the model's generality, or even on operational grounds, SEU has often been found to be demonstrably inadequate as either a theoretical model or operationalizable research aid. Bonoma and Schlenker (1973), however, point out that most previous assessments of SEU-like notions (a) employ psychophysical methods in which decision makers' subjective scale values are inferred from choices, and (b) concern themselves consequently with assessing subjects' ability to scale alternatives in a psychometrically-satisfying fashion. They argue that a more theoretically salient question concerns whether subjects' actual choices (regardless of inability to scale alternatives satisfactorily) support or disconfirm SEU-like hypotheses. Bonoma and Schlenker devised a methodology which simultaneously redirects the focus of choice studies from psychometrics toward central assertions of SEU-like models, circumvents the usual operational problems encountered in studying choice behavior, and allows strong tests of traditional assessment hypotheses. The Kogan-Wallach Choice Dilemmas instrument was modified by defining independent, linear, and otherwise formally satisfactory subjective probability and utility scales, and training subjects in their meaning. Subjects were presented with decision situations in which various points on these scales represented a role-played actor's decisional components. Subjects estimated the lowest probability or utility level for the successful occurrence of an uncertain alternative which would lead them to choose that choice over a more certain act. SEU models make the strong prediction that it should not matter which response subjects supply--resultant SEU computations should be equivalent. Additionally, decision makers of both sexes role played actors of male or female sex. From 2 experiments, results showed (1) subjects supplied responses which, when entered into SEU equations, "just-maximized" the SEU of the uncertain over certain alternatives; (2) the radically different psychological nature of the response estimation treatment elicited equivalent patterns of choice; (3) subjects became increasingly "rational" with increases in decisional experience; (4) the role appropriateness of the decision situations interacted with sex of subjects to predict decision styles.

The obvious implications of these findings for the study of choice and for social psychology bear further investigation. The purpose of this experiment was to assess whether the unique order in which the decision situations were presented subjects might have artifactually produced their SEU-consistent choice patterns, and to attempt an independent replication of the Bonoma and Schlenker findings in a single design. Males and females responded to one of four forms [probability estimate, male (form P) or female (form PF); utility estimate, male (form U) or female (form UF)] of the "Opinion Questionnaire" in which items were presented in the original or in a reversed order. Each subject took both order levels in two separate administrations, creating a 2 (sex) x 4 (form) x 2 (order) x 7 (decision situations) repeated measures design.

Method

Subjects and Procedure

One hundred three subjects were recruited from University of Illinois at Chicago Circle, and participated to partially fulfill a psychology course requirement. Eight subjects were deleted; the remaining 50 females and 45 males were randomly assigned to design cells. Cell n's ranged from 10-14.

General instructions to the Opinion Questionnaire paralleled those to the Choice Dilemmas (Kogan and Wallach, 1964), and explained that the Questionnaire consisted of a series of decisions which might occur in real life. The first alternative in each two-choice problem was always the less attractive, but completely certain decisional possibility. Subjects were told that each dilemma would initially be described in "everyday language" (i.e., as they appear on the Choice Dilemmas), but that "a GAIN-LOSS SUMMARY statement supplements the everyday language presentation." Subsections of the instructions informed subjects about the nature and meaning of the numerical estimates provided in each gain-loss summary by defining two arbitrary scales, one called "Satisfaction Units" (SUs) and the other, "Odds."

SUs were represented as a numerical estimate of decision outcome attractiveness. Subjects were told they could think of SUs as analogous to money, but that the SUs notion included all possible physical, psychological, emotional, financial, and social satisfactions and dissatisfactions associated with any decisional outcome. The scale was both end- and center-anchored: the most or ultimate satisfaction any actor could achieve from a decision (e.g., bliss) was +100 SUs; the ultimate satisfaction (e.g., death), -100 SUs. Zero was defined as an indifference point. It was nontechnically explained by way of examples that the SUs scale possessed all the usual properties of a full ratio scale. A section on Odds explained that not all decisions invariably lead to specific consequences. Subjects were told that estimates of the probability with which any particular consequence would follow an act could vary from 0 chances in 10 to 10 in 10 (0.0-1.0 subjective probability). It was emphasized that probabilities within any alternative sum to 1.

Subjects were told that their task "will be to provide the [lowest possible Odds (forms P, PF)/lowest number of SUs (forms U, UF)] which you, acting as the central person, would demand before deciding to try the more attractive alternative." Further instructions noted that the SUs and Odds estimates provided in each situation were to be taken as subjects' own best estimate of the situation, and that there were no "correct" answers on the task. Subjects were not instructed at any time how to use the scaled values in each problem--only to "take them into account." A pre-experimental quiz was used to check understanding of the instructions; post-experimental measures assessed homogeneity in subjects' mathematical backgrounds.

Forms P, U, PF and UF were constructed in identical manners, except that the instructions and situations had subjects estimate the minimum number of SUs on U and UF, and make an Odds judgment on P and PF. Additionally, the central decision maker was either represented as a male (P, U) or female (PF, UF). Only 7 of the 12 original Choice Dilemmas were adaptable; utilities and probabilities (except for the dependent variable) were assigned in a systematically varied and intuitive reasonable manner (see Bonoma and Schlenker, 1973). The response scale for probability estimate forms was from 0 in 0 to 10 in 10 odds in steps of 1 chance; for forms U and UF, they were 0 SUs to +100 SUs in 10 SU steps. The dependent variable was the direction and degree of deviation (SEU_D) of the SEU generated for each uncertain decisional alternative using subjects' responses as part of the decision equation as compared to the SEU for the certain alternative on each situation. Subjects completed two administrations of the same form of the Questionnaire three weeks apart in both the original (1-7) order and

a reversed (7-1) order. Subjects were run in groups of 10-15, and time of administration of the two orders was counterbalanced.

Results and Discussion

SEU_D responses were analyzed by an unweighted means 2 x 4 x 2 x 7 repeated measures ANOVA. Major results showed that males ($\bar{X}$ = 7.3) deviated marginally more than females in their SEU estimates overall ($\bar{X}$ = 2.1; F = 3.55, df = 1,87, $p < .08$), but that this effect was primarily produced by a Questionnaire form by sex (F = 3.2, df = 3,87, $p < .05$) interaction replicating Bonoma and Schlenker. Specifically, males and females were equally "rational" (range = -2 to 5 SEU_D; not different from 0 or each other) in their decisions except in the male sex, form PF cell ($\bar{X}$ = 17.3, $p < .01$). In this female-relevant probability estimate condition, males deviated greatly in the conservative direction. No main effect of form of Questionnaire was disclosed, replicating earlier studies. A significant trials effect (F = 2.75, df = 6,522, $p < .05$) generally replicated Bonoma and Schlenker's finding that subjects quickly "center" on the SEU-consistent just maximal decision solution in only a few situations No main effects of order of items were found (all $F < 1$); the one significant interaction involving order was artifactually produced by counterbalancing time of administration of order 1 or 2 across cells.

In short, the results closely replicate as well as extend the earlier investigations. (a) When measured with the Opinion Questionnaire subjects make decisions in an SEU-consistent fashion when they are provided the scales to do so, even in the absence of information about how to do so. (b) Radically different psychological estimation tasks produce equivalent SEU estimates, and the major facilitator of rational decision making is experience. (c) Male and female subjects differ primarily as they respond to differing sex role orientations--females are equally adept at male and female role-appropriate problems, while males deviate greatly from rationality under female role appropriate situations, especially when a probability-estimate format is employed. The stereotyping of feminine "irrationality" in decision making is questioned by the latter results. No effects of order of items were disclosed, supporting Bonoma and Schlenker's ancillary analyses and indicating that experience, not order of items, is the main determinant of SEU-consistent patterns of choice on the Opinion Questionnaire.

References

Bonoma, T. V. On the social psychology of decisions under uncertainty: Cost-gain models and subjective expected utility variants. Unpublished manuscript, Institute for Juvenile Research, 1973.

Bonoma, T. V., & Schlenker, B. R. On the adequacy of formal models of choice behavior: Effects of response mode, sex, and sex role on decision making. Unpublished manuscript, Institute for Juvenile Research, 1973.

Kogan, N., & Wallach, M. A. Risk taking: A study in cognition and personality. New York: Holt, 1964.

Form P

OPINION QUESTIONNAIRE

NAME_____ DATE_____ AGE_____ SEX M or F

LOCAL PHONE_____ RACE BLACK CAUC. ORIENTAL OTHER

Instructions

On the following pages, you will find a series of situations which might be likely to occur in everyday life. The central person in each situation is faced with a choice between two alternative courses of action, which we might call X and Y. Alternative X is always somewhat more attractive and desirable to the central actor than Alternative Y, but the odds or probability of attaining X is less than that of attaining Y. Your task will be to supply the lowest possible odds at which you, acting as the decision maker in each problem, would demand before trying to attain the more desirable decision alternative. These relationships and your task are more fully explained in the following sections of the Instructions.

Attractiveness and Odds

Each of the situations with which you will be confronted is described initially in "everyday language." For example, the following paragraph represents what you might see in a sample situation:

> SAMPLE: Dr. D, a physician, has just successfully completed his internship at a large metropolitan hospital. The Director of Medical Services, very much impressed with Dr. D's progress, has offered him one of the two staff residencies available in the hospital. The resident's position would provide Dr. D with a small, but livable stipend as well as the opportunity to continue his learnings. On the other hand, his already-great familiarity with the techniques of the staff leads him to question whether there is anything else he can gain by staying, and the two-year residency period seems like a rather long time to commit himself at this stage of his development. While talking to another staff physician, Dr. D is offered the chance to buy a private practice of his own, a venture which might lead to his financial and personal satisfaction early in life. However, to accomplish this, he would need to take out a rather large loan, practice medicine for long and unstructured hours, and take the ever-present risk of personal failure.

Now, it is clear from our sample situation that Dr. D is faced with a decision between two alternatives. He can either stay at the hospital or else start a private practice. Each of these alternatives has certain financial, material, psychological, and emotional consequences (gains and losses) associated with it. Further, each consequence of a decision is more or less probable in terms of odds of attainment or success. This is where the GAIN-LOSS SUMMARY statement comes into the picture.

The GAIN-LOSS SUMMARY statement is presented below each situation and supplements the "everyday language" presentation of the problem by providing numerical estimates of both the attractiveness and odds of the various outcomes associated with each decision alternative.

Attractiveness

The amount of satisfaction or dissatisfaction that the central actor in each situation would receive as a consequence of obtaining an outcome associated with one of his decision alternatives is referred to as the outcome's attractiveness. That is, the attractiveness of an alternative is comprised of the amount of satisfaction or dissatisfaction associated with obtaining it. The number of Satisfaction Units (SU's) accruing from the possible choices of the central actor represent the total positive (+) or negative (-) financial, material, psychological and/or emotional satisfaction or dissatisfaction associated with a particular outcome for the actor. For example, in our sample situation, one of Dr. D's alternatives is to stay at the hospital for a 2-year residency. The portion of the GAIN-LOSS SUMMARY statement concerned with the attractiveness of this alternative's outcomes might look something like this:

Alternative 1: Staying at the hospital--

Attractiveness

The provision of a small, livable stipend and the opportunity for further learning is worth +35 SU's to Dr. D; while the familiarity that Dr. D already has with the staff and the 2-year commitment is worth -30 SU's to Dr. D. The total attractiveness of this alternative for Dr. D is +5 SU's.

Note: If it will help you, you can think of SU's as analogous to some material commodity, like money. However, many of the satisfactions or dissatisfactions people experience are not monetary in nature, and are of a more psychological or emotional sort. Clearly, these nonmonetary satisfactions also have a value, and the SU's notion is intended to emphasize to you that, as far as the actor can estimate, these are the sum total of all his satisfactions or dissatisfactions accruing from a given decision and the associated outcome.

Now, when SU's are positive (as in the first part above), the outcome of the decision will bring some satisfaction to the central actor. For the sake of convenience, we will arbitrarily say that the maximum positive SU's any actor can experience is +100; this number represents the most or ultimate satisfaction any possible outcome the actor can think of would bring him in the particular situation presented. Conversely, when SU's are negative (as in the second part above) the outcome will bring dissatisfaction to the central actor. The more negative the SU's, the more dissatisfaction the actor will experience. Again, we will say that the maximum negative SU's any actor can experience is -100; this number represents the most or ultimate dissatisfaction any possible outcome the actor can think of in the situation would bring him. When an SU is zero (0), the actor is assumed to experience neither satifaction nor dissatisfaction with the outcome under consideration and is indifferent to the outcome being achieved or not. Also, for the sake of simplicity we assume that SU's are additive; that is, one positive SU and one positive SU are worth a total of two positive SU's to the actor. Additionally, one positive SU is worth an equal but opposite amount as one negative SU. That is, if an actor's decision might yield him one positive SU and one negative SU, the total attractiveness of that alternative would be 0 total SU's: /(+1 SU)+ (-1 SU) = 0 SU's)/.

Adding up the positive (+35) and negative (-30) SU's associated with Dr. D's possible selection of the alternative of staying at the hospital, it is found that the total SU's associated with staying at the hospital are +5 SU's.

Two further points are relevant here: (1) the same decision alternative (as in the sample above) often has both positive and negative (or zero) SU's associated with it, so take both into account in your estimations; (2) you may not personally agree with the SU's assigned to the relative outcomes from your own perspective, but remember that the SU's represent the central actor's best estimate of his own satisfaction or dissatisfaction, and as such are true for him. So, the GAIN-LOSS SUMMARY for the attractiveness of both alternatives of our sample situation would look like this:

Alternative 1: Staying at the hospital--

Attractiveness

The provision of a small, livable stipend and the opportunity for further learning is worth +35 SU's to Dr. D; while the familiarity that Dr. D already has with the staff and the 2-year commitment is worth -30 SU's to Dr. D. The total attractiveness of this alternative for Dr. D is +5 SU's.

Alternative 2: Starting a private practice--

Attractiveness

The financial and personal satisfaction from successfully starting his own private practice is worth +75 SU's to Dr. D. The financial and personal costs associated with trying a private practice and failing are worth -65 SU's to Dr. D.

Odds

As was mentioned earlier, any decision alternative not only has attractive or unattractive outcomes associated with it, but these outcomes usually are only more or less probable to actually obtain. Therefore, the GAIN-LOSS SUMMARY statement also contains an estimate of the odds or probability that the central actor can achieve the particular outcomes associated with a decision alternative. In the case of Dr. D, the consequences associated with staying at the hospital are certain of being obtained if he chooses that alternative. That is, Dr. D is assured of receiving the residency position and therefore receiving the TOTAL outcomes (+5 SU's) associated with the position--all that he has to do is choose to take that alternative. Thus, there is a 100% chance that he will receive those outcomes if he selects the alternative of staying at the hospital.

In every situation you will encounter below, the first alternative available to the actor is always certain of realization. A little thought will convince you that, when an alternative is certain of realization (100% probable), you can always add the SU's (positive and negative) to achieve a sum of the total worth. However, this is not so with the second alternative of the sample and every other situation below.

Dr. D is not certain of what he will receive if he selects his second alternative, that of starting the private practice. Dr. D could start the private practice and succeed (thereby receiving +75 SU's), or he could start the private practice and fail (thereby receiving -65 SU's). Notice that the two consequences associated with success and failure in Dr. D's second alternative can't be added

together. If Dr. D elects to start a private practice and then succeeds, he will receive +75 SU's only. He will not receive the -65 SU's since these consequences are associated only with selecting alternative two and then failing. Conversely, if Dr. D picks the second alternative but then fails, he will receive -65 SU's only. He will not receive the +75 SU's since these consequences are associated only with selecting alternative two and then succeeding. Assuming that you were Dr. D, you would have to estimate the odds or probability that you would actually succeed in the private practice in order to make your decision. YOUR TASK ON THIS QUESTIONNAIRE WILL BE TO PROVIDE THE LOWEST POSSIBLE ODDS (PROBABILITY) OF SUCCESS WHICH YOU, ACTING AS THE CENTRAL PERSON, WOULD DEMAND BEFORE DECIDING TO TRY THE MORE ATTRACTIVE ALTERNATIVE. In the case of Dr. D, your task would be to provide the lowest possible odds of success which you, taking the place of Dr. D, would demand before deciding to try to start your own private practice. Following the GAIN-LOSS SUMMARY statement, space is provided for you to indicate your estimate of the odds necessary before trying the more attractive alternative in each situation. Below is a complete restatement of the Sample Situation in "everyday language," with the GAIN-LOSS SUMMARY statement, and including your decision task. Read the sample over carefully, and complete it now as if you were actually Dr. D. THERE ARE NO "CORRECT" ANSWERS IN ANY OF THE FOLLOWING SITUATIONS. THIS IS NOT A TEST OF YOUR MATHEMATICAL ABILITY--ANSWERS ARE A MATTER OF OPINION, NOT OF FACT.

SAMPLE SITUATION

Dr. D, a physician, has just successfully completed his internship at a large metropolitan hospital. The Director of Medical Services, very much impressed with Dr. D's progress, has offered him one of the two staff residencies available in the hospital. The resident's position would provide Dr. D with a small, but livable stipend as well as the opportunity to continue his learning. On the other hand, his already-great familiarity with the techniques of the staff leads him to question whether there is anything else he can gain by staying, and the two-year residency period seems like a rather long time to commit himself at this stage of his development. While talking to another staff physician, Dr. D is offered the chance to buy a private practice of his own, a venture which might lead to his financial and personal satisfaction early in life. However, to accomplish this, he would need to take out a rather large loan, practice medicine for long and unstructured hours, and take the ever-present risk of personal failure.

GAIN-LOSS SUMMARY

Alternative 1: Staying at the hospital--

Attractiveness

The provision of a small, livable stipend and the opportunity for further learning is worth +35SU's to Dr. D; while the familiarity Dr. D has with the staff and the 2-year commitment is worth -30SU's to Dr. D. The total attractiveness of this alternative for Dr. D is +5 SU's.

Odds

The chances that Dr. D will receive the residency are 10 in 10.

Alternative 2: Starting a private practice--

Attractiveness

The financial and personal satisfaction from successfully starting his own private practice is worth +75 SU's to Dr. D.
The financial and personal costs associated with trying a private practice and failing is worth -65 SU's to Dr. D.

Odds

?

Consider that you are Dr. D. Listed below are several probabilities or odds that Dr. D's venture into private practice would prove to be a successful endeavor. Please check the lowest probability that you would consider acceptable to make it worthwhile for you, as Dr. D, to go into private practice.

___ The chances are 0 in 10 that the private practice will prove successful.
___ The chances are 1 in 10 that the private practice will prove successful.
___ The chances are 2 in 10 that the private practice will prove successful.
___ The chances are 3 in 10 that the private practice will prove successful.
___ The chances are 4 in 10 that the private practice will prove successful.
___ The chances are 5 in 10 that the private practice will prove successful.
___ The chances are 6 in 10 that the private practice will prove successful.
___ The chances are 7 in 10 that the private practice will prove successful.
___ The chances are 8 in 10 that the private practice will prove successful.
___ The chances are 9 in 10 that the private practice will prove successful.
___ The chances are 10 in 10 that the private practice will prove successful.

TURN THE PAGE WHEN YOU ARE FINISHED.

Questions on the Sample Situation and the Instructions

Below are some questions designed to assess your understanding of the procedure to be followed in this questionnaire. You may refer back to the Instructions or Sample Situation to help you answer the questions. Please complete the questions now, and then signal the experimenter before going any further. He or she will examine your paper and decide whether or not you are ready to continue.

Circle the letter next to the correct answer.

1. What is your task in this experiment?

   a. to take the place of the central actor in each situation, and to provide the lowest acceptable probability you would demand before electing to try the second alternative.

   b. to recommend the best course of action for the central actor to take as if you were an advisor.

   c. to make numerous pointless mathematical calculations

   d. to provide the highest probability you would demand before electing the first alternative.

2. What is a Satisfaction Unit?

   a. a measure of the financial satisfactions or dissatisfactions associated with the consequence of a decision.

   b. a measure of the emotional satisfactions or dissatisfactions associated with the consequence of a decision.

   c. a measure of the psychological satisfactions or dissatisfactions associated with the consequence of a decision.

   d. a measure of the material satisfactions or dissatisfactions associated with the consequence of a decision.

   e. all of the above.

3. Are SU's of the same sign additive?

   a. yes

   b. no

   c. it all depends on what the probabilities are.

4. Are +2 SU's the same as twice +1 SU?

   a. yes

   b. no

5: What does 0 SU mean

a. nothing

b. that the actor is indifferent to whether or not the outcome occurs

c. that the actor is unclear about the various satisfactions or dissatifactions which would accrue from a decision.

6. What are the maximum and minimum SU's attainable by the actor in any given situation?

a. +0 and -100

b. +100 and -0

c. +3 and -7

d. +100 and -100

7. Which of the alternatives in the GAIN-LOSS SUMMARY statement is always certain (100% probable) of occurrence?

a. the first

b. the second

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO.

SITUATION 1

There are 7 situations in all, not including the sample you have just completed. After you have completed the first item, go to the second, and so on to the end. Do not go back to work on previous problems: do not skip any items in the sequence. REMEMBER: Try to place yourself in the position of the central actor in each situation. For all intents and purposes, you are to become that actor, and your choices should represent as far as possible what you think you would do if confronted with the given situations.

Mr. A, an electrical engineer who is married and has one child, has been working for a large electronics corporation since graduating from college five years ago. He is assured of a lifetime job with a modest, though adequate, salary, and liberal pension benefits upon retirement. On the other hand, it is very unlikely that his salary will increase much before he retires. While attending a convention, Mr. A is offered a job with a small, newly founded company which has a highly uncertain future. The new job would pay more to start and would offer the possibility of a share in the ownership if the company survived the competition of the larger firms.

GAIN-LOSS SUMMARY

Alternative 1: Staying with the old job --

Attractiveness

The life-time job, adequate salary, and liberal pension benefits are worth +55 SU's to Mr. A; the lack of room for either financial or personal advancement is worth -45 SU's to Mr. A. The total SU's for staying with the old job is +10 SU's.

Odds

The chances that Mr. A can successfully keep his job are 10 in 10.

Alternative 2: Taking the job with the newly-formed firm --

Attractiveness

The higher pay and share in ownership from the new positions, coupled with the adventure involved, is worth +85 SU's to Mr. A if the company proves successful. The consequences of the company failing; being out of work, having no pension, and the lack of security involved are worth -65 SU's to Mr. A if the company fails.

Odds

?

Consider that you are Mr. A. Listed below are several probabilities or odds that the job with the newly-formed firm will prove successful. Please check the lowest probability that you would consider acceptable to make it worthwhile for you as Mr. A, to take the job with the newly-formed firm.

(Continued on next page)

____ The chances are 0 in 10 that the firm will prove successful.
____ The chances are 1 in 10 that the firm will prove successful.
____ The chances are 2 in 10 that the firm will prove successful.
____ The chances are 3 in 10 that the firm will prove successful.
____ The chances are 4 in 10 that the firm will prove successful.
____ The chances are 5 in 10 that the firm will prove successful.
____ The chances are 6 in 10 that the firm will prove successful.
____ The chances are 7 in 10 that the firm will prove successful.
____ The chances are 8 in 10 that the firm will prove successful.
____ The chances are 9 in 10 that the firm will prove successful.
____ The chances are 10 in 10 that the firm will prove successful.

WHEN YOU HAVE COMPLETED THIS SITUATION, GO ON TO THE NEXT PAGE. DO NOT GO BACK TO THE INSTRUCTIONS OR TO PREVIOUS SITUATIONS. DO NOT TURN THE PAGE UNTIL YOU HAVE COMPLETED THIS SITUATION.

SITUATION 2

Mr. B, a 45-year old accountant, has recently been informed by his physician that he has developed a severe heart ailment. The disease is sufficiently serious to force Mr. B to change many of his strongest life habits -- reducing his work load, drastically changing his diet, giving up favorite leisure-time pursuits. The physician suggests that a delicate medical operation could be attempted which, if successful, would completely relieve the heart condition. But its success could not be assured, and in fact, the operation might prove fatal.

GAIN-LOSS SUMMARY

Alternative 1: Changing his life style and habits --

Attractiveness

The thought of continued, if attenuated life, the avoidance of the anxieties and the dangers of surgery, and the feelings of personal control involved in changing habits to "conquer" his ailment are worth +50 SU's to Mr. B. The reduction of work load, changing his diet, and giving up his leisure-time pursuits necessitated by the heart ailment is worth -55 to Mr. B. The total SU's to Mr. B for changing his life style and habits are -5 SU's.

Odds

The chances that Mr. B's change of life style will enable him to live with his heart ailment successfully are 10 in 10.

Alternative 2: Undergoing surgery to relieve the ailment --

Attractiveness

The success of the delicate operation, allowing continuation of a normal and unrestrained life, is worth +90 SU's to Mr. B.

The failure of the operation, occasioning death, is worth -100 SU's to Mr. B.

Odds

?

Consider that you are Mr. B. Listed below are several probabilities or odds that the operation will prove successful. Please check the lowest probability that you would consider acceptable to make it worthwhile for you, as Mr. B, to undergo surgery for the heart ailment.

____ The chances are 0 in 10 that the operation will prove succesaful.
____ The chances are 1 in 10 that the operation will prove successful.
____ The chances are 2 in 10 that the operation will prove successful.
____ The chances are 3 in 10 that the operation will prove successful.
____ The chances are 4 in 10 that the operation will prove successful.
____ The chances are 5 in 10 that the operation will prove successful.
____ The chances are 6 in 10 that the operation will prove successful.
____ The chances are 7 in 10 that the operation will prove successful.
____ The chances are 8 in 10 that the operation will prove successful.
____ The chances are 9 in 10 that the operation will prove successful.
____ The chances are 10 in 10 that the operation will prove successful.

WHEN YOU HAVE COMPLETED THIS SITUATION, GO ON TO THE NEXT PAGE. DO NOT GO BACK TO THE INSTRUCTIONS OR TO PREVIOUS SITUATIONS. DO NOT TURN THE PAGE UNTIL YOU HAVE COMPLETED THIS SITUATION.

SITUATION 3

Mr. C is president of a light metals corporation in the United States. The corporation is quite prosperous, and has strongly considered the possibilities of business expansion by building an additional plant in a new location. The choice is between building another plant in the U.S., where there would be a certain but moderate return on the initial investment, or building a plant in a foreign country. Lower labor costs and easy access to raw materials in that country would mean a much higher return on the initial investment. On the other hand, there is a history of political instability and revolution in the foreign country under consideration. In fact, the leader of a small minority party is committed to nationalizing, that is, taking over, all foreign investments.

GAIN-LOSS SUMMARY

Alternative 1: Building a plant in the United States --

Attractiveness

The modest return on the investment occasioned by building the plant in the U.S. is worth a total of +20 SU's to Mr. C.

Odds

The chances that the new plant could be built and the return on the investment realized are 10 in 10.

Alternative 2: Building a plant in the foreign country --

Attractiveness

The savings on labor costs and obtaining raw materials, thereby producing much higher company profits, is worth +70 SU's to Mr. C if the plant is not taken over by a revolutionary government.

If the revolutionary foreign government takes power, Mr. C will lose the plant and his investment, yet will have made some profit before the plant is lost. Losing the plant to the foreign government is worth -30 SU's to Mr. C.

Odds

?

Consider that you are Mr. C. Listed below are several probabilities or odds that the foreign government will remain stable and the plant could be built without being taken over. Please check the lowest probability of success that you would consider acceptable to make it worthwhile for you, as Mr. C, to build the plant in the foreign country.

____ The chances are 0 in 10 that the country will remain politically stable.
____ The chances are 1 in 10 that the country will remain politically stable.
____ The chances are 2 in 10 that the country will remain politically stable.
____ The chances are 3 in 10 that the country will remain politically stable.
____ The chances are 4 in 10 that the country will remain politically stable.
____ The chances are 5 in 10 that the country will remain politically stable.
____ The chances are 6 in 10 that the country will remain politically stable.
____ The chances are 7 in 10 that the country will remain politically stable.
____ The chances are 8 in 10 that the country will remain politically stable.
____ The chances are 9 in 10 that the country will remain politically stable.
____ The chances are 10 in 10 that the country will remain politically stable.

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STTUATION 4

Mr. D is currently a college senior who is very eager to pursue graduate study in chemistry leading to the Doctor of Philosophy degree. He has been accepted by both University X and University Y. University X has a world-wide reputation for excellence in chemistry. While a degree from University X would signify outstanding training in this field, the standards are so very rigorous that only a fraction of the degree candidates actually receive the degree. University Y, on the other hand, has much less of a reputation in chemistry, but everyone admitted is awarded the Doctor of Philosophy degree which has much less prestige than the corresponding degree from University X.

GAIN-LOSS SUMMARY

Alternative 1: Attending University Y --

Attractiveness

Because of its lowered reputation in chemistry, receiving a Ph.D. from University Y is worth a total of +15 SU's to Mr. D.

Odds

The chances that Mr. D will receive a Ph.D. from University Y should he choose to go there are 10 in 10.

Alternative 2: Attending University X --

Attractiveness

Successfully completing the work for a Ph.D. at University X and receiving the highly prestigious degree, thereby providing him with excellent job opportunities, is worth +70 SU's to Mr. D.

Attending University X and flunking out of the program, thereby lowering Mr. D's self-esteem, costing him time, money, and effort, and causing him to pursue the degree from the beginning at another University is worth -40 SU's to Mr. D.

Odds

?

Consider that you are Mr. D. Listed below are several probabilities or odds that Mr. D can successfully complete the requirements leading to the Ph.D. degree at University X. Please check the lowest probability that you would consider acceptable to make it worthwhile for you, as Mr. D, to attend University X's graduate program.

_____ The chances are 0 in 10 that Mr. D would receive the Ph.D. from University X.
_____ The chances are 1 in 10 that Mr. D would receive the Ph.D. from University X.
_____ The chances are 2 in 10 that Mr. D would receive the Ph.D. from University X.
_____ The chances are 3 in 10 that Mr. D would receive the Ph.D. from University X.
_____ The chances are 4 in 10 that Mr. D would receive the Ph.D. from University X.
_____ The chances are 5 in 10 that Mr. D would receive the Ph.D. from University X.
_____ The chances are 6 in 10 that Mr. D would receive the Ph.D. from University X.
_____ The chances are 7 in 10 that Mr. D would receive the Ph.D. from University X.
_____ The chances are 8 in 10 that Mr. D would receive the Ph.D. from University X.
_____ The chances are 9 in 10 that Mr. D would receive the Ph.D. from University X.
_____ The chances are 10 in 10 that Mr. D would receive the Ph.D. from University X.

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SITUATION 5

Mr. E is an American captured by the enemy in World War II and placed in a prisoner-of-war camp. Conditions in the camp are quite bad, with long hours of hard physical labor and a barely sufficient diet. After spending several months in this camp, Mr. E notes the possibility of escape by concealing himself in a supply truck that shuttles in and out of the camp. Of course, there is no guarantee that the escape would prove successful. Recapture by the enemy would mean execution.

GAIN-LOSS SUMMARY

Alternative 1: Staying in the camp and not attempting to escape --

Attractiveness

The poor living conditions, the physical labor, and poor diet are worth -45 SU's to Mr. E, while the fact that he will at least remain alive under these conditions is worth +35 SU's to Mr. E. Total SU's to Mr. E for staying in the camp is -10.

Odds

The chances that Mr. E will successfully survive if he stays in camp are 10 in 10.

Alternative 2: Attempting to escape --

Attractiveness

Successfully escaping from the camp and returning home is worth +80 SU's to Mr. E.

Attempting to escape, getting caught by the enemy, and being executed is worth -100 SU's to Mr. E.

Odds

?

Consider that you are Mr. E. Listed below are several probabilities or odds that Mr. E can successfully escape from the prison camp. Please check the lowest probability that you would consider acceptable to make it worthwhile for you, as Mr. E, to attempt an escape.

____ The chances are 0 in 10 that the escape would be successful.
____ The chances are 1 in 10 that the escape would be successful.
____ The chances are 2 in 10 that the escape would be successful.
____ The chances are 3 in 10 that the escape would be successful.
____ The chances are 4 in 10 that the escape would be successful.
____ The chances are 5 in 10 that the escape would be successful.
____ The chances are 6 in 10 that the escape would be successful.
____ The chances are 7 in 10 that the escape would be successful.
____ The chances are 8 in 10 that the escape would be successful.
____ The chances are 9 in 10 that the escape would be successful.
____ The chances are 10 in 10 that the escape would be successful.

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SITUATION 6

Mr. F is a successful businessman who has participated in a number of civic activities of considerable value to the community. Mr. F has been approached by the leaders of his political party as a possible congressional candidate in the next election. Mr. F's party is a minority party in the district, though the party has won occasional elections in the past. Mr. F would like to hold political office, but to do so would involve a serious financial sacrifice, since the party has insufficient campaign funds. He would also have to endure the attacks of his political opponents in a hot campaign.

GAIN-LOSS SUMMARY

Alternative 1: Refusing to run for political office --

Attractiveness

Maintaining his status quo and not risking the financial and personal sacrifices required is worth +10 SU's to Mr. F.

Missing the opportunity to get into politics and do something worthwhile for the community is worth -10 SU's to Mr. F. The total SU's for this alternative is 0.

Odds

The chances are 10 in 10 that Mr. F can receive the outcomes associated with not running for political office.

Alternative 2: Running for political office --

Attractiveness

The personal satisfactions Mr. F would receive if elected, as well as the possibilities for helping the community are worth +50 SU's to Mr. F.

The personal dissatisfaction Mr. F would receive from running for office and being defeated, as well as the damage to his reputation caused by a "hot" campaign, are worth -50 SU's to Mr. F.

Odds

?

Consider that you are Mr. F. Listed below are several probabilities or odds that Mr. F can successfully run for office (get elected). Please check the lowest probability that you would consider acceptable to make it worthwhile for you, as Mr. F, to run for election.

____ The chances are 0 in 10 that the campaign would prove successful.
____ The chances are 1 in 10 that the campaign would prove successful.
____ The chances are 2 in 10 that the campaign would prove successful.
____ The chances are 3 in 10 that the campaign would prove successful.
____ The chances are 4 in 10 that the campaign would prove successful.
____ The chances are 5 in 10 that the campaign would prove successful.
____ The chances are 6 in 10 that the campaign would prove successful.
____ The chances are 7 in 10 that the campaign would prove successful.
____ The chances are 8 in 10 that the campaign would prove successful.
____ The chances are 9 in 10 that the campaign would prove successful.
____ The chances are 10 in 10 that the campaign would prove successful.

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STITUATION 7

Mr. G, a married 30-year-old research physicist, has been given a five-year appointment by a major university laboratory. As he contemplates the next five years, he realizes that he might work on a difficult, long-term problem which, if a solution could be found, would resolve basic scientific issues in the field and bring high scientific honors. If no solution were found, however, Mr. G would have little to show for his five years in the laboratory, and this would make it hard for him to get a good job afterwards. On the other hand, he could, as most of his professional associates are doing, work on a series of short-term problems where solutions would be easier to find, but where the problems are of lesser scientific importance.

GAIN-LOSS SUMMARY

Alternative 1: Concentrating on minor problems with easy solutions --

Attractiveness

Concentrating on problems with easy solutions and publishing minor articles from these works are worth -10 SU's in personal satisfaction to Mr. G; however, it would insure his at least keeping his job, which is worth +15 SU's to Mr. G. In total, concentrating on minor problems is worth +5 SU's to Mr. G.

Odds

The chances are 10 in 10 that Mr. G will actually receive the outcomes associated with concentrating on minor problems.

Alternative 2: Attacking a major scientific problem --

Attractiveness

The personal satisfaction, fame, and fortune which would accrue to Mr. G as a consequence of successfully solving a major scientific problem are worth +80 SU's to him.

The personal dissatisfaction, damage to his ego, and probability that he will be unemployed if he does not find a solution are worth -70 SU's to Mr. G.

Odds

?

Consider that you are Mr. G. Listed below are several probabilities or odds that Mr. G can successfully solve a major scientific problem during his tenure. Please check the lowest probability that you would consider acceptable to make it worthwhile for you, as Mr. G, to attempt to solve a major problem.

____ The chances are 0 in 10 that a long-range effort would prove successful.
____ The chances are 1 in 10 that a long-range effort would prove successful.
____ The chances are 2 in 10 that a long-range effort would prove successful.
____ The chances are 3 in 10 that a long-range effort would prove successful.
____ The chances are 4 in 10 that a long-range effort would prove successful.
____ The chances are 5 in 10 that a long-range effort would prove successful.
____ The chances are 6 in 10 that a long-range effort would prove successful.
____ The chances are 7 in 10 that a long-range effort would prove successful.
____ The chances are 8 in 10 that a long-range effort would prove successful.
____ The chances are 9 in 10 that a long-range effort would prove successful.
____ The chances are 10 in 10 that a long-range effort would prove successful.

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