# Codebook for the Experiment: A Test of Decision Weights for Three-Outcome Gambles, by Diecidue, Wakker, & Zeelenberg

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Variable Group: For the last pilot group of 10 participants everything went well, so we used them in the experiment. Further there were three groups of May 8, two groups of May 9, and a large group of May 16, all 2001.

Variable nr: Our own numbering of participants. These numbers are written by hand in the right-upper corner of page 1 of the questionnaires.

Variable Elcq: The ELucidation Choice Question, i.e. the choice question at the end of the elucidation form. Some answers were “really” missing (e.g. we did not keep the form together with the questionnaire when collecting the data of the winners), coded 99. Several participants simply did not pay attention to this question (there was indeed no incentive to do so), they are coded as 97, “no answer because they were lazy.”

Variable Elcreply: Test question at the end of the elucidation form, asking what amount of money the participants’ choice in Elcq would yield if both stocks would decrease. This variable describes their answer (missing for many, see Elcq).

Variable Elqualty: Describes the quality of Elreply, whether they gave a correct answer, an incorrect answer, had been too lazy to answer, or are really missing. The “too lazy” score can be considered an index of lack of motivation. Details for what is coded as (in)correct, too lazy, etc., are in Appendix 3.

The questions Elcq and Elreply should test if the participants had understood the events, payments, etc., and the original plan was to drop all participants who gave incorrect answers, so who scored incorrect on Elqualty. There was no incentive for answering these questions and, indeed, about half of the participants simply ignored them. Therefore I (Peter Wakker) felt, easily to be convinced otherwise, that this variable was not very informative (other than for motivation). I decided to only drop the participants who gave silly answers (e.g. wrong switches) on the experimental questions and not those that scored incorrect here. I could easily be convinced otherwise.

Variable Ease: Asked after the two learning questions and before p1, and asking how hard or difficult they found these two questions.

Variable awp (AWare of Probability): Like Ease, asked after the two learning questions. Awp asks if they reckoned with how often the three events had happened in the past.

Variable Pmax: Like Ease and Awp, asked after the two learning questions. It asked for which of the three events they consider the Probability MAXimal. (If they don’t answer the rest event then they are not good statisticians!)

Variable sw1 (switch1): Concerns the first real experimental choice question (with the UP event in the best ranking position, (44, 29, 13) as reference gamble, etc.).   
sw1 = 1: they immediately chose the right (+++) gamble and stuck to that.

sw1 = j: they first chose left but switched to right in the jth table in the sequence.

sw1 = 11: they never switched to right and chose left throughout.

Variable swj (j = 2 … 18): Concerns the jth real experimental choice question, otherwise similar to sw1.

Variable sw1: Concerns the 1st learning choice question, at the beginning of the questionnaire, otherwise similar to sw1.

Variable sw2: Concerns the 2nd learning choice question, at the beginning of the questionnaire, otherwise similar to sw1.

Variable swfj (j = 1, 2): Concerns the jth filler question, the first asked after the second (sw2) experimental question, the second after the 8th (sw8) or 9th (sw9) experimental question (depending on the participants); otherwise similar to sw1. Both have a big step of size 30 and small steps of only size 2, so that the +++ option will not dominate the + option in the end and the participants need not necessarily switch choice somewhere.

Variables q1pg … invpg18q: See Appendix 1 (below).

Variable w1ubn: The decision weight calculated from variable sw1. Its name is explained as follows:

w: Weight

1: sw1

u: UP event

b: UP event is rank-ordered as Best

n: Non-collaps

In the label of the variable, “ratio” refers to step-size (how much the +++ payment is increased in the next table) divided by the single-increase (how much the + payment is increased throughout). This variable plays a role for the response mode effect where participants simply always switch at, say, the 3d place, irrespective of the payments. Then the variables with a high ratio give an overly high decision weight, and those with a low ratio an overly low decision weight.

In the labels of the values:

96 means they switch too late thus violating even weak monotonicity (suggesting decision weight > 1).

97 means that they made a wrong switch here (from right choice to left choice), and maybe in one other question, but not more than in two other questions.

98 means that the participant made at least three wrong switches (from right to left) in his questions, and therefore is not incorporated in the analysis, and all weights are set at 98 (missing).

99: missing.

Variable wub: The midpoint of w1ubn and the following variable, w2ubc.

Variable w2ubc: The decision weight calculated from variable sw2. Its name is explained as follows:

w: Weight

2: sw2

u: UP event

b: UP-event is rank-ordered as Best

c: Collapsed

The values are as for w1ubn.

Variable w3umd: The decision weight calculated from variable sw3. Its name is explained as follows:

w: Weight

3: sw3

u: UP event

m: one of the two rank-orderings where U is Middle in ranking.

d: The rank-ordering with U middle with D as best, U middle, R worst.

The values are as for w1ubn.

wum: The middle of w3umd and the following variable, w4umr

Variable w4umr: The decision weight calculated from variable sw4. Its name is explained as follows:

w: Weight

4: sw4

u: UP event

m: one of the two rank-orderings where U is Middle in ranking.

r: The rank-ordering with U middle with R as best, U middle, D worst.

The values are as for w1ubn.

Variable w5uwn: The decision weight calculated from variable sw5. Its name is explained as follows:

w: Weight

5: sw5

u: UP event

w: The UP event is rank-ordered as Worst

n: Non-collaps

The values are as for w1ubn.

wuw: The middle of w5uwn and the following variable, w6uwc

The variables w6uw … w18rwc are defined similarly.

Variable w1ub: The decision weight calculated from variable 1 (learning question 1) Its name is explained as follows:

w: Weight

1: sw1

u: UP event

b: The Up event is rank-ordered as Best

Variable w2uw: Similar to w1ub

Variable wf1ub: The decision weight calculated from variable f1 (filler 1). Its name is explained as follows:

w: Weight

f1: swf1

u: UP event

b: The Up event is rank-ordered as best

Variable wf2db: similar to wf1ub

Variables knows, compc, glad, pride, relief, disapp, regret, frustr, flgood, flglad, flpos, flchng, age, sex, refer to the emotional questions asked at the end.

Index of risk aversion:

rav = 1  (w1ubn + w2ubc + w3umd + w4umr + w5uwn + ... + w18rwc)/18 is index of risk aversion.

Index of pessimism:

pessimu = wuw  wub

pessimd = wdw  wdb

pessimr = wrw  wrb

pessim = (pessimu + pessimd + pessimr)/3

Index of pessimism for noncollapsed

pessimun = w5uwn  w1ubn

pessimdn = w11dwn  w7dbn

pessimrn = w17rwn  w13rbn

Index of pessimism for collapsed

pessimuc = w6uwc  w2ubc

pessimdc = w12dwc  w8dbc

pessimrc = w18rwc  w14rbc

Index of insensitivity:

insensu = (wub + wuw - 2 wum)/2

insensd = (wdb + wdw - 2 wdm)/2

insensr = (wrb + wrw - 2 wrm)/2

insens = (insensu + insensd + insensr)/3

Index of insensitivity collapsed cannot be because middle weights cannot be collapsed. Index of insensitivity noncollapsed is asymmetric (when doing it still in another file and calculating correlations, no correlation was significant) and, hence, it not used either.

## Appendix 1. Orderings of the Questions and Permutation Variables

This section discusses the permutations in the data file. These permutations relate "our" numbering of variables (as used in our paper) to the participants' page numbering, i.e. the numbering indicating the ordering in which the participants saw the questions. These numberings are only relevant for the 22 lottery choice questions, and not for the other questions that are therefore not discussed here. Of these 22 lotteries, the two learning questions 1 and 2, and the two filler questions, f1 and f2, are not so important, the remaining 18 questions are important. The relation between their numbering in our paper and the numbers p1p18, describing the order in which the participants saw them (see below), is important for learning etc.

*Our numbering of questions, i.e. the one used in the paper, tables, etc.:*

16: experimental questions regarding U event

712: experimental questions regarding D event

1318: experimental questions regarding R event

12: two learning questions

f1f2: two filler questions

*"Page" or "participants" (or "their") numbering of questions, i.e. the order that participants saw during the experiment*:

This defines the numbers p1p18.

• 12: two learning questions

• p1  p2: participant questions 1 and 2, which were two of our questions but in randomized order, the randomization depending on the participant

• f1: filler 1.

• p3  p8: participant questions 3  8, which were six of our questions in randomized order;

Between p8 and p10 came p9 and f2, but in a different order for participants 179 than for 80186.

Participants 179 had:

• p9, their 9th question, a randomized choice of our ones.

• f2, 2nd filler question;

Participants 80186 had:

• f2, 2nd filler question;

• p9, their 9th question, a randomized choice of our ones.

After these two questions, it was again the same for all groups:

• p10  p18: participant questions 9  18, our questions randomized.

Between 2 and p3 there were questions about difficulty etc. After p18 there were emotional questions etc. These questions are not discussed in this section.

*Permutations:*

“Us-to-participants,” question-numbering used in our paper towards page-numbering as participants saw it.

q1pg: Our question 1 (so about U event), at which “page” it was presented to the participant.

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q18pg: Our question 18 (so about R event), at which “page” it was presented to the participant.

q1pg  q18pg are the permutation variables of most importance, whose correlations etc. will reveal learning effects.

“Participants to us”

For completeness, the data file also has the inverse permutations, showing for each page nr which of our questions was presented to the participants there. These variables are not so important, I can't think now of how we would use them, and therefore they have less tractable names:

invpg1q: inverse permutation, for “page 1” (page 1 means nr. p1) which of our questions was presented there.

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invpg18q: inverse permutation, for “page 18” (page 18 means nr. p18) which of our questions was presented there.

E.g., if q14pg = 5, then invpg5q = 14, these permutations are each others’ inverses.

## Appendix 2. The Relation between the Page Numbers Written on the Questionnaires and the Page Nrs Used in this Codebook

This section is only of interest for people who want to check out the data file or codebook against the paper-questionnaires. On the questionnaires there are typed nrs in the left upper corner of the questionnaires and handwritten nrs. in the right corner down.

- The handwritten nrs. indicate the pg. nrs. at which the participants saw their questions, and thus they indicate the ordering of the pages when the questionnaires were handed out to the participants and they filled them out.

- The typed nrs. were meant to indicate "our" numbering, to be used in our tables, paper, etc. After the experiment, all questionnaires have been reshuffled in the order of "our" experimental numbering as that was in those days.

- Unfortunately, it turned out to be convenient to use a different numbering for "our" questions in our paper than we could foresee during the experiment, and to use a different numbering for "page-numbering" to use for describing permutations than used during the experiment. I indicate the relations below, following the order of presentation of the22 choice questions handed out to the participants.

no typed pg. nr. on the questionnaire for 1

no typed pg. nr. on the questionnaire for 2

typed 1: p1

typed 2: p2

typed 3: f1

typed 4: p3

typed 5: p4

typed 6: p5

typed 7: p6

typed 8: p7

typed 9: p8

typed 10: p9/f2 (p9 for participants 179, f2 for participants 80186, due to unintentional inconsistency)

typed 11: f2/p9 (f2 for participants 179, p9 for participants 80186, due to unintentional inconsistency)

typed 12: p10

typed 13: p11

typed 14: p12

typed 15: p13

typed 16: p14

typed 17: p15

typed 18: p16

typed 19: p17

typed 20: p18

no handwritten pg. nr. on the questionnaire for 1

no handwritten pg. nr. on the questionnaire for 2

handwritten 1: "Our" question 1

handwritten 2: "Our" question 2

handwritten 3: f1

handwritten 4: "Our" question 3

handwritten 5: "Our" question 4

handwritten 6: "Our" question 5

handwritten 7: "Our" question 6

handwritten 8: "Our" question 7

handwritten 9: "Our" question 8

handwritten 10: "Our" question f2

handwritten 11: "Our" question 10[[1]](#footnote-1)

handwritten 12: "Our" question 9

handwritten 13: "Our" question 11

handwritten 14: "Our" question 12

handwritten 15: "Our" question 13

handwritten 16: "Our" question 14

handwritten 17: "Our" question 15

handwritten 18: "Our" question 16

handwritten 19: "Our" question 17

handwritten 20: "Our" question 18

## Appendix 3. Coding of Elqualty Variable

*Coding of elquality-variable*

Coding of elqualty (quality of elucidation answer):

1 (correct) If choice is 0 (= right = +++ = safe) & answer = 22

1 (correct) If choice is 0 (= right = +++ = safe) & answer = 12 (because they answered how much MORE they got, let's permit for this)

1 (correct) If choice is 1 (= left = + = risky) & answer = 10

99 (missing) If choice is 1 (= left = + = risky) & answer = 0 (is same logic as right choice and answer 12, but odd here for being 0, so we code it as missing)

99 (missing) if choice or answer is missing (unless choice is missing but answer does not correspond to anything correct)

97 (not answered, so signal of lack of motivation) if any of the other is 97 (unless 97 for choice and answer that must be incorrect)

0 if answers are wrong

1. After the experiment, we decided to interchange "our" questions 9 and 10. In the experiment, the question eliciting the decision weight of event D (down, two decreases) in intermediate ranking position with R as best was put before the question eliciting the decision weight of event D (down, two decreases) in intermediate ranking position with U as best. After we decided to consistently always have U before D before R and therefore interchanged these two. [↑](#footnote-ref-1)