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DISCUSSION PAPER 138

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ABSTRACT

An important consideration when establishing priorities in health care is the likely effects that alternative allocations of resources will have on health-related quality-of-life (HRQoL). This paper reports on the analysis of data from a study which elicited health state valuations (using the time trade-off (TTO) method) from a representative sample of the UK population. Health states were defined in terms of the EuroQol Descriptive System which generates 243 theoretically possible states. Because it was impossible to generate direct valuations for all of these states, it was necessary to find a procedure that allowed interpolation of valuations for all EuroQol states from direct valuations on a subset of these. This paper describes (in as non-technical manner as possible) the modelling technique used to generate a set of EuroQol valuations from directly observed valuations on 45 states.

The specification of the models tested was derived from the ordinal nature of the EuroQol descriptive system, in which the value assigned to a particular state depends on the level of each dimension. Data were analysed at the individual-level using a generalised least-squares regression technique. A model that fitted the data well and that was readily interpretable was one in which valuations were explained in terms of three different elements: 1) the level of severity associated with each dimension independently of the levels of the other dimensions; 2) an intercept associated with any move away from full health; and 3) a term which identified whether any dimension was at its most severe level. The coefficients on these variables can be used to build up a full 'tariff' of EuroQol values representing the views of a representative sample of the UK adult population. This social tariff has a number of potential uses, including the measurement of the likely impact on health status of different health care programmes or policies.

INTRODUCTION

Given that no country can afford to provide all the health care that might conceivably be of some benefit, it is necessary to establish priorities. Although there is no consensus as to how this priority-setting should be done, there is general agreement that the benefits of the alternative uses of scarce resources should be taken into account. An important part of the benefit of any health care intervention is its effect on the health-related quality-of-life (HRQoL) of the population it affects, which will ultimately be the general public given that they are all potential patients. Of course, the views of the general public will also be relevant in their capacity as taxpayers.

From the preferences of the general public, a set of values for the whole community can be built up. This information could then be used in a variety of ways; for example, in clinical trials where HRQoL is an important feature, in association with population surveys to measure levels and trends in community health, and in the calculation of Quality-Adjusted Life-Years (QALYs). Thus, the objective of this project was to establish the relative valuations attached to different states of health (defined in HRQoL terms) by a representative sample of the general public. The purpose of this paper is to describe the modelling technique that was used to generate the full set of social valuations.

Describing health

There are now a number of instruments designed to measure HRQoL but with very different objectives in mind (see Bowling 1991). Health states in this study were defined in terms of

the EuroQol Descriptive System, the *raison d'etre* of which is to provide a simple "abstracting" device for use alongside other more detailed measures of HRQoL (see EuroQol Group 1990). It aims to serve as a basis for comparing health care outcomes using a basic "common core" of HRQoL characteristics which most people are known to value highly. For such comparisons to be useful, it is necessary for the instrument to be capable of generating a single index measure of health status.

The choice of descriptive content in the EuroQol originated from a review of existing instruments. Later there was opportunity to test these judgements against the results of a survey of lay concepts of health (van Dalen *et al* 1994). This resulted in the present 5-dimensional set (mobility, self-care, usual activities, pain/discomfort, anxiety/depression), in which each dimension has 3 levels of "severity", broadly speaking corresponding to "No problems" (level 1), "Some problems" (level 2), and "Extreme problems" (level 3), thus generating 3⁵ = 243 theoretically possible health states (see Figure 1). For completeness, "unconscious" and "dead" have been added, yielding a total of 245 states.

Figure 1

The EuroQol Descriptive System

Mobility

- 1. No problems walking about
- 2. Some problems walking about
- 3. Confined to bed

Self-Care

- 1. No problems with self-care
- 2. Some problems washing or dressing self
- 3. Unable to wash or dress self

Usual Activities

- 1. No problems with performing usual activities (e.g. work, study, housework, family or leisure activities)
- 2. Some problems with performing usual activities
- 3. Unable to perform usual activities

Pain/Discomfort

- 1. No pain or discomfort
- 2. Moderate pain or discomfort
- 3. Extreme pain or discomfort

Anxiety/Depression

- 1. Not anxious or depressed
- 2. Moderately anxious or depressed
- 3. Extremely anxious or depressed

Note:

For convenience each composite health state has a five digit code number relating to the relevant level of each dimension, with the dimensions always listed in the order given above. Thus 11223 means:

- 1 No problems walking about
- 1 No problems with self-care
- 2 Some problems with performing usual activities
- 2 Moderate pain or discomfort
- 3 Extremely anxious or depressed

The Problem

For the EuroQol to be used in evaluating the health benefits associated with different health care interventions, it is necessary to derive a single index value for each of these 245 health states (referred to as the "tariff"). The problem is that it is virtually impossible to generate direct valuations for all states. Consequently, a strategy was adopted in which a subset of states were directly valued, and a model of these data then constructed. This model would then allow us to interpolate the valuations of all EuroQol states.

Valuations for health states can be elicited by a number of different methods (see Torrance 1986). Two that have been widely used, particularly by those with an interest in economic evaluation, are the standard gamble (SG) and the time trade-off (TTO). A recent (within-respondent) comparison of the two methods, suggested that the TTO performed slightly better in terms of the internal consistency of the answers given by respondents, the sensitivity of valuations to parameters known to influence them, and the reliability of the responses when the valuation task is repeated by the same respondents some weeks later (see Dolan *et al* 1995). Thus, analysis in this paper is based on valuations generated by the TTO method, which asks respondents to sacrifice <u>quantity</u> of life (i.e. life expectancy) in order to gain improvements in their quality of life.

Pilot studies had shown that no one respondent can handle more than about 13 states on the TTO but since this number was too small to support the estimation of the entire valuation space, 45 states were chosen in total and each respondent was asked to value a subset of these. The most important consideration was that the states should be widely spread over the valuation space so as to include all possible combinations of levels across the five dimensions, thus enabling the testing for interaction effects. With this in mind, all respondents valued 33333 and "unconscious", 2 of the 5 mildest states (11112, 11121, 11211, 12111 and 21111), 3 from 12 "mild" states, 3 from 12 "moderate" states, and 3 from 12 "severe" states (see Figure 2).

¹Although the state unconscious does not form part of the EuroQol Descriptive System and hence cannot be used for modelling purposes, it is clearly a possible outcome of health care and thus it was deemed necessary to elicit a direct valuation of it from each respondent. It was not necessary to elicit direct valuations for 11111 and dead since these two states act as anchor points in the TTO, automatically assuming the values of 1 and 0, respectively.

Figure 2 Health states valued in the study

Each respondent valued 11111, Immediate Death, 33333 and unconscious

plus

2 from 5 "very mild" states:

11112 11121 11211 12111 21111

plus

3 from 12 "mild" states:

11122 11131 11113 21133 21222 21312 12211 11133 22121 12121 22112 11312

plus

3 from 12 "moderate" states:

13212 32331 13311 22122 12222 21323 32211 12223 22331 21232 32313 22222

plus

3 from 12 "severe" states:

33232 23232 23321 13332 22233 22323 32223 32232 33321 33323 23313 33212

MODELLING: GENERAL CONSIDERATIONS

The construction of any model is essentially an attempt to form a simplified representation of more complex phenomena. Model building may improve our understanding of the relationship between the component parts of a structure; for example, with regard to this study, in identifying the influence of different dimensions on the valuations of health states. The extent to which the set of relationships incorporated in any model adequately represents actual behaviours or conditions may be tested by comparing direct observations with model predictions. It may be that more than one model is capable of fitting such observations, so

that the selection of a single model for this purpose may ultimately rest on multiple criteria.

These criteria (which may not all act in the same direction) include:

- 1. Goodness-of-fit i.e. how well the model explains the differences in the valuations given to those states on which there is direct data.
- 2. Parsimony i.e. the simplicity of the model.
- 3. Consistency i.e. states that are logically worse <u>must</u> have lower predicted values.

Ideally, we would like to derive a model which satisfied all of the above conditions and which, when combined, would give the value of each health state. To do this, it is necessary to adopt an approach in which the value assigned to a EuroQol health state depends on the level of each dimension. So in the most general terms, the model is:

$$V = f(M_i, S_i, U_i, P_i, A_i)$$

where V is the value of a health state

M, S, U, P and A refer to the five dimensions (mobility, self-care, usual activities, pain/discomfort and anxiety/depression, respectively) i is the level of each dimension, thus taking a value of 1, 2 or 3 and f(.) symbolises the relationship we are trying to estimate.

The state 11111 (in which i=1 for each and every dimension) automatically takes the value of 1. For ease of interpretation, the move from level i to level i_{+1} is seen as a decrement in

value: the <u>size</u> of this decrement is what we are seeking to estimate. Thus, for consistency (condition 3 above) and to reflect the ordinal nature of the levels within each dimension, the coefficient on i_{+1} must be greater than that on i. No *a priori* expectations were made about the relative impact of each dimension. Of course, this very simple function assumes that the effect on V of a given level of one dimension is independent of the levels of other dimensions. However, it is entirely plausible that the effect of, say, P_3 , might vary according to the value of i on, say, A. Therefore, it is important that the model should be capable of being developed to take account of any important interactions between dimensions.

THE STUDY

The Sample

The data comes from a survey designed to elicit the preferences of a representative sample of the non-institutionalised adult population of England, Scotland and Wales. In determining the size of the sample, there was the need for enough observations to be able to detect differences between the valuations given to different states. A sample size of 3235 was needed in order to detect a .05 difference between health states at the .05 level of significance. This required the selection of 6080 addresses to allow for non-response. The sample was drawn up by Social and Community Planning Research (SCPR) using the national postcode address file.

In the event, 3395 respondents were interviewed in their own homes by 92 trained interviewers between August and December 1993. To enable modelling of the data at the

individual level only those respondents with complete TTO data have been included in the analysis. There are 2997 such respondents. Excluding those respondents with incomplete data (the majority of whom had only one or two missing values on either method) did not compromise the representativeness of the sample (see Dolan *et al* 1995).

The Valuations

In the TTO method, for health states that are regarded as better than dead, the respondent is asked to select a length of time in full health (defined as the 11111 state) that they regard as equivalent to 10 years in the target state; the shorter the equivalent length of time, the worse the target state. In the case of states regarded as worse than dead, the choice is between dying immediately and spending a length of time (x) in the target state followed by (10-x) years in the 11111 state; the more time required in the 11111 state to compensate for a shorter time in the target state, the worse that target state. If full health and dead are assigned values of 1 and 0 respectively, scores for states that are rated as better than dead are given by the formula x/10 where x is the number of years spent in full health. For states that are rated worse than dead, valuations have been calculated using the formula (x/10)-1 so that scores for states worse than dead are bounded by -1, just as states which are better than dead are limited by a value of 1 for full health.²

²Theoretically, scores for states rated as worse than dead should be calculated by the formula -x/(10-x) which means that negative scores do not have the same linear properties as those displayed by positive scores. However, Eyman (1967) demonstrated that values generated by variants of the constant sum method, which involves the division of a given scale with fixed endpoints into two parts (as in the worse than dead scenario), led to biases in observers' judgements. Poulton (1989) describes how such biased judgements can be corrected, the implication of which is to also treat values for states worse than dead as having linear properties. Hence the use of this transformation, one which has been widely used elsewhere in the literature (see Patrick *et al* 1994).

Valuations for the 13 states were elicited using a specially-designed double-sided board. One side was relevant for states that were regarded by the respondent as better than being dead, and the other side for states that were regarded as worse than being dead. Respondents were led by a process of "bracketing" to find their point of indifference between the two alternatives. In the case of states rated better than dead, respondents were given an opportunity to refuse to trade-off any length of life in order to improve its quality (see Gudex 1994 for details).

MODELLING TECHNIQUE

A generalised least-squares regression technique was used in which the functional form is additive. The dependent variable is defined as 1-S where S is the value given to a particular health state on the TTO. 1-S was used (as opposed to S) because the constant term which the method generates (and which then applies to all states except 11111) is more readily interpretable; it represents what disutility (if any) is associated with any move away from full health. Besides this "intercept" term, the specification of the remaining independent variables derive from the ordinal nature of the EuroQol descriptive system. Two dummy variables (i.e. variables which take a value of 0 or 1) were created for each dimension; one to represent the (assumed equal) move between levels and one to represent the move from level 2 to level 3 (this allows the effect of the move from level 1 to level 2 to be different from the effect of the move from level 2 to level 3). It was also important to explore the possibility that being in, say, severe pain and being severely anxious or depressed is worse (or better) than would be indicated by summing the separate coefficients on these dimensions. So, in addition, dummy variables were created to allow for possible (first order) interactions between

dimensions.

It was decided that analysis should take place on <u>individual-level</u> rather than aggregate-level data since it makes the maximum use of the available data. In addition, the results of aggregate-level analysis are likely to be uninformative in that it is possible to find several models which fit the data equally well, with no objective way of choosing between them.

Analysis at the individual level is complicated by the fact that each respondent valued 12 EuroQol states and it is reasonable to expect that the 12 scores generated by each respondent are related to one another. To address this issue a <u>random effects</u> specification was used which takes account of the fact that the variance of the error term in the regression equation will be in part determined by the individuals who value the health states. The modelling has been carried out using the LIMDEP statistical package (see Greene 1992).³

RESULTS

After testing many models, allowing for different numbers and types of interactions between dimensions, a <u>main effects</u> model, in which each of the 5 dimensions is independent of others, was found to fit the data well⁴ and to be readily interpretable. None of the models which

³The models were tested for misspecification in two ways: a Ramsey RESET test which indicates whether there is likely to be some omitted variable(s) which would improve model performance (see Ramsey 1969) and a test for heteroskedasticity, or systematic pattern, in the error terms which suggests that the model estimates may be biased.

⁴This was judged in terms of adjusted R² alone since all models failed both the RESET and heteroskedasticity tests. However, given the large number of observations and the (categorical) nature of the independent variables, this is not a cause for much concern. In any case, given the nature of the data, it is not possible to control for such problems.

allowed for interactions between different dimensions improved the model significantly and many introduced inconsistencies into the estimated values. The model does, however, contain one further variable; an intercept term for whether <u>any</u> of the dimensions is at level 3. Without this additional term, which can be interpreted as reflecting the much greater disutility associated with "Extreme problems", the residuals were systematically related to the predicted values so that the model underestimated the values of less severe states and overestimated the values of more severe ones.

All independent variables from the model have been left in the final equation, even those that might be considered "insignificant" (i.e. having a t-statistic with an absolute value less than 1.96). This is to avoid the possibility that "insignificant" variables may become "significant" with repeated sampling and because, given that the terms used to estimate the values in this model are related to one another, the significance of a particular variable will depend on the other variables in the equation.

Thus, TTO scores are explained by 12 independent variables: an intercept associated with any move away from full health, two variables for each dimension (one to represent the move from level 1 to level 2 and one to represent the move from level 2 to level 3) and a term referred to 'N3' which picks up whether any dimension is at level 3. The coefficients on these variables are shown in Table 1. The algorithm for computing the tariff from the model output is quite straightforward. For example, consider the state 11223:

Full health = 1.000
Constant term (for any dysfunctional state) - 0.081
Mobility (level 1) - 0

11

| Self-care (level 1) | - 0 |
|---|---------|
| Usual activities (level 2) | - 0.036 |
| Pain or discomfort (level 2) | - 0.123 |
| Anxiety or depression (level 3) | - 0.236 |
| N3 (level 3 occurs within at least one dimension) | - 0.269 |
| | |
| Therefore, the estimated value for 11223 | = 0.255 |

Table 1 Coefficients for TTO tariffs

| DIMENSION | COEFFICIENT |
|--|----------------|
| Constant (a) | 0.081 |
| Mobility level 2 level 3 | 0.069 0.314 |
| Self-care level 2 level 3 | 0.104 0.214 |
| Usual activity level 2 level 3 | 0.036 0.094 |
| Pain/discomfort level 2 level 3 | 0.123 0.386 |
| Anxiety/depression level 2 level 3 | 0.071 0.236 |
| N3 | 0.269 |
| adjusted r ² | 0.46 |

It can be seen from Table 1 that the largest decrement for a move from level 1 to level 2 is associated with pain or discomfort, some four times greater than that for the corresponding move on the usual activities dimension. Pain or discomfort continues to dominate the weighting for level 3, although mobility level 3 (confined to bed) is given a somewhat similar

decrement. For the mobility, pain or discomfort, and anxiety or depression dimensions, the move from level 2 to level 3 is seen to involve a much greater decrement than the move from level 1 to level 2 on these dimensions.

The actual and estimated values for the 42 states directly valued in the study are given in Table 2. For only three states (21312, 23313 and 13332) does the difference between the mean and estimated value exceed 0.1. The full model of estimated values based on this model is set out in the Appendix. 82 of the 243 states have negative values, and are thus rated as being worse than dead.⁵

Table 2 Comparison of estimated with actual values

| A atual | | Mean - |
|---------|---|--|
| | T | |
| mean | Estimated | Estimated |
| 0.878 | 0.850 | 0.028 |
| 0.869 | 0.883 | -0.014 |
| 0.834 | 0.815 | 0.019 |
| 0.850 | 0.796 | 0.054 |
| 0.829 | 0.848 | -0.019 |
| 0.767 | 0.779 | -0.012 |
| 0.742 | 0.692 | 0.050 |
| 0.722 | 0.725 | -0.003 |
| 0.645 | 0.623 | 0.022 |
| 0.662 | 0.675 | -0.013 |
| 0.552 | 0.485 | 0.067 |
| 0.540 | 0.552 | -0.012 |
| 0.536 | 0.416 | 0.120 |
| 0.553 | 0.620 | -0.067 |
| 0.551 | 0.585 | -0.034 |
| 0.500 | 0.516 | -0.016 |
| 0.389 | 0.329 | 0.060 |
| 0.346 | 0.342 | 0.004 |
| 0.392 | 0.414 | -0.022 |
| | 0.869 0.834 0.850 0.829 0.767 0.742 0.722 0.645 0.662 0.552 0.540 0.536 0.553 0.551 0.500 0.389 0.346 | mean 0.878 0.850 0.869 0.883 0.834 0.815 0.850 0.796 0.829 0.848 0.767 0.779 0.742 0.692 0.722 0.725 0.645 0.623 0.662 0.675 0.552 0.485 0.540 0.552 0.485 0.553 0.620 0.551 0.585 0.500 0.516 0.389 0.329 0.346 0.342 |

⁵The value of -0.402 given to the state unconscious is the mean of the observed values given to this state.

| .1 | 4 | • | ^ | 4 | 0.000 | | |
|----|---|---|----|---|--------|--------|--------|
| 1 | 1 | 1 | 3 | 1 | 0.200 | 0.264 | -0.064 |
| 1 | 2 | 2 | 2 | 3 | 0.216 | 0.151 | 0.065 |
| 2 | 1 | 3 | 2 | 3 | 0.160 | 0.128 | 0.032 |
| 2 | 3 | 3 | 2 | 1 | 0.147 | 0.150 | -0.003 |
| 3 | 2 | 2 | 1 | 1 | 0.152 | 0.196 | -0.044 |
| 2 | 1 | 2 | 3 | 2 | 0.064 | 0.088 | -0.024 |
| 2 | 2 | 3 | 2 | 3 | 0.042 | 0.024 | 0.018 |
| 1 | 1 | 1 | 3 | 3 | -0.049 | 0.028 | -0.077 |
| 2 | 2 | 3 | 3 | 1 | -0.011 | -0.003 | -0.008 |
| 2 | 3 | 3 | 1 | 3 | -0.070 | 0.037 | -0.107 |
| 3 | 3 | 2 | 1 | 2 | -0.022 | 0.015 | -0.037 |
| 2 | 3 | 2 | 3 | 2 | -0.084 | -0.126 | 0.042 |
| 2 | 1 | 1 | 3 | 3 | -0.063 | -0.041 | -0.022 |
| 3 | 3 | 3 | 2 | 1 | -0.120 | -0.095 | -0.025 |
| 3 | 2 | 3 | 1 | 3 | -0.152 | -0.098 | -0.054 |
| 2 | 2 | 2 | 3 | 3 | -0.142 | -0.181 | 0.039 |
| 3 | 2 | 2 | 2 | 3 | -0.174 | -0.163 | -0.011 |
| 3 | 2 | 2 | 3 | 2 | -0.223 | -0.261 | 0.038 |
| 1 | 3 | 3 | 3 | 2 | -0.228 | -0.115 | -0.113 |
| 3 | 2 | 3 | 3 | 1 | -0.276 | -0.248 | -0.028 |
| 3 | 3 | 2 | 3 | 2 | -0.332 | -0.371 | 0.039 |
| 3 | 3 | 3 | 2 | 3 | -0.386 | -0.331 | -0.055 |
| 3 | 3 | 3 | 3 | 3 | -0.543 | -0.594 | 0.051 |
| | _ | | ٠. | | 0.0 15 | 0.07 | 0.051 |

DISCUSSION

The statistical analysis in this is based on regression analysis in which the dependent variable is (one minus) the score given to the health states. All independent variables are dummies and derive from the ordinal nature of the EuroQol descriptive system. The functional form estimated is a linear additive one which seems reasonable given the assumption that valuations elicited from both the TTO method exhibit interval scale properties. Besides, estimating and interpreting different functional forms would be very difficult given the nature of the independent variables. Moreover, we are unaware from the literature of any theoretical justification for further transformation of the valuations themselves.

Analysis is based on data from individual respondents and takes the form of generalised least-squares known as the random effects model. This specification takes into account the fact that groups of observations come from one individual. An alternative approach would have been a fixed effects model in which a dummy variable is created for each respondent. However, models based on random rather than fixed effects were deemed more appropriate for this data set because fixed effects models, which produce results that are conditional on the units in the data set, are only reasonable if the data exhaust the population. If the data are a sample of a larger population (as is the case here), and if we wish to draw inferences regarding other members of that population (as is also the case here) then "the fixed effects model is no longer reasonable; in this context, use of the random effects model has the advantage that it saves a lot of degrees of freedom" (Kennedy 1992, p222).

Besides the random effects specification, the model is as simple as it can be; the data are explained in terms of a main effects model with one additional term to account for the much greater disutility associated with having "extreme problems". On the whole, the results from this modelling are encouraging. The R-squared (of 0.46) can be considered very good given the type of data analysed here.⁶ In addition, the predicted values from these models are in the majority of cases very close to the actual ones.

Ultimately, there will be a trade-off between the explanatory power of the model and its parsimony and transparency. It is usually possible to improve performance on the first criteria

⁶There is very little data with which a direct comparison of these results can be made since much of the analysis of health state valuations data has been performed on aggregate level data using relatively unsophisticated techniques. However, in a wider context, a number of econometric models, notably those concerning labour supply functions, report "robust" findings with R²s as low as 0.1.

by making the models more complex and less easy to interpret. In our view, the model presented here represents a point close to the optimum on that trade-off function. Our purpose has been to lay bare the processes used, and the judgements used, in reaching the very satisfactory level of achievement represented by the tariff in the Appendix.

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APPENDIX

TTO TARIFF

| 1 1 1 1 1 | 1.000 | 1 2 3 1 1 | 0.452 | 2 1 2 1 1 | 0.814 |
|-------------|--------|---------------------|----------------|--|--------|
| 1 1 1 1 2 | 0.848 | 1 2 3 1 2 | 0.381 | 2 1 2 1 2 | 0.743 |
| 1 1 1 1 3 | 0.414 | 1 2 3 1 3 | 0.216 | 2 1 2 1 3 | 0.309 |
| 1 1 1 2 1 | 0.796 | 1 2 3 2 1 | 0.329 | 2 1 2 2 1 | 0.691 |
| 1 1 1 2 2 | 0.725 | 1 2 3 2 2 | 0.258 | 2 1 2 2 2 | 0.620 |
| 1 1 1 2 3 | 0.291 | 1 2 3 2 3 | 0.093 | 2 1 2 2 3 | 0.186 |
| 1 1 1 3 1 | 0.264 | 1 2 3 3 1 | 0.066 | 2 1 2 3 1 | 0.159 |
| 1 1 1 3 2 | 0.193 | 1 2 3 3 2 | -0.005 | 2 1 2 3 2 | 0.088 |
| 1 1 1 3 3 | 0.028 | 1 2 3 3 3 | -0.170 | 2 1 2 3 3 | -0.077 |
| 1 1 2 1 1 | 0.883 | 1 3 1 1 1 | 0.436 | 2 1 3 1 1 | 0.487 |
| 1 1 2 1 2 | 0.812 | 1 3 1 1 2 | 0.365 | 2 1 3 1 2 | 0.416 |
| 1 1 2 1 3 | 0.378 | 1 3 1 1 3 | 0.200 | 2 1 3 1 3 | 0.251 |
| 1 1 2 2 1 | 0.760 | 1 3 1 2 1 | 0.313 | 2 1 3 2 1 | 0.364 |
| 1 1 2 2 2 | 0.689 | 1 3 1 2 2 | 0.242 | 2 1 3 2 2 | 0.293 |
| 1 1 2 2 3 | 0.255 | 1 3 1 2 3 | 0.077 | 2 1 3 2 2 | 0.128 |
| 1 1 2 3 1 | 0.228 | 1 3 1 3 1 | 0.050 | 2 1 3 2 3 | 0.123 |
| 1 1 2 3 2 | 0.157 | 1 3 1 3 2 | -0.021 | 2 1 3 3 2 | 0.030 |
| 1 1 2 3 3 | -0.008 | 1 3 1 3 3 | -0.186 | 2 1 3 3 3 | -0.135 |
| 1 1 3 1 1 | 0.556 | 1 3 2 1 1 | 0.400 | 2 2 1 1 1 | 0.746 |
| 1 1 3 1 2 | 0.485 | 1 3 2 1 1 | 0.329 | 2 2 1 1 2 | 0.675 |
| 1 1 3 1 3 | 0.320 | 1 3 2 1 2 | 0.164 | 2 2 1 1 2 | 0.073 |
| 1 1 3 2 1 | 0.433 | 1 3 2 1 3 | 0.104 | 2 2 1 2 1 | 0.623 |
| 1 1 3 2 2 | 0.362 | 1 3 2 2 2 | 0.206 | 2 2 1 2 1 | 0.552 |
| 1 1 3 2 3 | 0.197 | 1 3 2 2 3 | 0.200 | 2 2 1 2 2 | 0.332 |
| 1 1 3 3 1 | 0.170 | 1 3 2 3 1 | 0.041 | 2 2 1 2 3 2 2 1 3 1 | 0.118 |
| 1 1 3 3 1 | 0.099 | 1 3 2 3 1 | -0.057 | 2 2 1 3 1 | 0.020 |
| 1 1 3 3 3 | -0.066 | 1 3 2 3 2 | -0.222 | 2 2 1 3 2 | -0.145 |
| 1 2 1 1 1 | 0.815 | 1 3 3 1 1 | 0.342 | 2 2 1 3 3 | 0.710 |
| 1 2 1 1 2 | 0.744 | 1 3 3 1 1 | 0.271 | 2 2 2 1 1 | 0.710 |
| 1 2 1 1 3 | 0.310 | 1 3 3 1 2 | 0.271 | 2 2 2 1 2 2 2 3 | 0.205 |
| 1 2 1 2 1 | 0.692 | 1 3 3 1 3 | 0.100 | 2 2 2 1 3 | 0.203 |
| 1 2 1 2 1 | 0.621 | 1 3 3 2 1 | 0.148 | $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | 0.516 |
| 1 2 1 2 2 | 0.187 | 1 3 3 2 2 | -0.017 | 2 2 2 2 2 3 | 0.082 |
| 1 2 1 3 1 | 0.160 | 1 3 3 3 1 | -0.017 | 2 2 2 3 1 | 0.055 |
| 1 2 1 3 1 | 0.100 | 1 3 3 3 1 | -0.115 | 2 2 2 3 1 | -0.016 |
| 1 2 1 3 2 | -0.076 | 1 3 3 3 3 | -0.280 | 2 2 2 3 2 | -0.181 |
| 1 2 2 1 1 | 0.779 | 2 1 1 1 1 | 0.850 | 2 2 3 3 1 1 | 0.383 |
| 1 2 2 1 1 | 0.708 | 2 1 1 1 2 | 0.830 | 2 2 3 1 1 2 | 0.312 |
| 1 2 2 1 2 | 0.708 | 2 1 1 1 3 | 0.779 | 2 2 3 1 2 2 3 1 3 | 0.312 |
| 1 2 2 1 3 | 0.656 | 2 1 1 2 1 | | 2 2 3 1 3 | 0.147 |
| 1 2 2 2 1 | 0.636 | 2 1 1 2 1 | 0.727 0.656 | 2 2 3 2 1 2 2 2 | 0.280 |
| 1 2 2 2 2 3 | 0.383 | 2 1 1 2 2 2 2 3 | 0.036 | 2 2 3 2 2 2 2 3 2 3 | 0.139 |
| 1 2 2 3 1 | 0.131 | 2 1 1 2 3 | 0.222 | 2 2 3 2 3 2 3 | -0.003 |
| 1 2 2 3 1 | 0.124 | 2 1 1 3 1 | 0.193 | 2 2 3 3 1 | -0.003 |
| 1 2 2 3 2 | -0.112 | 2 1 1 3 2 2 1 1 3 3 | -0.041 | 2 2 3 3 2 2 2 3 3 3 | -0.074 |
| 1 4 4 3 3 | -0.112 | 2 1 1 3 3 | -U.U4I | 2 2 3 3 3 | -0.239 |

| 2 3 1 1 1 2 3 1 1 2 2 3 1 1 3 2 3 1 2 1 2 3 1 2 2 2 3 1 2 3 2 3 1 3 1 2 3 1 3 2 2 3 1 3 3 2 3 2 1 1 2 3 2 1 2 2 3 2 1 3 2 3 2 2 1 | 0.367 0.296 0.131 0.244 0.173 0.008 -0.019 -0.090 -0.255 0.331 0.260 0.095 0.208 | 3 1 3 2 1 3 1 3 2 2 3 1 3 2 3 3 1 3 3 1 3 1 3 3 2 3 1 3 3 3 3 2 1 1 1 3 2 1 1 2 3 2 1 2 1 3 2 1 2 2 3 2 1 2 3 3 2 1 3 1 | 0.119 0.048 -0.117 -0.144 -0.215 -0.380 0.232 0.161 -0.004 0.109 0.038 -0.127 -0.154 | 3 3 2 3 1 3 3 2 3 2 3 3 2 3 3 3 3 3 1 1 3 3 3 1 2 3 3 3 1 3 3 3 3 2 1 3 3 3 2 2 3 3 3 3 2 3 3 3 3 3 3 1 3 3 3 3 3 3 3 3 3 3 3 3 3 | -0.300 -0.371 -0.536 0.028 -0.043 -0.208 -0.095 -0.166 -0.331 -0.358 -0.429 -0.594 |
|---|---|---|---|---|---|
| 2 3 2 2 3 2 3 2 3 1 2 3 2 3 2 2 3 2 3 3 2 3 3 1 1 2 3 3 1 2 2 3 3 1 2 2 3 3 2 1 2 3 3 2 2 2 3 3 2 3 2 3 3 2 1 2 3 3 2 2 2 3 3 3 2 1 2 3 3 3 2 1 2 3 3 3 2 2 2 3 3 3 3 3 1 3 1 1 1 1 1 3 1 1 1 2 3 1 1 1 2 3 1 1 1 2 3 1 1 2 1 3 1 1 2 2 3 1 1 3 3 3 1 1 2 1 3 1 2 2 3 1 1 3 3 3 1 2 1 1 3 1 2 1 2 3 1 2 1 3 3 1 2 1 1 3 1 2 2 2 3 1 2 2 3 3 1 2 2 3 3 1 2 3 3 3 1 2 3 1 3 1 2 2 3 3 1 2 3 3 3 1 3 1 3 1 3 1 3 1 3 1 3 1 3 1 3 1 | 0.137 -0.028 -0.055 -0.126 -0.291 0.273 0.202 0.037 0.150 0.079 -0.086 -0.113 -0.184 -0.349 0.336 0.265 0.100 0.213 0.142 -0.023 -0.050 -0.121 -0.286 0.300 0.229 0.064 0.177 0.106 -0.059 -0.086 -0.157 -0.322 0.242 0.171 0.006 | 3 2 1 3 2 3 2 1 1 3 2 2 1 1 3 2 2 1 2 3 2 2 1 3 3 2 2 1 3 3 2 2 2 2 3 3 2 2 2 3 3 3 2 2 3 <td>-0.225 -0.390 0.196 0.125 -0.040 0.073 0.002 -0.163 -0.190 -0.261 -0.426 0.138 0.067 -0.098 0.015 -0.056 -0.221 -0.248 -0.319 -0.484 0.122 0.051 -0.114 -0.001 -0.072 -0.237 -0.264 -0.335 -0.500 0.086 0.015 -0.150 -0.037 -0.108 -0.273</td> <td>Unconscious</td> <td>[-0.402]</td> | -0.225 -0.390 0.196 0.125 -0.040 0.073 0.002 -0.163 -0.190 -0.261 -0.426 0.138 0.067 -0.098 0.015 -0.056 -0.221 -0.248 -0.319 -0.484 0.122 0.051 -0.114 -0.001 -0.072 -0.237 -0.264 -0.335 -0.500 0.086 0.015 -0.150 -0.037 -0.108 -0.273 | Unconscious | [-0.402] |