

APPENDIX

PRELIMINARY GLOSSARY OF UNSETTLED TERMS

Glossary suggestions for decision aiding issues on which there appears to be no terminological consensus. (Comments, please!)

(Adjectives that can be dropped if meaning is clear are in parentheses. The more tentative terms are in italics. Alternative terms in common use are in brackets. Terms used by Howard are marked “*”¹. Clarifying notes are not definitions.)

Decision process

Decider D : makes the decision, I.e. commits resources [*decision maker, client*]

Option : a possible action by D [*alternative, * deal*]

Agent: employs a decision aider on D’s behalf (e.g. company staff) [*client*].

* **Frame** : context of decision

Judgment

Judgment: assessment or evaluation

Personal judgment: attributed to some individual [*subjective*]

Judge J: source of judgment [** author, assessor, evaluator*]

Actual judgment: based on what is known (e.g. *posterior*).

Hypothetical judgment: based on a possibility (e.g. *likelihood*)

Decision aid

Prescriptive decision aid: practically usable and useful. [** normative*]

Normative: logically coherent

(Personal) decision analysis PDA: Prescriptive aid for D that models his knowledge and judgment. [** decision analysis*]

Personalist: Models human judgment, esp. to maximize personal mean utility.

Objectivist: Seeks to avoid reliance on human judgment.

Equivalent (substitute): D is indifferent between items, e.g. has same action implications.

* **Certain equivalent**: single measure is equivalent substitute for a gamble.

* **Present equivalent**: single measure equivalent to future stream (e.g. of money) [*present value*].

Rational substitute: judgment enhanced by imposing coherence on input judgments.

Options

Current decision: one to be made now, before learning any new knowledge.

Prospective decision: one not to be made immediately, but possibly later.

Null option: do nothing

Definitive commitment: once-and-for-all, essentially irreversible action

Incremental commitment: action at least partially reversible

¹ Many terms and alternatives are due to Howard Raiffa, Robert Schlaifer and Cam Peterson.

Characterizing Prospects

* **Prospect**: Future events [*aftermath*]

Consequence: prospect contingent on option [*outcome*]

Impact: difference in prospect attributed to an option (e.g. compared with null option).

* **Possibility**: possible fact, event, quantity, property, or true proposition, present or future [*event*]

Attribute: any property of a possibility (descriptive, not evaluatory) [*distinction]

* **Measure**: number characterizing an attribute [*variable*]

* **Degree**: value² of measure.

(*Natural*) **Measure**: attribute characterized by a real quantity (like money)

Uncertainty

Assessment: judgment of possible occurrence of possibility

Probability: measure obeying certain mathematical rules (e.g. sum to one) [*frequency*]

Mean: Probability weighted *Average* [*Expected value, expectation, * e-value*]

* **Clairvoyancy**: [*perfect information*]

Uncertain quantity UQ: [*random variable*]

Credible interval: within which UQ is assessed with specified personal probability (e.g. 90%)

Evaluating Desirability

Desirability: any attribute determining preference (*satisfaction, happiness)

Evaluation: elicitation or calculation of any measure of desirability

Criterion: an attribute D ultimately wants more (or less) of [*attribute, * value measure*]

(*General*) **utility**: measure of desirability/satisfaction [*preference*]

Gamble-defined utility: probability of a “good” prospect in an equivalent gamble between good and bad *anchor* prospects [* *u-value, * preference probability*]

Constructed Measures

Rating scale: artificially constructed (e.g. 0-100) for an attribute with no natural measure.

Base of scale: Interpretation of zero on scale

Fixed base: unrelated to given choice problem (e.g. total bank balance)

Current base: present circumstances fixed base (e.g. current bank balance)

Normal base: implicit fixed base (e.g. historic average).

Option Base: base is one of the options.

Null option base: the option is to do nothing (e.g. impact on bank balance).

Implicit scale: rating scale where anchors are not explicitly defined (as in movie “10”).

Plausible range of scale: where the bulk (e.g. 90%) of J’s experience falls.

Indirect Assessment

(*Causal*) **dependence** [* Influence]

Covarying with, covariation [dependent on, * relevant to]

(*Causal*) **dependence** [*influence*]

Conditioned assessment: inferring probabilities of one possibility from another using conditional probabilities. (“It all depends”).

Information: [*datum*]

² Note usage of *value*.

Evidence: information diagnostic of a possibility.

Diagnosticity of evidence: conditional probability of evidence given possibility: [*likelihood*]

Diagnostic updating : use of Bayes theorem to revise a probability in the light of new evidence
[*Bayesian updating*]

Decomposition: expressing a quantity as a function of other quantities (e.g. net benefit = gross benefit - cost).

Multiple criteria

Partitioned evaluation: overall evaluation of option is broken into additive pieces

Tallying plus-minus: partitioned evaluation summing pluses and minuses for each criterion.

Monetary conversion: partitioned evaluation summing money tradeoffs for all criteria.

Importance Weighted Impact IWI model : Value of an option as the sum of products of its impacts and their importance weights [*linear additive multiattribute utility*].

Special issues

Organizational issues

External org. act: a commitment of collective resources (e.g. company investment)

Internal org. act: a specific measure taken within org. (e.g. purchasing procedure).

Client-decider: where D is also direct client

Client-agent: where a middleman intervenes between D and consultant etc.

Modeling

Coarse vs. fine models: structurally simple vs. complex

Judgment- vs. structure-intensive model: relative emphasis on direct judgment versus structural elaboration.

Core model: a coarse model of option desirability.

Feeder model: a model whose output corresponds to the input of a core model

Information decisions

Ideal personal assessment: resulting from perfect (but unattainable) analysis of J's knowledge and values.

Ideal impersonal assessment: result from all *potential* knowledge, not necessarily known by any individual person.)

Meta analysis

Internal validation (of analysis, term, model): limited to evaluation of object itself (e.g. its technical/logical soundness).

External validation: based on evidence external to object (e.g. model's performance in real world).

Plural evaluation: combining multiple approaches to a given problem (e.g. internal + external validation).