A Brief Discussion of Moral Reasoning as Open-Ended Problem Solving

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The purpose of this discussion is to briefly explore moral reasoning as a specific type of open-ended problem solving. Because of the preliminary nature of this discussion, I have not attempted to address theories or models from the moral reasoning literature. However, this discussion investigates a problem solving approach that could potentially be tied to existing theories of moral reasoning.

This discussion refers to the problem solving model in Lynch, Wolcott and Huber (2000),[1] as depicted in Figure 1. That model describes a four-phase process for addressing open-ended problems (i.e., problems for which there is more than one reasonable conclusion). Problems involving moral reasoning may be thought of as a specific type of open-ended problem, in which important moral/ethical concerns need to be addressed.[2] Below I briefly describe each phase of the problem solving process and identify special concerns related to moral dilemmas. (My underlying assumption in this discussion is that a reasonable response to a moral dilemma requires adequate performance of all four phases of the problem solving process *plus* "something additional." My intent here is to attempt to describe what that "something additional" might be.)

Identifying the nature of the problem (Phase 1): This phase involves the abilities to gather appropriate information related to a problem and to obtain an understanding of uncertainties that prevent a single "correct" solution. For moral dilemmas, this would include recognizing the existence of moral controversy. Of particular importance would be an understanding of potential ambiguities about what is "right"; the problem solver would need to recognize reasons why the problem has no clear-cut moral solution that will satisfy all interested parties.

Framing the problem (Phase 2): This phase involves exploring connections among various points of view, analyzing available evidence, and organizing information to aid in decision-making. Problems involving moral dilemmas would require particular attention to the moral issues. This might mean that the problem solver would need to ensure that moral-related factors are specifically incorporated in the problem space. This space is depicted in Figure 2, which demonstrates how three factors can increase or decrease the quantity and quality of information that the problem solver addresses. Each of these factors is discussed briefly, below.

> ***Beliefs about external constraints***: The problem solver can reconsider beliefs about external constraints related to the problem. For example, a problem solver might believe that certain solutions are not feasible due to financial or operational constraints.

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[1] Lynch, C. L., Wolcott, S. K., & Huber, G. E. (2000, January). *Tutorial for optimizing and documenting open-ended problem solving skills* [On-line]. Available: www2.apex.net/users/leehaven.

[2] Needed here: One or more formal definitions of moral reasoning and a discussion of its/their relationship to the definition of an open-ended problem.

However, it might be possible to produce new approaches to overcome such constraints. Moral dilemmas would require careful consideration of the various moral dimensions of the problem, and the problem solver might need to exercise creativity in searching for potential moral solutions.

Problem solver's experiences, assumptions and preferences: The problem solver can recognize and alter the impact of prior experiences, assumptions, and preferences. Increasing the problem space is most likely easier for problem solvers who are self-reflective and willing to consider others' perspectives. Moral dilemmas often pose threats to one's own self-interest, making this aspect of framing particularly important. The problem solver must be willing to consider solutions that meet some type of moral criteria (discussed again under "resolving the problem," below).

Quantity and quality of effort: The problem solver can modify both the quantity and quality of effort applied to analysis. It is important for problem solvers to be aware that additional time spent does not always lead to increased quality. For example, a problem solver might spend extra time locating information but be unable to expand his/her understanding of a problem. For moral dilemmas, higher quality effort might require a range of techniques for studying and breaking problems down in terms of moral issues (an important argument in favor of moral/ethical education).

Resolving the problem (Phase 3): This phase involves reaching and communicating well-founded conclusions, based on overarching criteria. For moral dilemmas, this means reaching conclusions based on overarching criteria that incorporate a moral dimension (for example, using the "greater good" to reach a decision). This might be the most difficult part of the problem solving process to describe for moral dilemmas, because there is likely to be disagreement about what constitutes appropriate criteria for reaching moral decisions. Is the "best" moral decision one that maximizes social benefit? Is it the one that minimizes social cost? Is it any solution that incorporates morality in the decision criteria? How would the problem solver know which solution is "best"? From a research perspective, how might one measure "better" and "worse" decisions? Using a [0,1], right/wrong, dichotomous measure—similar to that described by many writers about moral decision-making—seems to contradict the notion that moral dilemmas might have more than one reasonable solution (i.e., be open-ended problems). This would be a particularly important issue in applying the problem solving process to models of moral reasoning. To what extent do models of moral reasoning consider solutions beyond right/wrong? For the problem solving process to be most useful (and most applicable to the "real world"?), there most likely should be legitimate controversy about what constitutes the most reasonable moral solution.

Re-addressing the problem (Phase 4): This phase involves understanding the limitations of a chosen solution and establishing appropriate strategies for dealing with ongoing uncertainties. Of particular importance for moral dilemmas might be recognition that the decision-making process often is not complete once a conclusion is reached and initial action taken. The problem solver might need to modify plans in the future to adapt to new information or changed circumstances. This means recognizing, once again, the uncertainties surrounding the problem and its moral controversy.

Evaluation/Measurement of Moral Reasoning

It may be appropriate to evaluate moral reasoning abilities using a method that also applies to open-ended problem solving ability. In particular, it may be possible to ask individuals to address a moral dilemma and then evaluate their response using a modified version of a rubric that has been developed for the problem solving model (see Figure 3). This rubric is adapted from the scoring rules for the reflective judgment model (King & Kitchener, 1994) and can be used to evaluate the level of complexity used in addressing an open-ended problem. More reasonable approaches to open-ended problems are defined as those involving greater complexity. Thus, individuals scoring higher on the rubric (i.e., further to the right in Figure 3) would be viewed as having greater problem solving abilities than individuals scoring lower on the rubric (i.e., further to the left in Figure 3).

To adapt the rubric in Figure 3 specifically for moral reasoning, it would be necessary to compare and contrast moral reasoning with open-ended problem solving ability. The preceding discussion could be used as a starting point for the comparison. Based on that discussion, it appears that the greatest difference between moral reasoning and open-ended problem solving most likely lies in the specification of criteria used to choose across alternative solutions. As noted earlier, a number of questions need to be answered before resolution criteria can be specified for moral reasoning.

However, even without modification the rubric in Figure 3 could be used to evaluate the degree of complexity an individual uses in addressing a moral dilemma. Greater complexity in problem solving is desirable for moral reasoning, since greater complexity is associated with greater abilities to: (1) understand the moral dilemma itself, (2) recognize and take into account one's own as well as others' points of view related to the problem, (3) explore and make sense out of connections among points of view, information, and potential solutions, (4) utilize and explain reasonable criteria for reaching a conclusion, and (5) recognize and plan for ongoing uncertainties that might affect future decisions.

Figure 1: Stair-Step Illustration of the Problem Solving Process

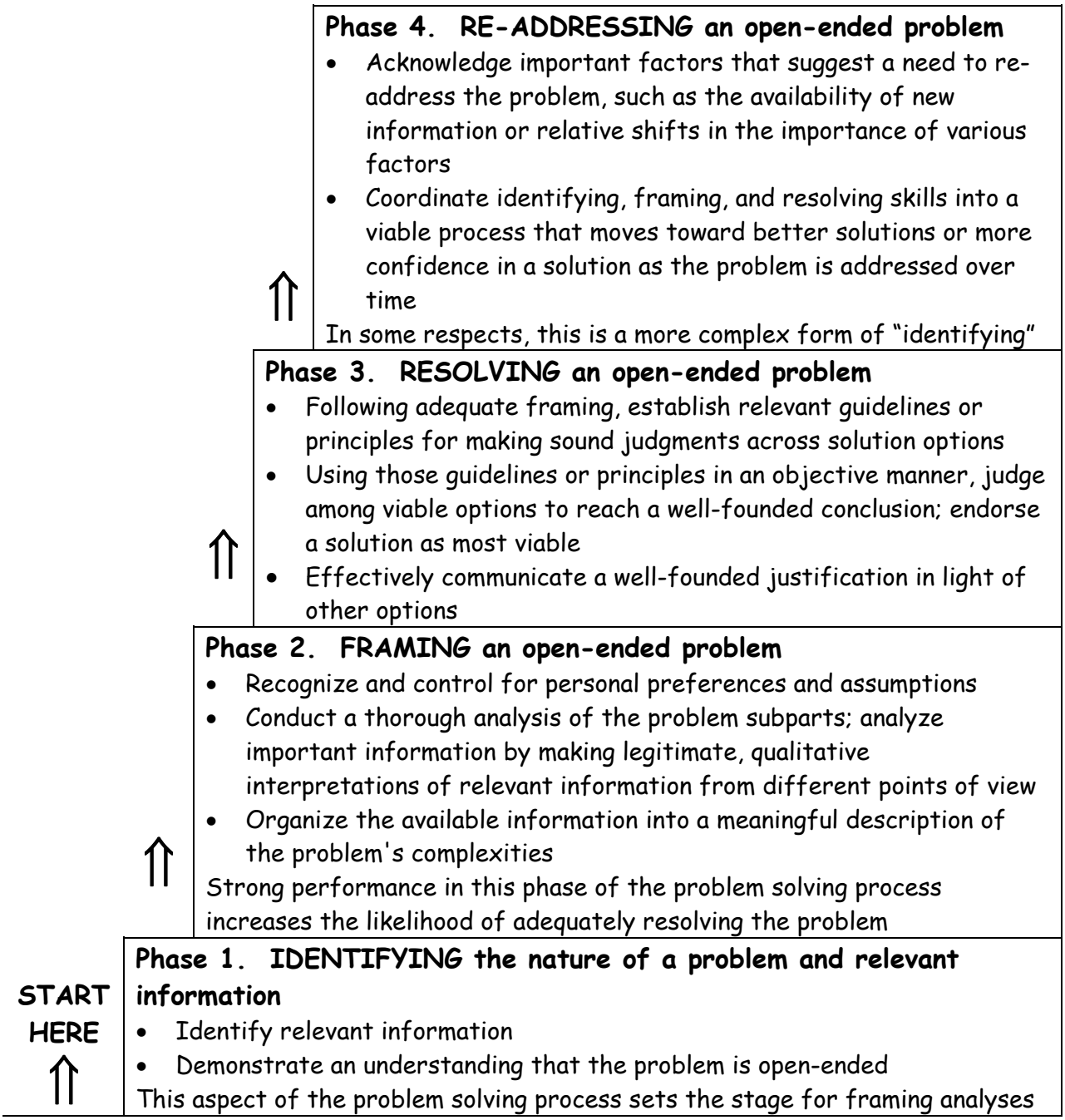

Figure 2
Expanding/Contracting the Quantity and Quality of Information Analysis

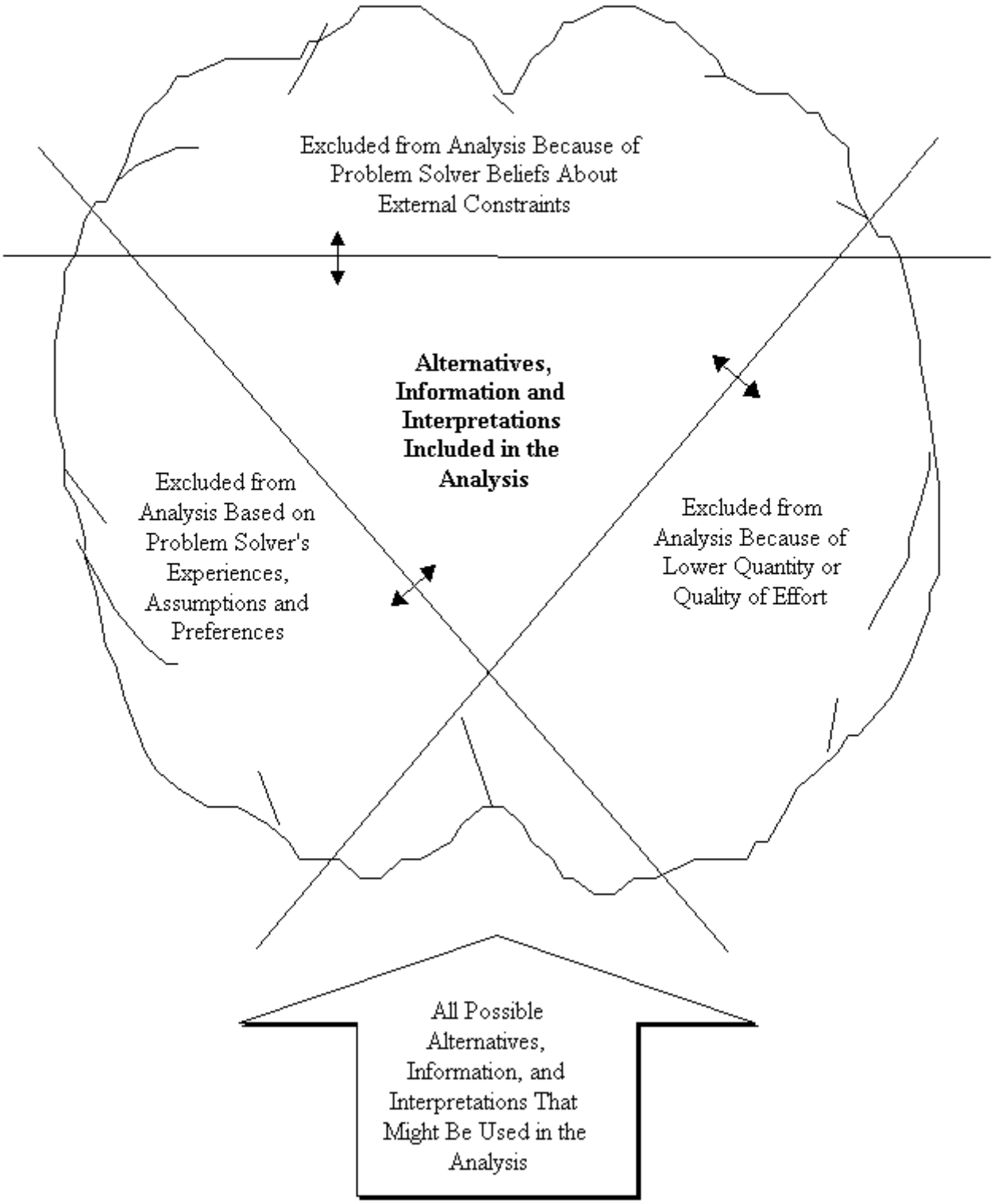

Figure 3
Rubric for Evaluating Performance in Addressing Open-Ended Problems -- February 2000 draft D

	PERFORMANCE LEVEL -- moving from less complex to more complex performance across the page				
SKILLS	**How performance might appear when identifying, framing, resolving, and re-addressing skills are weak**	**How performance might appear when one has identifying skills, but framing, resolving, and re-addressing skills are weak**	**How performance might appear when one has identifying and framing skills, but resolving and re-addressing skills are weak**	**How performance might appear when one has identifying , framing, and resolving skills, but re-addressing skills are weak**	**How performance might appear when one has identifying, framing, resolving, and re-addressing skills**
IDENTIFYING • **Use of relevant information in addressing the problem** • **Overall approach to the problem**	• Used very limited information; primarily "facts" or definitions • Proceeded as if goal was to find the single, "correct" answer	• Used limited information, primarily evidence supporting overall conclusion • Proceeded as if goal was to stack up evidence to support conclusion	• Used a range of carefully evaluated, relevant information • Proceeded as if goal was to establish a detached, balanced view of evidence from different points of view	• Used a range of carefully evaluated, relevant information, including overarching criteria for judging among solutions • Proceeded as if goal was to come to a well-founded conclusion based on objective comparisons of viable alternatives	• Used a range of carefully evaluated, relevant information, including overarching judgment criteria and viable strategies for addressing solution limitations • Proceeded as if goal was to construct knowledge, to move toward better conclusions or greater confidence in conclusions as the problem is addressed over time
FRAMING • **Interpretations of information** • **Use of organizing concepts for information**	• Presented information, but did not interpret it • Organized information into categories of right, wrong, or uncertain	• Interpreted information as either supporting or not supporting different points of view • Responded to the problem holistically; limited break down of problem; did not effectively address larger context	• Qualitatively interpreted information from multiple points of view; included discussions of assumptions, alternative objectives, and evidence quality • Organized information and concepts into viable framework for exploring the realistic complexities of the problem	• Qualitatively evaluated information using general principles that allow comparisons across points of view • Organized information and concepts well; included generalized criteria that apply across different points of view and allow for qualitative comparisons of solution options	• As new information was generated over time, interpreted and re-interpreted evidence systematically • Organized information and concepts well, including generalized criteria; articulated that framework and criteria can be refined, leading to better solutions or greater confidence over time
RESOLVING • **Use of guidelines or principles to judge objectively across the various options** • **Clarity of written communication and appropriateness for setting**	• Did not reason logically from evidence to conclusions; relied primary on unexamined prior beliefs or clichés as justification • Quality of written communication was poor or inconsistent;* did not address the information needs of the audience	• Provided little evaluation of alternatives; offered partially reasoned conclusions; reported superficially understood evidence in support of beliefs • Well written;* provided insufficient information for audience to understand alternative points of view	• Used evidence to reason logically within a given perspective, but criteria used do not necessarily apply across solution options • Well written;* provided sufficient information for audience to understand alternative points of view, but did not adequately prioritize information	• Used well-founded, overarching guidelines or principles to objectively compare and choose among alternative solutions; provided reasonable and substantive justification for assumptions and choices in light of other options • Well written:* provided appropriate information prioritized for the setting and intended audience	• Argued convincingly using complex, coherent discussion of own perspective, including strengths and limitations; articulated how systematic process of critical inquiry was used to build solution • Well written;* provided appropriate information prioritized for the setting and intended audience, including descriptions of processes for constructing valuable knowledge
RE-ADDRESSING • **Acknowledging solution limitations**	• Did not acknowledge significant limitations or uncertainties beyond lack of information or experts' lack of agreement on the correct solution	• Identified at least one limitation or reason for significant and enduring uncertainty beyond lack of information or experts' lack of agreement	• Articulated connections among underlying contributors to limitations	• Adequately described relative importance of solution limitations when compared to other viable options	• Suggested viable processes or strategies for monitoring results or otherwise addressing significant limitations over time

Note. Adapted from "Levels of Performance for Framing and Resolving Ill-Defined Problems" (USAFA internal communication, 1995) developed by United States Air Force Academy Assessment Working Group and C. L. Lynch. Based in part on information from *Reflective Judgment Scoring Manual With Examples* (1985/1996) by K. S. Kitchener & P. M King. For more information about the Questions for Problem Solvers and a problem solving tutorial, visit www2.apex.net/users/leehaven

*__Well written__ means consistently used correct spelling, good grammar, appropriate sentence and paragraph structure, proper referencing, and logical organization.