CONTINGENT APPLICATION OF THE CANCELLATION EDITING OPERATION: THE ROLE OF THE SEMANTIC RELATEDNESS BETWEEN RISK OUTCOMES

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ABSTRACT

The cancellation editing operation requires that choice not be affected by the characteristics shared by the options. The aim of this work was to verify the dependence of cancellation, and then of choice, on the semantic relatedness between the outcomes of a risky prospect. The results confirm the use of cancellation in the absence, but not in the presence, of semantic relatedness between the outcome the prospect shares with the other prospect and the outcome the prospect doesn't share with the other prospect. In the presence of semantic relatedness between the shared and not-shared outcomes, in keeping with the integration of the probabilities, a minor appreciation of the offered risk reduction is observed.

INTRODUCTION

Most psychological theories of choice assume a dual-phase model of the decision making process. The first phase relates to the editing of the problem. The second phase relates to the evaluation of the edited problem. The main function of the editing operations is to simplify the mental representation of the choice dilemma. The main function of the evaluation operations is to select the preferred alternative.

The dual-phase model of the decision making process can be found in the work of several authors. For example, in Kahneman and Tversky's Prospect Theory (1979) before the evaluation takes place, the options are simplified by means of editing operations such as "combination", "coding", "simplification", "segregation" and "detection of dominance". As they put it, the main function of the editing operations is "to organize and reformulate the options so as to simplify subsequent evaluation and choice" (Kahneman and Tversky, 1979, p. 274).

Similarly, in the Cancellation and Focus Model of Choice (Houston, Sherman and Baker, 1989; Houston and Sherman, 1995), it is assumed that people cancel features shared by the alternatives, and focus on the remaining unique features. The evaluation process is based on these unique features of the alternatives.

Other authors have underlined the role of restructuring operations in the making of a decision. For example, Ranyard (1987) observed that people group the alternative options by similarity before making the final choice. Coupey (1994) reports restructuring operations in consumer choice where data were transformed, edited or inferred before choice. Further analysis and discussion of the restructuring operations can be found in Huber (1989), Payne, Laughhunn and Crum (1984), and Ranyard and Crozier (1984).

The cancellation operation is one of the editing operations discussed by Prospect Theory

(Kahneman and Tversky, 1979). This operation simplifies the mental representation of a choice problem by cancelling the components that are explicitly common to the alternatives. Subsequent evaluation of the alternatives is not based on the cancelled common components (a similar analysis applies to the Cancellation and Focus Model by Houston et al.). To illustrate how the cancellation operation could affect choice, let's consider the so-called "isolation effect" discussed by Kahneman and Tversky (1979). Participants were presented with the following two-stage game:

"In the first stage, there is a 75% chance to end the game without winning anything, and a 25% chance to move into the second stage. If you move into the second stage you have a choice between:
A: A sure win of $30;
B: 80% chance to win $45 and 20% chance to win nothing.
Your choice must be made before the outcome of the first stage is known".

In a sample of 85 respondents, 74% chose A. However, when the same options were presented in their standard form, as shown below, only 42% of an independent sample of 81 respondents chose the equivalent of A:

A': 25% chance to win $30, and 75% chance to win nothing;
B': 20% chance to win $45, and 80% chance to win nothing.

Note that combining the two stages of the game derives A' and B'. Thus, they are the same options as A and B in the two-stage version of the problem.

The above preference reversal was attributed to the cancellation editing operation. As Kahneman and Tversky write: "The essence of the isolation effect described earlier is the discarding of components that are shared by the offered prospects. Thus, our respondents apparently ignored the first stage of the sequential game (…) because this stage was common to both options, and they evaluated the prospects with respect to the results of the second stage" (p. 274).

The cancellation of a transparent common component in a choice problem (e.g. a displayed common bonus, stage or outcome) was supported by other studies (Carlin, 1990; Conlisk, 1989; Keller, 1985; Ranyard, 1995). Direct evidence on the use of the cancellation

editing operation was found in Ranyard's (1995) process tracing study. He found that the majority of subjects justified their choices between duplex and parallel gambles by referring to the cancellation operation, even if the cancellation of the common component in the duplex and parallel gambles was not normatively justified. The above evidence suggests that people cancel the common component among alternatives when it is displayed ("the transparency hypothesis").

However, the transparency of the common component is not a sufficient condition for the application of the cancellation operation. Li (1994) found a preference reversal between identical pairs of gambles that, with the exception of the transparent common component, were identical. The preference reversal was accounted for by the lack of the systematic application of the cancellation due to the different rank order of the common component of the pairs of gambles.

This study follows up Li's one in the sense that we want to check whether in transparent choice conditions people systematically use the cancellation editing operation. However, contrary to Li's study we do not manipulate the transparency of the common component in the decision problem. We have examined whether the use of the cancellation is affected by the semantic relatedness between the outcomes of the options.

To illustrate this point, let's consider the following example of risky choice. Imagine that a tourist decided to spend her holidays in a tropical country. Her trusted travel agency suggests that she travel to one of the resorts (X or Y) where some places are still available.

The two options are of similar high-level for the tourist (hotel quality; accommodation costs; travel costs; etc.). The holiday could be ruined if some circumstances occur. Firstly, in both resorts there is .20% probability of experiencing heavy rain during the holiday. Secondly, the probability of finding dead seaweed on the beach with resulting unpleasant smell during the stay is .01 in Y compared to .35 in X. However, resort Y costs 100 € more

than X.

Let us consider now a slightly different scenario where the tourist is offered the same probability reduction (from .35 to .01) to find dead seaweed on the beach (the target risk reduction) at the same extra 100 €. However, the drawback shared by the two options is different. It is easily categorized within the same risk category of the target drawback such as "seaweed risk". For example, in both resorts she has .20 probability of finding dead seaweed in the sea that makes it impossible for her to swim.

If the cancellation editing operation is applied because of the transparency of the common component (the transparency hypothesis), the tourist will face the same edited risky choice in the two scenarios. That is, she will have to decide whether to pay or not 100 euros more for the benefit of the target risk reduction. In this case, no differences are expected in the choice between the scenarios.

On the contrary (according to the relatedness hypothesis), we expect that the tourist will group similar outcomes before evaluating them. For example, in the latter scenario, she will not cancel the common drawback "dead seaweed in the sea", but combine it with the target one "dead seaweed on the beach" to get an estimate of the overall "seaweed risk" in the two resorts. Combining the probabilities of the two related drawbacks will make the target risk reduction less attractive. As a consequence, the tourist should be more willing to pay for the same target risk reduction when the common risk component is unrelated rather than related to the target risk.

Previous findings suggest that people's choices are affected by the similarity structure of the problem (Ranyard, 1987; 1995; Bonini and Rumiati, 1996; 2002). For example, in consumer choice people combine prices for goods that belong to the same product category before assessing the value of an offered price reduction (Bonini and Rumiati, 2002). In risky choice, people group outcomes by similarity and then combine their probabilities by the

"amalgamation heuristic" (Ranyard, 1995). The amalgamation heuristic can be considered an extension of Prospect Theory's combination operation from identical to similar outcomes (Kahneman and Tversky, 1979, p. 274).

Based on the above findings, we argue for the "the relatedness hypothesis"[1]. According to this hypothesis, we expect that people will not cancel the transparent common component when there is a strong semantic relationship to the target outcome (e.g., they both belong to the same basic category). In those circumstances people would rather consider the two outcomes together and combine their probabilities. However, we expect that people will cancel the common component when it is low or not semantically related to the target outcome. Due to this contingent application of the cancellation, we expect that the same offered risk reduction would be less attractive when the common and the target outcomes are related rather than unrelated.

EXPERIMENT 1

Method

Subjects

Two hundred-seventy Italian students of the Universities of Genova and Milano-Bicocca participated in the Experiment 1, without receiving rewards or credits.

[1] Although the amalgamation heuristic and the relatedness hypothesis are based on the same mechanism (grouping of the similar outcomes of the risk prospect and integration of their probabilities), there are a few differences. First, contrary to the amalgamation heuristic (cf. Ranyard, 1995, p. 167) two outcomes of the prospect are sufficient for the application of the relatedness hypothesis. Second, the relatedness hypothesis applies to both independent and dependent outcomes.

Design

The subjects were equally and randomly assigned among three conditions. Thus the 90 subjects of each condition were presented with several risky decision problems and asked to choose between two risky options X and Y (see the Appendix).

In the "category related drawbacks" (CRD) and "category unrelated drawbacks" (CUD) conditions, the two options X and Y were defined by the following three characteristics:

- probability p_1 of the drawback D_1;
- probability p_2 of the drawback D_2;
- supplement to pay.

In both the CRD and CUD versions the options X and Y shared the second characteristic (p_2 of D_2), which is the common outcome-probability component. They also shared the drawback 1. However, they differed for the probability p_1 (higher in X) and for the supplement (higher in Y).

In the "only the target drawback" (OTD) condition, there was no any common outcome-probability component, and the options X and Y were defined only by the target risk (p_1 of D_1) and the supplement to pay:

- probability p_1 of the drawback D_1;
- supplement to pay.

Thus, in all three conditions the only difference between options X and Y relates to the probability p_1 (higher in X) and to the supplement (higher in Y).

Stimuli

The stimuli related to risky decision problems. Specifically, they related to two target drawbacks (T) that could happen in a holiday. One drawback concerned the traveller's health and the other the environment, as described below:

- "contraction of a virus α (without permanent consequences) that gives as symptom dysentery for 2 days" (T_1);
- "accumulation of seaweed on the beach with consequent unpleasant smell for 2 days" (T_2).

Based on T_1 and T_2, we devised a list of 21 drawbacks that could happen in a holiday. The list covered 7 drawbacks, each with 3 different lengths in time. Of these 7 drawbacks, 2 were

category related (CR) to one of the target drawbacks and unrelated (CU) to the other and 5 were category unrelated (CU) to both target drawbacks, as shown below.

- "contraction of a virus β (without permanent consequences) that gives a high fever for (2, 4, 5) days" (respectively CR_1, CR_2, CR_3 related to T_1 and CU_1, CU_2, CU_3 not related to T_2);
- "seaweed proliferation with consequent impossibility to swim for (1, 7, 13) days" (respectively CR_4, CR_5 and CR_6 related to T_2 and CU_4, CU_5, CU_6 not related to T_1);
- "lost of the luggage during the outward journey and its finding after (1, 5, 9) days" (respectively CU_7, CU_8, CU_9 not related to both T_1 and T_2);
- "local transport strike with consequent impossibility to go on trips for (2, 11, 18) days" (respectively CU_{10}, CU_{11}, CU_{12} not related to both T_1 and T_2);
- "water rationing for (1, 8, 15) days" (respectively CU_{13}, CU_{14}, CU_{15} not related to both T_1 and T_2);
- "persistent and heavy rain for (3, 7, 11) days" (respectively CU_{16}, CU_{17}, CU_{18} not related to both T_1 and T_2);
- "problems in the links-up with consequent impossibility to phone or see international TV programs for (7, 18, 28) days" (respectively CU_{19}, CU_{20}, CU_{21} not related to both T_1 and T_2).

Two pilot studies allowed us to assess the perceived negativity of the drawbacks used in the experimental conditions.

In the first pilot study, 50 subjects were asked to estimate how much they would be troubled for the occurrence of each of the 21 drawbacks - on a 1 (minimum) to 7 (maximum) scale. Half of the subjects were displayed the list of the 21 drawbacks in a fixed order. The other half were displayed the list in the opposite order. We then selected the set of the drawbacks CU that were estimated as causing the same level of trouble of at least one of the drawbacks CR. After that, we built pairs of drawbacks such that:

- T_1+CR_1, T_1+CR_2 and T_1+CR_3;
- T_2+CR_4, T_2+CR_5 and T_2+CR_6;
- T_1+ each CU that was judged as causing the same level of trouble of CR_1 or CR_2 or CR_3;
- T_2+ each CU that was judged as causing the same level of trouble of CR_4 or CR_5 or CR_6.

In the second pilot study, other 50 subjects were asked to estimate by the same scale how much they would be upset by the occurrence of each pair of drawbacks (again, two orders of presentation of the pairs of drawbacks were used). We then selected the pairs of drawbacks T_1+CU that were estimated as causing the same level of bother of one of the pairs T_1+CR. The same was done for the pairs T_2+CU and T_2+CR.

Finally, from the results of the two pilot studies, we generated the decision problems that appeared in the three conditions of Experiment 1 (see Table 1).

Target drawback (Used in all three conditions)	**Problem**	**Drawbacks semantically related to the target drawback** (Used in the CRD condition)	**Drawbacks semantically unrelated to the target drawback** (Used in the CUD condition)
p= 1% or p= 35% **virus** α for 2 days (T_1)	**I**	p= 20% of CR_1	p= 20% of CU_{16}
	II	p= 20% of CR_2	p= 20% of CU_5
	III	p= 20% of CR_3	p= 20% of CU_8
p= 1% or p= 35% **seaweed** on the beach for 2 days (T_2)	**IV**	p= 20% of CR_4	p= 20% of CU_{10}
	V	p= 20% of CR_5	p= 20% of CU_{21}
	VI	p= 20% of CR_6	p= 20% of CU_{15}

Table 1 Stimuli selected for the three conditions OTD, CRD and CUD.

It should be noted that in the CUD and CRD conditions, the common drawbacks of options X and Y (the drawback CR in the CRD condition and the drawback CU in the CUD condition) were perceived as causing an unreliable difference of inconvenience both as single drawbacks (CU and CR) and as drawbacks paired with the target drawback (T+CU and T+CR). Thus, differences in choices between the CRD and CUD conditions cannot be attributed to differences in the perceived negativity of the common drawbacks or of their interaction with the target drawback.

Procedure

The subjects in the OTD condition answered two problems (one for virus and one for seaweed). The subjects in the other two conditions answered six problems (three for virus and three for seaweed). The three problems of each type differed only for the duration of the target drawback and for the kind of the common drawback. To balance the order, each problem was presented the same number of time in each of the two (for the OTD condition) or six (for the CUD and CRD conditions) positions.

After reading the scenario, the subject was asked to choose X or Y, i.e. to express whether (choice of Y) or not (choice of X) he was willing to pay an additional cost (supplement in Y – supplement in X) to reduce the probability (from p_1 in X to p_1 in Y) of drawback 1 (see the

Appendix).

Hypotheses

The following predictions are made depending on whether the cancellation editing operation is systematically applied in the CUD and CRD conditions ("the transparency hypothesis") or only in the CUD condition ("the relatedness hypothesis").

- "The transparency hypothesis": the representation of the trade-off between the probability of the drawback 1 (higher in X) and the supplement (higher in Y) should be the same in the three experimental conditions. As a consequence, the same preference distribution should be found in the CRD, CUD and OTD conditions.
- "The relatedness hypothesis": the representation of the trade-off between the probability of drawback 1 (higher in X) and the supplement (higher in Y) should be the same in the OTD and the CUD conditions but not in the CRD condition. As a consequence, the same preference distribution should be found in OTD and CUD, but not between OTD/CUD and CRD. Specifically, we predict that the willingness to pay for the higher supplement to reduce the probability of the drawback 1 (e.g., the choice of Y) will decrease in the CRD condition compared to the other conditions. This would be due to the amalgamation of the probabilities of the two grouped-related drawbacks in the CRD condition.

Results and discussion

The percentage of acceptance of the option Y among the three conditions is reported in Table 2.

Problem	Type of problem	Condition				
		Only the target drawback (OTD)	Semantically unrelated drawbacks (CUD)		Semantically related drawbacks (CRD)	
I	**virus**	**70.0**%	72.2%	mean **68.5**%	54.4%	mean **55.9**%
II			68.9%		56.7%	
III			64.4%		56.7%	
IV	**seaweed**	**47.8**%	53.3%	mean **50.4**%	33.3%	mean **34.1**%
V			51.1%		32.2%	
VI			46.7%		36.7%	

Table 2 Percentage of acceptance of the option Y among the three conditions, and for the six problems in the experiment 1.

To analyse the data we used a general linear model with the "Condition" (OTD vs. CUD vs. CRD) as a between-subjects factor, the "Type of problem" (virus vs. seaweed) as a within-subjects factor, and the preferences for Y as the dependent variable (the mean preference for Y in each type of problems was transformed by the function $m_t = 2\text{arcsen}\sqrt{m}$ to stabilize the variances, see Kirk, 1995).

The factors "Condition" [$F(2; 267) = 5.44$, $p<.01$] and "Type of Problem" [$F(1; 267) = 34.14$, $p<.001$] were statistically significant. Their interaction was not [$F(2; 267)<1$, $p=.89$].

The statistical significance of the "Condition" factor rules out the transparency hypothesis: the transparency of the common outcome is not a sufficient condition for the application of the cancellation editing operation.

Post-hoc comparisons with Tuckey confirmed that, as predicted by the "relatedness hypothesis", the rate of acceptance of the target risk reduction was less in the CRD than in both the CUD (respectively 45.0% vs. 59.5%, $p<.02$) and OTD (respectively 45.0% vs. 58.9%, $p<.02$) conditions. The rate of acceptance of the target risk reduction did not differ between the CUD and OTD conditions (respectively 59.5% vs. 58.9%, $p=.99$).

Reported findings can be accounted for by a contingent application of the cancellation.

Given the transparency of the common component, the cancellation is applied when the decision-maker perceives the outcomes of a risk prospect as semantically unrelated. Instead, when the decision maker perceives the outcomes of a risk prospect as semantically related, she groups the related outcomes by a categorization process and integrates their probabilities, as defined by the amalgamation heuristic (Ranyard, 1995). In so doing, the cancellation editing operation is not applied.

The reported finding suggests a hierarchy in the editing operation set whereby the amalgamation operation dominates cancellation. Specifically, it suggests that similarity structures within a risk prospect (e.g. the similarity of the outcomes of a same prospect) are more powerful than similarity structures between risk prospects (e.g., the similarity of the outcomes of different prospects). To the best of our knowledge, this is the first study that experimentally tested the dominance relationship between these two editing operations.

Contrary to Li's (1994) study[2], the lack of consistent use of cancellation cannot be accounted for by a rank-dependent model of choice. Thanks to the two pilot studies, in fact, we can say that the outcomes of the option X have the same rank-order in the CRD and CUD conditions. Likewise, the outcomes of option Y have the same rank-order in the CRD and CUD conditions. Therefore, the difference in the choice of X vs. Y among CRD and CUD cannot be attributed to the difference in the rank order of their outcomes.

Given that the options X and Y in the CUD and CRD conditions are characterized by not mutually exclusive drawbacks, it could be argued that the subjects calculated the expected utility by considering the occurrence of each drawback alone and the occurrence of the two jointed drawbacks. After calculating the expected utility - considering also the supplementary

[2] There are several differences between Li's study and our own. Firstly, we did not manipulate the monetary magnitude of the common outcome, but rather the presence/absence of the semantic relatedness between the common and the target outcomes. Second, we did not use monetary gambles whose outcomes were mutually exclusive. Rather, we used scenarios related to personal risk reductions where the outcomes could be considered independent.

costs - the subject would have then chosen the option with the higher positive expected utility.

We don't see how such rational explanation could predict the systematic higher rate of acceptance of option Y in the CUD than in the CRD condition. Rather, the same rate of acceptance of option Y should be found between the two conditions. In fact, everything is kept constant among the CUD and CRD conditions with the exception of the common drawback, which are CU and CR respectively. However, as discussed in the Method section, these two drawbacks were judged as causing the same degree of inconvenience both when considered singularly and when combined with the target drawback T. Thus, the common drawbacks CR and CU, so as their interaction with the target drawback T, should not make any difference in the computing of the expected utility among the two conditions.

EXPERIMENT 2

In the Experiment 2, the subject in each condition answered only two problems (a virus and a seaweed problem). This allowed us to check for potential carry-over effects due to multiple answers for the same type of decision problem. Also, to test the robustness of the relatedness effect reported in the previous experiment, the subjects who took part in this experiment were chosen from a different population.

Method

Subjects

Three hundred-sixty Italian students of the University of Padova took part in the Experiment 2, without receiving rewards or credits.

Stimuli

Two (I and III) out of the three virus problems and two (IV and V) out of the three

seaweed problems used in Experiment 1.

Design

Three independent groups of subjects were randomly assigned to the conditions “only the target drawback” (OTD), “category unrelated drawbacks” (CUD) and “category related drawbacks” (CRD).

Procedure

The participants were subdivided in three conditions: OTD (75 subjects), CUD (71 subjects for the problems I and IV; 71 subjects for the problems III and V) and CRD (74 subjects for the problems I and IV; 69 subjects for the problems III and V). Apart from that, the procedure was the same as that used in Experiment 1.

Results and discussion

The percentage of acceptance of option Y among the three conditions is reported in Table 3.

Problem	**Type of problem**	**Condition**				
		Only the target drawback (OTD)	**Semantically unrelated drawbacks (CUD)**		**Semantically related drawbacks (CRD)**	
I	**virus**	**77.3**% (N=75)	67.6% (N=71)	mean **74.0**%	51.4% (N=74)	mean **60.5**%
III			80.3% (N=71)		69.6% (N=69)	
IV	**seaweed**	**60.0**% (N=75)	50.7% (N=71)	mean **46.5**%	37.7% (N=74)	mean **40.5**%
V			42.3% (N=71)		43.2% (N=69)	

Table 3 Percentage of acceptance of the option Y among the three conditions, and for the four problems in the experiment 2.

As predicted by the “relatedness hypothesis”, the rate of acceptance of the target risk reduction was less in the CRD condition (50.5%) than in the CUD (60.3%) and OTD (68.7%) conditions. This pattern is congruent with that reported in Experiment 1.

The data were analysed using two separate logistic regressions (one for the two virus problems and one for the two seaweed problems).

For the virus problem, the probability of choosing option Y does not reliably differ between the CUD and the OTD conditions (B=-.18, p=.58), and it is less in the CRD than in both the OTD (B=-.82, p<.02) and the CUD (B=-.63, p<.02) conditions.

To a lesser extent, the above pattern is found with the seaweed problem: the probability of choosing Y does not reliably differ between the CUD and the OTD conditions (B=-.55, p=.06). As with the virus problem, the preference for Y is less in the CRD than in the OTD condition (B=-.79, p<.01). However, it does not differ between the CRD and the CUD conditions (B=-.24, p=.31).

Reported findings confirm that people do not systematically apply the cancellation editing operation, although the common component is clearly displayed.

GENERAL DISCUSSION

The experiments described reveal that, when choosing between options, people do not systematically cancel the common components, even if clearly displayed. This means that the transparency of the common components is not a sufficient condition for the application of the cancellation editing operation (see also Li, 1994).

One factor that controls the application of the cancellation operation is the similarity structure in the decision problem. When the outcomes of a risk prospect are semantically related, independently if shared with the alternative prospect, the amalgamation heuristic is applied. That is, the similar outcomes are grouped and their probabilities amalgamated. However, when the outcomes of a risk prospect are not semantically related, if shared with the alternative prospect, cancellation of the common components is applied.

The above finding cannot be attributed to a different rank order of the outcomes among

the experimental conditions (presence vs. absence of the semantic relatedness between the outcomes of a risk prospect). It cannot also be accounted for by a utility-based choice between prospects.

We propose that the set of the editing operations used to simplify the decisions is hierarchically organized. On the basis of the reported evidence, we suggest that similarity structures within a risk prospect (e.g. the similarity of the outcomes of a same prospect) are more powerful than similarity structures between risk prospects (e.g., the similarity of the outcomes of different prospects). Future research should better define this hierarchical relationship in the editing operation set.

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APPENDIX

INTRODUCTION

Imagine you have won a four- week holiday in an exotic location.

The travel highly-qualified and specialist agency entrusted to give you the prize offers you the choice between two possible tourist package holidays (X and Y) to two different resorts.

Both the packages are all-inclusive and include the flight and accommodation in a quality five-star hotel. The holidays are almost identical and the many similarities many similarities, include the surroundings, the excursions, the health-care, sports facilities, etc.

The only differences between the two packages are:

a) the probability of occurrence of two drawbacks that, should they take place, could compromise your journey;

b) the supplement that is necessary to pay to go in the period that you prefer.

In the following pages you will find [*six* (in the versions "CUD" and "CRD" of the experiment 1), *two* (in the version "OTD" of the experiment 1 and in all the versions of the experiment 2)] *problems of that kind, in which you will have to choose between a tourist package X and a tourist package Y.*

The [*six*, *two*] *problems are different in the anticipated drawbacks, in how likely they are to occur and in the supplements to pay.*

Consider the [*six*, *two*] *problems as independent. For each of them, express your preference indicating the package (X or Y) you would choose.*

Thank you for your cooperation.

THE THREE VERSIONS OF ONE (n. I) OF THE THREE VIRUS PROBLEMS USED

ONLY ONE DRAWBACK (OTD) CONDITION	
X	• p= .35 Drawback= contraction of a virus α (without permanent consequences) that causes dysentery for 2 days • Supplement= L. 150.000[3]
Y	• p= .01 Drawback= contraction of a virus α (without permanent consequences) that causes dysentery for 2 days • Supplement= L. 300.000

SEMANTICALLY UNRELATED DRAWBACKS (CUD) CONDITION	
X	• p= .35 Drawback= contraction of a virus α (without permanent consequences) that causes dysentery for 2 days • p= .20 Drawback= persistent and heavy rain for 3 days • Supplement= L. 150.000
Y	• p= .01 Drawback= contraction of a virus α (without permanent consequences) that causes dysentery for 2 days • p= .20 Drawback= persistent and heavy rain for 3 days • Supplement= L. 300.000

SEMANTICALLY RELATED DRAWBACKS (CRD) CONDITION	
X	• p= .35 Drawback= contraction of a virus α (without permanent consequences) that causes dysentery for 2 days • p= .20 Drawback= contraction of a virus β (without permanent consequences) that causes a temperature of about 38 degrees for 2 days • Supplement= L. 150.000
Y	• p= .01 Drawback= contraction of a virus α (without permanent consequences) that causes dysentery for 2 days • p= .20 Drawback= contraction of a virus β (without permanent consequences) that causes a temperature of about 38 degrees for 2 days • Supplement= L. 300.000

[3] The data of this research were collected when the Italian currency was the Lira (L.) and L.2000 equalled approximately 1US dollar.

THE THREE VERSIONS OF ONE (n. V) OF THE THREE SEAWEED PROBLEMS USED

ONLY ONE DRAWBACK (OTD) CONDITION	
X	• p= .35 Drawback= accumulation of seaweed on the beach with consequent unpleasant smell for 2 days • Supplement= L. 150.000
Y	• p= .01 Drawback= accumulation of seaweed on the beach with consequent unpleasant smell for 2 days • Supplement= L. 300.000

CATEGORY UNRELATED DRAWBACKS (CUD) CONDITION	
X	• p= .35 Drawback= accumulation of seaweed on the beach with consequent unpleasant smell for 2 days • p= .20 Drawback= problems in the links-up with consequent impossibility to phone or to see international TV programs for 28 days • Supplement= L. 150.000
Y	• p= .01 Drawback= accumulation of seaweed on the beach with consequent unpleasant smell for 2 days • p= .20 Drawback= problems in the links-up with consequent impossibility to phone or to see international TV programs for 28 days • Supplement= L. 300.000

CATEGORY RELATED DRAWBACKS (CRD) CONDITION	
X	• p= .35 Drawback= accumulation of seaweed on the beach with consequent unpleasant smell for 2 days • p= .20 Drawback= accumulation of seaweed in the sea with consequent impossibility of swimming for 7 days • Supplement= L. 150.000
Y	• p= .01 Drawback= accumulation of seaweed on the beach with consequent unpleasant smell for 2 days • p= .20 Drawback= accumulation of seaweed in the sea with consequent impossibility of swimming for 7 days • Supplement= L. 300.000