Arms and the Game

Accepting Competition and Encouraging Cooperation

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The article approaches the issue of jointness through new lenses. It first describes how and why arms of the military, the 'Services', are different from each other. Airpower is shown to be the emerging technological paradigm, triggering paradigm competition. Next, it draws an analogy between anarchy in international relations (IR) and the existence of the services. It then looks at game theory as used in IR to understand both why inter-organisational competition occurs and how cooperation can evolve with a certain kind of behaviour—reciprocity. It also uses the anthropological/biological lens to show how competition and cooperation will always coexist. The article concentrates on the behavioural solution towards cooperation, while commenting briefly on the alternative structural solution, which most writings on the subject focus on. Finally, it lays out some measures possible in the Indian scenario, in tune with cooperation behaviour theory.

While much is written about lack of cooperation amongst the arms of the military, not much is found regarding analysis of the causes. This article delves into the reasons of why friction occurs, and how the rise of airpower as a new paradigm intensifies friction. It also explores the behavioural solution, using both game theory and anthropology to look at the problem and to see what it can teach us about increasing cooperation in the Indian context.

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To do so, the article starts by exploring the basic organisational causes of conflict between the arms of the military, narrowing the scope to magnify why airpower as a new technology tends to conflict more with traditional combat power application tools, because airpower represents a paradigm shift in progress. Two possible solutions towards increasing cooperation are structural readjustment and/or behavioural norms. While the former is the stronger form of enforcing cooperation, because it has bigger challenges in being enacted and has enough literature throwing light on it, the article focuses on the behavioural solution. It thus uses two behavioural lenses to look at inter-service friction—that of game theory and anthropology. Showing how the situation in peacetime is analogous to the anarchic setting of international relations (IR), the article moves on to use the analytical tool of game theory as applied in IR to show why the tendency to not cooperate exists and what can overcome such dissociative tendencies. Game theory also shows under what conditions long-term cooperation can not only take hold but also thrive. Game theory results are supported when studying the situation using another lens, anthropology. Anthropology brings out the dual nature of the 'competition/cooperation' mindset, explaining how both are two sides of the same coin. We have to accept inter-organisation competition as a needed reality and understand under what conditions this competition tendency reduces and cooperation increases.

The principles of behavioural norms are valid with or without structural changes. Essentially, the Services must accept and channelise competition to limit it to controversial issues, while displaying 'reciprocity' behaviour, cooperation being the first move. They would also benefit from human resource policies which factor in the elements which increase cooperation: a shadow of the future; probability of longer and repeated interactions; and the power of cooperation strategies to self-perpetuate.

What Disjoints the Services?

To understand what kind of cooperation is needed between the arms of the military, hereinafter collectively referred to as the 'Services', we must first understand what differentiates them. At its essence, Services are differentiated by just two things: they do different things and they do things differently.

Each service is different because it is specialised to do different things. This difference includes the domains they fight in and the objectives

they fight for. The army fights on land, often for capturing/defending land, or to destroy the opposing army. The navy fights on water and has traditionally fought for control of the seas, although with the advent of carrier-borne airpower, it is tending to also adopt an airpower tenet—force projection. The air force fights for and from the air and its first objective is control of the air.[1] But the air force also applies force on land and water and, as covered later, this complicates things.

Starker are the differences in how the Services go about what they do. In tune with their natural strengths, they do things differently. For example, very broadly speaking, the armies operate as per 'fire and manoeuvre' doctrine, air forces as per 'fire for effect', and the navies via 'establishment and exploitation of control'.

In tune with the ways they fight, each service is differently organised. Armies are organised mostly as aggregation of autonomous units that are complete by themselves. The style of functioning is decentralised. The higher echelon gives orders to lower entities that are equipped to self-sufficiently carry out allotted tasks. There is little interference in how the task would be planned and executed by the lower echelon. Thus, if an infantry battalion is tasked with capturing a hill, the commanding officer (CO) can carry out the task on his own. Standard operating procedures (SOPs) are less important and task achievement is everything. As a corollary, once battle is joined, it is almost impossible for adjacent entities like corps to help each other; they fight independently.

Air forces are the opposite. No squadron or wing is organised or equipped for independent operations. Operations are highly centralised, an essential requirement if dispersed forces are to coalesce, act, disperse, and quickly shift to attacking another theatre, or perform another function/role. Such a form of fighting needs a heavy reliance on SOPs, as anonymous strangers gather and disperse to execute common missions over great geographical distances as a matter of routine.

Navies are somewhere in-between. The larger game plan is controlled by the commands, but the task forces have huge autonomy once at sea. They are largely self-sufficient and the nature of the job demands decentralised decision-making at sea. However, within a task force, especially a carrier task force, control orders need centralisation for efficiency. Thus, the organisation's working style is hybrid.

As long as the nature of the task allows independent operations, friction does not arise. This is one reason why navies tend to have the least inter-service friction. Most of their tasks are executed far away

from home shores, where they have independence of action. However, common tasks, or tasks requiring cooperative effort, bring the inter-service differences into sharp relief. This is especially true of operations conducted on land. These differences occur in both the domains of what needs to be done and how it should be done.

When asked for what needs to be done, each service will offer only a solution amongst its own outputs. As Allison and Zelikow bring out succinctly, each organisation offers solutions to problems within the limited repertoire of outputs in its inventory.[2] Just as a diplomat would never advise waging war as a solution to a boundary dispute, a military man would never advise the political leadership to settle the dispute using diplomacy. The same logic works at service levels. For the same border dispute, an army would advise war with the direct objective of capturing land; an air force may advise punishment bombing to coerce the other side; and a navy may advise an economic blockade of enemy ports as a relatively benign coercive strategy. This is why it is very important to have all tools of statecraft on the same table when the big questions are being addressed.

Even after a course of action is chosen, the Services will tend to disagree on the path to the objective. This is natural. Each service's basic beliefs or doctrine is different, and needs to be. Maturity lies in understanding the 'nature of the war',[3] figuring out whose doctrine most suits the situation, with the other two modifying their ways to suit the lead service. For example, after years of ineffective operations, Sri Lanka wrapped up its anti-Liberation Tigers of Tamil Eelam (LTTE) operations only after the three Services, backed by a strong political will, finally carried out real joint operations. Jointness ranged from selection of the task to method of execution. The air force decentralised authority downwards to suit the low-intensity conflict environment, where the CO of an aviation unit was vested with control authority equivalent to his army counterpart. A centralised air tasking order (ATO) would only have eaten up on responsiveness.[4] The external threat forced cooperation and doctrinal adjustment, and the conflict's extended duration allowed time to do the same.

There are other examples of successful cooperation where other Services have adapted around the lead service for that kind of war. The Air Land doctrine in Europe saw the United States Air Force (USAF) shape its doctrine around the US Army's manoeuvre warfare concept in the face of Soviet numerical superiority.[5] The First Gulf War saw the

same army display patience in holding itself back until the last four days of the 42-day war, allowing the air force to decimate the opposition before the army advanced.[6]

One of the biggest successes in understanding interdependency in a cooperative military organisational structure harks back to the initial days of inter-service cooperation in North Africa in World War II. The North African lessons resulted in inter-service structural and procedural innovation. The Indian military inherited the same inter-service structure, which remains intact till date. Crete fell to the Germans in 1941. A primary reason was the loss of Cyrenaican airfields, which Rommel had overrun. Without coastal airfields for the Royal Air Force (RAF), not only did Crete fall but the naval convoys also became vulnerable with the Mediterranean Sea route denied to Allied shipping. At this juncture, Air Marshall Tedder of the RAF learnt the lesson of interdependence amongst the three services—air, sea and land power needed each other, needed to work jointly, with airpower needing to first win the air war. From the fall of Crete and Greece, Tedder developed his 'cycle of interdependence' theory:

> The safety of the shipping route depended upon the Army capturing the Cyrenaican airfields, from which aircraft could take off to protect naval vessels convoying merchant shipping. The capture of the airfields by the Army depended upon the Navy, provided with air cover, escorting merchant vessels containing Army supplies to Alexandria, and upon the RAF providing air support for the army as it advanced. The RAF could only provide efficient air support for the Army, or air cover for the Navy, if it had established a degree of air superiority over the enemy air force, but the RAF, depended largely for its supplies upon the safe arrival of the merchant vessels, hence upon the safety of the sea route.[7]

Jointmanship and Airpower

The world over, air forces tend to have the maximum inter-service issues with jointmanship. Navies and armies rarely clash over issues, navies and air forces sometimes have differences on joint application of airpower, while armies and air forces have the most differences. There are multiple reasons for this reality.

First, while the other two tools of war have more than 2,000 years of history, airpower is a new technology, barely a 100 years old. Every new technology is initially used in the old way. When the tank first arrived in

the British Army during World War I, it was seen as an infantry man's weapon and used 'as an adjunct to the infantry, to crush barbed wire and terrify the enemy'.[8] It was the same with the American Army. 'The function of tanks is to assist the infantry by making a path for it through the wire', declared the Chief of the Tank Corps in 1918, with General officers of the infantry and cavalry actually repressing younger officers like Patton who advocated a broader role for tanks.[9] Both armies paid for these mistakes, taking heavy tank casualties, especially at Kasserine Pass and the Ardennes offensive. It was the same story for carrier aviation. Aircraft carriers were first seen only as eyes of the fleet, and it took considerable time for them to be accepted as tools to project force, not just against ships but against land targets too. This trend continued until the Korea and Vietnam era when they began using carrier-borne airpower to strike deeper inland targets, something never done by navies. Today, navies are shifting to use this relatively new technology to expand their age-old doctrine from control of the seas to include naval force projection over land.[10] It is the same story with airpower—there is debate between using it as per established land/maritime doctrine and the newer air paradigm.

This first reason, the very birth of airpower, is at the heart of increased inter-service friction. This is because airpower represents a paradigm shift in progress. Thomas Kuhn, in his classic study[11] on the evolution of science, showed how a paradigm represents a school of thought, and how a new paradigm infrequently upsets 'normal science' by coming up with a new theory which addresses anomalies which the old one could not. The new paradigm, championed by younger scientists, always faces opposition from the old school, till it gains enough popularity to become the existing paradigm.[12] The beauty of Kuhn's study was its universal applicability. And so, his 'paradigm shift' phraseology entered universal lexicon. It also applies to ways of war or technology; in fact, it helps to think of airpower as a new technology.

This new technology is affecting ways of war out of proportion to its age. This is true both for how older paradigms use airpower and in its application by its own new practitioners. The rapid creation of independent air forces to wield airpower was itself an implicit recognition of how this new technology needed to be organised and used differently—a new paradigm. Even within air forces, newer methods like 'drone warfare' are symptoms of rapid internal evolution, in effect, internal paradigm shifts.[13]

When advocates of new technologies try to find new ways to exploit it, they face opposition from the old school. As Gareth Morgan explains,

'technology has a major impact on power relations', and this creates conflict and generates opposition 'between different groups within an organization, for the introduction of a new technology can alter the balance of power.'[14] This reason remains hidden in the background as the people who oppose newer ways are unaware of underlying causes and consequences of their own biases. A major opposition to tank warfare doctrine was from senior cavalry officers, whose biggest worry was about the tank's threat to existence of horses in the cavalry.[15]

Second, airpower is seen as a service provider. This has been true for the better part of the last century. No customer is ever fully satisfied with a service provider. This is especially true when the service provider insists on providing service as per his beliefs rather than as per the customers' desires.

Adding to the competition is the fact that in the last 25 years, there has been relative fluidity in the support and supported relationship. Some campaigns like Operation Enduring Freedom saw massive airpower supported by a small ground footprint take over a country in weeks. At other places, airpower has added huge combat power to one side of a civil war, changing the results. This happened in Libya and Mali, and is currently happening in the fight against Islamic State of Iraq and al-Sham (ISIS). Other wars like the Second Gulf War saw more conventional application, with airpower supporting a ground thrust. In a zero-sum game mindset, a way of war which sees an increase of role by any one service will face opposition, especially when the customer-service provider relationship is reversed, essentially a doctrinal tussle. While these two important aspects are visible even in peacetime, the next four only emerge in wartime.

Third, one of airpower's biggest strengths, flexibility, detracts from its responsiveness to the supported entity. As mentioned earlier, airpower organisation is highly centralised, the only way current technological capability can manage geographical and functional flexibility in dispersed forces. But this distancing of control also builds in time delays and reduces emotional attachment to inter-service support missions. It is a fact that the air force most responsive to the foot soldier is the US Marine air component. This responsiveness is in terms of time, effectiveness and willingness to use combat power as per ground doctrine. However, this responsiveness comes at a price. The disadvantage of the Marine Corps' air arm is its inability to do anything more than close air support for the marines. This debate overtly surfaces as the demand for organic

airpower for surface combat units, in tune with how surface forces have traditionally organised resources for independent tasks. Armies are especially unused to and uncomfortable with being dependent on an external agency for task execution.

The cost of centrally controlled flexibility is most visible in the close air support mission. This mission is the most difficult of all air-enabled missions. Combined with institutional factors, this mission tends to get neglected in periods of peace.[16] This is true of every air force and army. In peacetime, air forces prefer exercising against air forces, armies prefer exercising against armies, and navies prefer exercising against navies. However, in wartime, air forces have to simultaneously fight against the enemy air force, army and navy as well as alongside their own army and navy, and they underperform at what they have not practised in peacetime. This mission also sees armies and air forces operating in/over common space—the army battlefront. Differences about whose way of war should prevail exacerbate.

Fourth, centralisation of airpower control causes disconnect between the levels at which the services conduct warfighting. Because both armies, and to a lesser extent navies, control warfighting at lower levels than the air forces, it is difficult to establish lateral organisational relationships between components of individual services. The solution discovered in World War II was to create Advance Headquarters (HQ) of air forces to be co-located with Allied Army/Navy Commander's HQs, provided with good communication, and to be given matching mobility—essentially a decentralisation of a part of the air force.[17]

Fifth, a difference of beliefs between the air forces' 'central manager' requirement to maximise airpower efficiency and the other Services' belief in organic airpower as organic firepower or organic manoeuvrability leads to disagreement. The US military partially solved this problem by the Goldwater–Nichols Act, and its application was seen in the First Gulf War where all air assets were put under the Joint Forces Air Component Commander (JFACC). However, in the interest of harmony, practically, the JFACC allowed each of the four Services leeway to offer as much of their air assets as they were willing. The quantities and quantum of control they offered varied as per service beliefs, with the marines relinquishing the least control.[18]

Last, during war, each service fights at a different tempo. All three Services gather energy before an engagement, quickly expend it during the actual fight and, again, take some time to recoup energy. Airpower

operates at the fastest tempo, multiple times in a day, while armies and navies have long periods of relative quiet followed by engagements, from which they take time to recover. This period is at minimum in days. This tempo mismatch makes airpower the first weapon of choice when speed of action is the imperative, but this tends to exclude the other forms of power during initial response. Synchronising complementary strengths thus becomes a problem.

If there are so many things that differentiate Services, what is it that binds them, preventing the differences from becoming centrifugal forces of disintegration? Ideally, organisation theory should provide answers since we are essentially dealing with organisational behaviour. Unfortunately, most research on organisations concentrates on organisations as the ultimate the object of analysis, not inter-organisation behaviour. Looking at the functioning and structure of business or government organisations, there is little need to conduct such research. But the branches of the military are unique in their relationship to each other and with the environment they exist within.

While existing for a common wartime goal, Services are almost totally independent of each other in peacetime. It is important to bring out the differences in peacetime and wartime relationships of the arms of the military. Counter-intuitively, peacetime organisational structure and growth trajectories are more important than wartime. This is because 'Almost every government bureaucracy has a function it executes on a day-to-day. Military organisations, in contrast…do not execute this function everyday.'[19] Thus, militaries use periods of peace to evolve by hypothesis rather than actual experience. As seen earlier, each service hypothesises differently, affected by its own beliefs. But how they are structured, and what they practice every day, affects wartime functioning. This is especially true of short-duration wars, which allow no time to learn and adapt.[20]

Military Structures

At the strategic or service level, military organisations are structured between two extremes. At one end are militaries, which are rigidly hierarchical with authority tightly exercised from above. Militaries of countries run by dictators are structured like this, with the ruler not only retaining complete power but also ensuring very little lateral interaction between the Services, except where he desires it. The other extreme is of structures which are cooperative, where the Services are almost independent entities

and rely on mutual understanding to execute responsibilities. While actual structures combine a mix of these two extremes, the structures of most militaries tend to lean more towards the latter.[21] The US has a unique structure where the peacetime military, responsible for organising, training, and equipping is structured cooperatively, while the warfighting structure is vertical, with authority flowing from the President through the Secretary of Defense to the Combatant Commander, who has authority over all combat components.[22]

On the positive side, structures impose ties which bind entities and prevent them from disintegrating. This is especially true of arms of the military, which may otherwise go their separate ways. This is why most militaries have some sub-organisation like Integrated Defence Staff, or a super-organisation like Joint Chiefs of Staff, to get all players to at least sit on a common table. They also have memoranda of understanding (MoUs), or joint study groups, to institutionalise and record agreements on issues affecting both.

On the negative side, structures also impose limits and 'define the potential range of alternative strategies', beyond which even required adaptive growth cannot occur.[23] In the realm of military organisations, internal structure does more of the former, as 'large bureaucracies' like military institutions are '*designed not to change* (emphasis in original)'.[24] Inter-service structures, though weaker, also attempt do the same. At the inter-service level, the need to bind exists because the Services are, by nature and tasking, nearly independent of each other in peacetime, and thus may gradually drift away if unbound.

Currently, each service in the Indian military set-up is an independent organisation, with its own beliefs, tasks, culture and growth trajectory. Whether they cooperate or compete in peacetime, inter-service interactions do not materially change their evolution. Each service has its own recruitment policy on the kind and quantum of people it wants, and largely is free to buy equipment as per its perceived requirements, as long as it convinces the government, not its sister services. There is no super authority to enforce cooperation or prevent competition. This is a condition of anarchy.

The problem we need to study then is about cooperation amongst independent entities in an anarchic environment.[25] While organisation theorists may have neglected this aspect of study, other fields of study, especially the field of IR, may provide insights. The IR theorists see the existence of nations as a condition of an anarchic world populated by

countries which are independent entities with no dependency relations. The common worldview between realists and liberals is agreement on the absence of a world government—a state of anarchy. The various schools of IR take different approaches to study and hypothesise, but most agree on this basic environmental setting.[26] The differences are on whether the natural state of being in this unregulated environment is competition (realists) or cooperation (liberals).

In the range of inter-service behaviour, we can glimpse all schools of IR. Largely, there is independent growth. Sometimes, we can see realist competition, as in trying to get greater percentages of the budget. Mostly, we can see institutionalism, with its mechanisms of written understandings, MoUs and joint study groups. Published joint doctrines are analogous to international regimes, defined as 'sets of implicit or explicit principles, norms, rules, and decision-making procedures around which actors' expectations converge in a given area of international relations.'[27] The cooperation mode is maximised in times of war, when inter-service issues are buried to face the common threat. For example, as the Kargil conflict unfolded, despite his doctrinal beliefs, the Air Chief reluctantly agreed to use helicopters instead of fighters, essentially to 'save army–air force relations'.[28]

The Evolution of Cooperation

Robert Axelrod, a professor of political science at the University of Michigan, delved deep into the question of the 'problem of cooperation' amongst countries via studying human behaviour. He did not limit himself to only human behaviour, which is a first cut at understanding IR through the rational actor model (RAM).[29] To derive conclusions, he used computer simulations in game theory and later also studied cooperation in biological systems. He came out with 'The Cooperation Theory…an investigation of individuals who pursue their own self interest without the aid of a central authority to force them to co-operate with each other.'[30] These conclusions apply not just to people, or countries, but also organisations like the arms of the military, which are independent entities in an anarchic environment. He started with a game called 'prisoner's dilemma'.

The prisoner's dilemma is about choices. Two suspects are apprehended for a crime by the police. Having insufficient evidence, the police needs a confession from at least one of them to convict them, and so interrogates them separately. If any of them 'defects' from his

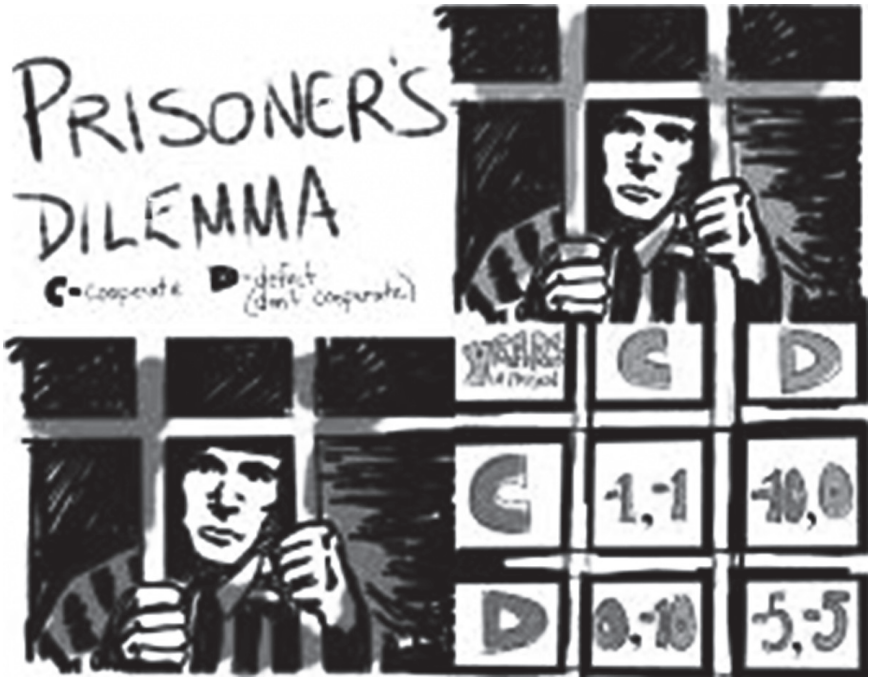

Figure 1 Prisoner's Dilemma

Source: https://www.flickr.com/photos/gforsythe/8245423564, accessed on 20 June 2015.

colleague and confesses, he goes free, while his colleague is put away for maximum time (he defects, colleague cooperates = DC). The opposite happens if he 'cooperates', while his colleague 'defects' (CD). If both 'defect' on each other, both are convicted but for less than the maximum punishment (DD). If both 'cooperate' with each other and keep mum, they are convicted for a much lesser sentence due to limited evidence (CC).

The logic of the situation drives players to 'defect', while the best solution *for both* as a collective would have been to 'cooperate' and get away with minimal punishment. The dilemma stems from the fact that a player's choice depends on what he thinks the other player will do. Unfortunately, individual cost–benefit analysis indicates 'it is better to defect if you think the other player will cooperate (DC>CC), *and* it is better to defect if you think the other player will defect (DD>CD). So no matter what the other player does it is better for you to defect (emphasis in original).'[31] The final ordering of the solutions in terms of benefit to

increasing loss is DC>CC>DD>CD (see Figure 1). The result seemed to emphasise Thomas Hobbes' view of a selfish world, because the *logic of the situation dictates selfish choices*. So, is there no hope for cooperation?

Axelrod organised a computer prisoner's dilemma tournament, where each programme would play against another with the ability to modify its 'cooperate' or 'defect' strategy depending on history of previous moves. The winner amongst 14 entries designed by various game theorists was a simple programme called 'Tit for Tat'.[32] Its strategy or decision rule was simple—it cooperated on the first move and thereafter reciprocated the other player's previous move. It had four defining characteristics: it was 'cooperative' as long as the other player was; it was 'provocative' in the face of defection by the other player; it was 'forgiving' if the other player reverted to cooperation after a defection; and it had 'clarity' in transmitting this behaviour.[33] A single word to encapsulate these behaviours is 'reciprocity'.

What Axelrod discovered was that while a one-shot play promoted the selfish choice as a matter of logic, repeated play, with the promise of future plays, promoted cooperation. The only exception to this rule was that if a hegemon or strong central authority existed, it could force cooperation even in a one-shot play. In military terms, the Chairman of Joint Chiefs of Staff in peacetime or a Joint Forces Commander in wartime can fulfil this requirement. However, in his absence, the crux of Axelrod's discovery posits mutuality of interest, the shadow of the future and the (lesser) number of players' fosters cooperation.[34] When services display behaviour in tune with the four traits, essentially 'reciprocity', cooperation in peacetime is more likely.

These same results were supported by studying the evolution of cooperation in biological systems. Not just symbiotic species but even bacteria, in their interaction with their environment, were seen to be behaving in tune with game theory discoveries. What was encouraging about the biological aspect was that cooperation was not dependent on 'foresight' of the future interactions; instead, a system based on reciprocity tended to perpetuate itself.[35] Computer simulations showed the same result: even without friendship or foresight, 'cooperation once established on reciprocity would not only thrive, but protect itself from invasion by less cooperative strategies.'[36] Thus, it seems cooperation as policy tends to self-perpetuate, with no regard to intelligence of the actors involved. In fact, it does not also need explicit messaging, assumption of trust, altruism or a central authority.[37]

This theory should apply to military organisations, either when viewed as analogous to countries or even when considered as organisms, as the organic school of management views organisations. The metaphor of defence organisations as organisms also explains the tendency of individual services to keep growing and to consider this growth as a zero-sum game, where other's gain is loss from own share of the resource pie.[38] Media articulation calls this 'turf war'. A study of the subject of inter-service cooperation would also benefit from the biological and anthropological perspective.

Cooperate to Compete

Another scientist who delves into cooperation amongst humans is Scott Atran. As a professor of psychology and public policy, he has tried to understand what makes unrelated humans unite for common endeavours. Going beyond the microeconomic RAM, his anthropological approach even attributes the human creation of gods 'to make large-scale cooperation possible between anonymous strangers.'[39] This is akin to the central authority required as Axelrod's cooperation enforcer.

Humans are encoded with an 'us versus them' psychology.[40] This has been necessary to unite tribes of peoples against competition. The worst predators for humans have been other humans and they have needed a quick-fix solution to identify and differentiate friend from foe. This has led to a 'universal and innate propensity of human beings to partition the world's readily visible biodiversity into mutually exclusive essences', something anthropologists label as Folk Biology.[41] This leads to immediate classification into 'in-group' and 'out-group' based on physical features, race, religion, language and, as proved in experiments, even the colour of a uniform. People form emotional bonds with 'in-groups' and discriminate against 'out-groups'.[42] At work here is a basic strategy for survival—cooperate to compete.

Humans are both selfish and altruistic, traits required for survival. In organisations, these two tendencies result in a balanced tension between selfish dissociative tendencies and altruistic cooperative tendencies. Individuals and groups coalesce to fight an external threat. Herein also lies a trick to increase cooperation within and between large groups—the presence of an external threat. The competition with another group leads to increased cooperation within the group. Some leaders use this basic psychology to inflame religious or ethnic unity by playing up the presence of another group which differs. Militaries routinely benefit from

organised inter-unit sports, a competition, as a peaceful way to increase cohesiveness at the unit level. However, even here, at play is the use of the basic psychological ploy—'us' needs to 'cooperate' to 'compete' against 'them'. Unfortunately, the same tendency leads to inter-service competition as, at the inter-service level, the other service gets mentally labelled as 'them'. This problem recedes in wartime as the external threat at a higher level unites the services under an 'us' label. Thus, what divides at one level, also unites at another.

One particular military organisational example shows both Axelrod's 'Tit for Tat' and Atran's competitive cooperation at play. After the USAF was created in 1947, Tactical Air Command (TAC) was given mission of being the US Army's air battle service provider. However, the next few decades of the Cold War saw Strategic Air Command (SAC) take centre stage in terms of doctrine and resource share. This resulted in both kinds of organisational behaviour. First, the competition between SAC and TAC pushed TAC to cooperate with the army in regaining lost ground to SAC, especially after the Vietnam War. At stake was TAC's very existence. Second, TAC's Chief in the 1980s, General Wilbur Creech, demonstrated tit for tat behaviour in this cooperation, expecting reciprocity. Despite his doctrinal beliefs, he compromised to accept the army's version of close air support doctrine in the hope that 'if TAC deferred to the army on close air support, the army would accept the importance of other missions, such as air superiority and interdiction.'[43] Air–land joint doctrine was a visible output of this cooperation. However, on the flip side, the opportunity cost of this compromise was 'creative air power thinking', which would re-emerge only just before the First Gulf War.[44] Cooperation as an end can be achieved, but it can also constrain evolution—in this example, evolution of doctrine.

Competition is not all bad. When differing doctrines compete, the fittest survives.[45] On issues which are a zero-sum game, the survival of the group depends on the best strategies, people or technology to emerge as winners from this competition. These winners go on to lead the way, and are given a bigger share of the resource to maximise chances of winning a future competition against an external team—war is one form of this external competition. The trick is to strike a balance between competition and cooperation, where the former does not absorb so much energy at the lower level as to affect the higher-level competition. When cooperation occurs on issues needing competition, overall aims suffer, just like in market fixing. This happened in World War I as spontaneous

cooperation on a static front with fixed players resulted in soldiers on both sides not targeting each other in a 'live-and-let-live' policy.[46]

Way Ahead: Structure or/and Behaviour?

So, how does all this relate to the Indian system? If cooperation is the aim, the structural solution promises more with its power to bind. Restructuring would definitely constrain peacetime organisational drift. However, restructuring can also have a potentially negative impact, with the latent ability to stifle evolution. Whatever form the structural solutions come in, they must cater for this unintended limitation. Co-equality is one such organising principle which will allow internal competition, without external drift.[47] However, there are two different scenarios where the structural solution applies.

Game theory differentiates between one-shot play and repeated play scenarios. War is an example of the former, and a single commander, whether at theatre or military level, represents the hegemon who enforces cooperation in one-shot play. In this case, the cooperation is about strategy—what needs to be done and how will it be done. But strategy has a limitation: it must be achieved within available means. The 'means' is the force structure developed in peacetime. The creation of a Chief of Defence Staff (CDS), representing the second scenario, will affect force structure. But unlike war, plays under him will be repeated on many peacetime decisions; and so, the principle of reciprocity applies more. This is also where the structure needs to be deliberately more equal, with greater freedom for competition on controversial issues, allowing evolution, with the fittest ideas surviving. The correct force structure will allow more strategic options. Conversely, the warfighting strategy will not be limited by the availability of tools at its disposal.

Thus, the structural solution needs to allow mechanisms for safeguarding the 'principle of co-equality' of the forms of military power. The US airpower fought to gain this status, achieving it in as a result of the lessons of North African Tunisian Campaign in 1943 via publication of the War Department FM 100-20, even as the air arm remained structurally a part of the army. This equal voice was essential in allowing both growth and efficient combat application, in that order.[48] The pattern of the US structural evolution thus shows peacetime unification of the military arms via the National Security Act in 1947, and with wartime restructuring after almost 40 years in 1986 via the Goldwater–Nichols Act.[49] The intervening four decades also allowed airpower potency to

fructify. Thus, while the new paradigm of airpower was granted equal status in 1943, real 'perception' of co-equality in the eyes of the other services only came in the 1990s. By this time, the potency of this new form of power had proved itself to the older paradigms, and so the theatre commander, despite being from another service, was ready to allow an air-led campaign in the First Gulf War. The US pattern shows a stepwise move from peacetime jointness via a Chairman of the Joint Chiefs of Staff in 1949, before implementing a single Combatant Commander concept after four decades, time within which the emergent paradigm matured.

Both circumstance of birth and environmental conditions during growth affect the culture of an organisation. Both the USAF and RAF fought to gain their independence from the navy-dominated militaries, and so found appeal in missions like strategic bombing, which enhanced their separate existence. In the Indian context, since airpower birth was for internal policing via army cooperation, the Indian Air Force (IAF) remained tactical for a major part of its existence, and this lessened friction. It is only in the last few decades that its culture is expanding to strategic reach, in tune with expanding Indian economic interests. This increasing strategic reach and capability in recent years applies even more for the Indian Navy. However, because of the 'service provider' perception of the air force, investment in strategic reach platforms has the potential for the army to perceive a neglect of the tactical mission, just as it happened between the USAF and US Army in the Cold War era. The behavioural onus of assuaging these potential fears lies with the air force. Simultaneously, all Services need to understand that these service capability transformations are a part of co-evolution with the environment, and the structural solution for jointness must not block them. Fear of power redistribution, which will in turn affect both force structure and individual service doctrine, has a role to play in non-implementation of the structural solution.[50]

The structural solution is difficult, is more likely to be enforced from outside the military and has not happened yet.[51] In the absence of the structural solution, cooperation would benefit from following behavioural norms, especially emphasising future interactions. In fact, even after the structural solution is implemented, internally, the considerations of the behavioural norms will continue to apply.

Before considering what behaviour will promote cooperation, we must accept and embrace the reality that competition will occur. Some part of this tendency is a leftover from our tribal instinct. Evolutionary

biology also explains competition as a reality of nature. As shown in the beginning of the article, the birth of airpower as a new paradigm increases the intensity of competition. Accepting the need for competition, we need to limit competition by limiting it to *specific* issues, essentially channelising it. We need to channelise this competition towards issues which are controversial, so as to avoid competition spilling over to *every* issue, as a matter of behavioural habit. On the other hand, cooperation on some of these issues may be counterproductive, as we might end up cooperating on issues which need competition. Thus, joint doctrines, which currently include only issues on which the three services agree, have scope to include issues on which the services 'agree to disagree'. These can be debated openly or behind closed doors. Debating issues in open media has the advantage of informing decision makers in all three Services on viewpoints of sister services they had not hitherto considered. The absence of open debate leads to conjecture as to the motives behind service-specific stands, and in turn to reduction of trust, essentially miscommunication. This increases defection behaviour. However, the potential drawback of open debate is controversy. Open debate or closed, future planning needs mechanisms to allow ideas to emerge, 'compete', spread and flower.

We also need to explore possibilities for formation of 'in-group' tri-service mentality. One condition is the threat of war, that is, competition at a level higher than the services. The three wars in which we did not perform efficiently enough, 1962, 1965 and 1999, were the ones thrust upon us, not giving time for even short-term cooperation to develop.[52] The one war where tri-service synergy was best is 1971, where adequate preparatory time and deliberate timing ensured a joint approach, which was practised down to tactical level.[53] The lesson is that choosing the start of conflict and a positive aim will deliver better joint results than passively reacting to trigger events. However, this evolutionary trick can only be used for wartime cooperation. Long periods of peace will increase drift. A common tri-service uniform in joint organisations is one cosmetic, but evolutionary proven, way to increase in-group mentality.

At the macro level, the Services need to actively factor in 'reciprocity' in inter-service behaviour as well as internal decision-making which affects the sister Services. This will entail visible compromises in tune with concerns of other services as a first cooperative step. For example, cooperativeness will benefit from the air force increasing its efforts towards the battlefield air strike mission. This would be despite its

doctrinal belief of this mission as less efficient than interdiction, or battlefield interdiction, and definitely lower in priority than the counter air campaign. Similarly, cooperativeness would benefit from the army factoring in air force concerns about fratricide, airspace management and mission interference, arising from the army air arm's increasing duplication of air force capabilities in common airspace. Naval procurement of specialised air-to-surface armament for newer aircraft, towards air force or army objectives, would demonstrate cooperative intent for sister service objectives, despite these weapons not being in tune with current naval doctrine. Over the long term, visible concern for the other Services will promote reciprocal behaviour. The announcement in October 2014 by the Chairman Chiefs of Staffs Committee (COSC) about creation of three new proposed commands—cyber, special forces and space—each to be looked after by a different service was a good example. Such a solution has something for everybody, with responsibility in tune with natural strengths, without stepping on sensitivities.[54] At the same time, game theory posits that there should also be displays of negative behaviour, clearly linked to 'defection' moves by other services. Retaliatory defection moves should target non-cooperative behaviour on issues apart from the areas of agreed difference, essentially making it easier to identify defection behaviour.

Game theory also shows that the 'shadow of the future' promotes cooperative behaviour. Thus, longer tenures in positions which involve interactions with sister Services will accrue benefits of the awareness of a shared future. This varies from pure joint organisations like Integrated Defence Staff (IDS) to tenure of combat commanders who depend on each other in time of war. Conversely, short tenures increase the tendency to defect. In the Indian context, this is easier for IAF as it has structurally devolved more parts of itself into joint elements like Advance HQ and Tactical Air Centres. The other two services have lesser cross-pollination. Increasing population of army and navy officers in air force war planning centres will allow participating in this policy for the other two services. It will also increase responsiveness at the tasking centres if these officers are drawn from the field formations of the geographical area of responsibility. Last, it may also make synchronisation of tri-service air assets easier.

Additionally, the probability of meeting again increases cooperative behaviour. This point has a bigger human resource policy ramification. If people who fill positions in sister service organisations keep getting posted into similar positions repeatedly in their career, and know that

this is policy, they will practise cooperative behaviour. This requires the human resource department of each service to make policies where career paths of selected officers come back often into joint organisations, even as they rise in rank. For example, a ground liaison officer (GLO) tenure as a junior officer would naturally dovetail into a similar post at Air Force Advance or Command HQ, and two such joint tenures being mandatory for posing to IDS. The self-identification of such officers with joint organisations will have another game theory benefit—the kinship factor. Game theory's selfish decision-making breaks down if the actors are related to each other. This is known as the kinship factor. Altruism then becomes norm as they unite under an 'us' label, even though cooperation can still happen without altruism. This altruism also needs to be rewarded by increasing incentives of joint posts, just as it happens in biological systems, 'resulting in net gain for the altruism-causing genes that are resident in related individuals.'[55]

Cooperation also increases when the numbers of players are lesser. This is because lesser players make identifying who is defecting easy, and also when a defection has occurred, both problems in multiplayer gaming. Humans do this via face recognition, but lower life forms do this by limiting the number of actors with whom they get into symbiotic relations with, like a hermit crab and its single sea anemone partner. Or they limit the geographical area in which they practice interspecies cooperation, like small fish which eat parasites from the bodies of its potential predators, but only in fixed reef areas and not in open seas. This geographical selectiveness again translates to limiting number of players with a shared understanding of reciprocity.[56] In organisations, this would again translate to the advantages of limiting the numbers of actors whose behaviour will affect inter-service cooperation and/or limiting the geographical area where such behaviour is expected and reciprocated. This can be achieved by limiting meaningful inter-service interactions to only a few sub-organisations nominated as joint. Joint policy on any matter should flow only out of these organisations.

Conclusion

The various arms of the military are differentiated for good reason. Their strengths are complementary. However, they clash ideologically on issues which are common. Airpower, in its birth as the newest tool of war, coupled with its application in three dimensions, tends to compete more with the older paradigms. This competition is both natural and an

essential requirement of evolution. However, the degree of competition must not endanger cooperation, essential for wartime synergy of force application. Militaries spend most of their time evolving on the basis of hypotheses regarding the wartime requirements of the future, and their resulting peacetime structure affects wartime efficiency. The structural solution is more efficient in reducing peacetime drift. At the inter-service level, structure limits dissociation, but can also constrain evolution. In the absence of structural binding, the services exist analogous to independent countries, loosely bound by institutionalism of agreements, evolving separately in an anarchic world. This increases the importance of the behavioural norms in promoting cooperation.

The problems of competition and cooperation amongst entities in an anarchic world have been addressed both by IR theorists as well as biologists/anthropologists. Both classical realism and game theory shed light on why selfish competition is the natural state of being. Game theory also moves on to show the behavioural traits via which cooperation will not only emerge, but thrive. This result is supported by anthropological studies which show how individual selfishness can result in group cooperation via a 'cooperate to compete' mindset. Each organisation's selfishness can benefit the society of organisations better when jointness becomes the means to individual profit, rather than a desired end state.[57] Creating the right conditions which support cooperative behaviour should foster cooperativeness.

Both behavioural lenses used in this article are limited lenses. No theory or lens is complete. The RAM that Axelrod and most IR theorists use is rejected by others as being too black and white. For example, Andrew Marshall, the father of net assessment, feels that 'game theory had eventually failed to provide a satisfactory basis for higher-level strategic choices' because 'warfare was just too complex for such methods to have much utility'.[58] Game theory itself has many nuances, like players' beliefs about rewards and punishments and enforceability of punishments.

However, each lens illuminates some aspects of the situation. The more lenses we use to look at a problem, the better we understand it. The better we understand problems, the easier it is for solutions to emerge. To ensure evolution, both competition and cooperation need to exist. Peacetime competition must be channelised to first identify and then limit debate on agreed issues of difference. This will both help evolution and limit competition to issues needing competition. Cooperation will increase when faced with impending war, provided there is a positive

aim, with own side retaining initiative. Cooperation will increase in peacetime if each service displays 'reciprocity' behaviour as a matter of norm, starting with cooperation, reciprocating defection, displaying forgiveness and communicating openly. Staffing policies in tune with the traits supporting cooperation will help: a shadow of the future; probability of longer and repeated interactions; joint career paths; a limited set of players who need to interact; and recognition of the power of cooperation strategies to self-perpetuate.

Notes

1. J.C. Wylie, *Military Strategy: A General Theory of Power Control*, Annapolis: Naval Institute Press, 1989 (1967), pp. 32–48.
2. Graham Allison and Philip Zelikow, *Essence of Decision*, New York: Longman, 1999, pp. 164, 391.
3. Carl Von Clausewitz, *On War*, edited and translated by Michael Howard and Peter Paret, Princeton: Princeton University Press, 1989, pp. 88–89. 'The first, the supreme, the most far-reaching act of judgment that the statesman and commander have to make is to establish by that test the kind of war on which they are embarking, neither mistaking it for, nor trying to turn it into, something that is alien to its nature. This is the first of all strategic questions and the most comprehensive.' However, figuring out this first task is difficult and requires knowledge above that of individual service functioning. Airpower theorist John Boyd articulated this as the need to go outside a system to understand the nature of its reality as 'we cannot determine the character or nature (consistency) of such a system within itself.' See John Boyd, 'Destruction and Creation', p. 6, available at http://tobeortodo.com/wp-content/uploads/2011/11/destruction_and_creation.pdf, accessed on 20 June 2015.
4. Author's conversation with Sri Lankan officers.
5. Frans P.B. Osinga, *Strategy and History*, vol. 18, *Science, Strategy and War: The Strategic Theory of John Boyd*, London: Routledge, 2007, pp. 48–50.
6. John Andreas Olsen, *A History of Air Warfare*, Washington, DC: Potomac Books, 2010, p. 177.
7. See Roderic Owen, *Tedder*, London: Collins, 1952, pp. 139–140, cited in Bryn Evans, *The Decisive Campaigns of the Desert Air force 1942–1945*, Barnsley: Pen and Sword Aviation, 2014, p. 5.
8. Stephen Peter Rosen, *Winning the Next War: Innovation and the Modern Military*, Ithaca, NY: Cornell University Press, 1991, p. 126. It took J.F.C. Fuller's efforts to create a staff position for study of tank concepts for tank doctrine to fructify by 1918.
9. David E. Johnson, *Fast Tanks and Heavy Bombers*, Ithaca, NY: Cornell

University Press, 1998, pp. 35, 221. Infantry influence skewed the technological development and usage doctrine of the tank towards manoeuvrability and speed, leaving it inferior to the German tanks in terms of armour protection and effective firepower. Additionally, the tanks were not massed for concentration.

10. Rosen, *Winning the Next War*, n. 8, pp. 97–99.
11. Thomas S. Kuhn, *The Structure of Scientific Revolutions*, *3rd Edition*, Chicago: University of Chicago Press, 1996. The first edition was published in 1962.
12. Ibid.
13. The paradigm shift of air war predominantly using unmanned aircraft is still in a nascent phase, but displays classic symptoms of suddenly emerging to supplant older ways of airpower application. Pilot-dominated air forces have been slow in accepting this shift, while non-pilot-dominated communities like armies or the Central Intelligence Agency (CIA) have embraced the technology quicker.
14. Gareth Morgan, *Images of Organization*, Thousand Oaks: Sage Publications Inc., 2006, p. 179.
15. Johnson, *Fast Tanks and Heavy Bombers*, n. 9, pp. 125, 221.
16. This mission also represents the dividing line between air force and army doctrines. Air forces try to directly attack the will of the opposing side, more often than not applying combat power behind the front line, which may or may not target the opposing army. Armies believe the decision point of war aims is at the battlefront, and the interim objective is the opposing army. The IAF calls this mission battlefield air strike, probably because the term 'close air support' is based on the support relationship instead of the mission type, and seems to incorrectly indicate that this is the only mission in which airpower supports landpower objectives.
17. Overall, reforms in this sector were about centralisation of airpower control. The Advance HQs were a way of not overly centralising, effectively decentralising parts of air forces.
18. The marines relinquished only 15 per cent of their air assets to the integrated campaign, utilising 85 per cent organically. See Stephen J. McNamara, *Air Power's Gordian Knot: Centralized versus Organic Control*, Maxwell: Air University Press, 1994, p. 133.
19. Rosen, *Winning the Next War*, n. 8, p. 8.
20. In contrast, long wars have forced restructuring to improve efficiency. The multiple Allied restructurings during the North African Campaign and in the China–Burma–India theatre during World War II are good examples.
21. This holds true for a country like India. But for countries like Nepal, with no naval requirement and a tiny air element used only in limited roles,

the army becomes the sole service—used more for internal security than external threats.

22. This happened after the 1986 Goldwater–Nichols Defense Reorganization Act. However, the presence of the Joint Chiefs of Staff, headed by a chairman, does ensure a degree of control above the individual services, even for the peacetime organisations responsible for organising, training and equipping. Even here, the peacetime growth is more important, as the Combatant Commander has to fight with what he is provided and can only tinker so much with the resource given to him in times of war. Additionally, their wartime needs are offensive and global, with homeland defence needing little integration.
23. Andreas Bieler and Adam David Morton, 'The Gordian Knot of Agency Structure in International Relations: A Neo-Gramscian Perspective', *European Journal of International Relations*, Vol. 7, No. 1, March 2001, p. 27, quoted in Osinga, *Science, Strategy and War*, n. 5, p. 108.
24. Rosen, *Winning the Next War*, n. 8, p. 2.
25. Cooperation is not the same as harmony. Cooperation is an adjustment of behaviour within a mix of conflicting and complementary interests. Similarly, anarchy does not mean lack of any organisation; only that in the absence of a government, relationships between entities are carefully or loosely structured on different issues. See Robert Axelrod and Robert O. Keohane, 'Achieving Cooperation under Anarchy: Strategies and Institutions', *World Politics*, Vol. 38, No. 1, October 1985, p. 226.
26. Allison and Zelikow, *Essence of Decision*, n. 2, pp. 26–40.
27. Stephen D. Krasner (ed.), *International Regimes*, Ithaca: Cornell University Press, 1983, quoted in Axelrod and Keohane, 'Achieving Cooperation under Anarchy', n. 23, p. 249.
28. A.Y. Tipnis, 'Operation Safed Sagar', *Force*, October 2006,p. 12.
29. A good explanation of how all schools of IR use RAM, and so simplified human behavior, as the basic analytical tool is by Allison and Zelikow, *Essence of Decision*, n. 2, pp. 23–40. They also classify Axelrod as belonging to the International Institutionalism School.
30. Robert Axelrod, *The Evolution of Cooperation*, New York: Basic Books, 2006 (1984), p. 6.
31. Ibid., p. 9.
32. He repeated the tournament with 32 entries from six countries. 'Tit for Tat' won again.
33. Axelrod, *The Evolution of Cooperation*, n. 30, p. 20.
34. Axelrod and Keohane, 'Achieving Cooperation under Anarchy', n. 23, p. 227. As an analogy, for the US military, a Joint Chiefs of Staff becomes the military equivalent of the hegemon in peacetime, while a unified commander

becomes the hegemon in wartime. However, for most militaries where arms exist as independent entities, the importance of Axelrod's conclusions is about how to foster cooperation in the absence of and without needing that hegemon.

35. Axelrod, *The Evolution of Cooperation*, n. 30, pp. 88–105.
36. Ibid., p. 21. Going back to IR, this also happens to be one of the propositions of German philosopher Imanuel Kant's liberalism—the expanding republican peace.
37. Ibid., pp. 173–74.
38. For an excellent analysis of this metaphor and the virtues of using multiple metaphors to study complex subjects, see Morgan, *Images of Organization*, n. 14, pp. 62–69.
39. Scott Atran, *Talking to the Enemy: Faith, Brotherhood, and the (Un)Making of Terrorists*, New York: Harper Collins, 2010, p. 38. He studies global terrorism in this work.
40. Ibid., p. 297.
41. Ibid., p. 306.
42. Ibid., pp. 307, 296.
43. John Andreas Olsen, *John Warden and the Renaissance of American Air Power*, Washington DC: Potomac Books, 2007, p. 103.
44. Ibid., p. 102.
45. In 1961, Karl Popper advanced his theory of 'evolutionary epistemology', a process of growth of knowledge via a Darwinian 'natural selection' of competing theories. See Osinga, *Science Strategy and War*, n. 5, p. 57.
46. Axelrod, *The Evolution of Cooperation*, n. 30, pp. 73–87. The unspoken agreement, that services will not question each others' procurement lists, is an example of spontaneous cooperation.
47. This implies that joint organisations like staff under Chief of the Defence Staff (CDS) should have equal service representation and equal service powers that are essential for ensuring fair competition of ideas and policy influence.
48. McNamara, *Air Power's Gordian Knot*, n. 18, p. 19. Under the heading, 'Relationship of Forces', the manual stated, 'Land power and air power are co-equal and interdependent forces; neither is an auxiliary of the other.' This was a radical change. However, publication did not automatically result in implementation because perceptions take time to change. McNamara shows the perception lag in the same chapter.
49. The 1947 Act unified the separate arms of the military, and also created a separate air force. The 1986 Act unified the Combatant Commander and his chain of command, but also created the central manager of airpower under him.

50. The structural solution and service-specific stands are extensively discussed in Patrick Bratton, 'The Creation of Indian Integrated Commands: Organisational Learning and the Andaman and Nicobar Command', *Strategic Analysis*, Vol. 36, No. 3, May–June 2012, pp. 440–60, available at www.hpu.edu, accessed on 20 November 2015; and Arun Prakash, 'India's Higher Defence Organization: Implications for National Security and Jointness', *Journal of Defence Studies*, Vol. 1, No. 1, August 2007, available at http://www.idsa.in/system/files/JDS1(1)2007_0.pdf, accessed on 20 November 2015. This inaugural volume is dedicated to jointness.
51. Barry R. Posen, *The Sources of Military Doctrine*, Ithaca: Cornell University Press, 1984, p. 224. Posen argues that such innovation only occurs after a major military failure or when civilians with legitimate authority intervene. The Kargil conflict would make a good corollary to his argument. A limited war, it saw limited failures and therefore limited reforms.
52. There was no common strategy. For the 1962 war see George K. Tanham and Marcy Agmon, *The Indian Air Force: Trends and Prospects*, Santa Monica: Rand, 1995, p. 23. They cite Steve Hoffman, *India and China Crisis*, Berkley: University of California Press, 1990. For 1965, see A.K. Tiwary, '1965 War, IAF Supports Indian Army Better than PAF', *International Defense Review*, Vol. 22, No. 2, April–June 2007, available at http://www.indiandefencereview.com/news/1965-war-iaf-supports-indian-army-better-than-paf/, accessed on 23 December 2012.
53. A.K. Tiwary, *Indian Air Force in Wars*, digital edition, Atlanta: Lancer Publications LLC, 2013, pp. 167–68. Additionally, the personalities of the service chiefs also had a role to play.
54. 'Separate Commands for Special Operations, Cyber Security, Space: NAK Browne, Chief, IAF', *The Economic Times*, 2 October 2014, available at http://articles.economictimes.indiatimes.com/2013-10-02/news/42617512_1_cyber-security-iaf-chief-nak-browne-cyber-command, accessed on 7 October 2015.
55. Axelrod, *The Evolution of Cooperation*, n. 30, p. 96.
56. Ibid., pp. 100, 139–41.
57. Adam Smith articulated the same principle in economic context, saying that an individual, 'By pursuing his own interest he frequently promotes that of the society more effectually than when he really intends to promote it.' See Adam Smith, *An Enquiry into the Nature and Causes of the Wealth of Nations*, 1776, part 4, chapter 2, available at http://www.goodreads .com, accessed on 15 August 2015.
58. Andrew Krepinevich and Barry Watts, *The Last Warrior: Andrew Marshall and the Shaping of Modern American Defense Strategy*, New York: Basic Books, 2015, p. 254.