CHAPTER 14 – CHOOSING SMARTER

To paraphrase Forrest Gump, life is a box of choice-lets. We deal with choices all the time, although few of us are very good at it. Psychologists have identified dozens of decisional fallacies that beguile us. And as much as we like *having* choices, we don't typically like *making* choices.

Lawyers face choices throughout their personal and business lives. Some choices are nearly invisible and instantaneous; others involve extended deliberation. Some choices are made by one person alone; many involve consultation with others.

Most choices relate to things people wish to get or do. Some involve alternative conclusions to treat as a basis for action, such as competing legal analyses or business strategies. We often need to decide what to think, how best to explain something, or which argument to emphasize.

Lawyer choices may relate to the substance of their work – such as whether to file a case in state or federal court, which expert witness to put on the stand, or whether a client's worker should be treated as an employee or a contractor. They may also relate to the business of law practice – such as where to open a second office, who to hire, or which software package to purchase.

I've long been fascinated with choice-making as a phenomenon, and have devoted a lot of time to considering how technology can help us do it better. This chapter is a summary of those ideas.

Anatomy of a choice

A decision is a special kind of problem. One that involves a reasonably defined set of issues and circumstances (and thus is different from a 'mess,' where the problems themselves have yet to be clearly discerned.) A decision usually requires coming to a particular conclusion. It can involve figuring out what to do, how much, when, where, etc. It can encompass a number of interacting probabilities, perhaps arranged in a 'decision tree.' Because of their variability, there's no universal method that serves well to approach all decisions, let alone all problems.

A choice in turn is a special kind of decision, where you need to select from a group of discrete options. To deliberate (from the Latin *libra*, a scale or balance) is to balance alternatives. While choices come in many shapes and sizes, and can present endlessly different kinds of things among which to select, it turns out that there *are* generic methods that work well to support the distinctive forms of deliberation involved in all of them. I've come to the conclusion that a 'universal grammar' underlies choice making, and that understanding it can both enhance the quality of our choices and drive the design of knowledge tools to support them.

Choices have a characteristic geometry that lends itself to a three-dimensional box metaphor. One dimension is that of *options* – the things among which one is choosing. A second dimension is that of *factors* – the qualities that distinguish options from one another. A third dimension is that of *perspectives* – the different evaluative takes that one or more people can have of how the options fare on the various factors. Each option can be rated on each factor from each perspective. Imagine something like this:
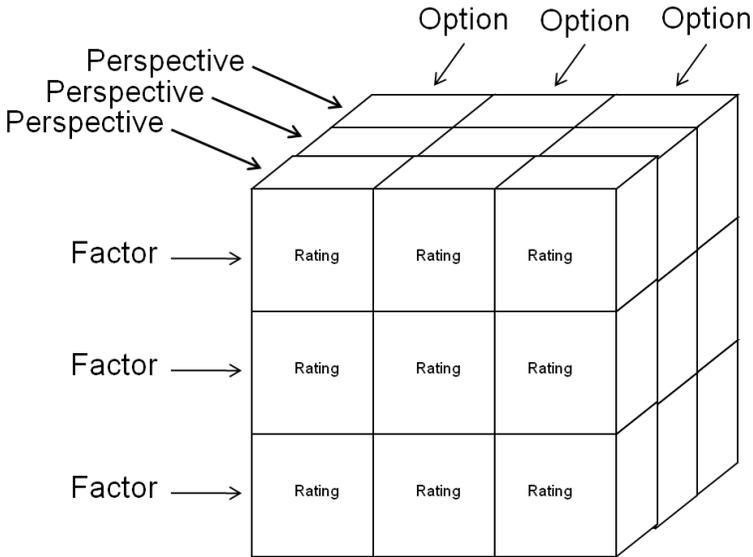
While there are many different terms for these key dimensions (for instance, alternatives, considerations, and viewpoints), all choices lend themselves quite well to being characterized in such a framework. This is hardly a surprise to anyone who has drawn a matrix of job candidates and hiring criteria on a whiteboard, or organized the pros and cons of alternative legal strategies on a yellow pad. What's interesting is the rich edifice of insights and tools one can build on this geometric foundation. I will describe one such tool here to make it easier to explore the architecture of choice.

Multi-criteria decision making

Weighted factor analysis and related techniques for assessing options on criteria with differing degrees of relative importance have been around for a long time. I've been working on a variation that seems to provide a substantially more powerful and easy way to deliberate about choices. By iteratively refining each of the dimensions mentioned earlier, "choiceboxing" helps deal with choice overload.

Here are some of the key concepts. (Most are simple and familiar. This abbreviated account doesn't get into all the interesting possibilities.)

Choices and options

Choice making involves selecting from groups of alternatives. Each possible selection is an **option**. ("What are my options?") I use "choice" to refer to the overall decision or one of the particular selections ultimately made, and "options" for the things *among* which one chooses.

Related terms for individual options include candidates and alternatives.

Some choices involve picking a single best option from a group; others involve picking several, or even ordering an entire set from most preferred to least.

Categories

A given choice generally involves options that share certain kinds of characteristics, making it possible to compare them in terms of common factors. Those characteristics define one or more categories of things within which one is choosing. For example, the category might be "digital camcorders," "possible birthday presents for Jane," or "rental apartments in downtown Chicago."

While every set of options can be seen as belonging to a large set of increasingly specific categories (electronic devices | video recorders | camcorders | digital camcorders), there are generally one category that best describes the set being considered.

By categorizing their choice in a standardized way, people can more easily access options, factors, and other information identified by others as worth considering in such a choice.

Factors

While a wide variety of techniques and approaches are used to make choices, they usually involve the consideration of multiple **factors** in terms of which the candidates differ. Factors are *kinds* of qualities or characteristics in terms of which options may be described and compared. They are answers to questions like "what makes a good ___?" and "what makes a bad ___?"

Related terms include: consideration, criterion, objective, goal, differentiator, care, and concern.

Factors often have differential **weights** in a particular choice – the relative degree of importance or significance attached to each by each perspective being considered in a decision.

Weighted factor analysis is one common method for systematically comparing options in a choice situation. Each option is **rated** with respect to each factor, each rating is turned into a normalized **score**, and the weighted total of scores across all factors is used to reflect its relative "goodness."

Ratings

A **rating** is the information entered with respect to a given factor for a given option. This term is most apt for factors that can be evaluated in quantitative terms and that involve some judgment or opinion, but you can think of it more generally as "what there is to say about this option in terms of this factor."

Related terms include assessment, attribute, feature, and property.

Scores

In order to fairly compare and combine ratings across different factors, and across different perspectives – in order, in other words, for them to be commensurable – they should be normalized to a common scale. For example, the price of items may range from $300 to $3000, and their ease of use may be judged on a scale of 1 to 5. For the respective contribution of ratings on these factors to contribute to total scores only as much as those factors are explicitly weighted – and not be affected by the units in which they may happen to be measured – they both should be converted to a common scale, such as dollars, percentage of optimality, or units of goodness. I use the word **score** to refer to the normalized value of a rating.

Perspectives

There can be more than one **perspective** at play in a given choice context. A sole decision maker may have more than one way of looking at the options and factors, and each member of a deciding group will typically have at least one of his or her own. Helpers may have perspectives that vary in at least some respects from the decision maker(s). There can also be perspectives of candidates, suppliers, or other "choosees".

Perspectives are distinct informational or evaluative takes on a choice. They capture different voices and viewpoints, for instance from different people or time frames.

Each perspective can have its own view about the relative importance of the various factors, and its own weight(s) relative to other perspectives (potentially differing by factor.) In other words, each *factor* has a weight in each perspective, and each *perspective* has a weight for each factor. The latter ability (to weight a perspective differently by factor) can be used e.g., to reflect someone's expertise in a certain aspect of a decision, or a given user's entitlement to disproportionate impact on one or more aspects. (The managing partner might be given double weight in a hiring decision about an executive director.)

Kinds of factors

Factors can be organized into four basic kinds based on

- whether they are objective or subjective (are ratings a matter of fact or opinion?) and
- whether their ratings can be scored, or are merely informational.

Here are examples of each:

|	Scored	Informational
Objective	price most "features" number of pixels installed base years in business	supplier name supplier website links to reviews
Subjective	likeability competence quality of experience ease of use	notes observations

Choiceboxes

A choicebox involves mapping one or more **options**, one or more **factors**, and one or more **perspectives** to imagined x, y, and z axes respectively. The choice can be envisioned as a three-dimensional box. There is a **column** for each option, a **row** for each factor, and a **layer** for each perspective. (It's possible of course to map these dimensions differently, or let users swap axes so that e.g. options are rows and factors columns.) Each **cell** at the intersection of such a column, row, and layer represents the characterization of some option in terms of some factor according to some perspective. There are also columns for factor and perspective weights.

Each perspective layer can have a **total score row** showing the weighted average of scores for all options on the factors present. When there are multiple perspectives present in a box, a **summary layer** is available to show weighted averages of weights, ratings/scores, and totals from across the perspectives.

For example, imagine that Jane and John are partners in a law firm that is deciding which case management system to buy. They've narrowed it down to three products: Ace, Acme, and Apex. After lots of discussion, the choice seems to hinge on three factors: completeness of features, quality of interface, and ease of learning.

The following figure depicts how this matrix of options, factors, and perspectives might be represented in a choicebox. We're seeing Jane's perspective up front. The factors are matters of opinion, so her ratings and those of John may well differ. (In a real-world case, of course, other factors would be present, including some 'objective' ones like price.) Weights and scores are omitted in these figures.
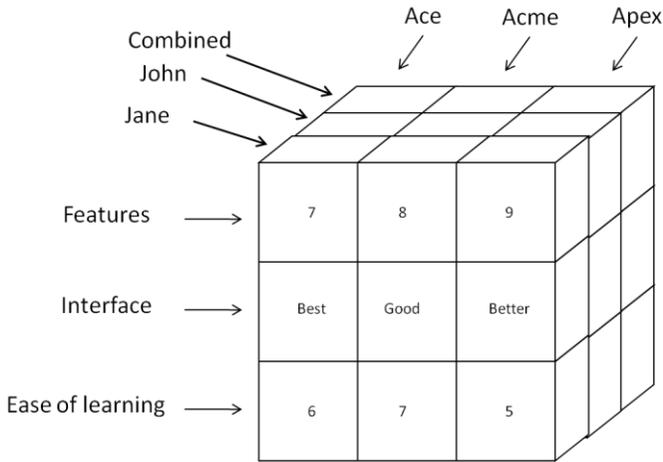
The next figure makes the separate perspective layers clearer. Now we can see some of John's different ratings, as well as average ratings on the combined layer.

Perspective slices
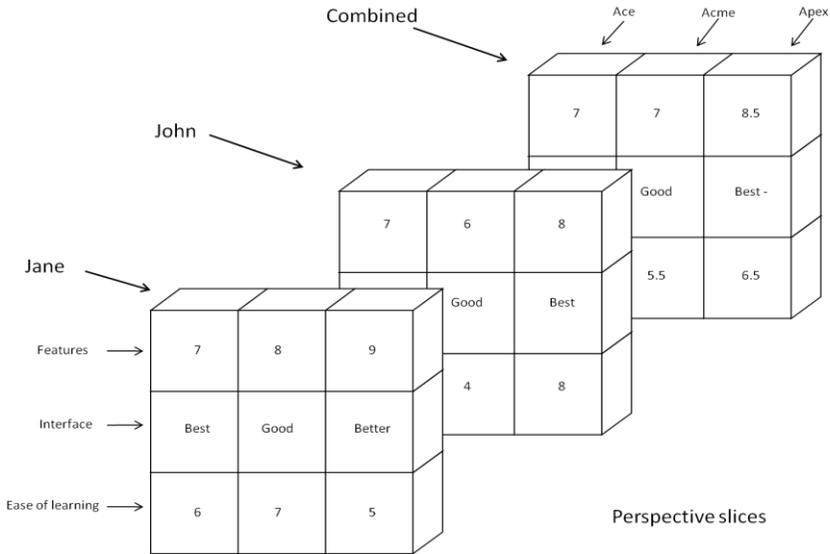
Note that the box can be 'sliced' in other ways. For instance, you might want to see how a single option is rated across the several perspectives:

Option slices
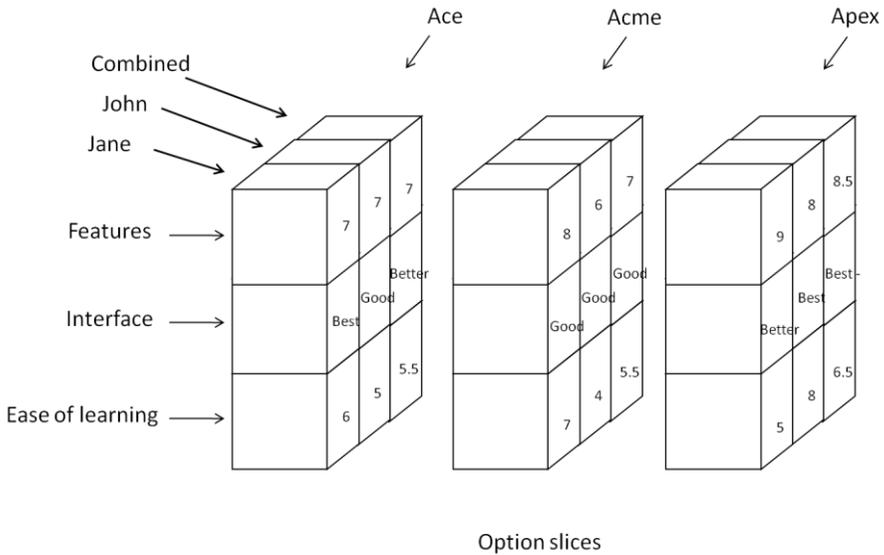
Or you might want to see how all the options are rated on all the perspectives on a single factor:

Factor slices
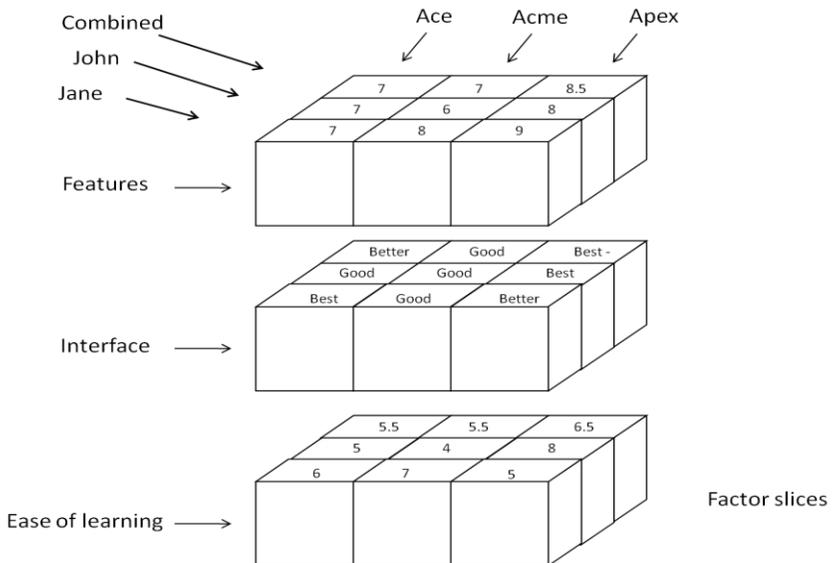
You can get a sense of how the options rank on each of the factors from the ratings on the various layers. Some rank first on some factors from Jane's perspective; some rank first from John's perspective. But how do they rank overall?

To complete the picture, you need to add scores and weights.

A common scoring strategy is to use percentages. Since two of the factors are

expressed in a simple 0 to 10 scale, with 10 being best, you can just multiply the rating by ten to get an appropriate percentage. For the interface factor, expressed in this case by words like 'good' and 'better,' you might associate scores with possible ratings as follows:

Best	100
Better	80
Good	70
Ok	50
Bad	30
Worse	20
Worst	0

Given this set up, and adding factor weights, you can compute scores for each perspective and for the overall box like this:

Jane		Ace		Acme		Apex	
weight		rating	score	rating	score	rating	Score
5	Features	7	70	8	80	9	90
8	Interface	best	100	good	70	better	80
10	Ease of learning	6	60	7	70	5	50
	Total score for Jane		76.09		72.17		69.13

John		Ace		Acme		Apex	
weight		rating	score	rating	score	rating	score
10	Features	7	70	6	60	8	80
5	Interface	good	70	good	70	best	100
2	Ease of learning	5	50	4	40	8	80
	Total score for John		67.65		60.59		85.88

Combined		Ace		Acme		Apex	
weight		rating	score	rating	score	rating	score
7.5	Features	7	70	7	70	8.5	85
6.5	Interface	better	85	good	70	best minus	90
6	Ease of learning	5.5	55	5.5	55	6.5	65
	Overall score		71.87		66.38		77.51

(Blue-shaded cells above contain information entered by a box participant; green cells are computed. Total scores are calculated as weighted averages.)

Note that Ace comes out on top for Jane, given her ratings and her emphasis on ease of learning over features. Apex comes out best for John. When the two perspectives

are given equal weight, as here, Apex also comes out as best overall. Were Jane given disproportionate weight – e.g. because she is the senior partner with the largest financial stake in the decision – the result might be different. With an analysis like this in front of them, she and John can productively discuss why they feel differently about which factors are most important, or whether some of their ratings of the options should be adjusted.

Acknowledged limits

Before moving on, let's acknowledge some common reactions to this kind of approach. It may seem both too simplistic and too complex. Too mathematical. Too rational. Misleadingly precise. Where's the emotion? Isn't reality much fuzzier? Do you expect *me* to decide like that?!

Behavioral economists delight in exposing how <u>ir</u>rational most decisions are, how seemingly independent factors can influence each other, and how supposedly irrelevant considerations can make a difference. Game theorists remind us of the endless complexity that can emerge as parties to a decision or dispute interact strategically. Choiceboxing does not purport to model all those nuances. It adopts an admittedly 'naïve utilitarian' model for the sake of usefulness and usability. Its results are approximate and only as good as the inputs. They are fodder for deliberation and conversation, not definitive pronouncements.

Emotional considerations, by the way, are hardly foreclosed. You can explicitly include 'soft' factors like overall impression or gut reaction. And weight them as you see fit.

To box or not to box?

Whether to box a choice depends in part upon how much effort is required, relative to potential benefit. It's certainly possible that boxing will make some choices harder (even if better).

Knowing when to step back and do a systematic choice analysis is a valuable skill. Here's an approach for judging the threshold suitability of a context for such analysis.

First consider the *characteristics of the choice itself*.

- Does it involves discrete options among which you need to select?
- Do the options differ in more than one way that you care about?
- Can those differences be coherently captured in terms of factors?
- Is it clear which person's or persons' interests are being measured? Is there a clear time of such measurement? Are there well-defined goals?

Then consider *your needs and circumstances*.

- What's your relationship to the choice? Are you the decider, a guider, or a

provider?
- What are your goals in terms of wanting to choose carefully ? Are you genuinely undecided? Do you need to confirm your decision, document it, or open a fair process around it?
- What do you know (and need to know)?
    - You presumably don't yet know whether there may be a clear winner, or a clear best choice
    - You typically start out with inadequate knowledge in at least one of the dimensions (options, factors, useful alternative perspectives) as well as in the ratings, scoring methods, and weights.
- Do the benefits of careful deliberation justify the time and other costs involved?
- Are you prepared to be candid with yourself and others about your real motivations?
- Are you ready to make this decision? Or are there some preliminary, brush-clearing decisions to be made first? You'll spare yourself frustration by testing and shaping your ideas before going further.

The cost-benefit ratio of course is highly dependent on the tools and skills you have available. Specialized software, discussed below, can make systematic decision making much easier. Experience in using it also makes a difference. And if a box is already built for the kind of decision you're facing, the threshold for utilization can be even lower.

Defining options

For effective choiceboxing, or other systematic deliberation, options should be *simple* and *competitive*.   Simple in the sense that each represents a singular thing, not a compound of independently selectable things. Each option should be able to be given a single rating on all potential differentiating factors. Each option should also be competitive in the sense that it is potentially better than at least one other known option on some factor from some perspective that's being taken into account.

Consider casting a wide net. Developing and expanding your range of options is good not only for bargaining leverage, but for analytical clarity.

Whatever your method, it's a good practice to record what options you've rejected, and why.

Defining factors

Factors in turn should be *simple* and *significant*. Simple in the sense that each option can be assigned one and only one rating on each factor.   Significant in the sense that each factor makes some option better than another for someone; that it represents a difference someone might care about. You want factors as to which you can give a single answer for any option (even if you may be a bit unsure about that answer, or others may differ.) Each factor should be as distinct and independent as possible.

A good factor is one that captures significant differentiation, either because options vary substantially on it, or because it is given great weight. Differentiation will emerge as ratings and weights are expressed, and change as options are added and removed. Must-haves and must-not-haves (no-nos) are generally more differentiating that nice-to-haves, but in close cases the latter can be determinative.

Factoring a choice for the first time can be quite challenging. But for repeated choices, the work will repay itself.

Here are steps and questions that will often help surface factors worth considering:

- Think of all the ways in which your options are significantly different. What characteristics or consequences make one option better or worse than another?
- What differences do you care about? What about others whose perspectives must or should be taken into account?
- What do you feel you *should* care about?
- Identify the abstract, derivative factors (like "ease of use") that have value consequences even if you can't identify specific features.
- Try to smoke out unspoken factors. Be sure to acknowledge even 'bad' reasons that might motivate rationalizations.
- Iterate back and forth between your option list and factor list
    - What are some things you like about particular options? Why are you leaning toward them?
    - What are some things you dislike about particular options? Why are you hesitating about some? Why are they on the list at all?
    - Why are some options not even on the list?
- Which option do you instinctively like best and least. Why? Are those reasons on your factor list?
- How would the world be different in ways you care about were you to choose a particular option?
    - What positive things would you gain? What would you lose?
    - What negative things would you incur? What would you avoid?
- Ask yourself the "five whys" to get to deep interests and goals. (Each time you answer a question like "why is this option better?" ask "why?" in response to the answer.)
- Whenever you catch yourself thinking or talking about a factor that's not on the list, add it.

Keep a record of factors you *considered* including (and why you did or didn't). Record even what you *don't* care about, and why – you or someone else may care about them in a future choice. Preserve, don't discard, your deliberative work product.

Obviously there's little point in actively tracking factors that don't make a difference within the option set you're considering. You don't want to focus on requirements or disqualifications that wouldn't apply to any option actually under consideration.

(You might call these 'goes without saying' factors.) But keep them around as a checklist against later-added options. Beware of omitting a factor because it doesn't seem to differentiate any current options, only to later add an option that *would* be significantly differentiated on that factor.

Refining factors

Once you've got a good working factor list, consider whether any are duplicative and can be combined. Consider whether any are compound (not permitting single unambiguous ratings) and need to be split up.

Formulate a succinct prompt or question in terms of which all options can be rated on each factor. They should allow people to unambiguously say which options are better or worse on it.

Ratings should be clearly expressible. People should not have to wonder what a factor means. Ambiguity will show up later as deliberative difficulty.

For each factor, consider the range of possible ratings and define how options should be scored for each such rating. Are there narrowing criteria, like price or feature range thresholds, that would help you focus attention on a smaller set of options? Are any factors so important that a particular rating on them would disqualify an option, regardless of ratings on other factors? Would any rating dispositively *qualify* ('shoe in') an option?

Rating and weighting

It's a good practice to separate *defining* (options and factors) from *deciding*. Keep an open mind about which options are best and which factors are most important until you've got a decent batch of both on the table.

Factor weights for a given perspective should reflect the participant's opinion about the relative importance of that factor for the person or group *on whose behalf the decision is being made*. Be clear whose interests are being considered.

Focus on major factors (requirements, disqualifications, highly weighted factors) first. Document any assumptions behind your assessments, and your weights.

Changes to a factor definition can render prior ratings invalid.   It's thus important to settle factors early. Ratings will need at least to be reexamined when a factor or option is redefined.

An inability to say which option is better on a given factor can be due to lack of information, a poorly defined factor, or confusion about the interest perspective from which you are judging. If you find yourself torn between several different ratings for a single cell, you've probably got a compound factor or compound option in your box. If the total scores or rankings seems wrong, there's probably an unarticulated factor or weight differential afoot. You may prefer an option for reasons you hesitate

to acknowledge. Try to do so, even if only to yourself.

Wrapping up a choice

Once you've made a choice based on significant deliberation, it's a good practice to make notes for posterity. What options and factors did you consider? How did you rate and weight everything? Were there aspects of your choice that you weren't confident about? What would you tell yourself or others when a similar choice is faced in the future?

After you've acted on a choice, and had time to experience the results, consider looking back at how it was made. In retrospect, did you miss any important factors, or grant some inappropriate weight? Did you neglect to consider options that might have changed the result? What would you do differently were you to face such a choice again?

Group choosing

In both personal and business settings, many choices involve groups of people. The choiceboxing methods are especially useful for group decision making. Each person can have his or her own perspective layer, and make independent assessments both of how options compare on factors, and how the factors compare in terms of importance.

Objectives can be in conflict, in that they are not mutually achievable. Satisfying one may mean not satisfying another. People's opinions about the *importance* of objectives will also typically vary. Trade-offs of both goals and perspectives are often inescapable.

Encourage people to work independently on their perspectives, not reviewing each other's ratings and weights until they are provisionally finished. Doing so will help to avoid groupthink.

Keep in mind that people often don't have fixed preferences. Interactions with others can change how we view what we want or think is best. Most of us are open to persuasion, and willing to listen to the views and needs of friends and colleagues.

Once a group box has been constructed and populated, lots of useful discussion topics suggest themselves. Points of consensus can be noted. Areas of disagreement can be highlighted. People can suggest that their colleagues explain or reconsider ratings or weights.

Governance of a box's 'structure' is best *not* left to the group. Generally only one person should have the power to delete or change the definition of options or factors. That should ideally happen before ratings begin in earnest. But *adding* options and factors can be done without much hesitation, since participants always have the ability to set weights to zero or decline to rate certain options on certain factors.

While perspective layers are most often found in group decision making contexts, such layers can be used to approach a decision from alternative points of view even by a single decision maker.

Multiple perspectives will often enhance the quality of a decision. One person's ratings may be premised on factual errors, wrong assumptions, or misunderstandings. Independent assessments are useful to smoke them out.

Risk and uncertainty

Choiceboxing is most useful when you are uncertain about which options get you the most net benefit, and you can't easily balance the trade-offs involved. It doesn't offer any special advantages when your uncertainty is about what will *happen*. Decision analysis software like TreeAge Pro (http://www.treeage.com) is far better suited for those kinds of decisions, especially when the possible outcomes have their own further uncertainties. By assigning values and probabilities to branches of a decision tree, you can gain insights into what strategies are likely to yield the best results.

The relative risks and potential upsides of options can however be at least roughly captured as factors in a choicebox. You can add comments to ratings and weights to signal uncertainty or lack of confidence. If uncertainty applies to an entire factor (i.e., it won't make a difference if certain circumstances arise), you can discount it appropriately by adjusting the weight.

Beyond choice

There are good uses for structured approaches to choices beyond choice itself. Once you have a solid framework for approaching the assessments and tradeoffs involved in a choice situation, you can use it as an instrument for understanding yourself and others better. Boxing can surface unarticulated expectations, and educate your instincts.

You can engage in "shadowboxing" by anticipating the preferences of opponents, counterparties, or decision makers. Put yourself in their shoes and draft a set of ratings and weights that likely represents their perspective. What do they care most and least about? Where are their views most different from your own? If they seem to assess an option inadequately or disproportionately on certain factors, how might you influence them to change?

When it comes to negotiation, understanding the different preference profiles of the parties will sometimes yield win-win solutions you might otherwise miss. Think of labor and management conflicts, for instance. One party can frame its positions and arguments in terms that address the likely motivating concerns of the other.

Consider how you might use a choicebox in advising a client. By laying out the considerations and judgments behind your advice, or jointly working through them, communication can be improved. The client might draw your attention to factors

you've neglected, or help uncover mistaken assumptions. Some firms might even want to consider placing choiceboxes on their extranets for clients to use in handling routine operational decisions that have legal repercussions.

The value-add of choicemaking tools

Choiceboxing can be done in principle with little more technology than a pencil and paper. (Non-trivial choices worth 'boxing' present too many options, factors, and tradeoffs to keep reliably in your head.) But choiceboxing is not practical without better tools. Scoring functions and related bookkeeping cry out for software.

You can perform basic weighted factor analysis using Word tables and functions. Choiceboxes can be implemented as three-dimensional spreadsheets in applications like Microsoft Excel (using multiple sheets and lots of tricky formulas.)

But specialized software is required to realize the full potential of choiceboxing. Such software can make it easy to reconfigure options and factors, perform useful analytics, and document your decisions. There are sophisticated (and expensive) applications that are best suited for experts, and also modestly priced desktop tools that you can find by Googling "decision support software." Some colleagues and I have developed a system that is optimized for collaborative deliberation over the Internet. Visit this book's companion website to learn more.

Having choices is the essence of freedom. Choosing well is the essence of responsibility. Knowledge tools can help you choose both more freely *and* more responsibly.

Going deeper

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Luda Kopeikina, The Right Decision Every Time (2005)

R. Duncan Luce and Howard Raiffa, Games and Decisions (1967)

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Paco Underhill, Why We Buy (1999)