Leadership, Critical Thinking, and Dialogue: Steps toward an Integrative Framework

Marvin S. Cohen

Cognitive Technologies, Inc.
4200 Lorcom Lane
Arlington VA 22207
Ph: 703 524-4331
Fax: 703 527-6417
mcohen@cog-tech.com
www.cog-tech.com

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Two Sides of Leadership

"Leadership," Eisenhower said, "is the ability to decide what is to be done, and then to get others to want to do it" (Bass, 1990, p. 14). These two sides of leadership seem, on the surface, to involve distinguishable behaviors, skills, and attitudes. On the one hand, leaders are expected to make choices in uncertain and rapidly changing conditions, to develop solutions or even new visions in the face of novel challenges, and to determine appropriate allocations of resources. Task-oriented leader behaviors include not only decision making and problem-solving, but "planning and scheduling work, coordinating subordinate activities, and providing necessary supplies, equipment, and technical assistance" (Yukl, p. 52). At the same time, the most successful leaders are also able to inspire enthusiastic commitment, loyalty, and exceptional performance from other members of the group, rather than mere compliance (Bass, 1998). Relationship-oriented leader behaviors include "showing trust and confidence, acting friendly and considerate, trying to understand subordinate problems, helping to develop subordinates and further their careers, keeping subordinates informed, showing appreciation for subordinates' ideas, and providing recognition for subordinates' contributions and accomplishments" (Yukl, p. 52). Some researchers have regarded task-oriented and group-oriented leader styles as mutually exclusive traits; others have regarded the two classes of skill as distinct but non-exclusive (Foushee & Helmreich, 1988, p. 202). Leaders with both kinds of skill must make tradeoffs between the two, for example, focusing on task-oriented behavior when stakes are high and time is short (e.g., in combat) and relationship-oriented behavior when they are not.

Both sides of leadership are necessary. Leaders cannot exert influence if they do not have a purpose, plan, or vision that they wish others to pursue; and decision making is vain if the results will not be effectively implemented. But the two sorts of behavior are not always distinct. A record of competence in decision making, or the perceived quality of a particular decision, may be a significant source of a directive leader's influence. At the other extreme, a participative leader may invite subordinates to contribute to the decision making process in order to both improve decision quality and increase their commitment to the outcome (Yukl, p. 122). As we shall see, not only can the same behaviors be used to both ends, the underlying skills and attitudes have more in common than at first meets the eye.

The purpose of this chapter is to suggest and explore a common framework for processes of decision making and of influence. The framework may shed light on different ways that both influence and decision making can occur, provide a more theoretically illuminating and practically useful set of distinctions, and point the way to a more integrated and more effective approach to leader development. According to this framework, both decision making and influencing are exemplified in *dialogue*, with oneself or with others. Different types of dialogue are associated with distinct objectives, are appropriate in different contexts, involve different functional roles, and impose different rules for interactions among the participants. Leadership is the skillful orchestration of different types of dialogue to achieve team or organizational objectives. Dialogue theory may supply a precise set of tools for analyzing how such orchestration occurs at the level of specific leader and subordinate behaviors. Ultimately, dialogue theory may serve as a bridge between training in thinking skills and leader development.

Critical Thinking: From Argument to Dialogue

Is reasoning an individual or a social enterprise? Approaches to reasoning have differed in their answers, as shown in Table 1. The foundationalist tradition sees reasoning as intensely individual, and this has had an enduring influence in the fields of informal logic, critical thinking, decision theory, and cognitive psychology. The aim of critical thinking is to free a person from dogma, superstition, and intellectual laziness, and this task demands a stringent, isolated effort of thought. Reasoning proceeds one argument at a time. Each argument contains a set of statements that function as premises, and another statement that is its conclusion. Knowledge must be built up from self-evident foundations (e.g., truths based on perception) by formally valid steps of logical inference. If an argument is valid, the conclusion can be added to the store of accepted beliefs, and can be used as a premise in subsequent arguments.

The informal logic movement, along with contemporary foundationalism, has tried to achieve a better fit to the uncertainties of real-world reasoning. According to informal logic, the starting points of reasoning must be rationally acceptable but need not be self-evident. Conclusions must be rationally supported by the premises (e.g., smoke suggests fire), but need not follow by logically valid inference. Nevertheless, informal logic inherits many of the assumptions of foundationalism, in particular, the view of reasoning as the accumulation of beliefs one argument at a time. And reasoning remains basically an individual enterprise. Fallacies are arguments that appear to be cogent, but in fact are not, often because they depend on the opinions of others (e.g., appealing to authority rather than reasoning a position out for oneself).

Most work on critical thinking reflects similar assumptions. For example, Siegel (1997) says that

> …being a critical thinker requires basing one's beliefs and actions on reasons… the beliefs and actions of the critical thinker, at least ideally, are *justified* by reasons for them which she has properly evaluated (p.14; italics in original).

There is a rough consensus in the field along these lines: Critical thinking is the acceptance or rejection of beliefs based on the evaluation of arguments – where an argument is a set of premises and a conclusion. This view is so ubiquitous that it may seem to be little more than common sense. Justification of beliefs by explicit argument is a central tenet in virtually all textbooks and theoretical discussions of critical thinking.

Table 1. Views on the role of other people and their testimony in various reasoning paradigms.

Field or subfield	**Importance of others in the critical thinking process**	**Conditions for accepting others' testimonial evidence**
Formal Logic & Classical Foundation-alism	Reasoning is individual utilization of universal principles. To be justified, your beliefs must be evident *to you*, e.g., because they are based on perception, or you have derived them by formally valid inferences. Consideration of opposing views is irrelevant and distracting.	Neither testimony nor judgment of others deserves any credence unless they can be independently established by you.
Informal logic & Contemp-orary Founda-tionalism	Reasoning involves an individual's application of non-formal criteria to arguments. Some dialogue concepts are accepted by some informal logicians, e.g., the individual has the responsibility to respond to the objections or anticipated objections of others and to adjust standards of rigor to fit the context.	Supporting a conclusion by appeal to the views of others is usually a fallacy, i.e., appeal to popular opinion or to authority. But testimony may be acceptable if questions regarding competence, trustworthiness, and experience of sources are answered favorably.
Dialogue theory	Evaluation focuses on argumentation as an interactive *process* with a collaborative purpose, not on argument as a static set of statements. The specific type of dialogue undertaken by the participants supplies the relevant normative standards. One type of dialogue is *critical discussion*, with the purpose of rational resolution of disagreement. This dialogue defines two roles (proponent and opponent) which are essential for critical thought in general.	Testimony can be used as evidence as long as it is *not challenged* by the participants in the dialogue. It has the same status as any other claims. In general, the challenges by an opponent determine which issues need attention and which do not.
Rhetoric & Communica-tion Theory	Evaluation of an argumentation process includes its success in persuading a real audience. The belief system and values of the audience determine the acceptable premises. Non-discursive elements (such as actions) can serve as components. Argumentation may have a wide variety of purposes, which may be less directly related to their literal content than dialogue theory allows.	The goal is persuasion of a real audience, not necessarily a rational one. The proponent bases her arguments on what she takes to be the beliefs and values of the audience, in some cases even if she does not accept them herself.

Unfortunately, even watered-down foundationalism does not mix with uncertainty, and this view runs into serious trouble. Informal logic borrows from foundationalism the idea of a *sufficient* inference, i.e., an argument whose premises are adequate to justify a conclusion, even if it does not render the conclusion certain. But the uncertainty of the link between evidence and conclusion in real-world inference implies that sufficiency is always an open-ended question. New considerations can be brought forward to undermine the link between evidence and conclusions; further considerations may subsequently appear that explain away the previous considerations and restore the link; later, new undermining conditions might be noticed; these might be answered; and so on. This phenomenon (called *defeasibility*) means that static sets of statements (premises and conclusions) cannot be evaluated once and for all as sufficient or insufficient. Pragmatic considerations (such as the tradeoff between the cost of time and the costs of errors) must determine when critical thinking stops and a conclusion is accepted or rejected. In other words, argument evaluation must focus on the interactive *process* by which reasons are put forward and rebutted in the context of a real task. The interpretation of argument as a *dialogue* between a proponent, a critic, and a judge or facilitator answers this need.

The idea of a critic or opponent is, strangely enough, not prominent in the view of reasoning presented in the critical thinking literature. Most definitions of critical thinking mention a need to consider reasons, but only a few (e.g., Paul, 1993; Brookfield, 1987; Missimer, 1994; Walter, 1994) require that the critical thinker consider alternative views. But if inference is uncertain, there can be good arguments on both sides of an issue (Johnson, 2000; Govier, 1987). Thus, it is surprising that so many writers on informal logic and critical thinking have either ignored the problem of how conflicting opinions should be resolved, or have treated the subject in an *ad hoc* manner. A rather large number of textbooks address argument analysis and evaluation in terms of two independent factors – the acceptability of premises and their sufficiency to support inference of the conclusion. But they do not consider how *those* criteria could possibly be used to adjudicate between conflicting arguments (e.g., Johnson & Blair, 1994; Thomas, 1997; Freeman, 1993; Govier, 1997).

The reason for the neglect is that resolution of conflicting views is not effectively handled by the one-hypothesis-at-a-time, argument-by-argument foundationalism. Effective adjudication cannot be accomplished by a series of separate choices that decides between each claim in turn and its negation (Everitt and Fisher, 1995: p. 173). Serial evaluation assumes that optimal decisions with respect to each claim will yield a globally optimal system of beliefs, i.e., an adequate overall picture of the situation. But this is not the case. A series of cogent arguments (i.e., with premises that are apparently both acceptable and sufficient) can lead to a conclusion that is contradicted by the conclusion of another series of apparently cogent arguments. A "critical thinker" who relies on arguments alone, no matter how good the reasons each one contains, may well be led down the garden path to a less than plausible combination of beliefs. It is necessary to frame the problem differently. The arguer wants to end up not with a series

of cogent arguments, but with a *coherent account* of the situation, i.e., an acceptable mental model.[1]

Arguments have many functions, including that of exposing incoherence in mental models. But arguments for individual hypotheses cannot generally *resolve* differences of opinion. The dispute can be resolved only by going beyond the arguments to consider the contending situation pictures as a whole, often including explanations of why opposing arguments fail. Conflict resolution involves a dialogue in which each side probes for weaknesses in the other side's case, and responds to challenges by making her own case a bit stronger. Premises are not acceptable in any absolute sense, but are subject to revision in the light of problems that emerge later. Conflict resolution requires that the parties engage in a dynamic process that compares alternative mental models. Consideration of alternative views must be included as a key part of critical thinking.

Example

MAJ Jones believes that she saw a tank. Since a tank is an easily recognized object and visibility conditions are excellent, this is a good candidate for a basic premise in reasoning about enemy disposition of forces. But the perception of a tank can be undermined if it turns out to clash with other beliefs which on the face of it seem less secure. Suppose MAJ Jones learns that the enemy has deployed dummy tanks in the region, or remembers that the area where she "saw" the tank is shown as a swamp on the map. These non-basic beliefs may trump her confidence in the perceptual judgment! Alternatively, the perceptual judgment might lead MAJ Jones to question the map or the reports of dummy tanks.

MAJ Jones must determine which *overall set of beliefs* is most plausible, including beliefs about the presence of the tank, the accuracy of the map, the reliability of the reports about dummy tanks, and the reliability of her own perceptual judgment. In other words, MAJ Jones must evaluate the plausibility of alternative mental models. The decision whether there is a tank will depend on specific knowledge of the current situation plus general beliefs about the accuracy of maps, intel reports, and perceptual experiences. That is, the selection of a plausible mental model will depend on its coherence with a larger body of beliefs, not all of which can be made explicit.

Dialogue theory and rhetoric represent a fundamental shift in focus, from argument as product to argumentation as process (O'Keefe, 1982). Other persons are no longer just dangerous distractions or occasional sources of imperfect information. Dialogue theory *defines* reasoning, paradigmatically, as a social process, in which different individuals verbally interact in a rule-governed way in order to achieve some pragmatic goal. Reasoning requires two roles, that of proponent and opponent, joined together in a process of challenge and response, and (in the view presented here) a third role, that of a judge or facilitator, to determine what type of process is appropriate, when

[1] Pearl (1989) makes a similar point in the context of Bayesian networks: "…by belief commitment we mean the categorical but tentative acceptance of a subset of hypotheses that together constitute the most satisfactory explanation of the evidence at hand. In probabilistic terms, that task amounts to finding the most probable instantiation of all hypothesis variables, given the observed data.[p. 240] …this optimal assignment cannot be obtained simply by optimizing the belief distributions of the individual variables [p. 246] ."

the process should start, and when it should stop. Mutual sets of expectations constrain the permissible "moves" for the occupier of each role.

Mental Models and Coherence

Dialogue theory improves our understanding of the way knowledge is justified and at the same time gives us a more illuminating picture of how it is organized. The system of beliefs is not a pyramid that grows one brick at a time. In contrast to foundationalism and informal logic, there is no privileged class of claims (like perceptual beliefs) to provide a fixed foundation for all other beliefs. Any claim, if challenged, can and must be defended. The more flexible types of dialogue models imply that the system of beliefs is a web (Quine & Ullian, 1970), in which any belief can be used under some circumstances to support any other belief to which it is linked. Beliefs cited in support are also subject to potential challenge. But if a belief has *not* been challenged, a defense is unnecessary and indeed, is inappropriate. Thus, requests for justification can end at any accepted set of beliefs. A system of beliefs is *coherent* and therefore justified when its members are tightly interconnected by explanatory, logical, conceptual, or other relationships (Thagard, 2000), since these links provide the material for answers to challenges. Reasoning does not transmit justification from one belief to another in a linear fashion. Rather, the network is *justified as a whole* by the interconnections within it (Day, 1989; Plantinga, 1993a, pp. 78-80). Argumentation is a tool for exposing those relationships.

In a coherence-based evaluation of a network of beliefs, there is no fixed point at which challenges and responses stop, yet questioning cannot go on forever. A large number of assumptions will have to be accepted on faith or gut feel (subject to later scrutiny if challenged). For individual cognizers, the sources of such beliefs may be the relatively automatic operation of recognitional processes (Klein, 1993), or else the recollection of beliefs accepted at an earlier time for reasons that may well have been forgotten. Cognitive research on mental models has emphasized the importance of such background knowledge. Johnson-Laird and Byrne (1991) claim that reasoners use their understanding of language and their background knowledge to construct *mental models*. Each mental model represents a possible state of affairs with respect to a small set of variables, and is far from an exhaustive description of the entire belief system. Similarly, Pennington and Hastie (1993) show that jurors use their background knowledge to organize information presented in a criminal trial by means of *stories* corresponding to innocence and guilt respectively, and they arrive at a verdict by evaluating the coherence of the competing stories. According to both Pennington and Hastie, and Johnson-Laird and Byrne, when cognizers evaluate the coherence of stories or mental models, their judgments must draw on background knowledge of relationships among the variables that are explicitly represented in the model or story.

The importance of background knowledge collides with a basic underlying assumption of traditional views of reasoning. Foundationalism, informal logic, and much critical thinking theory regard justification as internal to the consciousness of the cognizer. All that matters is a proper relationship between the conclusion and whatever information is currently in the cognizer's conscious awareness. The cognizer cannot be blamed for accepting a conclusion for which she has sufficient evidence, even if other information of which she is not aware would defeat that support. In both formal and

informal logic, the ideal is that all reasoning take place in the light of day. The paradigm case of belief justification is a completely explicit argument in which all relevant reasons for a belief are articulated. *Enthymematic* arguments, i.e., those in which some premises are omitted, may be common, but they cannot be regarded as standard.

Dialogue theory reverses this: All real world arguments are, and must be, enthymematic (Willard, 1989). A fully explicit argument is unlikely to occur anywhere except in the exercise section of a formal logic text. Moreover, knowledge not presently in awareness does count for or against justification. Because most knowledge remains implicit, maximizing the local coherence of a mental model in the light of background beliefs does not ensure maximizing the coherence of the belief system as a whole. As long as they remain implicit, background beliefs, are not available for critical challenge. Also, some relevant background beliefs may not exert appropriate automatic influence on the local model, because of the distance of the representations. Thus, there is no guarantee that the most coherent *story or model* will be part of the most coherent *overall view*.

Perhaps the most significant benefit of critical dialogue is that it mitigates these limitations, and therefore produces more reliable results. It targets knowledge that the cognizer does not currently have in mind. The process of challenge and response shifts the focus of attention from one segment of the belief system to another. These shifts are guided by relatively automatic recognitional processes, which are themselves influenced by the underlying representational structure (e.g., the explanatory or conceptual links among the beliefs). As a result, the belief system may be explored one segment at a time by a series of questions and answers that shift the focus of the actively considered mental models to more distant subsets of variables in long-term memory. Each mental model is adjusted to improve its coherence with respect to the current set of background beliefs. As the cognizer cycles her attention through a series of such models, more background knowledge will be brought into play. The overall coherence of her belief system should improve, as well as awareness of her own beliefs. (Cohen, Thompson, Adelman, Bresnick, Shastri, & Riedel, 2000, provide a computational model of this process.)

Just as we cannot get along without a large set of background beliefs, in most real-world contexts progress cannot be made without relying on information and knowledge from other people. The testimony and judgments of others assume a greater importance in dialogue-based reasoning than in traditional views. It would be impossible to justify all testimonial evidence by explicit reasons, just as it would be impossible to challenge every belief in long-term memory. On the contrary, we often accept the testimony of others as automatically as we accept beliefs generated by our own perceptual, recognitional, or memory systems. In both cases, however, challenges are *sometimes* warranted. Acceptance of testimony may depend on the answers to questions that probe the sources of information, the reasoning, and/or the honesty of the testifier. Critical dialogues of this kind, when they occur, increase the coherence of beliefs within a team or organization, just as critical thinking by an individual increases the coherence of her own internal store of beliefs.

There is a deep functional similarity between rationally persuading another individual to accept or reject a position, and rationally determining for oneself whether a position is acceptable or not. It is useful and illuminating, therefore, to regard critical

thinking by an individual as the internal enactment of a critical dialogue, in which a single individual plays distinct dialectical roles (Walton, & Krabbe, 1995, p. 26). By the same token, a dialogue externalizes functions that take place within an individual cognizer. Critical thinking presupposes at least the *idea* (if not the actual presence) of another person, and the *anticipation* (if not the actual existence) of an opposing view. Unless each of the essential roles are performed there is no critical thought.

Thinking and dialogue share a developmental history as well as a functional similarity. A variety of developmental psychologists (e.g., Vygotsky) have proposed that thinking first develops in each individual as internalized speech, and that people learn to reflect on and evaluate their own thoughts by responding to the comments of others (Bogden, 2000). As noted by Rieke and Sillars (1997),

> …research suggests that critical thinking is really a mini-debate that you carry on with yourself. What is often mistaken for private thought is more likely an "internalized conversation (Mead), an "internal dialogue" (Mukarovsky), or an "imagined interaction" (Gotcher and Honeycutt).

A final reason for interest in dialogue theory is more direct. Much critical thinking takes place in a team or group context, in which external dialogue plays a role in decision making. The road to improved critical thinking in both an individual and a team context may lead through training in critical dialogue skills and habits. Leadership skills are broader; they employ a varied set of dialogue types, of which critical discussion is only one.

A Three-Part Theory of Critical Thinking

Critical thinking skill is exemplified by *asking and answering questions about alternative possibilities in order to achieve some objective.* Asking and answering questions is, in essence, a skill of *dialogue.* Each alternative possibility is a *mental model*. A process of questioning mental models is (or should be) adopted because of its *reliability* for achieving the purposes of the participants within the available time. Thus, the theory of critical thinking draws on and synthesizes findings in three separate research areas:

1. Theories of reasoning according to which people represent information about a problem or situation by means of mental models of alternative possibilities, evaluate the models in the light of relevant background knowledge, update the models by adding new information as it becomes available, revise models to resolve internal inconsistencies, and draw conclusions by inspecting the surviving possibilities (e.g., Johnson-Laird, 1983; Johnson-Laird & Byrne, 1991).
2. Theories of critical discussion in which a proponent must defend a claim against challenges by an opponent or critic (e.g., Rescher, 1977; Walton & Krabbe, 1995; van Eemeren & Grootendorst, 1992; Walton, 1998).
3. Theories of the cognitive mechanisms and processes involved in belief formation and decision making, which vary in their reliability, e.g., as shown by their association with proficient performance in a domain (e.g., Simon,

1997; Gigerenzer & Selten, 2001; Ericsson & Smith, 1991; Klein et al., 1993; Payne, Bettman, & Johnson, 1993).

Critical thinking, like an onion, has a concentric structure (Figure 1). The three aspects of the theory move from internal standards and guidance via mental model theory, to reliable adaptation to external facts. Dialogue rules for challenge and response are the crucial link between inner and outer criteria.

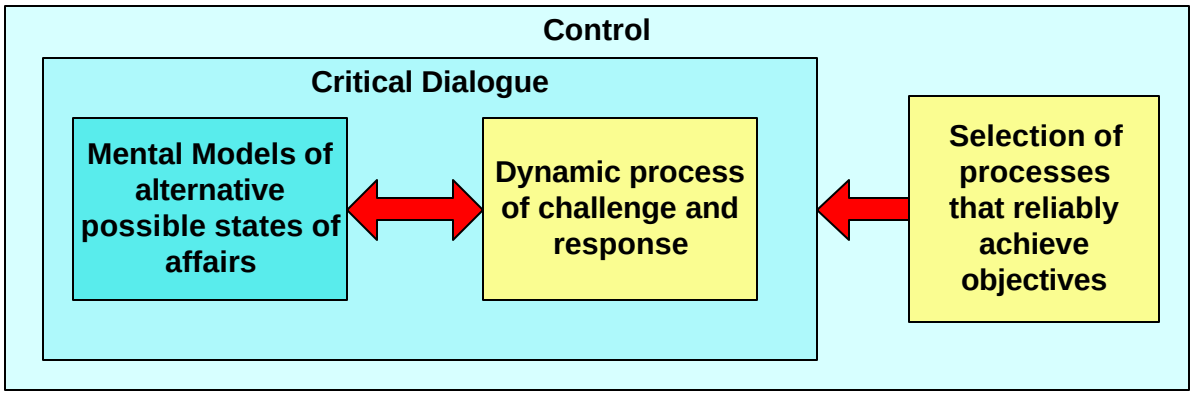

Figure 1. A model of critical thinking with three embedded layers: mental models, critical dialogue, and control based on reliability.

All three of these aspects involve both empirical and normative elements. In particular, each of the three layers is associated with distinctive criteria of performance, which progress from internal to external in their focus:

1. At its innermost core critical thinking involves representation of *alternative possible states of affairs*, or mental models. The key metric of performance at this level is the explanatory coherence of mental models and the coherence between mental models and background beliefs. Relative to a task context, errors occur when cognizers overlook relevant alternative possibilities or fail to properly assess the plausibility of different mental models, including their comprehensiveness and simplicity as explanations.
2. At the intermediate level, mental models are embedded within a layer of *critical questioning* which motivates the generation and evaluation of possibilities. Critical questioning may take place within a single mind or among different individuals, but is evaluated by reference to norms for conducting the relevant kind of dialogue. Dialogue types are differentiated by the purposes they serve, by the types of challenges that are permitted to the opponent, and the scope of the permitted responses by the proponent. At this level of analysis, errors occur when cognizers fail to ask or answer questions associated with the appropriate argumentation scheme, use argumentation schemes that obstruct the purpose of the dialogue, or inappropriately shift from one dialogue type to another (Walton, 1998).

3. At the outermost layer, critical thinking is a judgment about the *reliability* of a cognitive process or faculty, that is, about the degree of *trust* that should be placed in its outputs in the context of a particular task. A critical dialogue is only one of various cognitive or social processes that might be utilized alone or in combination to generate beliefs and decisions. Non-deliberative processes, such as pattern recognition, may be more reliable under some conditions and can be used to verify the results of reasoning – just as reasoning is used to check the result of intuition. At this level, errors occur when cognizers use inappropriate or inefficient strategies, and when they terminate a process too soon or continue it too long. The outer layer of our model makes it externalist and pragmatic.

In sum, critical thinking skill is exemplified by *asking and answering critical questions about alternative possible states of affairs, with the intent of achieving the purpose of an on-going activity.*

Critical Thinking, Dialogue, and Reliability

Most definitions of critical thinking approach it from a private, internal, and intellectualist perspective: e.g., as the deliberate, purposeful evaluation of (conscious) reasons for a (conscious) belief. Diane Halpern's (1996, p. 5) definition is unusual in its emphasis on the likelihood of achieving an external outcome in a real task and context:

> "Critical thinking is the use of those cognitive skills or strategies that increase the probability of a desirable outcome. It is … the kind of thinking … when the thinker is using skills that are thoughtful and effective for the particular context and type of thinking task."

This definition, like ours, is a predominantly pragmatic and *externalist* approach to critical thinking, although it includes reference to deliberate, conscious processes as well. An externalist approach does not demand that a person be aware of all the factors that determine whether or not a belief is justified (Goldman, 1992, 1986; Dretske, 1983; Nozick, 1981; Sosa, 1991; Plantinga, 1993b). A cognitive mechanism or strategy is deemed reliable based on achievement of the desired results under relevant conditions. And a belief is justified if it is produced by such a reliable process.

Externalism accounts for our willingness to attribute knowledge to people even when they cannot accurately articulate the reasons for their judgments (Sternberg & Horvath, 1999; Berry & Dienes, 1993). There is evidence that experts can become highly proficient in recognitional skills, and in some cases are less able than novices to describe their own thought processes (Patel, Arocha, & Kaufman, 1999, p. 82). Externalism puts deliberative critical thinking in perspective: It is one possible strategy among others for the accomplishment of cognitive tasks. It is not always appropriate to bring to bear the full panoply of critical thinking tools. Moreover, the success of critical thinking, like other cognitive processes, can depend on information of which the cognizer is not aware – including her own implicit background beliefs and the real origins of the beliefs that she has acquired from other people. Critical thinking, like other cognitive processes, must be evaluated in terms of the reliability of its results. The same is true for the various dialogue processes that implement critical thinking and leadership in a team context.

Dialogue Theory

Dialogue theory has both an internal and an external face. From the internal point of view, it provides a set of norms or rules that guide each participant in a critical discussion. From the external point of view, the dialogue is a real-world exchange which people undertake to achieve a purpose in a real task. Neither formal nor informal logic has provided an adequate description of real-world argumentation, or an adequate set of normative criteria for its evaluation (Walton, 1998, p. 7). To solve this problem, dialogue theorists closely interweave normative and descriptive elements (van Eemeren and Grootendorst, 1992, 1994). Rigorous, idealized models of interactive exchanges are developed based on principles of cooperation in human discourse (Grice, 1998) rather than on formal systems (as in logic or probability theory). Such models specify the purposes of different types of dialogue, the roles that are played within the dialogue, and rules for each player. In parallel, actual processes of argumentative discourse are studied empirically. Degree of match between real argumentation and the ideal paradigms (Walton & Krabbe, 1995, pp. 174-177) is used to identify practical difficulties and errors (van Eemeren, Grootendorst, & Henkemans, 1996).

Walton combines both the internal and external aspects of dialogue in the following definitions:

> A dialogue is a conventionalized framework of goal-directed activity in which two participants interact verbally by taking turns to perform speech acts. Typically, these speech acts are questions and replies to questions. The various speech acts are linked together in a sequence that has a purpose and direction as the dialogue proceeds. The purpose is determined by the goal of the dialogue as a recognized type of social activity. (Walton, 1998, p. 98)

> A dialogue is a goal-directed, collaborative conversational exchange, of various types, between two parties. … fallacy is defined as an argument or a move in argument that interferes with the goal of a dialogue of which it is supposed to be a part…. (1996b)

Among the central themes in recent work on dialogue theory are the following:

- Analysis of critical discussions (or persuasion dialogues) into stages (van Eemeren & Grootendorst, 1992)
- Identification of top-level principles for each stage of a critical discussion (van Eemeren & Grootendorst, 1992)
- Classification of multiple types of dialogue (Walton, 1998)
- Understanding fallacies as violations of the top-level principles of a dialogue stage (van Eemeren & Grootendorst, 1992)
- Developing formalized models for questions and replies in the argumentation stage of a critical discussion (Hamblin, 1970; Walton & Krabbe, 1995; Rescher, 1977)
- A theory of argumentation schemes for determining where the presumption of truth lies and what critical questions are appropriate (Walton, 1996a)

- Understanding fallacies as either misuse of an argumentation scheme or an illicit shift between types of dialogue (Walton, 1995)

We will briefly discuss only some of these issues, at points that shed light on critical thinking in the context of leadership.

Stages of Critical Discussion

Rules or principles governing the possible actions of each dialogue participant are a function of the type of dialogue, the role being played by that participant, the stage of the dialogue, and previous events in the dialogue. The dialogue type closest to critical thinking is the *persuasion* dialogue, used for the resolution of a difference of opinion between a proponent and an opponent (Walton, 1998). Van Eemeren and Grootendorst (1992, pp. 34-37) discuss a special case called a *critical discussion*. Resolution is not a matter of negotiation (*I'll agree with you on A if you agree with me on B*) or of ignoring differences in views. Resolution can occur in only two ways: The proponent *persuades* an opponent to retract doubt concerning the proponent's position because she has been *convinced* by the proponent's reasons, or conversely the proponent relinquishes her position because it has not withstood the opponent's challenges.

A critical discussion has four stages, each of which is associated with top-level principles. The principles are based on Grice's norms for cooperative conversation (Grice, 1989). A fallacy in reasoning, according to van Eemeren and Grootendorst (1992) is a violation of one of those principles. We give some examples of possible fallacies for each stage. However, the identification of an argumentation tactic as a fallacy is much more context-dependent than brief illustrations can show. The same tactic may be a fallacy in one context, but quite appropriate in another (Walton, 1995).

Stage 1. In the *confrontation* stage, a difference of opinion is recognized and acknowledged. For example, the proponent expresses a standpoint with or without reasons. The opponent asks questions to clarify or flesh out what the proponent meant to say and indicates disagreement or expresses doubt.

The most important principle for this stage is that the parties "must not prevent each other from advancing or casting doubt on standpoints" (van Eemeren & Grootendorst, 1992, p. 208). Fallacies that involve violation of this rule include: threats, personal attacks on competence or motives, appeals to sympathy of other party, or declaring standpoint immune to criticism.

Stage 2. In the *opening* stage (van Eemeren & Grootendorst, 1992, p. 41), the parties (perhaps implicitly) settle on the type of discussion they will have and the discussion rules. It is important at this stage for each party to gain as much understanding as possible of the other party's goals (Gilbert, 1997, p. 107), because these goals determine the most appropriate type of dialogue, or mix of dialogue types, for this occasion.

If the goal is to determine the most plausible resolution of the difference of opinions, a persuasion dialogue is appropriate. In a critical discussion, one party will take the role of proponent and the other will take the role of the opponent. The major difference between the proponent and opponent in a critical dialogue is the global *burden of proof*. In a *simple* (one-way) critical discussion, it is up to the proponent to create a

positive case for her standpoint. The opponent merely has to create doubt, not to positively defend any thesis. A *compound* (two-way) critical discussion, on the other hand, is symmetric. The two parties defend contrary theses, and each participant plays opponent to the other. The difference between simple and compound critical discussions is highly significant in terms of the moves available to the parties and the depth and richness of the reasoning. Only a two-way discussion permits the comparative evaluation of alternative points of view.

The top-level principle for the opening stage concerns the burden of proof: Whoever advances a standpoint is obliged to *defend* it if asked to do so by the other (p. 208). Fallacies that violate this rule include: Evasion by giving personal guarantee that thesis is correct, evasion by declaring the standpoint obvious, and turning the tables and making the challenger prove that the standpoint is wrong. In a compound dialogue, where both parties are proponents, it is a fallacy to require only one party to defend her standpoint.

Stage 3. The central stage of a critical discussion is *argumentation*. During this stage, the proponent advances reasons to believe the standpoint, the opponent expresses doubt, the proponent defends, and so on. A goal of this stage is to discover not just differences, but commonalities. Ultimately, resolution of differences will depend on finding and expanding the sphere of shared beliefs and values (Gilbert, 1997, p. 108-110). Among the consequences of critical discussion are (i) a better understanding of one's own beliefs and values, and (ii) a greater convergence of beliefs and values among the parties. Critical thinking in a team context helps team members acquire shared mental models.

Van Eemeren and Grootendorst spell out a number of top-level principles for the argumentation stage, each with associated fallacies. One principle is that a standpoint may be defended only by advancing arguments relating to that standpoint. This rule ensures *relevance*. It rules out such fallacies as appeals to the emotions of the audience, appeals to one's own authority, use of false modesty, and arguing for something different than the real issue under discussion. A second principle for the argumentation stage is that a person can be held to the premises she leaves implicit. Violations of this principle include denying a key premise just because it wasn't expressed, and creation of a straw man by exaggerating the protagonist's unexpressed premises. A goal of dialogue is for each party to gain a genuine understanding of both points of view. A third principle is that parties can be held to all and only the premises agreed to as the accepted starting point. Violations include: begging the question (i.e., taking what is supposed to be the conclusion as a premise), hiding presuppositions in loaded questions (*Have you stopped beating your wife?*), challenging the agreed starting point or trying to add to it, or presenting a new premise as self-evident.

Another principle is that a standpoint should be defended by means of correct application of a "scheme of argumentation." This means avoiding commonly recognized errors in reasoning such as: appealing to bad or good consequences of accepting a standpoint (instead of evidence that it is true), appealing to majority opinion or authority, using misleading analogies, inferring causality from juxtaposition of events, generalizations from inadequate samples, and misleading appeals to a slippery slope. A

final principle is similar but refers to avoidance of "logically invalid" reasoning, such as confusing necessary and sufficient conditions or part and whole.

Stage 4. In the *concluding* stage of a critical discussion, the dispute ends, according to von Eemeren & Grootendorst, either because the proponent withdraws her thesis or because the opponent withdraws her doubt. A top-level principle for this stage is that a failed defense must lead the proponent to withdraw her standpoint, and a successful defense must result in the opponent withdrawing her doubt. It would be a fallacy in this stage to conclude that a standpoint is certainly false just because it was not successfully defended, or that a standpoint is certainly true just because it was not successfully challenged. The outcomes of persuasion dialogues are plausible, but not certain.

Rules and Commitment

Walton & Krabbe provide formalized models for the argumentation stage of persuasion dialogues. These rules can be used to analyze and evaluate real-world discussions. They show in a specific way how the general principles laid out by von Eemeren & Grootendorst can be satisfied in actual conversations, and also how they can fail. These models also enable us to see the argumentation stage of a critical dialogue as a process of constructing, evaluating, and modifying *mental models*.

Dialogue theory links up with mental model theory via its concept of a *commitment store* (Hamblin, 1970; Rescher, 1977; Walton & Krabbe, 1995). According to Hamblin (p. 257), " a speaker who is obliged to maintain consistency needs to keep a store of statements representing his previous commitments, and require of each new statement he makes that it may be added without inconsistency to this store…" Walton and Krabbe (1995) distinguish two kinds of explicit commitment stores: *strong commitments* based on assertions, which the party is obligated to defend, and *weak commitments* based merely on concessions, which the party is not obligated to defend. Walton and Krabbe (1995) also introduced an important distinction between *light-side* and *dark-side* commitments. Light-side commitments are based on explicit actions of the participants of a dialogue, such as assertion or concession. The dark-side commitments of a participant, on the other hand, are the background beliefs of which that participant may not be explicitly aware. Rules for permissible moves in the argumentation stage of a dialogue refer to the current status of these commitment stores, and specify how each move changes their contents.

Walton and Krabbe (1995, p. 149), define two quite different types of persuasion dialogue: rigorous and permissive. A rigorous persuasion dialogue (RPD) is asymmetric, viz., only one party plays the role of proponent, and the role of the opponent is tightly constrained. Retraction of assertions is not permitted, and there is no role for implicit, background beliefs. The opponent in such a dialogue moves inexorably forward to extract implications of explicit commitments by the proponent. A permissive persuasive dialogue (PPD), on the other hand, is far more flexible. It is symmetrical between the parties, allows free questioning and challenge, permits retraction, and bases permissible moves in part on implicit background beliefs (dark side commitments) of the parties. In a permissive persuasion dialogue, a party's turn may include multiple instances of various *speech acts*. For example, to change her own light side commitments, a party can assert something, retract an assertion, concede something, or retract a concession. To influence

the commitments of the other party, a party may challenge something, request a concession, request resolution of incoherence within the other party's commitments, and request reconsideration of a move that the party believes is incoherent with the background beliefs (dark side commitments) of the other party.

Although the global burden of proof always rests upon the proponent, as each side provides reasons or challenges, the local burden of proof switches back and forth (Rescher, 1977, p. 27). That is, whenever either side advances an argument, it stands until explicitly rebutted by the other side. The rules insist that if the proponent asserts p, the opponent must either concede p or challenge p. Similarly, if the opponent challenges p, and p is a strong commitment of the proponent, the proponent must either defend A or retract p. But everything need not (and indeed cannot) be defended: Another rule states that the proponent may defend p only if the opponent has challenged it. The proponent can make concessions only if requested by the opponent, and is not obligated to defend them. Such rules keep the dialogue moving, ensure relevance, and increase the chance of resolution.

Dark-side commitments constrain some of the overt responses of the dialogue participants. Suppose the opponent, for example, challenges an assertion that the proponent believes is in the opponent's dark-side commitment store. The proponent may request that the opponent reconsider the challenge. If the assertion is in fact among the opponent's dark-side commitments, the opponent must withdraw the challenge. Rules such as this capture the role of critical thinking as a tool for improved understanding of one's own beliefs, and for bringing knowledge to bear on a problem that might otherwise have gone unused. These rules also represent an acknowledgement that the totality of a person's relevant knowledge can virtually never be made fully explicit. Arguments as spoken never capture the full significance or force of a position.

If there are inconsistent assertions in the proponent's commitment store, and the opponent challenges them, then the proponent must retract at least one of the conflicting commitments along with the reasons that led to it. A rule of this sort (modified to address a more general notion of coherence rather simple logical consistency) invites the participants to evaluate the beliefs to which they are explicitly committed as a collection, or mental model, rather than as individual beliefs.

Dialogue and Mental Models

Johnson-Laird and his colleagues (1983; Johnson-Laird & Byrne, 1991) cite evidence that humans reason in terms of *models* of possible situations, rather than in terms of formal rules that apply to the syntax of statements. Comprehending an assertion requires understanding what possible states of affairs are compatible with that assertion (Johnson-Laird & Byrne, 1991). Inference involves at least two additional processes: (i) combining the meanings of different assertions to determine what states of affairs remain possible if all the assertions are true, and then (ii) determining whether a conclusion of interest is true in each surviving possibility. Mental model theory predicts that the difficulty of an inference increases with the number of alternative possibilities, or models, that must be constructed to solve the problem, as well as the complexity and familiarity of the models themselves, and many such predictions have been confirmed (e.g., Johnson-Laird & Byrne, 1991, pp. 52-56). Errors may occur for several reasons: The

number of models may exceed capacity limitations of working memory (Johnson-Laird & Byrne, 1991, p. 39); there is a tendency to represent only possibilities and propositional components of possibilities that are true given explicit statements; or the reasoner may cut short the exploration of alternatives because of a prior tendency to believe that the conclusion is correct. As a result, people are liable sometimes to accept a conclusion even though there is a possible state of affairs in which it is false. In some cases, an additional process may be employed to (iii) verify that all the relevant possibilities have been considered. This verification process is an example of critical thinking.

Let us say that a cognizer's *position* is her explicit understanding of a problem, situation, or issue. A position contains one or more mental models characterized by one or more variables. Thus, it has two dimensions: the number of state of affairs that the cognizer recognizes as possible and the number of variables she uses to describe them. If the cognizer is uncertain, her position will contain more than one possibility or model. The variables she uses to distinguish possibilities tell us what aspects of the situation she currently recognizes as relevant. Critical thinking alters both the number of variables and the number of mental models under consideration over a series of moves which are ideally part of a larger strategy. First, new variables may be introduced as questions are asked and answered. These new variables in turn will result either in the addition of new mental models (increasing uncertainty) or in the elimination of some of the currently existing possibilities (decreasing uncertainty). The ultimate intent of the strategy is, first, to generate additional models that represent relevant but overlooked possibilities (the role of the opponent), and, second, to eliminate a sufficient number of models in order to support a useful conclusion (the role of the proponent). Part of critical thinking skill is the ability to select effective and efficient question-and-answer strategies for searching in a space of mental models.

Here is a simple example of how speech acts by the proponent and opponent in a critical discussion cause changes in their respective positions. Three kinds of challenges by the opponent are illustrated: Challenging a claim, challenging the sufficiency of a reason for a claim, and asserting a contrary claim. When the latter occurs (in the last line), the dialogue becomes symmetrical. Each party is now both a proponent and an opponent to the other. In the representation of a position, each row is a possible state of affairs, and each column corresponds to a variable.

Argumentation move	**Positions of participants**	**Comments on mental model representation**
Proponent **asserts** "P"	P	There is only one possibility, with P true.
Opponent **challenges** P ("I doubt P." or "Why do you believe P?")	P Not-P	There are two possibilities: P may be true or P may be false.
Proponent states a **reason** R for P ("P because R").	P R	R is true and sufficient to show P is true. Thus, there are no possibilities with not-R or not-P.
Opponent **concedes** R. Opponent **challenges** R **as a reason** for P under conditions D ("P because R only if D is not true").	P R D Not-P R D P R Not-D	D and not-D are possible. Where D is true, R is not sufficient for P and so there is a possibility with P and another with not-P.
Proponent **asserts** "not-D."	P R Not-D	D is not true. Thus, R is a good reason for P. Thus, there is no possibility with not-P.
Opponent **refuses to concede** not-D. Opponent **asserts** "not-P", and Opponent gives a **reason** E for not-P ("P because E").	Not-P R D E	The opponent has now become a proponent for not-P, thus, no longer simply raises doubts, but makes assertions. E is sufficient to show not-P is true. Thus, there is no possibility with P.

In a persuasion dialogue, the opponent tries to get the proponent to retract her initial thesis (in this example, P). The opponent's strategy therefore is to *add* plausible mental models to the proponent's position, and in particular, to add models in which the initial thesis is not true.[2] She does this by issuing challenges, which may be general or

[2] Not shown here are the models that each participant must develop of the other party's models.

specific in nature. A general challenge (e.g., "I doubt P") simply poses another possibility (i.e., not-P) and asks the proponent to supply a reason to eliminate it. In a specific challenge the opponent herself introduces a reason (e.g., D) to doubt a claim or an inference, thereby multiplying the possibilities. The proponent, on the other hand, tries to get the opponent to concede the thesis. The proponent's strategy therefore is to reduce the number of plausible mental models in the opponent's position, and in particular to eliminate those possibilities in which the initial thesis is not true. Challenges, therefore, are the engines that drive the elaboration of mental models by both parties and the application of more knowledge to the problem. Each party can use knowledge, hunches, or inferences regarding the background belief system of the other to obtain useful concessions (Walton & Krabbe, 1995). The situation model of each participant will become more and more coherent with her background belief system as incoherent assertions are reconsidered at the request of the other. Also, as the conversation continues, each side will look for points of agreement upon which to support their conclusion. Thus, the scope of shared knowledge is also likely to increase.

Critical Thinking as Critical Discussion

Dialogue theory alone does not provide an adequate solution for when to stop a dialogue. In a critical discussion, there is no limit to the number of challenges and responses, hence, to the number of features and alternative mental models that might be considered. Participants need to know when challenges should come to an end and the current best conclusion acted upon, and this usually depends on external context. For example, the same dialogue might justify acceptance of a conclusion when there was limited time or information to make a decision, but might be insufficient to justify a conclusion when more information or more time is available. The costs of incorrect conclusions might also influence the amount of time devoted to the dialogue.

Unfortunately, dialogue theorists have addressed the issue of winning and loosing only in terms of clear-cut cases, in which either the proponent retracts her original assertion or the opponent withdraws her challenge. Real cases may not always be so easy. Time constraints may bring a dialogue to an end before definitive closure is achieved. In such cases, it is necessary to determine which position was superior at the time the dialogue came to an end. This requires judgments about the relative reliability of different belief formation processes as well as the coherence of the alternative mental models with respect to background beliefs.

According to van Eemeren & Grootendorst (1992), as we have seen, decisions of these kinds take place during the opening stage and the concluding stage of the dialogue, rather than during the argumentation stage. For example, the type of dialogue should be agreed upon between the participants at the beginning of the dialogue, and the concluding stage determines when the dialogue ends and who won. Placing them in different temporal stages is quite artificial, since it eliminates the possibility of continuous review of the dialogue based on new information acquired during argumentation. Such information might lead to a shift from one type of dialogue to another (Walton, 1998), or it might change the estimation of how the risks of further delay balance out the costs of an incorrect conclusion, and thus affect the decision of when to stop. Nevertheless, segregating them into different stages suggests that these decisions are qualitatively different from argumentation proper, and there is some truth in this. A more promising

direction is to introduce an *externalist* point of view, which can exist more or less in parallel with the internalist perspectives of the opponent and proponent. The externalist point of view takes into account likely outcomes and their associated impact on objectives.

So that dialogue theory can bridge the gap between internal and external concerns, it is convenient to provide a third role, that of a *facilitator* or *judge,* in addition to those of proponent and opponent (Figure 2).[3] All three of the issues just discussed belong among the duties of the judge: (1) The judge evaluates the reliability of alternative types of dialogues, and makes a choice that is appropriate for the current context and purposes. (2) The judge continuously weighs the value of continuing a dialogue versus the value of stopping and committing to the most plausible current position. (3) And the judge evaluates the status of the argument to determine which position that is. In performing these functions, the judge may use relatively automatic processes to select and regulate belief forming strategies. The Judge will not generally *optimize* strategy choices. Rather, in accordance with the principles of bounded rationality (Simon, 1997; Gigerenzer & Selten, 2001), the judge will become adapted through experiences of success and failure in the use of various cognitive processes and mechanisms in different contexts. Alternatively, the Judge may evaluate the reliability of different strategies by explicit reasoning. The common core of the judge's functionality is evaluation of the trustworthiness of a cognitive faculty or process from a standpoint that is external to that particular faculty or process.

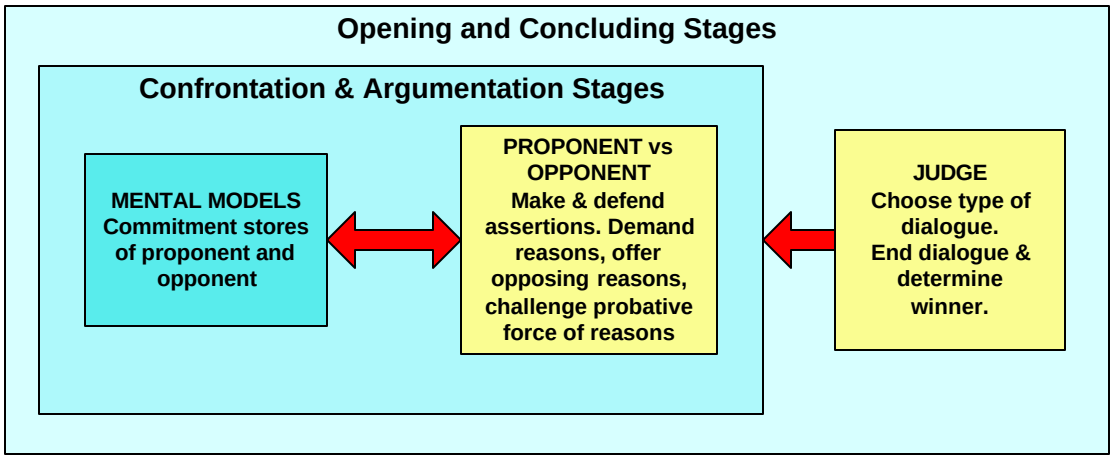

Figure 2. Three part model of critical thinking in terms of stages and roles in a critical dialogue.

Figure 2 shows that each component of the critical thinking model (Figure 1) corresponds to a dialogue theory concept. Critical thinking in the strongest sense involves all three levels. But the introduction of a reliability-based judge generalizes critical thinking beyond the evaluation of explicit reasoning or critical dialogue. Other belief-generating faculties, such as perception, recall, and recognition, or other types of

[3] van den Hoven (1987) also introduces the role of judge to account for external justification.

dialogues, can also be assessed critically in terms of their reliability, even though they do not themselves involve reason-giving and critiquing. Thus, there is a more general type of critical thinking in which the judge evaluates not only the reliability of reasoning and associated dialogue types, but more generally, the effectiveness and efficiency of alternative cognitive and social processes.

Other Dialogue Types

Persuasion dialogues are central to the theory of critical thinking, but many other types are possible. (One role of the Judge is to choose among them.) Walton (1998; Walton & Krabbe, 1995, p. 66) generated a taxonomy of dialogue types, which included *persuasion, deliberation, negotiation, information seeking, inquiry,* and *quarrel*. The taxonomy discriminated these different dialogue types by means of two dimensions: (1) the goal of the dialogue, which might be *stable agreement/resolution* (e.g., persuasion), *practical settlement/decision (not) to act* (e.g, deliberation and negotiation), or *reaching a (provisional) accommodation* (e.g, quarrel); and (2) the initial situation, which might be *conflict* (e.g., persuasion, negotiation), *open problem* (e.g., inquiry), or *unsatisfactory spread of information* (e.g., information seeking), This taxonomy, while suggestive, is problematic. Some of the terms are imprecise (e.g., provisional accommodation), and some are overly specific (e.g., unsatisfactory spread of information); as a set, they give no indication of being either exhaustive or mutually exclusive. An additional drawback is that Walton & Krabbe's two dimensions do not cross with one another to produce a fully populated matrix of dialogue types.

The following scheme is intended as an improvement in these respects. It may provide a glimpse of the shape of a more comprehensive framework for dialogues that support both critical thinking and leadership. The new taxonomy utilizes three dimensions:

- Dialogue participants may aim at changes in the other party's beliefs, actions, or social affect.
- A dialogue may or may not be initiated by conflict between the parties (in beliefs, intended actions, or affect).
- A dialogue may involve symmetric or asymmetric initiative between the parties.

Table 2 shows the full matrix of dialogue types (3 x 2 x 2) that emerges from this taxonomy. Dialogue types included in Walton & Krabbe's original taxonomy are italicized. Not all the new categories reflect clearly distinguishable dialogue types, but the goals and situations they refer to are likely to be associated with constraints and tactics that influence the interaction between parties. More importantly, the new categories seem promising as part of an extension of dialogue theory to the analysis of leadership and critical thinking in teams.

Table 2. Dialogue types classified by main goal (rows) and initial situation (columns).

	Conflict		**No Conflict**	
	Symmetric	**Asymmetric**	**Symmetric**	**Asymmetric**
Modify Belief	Two-way *persuasion*	One-way *persuasion*	*Inquiry*	*Information-seeking* / giving
Modify Action	*Negotiation*	Authoritarian command; reward / punishment; monitoring	*Deliberation*	Instruction-seeking / giving; coaching
Modify Affect	*Quarrel;* trust seeking / showing by team members; emotional alignment by team members	One-sided *quarrel;* trust-seeking / showing by leader; example-setting by leader	Generating team identification; mutual consideration by team members	Inspiration by leader; individual consideration by leader; generating identification with leader

The first row of Table 2 describes dialogues in which parties try to change one another's beliefs. The taxonomy distinguishes two responses to conflict: Persuasion dialogues in which each party defends a point of view against the other (symmetric) and persuasion dialogues in which one party is the proponent and the other serves only as critic (asymmetric). In an inquiry, by contrast, the parties cooperate in a search for information without advocating opposing points of view or taking the role of critic. Information seeking / giving occurs when the parties cooperate to transfer information or knowledge from one to the other.

The second row describes dialogues in which the parties try to influence one another's actions. Again, the taxonomy distinguishes two cases where interests or intended actions conflict. Negotiations involve the choice of action via the resolution or balancing out of competing interests, where each party has roughly equal standing. An asymmetric version occurs when one party imposes his or her will on the other by an exercise of authority, or alters the other party's intent by administration of rewards and punishments. In deliberation, by contrast, the parties do not hold competing interests, but jointly seek a plan to achieve shared goals. Instruction seeking / giving occurs when one party seeks or receives action guidance from the other.

The third row is the most speculative, but reflects the growing appreciation of the importance of affect both in leadership (e.g., Goleman, Boyatzis, & McKee, 2002) and in cognitive processes (Damasio, 1995). It describes dialogues in which the objective is to influence the affect of the other party. When emotions are initially in conflict (e.g.,

parties dislike or distrust one another, or have clashing moods or affect), a constructive goal is to bring them into alignment. In particular, members of a group may use dialogue processes to develop trust among themselves (symmetric), or a leader may use dialogue processes to elicit trust from group members (asymmetric). One way the leader can change the affect of team members (e.g., fear in battle) is leading by example, e.g., by showing calm and courage on the battlefield. Other dialogues do not seek to resolve conflicting emotions, but to induce appropriate ones. In particular, members of a group may seek to get to know one another better and to develop loyalty to the group (symmetric). A leader may try to elicit loyalty from subordinates (asymmetric) either through an inspiring attitude or vision, or by showing them individual consideration (Bass, 1998).

According to dialogue theories, participants try to choose the type of dialogue that is appropriate for the purpose and context (van Eemeren & Grootendorst, 1992). Hence, they must make implicit or explicit judgments about the relative reliability of different dialogues as methods for achieving their goals. They must also reflectively monitor adherence to the norms that govern the relevant type of dialogue (Jackson, 1989; Johnson, 2000). Some dialogue types are profitably embedded within others (Walton & Krabbe, 1995, p. 73). For example, a persuasion dialogue may be suspended in order to settle an by means of an information seeking dialogue or inquiry. A negotiation may benefit from an inquiry, persuasion dialogue, or information seeking dialogue to resolve disputes about facts. Certainly, dialogues intended to modify affect can be carried out in the guise of virtually any other type of dialogue, e.g, joint deliberation may be used to increase mutual trust among staff.

Walton (1996a) supplements general dialogue rules with more specific ones that are based on particular argumentation schemes. Argumentation schemes, according to Walton, are normatively binding kinds of reasoning, i.e., appropriate moves and countermoves in particular types of dialogue. Walton regards fallacies as legitimate argumentation schemes that have been applied inappropriately or employed incorrectly Among the argumentation schemes described by Walton are the following:

Case-based reasoning

- Argument from example
- Argument from analogy

Causal reasoning

- From effect to cause
- From cause to effect
- From correlation to cause

Rule-based reasoning

- From established rule
- Argument for exceptional case
- Argument from precedent

- Argument from pity

Practical reasoning

- Argument from good or bad consequences
- Argument from waste (sunk costs)
- Argument using threat

Gradualistic reasoning

- Device of stages
- Causal slippery slope
- Precedent slippery slope
- Verbal slippery slope

Position to know reasoning

- Position to know
- Testimony
- Expert opinion
- Ignorance

Source indicators reasoning

- Argument based on character of source
- Argument from bias of source
- Argument based on opinion of large majority

Each argumentation scheme is associated with (i) typical premises, (ii) a presumptive (i.e., default) conclusion, and (iii) a set of critical questions that may be used by the opponent to challenge the conclusion. The key feature of argumentation schemes is that they reverse the usual burden of proof. A proponent who uses an argument scheme correctly has presumption on her side. That is, the proponent is not obligated to defend the default conclusion in response to *general* challenges, as long as the conclusion was arrived at by correct use of the argument scheme. The burden is on the opponent produce a *specific* reason to doubt the default conclusion, by asking an appropriate critical question. Doing so shifts the weight of presumption to the opponent, and satisfactory answers by the proponent shift the weight of presumption back to the opponent. In terms of mental models, each scheme supplies a set of relevant variables and prescribes the mental models that must be considered under various circumstances. If the values of one set of variables ("premises") is true in all possible states of affairs, then the value of the variable representing the conclusion is also true in all possible states of affairs – subject to specific challenge. The values of the other set of variables ("critical questions") need not be considered at all. However, introduction of these variables into the dialogue – as a question regarding their truth or falsity – forces consideration of the mental model in which the desired conclusion is false. Argumentation schemes allow argument to move forward even when there is insufficient evidence at a particular time. They are especially

useful when timely action is necessary. Misuse of such schemes, however, is associated with fallacies.

Specific styles of leadership can be characterized in terms of dialogue types and argumentation schemes, and the pitfalls with which those schemes are associated. The *fallacy of bargaining* occurs when a persuasion dialogue becomes a deliberation dialogue (i.e., an argument based on good or bad consequences of adopting one belief or the other) or a negotiation (in which parties trade concessions rather than making them on the merits). More generally, it is a fallacy to believe something simply because it is in one's practical interests to believe it (e.g., a cigarette executive chooses to believe that cigarettes are healthy). This may be a significant pitfall in *transactional leadership*, which influences subordinate behavior via exchange relationships (Bass, 1998).

Leadership and Dialogue

We hypothesize that a significant part of the interaction between team leaders and teams can be usefully characterized in terms of dialogue, and that essential leadership skills are reflected in characteristics of such dialogues. Leadership is a combination of decision making and influence over subordinates, both of which are achieved to a significant degree by dialogue. From the point of view of decision making, the purpose of dialogue is to reduce uncertainty about the current situation, the best course of action, or an organizational vision; and this is achieved by asking and answering questions of oneself or others. From the point of view of influence, the purpose of dialogue is to improve the shared understanding of the situation and of the organization, the commitment and competence with which subordinates implement a decision or plan, and the emotional resonance and cohesiveness that characterizes interactions in the team.

Sometimes the same behaviors serve both decision making and influence. In *participative* leadership, for example, the two are virtually merged. As noted earlier, a leader may invite subordinates to contribute to the decision making process in order to both improve decision quality and increase subordinates' commitment to the outcome (Yukl, p. 122). The mechanism of improved decision quality is, of course, the sharing of information and insights that multiple participants bring to a persuasion dialogue. The mechanism of gaining commitment is the opportunity that persuasion dialogue offers participants to develop and deepen their own views in response to the views and challenges of others. By shedding light on others' points of view and by increasing shared knowledge, multi-way persuasion dialogue is also likely to support dialogical goals centering on affect, such as trust and team identification.

Even when leadership is directive, persuasion plays a large role, albeit in an asymmetric form. A high quality decision is, other things being equal, easier to sell. For example, to develop a plan that is likely to succeed, decision makers may need to project a series of actions and consequences over a lengthy span of time (Jacque & Clement, 1994). That same cognitive ability may help leaders elicit commitment from subordinates by explaining how requested actions fit into a larger, more meaningful context (Jacobs & Lewis, 1992). To the extent that intellectual skills have led to the development of a cogent plan, a compelling vision, or an innovative solution, the more persuasive the leader is likely to be in obtaining the commitment of followers to its implementation. At the lowest organizational levels, a small-unit commander's orders are not likely to be

obeyed if they are perceived by soldiers on the battlefield or by staff in a higher headquarters as nonsensical or non-doable (Marshall, 1978, p. 175; Markessini & Gormley, 1993, p. 37). Influence tends to be a by-product of good decisions.

Even with authoritarian leadership, when explicit persuasion is altogether absent, decision making and influence tend to interact via persuasion dialogue techniques. In the argumentation scheme for appealing to *expert opinion* (Walton, 1996a, p. 64-67), there are several typical premises: *x is an expert in domain D, x asserts that A is known to be true*, and *A falls within the domain of expertise D.* These lead to a default conclusion: *Therefore, A may be taken to be true*. Thus, a leader (playing the role of proponent) is entitled to claim that A is true because he is an expert on such matters and he says A is true. Since the basic requirements of the scheme are satisfied, the subordinate (playing the role of opponent) cannot issue a general challenge (e.g., *Why should I believe A? Why do you believe A?)*, but must supply a *specific* reason to doubt the expert's claim. Only an appropriately motivated critical question shifts the burden of proof to the proponent. For example, a subordinate might ask the leader if his assertion is consistent with specific evidence known to the subordinate, or with a previous assertion by the leader himself. More likely, a subordinate will conduct an internal critical thinking dialogue, asking himself whether a leader really is knowledgeable or competent on a certain matter, or whether the leader himself truly believes his own claims. If the answers are negative, the subordinate is likely not to be fully committed to the leader's position. A successful directive leader will try to influence the answers a subordinate supplies to these critical questions.

Subordinates are more likely to trust and obey a leader who displays decision-making *competence*. Thus, directive leadership at any level will elicit more commitment from subordinates when the leader has a record of good decisions. Such a record serves in effect as a reason for concession by the subordinate in an asymmetric persuasion dialogue, as long as the current claim is in the relevant domain of competence. Leaders can consciously or unconsciously attempt to project competence by a variety of persuasion dialogue moves, ranging from making their record known to subordinates, to dressing or acting a certain way, to demonstrating their competence in public ways. Non-verbal as well as verbal persuasion techniques may be used (Willard, 1989; Gilbert, 1997)

Subordinates are also more likely to trust leaders who display commitment to their own decisions. (If the leader does not believe in his own decision, then the argument by appeal to expertise is defeated.) A small-unit commander may risk placing himself at the front of his troops during an attack to show confidence in the plan and to firm their resolve (Marshall, 1978, pp. 130, 187). A higher level commander may conduct a personal reconnaissance not only to understand the tactical situation, but to reassure the men at the front by his presence that he both understands and cares about their task (Marshall, 1978, p. 103-105). Each of these moves may also support dialogical goals centering on affect, such as reduced fear via the leader's example, trust of the leader, and identification with the leader. Commitment of the leader to his own position can also be conveyed more directly by appropriate display of affect (e.g., anger, passion). Appropriate affect is a signal that the decision reflects coherence between the leader's mental model and background beliefs and values.

Subordinates are also more likely to trust decisions that seem to be going well. Sometimes leaders intentionally supply clues to persuade subordinates that a plan is succeeding. In organizing a counterattack on rebel-held Fort Donelson, Grant ordered Federal gunboats to lob shells into the fort, in part because of the expected morale-boosting effect of the sound of gunfire on his troops (Smith, 2001, p. 158). Military tactical decisions in particular aim at "persuading" both the enemy and one's own troops. Orders, as Marshall (1978, p. 176) puts it, must be "conditioned by an accurate appreciation of the general emotional situation," including "human frailties and capabilities under varying conditions."

In these ways, leaders can supply legitimate or not so legitimate evidence to subordinates to answer potential critical challenges, and persuade them that the appeal to expertise (over and above the exercise of authority) is appropriate. Nevertheless, leaders will vary in their receptiveness to overt questioning by subordinates. The spectrum of leadership styles from authoritarian to democratic can be characterized in part in terms of the degree of constraint on subordinates' leeway to challenge the leader's assumptions, and the leader's willingness to retract his own positions in response to such arguments. Directiveness is the degree of asymmetry in the dialogues by means of which organizational positions are developed.

Dialogue theory may also illuminate the distinction between transactional and transformational leadership (Bass, 1998; Bass & Avolio, 1994). An important difference is in the use of persuasion. In this case it is the leader's role that varies rather than the subordinate's. In transactional dialogues, leaders set goals for team members (instruction seeking / giving), set rewards and punishments (either via negotiation or unilaterally), and monitor progress – all within a framework that is largely consistent with the subordinates' prior background beliefs and values. Leaders do not challenge subordinate's basic assumptions and do not attempt to gain acceptance of an alternative mental model or "vision." It has been widely noted that the attempt to "purchase" or trade is unlikely to produce real commitment. In transformational dialogues, on the other hand, the leader acts as (i) the proponent of a comprehensive alternative model and also acts as (ii) an opponent who challenges high-level assumptions of team members. The leader uses his or her thinking skills to challenge subordinates' assumptions and alter their patterns of thinking rather than directly influence subordinates' actions. Changes in deeply held assumptions are likely to reverberate throughout a subordinate's belief system until coherence is restored. Transformational leaders need to act as guides and supply the necessary intellectual stimulation throughout this critical thinking process. When a leader's objective is to change an organization's "culture," attitudes, and standard operating procedures, persuasion is partly accomplished by *demonstrating* the new patterns of thinking, as an example for others. Thus, transformational leaders combine asymmetric persuasion with asymmetric affective dialogue techniques such as inspiration, identification with the leader, and individualized consideration.

Dialogue theory, as presented here, distinguishes three roles that participants in persuasion dialogue might adopt: Proponent, opponent, and judge. Thus far, we have discussed leaders as proponents and opponents. At different times and in different contexts, it may be more appropriate for leaders to adopt one of these roles rather than the

others. For example, the leader might propose a plan, might provide feedback regarding a plan proposed by a team member, or might serve as a facilitator and judge with respect to a plan under development by subordinates.

Dialogue models provide a coherent theoretical framework for both thinking skills and influence skills, and may illuminate the ways they differ from one another, coincide with one another, or interact. Bass (1990) remarked that, "Much of what has been learned from studies of persuasion [by rhetoricians and communication theorists] can be incorporated into an understanding of leadership" (p. 15). The dialogue approach to leadership is more general. It addresses persuasion, but recognizes other ways in which influence can be exercised as well. One of the most promising aspects of the approach is the potential precision of dialogue models as tools for analyzing leader-team interactions at the level of specific but meaningful units of behavior. The combination of precise description and theoretical insight should lead to ready operationalization in the form of training and leader development. Dialogue models are vehicles for combining insights from a variety of different fields in the difficult task of understanding and developing leadership.

Critical dialogues are one of the ways in which leaders and team members build shared mental models and learn how and when to coordinate with one another. We hypothesize that improving skills in these dialogues in particular, via coordinated team and leader training, will have a general and deep effect on leadership skills, thinking skills, and team performance.

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