



Lieutenant-General Michel Gautier, commander of the Canadian Expeditionary Force Command (GEFCOM), receives a briefing at Forward Operations Base (FOB) Masum Gar in Afghanistan, 14 March 2008.

MISSION COMMAND: PROBLEM BOUNDING OR PROBLEM SOLVING?

by Keith Stewart

Introduction

"I have published under my name a good many operational orders and a good many directives... but there is one paragraph in the order that I have always written myself... the intention paragraph."

– Field-Marshal the Viscount Slim,
Quoted in UK ADP Land Operations¹

The ability to task subordinates using minimal explicit instruction is a key component of the philosophy of 'mission command,' variants of which are espoused by a number of western militaries. The adoption of such an approach to command confers considerable flexibility in dynamic situations. In particular, it allows the exploitation of opportunities, based upon subordinates' creativity and appreciation of the immediate tactical situation without the need for new orders. Information Age scholars Donald S. Alberts and Richard E. Hayes have proposed a spectrum of command and control approaches in which they distinguish between 'order specific,' 'objective specific,' and 'mission specific' philosophies.² These discussions have focused upon the levels of control centralization and

directive specificity in orders. 'Order specific' approaches tend to be adopted by command organizations that maintain centralized control and issue regular, detailed orders. The Chinese Peoples' Liberation Army (PLA) and former Soviet armies are cited as examples. 'Mission specific' approaches are at the opposite end of the scale and describe low levels of central control such as employed by the Israeli Army and by the German Army during the Second World War. The centre of the spectrum is occupied by 'objective specific' approaches.

Within this category Alberts and Hayes contrast 'problem bounding' and 'problem solving' approaches. The former, they suggest, is consistent with British doctrine, and it is speculated here that it is broadly equivalent to the

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Chinese Peoples' Liberation Army and naval personnel on parade.

approaches adopted in the Canadian and Australian armies. Alberts and Hayes observe that although British headquarters provide directives based upon objectives to be accomplished, they tend to present them in very general terms. They propose that 'problem bounding' directives are less detailed than those issued by commanders in 'problem solving' environments – "often by a factor of three to one, reflecting this lack of detail." By contrast, problem solving approaches are characterized by a tendency to provide more substantial guidance as to how objectives are to be met. Alberts and Hayes suggest that it is this approach that has been adopted by the US Army since the Second World War.

Differences in command approach are of much more than academic interest. In an era where joint and combined operations have come to the fore, and where multinational inter-working occurs at relatively low levels in the command hierarchy, such differences are potentially a source of 'friction'³ between the contingents comprising a coalition or alliance force. A high-profile example of this difference in command philosophy resulting in friction is provided by the American General Wesley Clark,⁴ who believes that it was a major contributing factor to his well-publicized disagreement with the British KFOR Commander, Lieutenant General Sir Michael Jackson, during the Kosovo campaign. Clark reflected, "...[that] in the British system...a field commander is given mission-type orders, not detailed and continuing guidance... the American military has always aspired to this model, but has seldom seemed to attain it." Likewise, in his now notorious assessment of the US Army's early experience in Iraq, the British Brigadier Aylwin-Foster,

states, "...[that] commanders and staff at all levels...were reluctant to deviate from precise instructions."⁵ This raises another interesting issue – although it is one that cannot be developed further here: namely, that as well as representing a 'top-down,' managerial approach, a culture of command by detailed orders is also 'demand-driven.' That is, unless they are carefully trained otherwise, personnel will *expect* and *prefer to receive* detailed direction – especially in high-risk situations. Moreover, it should be stressed that General Clark also points out that there can be circumstances when a more detailed approach to command is appropriate. The implication of his comments is that philosophical differences exist and that both approaches have merit, depending upon circumstances. It is important to stress that where organizational cultures – and command styles, in particular – differ, there is

seldom value in judging which approach is superior. Rather, it is necessary to recognize that there is a difference and to work hard to minimize any potential 'friction.'



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US Army General Wesley Clark.

For the command researcher, there is a rich seam of anecdotal, historical, and documentary evidence to be mined on the topic of command philosophy.⁶ However, relatively few applied scientific analyses have been conducted in this area. The discussion that follows draws upon a review of a very limited number of experimental and survey studies in an attempt to find evidence of a difference in command philosophy, based upon national organizational culture – specifically, the ‘problem solving’/‘problem bounding’ distinction drawn by Alberts and Hayes. The first section of this article reviews three studies, conducted independently in different nations that have examined the content of the commander’s intent (CI) statement. Broad similarity in how CI is expressed was indeed found; however, it is possible to speculate that differences, where they existed, were consistent with a problem solving / bounding distinction. The second section of this article draws upon a recent review of studies examining the effectiveness of transmission of CI in experimental settings. The aim is to look for evidence suggesting written orders are to be considered directions that should lead subordinates to find a single set solution (problem solving), or alternatively, are intended to set boundary conditions within which individuals are free to seek an optimal solution (problem bounding). The last section of the article draws upon defence research scientists Ross Pigeau and Carol McCann’s theoretical framework for command and control to interpret these issues in terms of the relative contributions of implicit and explicit CI to the military tasking process in different organizations.

The Content of the Intent Statement

The written orders document is central to the achievement of what Pigeau and McCann have termed ‘common intent,’ and this is generally considered the primary source of explicit guidance provided to subordinates.⁷ The first section of this article will review three complementary studies that have examined military orders, in particular, the CI statement, with a view to categorizing the contents. Despite some methodological differences between these independent efforts, a comparison of their findings indicates general agreement as to the essential elements of the CI statement. An added element of interest is the fact that each study was conducted in a separate ‘ABCA’ country (America, Australia, Britain) and, but for a few air force and navy participants in the British study, each was conducted exclusively with army personnel.⁸ The method employed in each of the studies is described first, and then the findings are compared.

In the early 1990s, decision-making researcher Doctor Gary A. Klein and a group of his colleagues conducted studies examining the content of intent statements in

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US Army operations orders. Kaempf, Klein, and Kyne⁹ worked with military subject matter experts (SMEs) on an examination of 35 CI statements that were generated during brigade and battalion field exercises at the US National Training Center.¹⁰ Based upon this analysis and further SME interaction, Klein proposed a basic structure or ‘generic script’ for the CI statement comprising the following seven components, which he refers to as ‘slots’:

- Purpose of the mission – higher level goals
- Mission objective – image of the desired outcome
- Plan sequence
- Rationale for the plan
- Key decisions
- Anti-goals
- Constraints and considerations¹¹

Having developed this generic script, Klein re-examined the 35 CI statements, breaking them down into small sentence or paragraph-sized text blocks that each “...referred to a separate and distinct concept.” He then allocated each of these text blocks to one of the seven slots. This enabled him to assess how many of the 35 statements contained information from each of the seven slots. The maximum score for each slot was therefore 35 points. It is assumed here that the slots omitted least often (i.e. those that are used more frequently) are generally considered the more important.¹²

Australian researcher P.J. Murphy surveyed 76 Australian Defence Force (ADF) personnel at the Australian Army’s Headline Experiment 2000 (HE00).¹³ He asked them to rate the importance of each of Klein’s seven CI slots on a six-point response scale that ranged from ‘very low’ to ‘critical.’ Participants were all serving army officers between the ranks of captain and colonel. In this study, an eighth slot, entitled ‘mission objectives’, was added at the request of ADF SMEs. It appears that Klein sees ‘image of desired outcome’ and ‘mission objective’ as part of the same construct, while the ADF experts who worked with Murphy made a distinction between the two.¹⁴

“Participants [in the Murphy study] were all serving army officers between the ranks of captain and colonel.”

In Britain, researchers J.J. Molloy, and colleagues C. Blendell, R.G.Pascual, and A. Campbell¹⁵ conducted a questionnaire survey of 103 serving British military personnel, 98 of whom were from the army. Eighty-five of the army participants were above the rank of captain. Participants were asked to identify information that they

believed should be included within commander's intent and to indicate the relative importance of the information categories they generated. This method contrasts with that used in both the Murphy and the Klein studies in that respondents generated the categories themselves, whereas in the Klein study they were derived, bottom-up, from raw data, and in the Murphy study they were provided to the participants. The Molloy *et al* method was similar to Murphy's in that the relative importance of the categories was based upon participants' ratings rather than being inferred from frequency of occurrence in intent statements as was the case in the Klein study.

The results of the three studies are compared in Table 1, which shows the derived ratings of importance of the commander's intent slots.¹⁶ Klein's 'Mission objective – image of the desired outcome' slot has been treated as two separate categories in the table to enable comparison with the British and Australian studies, both of which separated these categories. Both are ranked first, and Klein's second-placed category 'plan sequence' is moved into third place. Molloy *et al* used different slot names from those used by Klein and Murphy. In order to enable comparison, it has been necessary to propose equivalence between the categories generated in the British study and those used in the American and Australian studies. The UK category names are provided in the table.

The table, which is necessarily speculative owing to the differences between the studies, does indicate a reasonable degree of consistency between the results of these three studies. Categories relating to objectives and end state occupy the top two positions in all three studies. These are followed by slots associated with the plan and the reasons for the mission, except in the American study, where relatively little information associated with higher-levels goals ('purpose of the mission') was found in the CI statements examined. Had Klein's analysis uncovered more of this information, we might have found four equivalent categories topping each of the samples in roughly the same order.

There is less consistency in the lower half of the table. Molloy notes that many participants in her UK study were unclear as to whether they should confine their responses to information they would expect to see in the commander's intent statement, or whether they should consider the whole orders document to be an expression of commander's intent. Therefore, some British respondents included information from the whole of the Concept of Operations, for example 'main effort.' These categories have been excluded from the table. It also appears likely, from a close reading of the definitions provided by the authors, that some of the information included under the British category 'plan of action' is equivalent to that which was broken out by Klein into other slots, for example 'key decisions.' This is the most probable explanation for the absence of distinctive 'key decisions' and 'rationale for the plan' categories in the British study. Clearly 'Anti-Goals' was rated the least important slot by Australian participants and this was borne out in the American study, where it was the least used. No equivalent was generated in the British study.

With respect to this article, perhaps the most interesting difference in the results of the studies relates to the 'purpose of the mission' slot. Klein points out that, although US Army practice dictates that commanders should understand the plan 'two levels up,' only eight of 35 CI statements provided information regarding the higher-level goals.²¹ Klein speculates that this may be an artefact of the brigade/battalion training environment used in the study, in that no division or corps activity was represented in the exercise. However, if it were the case that this finding is representative of actual practice, what alternative explanation might be constructed? Given the problem bounding/solving hypothesis, it seems possible that for US commanders, a failure to set orders in the broader context of the mission is indicative of a tendency to directive control, owing to the redundancy of contextual understanding for subordinates with few degrees of freedom. That is, soldiers who have little latitude in how they achieve their objectives do not need to understand the context.

In this regard, Klein's observation that information relating to the plan itself accounted for more than a third of the overall content of the 35 statements seems important. Klein notes that since the plan is expressed elsewhere in the orders document, there is little reason to devote so much space to it within the intent statement. These findings seem to indicate a tendency in the US Army orders examined for commanders to augment information about objectives and desired outcome with

Components of the CI Statement (Murphy / Klein)	Murphy (Aus)	Klein et al (USA)	Molloy et al (UK) ¹⁷	Key information areas in CI (Molloy et al)
Mission objective(s) ¹⁸	1	1	2	Objectives
Clear image of the desired outcomes	2	1	1	Desired end state
Purpose of the mission	3	7	4	Purpose / rationale ¹⁹
Plan sequence	4	3	3	Plan of action ²⁰
Key decisions	5	6		
Constraints and considerations	6	5	7	Freedoms / constraints
Rationale for the plan	7	4		
Anti-goals	8	8		

Table 1: A comparison of studies rating the importance of components of commander's intent

information about the plan that specifically adds directive control of action. Murphy speculated that one factor underlying such differences was the culture of the organizations involved. Thus, there is the intriguing possibility that the pattern reflects a real difference in the way intent is expressed by the Australian and British samples, compared with how it is approached by the Americans. This would be in line with speculation on the differences in the degree of centralization of control between these three styles of mission command, and the tendency to 'problem solving' rather than 'problem bounding.'

It would be wrong to overlook the fact that the data in these three studies have been collected in rather different ways. Whereas the British and Australian studies collected data based on the attitudes of the officers surveyed, the orders documents examined by Klein represented the actual practice of intent statement preparation, albeit performed under exercise conditions. It is not always safe to consider espoused opinion to be indicative of future behaviour, and, ideally, Klein's study would need to be repeated with British and Australian samples for firm conclusions to be drawn about differences in practice. It would also be very useful for the survey studies to be repeated with an American sample to look for differences in attitude. In this regard, it is interesting to consider the responses to one question in a survey study on doctrinal understanding conducted by researcher A.D. Firth.²² He asked 30 British and 30 American army officers to rate which was the most important to them as a commander: the designated task, the designated purpose, or the higher commander's intent. Over 80 percent of British respondents chose CI, and none chose the task. In contrast, only 40 percent of US respondents chose CI, with roughly 30 percent choosing the task, and 30 percent the purpose. Interpretation of this result is complicated and can only be speculative. However, in view of Klein's findings, it may reflect a tendency for American commanders to be more focused, on average, on the specifics of the plan than their British equivalents. Moreover, if Klein's findings regarding the content of intent statements are valid, it is possible that the American and British respondents in Firth's study had a different appreciation of what CI implies. In this regard, American respondents may be used to find the plan-specific information that is central to a 'problem solving' approach throughout the orders document, including the CI statement. British respondents, on the other hand, requiring information on their commander's higher level goals to delineate a problem boundary, would focus on the CI statement.

Commander's Intent: Boundary or Solution

Earlier, I had reviewed several studies that employed methods for assessing the compatibility of subordinate commanders' intent with that of their superiors. I noted that, while similar terms were used by the investigators to describe the aims of their studies, they sometimes appeared to be examining subtly different aspects of intent.²³ One explanation was that the philosophy of command of the organizations involved in these studies had an effect on the assumptions that underpinned the way the individual studies were conducted. Specifically, it was noted that while some investigators appeared to regard a statement of intent as an indication of a boundary for subordinates to work within, others saw the intent statement as guidance designed to elicit a particular solution. In this case, the different assumptions were reflected as much in the experimental methods themselves as in the results. US Army Lieutenant Colonel Lawrence G. Shattuck is a professor in the Department of Behavioral Sciences at the United States Military Academy West Point, and his study provides an example.²⁴ In a groundbreaking command experiment, the subject of the study, US Army company commanders, were tasked to develop orders in response to a battalion operations order. The battalion commanders, who had written the original orders, were then asked how they expected the company commanders to respond to two separate updates to the tactical situation. On reviewing the company commanders' actual responses, Shattuck reports, "...[that] battalion commanders judged that company commanders' responses matched their intent in only 17 of the 32 episodes." Shattuck reports that six of those seventeen cases were later discounted by the researchers, even though battalion commanders reported the response to be in line with their own.²⁵ Interestingly,



Major General Andy Salmon, General Officer Commanding Multinational Division (South-east) in Iraq. Note this British general is wearing American collar rank badges.

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Discussion: Applying Pigeau and McCann's Theoretical Framework



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US Army General David H. Petraeus, Commanding General Multinational Force Iraq, listens to the concerns of an Iraqi shopkeeper in Karmah, Iraq, 23 April 2008.

Norwegian behavioural scientist and specialist in information technology (IT) Lars Groth observed that humans with shared or compatible purpose organize in order to accomplish tasks that are not within the capacity of individuals acting independently.²⁶ And organization, according to the internationally-renowned academic Henry Mintzberg, comprises the division of labour into distinct tasks and coordination between those tasks.²⁷ In their definition of command and control, Pigeau and McCann⁷ emphasize that coordinated action is dependent upon the establishment of common intent, which

it is stated that in three of those six episodes, "...although the battalion commanders judged the decision of the company commanders to match their own, they were in fact substantially different. Battalion commanders considered them a match because the company commanders were 'thinking along the right lines.'" This might indicate that battalion commanders recognized subordinates' responses to be within their intent, albeit not matching the specific course of action they had proposed. The judgment battalion commanders were asked to make appears to have been whether subordinates' responses matched their proposed course of action, not whether subordinates' responses were within the broad bounds of commander's intent. It would be interesting to examine whether any of the 15 other responses that did not 'match' courses of action were, in fact, within the bounds of the superior commander's intent. Certainly, the overriding tenor of Shaddock's paper appears to be that the orders process should promote homogeneity of decision-making between echelons. For example, "...imparting presence is the process of developing subordinates' decision-making framework so they would respond the same way the senior commanders would if they were able to view the situation through their eyes." This variant of decentralized command has substantial advantages. For example, it promotes coordination. However, it has the potential to suppress subordinates' creativity within their broad appreciation of CI. In terms of Alberts and Hayes' C2 spectrum discussed earlier, this particular approach appears to be indicative of a 'problem solving' philosophy.

they define as "...the sum of shared explicit intent plus operationally relevant shared implicit intent." The same authors define intent as "...an aim or purpose along with all of its associated connotations." In a later publication, Pigeau and McCann stress, "...[that] intent includes an explicit portion that contains the stated objective... and an implicit portion that remains unexpressed for reasons of expediency but nonetheless is assumed to be understood."²⁸ The extent to which a commander will provide explicit direction to subordinates is dependent upon a range of factors, including organization, culture and command philosophy, experience, training, and the risk inherent in the specific situation that the orders are designed to address.

The successful establishment of common intent is reliant upon a commander and his staff judging correctly the appropriate balance of *explicit* and *implicit* intent. In many cases, the explicit component of intent is transmitted by more than the orders document. For example, discussions at a commander's orders group or clarification sought via a liaison officer provide illustrations of extra opportunities for the transmission of explicit direction. Pigeau and McCann have discussed at length how the proportions of explicit and implicit intent differ between centralized and decentralized command and control organizations.²⁸ I then drew upon this theoretical description to examine how a mature command organization might vary the degree of explicit control it exercised with a view to managing risk.²⁹ Both of these theoretical discussions are in line with Alberts and Hayes' description of a '...spectrum

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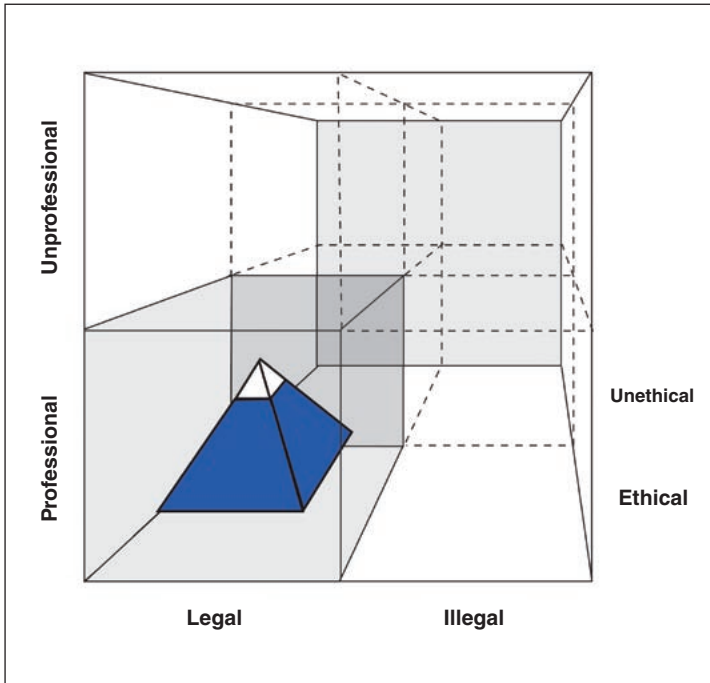


Figure 1. Commander's intent within the solution space for a mission.

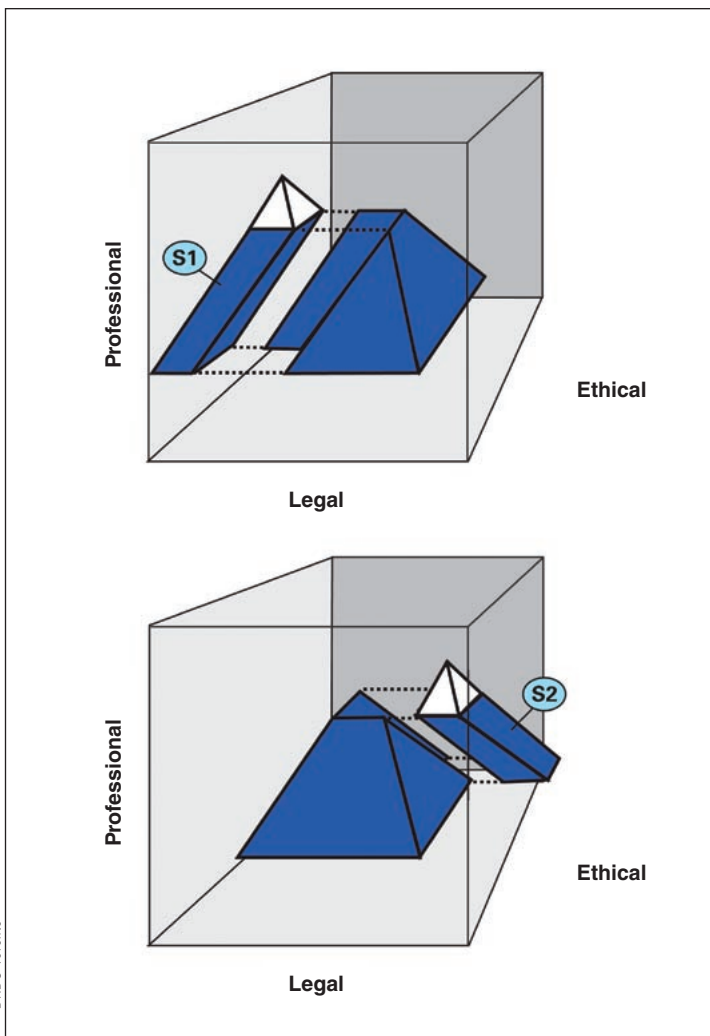


Figure 2. Commander's intent as a problem boundary.

of C2 approaches,' that ranges from the issue of regular detailed orders to a virtually control-free approach to operations.

Pigeau and McCann have illustrated the relationship between a commander's implicit and explicit intent by using the analogy of an iceberg.⁷ *Explicit* intent is represented by the relatively small portion of the iceberg that is visible above the waterline, whereas *implicit* intent is hidden, but it represents the much larger body of personal, military, and cultural expectations that inform an individual's interpretation of the available explicit direction. The diagrams that follow (adapted from McCann and Pigeau³⁰) are designed to illustrate how CI allows subordinates to derive an appropriate solution to a military problem by helping to delineate the boundary conditions to such a solution.

In Figure 1, the large cube depicts the space of all possible solutions to a military problem. The majority of solutions within this space are unacceptable in terms of legal, ethical, and professional considerations. The set of solutions that is acceptable in these terms is bounded by the small cube outlined at the bottom left front. Commander's intent is a subset of these legally, ethically, and professionally acceptable solutions, and it is represented by the space within the pyramid. The pyramid provides a schematic representation of the iceberg relationship, with the white cap standing for explicit intent and the blue body standing for implicit intent. McCann and Pigeau point out that the pyramid does not represent a single solution to the problem. Rather, they propose, "...[that] there are several possible solutions within the commander's intent. Even an end-state cannot be fully delineated and there are several paths to achieving it. The commander's intent is really a further bounded set of solutions."³¹ In graphical terms, we can assume that an acceptable solution should include the cap of the pyramid (explicit intent) and a proportion of the remaining space that is within implicit intent.

Therefore, the precise space representing an acceptable solution differs depending upon command philosophy. In general, those subscribing to a 'problem bounding' approach would regard any part of the pyramid to be acceptable, provided it included the explicit portion.³² In these terms, the separate cut-away sections of the pyramids in Figure 2 represent different, though potentially acceptable, solutions to a military problem that are generated by subordinates. For those working in a 'problem solving' environment, the assumption is that subordinates should generate a solution that closely matches that anticipated by the commander. This appears to have been the case in Shattuck's study. For example, assuming the commander's solution was defined by Section 1 (S1), in order to be judged acceptable, a participant's espoused solution would need to map onto this portion of the pyramid. In contrast, Section 2 (S2) would have been deemed unacceptable, despite the fact that it lies within the pyramid. For subordinates working in a 'problem bounding' organization, however, the

challenge is to identify where the walls of the pyramid are located. Consequently, if Shattuck’s study were repeated in such an environment, one might predict that participants could be judged to be correct with either S1 or S2.

Conclusion

The studies reviewed in this paper appear to provide some support for Alberts and Hayes’ observation that American and British armed forces respectively tend to adopt ‘problem solving’ and ‘problem bounding’ approaches to command. A sample of US Army operations orders was judged by Klein to contain relatively low levels of information associated with high-level goals, and – in his view – an inappropriately high proportion of plan-related detail. By contrast, respondents to British and Australian surveys rated high-level goals as an important component of commander’s intent, but rated details of the plan to be of relatively low importance in that section of an orders document. Shattuck’s findings imply that, in an exercise, subordinate commanders were not deemed to have prepared an appropriate solution to a military problem unless it matched closely that prepared by their immediate superior. This also supports the view that in the US Army’s approach to command, CI is a route to a particular solution, rather than an indication of boundary conditions within which subordinates are expected to work. Although this interpretation of the results and the conduct of the studies reviewed have been argued to provide evidence that supports Alberts and Hayes’ distinction between problem solving and problem bounding, this interpretation cannot be argued to be conclusive. Rather, the intention of this article has been to provide a starting point for further applied scientific studies in this area of command research.

There is no suggestion here that either of these approaches to command is superior. These command cultures have evolved to suit the organizations concerned in terms of their personnel and the operations they have conducted or for which they have been trained. As I discussed in an earlier study,²⁹ it is easy to overlook the considerable investment in time and resources associated

with establishing and maintaining an organizational culture of mission command and training personnel at the high standards required to operate within such a paradigm.³³ In terms of the command framework devised by Pigeau and McCann, command approach is regarded as part of control, which they define as

“...structures and processes devised by command to enable it and to manage risk.”²⁸ Control is subordinate to command. Therefore, where choice is available, deciding how command is to be exercised is a *function* of command. And the way command is exercised must take into account those under command. In an era where understanding the culture of adversaries and neutral

populations is, quite rightly, heavily emphasized, we should not forget the importance of understanding the organizational cultures of alliance and coalition partners. A general officer with substantial experience of multinational command interviewed by British researchers D. Cremin *et al* commented: “...if you try to adopt a Mission Command style to command people who don’t really understand it, or are uneasy with it, you are likely to have chaos. And so this leads coalitions, generally speaking, into command by detailed orders.”³⁴

“There is no suggestion here that either of these approaches to command is superior.”



General Wesley Clark.

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NOTES

1. United Kingdom Directorate General Development and Doctrine, *Army Doctrine Publication 'Land Operations'* AC 71819, May 2005.
2. David S. Alberts and Richard E. Hayes, *Command Arrangements for Peace Operations* (Washington, DC: CCRP Publications Series, 1995).
3. Stewart *et al* proposed that command style was one of a class of factors with the potential to affect what they referred to as 'non technical interoperability' (NTI) in multinational forces. Drawing on van Creveld's ideas, they suggested that low NTI can result in Clausewitzian friction in a complex military force. K. Stewart, H. Clarke, P. Goillau, N. Verrall, and M. Widdowson, *Non-technical Interoperability in Multinational Forces. Proceedings of the 9th International Command and Control Research and Technology Symposium*, Copenhagen, Denmark. September 2004.
4. Wesley Clark, *Waging Modern War* (Oxford, UK: Public Affairs Ltd., 2001).
5. N. Aylwin-Foster, "Changing the Army for Counterinsurgency Operations, in *Military Review*, November-December 2005.
6. For example, Charles Oliviero's excellent thesis on *Auftragstaktik* is particularly valuable. C. S. Oliviero, *The Early Development of Auftragstaktik*. Unpublished MA thesis, Royal Military College of Canada, 1998.
7. Ross Pigeau and Carol McCann, "Redefining Command and Control," in C. McCann and R. Pigeau (eds.), *The Human in Command* (New York: Plenum Press, 2000), pp.163-184.
8. This helps the comparison by reducing any potential confounding effects of inter-service differences in command philosophy within the nations.
9. G.L. Kaempf, G. Klein, and M. Kyne, *A Study of How Field Commanders Express Their Intent* (Fairborn, OH: Klein Associates Inc. 1993).
10. The seven SMEs that contributed to the Kaempf *et al* study were US Army officers, each with over 20 years of active duty. Four of the officers were lieutenant colonels, two were colonels, and one was a brigadier general. All had been both battalion and brigade operations officers during their careers.
11. Gary A. Klein, "Characteristics of commander's intent statements." Paper presented at *The Symposium on Command and Control Research*, Washington, DC, 1993.
12. Klein also counted the total number of text blocks in each slot across all 35 statements. For example, across the 35 statements there were 72 text blocks allocated to 'desired outcome.' In all, 34 of the 35 statements contained at least one text block in this slot. For the purposes of the present article, this simple presence or absence of information in a slot is deemed to be the more relevant indicator of importance. For example, the absolute number of text blocks may simply indicate the ease with which the information required to fill each slot can be expressed succinctly. A slot that is occupied in the majority of CI statements but that takes up relatively little space may simply be one that requires little description. It may be wrong to conclude that it is less important than a slot that is populated in the same number of CI statements, but that covers more 'column inches.' In the context of the current article, it is notable that Klein does not state explicitly that the most frequently used 'slots' are the most important. However, he does point out in his conclusion that, given the need for concise statements, some slots may be omitted altogether where they would not carry sufficient value. This issue should be the subject of further investigation.
13. P. J. Murphy, *Forays into Command Intent: Assessing the Components of Intent Statements and Developing a Methodology for Measuring Shared Intent*. DSTO-TN-0471. 2002.
14. In Klein's discussion of the 'desired outcome' slot, he refers to two distinct classes of information, one tending to be "a very brief recapitulation of the mission," and the other "a visualization of the desired outcome or a description of what would count as success." These appear to equate to Murphy's 'mission objectives' and 'clear image of the desired outcomes' categories. Close examination of Klein's paper suggests that 'mission objectives' is actually included in his breakdown of CI, but is combined in a single slot with 'image of the desired outcome.' It is possible that the inclusion of this 'extra' factor in the ADF study suggests some understandable confusion in the interpretation of Klein's slots, probably stemming from inconsistent labelling of the slots in Klein's paper. At one point in Klein's paper, Slot 2 is labelled "Mission objective – image of the desired outcome," but later this is abbreviated to "Desired outcome."
15. J.J. Molloy, C. Blendell, R.G. Pascual, and A. Campbell, *Understanding and Supporting the Effective Formulation, Dissemination and Interpretation of Commander's Intent: Final Technical Working Paper*. QINETIQ/KI/CHS/TWP030136/1.0. 2003.
16. It should be reiterated that Klein does not state that the frequency counts in his study were indicative of importance. For the purposes of the current article, Klein's frequency data are interpreted as being indicative of importance, to enable a comparison to be made between the three studies reviewed.
17. These ratings are taken from Molloy *et al*'s listing of "...factors perceived as being most important, as defined by frequency and ranked values." (Para 3.5.6, p 12). The factors rated 5, 6, and 8 in this study (respectively: 'responsibilities,' 'timings,' and 'main effort') had no equivalent in the Klein and Murphy studies, and they were omitted from the table.
18. In his discussion, Murphy suggested that his result 'varies appreciably' from that of Klein. With regard to his inclusion of a separate 'mission objectives' slot, he states: "It is interesting to note that this extra component – which apparently did not emerge as distinctive in the study by Klein – was rated the most important by Australian officers at HE00." However, Component 2 in Klein's generic script for CI statements is described as 'mission objective – image of the desired outcome,' and thus contains both 'mission objectives' and 'desired outcome' information. This suggests that the difference in pattern of response in the two investigations is not as great as Murphy suggests. It is worth noting that the participants in the Australian study were asked to rate each component independent of the others. Thus, they were not asked to indicate any degree of relative importance, but rather to rank them absolutely. It is possible that the fact that 'mission objective' and 'clear image of the desired outcome' received very similar ratings indicates that participants view them as part of one factor. Further research would be required to substantiate this viewpoint.
19. It is assumed that this category in the British study refers to the reasons the mission is being undertaken, the higher level goals, rather than being a justification for the particular plan adopted.
20. It is possible that in the British study, responses relating to 'key decisions' and 'rationale for the plan' are subsumed within 'plan of action.'
21. A similar requirement is common in other forces with a mission command orientation, i.e., Molloy *et al*. quote UK Army Doctrine Publication 4 (training). "It is fundamental to doctrine that officers and non-commissioned officers should be trained to understand the intent of the commander two levels higher and to command at least one level higher."¹⁵
22. A.D. Firth, *United in Fact? A Critical Analysis of Intent and Perception in the Application of American and British Army Doctrine*. School of Advanced Military Studies, Ft. Leavenworth, KA, 2003.
23. K.G. Stewart, (In press). "Measurement of Intent: A Selective Review of the Literature, in *Command Intent: Future Implications and Challenges*. The Technical Co-operation Panel.
24. L.G. Shattuck, "Communicating Intent and Imparting Presence," in *Military Review*, March-April 2000.
25. This evaluation was made by the battalion commanders following analysis of recordings of the company commanders verbalizing their rationale.
26. Lars Groth, *Future Organizational Design: the Scope for the IT-based Enterprise* (Hoboken, NJ: John Wiley & Sons, 1999).
27. Henry Mintzberg, *The Structuring of Organizations: a Synthesis of the Research* (Inglewood Cliffs, NJ: Prentice Hall, 1979).
28. Ross Pigeau and Carol McCann, "Establishing Common Intent: The Key to Coordinated Military Action," in Allan English (ed.), *The Operational Art: Canadian Perspectives. Leadership and Command* (Kingston, ON: Canadian Defence Academy Press, 2006), pp. 85-108.
29. K.G. Stewart, *Mission Command: Elasticity, Equilibrium, Culture, and Intent*. DRDC Toronto TR 2006-254. 2006.
30. Carol McCann and Ross Pigeau, *Re-conceptualizing Command and Control*. Presentation given at JRCSC05. 2005.
31. Earlier, it was suggested that the method adopted in a US study reflected basic assumptions that were consistent with a 'problem solving' philosophy of command. Equally, we might speculate that this statement, made by Canadian researchers, reflects basic assumptions based upon a Canadian 'problem bounding' philosophy of command.

32. Whether the solution needs to include the explicit portion is also a question of command philosophy. In the 19th Century, Prussian military reformers recognized that the dynamic nature of warfare was likely to render overly-explicit orders irrelevant or unattainable. For example, von Moltke stated: "...[that] on the other hand, it is absolutely necessary that subordinate headquarters recognize the object of what has been ordered. This enables them to strive for that object even if conditions make it necessary to act differently than ordered." (From D. Hughes, *Moltke on the Art of War: Selected Writings* (San Francisco, CA: Presidio Press, 1993), pp. 231-232. Subordinates in the Prussian army were under no obligation to follow inappropriate orders. Moreover, it was an officer's duty to disregard an inappropriate

order. Researcher F. Zilian recounts the experience of one junior officer who had made a tactical error on the basis of his superior's direction. The officer pointed out to Prince Frederick Charles that his training had stressed that he should treat a superior officer's order as if it had been issued by the king. The prince is said to have replied: "His Majesty made you a major because he believed you would know when not to obey his orders." F. Zilian, *From Confrontation to Cooperation: The Takeover of the National People's (East German) Army by the Bundeswehr* (London: Praeger, 1999). In theory, therefore, there is no reason that an appropriate response should not be based totally on the implicit portion of the pyramid.

33. Certainly, more is needed than a simple statement in doctrine that an organization espouses

mission command. As Johnson stressed in an article entitled "'Doctrine is not Enough,'" doctrine often has only an indirect effect on actual behaviour. As an example, he notes that although the British Army during the Second World War is accepted to have been "ponderous and positional," a reading of the 1935 version of its Field Service Regulations shows that it had doctrine "...that Guderian himself or any manoeuvre theorist today could be proud of." P. Johnston, (2000, Autumn) "Doctrine is not Enough: The Effect of Doctrine on the Behaviour of Armies," in *Parameters, US Army War College Quarterly*, Autumn 2000, pp. 30-39.

34. D. Cremin, M. Mills, D. Phipps, and K. Stewart, "The Challenges of Command in Multinational Environments," in *The British Army Review*, Number 136, Spring 2005.



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The Chief of the Defence Staff, General Walt Natynczyk, speaks to the Kandahar Provincial Reconstruction Team during a visit to Camp Nathan Smith, Kandahar province, 19 June 2009.