

THE UNIVERSITY *of York*

CENTRE FOR HEALTH ECONOMICS

TIME TRADE-OFF USER MANUAL :
PROPS AND SELF-COMPLETION METHODS

Manual edited by C. Gudex

April 1994

**TIME TRADE-OFF
USER MANUAL:
PROPS AND SELF-COMPLETION METHODS**

Procedures designed by:

**Measurement and Valuation of Health Group
Centre for Health Economics
University of York
York, YO1 5DD**

and

**Social and Community Planning Research
35 Northampton Square
London EC1V 0AX**

**Manual edited by C. Gudex
April 1994**

INTRODUCTION

In 1992, the Measurement and Valuation of Health (MVH) Group at the Centre for Health Economics conducted a study with Social and Community Planning Research (SCPR) comparing different methods of valuing health states (Dolan et al 1993). A random sample of 335 members of the general population were interviewed in their own homes by specially trained interviewers. Each respondent was asked to value a series of health states using two different valuation methods – Standard Gamble (SG) and Time Trade-Off (TTO).

Considerable time and energy went into the production of the protocols for the interviews. Standard methodology (derived primarily from research in Canada and the USA) for both the SG and TTO methods involves the use of specially designed boards and cards. The SG procedure typically uses a 'probability wheel' which allows different probabilities of health outcomes to be presented to the respondent, while the TTO typically uses a horizontal sliding scale which allows the length of time spent in a health state to be varied. SG and TTO boards based on the standard methodology were piloted as part of the MVH study and it was found that substantial modifications were required to simplify the material for both the interviewer and the respondent. In addition the standard boards were found to be too large and were difficult to operate. The substantive change made to the SG board during the course of the piloting was the use of a sliding scale rather than a wheel, and a new TTO board was designed so that both sides could be used – one for states considered better than death, and the other for states considered worse than death.

A fundamental question arising from the pilot work was the advantage of using props such as boards and cards in the interview. To address this issue, an alternative method of administering the SG and TTO tasks was developed representing a significant departure from the standard methodology. In these modified procedures, the respondent was able to take a much more active role and in fact completed much of the valuation task by him/herself without the use of a board.

All four methods performed very well in the main study, to the extent that no single method proved decisively superior to all others from an administrative point of view. Ultimately the choice of method was based on empirical grounds, with the result that the TTO 'Props' (with board and cards) was selected as the 'best' method for valuing health states in population surveys.

Although the MVH Group is now concentrating on the TTO 'Props' method in further work, there are certain to be other researchers who want to use the SG method or the TTO in its self-completion form. Thus we want to ensure that all our methods are available to other interested parties in the field of health status measurement. The health states used in this study were based on the EuroQol descriptive system (Kind et al, 1994), but these valuation procedures have a general application and can be used for any health state descriptive system. Being aware of the considerable work required in designing and piloting any new methods, we felt that it would be useful if other researchers were able to gain access to a detailed account of the procedures that we had developed.

In order to maximise the availability of these designs, we have decided to supplement the initial report describing the piloting and interview design (Thomas and Thomson 1992) with specific User Guides detailing the four valuation methods:

Standard Gamble: Props and Self-completion
Time Trade-Off: Props and Self-completion

Revisions to the TTO Props method as a result of more recent survey work have also been included. We hope others will be able to pick up from where we have left off, either to make use of the methods in their current form or to modify them further as they wish. In either event we look forward with interest to hearing of the results.

For further information regarding the SG or TTO methods or the MVH study, please contact any member of the MVH Group: **Paul Dolan, Claire Gudex, Paul Kind, Alan Williams** or SCPR: **Roger Thomas, Katarina Thomson**.

The SG and TTO guides are available, at a price of £7.50 each (to cover the cost of publication, postage and packing), from:

The Publications Secretary,
Centre for Health Economics,
University of York,
York. YO1 5DD.

Cheques should be made payable to the University of York.

CONTENTS

THE TIME TRADE-OFF

INTRODUCTION	1
INTERVIEWER TRAINING	4
THE TIME TRADE-OFF: PROPS METHOD	6
Items Required	7
Procedure	9
Data Entry and Scoring	13
Interviewer Script	20
Figures 3 - 5	26
THE TIME TRADE-OFF: SELF-COMPLETION METHOD	29
Items Required	29
Procedure	31
Data Entry and Scoring	33
Interviewer Script	35
Showcards	39
Results Booklet	
Page TTO1	

THE TIME TRADE-OFF

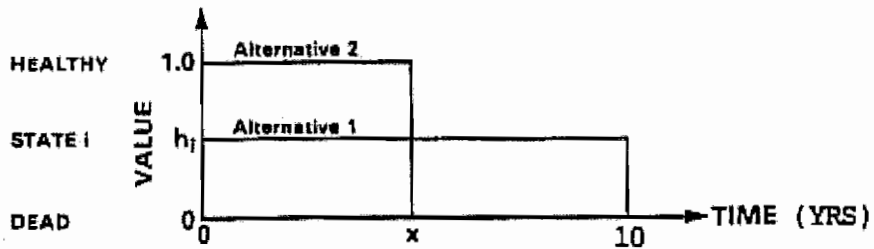
INTRODUCTION

The Time Trade-off produces valuations based on decisions made under conditions of certainty. In the generally accepted 'standard' version described by Torrance (1986), the respondent is required to choose between two certain alternatives. For states better than death, one of these alternatives is to live in a state less than full health for a defined period of time (e.g. 10 years) and then die. The other alternative is to live for a shorter period of time (i.e. up to 10 years) in full health and then die. The aim is to find the number of years of full health at which the respondent is indifferent between the longer period of less than full health and the shorter period of full health. This indifference point generates a health state value between 1.00 and 0.00. When states worse than death are also used, the health state scores range between 1.00 and -ve infinity, on a scale in which full health and death are assigned values of 1.00 and 0.00 respectively.

The basic TTO procedure, for chronic states better than death, is shown in Figure 1. The respondent is offered two alternatives. Alternative 1 is a treatment with a certain outcome of a chronic state i for 10 years followed by death. Alternative 2 is a treatment with a certain outcome of full health for x number of years (where $x < 10$) followed by death. Time x is varied until the respondent is indifferent between the two alternatives, at which point the utility value for state i is given by:

$$U(i) = x/10$$

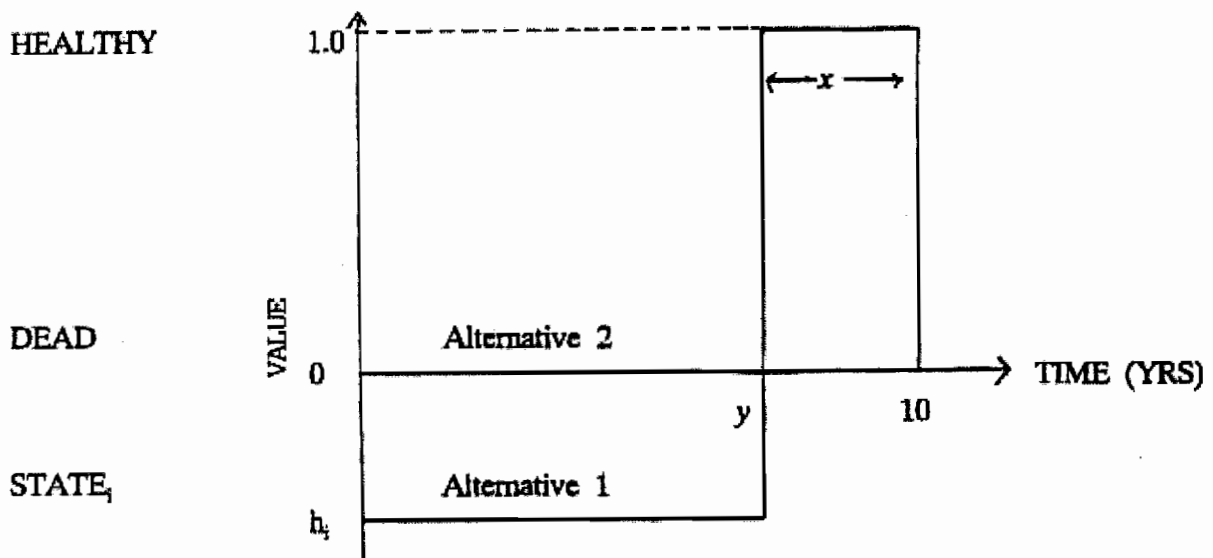
**Figure 1: Time Trade-off for a Chronic State Considered Better than Death
(After Torrance, 1986)**



The format used in this manual for chronic states worse than death, is shown in Figure 2. The respondent is again offered two alternatives but this time Alternative 1 is a combination of chronic state *i* for *y* number of years followed by full health for *x* number of years (where $x + y = 10$), followed by death. Alternative 2 is the certain outcome of immediate death. Time *x* is again varied until the respondent is indifferent between the two alternatives, at which point the utility value for state *i* is given by:

$$U(i) = -x/(10-x)$$

Figure 2: Time Trade-off for a Chronic State Considered Worse than Death



Note that this method differs from that of Torrance (1986) who describes Alternative 1 as a period of full health first, followed by the period of poor health. It was felt that by having the poor health state first, the respondent is forced to think more directly about being in that state for y number of years and thus to recognise the sacrifice that must be made before being in full health for x number of years.

Note that in all cases the maximum time in a state is 10 years without any change, after which the respondent dies.

Note also that the health state descriptions used in this manual are based on the EuroQol classification system. This is for illustrative purposes only - any descriptive system can be used, as long as it provides a description of 'good' or 'full' health and of a series of dysfunctional health states.

INTERVIEWER TRAINING

Training was one of the key elements to the success of the MVH study and it is recommended that considerable effort be put into this. In the MVH study, professional interviewers registered with SCPR were specifically trained in the handling of these procedures. Although the interviewers were experienced in contacting and communicating with the general public, they were quite unused to manipulating boards and cards. The most productive method of training appeared to be a formal 1-day session with the following format:

- . A short, general explanation of theory behind the procedures
- . Demonstration of the procedure with a 'dummy' interview
- . Practice sessions in which the new interviewer conducted the interview with someone familiar with the techniques acting as respondent
- . Debriefing session to resolve any problems

New interviewers were then asked to practise the methods at home, and then to conduct 5 formal interviews. These were checked and remedial training was provided if necessary.

REFERENCES

Dolan P., Gudex C., Kind P. & Williams A. 'Valuing Health States: A Comparison of Methods'. MVH Research Report, Centre for Health Economics, University of York, 1993.

Kind P., Gudex C., Williams A. and Dolan P. Practical and Methodological Issues in the Development of the EuroQol: The York experience. In Advances in Medical Sociology, Vol 5: Quality of Life in Health Care. Edited by Albrecht G L and Fitzpatrick R. I.A.I. Press, 1994 (forthcoming).

Thomas, R. and Thomson, K. Health Related Quality of Life: Technical Report, Joint Centre for Survey Methods, London, August 1992

Torrance, G.W., Measurement of Health State Utilities for Economic Appraisal: A Review, Journal of Health Economics, 5:1-30, 1986.

TIME TRADE-OFF: PROPS METHOD

This version of the TTO uses a board and a set of health state cards. The respondent is guided through the exercise one state at a time, using the board to show the varying lengths of time spent in the health states.

The TTO procedure described here differs slightly from that used in the MVH study comparing valuation methods (Thomas and Thomson, 1992) which led to the selection of the TTO Props method as the focus for future work. Since that study, emphasis has been placed on simplifying the TTO procedure as much as possible, and further piloting has resulted in some changes. These are not major changes, but they simplify the procedure for both the respondent and interviewer.

The main difference is in the presentation of choices to the respondent. In the earlier version, choices were presented to the respondent in a 'ping-pong' fashion in which high and low values for Life A (full health) were alternated until the point of indifference was reached. In this revised version, the respondent is asked first to decide whether a state is better or worse than death, then a middle value for Life A (5 years) is offered, and the resulting answer determines whether the time in Life A then increases (from 5 towards 10) or decreases (from 5 towards 0).

The great advantage of this method is that the text can be much shorter and thus a questionnaire which integrates both script and scoring sheets is possible.

When six states are valued, the TTO Props method takes approximately 20 minutes.

ITEMS REQUIRED

1. A *Time board* made of 3 layers of thick hardboard and incorporating a moveable sliding scale. The scale occupies a space created in the middle layer of the board, and when fully extended to either side does not extend beyond the board.

Both sides of the board are used.

On Side 1, (see Figure 3) the upper part of the board shows 'Life A' and the lower part 'Life B'.

Life A has one plastic envelope, size 110mm x 70mm, containing a pink card describing 'full health'. The scale is 100mm x 30mm and has a background divided into two equal parts, one coloured pink and the other blue. Numbers below the scale run from 0 to 10 and represent the number of years in full health (pink). At the end of full health it is assumed that the respondent would die (blue). The pointer, of red hard plastic, lies between the pink and blue areas and is diamond-shaped to allow more accuracy in reading off the number of years in full health. The ends of the scale are triangular to make room for the pointer when it is at either 0 or 10.

Life B has one plastic envelope, size 110mm x 70mm, and a green-coloured scale, 100mm x 30mm, which is painted onto the board and has no moving parts. The numbers under the scale run from 0 to 10 and represent the number of years in the state to be valued (green).

On **Side 2** (see Figure 4), again the upper part of the board shows 'Life A' and the lower part 'Life B'.

Life A has two plastic envelopes, size 110mm x 70mm. The envelope on the right hand side contains a pink card describing 'full health'. The scale is now in between the envelopes and has a background divided into two equal parts, one coloured green and the other pink. Numbers below the scale run from 0 to 10 and represent the number of years in the state to be valued (green) and thus also in full health (pink). The pointer is the same as that on Side 1.

Life B has one central plastic envelope, size 110mm x 70mm, containing a blue card describing 'Immediate Death'.

The top corners of the board have an extra thickness on each side so that the board stands slightly up from a table, making the pointer easier to move.

2. Envelope marked 'TTO' containing *health state cards*:

1 *green* card for each health state to be valued

Each card has an identifier e.g. Card 'X' describes one health state, Card 'S' describes another, see Figure 5. These same cards are used regardless of whether a state is rated as better or worse than death.

PROCEDURE

The respondent is taken through each of the health states to be valued, one at a time (in a pre-determined order if desired), with the interviewer moving the scale as appropriate.

The procedure for all states, except the first, is exactly the same and thus each double page of the script is identical and deals with each state in turn. The left hand page is used for states rated as better than death, and the right hand side for states rated as worse than death. The interviewer does not write in a final score for each state – this is done at the data entry stage (see below). For the first state only there is an extra question asked at the beginning.

In order to allow a finer discrimination between states, the point of indifference is continued as far as a question regarding the mid-point between two years e.g. four and a half years of Life A vs 10 years of Life B. This in effect doubles the precision of the TTO scale.

If a respondent chooses 10 years in Life B (the state to be valued) in preference to nine and a half years in full health, the respondent is asked whether (s)he would be prepared

to sacrifice any time to avoid Life B. This question is intended to aid in the evaluation of very mild states of health.

The full script for two example cards is reproduced on pages 20–25.

1. The interviewer has the board (Side 1 upwards) and the envelope of cards ready and notes the start time. The choice between Life A and Life B is explained and the respondent is asked to read carefully the first (green) health state to be valued. This card is then put into the pocket for Choice B. The scale is initially set at 10 years (i.e. all pink). The first questions asked (Q.12 b and c) serve as a check that the respondent understands the choice to be made. The expected answer to Q.12b is that Life A would be preferred to Life B. If this answer is not given, Q.12c repeats the question with a changed wording.

2. **Questions 13c–g, State Better than Death:**

Assuming that the respondent chose Life A at Q.12b, the marker is then set at 0 years of Life A (i.e. immediate death). If the respondent prefers Life B (state better than death), the interviewer marks a cross under 0 on the scale and then sets the marker to 5 years of Life A.

If Life A is chosen: a tick is marked under 5 on the scale, the marker is moved one year to the left i.e. to 4 years, and Q.13d is repeated for 4 years of Life A.

If Life B is chosen: a cross is marked under 5 on the scale, the marker is moved one year to the right i.e. to 6 years, and Q.13d is repeated for 6 years of Life A.

If Life A and Life B are the same: the indifference point for the state has been

reached. An equals sign is placed under 5 on the scale and the interviewer continues with the next state to be valued.

3. Q.13d is repeated, marking a tick and moving to the left if Life A is chosen, and marking a cross and moving to the right if Life B is chosen, until either
 - (i) an equals sign is marked (in which case the interviewer goes on to the next state to be valued), or
 - (ii) a cross is next to a tick on adjacent numbers below the scale.

In this case, Q.13e is asked, which establishes whether the indifference point is nearer the tick or the cross e.g. if there is a cross under 4 and a tick under 5, the respondent would be asked "What if you would either live in Life A for 4 years and 6 months and then die, or you would live in Life B for 10 years and then die. Would you prefer Life A or Life B, or are they the same?"

If Life A is chosen the indifference point is taken to be four years and three months of Life A, but if Life B is chosen the indifference point is taken to be four years and nine months of Life A. If Life A and Life B are the same, the indifference point is taken to be four years and 6 months of Life A.

4. If it happens that the adjacent cross and tick are under 9 and 10 respectively (e.g. for a very mild health state), a further question (Q.12g) is asked. It is important to know whether the respondent would be willing to give up any time in Life A in order to avoid Life B, and if so, how much time. The answer is requested in

weeks and it should be less than 6 months.

5. **Questions 13h–j, State Worse than Death:**

At Q.13b, if the respondent prefers immediate death to 10 years in Life B, the interviewer rings the appropriate answer and continues on the right hand page (state worse than death) using Side B of the TTO board. A tick, instead of a cross, is marked under 0 on the scale and, as before, the marker for Life A is first set to 5 years.

If Life A is chosen: a tick is marked under 5 on the scale, the marker is moved one year to the right i.e. to 6 years, and Q.13i is repeated for 6 years of the state to be valued followed by 4 years of full health.

If Life B is chosen: a cross is marked under 5 on the scale, the marker is moved one year to the left i.e. to 4 years, and Q.13i is repeated for 4 years of the state to be valued followed by 6 years of full health.

If Life A and Life B are the same: the indifference point for the state has been reached. An equals sign is placed under 5 on the scale and the interviewer continues with the next state to be valued.

6. Q.13i is repeated, marking a tick and moving to the right if Life A is chosen, and marking a cross and moving to the left if Life B is chosen, until either
- (i) an equals sign is marked (in which case the interviewer goes on to the next state to be valued), or
 - (ii) a cross is next to a tick on adjacent numbers below the scale.

In this case, Q.13j is asked, which establishes whether the indifference point is nearer the tick or the cross e.g. if there is a tick under 3 and a cross under 4, the respondent would be asked "What if Life A was 3 years and 6 months of this (GREEN) state followed by 6 years and 6 months in this other state (FULL HEALTH). Or instead of that you could choose to die immediately. Would you prefer Life A, or to die immediately, or are they the same?"

If Life A is chosen the indifference point is taken to be six years and three months of full health, but if Life B is chosen the indifference point is taken to be six years and nine months of full health. If Life A and Life B are the same, the indifference point is taken to be six years and 6 months of Life A.

After all states have been scored, the finish time is recorded.

DATA ENTRY AND SCORING

In this method, the task of scoring the health state is done at the point of data entry and thus the onus is taken off the interviewers. The scoring can be quite complicated and requires a comprehensive set of explanatory notes. Our guidelines are provided below. Whoever is doing the data entry, and thus the scoring, needs to be trained in using these notes and to have initial practice in applying them.

In the MVH study, the TTO procedure was preceded by several 'warm-up' exercises in which the respondent first ranked and then rated the health states to be valued in the TTO.

The respondents were thus familiar with the health states, and hence the references to "the same health states that you have seen before" at the beginning of the TTO procedure.

This is also the explanation for the numbering of the card records for computer entry which start at 04:

Card 04 TTO Props method: Responses to questions within the script do not have to be recorded. Instead a set of coding rules can be followed and only the resulting scores (and the time taken) entered for computer analysis. In the MVH study, six health states were valued and thus only columns 01 to 45 are used. Only the pages of the script relating to the first two health states to be valued are reproduced here.

In the resulting health state scores full health (represented by the 11111 state) is given a value of 1.00, death is given a value of 0.00 and the minimum score is -39.00. The code +97.00 is used for unusual answers, while 999.99 is recommended for missing answers.

Scoring Guidelines

1. Check which health state is being dealt with

The code letters of each health state are written into the boxes under subquestion a. at the top of each left hand page - except for the very first health state, where they are written at question 12a on a previous page.

2. Code whether the score is positive or negative

Look at subquestion b.

(i) If the answer is 1, enter '-' in the +/- column. The score will be allocated by consulting subquestions h - j. Check that the interviewer has indeed filled in the scale at subquestion h.

* If the interviewer has filled in the scale at subquestion h: score the health state using section 4 below.

- * If the interviewer has not filled in the scale at subquestion h: see section 6.2(i) or (iii) below.
- (ii) If the answer is 2, enter '+' in the +/- column. The score will be allocated by consulting subquestions c - g. Check that the interviewer has indeed filled in the scale at subquestion c.
 - * If the interviewer has filled in the scale at subquestion c: score the health state using section 3 below.
 - * If the interviewer has not filled in the scale at subquestion c: see section 6.2(ii) or (iii) below.
- (iii) If the answer is 3, leave the +/- column blank. Check that the interviewer has not filled in the scales at subquestions c or h.
 - * If the interviewer has not filled in the scales at subquestions c or h: The score is 0.000. Enter the score and go to the next health state.
 - * If the interviewer has filled in the scale at subquestions c or h: see section 6.2(iv) below.
- (iv) If subquestion b has been missed in error, see section 6.2(v) below.

3. Allocating positive scores

3.1 Look at the scale under subquestion c.

- (i) If there is an equals sign under any number other than 10, the score is the number divided by ten, e.g. if there is an equal sign under 4, the score is 0.400. Ignore any answers given to subquestions e - g. Enter the score and go on to the next health state.
- (ii) If there is an equal sign under 10, check whether subquestion g is answered.
 - * If subquestion g is not answered, the score is 1.000.
 - * If subquestion g is answered, score the state according to subquestion g (see section 3.2(iii) below)

Enter the score and go on to the next health state.

- (iii) If there is a cross to the left of an adjacent tick, the score is in the range between the lower number and the upper number, each divided by ten, e.g. if the cross is under 4 and the tick is under 5, the score is between 0.4 and 0.5. Continue to follow the instructions under 3.2 below.
- (iv) If there is neither an equals sign nor a cross to the left of an adjacent tick: see section 6.3 below.

3.2 If there is a cross to the left of an adjacent tick on the scale in subquestion c, look at subquestion e.

- (i) If the answer is 1, the score is a decimal ending in 25 within the range established above, e.g. if the cross is under 4 and the tick is under 5, the score is 0.425. Enter the score and go on to the next health state.
- (ii) If the answer is 2 and the cross is not under 9, the score is a decimal ending in 75 within the range established above, e.g. if the cross is under 4 and the tick is under 5, the score is 0.475. Enter the score and go on to the next health state.

- (iii) If the answer is 2 and the cross is under 9, consult subquestion g.
 - * If the answer to subquestion g is 1, read off the score from the conversion chart in section 5 below.
 - * If the answer to subquestion g is 2, the score is 1.000.

Enter the score and go on to the next health state.

- (iv) If the answer is 3, the score is a decimal ending in 50 within the range established above, e.g. if the cross is under 4 and the tick is under 5, the score is 0.450. Enter the score and go on to the next health state.
- (v) If subquestion e has been missed in error, see section 6.4 below.

4. Allocating negative scores:

4.1 Look at the scale under subquestion h.

- (i) If there is an equals sign under any number, the score is 10 minus that number, e.g. if there is an equals sign under 4, the score is 6.000. Ignore any answer to subquestion j. Enter the score and go on to the next health state.
- (ii) if there is a cross to the right of an adjacent tick, the score will be in the range between 10 minus the lower number and 10 minus the upper number, e.g. if the tick is under 3 and the cross is under 4, the score will be between 7 and 6. Continue to follow the instructions under 4.2 below.
- (iii) If there is neither an equals sign nor a cross to the right of an adjacent tick: see section 6.5 below.

4.2 If there is a cross to the right of an adjacent tick on the scale in subquestion h, look at subquestion j.

- (i) If the answer is 1, the score is a decimal ending in 250 within the range established above, e.g. if the tick is under 3 and the cross is under 4, the score is 6.250. Enter the score and go on to the next health state.
- (ii) If the answer is 2, the score is a decimal ending in 750 within the range established above, e.g. if the tick is under 3 and the cross is under 4, the score is 6.750. Enter the score and go on to the next health state.
- (iii) If the answer is 3, the score is a decimal ending in 500 within the range established above, e.g. if the tick is under 3 and the cross is under 4, the score is 6.500. Enter the score and go on to the next health state.
- (iv) If subquestion j has been missed in error, see section 6.6 below.

4.3 These negative scores are then converted to a final score by dividing the score by (10 + score), bearing in mind that the score is already negative.

e.g. if the score for a health state has been coded as -8.250, the final score is:

$$\begin{aligned}
 U(i) &= \frac{-8.250}{10 + (-8.250)} \\
 &= -4.71
 \end{aligned}$$

The negative scores will then range from -0.026 to -39.00.

5. CONVERSION CHART: TTO SUBQUESTION g

	Score
26 weeks	0.950
25 weeks	0.952
24 weeks	0.954
23 weeks	0.956
22 weeks	0.958
21 weeks	0.960
20 weeks	0.962
19 weeks	0.963
18 weeks	0.965
17 weeks	0.967
16 weeks	0.969
15 weeks	0.971
14 weeks	0.973
13 weeks	0.975
12 weeks	0.977
11 weeks	0.979
10 weeks	0.981
9 weeks	0.983
8 weeks	0.985
7 weeks	0.987
6 weeks	0.988
5 weeks	0.990
4 weeks	0.992
3 weeks	0.994
2 weeks	0.996
1 weeks	0.998
0 weeks	1.000

If the answer to subquestion g is greater than 26 weeks, the score is '9.996' for 'impossible to code'.

6. SPECIAL CASES

These are some special cases that might arise with the scoring of TTO. Suggestions for scoring are provided here but further interpretation is left to future users!

6.1 *The code letters are missing, or some states are missing:*

- (i) The code letters are missing for only one TTO question: fill in the correct code letters. Continue to score the health state as normal.
- (ii) There are two or more TTO questions where the code letters are missing: the scores for all state(s) with missing code letters are 9.996 for 'impossible to code'.
- (iii) There are less than 6 scores: check which health state(s) the interviewer has missed and enter '9.999' for 'missing'.

6.2 *Interviewer has followed the routing from subquestion b incorrectly:*

- (i) The answer to subquestion b is 1, but the interviewer has filled in the scale at subquestion c instead of b:
- * change the code for subquestion b from 1 to 4.
 - * change the sign in the +/- column from '-' to '+'
 - * score the health state according to section 3 above, 'allocating positive scores'.
- (ii) The answer to subquestion b is 2, but the interviewer has filled in the scale at subquestion h instead of c:
- * change the code for subquestion b from 1 to 4
 - * change the sign in the +/- column from '+' to '-'
 - * score the health state according to section 4 above, 'allocating negative scores'
- (iii) The answer to subquestion b is 1 or 2, but the interviewer has filled in neither the scale at subquestion c nor the scale at subquestion h:
- * leave the sign in the +/- column as it is
 - * the score is '9.996' for 'impossible to code'
 - * enter the score and go to the next health state
- (iv) The answer to subquestion b is 3, but the interviewer has filled in the scale at subquestion c or h instead of skipping them:
- * change the code for subquestion b from 3 to 4
 - * write '+' or '-' in the +/- column (as appropriate)
 - * score the health state according to section 3 or 4 above (as appropriate)
- (v) Subquestion b has been missed in error, but the interviewer has gone on to fill in the scale at subquestion c or h:
- * enter code 4 at subquestion b
 - * write '+' or '-' in the +/- column (as appropriate)
 - * score the health state according to section 3 or 4 above as appropriate

6.3 *The scale at subquestion c does not have either an equals sign or a cross to the left of an adjacent tick:*

- (i) If there is a cross under 10: score the state in the same way as if there was an equals sign under 10 (see section 3.1(ii) above).
- (ii) If there is a cross to the right of an adjacent tick (i.e. if the ticks and crosses are the wrong way around)
- * change the answer to subquestion b to 5.
 - * allocate the score as if the cross and tick were the correct way around, e.g. if there is a tick under 4 and a cross under 5, the score will be between 0.4 and 0.5 (see section 3.1(iii) above).
- (iii) If none of the above apply:
- * leave the sign in the +/- column as it is
 - * the score is '9.996' for 'impossible to code'
 - * enter the score and go to the next health state

6.4 *Subquestion e has been missed in error*

- * leave the sign in the +/- column as it is
- * the score is a decimal ending in 49 within the range established above, e.g. if the cross is under 4 and the tick is under 5, the score is 0.449
- * enter the score and go on to the next health state

6.5 *The scale at subquestion h does not have either an equals sign or a cross to the right of an adjacent tick:*

(i) If there is a tick under 10:

- * leave the sign in the +/- column as it is
- * the score is '0.000'
- * enter the score and go on to the next health state

(ii) If there is a cross to the left of an adjacent tick (i.e. if the ticks and crosses are the wrong way around)

- * change the answer to subquestion b to 6
- * allocate the score as if the cross and tick were the correct way around e.g. if there is a cross under 3 and a tick under 4, the score will be between 7 and 6 (see section 4.1(ii) above).

(iii) If none of the above apply:

- * leave the sign in the +/- column as it is
- * the score is '9.996' for 'impossible to code'
- * enter the score and go to the next health state

6.6 *Subquestion j has been missed in error:*

- * leave the sign in the +/- column as it is
- * the score is a decimal ending in 499 within the range established above, e.g. if the tick is under 3 and the cross is under 4, the score is 6.499.
- * enter the score and go on to the next health state.

In summary, these guidelines for special cases suggest that:

- (a) Subquestion b is coded
- '4' if the wrong scale has been filled in
 - '5' if 'Better than death' scale has been completed incorrectly
 - '6' if 'Worse than death' scale has been completed incorrectly

- and (b) the score will end with
- '49' if subquestion e has been missed
 - '99' if subquestion j has been missed

**INTERVIEWER SCRIPT:
TIME TRADE-OFF PROPS METHOD**

10. **TIME AT START OF TIME TRADE OFF EXERCISE**



24 hour clock

11. **HAVE ENVELOPE OF CARDS READY
HAVE TTO BOARD SIDE '1' FACING UPWARDS.
SET BOARD MARKER FOR LIFE A TO 10 YEARS.**

Now I'm going to show you the same states that you have seen before, and ask you to make a choice between this health state at the top which is Life A and one of the other states which will be Life B. The pink scale and the green scale show the number of years you would be in each state for. Remember, I want you to imagine that you are in these states.

12a. **INTERVIEWER CHECK:**

FIRST CARD



PASS FIRST CARD TO THE RESPONDENT.

Please read this card carefully.

b. **PLACE CARD IN POCKET FOR LIFE B.
MAKE SURE THAT BOARD MARKER FOR LIFE A IS AT 10 YEARS.**

At the moment, each scale says 10 years. This means that you would either live in Life A for 10 years and then die, or you would live in Life B for 10 years and then die. Would you prefer Life A or Life B, or are they the same?

Life A
Life B
The same

1	GO TO Q.13
2	ASK c.
3	

c. **IF 'LIFE B' AT b.: Does this mean that you would rather live in Life B for 10 years than in Life A for 10 years?**

IF 'THE SAME' AT b.: Does this mean that living in Life B for 10 years would be the same as living in Life A for 10 years?

Yes
No (first time)
No (second time)

1	GO TO Q.13
2	Repeat b
3	GO TO Q.13

13a. CONTINUE WORKING WITH THE FIRST CARD.

b. MOVE BOARD MARKER FOR LIFE A TO 0 YEARS.

Now you would either die immediately, or you would live in Life B for 10 years and then die. Would you prefer to die immediately or to have Life B, or are they the same?

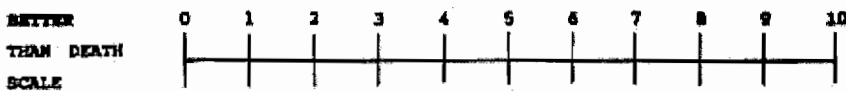
Life A	1
Life B	2
The same	3

GO TO b. (STATE WORSE THAN DEATH)
GO TO c. (STATE BETTER THAN DEATH)
GO TO Q.14

ASK IF 'LIFE B' (code 2) AT b.

c. STATE BETTER THAN DEATH

MARK 'X' UNDER 0 ON THE SCALE BELOW.



CONTINUE TO USE TIME BOARD WITH SIDE 'T' UPWARDS
SET BOARD MARKER FOR LIFE A TO 5 YEARS (t = 5).

d. Now you would either live in Life A for γ years and then die, or you would live in Life B for ten years and then die. Would you prefer Life A or Life B, or are they the same?

CONTINUE TO WRITE ON SCALE ABOVE ON THIS PAGE.

IF A : \surd UNDER γ

MOVE MARKER 1 YEAR TO THE LEFT.
REPEAT d. WITH γ 1 LESS THAN LAST TIME.

IF B : X UNDER γ

MOVE MARKER 1 YEAR TO THE RIGHT.
REPEAT d. WITH γ 1 MORE THAN LAST TIME.

IF SAME : = UNDER γ

GO TO Q.14

REPEAT d. UNTIL:
A) YOU ENTER ' \surd ' -> GO TO Q.14 OR
B) 'X' AND ' γ ' APPEAR NEXT TO EACH OTHER -> GO TO e.

ASK IF d. ENDED WITH 'X' AND ' γ ' NEXT TO EACH OTHER

e. LET ' γ ' NOW BE HALFWAY BETWEEN THE ADJACENT CROSS AND TICK, I.E. 'SOMETHING AND 6 MONTHS'.

What if you would either live in Life A for γ and then die, or you would live in Life B for ten years and then die. Would you prefer Life A or Life B, or are they the same?

Life A	1	GO TO Q.14
Life B	2	GO TO f
The same	3	GO TO Q.14

f. IF 'LIFE B' (code 2) AT e.
INTERVIEWER CHECK:

IF THERE IS A CROSS UNDER 9
IF THERE IS NOT A CROSS UNDER 9

1	GO TO e.
2	GO TO Q.14

g. ASK IF THERE IS 'X' UNDER 9 AND 'V' UNDER 10

Would you be prepared to sacrifice any time in order to avoid Life B?
IF YES: How many weeks?

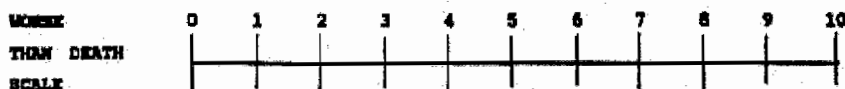
ENTER WEEKS: <-

Yes
No

1	GO TO Q.14
2	

h. ASK IF 'LIFE A' (code 1) AT b.

STATE WORSE THAN DEATH
MARK 'V' UNDER 0 ON SCALE BELOW.



TURN T10 BOARD SIDE '2' UPWARDS.
MOVE GREEN CARD TO TOP LEFT POCKET ON SIDE '2'.
SET BOARD MARKER FOR LIFE A TO 5 YEARS (t = 5).
Now here is a different choice.

i. Life A is now γ years of this state (POINT TO THE GREEN CARD) followed by '10-t' years in this other state (POINT TO THE PINK CARD). Or instead of that you could choose to die immediately (POINT TO LIFE B). Would you prefer Life A, or to die immediately, or are they the same?
WRITE ON SCALE ABOVE ON THIS PAGE.

IF A : V UNDER γ MOVE MARKER 1 YEAR TO THE RIGHT.
REPEAT i. WITH γ 1 MORE THAN LAST TIME.

IF B : X UNDER γ MOVE MARKER 1 YEAR TO THE LEFT.
REPEAT i. WITH γ 1 LESS THAN LAST TIME.

IF SAME : = UNDER γ GO TO Q.14

REPEAT i. UNTIL:

- A) YOU ENTER 'w' -> GO TO Q.14 OR
B) 'V' AND 'X' APPEAR NEXT TO EACH OTHER -> GO TO j.

ASK IF i ENDED WITH 'V' AND 'X' NEXT TO EACH OTHER

j. LET 't' NOW BE HALFWAY BETWEEN THE ADJACENT TICK AND CROSS, I.E. 'SOMETHING AND 6 MONTHS'.

What if Life A was γ of this state (POINT TO THE GREEN CARD) followed by '10-t' in this other state (POINT TO THE PINK CARD). Or instead of that you could choose to die immediately (POINT TO LIFE B). Would you prefer Life A, or to die immediately, or are they the same?

Life A
Life B
The same

1	
2	GO TO Q.14
3	

14a. TAKE OUT NEXT CARD TO BE VALUED.

ENTER LETTERS OF THE CARD:
PASS CARD TO THE RESPONDENT.



Please read this card through carefully.

b. HAVE T10 BOARD WITH SIDE '1' FACING UPWARDS.
PLACE CARD IN POCKET FOR LIFE B.
MOVE BOARD MARKER FOR LIFE A TO 0 YEARS.

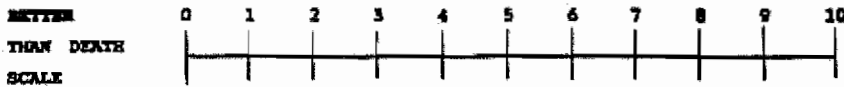
Now you would either die immediately, or you would live in Life B for 10 years and then die. Would you prefer to die immediately or to have Life B, or are they the same?

Life A 1
Life B 2
The same 3

GO TO h. (STATE WORSE THAN DEATH)
GO TO c. (STATE BETTER THAN DEATH)
GO TO Q.15

ASK IF 'LIFE B' (code 2) AT b.

c. STATE BETTER THAN DEATH
MARK 'X' UNDER 0 ON THE SCALE BELOW.



CONTINUE TO USE TIME BOARD WITH SIDE '1' UPWARDS
SET BOARD MARKER FOR LIFE A TO 5 YEARS (t = 5).

d. Now you would either live in Life A for 't' years and then die, or you would live in Life B for ten years and then die. Would you prefer Life A or Life B, or are they the same?
CONTINUE TO WRITE ON SCALE ABOVE ON THIS PAGE.

IF A : ✓ UNDER t MOVE MARKER 1 YEAR TO THE LEFT.
REPEAT d. WITH t 1 LESS THAN LAST TIME.

IF B : X UNDER t MOVE MARKER 1 YEAR TO THE RIGHT.
REPEAT d. WITH t 1 MORE THAN LAST TIME.

IF SAME : = UNDER t GO TO Q.15

REPEAT d. UNTIL:

A) YOU ENTER '=' -> GO TO Q.15 OR

B) 'X' AND '✓' APPEAR NEXT TO EACH OTHER -> GO TO c.

ASK IF d. ENDED WITH 'X' AND '✓' NEXT TO EACH OTHER

c. LET 't' NOW BE HALFWAY BETWEEN THE ADJACENT CROSS AND TICK, I.E. 'SOMETHING AND 6 MONTHS'.

What if you would either live in Life A for 't' and then die, or you would live in Life B for ten years and then die. Would you prefer Life A or Life B, or are they the same?

Life A	1	GO TO Q.15
Life B	2	GO TO f
The same	3	GO TO Q.15

f. IF 'LIFE B' (code 2) AT a.
INTERVIEWER CHECK:

IF THERE IS A CROSS UNDER 9
IF THERE IS NOT A CROSS UNDER 9

1	GO TO g.
2	GO TO Q.15

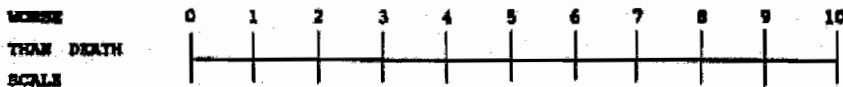
g. ASK THERE IS 'X' UNDER 9 AND 'V' UNDER 10
Would you be prepared to sacrifice any time in order to avoid Life B?
IF YES: How many weeks?

ENTER WEEKS:

<- Yes
No

1	GO TO Q.15
2	

h. ASK IF 'LIFE A' (code 1) AT b.
STATE WORSE THAN DEATH
MARK 'V' UNDER 0 ON SCALE BELOW.



TURN T10 BOARD SIDE '2' UPWARDS.
MOVE GREEN CARD TO TOP LEFT POCKET ON SIDE '2'.
SET BOARD MARKER FOR LIFE A TO 5 YEARS (t = 5).
Now here is a different choice.

i. Life A is now 't' years of this state (POINT TO THE GREEN CARD) followed by '10-t' years in this other state (POINT TO THE PINK CARD). Or instead of that you could choose to die immediately (POINT TO LIFE B). Would you prefer Life A, or to die immediately, or are they the same?
WRITE ON SCALE ABOVE ON THIS PAGE.

IF A : 'V' UNDER 't' MOVE MARKER 1 YEAR TO THE RIGHT.
REPEAT 1 WITH 't' 1 MORE THAN LAST TIME.

IF B : 'X' UNDER 't' MOVE MARKER 1 YEAR TO THE LEFT.
REPEAT 1 WITH 't' 1 LESS THAN LAST TIME.

IF SAME : '=' UNDER 't' GO TO Q.15

REPEAT 1 UNTIL:

- A) YOU ENTER '=' -> GO TO Q.15 OR
- B) 'V' AND 'X' APPEAR NEXT TO EACH OTHER -> GO TO j.

j. ASK IF 1 ENDED WITH 'V' AND 'X' NEXT TO EACH OTHER
LET 't' NOW BE HALFWAY BETWEEN THE ADJACENT TICK AND CROSS, I.E. 'SOMETHING AND 6 MONTHS'.

What if Life A was 't' of this state (POINT TO THE GREEN CARD) followed by '10-t' in this other state (POINT TO THE PINK CARD). Or instead of that you could choose to die immediately (POINT TO LIFE B). Would you prefer Life A, or to die immediately, or are they the same?

Life A	1
Life B	2 GO TO Q.15
The same	3

Respondent Serial Number

□ □ □ □

Sr No
401-1
Cust. Of
405-6

26a. FINISH TIME OF TTO

□ □ □ □

24 hour clock

26b. TIME TAKEN FOR TTO

□ □ □

minutes

407-9

FOR OFFICE USE ONLY

STATE SCORE

+/-

X

□ □ . □ □ □ □

408-5

+/-

S

□ □ . □ □ □ □

409-2

+/-

B

□ □ . □ □ □ □

410-7

+/-

H

□ □ . □ □ □ □

411-8

+/-

Y

□ □ . □ □ □ □

412-1

+/-

Z

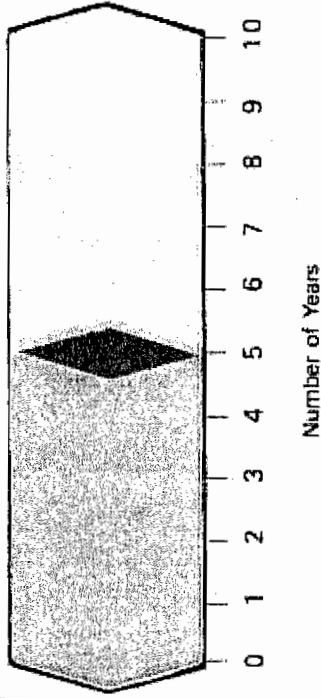
□ □ . □ □ □ □

413-6

414-1
415-0

TIME BOARD 1

<input type="checkbox"/>	No problems in walking about
<input type="checkbox"/>	No problems with self-care
<input type="checkbox"/>	No problems with performing usual activities
<input type="checkbox"/>	No pain or discomfort
<input type="checkbox"/>	Not anxious or depressed



<input type="checkbox"/>	No problems in walking about
<input type="checkbox"/>	No problems with self-care
<input type="checkbox"/>	No problems with performing usual activities
<input type="checkbox"/>	No pain or discomfort
<input type="checkbox"/>	Not anxious or depressed

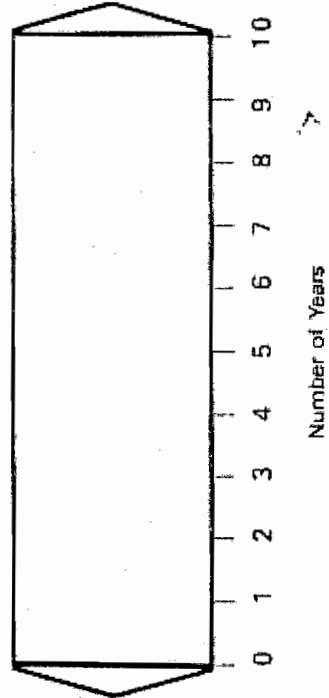
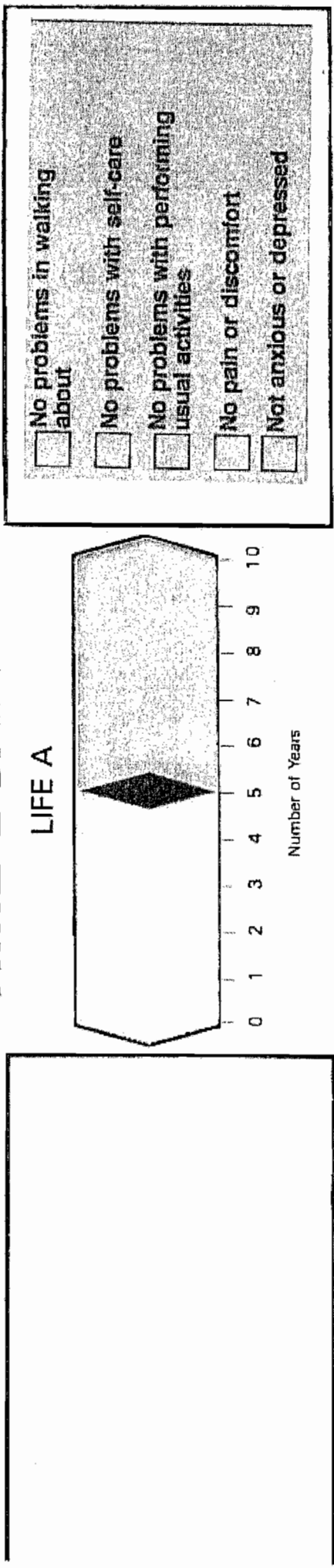


Figure 3

TIME BOARD 2



LIFE B

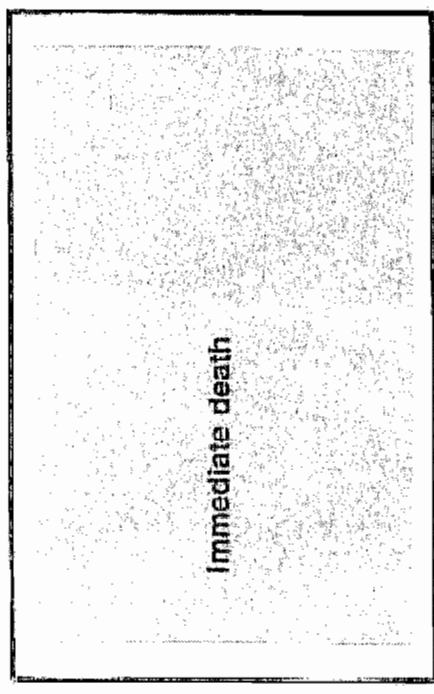


Figure 4

Figure 5: Examples of (EuroQol) health state cards

<p style="text-align: center;">L</p> <p>Confined to bed</p> <p>Some problems with washing or dressing self</p> <p>Some problems with performing usual activities</p> <p>No pain or discomfort</p> <p>Not anxious or depressed</p>	<p style="text-align: center;">Y</p> <p>Some problems in walking about</p> <p>Some problems with washing or dressing self</p> <p>Unable to perform usual activities</p> <p>Moderate pain or discomfort</p> <p>Extremely anxious or depressed</p>
--	---

<p style="text-align: center;">S</p> <p>Confined to bed</p> <p>Unable to wash or dress self</p> <p>Unable to perform usual activities</p> <p>Extreme pain or discomfort</p> <p>Extremely anxious or depressed</p>	<p style="text-align: center;">X</p> <p>Some problems in walking about</p> <p>No problems with self-care</p> <p>Some problems with performing usual activities</p> <p>Moderate pain or discomfort</p> <p>Not anxious or depressed</p>
--	--

TIME TRADE-OFF: SELF-COMPLETION METHOD

This is a version of the TTO that does not require a board. Instead, showcards are used to explain the task to the respondent who then completes a series of response booklets. When six states are valued the TTO self-completion method takes approximately 15 minutes.

ITEMS REQUIRED

1. *Four showcards made of hard cardboard:*

Showcard 1 (see Page 39) indicates 'Life A' and 'Life B' boxes

Showcard 2 (see Page 40) describes a hypothetical scenario where the respondent is faced with a choice: either to choose a treatment that gives a certain length of time in full health ('Life A') or to remain in a poor health state for 10 years ('Life B'). The health state used in this example should not be one of those to be valued in the course of the interview.

Showcard 3 (see Page 41) shows the varying lengths of time in full health after treatment ('Life A'). The alternative of Life B is always 10 years in the poor health state. An example answer indicates that a respondent is willing to choose the treatment when it is followed by 9 years of full health.

Showcard 4 (see Page 42) is another example answer, where a respondent is willing to choose the treatment when it is followed by 5 years of full health.

2. *A Response booklet* is required for each state to be valued.

The front cover of the booklet identifies the state to be valued and records the respondent's serial number.

Pages 2 and 3 are used where the state is rated better than death.

Page 2 presents the alternatives: 'Life A' with an outcome of full health, or 'Life B', with an outcome of the state to be valued.

Page 3 shows the varying lengths of time in full health ('Life A') as compared to 10 years in the 'Life B' state. The respondent answers in the middle blank column. A reminder of when to place a tick, cross or equals sign is provided for the respondent at the bottom of the page. Scores for data entry are in the far right hand column.

Pages 4 and 5 are used where the state is rated worse than death.

Page 4 presents the alternatives: 'Life A' with an outcome of the state to be valued (left hand box) followed by full health (right hand box), or 'Life B' with an outcome of immediate death.

Page 5 shows the varying lengths of time in full health (and of being in the state to be valued) for 'Life A' as compared to immediate death ('Life B'). The respondent answers in the middle blank column. A reminder of when to place a tick, cross or equals sign is provided for the respondent at the bottom of the page. Scores for data entry are in the far right hand column.

Page 6 is for verbatim comments if the respondent gives an unusual answer (e.g. that 10 years in a 'less than full' state is better than 10 years in full health).

3. *Page TTO1* for recording time taken and respondent's understanding of the task.

PROCEDURE

The interviewer first explains the procedure to the respondent using a series of example health states and response sheets. The respondent then completes the procedure him or herself, by working through the states one by one and filling in the appropriate response booklet.

Initially, it is assumed that all states are considered better than death. If the respondent offers an answer which suggests that the state is in fact worse than death, a new series of questions are asked.

The full script is reproduced here on pages 35-38.

1. The interviewer has the showcards and response booklets ready, notes the start time, and then takes the respondent through paragraphs 1 to 3 of the script. At the end of this time, the respondent should have a general understanding of what is required. In particular (s)he will be aware that the choice to be made is between 'Life A' with an outcome of full health for a varying amount of time, or 'Life B' with a certain outcome of 10 years in the state to be valued. Also, (s)he will be aware that answers can be ticks, crosses, or equals signs, and that where (s)he is unsure, a 'best guess' can be made.
2. The response booklets are given to the respondent one by one (in a pre-determined order if desired), open at pages 2-3. For each state the respondent fills in ticks, crosses or equals signs on page 3 to indicate at what number of years of Life A (s)he would choose the treatment rather than remain in the health state indicated by Life B.

When the respondent has completed page 3 the interviewer proceeds as follows:

- (a) if the respondent has answered with an '=' not in the bottom line, the interviewer rings the appropriate score in the right hand column and gives the respondent the booklet for the next state to be valued.
- (b) if an '=' is placed in the bottom line, the interviewer needs to check whether the respondent thinks this state is equal to, or worse than being dead. Depending on the answer to this question, the interviewer either rings '0.00' and continues to the next state, or goes on to the script for states worse than death. (If the respondent thinks that the state is actually better than being dead, (s)he has made an error and is asked to think again about the choices in the bottom few rows on page 3).
- (c) if the respondent answers with ticks all the way down page 3, the interviewer goes on to the script for states rated as worse than death.
- (d) if the respondent answers with crosses all the way down page 3, the interviewer needs to check whether the respondent thinks this state is equal to, or better than full health. Depending on the answer to this question, the interviewer rings either '+1.00' or '+97.00' respectively, writes any comments of explanation on page 6 of the booklet, and then continues to the next state. (If the respondent thinks that the state is actually worse than full health, (s)he has made an error and is asked to think again about the choices in the top few rows on page 3).

3. If a state is considered worse than death, the interviewer presents pages 4-5 of the booklet to the respondent and explains that the choices are changed. 'Life A' is now a combination of the state to be valued followed by full health, while 'Life B' is the outcome of immediate death. Page 5 is otherwise completed in just the same way as page 3.

When the respondent has completed page 5 the interviewer proceeds as follows:

- (a) if the respondent has answered with an '=' not in the bottom line, the interviewer rings the appropriate score in the right hand column and gives the respondent the booklet for the next state to be valued.
- (b) if an '=' is placed in the bottom line, the interviewer rings '0.00'.
- (c) if the respondent answers with either all ticks or all crosses on page 5, the interviewer rings '+97.00' on page 3 of the booklet.

When all states have been scored, the finish time is recorded on page TTO1.

DATA ENTRY AND SCORING

In the MVH study, the TTO procedure was preceded by several 'warm-up' exercises in which the respondent first ranked and then rated the health states to be valued in the TTO. The respondents were thus familiar with the health states, and hence the reference to "states that you have seen before" at the beginning of the TTO procedure.

This is also the explanation for the numbering of the card records for computer entry which start at 12:

Cards 12 and 13-18 TTO Self-completion method: Card 12 was used to record the information from Page TTO1 regarding time taken and understanding of the task. Six states were valued in the MVH health study and the scoring for each one was entered onto a different record such that the score for the first state was entered onto Card 13, that for the second state onto Card 14 etc. Columns 07 to 12 were used if the state was rated as better than death, and columns 13 to 18 if the state was rated as worse than death. Thus columns 19 to 80 were spare on all these cards. There is no necessity for each state to have a separate record, and if desired, all scores can be entered onto the same record.

The verbatim comments on the last page of the booklets in the Self-Completion Method were useful to explain any unusual or unexpected answers, but were neither coded nor entered onto the computer file.

Only the booklet for state 'X' (Card 13) is reproduced here.

Scoring of health states is incorporated into the interviewer instructions.

In resulting health state scores full health (represented by the 11111 state) is given a value of 1.00, death is given a value of 0.00 and the minimum score is -19.00. The code +97.00 is used for unusual answers, while 999.99 is recommended for missing answers.

NOTES FOR RINGING SCORES IN BOOKLET

If the respondent has more than one '=', then ring the middle value

If there are an even number of '=', then ring the lower middle value

If the respondent has no '=', then ring the highest 'X' value

For verbatim answers, either '+97.00' or '+1.00' will already be ringed

INTERVIEWER SCRIPT

TIME TRADE-OFF: SELF-COMPLETION METHOD

**HAVE RESPONSE SHEET FOR TTO (PAGE TTO1) READY.
HAVE SHOWCARDS 1-4 READY
NOTE START TIME OF TIME TRADE-OFF ON PAGE TTO1.**

1. **PLACE TTO SHOWCARD 1 ON THE TABLE AND SAY TO RESPONDENT:**

"Now we are going to move to the next set of questions. I'm going to ask you to make a choice between the state at the top which is Life A (POINT TO LIFE A) and the state at the bottom which is Life B (POINT TO LIFE B). The state in Life A will stay the same but the time for which you will be in this state will change. The state in Life B will change, but the length of time will always be the same at 10 years."

2. **TAKE BACK TTO SHOWCARD 1 AND PLACE TTO SHOWCARD 2 ON THE TABLE**

"First, let's go through an example together. Here there is a choice between being in Life A for a certain length of time, or being in Life B for 10 years."

PLACE TTO SHOWCARD 3 ON THE TABLE NEXT TO TTO SHOWCARD 2:

"This is an example of how I want you to make your choice. Here are the two possibilities, Life A and Life B (POINT TO THE TWO COLUMNS). In the left hand column, is shown the different lengths of time that you could be in Life A for. After that time you would die. In the right hand column is shown the number of years that you could be in Life B for. This time is always the same at 10 years.

You would look at each row on this answer sheet, and decide whether you would prefer to have either Life A or Life B. You would place a tick in the box if you would prefer Life A, and a cross if you would prefer Life B. You would place an equals sign if you could not choose between Life A and Life B.

In this example, being in Life A for nine years is seen as the same as being in Life B for 10 years.

3. TAKE TTO SHOWCARD 3 AWAY AND PLACE TTO SHOWCARD 4 ON THE TABLE NEXT TO TTO SHOWCARD 2.

"This is another example. This one shows that being in Life A for 5 years is the same as being in Life B for 10 years.

You will notice that in this example not all the boxes have been filled in. This is because it is sometimes hard to say whether you would definitely choose Life A or definitely choose Life B. When this happens, you will have a number of boxes where you find it difficult to choose between the two choices. In these cases, please place an equals sign in the one box which shows your 'best guess', for example at 5 years in Life A being the same as 10 years in Life B as shown here.

This is the kind of choice I will ask you to make. Do you understand what I want you to do?

IF YES: RING ANSWER ON PAGE TTO1, TAKE BACK SHOWCARDS 2 AND 4, GO TO 4

IF NO: RING ANSWER ON PAGE TTO1, TAKE BACK SHOWCARDS 2 AND 4, GO BACK TO 1 AND SAY: "Let's go through this again".

4. PUT TTO SHOWCARDS 1 TO 4 AWAY

"Now we are ready to begin. From now on, I want you to imagine that you yourself are in these states, and that they would last for up to 10 years without any change and then you would die.

HAND THE RESPONDENT THE ANSWER BOOKLET FOR STATE 'X', OPENED AT FIRST DOUBLE PAGE (i.e. pages 2 and 3):

This is the first choice that I want you to make. Please read through carefully the states for Life A and Life B. These are both states that you have seen before. Please tell me when you have finished reading."

WHEN RESPONDENT HAS FINISHED READING, SAY:

"Now please mark your answer on this sheet. Remember that you would place a tick in the box if you would prefer Life A, and a cross if you would prefer Life B. You would place an equals sign if you could not choose between Life A and Life B.

You may change your answer at any time by using the rubber provided. When you have finished will you please return the booklet to me."

WHEN RESPONDENT HAS COMPLETED FILLING IN THE BOOKLET, TAKE BACK THE BOOKLET, AND PROCEED AS BELOW:

— **IF RESPONDENT HAS PLACED AN '=' WHICH IS NOT IN THE BOTTOM LINE, RING APPROPRIATE SCORE, THEN GO TO 5**

— **IF AN '=' IS PLACED ON THE BOTTOM LINE, SAY TO RESPONDENT: "I see that you have placed an equals sign on the bottom line. Do you think that being in Life B for ten years is equal to immediate death or do you think it is worse than immediate death?"**

IF EQUAL: LEAVE ANSWER AS IT IS, RING '0.00', AND GO TO 5

IF WORSE: WRITE BESIDE THE BOTTOM LINE : 'WORSE THAN DEATH' THEN GO TO TTO PROTOCOL FOR STATES WORSE THAN DEATH'

IF BETTER: ASK RESPONDENT TO THINK AGAIN ABOUT THE CHOICES IN THE BOTTOM FEW ROWS.

— **IF RESPONDENT HAS PLACED TICKS FOR ALL CHOICES, GO TO 'TTO PROTOCOL FOR STATES WORSE THAN DEATH'**

— **IF RESPONDENT HAS PLACED CROSSES FOR ALL CHOICES, SAY: "I see you have put a cross for all the choices. Do you think that 10 years in Life B is better, worse or the same as 10 years in Life A?"**

IF BETTER: ASK "Why", AND RECORD THE ANSWER VERBATIM ON THE LAST PAGE OF THE BOOKLET. RING '+97.00' ON PAGE 3 IN THE BOOKLET.

IF WORSE: ASK RESPONDENT TO THINK AGAIN ABOUT THE CHOICES IN THE TOP FEW ROWS

IF SAME: ASK "Why" AND RECORD THE ANSWER VERBATIM ON THE LAST PAGE OF THE BOOKLET. RING '1.00' ON PAGE 3 IN THE BOOKLET.

5. TAKE BACK COMPLETED BOOKLET

GIVE THE RESPONDENT THE BOOKLET FOR THE NEXT STATE

6. WHEN RESPONDENT HAS FINISHED ALL HEALTH STATES: NOTE FINISH TIME OF TTO ON PAGE TTO1.

**TIME TRADE OFF PROTOCOL FOR STATES RATED AS WORSE
THAN DEATH: SELF-COMPLETION METHOD**

1. SAY TO RESPONDENT:

"I need to ask you another question about this state."

TURN TO THE SECOND DOUBLE PAGE OF THE BOOKLET (i.e. PAGES 4 AND 5), AND THEN GIVE THE BOOKLET BACK TO THE RESPONDENT. SAY:

"As you can see, Life A and Life B are now different to the first page.

Life B involves dying immediately (POINT TO LIFE B).

Life A now involves experiencing two health states. First is the health state that you rated as worse than death (POINT TO HEALTH STATE ON LEFT HAND SIDE OF LIFE A) which is then followed by this health state (POINT TO HEALTH STATE ON RIGHT HAND SIDE OF LIFE A).

The number of years that you will be in each of these health states is shown on your answer sheet here (POINT TO THE COLUMNS).

I still want you to imagine that you yourself are in these states, and that they would last up to 10 years without any change, and then you would die.

Please fill in your answer sheet in the same way as before and when you have finished hand the booklet back to me and we will move on to the next question".

WHEN RESPONDENT HAS FINISHED GO TO NEXT STATE.

NOTE FOR CODING RESPONSES (STATES WORSE THAN DEATH)

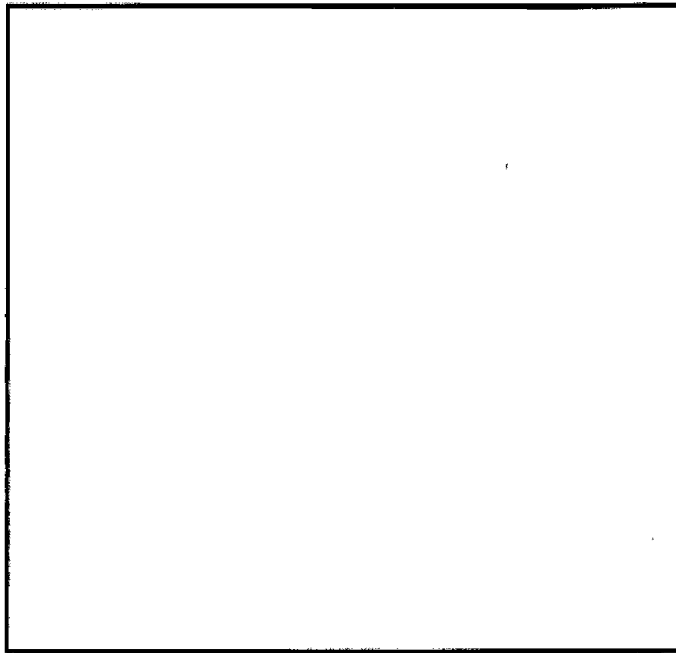
IF AN '=' IS PLACED ON THE BOTTOM LINE, RING '0.00' ON PAGE 5 OF THE BOOKLET

IF THE RESPONDENT HAS PLACED TICKS FOR ALL CHOICES, RING '+97.00' ON PAGE 3 OF THE BOOKLET

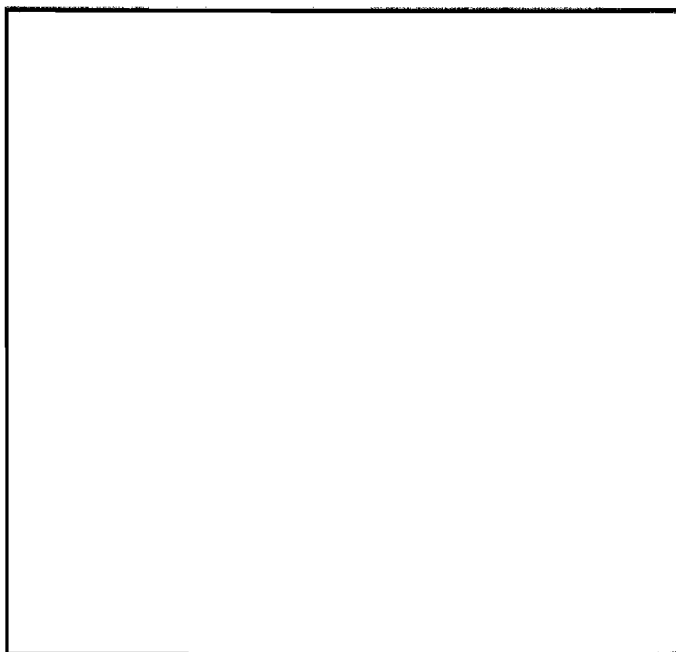
IF THE RESPONDENT HAS PLACED CROSSES FOR ALL CHOICES, RING '+97.00' ON PAGE 3 OF THE BOOKLET

TTO SHOWCARD 1: EXAMPLE

LIFE "A"



Life "B"



TTO SHOWCARD 2: EXAMPLE

LIFE "A"

EXAMPLE CARD

NO PROBLEMS IN WALKING ABOUT

NO PROBLEMS WITH SELF-CARE

**NO PROBLEMS WITH PERFORMING
USUAL ACTIVITIES**

NO PAIN OR DISCOMFORT

NOT ANXIOUS OR DEPRESSED

Life "B"

EXAMPLE CARD

SOME PROBLEMS IN WALKING ABOUT

**SOME PROBLEMS WITH WASHING OR
DRESSING SELF**

**SOME PROBLEMS WITH PERFORMING
USUAL ACTIVITIES (eg. work,
study, housework, family or
leisure activities)**

MODERATE PAIN OR DISCOMFORT

MODERATELY ANXIOUS OR DEPRESSED

TTO SHOWCARD 3: EXAMPLE ANSWER SHEET (1)

LIFE "A"		LIFE "B"
10 YEARS	√	10 YEARS
9 YEARS 6 MONTHS	√	10 YEARS
9 YEARS	=	10 YEARS
8 YEARS 6 MONTHS	X	10 YEARS
8 YEARS	X	10 YEARS
7 YEARS 6 MONTHS	X	10 YEARS
7 YEARS	X	10 YEARS
6 YEARS 6 MONTHS	X	10 YEARS
6 YEARS	X	10 YEARS
5 YEARS 6 MONTHS	X	10 YEARS
5 YEARS	X	10 YEARS
4 YEARS 6 MONTHS	X	10 YEARS
4 YEARS	X	10 YEARS
3 YEARS 6 MONTHS	X	10 YEARS
3 YEARS	X	10 YEARS
2 YEARS 6 MONTHS	X	10 YEARS
2 YEARS	X	10 YEARS
1 YEAR 6 MONTHS	X	10 YEARS
1 YEAR	X	10 YEARS
0 YEARS 6 MONTHS	X	10 YEARS
0 YEARS	X	10 YEARS

Place a √ if you prefer Life "A"
 Place a X if you prefer Life "B"
 Place a = if you cannot choose between Life "A" and Life "B"

TTO SHOWCARD 4: EXAMPLE ANSWER SHEET (2)

LIFE "A"		LIFE "B"
10 YEARS	✓	10 YEARS
9 YEARS 6 MONTHS	✓	10 YEARS
9 YEARS	✓	10 YEARS
8 YEARS 6 MONTHS	✓	10 YEARS
8 YEARS	✓	10 YEARS
7 YEARS 6 MONTHS	✓	10 YEARS
7 YEARS	✓	10 YEARS
6 YEARS 6 MONTHS		10 YEARS
6 YEARS		10 YEARS
5 YEARS 6 MONTHS		10 YEARS
5 YEARS	=	10 YEARS
4 YEARS 6 MONTHS		10 YEARS
4 YEARS		10 YEARS
3 YEARS 6 MONTHS	X	10 YEARS
3 YEARS	X	10 YEARS
2 YEARS 6 MONTHS	X	10 YEARS
2 YEARS	X	10 YEARS
1 YEAR 6 MONTHS	X	10 YEARS
1 YEAR	X	10 YEARS
0 YEARS 6 MONTHS	X	10 YEARS
0 YEARS	X	10 YEARS

Place a '✓' if you prefer Life "A"

Place a 'X' if you prefer Life "B"

Place a '=' if you cannot choose between Life "A" and Life "B"

Respondent Serial Number

--	--	--	--

Ser No
1301-4

Card 13
1305-6

TIME TRADE-OFF: SELF-COMPLETION METHOD

RESPONSE BOOKLET FOR STATE



HEALTH STATE:

X RATED BETTER THAN DEATH

FOR
INTER
VIEWER
USE

1307-12

LIFE "A"		LIFE "B"	
10 YEARS		10 YEARS	+01.00
9 YEARS 6 MONTHS		10 YEARS	+00.95
9 YEARS		10 YEARS	+00.90
8 YEARS 6 MONTHS		10 YEARS	+00.85
8 YEARS		10 YEARS	+00.80
7 YEARS 6 MONTHS		10 YEARS	+00.75
7 YEARS		10 YEARS	+00.70
6 YEARS 6 MONTHS		10 YEARS	+00.65
6 YEARS		10 YEARS	+00.60
5 YEARS 6 MONTHS		10 YEARS	+00.55
5 YEARS		10 YEARS	+00.50
4 YEARS 6 MONTHS		10 YEARS	+00.45
4 YEARS		10 YEARS	+00.40
3 YEARS 6 MONTHS		10 YEARS	+00.35
3 YEARS		10 YEARS	+00.30
2 YEARS 6 MONTHS		10 YEARS	+00.25
2 YEARS		10 YEARS	+00.20
1 YEAR 6 MONTHS		10 YEARS	+00.15
1 YEAR		10 YEARS	+00.10
0 YEARS 6 MONTHS		10 YEARS	+00.05
0 YEARS		10 YEARS	00.00
			+97.00

Place a '✓' if you prefer Life "A"

Place a 'X' if you prefer Life "B"

Place a '=' if you cannot choose between Life "A" and "B"

HEALTH STATE: X RATED WORSE THAN DEATH

FOR
INTER-
VIEWER
USE

LIFE "A"

STATE 1

STATE 2

LIFE "B"

0 YEARS 6 MONTHS	9 YEARS 6 MONTHS	Immediate Death	-19.00
1 YEAR	9 YEARS	Immediate Death	-09.00
1 YEAR 6 MONTHS	8 YEARS 6 MONTHS	Immediate Death	-05.67
2 YEARS	8 YEARS	Immediate Death	-04.00
2 YEARS 6 MONTHS	7 YEARS 6 MONTHS	Immediate Death	-03.00
3 YEARS	7 YEARS	Immediate Death	-02.33
3 YEARS 6 MONTHS	6 YEARS 6 MONTHS	Immediate Death	-01.86
4 YEARS	6 YEARS	Immediate Death	-01.50
4 YEARS 6 MONTHS	5 YEARS 6 MONTHS	Immediate Death	-01.22
5 YEARS	5 YEARS	Immediate Death	-01.00
5 YEARS 6 MONTHS	4 YEARS 6 MONTHS	Immediate Death	-00.82
6 YEARS	4 YEARS	Immediate Death	-00.67
6 YEARS 6 MONTHS	3 YEARS 6 MONTHS	Immediate Death	-00.54
7 YEARS	3 YEARS	Immediate Death	-00.43
7 YEARS 6 MONTHS	2 YEARS 6 MONTHS	Immediate Death	-00.33
8 YEARS	2 YEARS	Immediate Death	-00.25
8 YEARS 6 MONTHS	1 YEAR 6 MONTHS	Immediate Death	-00.18
9 YEARS	1 YEAR	Immediate Death	-00.11
9 YEARS 6 MONTHS	0 YEAR 6 MONTHS	Immediate Death	-00.05
10 YEARS	0 YEARS	Immediate Death	00.00

1113-18

Place a '✓' if you prefer Life "A"
 Place a 'X' if you prefer Life "B"
 Place a '=' if you cannot choose between Life "A" and Life "B"

Column
719-80 am
1970

Respondent Serial Number

--	--	--	--

TIME TRADE-OFF: SELF-COMPLETION METHOD

HEALTH STATE X

VERBATIM RESPONSE

Respondent Serial Number

--	--	--	--

Ser No
1201-4

Card 12
1205-6

TIME RECORD SHEET FOR TIME TRADE-OFF:
SELF-COMPLETION METHOD

1. Time at start of Time Trade-Off exercise

--	--	--	--

24 hour clock

2. Time at end of Time Trade-Off exercise

--	--	--	--

24 hour clock

3. Time taken for Time Trade-Off exercise

--	--	--

minutes

1207-9

4. Did the respondent understand the exercise the first time?

Yes

No

1 continue exercise
2 repeat script

1210

5. Did the respondent understand the exercise the second time?

Yes

No

1 continue exercise
2

1211

Column
1212-20
etc
open