

Fair Play In War: Rational Choice Versus Chivalry In Combat

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April 8, 2005

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Why does the conduct of war sometimes reveal instances of “fair play?” At some level such practices appear to conflict with the presumed goals of efficiently destroying an enemy or acquiring property by force. This paper argues that seemingly spontaneous examples of chivalry during combat, as well as explicit rules defining such “fair play,” can be consistent with rational choice for conducting war. It also proposes tests to determine whether chivalry exists, independently of rational choice.

Actions that would constrain efficient conduct in battle appear in descriptions of organized violence throughout history. For example, the chivalric code of medieval knights contained explicit expectations of “honorable” conduct. One was expected to avoid injury to an opponent’s horse during combat and to refrain from injuring or killing an opponent once he had been knocked from his mount. Killing a dismounted knight was considered to be a “shameful” act [Kaeuper, pp. 170-171]. Modern readers are entitled to some skepticism regarding the degree to which shame might effectively constrain actions within the heat of battle against a mortal enemy, and at least one medieval historian has opined that chivalry was “a code perhaps violated more often than honored”[Gies, p. 2]. Nevertheless, the common understanding of medieval chivalry includes such concepts of appropriate conduct among combatants.

Chivalry was an integral part of the tournaments that began in the twelfth century. These ritual competitions among knights originated as mimic wars and had explicit protocols governing weapons and appropriate behavior. The historical record on actual battles is much less extensive and arguably less reliable than that on these tournaments. Perhaps the modern notion of

medieval chivalry in battle has been colored by the romanticized image embodied in the tournaments: “Medieval warfare was in fact a very much rougher and bloodier business than [early writers] would have us believe, and much more complex than the pages of the chroniclers, themselves unskilled in its arts, would lead us to think”[Barber, p.225]. But instances of behavior that can be regarded as chivalrous and inefficient occur frequently in later wars the records of which can be relied upon with more confidence. A well documented case during the First World War was the “Christmas Truce” between the German and English, French, and Belgian forces armies facing each other in Flanders, near the French and Belgian borders. On Christmas Eve, 1914 the opposing troops ceased fighting, dined together, sang seasonal songs, and even made plans for a soccer game. All this was in stark contrast to the violent exchanges that proceeded and followed the unofficial truce. The lull in fighting lasted only a few days and was in clear violation of the wishes and orders of the high commands on both sides [Weintraub].

The Second World War likewise provided examples of spontaneous acts of chivalry between enemies engaged in intense combat. Several such cases occurred during the battle for Monte Cassino in central Italy during the winter of 1943-44. That struggle actually constituted four distinct battles over a period of six months that resulted in over 350,000 killed and wounded. Both sides regarded the campaign as desperate: American losses during the first battle were compared in the home press to the losses at Pearl Harbor while the Germans were later to regard their losses at Monte Cassino as worse than those at Stalingrad. Nevertheless, instances of cooperative behavior between the warring sides occasionally occurred in the midst of the carnage. On at least five occasions a brief truce was called to permit collection of the wounded and dead. Sometimes this was done by only one side with the apparent expectation of later

reciprocity, while on other occasions the warring sides provided mutual assistance [Parker].

Chivalry Among Pilots

The invention and rapid development of aviation technology eventually led to the concept of chivalry in battle migrating from the battlefield to the air. The notion of fair play in battle arose frequently in air combat and there have been several attempts to agree upon formal rules which embodied accepted norms. For example, an attempt to kill an opposing pilot in a parachute or in a grounded aircraft was considered unchivalrous. A pilot escaping from a disabled aircraft was considered to be *hors de combat* and therefore was not an appropriate target by either the victorious pilot or by ground troops. The first attempt at codification of this norm into a formal rule of conduct occurred in the 1923 *Hague Rules of Air Warfare*. Article 20 stated “When an aircraft has been disabled, the occupants when endeavouring to escape by means of a parachute must not be attacked in the course of their descent” [Schindler and Toman, p.19]. These rules were never formally ratified, however, and the idea that they embodied had no formal legal status in international law until the 1977 adoption of Protocol I of the Geneva Convention of 1949. Article 42 of that document made clear that “no person parachuting from an aircraft in distress may be made the object of attack during his descent [Ibid., p.576].” This statement formalized a principle of aerial combat the roots of which can be traced to the informal codes of conduct among ground troops during WWI, and perhaps even to the code of chivalry among medieval knights [Meijering]. Despite the absence of an explicit legal prohibition of the practice during the Second World War, there are repeated references in the oral histories and memoirs of

the period to this chivalric code and disapproval expressed at its violation.¹ But adherence to and reverence for the code seemed far from universal: “I’ll court martial any member of this squadron who fires on a parachute”² and “Pure, unadulterated bull----. ...you don’t fly up and look at the guy and wave at him. You kill the son a of bitch...”³ embodied the dichotomous sentiments and practices of the period. The next section shows how the seemingly random application of the code can in fact follow a pattern consistent with rational choice.

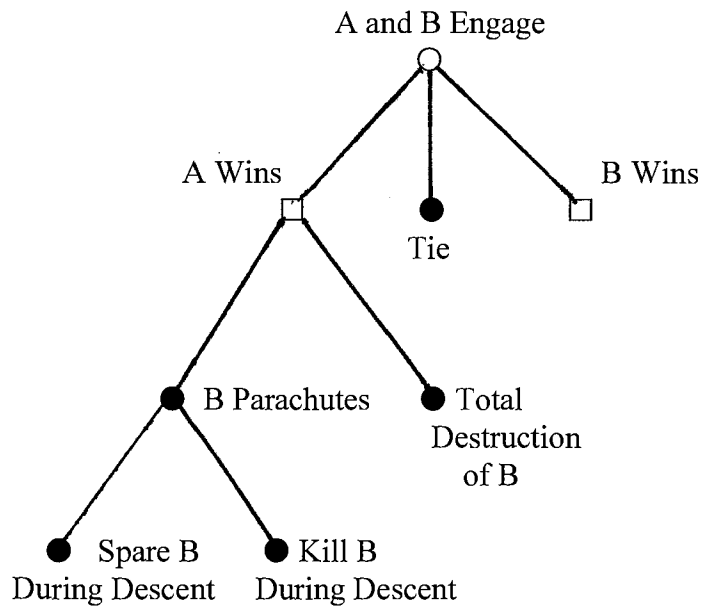
A Simple One-Period Model of Air Combat

Consider two aircraft, each with a single pilot, engaging in combat. An obvious goal of each combatant would be to destroy or disable the opponent without the victor sustaining a mortal blow. The possible outcomes of an engagement are illustrated in Figure 1 below as a one-period extensive form game. The case of the tie can encompass three distinct results: one pilot

¹"To a great extent, [The Hague Rules] correspond to the customary rules and general principles underlying the conventions on the law of war on land and at sea." [Schindler and Toman, p. 147]. Although the Hague Air Rules were moribund legally until 1977, several countries claimed to observe them during WWII. The code of chivalry was commonly referred to in British-German and American-German encounters. See Parks, pp. 106-110. Moreover, Japan asserted its adherence to the Rules during its 1937 invasion of China. There was not uniform agreement among WWII combatants regarding the code, however. The Italian War Regulation of 1938 forbade firing upon shipwrecked sailors or enemy pilots who had crashed with their aircraft (Article 35 (3)), but Article 38 made explicit that persons descending in parachutes were legitimate targets. See L. Oppenheim, pp. 519, 521. During debate prior to the ratification of the 1977 Protocol, several Arab countries tried unsuccessfully to amend Article 42 to permit attacks against parachuting pilots who appeared to be descending behind their own lines. See L. C. Green, p. 14.

²RAF Commander William Burton, quoted in Johnson, p. 79.

³ Charles Yeager, Quoted in von Wodtke and Guttmen, p 28

Figure 1


disengages and the battle stops without mortal damage to either combatant; both pilots fight to a draw by each expending all ammunition without effect, or; both pilots and aircraft are destroyed. The other two possible branches from the initial node are symmetric, so only one is diagramed.

The two possible results of an A victory is that both the B pilot and aircraft are destroyed in the engagement (“total destruction”), or that the B pilot escapes a disabled aircraft by parachute. The latter situation sets up the decision node that constitutes the subgame of interest.⁴ Three possible alternative motivations are considered for the victorious pilot: rational choice, chivalry, or kill-at-all-costs.⁵ Descriptions of the latter “anti-chivalry” type of behavior arise

⁴No distinction is made here among firing upon a vanquished pilot during decent, after landing by parachute, or after crash-landing a disabled aircraft.

⁵Engagements between pairs of pilots with differing motivations is considered in the Appendix.

frequently in contemporary and historical accounts of WWII battle between the Japanese and Americans.⁶ A crucial context of the choice not illustrated in Figure 1 is the territory on which the parachuting pilot is most likely to land. A captured pilot has value to the victorious side as either a source of information or as tender in a future prisoner exchange. The rational choice in such a case is therefore to spare the vanquished pilot. However, a vanquished pilot who escapes to home or neutral territory poses a possible future threat to the victorious side in that the pilot survives to fight another day.⁷ Rational choice therefore implies that the victorious pilot will attempt to kill the parachuting vanquished pilot if landing on territory neutral or hostile to the victor is likely and will spare him otherwise. The behaviors implied by chivalry and the kill-at-all-costs, on the other hand, are independent of the expected landing environment.

Table 1 summarizes the various outcomes at the decision node based upon the motivating behavior and the territory upon which the vanquished pilot lands. The three alternative motivating behaviors are differentiated by distinct predictions.

⁶For descriptions of this type of battle behavior in the Pacific see Dower, pp. 234-261; and Wheeler, pp. 20-29. Polish pilots flying for the RAF against the German Luftwaffe were also described as extremely aggressive and vengeful fighters. See Spaight, pp. 148-150.

⁷During World War II trained combat pilots were relatively more scarce than combat aircraft among all combatants, particularly toward the end of the war. See Parks, p. 109, note 343.

Table 1

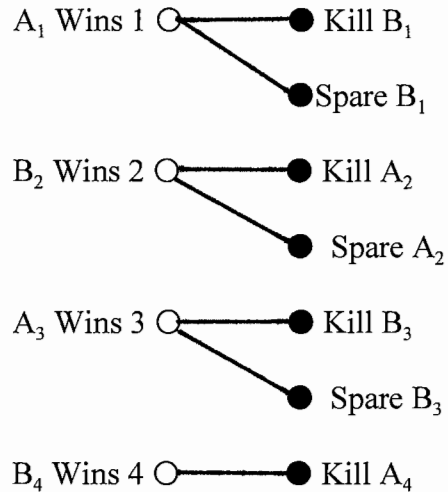
| | <u>Landing Environment</u> | |
|-----------------------------|----------------------------|------------------------------|
| | Friendly Territory | Hostile or Neutral Territory |
| <u>Motivating Behaviors</u> | | |
| Chivalry | Spare | Spare |
| Rational Choice | Spare | Kill |
| Anti-Chivalry | Kill | Kill |

Combat as a Repeated Game

To consider repeated engagements between opposing sides, it is useful to regard the principal players as the opposing military commands. The individual pilots now are participants in the broader game of war. The “spare-kill” decision will no longer discriminate among chivalry, rational choice, or anti-chivalry in a straightforward fashion because of the possibility of reciprocity among opposing pilots in the repeated game context. The prospect of future engagements may temper a rational pilot’s decision whether to fire on a vanquished pilot who is descending into his own territory. For example, a “tit-for-tat” strategy--spare vanquished pilots provided the other side does likewise and respond to defection with a one-period retribution--may evolve under certain conditions.⁸

Now issues of information completeness and uncertainty become relevant. If there is full

⁸In an influential study Axelrod conducted a series of experiments in which the chosen strategies of several game theorists were pitted against each other in a round-robin computer tournament. Tit-for-tat dominated all other strategies in the context of incomplete information and uncertainty about when the games would end. For a review of the many extensions and qualifications of the basic model, see Bendor and Swistak; and Nowak, Sasaki, Taylor, and Fudenberg.

Figure 2

information among opponents and certainty regarding the length of the game, then a multiple period game of finite length will devolve back to the single period result [Selton]. Such an unraveling scenario is illustrated in Figure 2, a four-period game that begins at the third node of Figure 1. The series of plays represents alternating victories by pilots of the opposing sides in contexts in which the vanquished pilots could land on their home territories. If the fourth node is the final one, then pilot B_4 has an incentive to kill vanquished pilot A_4 as there will be no further engagements during which the B side could expect reciprocal leniency. This therefore means that victorious pilot A_3 in the prior round also kills his opponent because reciprocity cannot be expected from subsequent encounters, and so on back to period one. If the end game is known in advance by all parties then this unraveling would prevent tit-for-tat from ever evolving and the single period result would prevail.

But the assumptions of full information and certainty are unreasonable restrictions to

impose on a model of war conflict. Suppose, instead, that the end of the game is in doubt or indeterminate, at least initially. All participants may be aware that a war cannot last indefinitely, but in the early stages there is uncertainty about the final resolution. Unraveling is unlikely until the end is in sight to most participants.⁹

This perspective provides a scenario for predicting the behavior patterns of combatants depicted in Table 1. Early in the conflict the motivating behavior of rational choice combined with a joint expectation of reciprocity would be indistinguishable from chivalry. If there is uncertainty about the outcome of the war then the only behavior that will distinguish itself early on is anti-chivalry, because the pilots' motivation in that case is to kill opponents regardless of context or circumstance. Once the eventual resolution of the war becomes evident, however, reciprocity breaks down and rational choice, chivalry, and anti-chivalry become separately discernable. If the rivalry between opposing pilots is characterized by chivalry, then vanquished pilots will be spared regardless of their landing environment. Rationale choice, on the other hand, implies that victorious pilots will spare escaping opponents over home territory but will attempt to kill them when fighting over the opponents' territory, while pilots motivated by anti-chivalry will always attempt to destroy vanquished opponents.

Applications and Extensions

A modest prediction of the model is that chivalrous actions in combat will be more common at the beginning of a war than near the end. A more interesting test of the model would

⁹It instructive to note that both the "Christmas Truce" of WWI and the similar occurrences during the WWII battles for Monte Cassino happened during periods which the opposing commands regarded as frustrating stalemates. Participants on both sides therefore plausibly did not have clear expectations regarding when or how the conflict would end.

be to measure the incidence of chivalrous behavior before and after certain events which likely would have affected the participants' perceptions of the likelihood of the war being resolved. Historians demarcate specific events or battles that, in retrospect, constituted turning points in the conflict in the various theaters of war, such as the Battles of Midway and Leyte Gulf in the Pacific or the Battle of Stalingrad in Europe. But contemporary accounts of past wars may place a patina of order upon actions and events that likely seemed chaotic and unpredictable to the participants at the time they occurred. The perspectives of the combatants on the possible turning points in the war therefore may not have been fully congruent with the current consensus, and it is the former perspective which is relevant to the model described here.

This suggests an alternative approach to testing this model that could avoid the possible errors and ambiguities from attempting to detect the shifting expectations of participants in wars many years past. Numerous personal accounts from the Second World War period suggest that chivalry in air combat was more common in English-German and American-German encounters, whereas examples of anti-chivalrous actions are cited more frequently in American-Japanese and Russian-German combat. Such examples of anti-chivalry have been frequently treated as simply the embodiment of racial animus, especially between American and Japanese combatants [Dower]. If this is a valid generalization then the incidence of chivalry and anti-chivalry should vary by the nationalities of the combatants.¹⁰ Rejection of the null hypothesis that the variation in incidence of anti-chivalrous actions is greater over time than between nationalities would be evidence against the model proposed here and would suggest that chivalry operates independently

¹⁰Recent research, however, suggests that the source of hatred between groups is much more complex than simply the degree of dissimilarity between them. See Glaeser.

of rational choice.

A similar approach can be used in studying possible differences in combat behavior among different groups of the same side. For example, the Japanese home defense air force was formally a part of the Japanese army. The continuity with the warrior code of Bushido of the medieval samurai was emphasized by wartime propaganda and the suicide attacks of the Kamakazi pilots were portrayed as embodying the ancient credo of ritual sacrifice. In contrast, the Japanese naval air force may have reflected a more western cultural perspective to the extent that its development was influenced by the British model. A higher incidence of anti-chivalry among Japanese army pilots than among navy pilots, combined with no temporal pattern in the incidence of anti-chivalry, would be consistent with this dichotomy and would constitute evidence counter to the hypothesis that chivalry is simply a manifestation of rational choice in differing battle contexts.

Conclusion and Final Remarks

The model developed here provides a means of explaining the seemingly random manner in which instances of chivalrous actions occur in a variety of battle contexts. Rather than being random these cases can result from the interaction of rational combatants within a dynamic conflict with changing uncertainty regarding the final outcome. The model was developed within the context of air combat but it is also useful in understanding such instances in other contexts as well. An alternative title to this paper could be “Does Chivalry Exist?” Or more exactly, does chivalry occur as an independent phenomenon, rather than just as an occasionally mislabeled manifestation of rational action? The question ultimately must be answered empirically and this paper suggests an approach.

Appendix

Alternative One-Period Combat Games

The analysis above identifies rational behavior in combat by distinguishing it from two alternative motivations through observing choices made within differing battle contexts. There may be other motivations besides those considered and the results of any engagement also may be affected by the paring of pilots with different mind sets. For example, are the results of the game changed if a rational pilot engages one who exhibits kill-at-all-costs? It is also possible to infer something more about the preferences of combatants regarding the possible outcomes of an engagement other than whether killing or sparing an opponent is preferred. Although it is not generally feasible to assign cardinal values to the possible results of an engagement it is possible to rank the alternatives from the perspectives of each combatant. These ranking differ depending upon the combination of mind sets of the opponents. Battle context matters as well, but only for engagements involving at least one rational combatant.

Pilots are presumed limited to two strategies in an engagement: to attempt to kill the opponent or to spare the other pilot.¹¹ The rankings of these results are illustrated below as values in a game matrix where 4=best and 1=worst. It should be stressed that these game matrices differ

¹¹The term “strategy” is used in the general game theoretic sense. The tactics employed in combat engagements are complex and involve multiple factors, such as the each pilot’s assessment of the relative strengths and weaknesses of the two aircraft and their relative spatial position at the time of engagement. A faster but less maneuverable aircraft engaging a slower but highly maneuverable aircraft would adopt different offensive and defensible tactics that if both aircraft had comparable flying characteristics. Certain spatial conditions may favor one aircraft over the other regardless of the performance capabilities of either aircraft. Relative height and position with regard to the sun at the beginning of an engagement are the most important spatial factors. See Spick.

from the typical use of the normal form in that they embody not the full extensive form game of Figure 1 but only what occurs from the third node onward. The listed ranks therefore are from the perspective of the victorious pilot. So, for example, A|V represents A's choice of kill versus spare the escaping pilot, given that he was successful in destroying the enemy aircraft. Consider game 1 which illustrates the rankings of alternatives in an engagement between two chivalrous pilots. The first entry in each cell represents the rank order that pilot B assigns to the four possible outcomes, conditional on his being the winner of the contest.¹² Likewise, the second entry in each cell is the rank assigned to that outcome by pilot A conditional on his being the winner. The preferred results in each game are highlighted.

The order in which alternatives are ranked is determined by the mind set of the pilots. Four are consider here. "Chivalrous" combat is consistent with the behavior deemed meritorious in most western memoirs and reports of WWII combat. Each pilot prefers mutual survival (Spare, Spare) to mutual destruction (Kill, Kill), but the latter is preferred to being killed and the opponent surviving. The "Kamikaze" profile embodies a "kill at all costs" mind set and is distinguished by both pilots assigning a higher rank to mutual destruction than to mutual survival. The "Yossarian" profile is characterized by pilots whose choice sets are binary between surviving and dying: a pilot is concerned only with his own survival and is indifferent as to whether the opponent is killed or spared.¹³

¹²In this context "winner" means destroying the opponent's aircraft and therefore facing the choice of whether to kill or spare the escaping pilot.

¹³The name is based, very loosely, on the behavior of Captain John Yossarian in Joseph Heller's novel, *Catch-22*. A much more literal interpretation of the character's motivation serves as a metaphor in an interesting generic game discussed by Brams and Jones.

It is assumed that the rankings within each of the first three profiles is independent of which opponents territory is involved in the combat. But for combat involving at least on “Rational” combatant battle context matters because that pilot’s ranks differ depending upon whether the engagement occurs over home or enemy territory. The matching of the four alternative mind sets combined with the two different battle contexts (home or enemy territory) produces fourteen games, nine of which are unique. There are four groups of game that are identical as listed or become so through transposition: 1 and 9; 4 and 11; 5 and 13; and 7, 8, and 10.

1. “Chivalrous” Combat [same as 9]

| | | | | |
|---|-------|------|-------------|------------------------|
| | | A | | |
| | | Kill | Spare | |
| | Kill | 2, 2 | 3, 1 | |
| B | | | | |
| | Spare | 1, 3 | 4, 4 | Opponents Share SS) KK |
| | | | A V B V | |

2. “Kamikaze” Combat

| | | | | |
|---|-------|------|-------|-------------------------|
| | | A | | |
| | | Kill | Spare | |
| | Kill | 3, 3 | 4, 1 | |
| | | | B V | |
| B | | | | |
| | Spare | 1, 4 | 2, 2 | Opponents Share KK) SS |
| | | A V | | |

3. “Yossarian” Combat

| | | | | |
|---|-------|------|------------|------------------------|
| | | A | | |
| | | Kill | Spare | |
| | Kill | 1, 1 | 2, 1 | |
| | | | B V | |
| B | | | | |
| | Spare | 1, 2 | 2, 2 | Opponents Share SS) KK |
| | | A V | A V B V | |

4. "Chivalrous-Kamikaze" Combat [same as 11]

| | | A (Chivalrous) | | |
|--------------|-------|----------------|---------------------------|--------------------|
| | | Kill | Spare | |
| B (Kamikaze) | Kill | 3, 2 | 4, 1 B V | |
| | Spare | 1, 3 | 2, 4 A V | No Common Ordering |

5. "Chivalrous-Yossarian" Combat [same as 13]

| | | A (Chivalrous) | | |
|---------------|-------|----------------|---|------------------------|
| | | Kill | Spare | |
| B (Yossarian) | Kill | 1, 2 | 2, 1 B V | |
| | Spare | 1, 3 | 2, 4 A V B V | Opponents Share SS) KK |

6. "Kamikaze-Yossarian" Combat

| | | A (Kamikaze) | | |
|---------------|-------|---------------------------|---------------------------|--------------------|
| | | Kill | Spare | |
| B (Yossarian) | Kill | 1, 3 | 2, 1 B V | |
| | Spare | 1, 4 A V | 2, 2 B V | No Common Ordering |

7. "Rational" Combat (over A's Territory) [same as 8 and 10]

| | | | | |
|-------|-------|------|------------------------|------------------------|
| | | | A_H | |
| | | Kill | Spare | |
| B_E | Kill | 2, 2 | 4, 1 $B_E V$ | |
| | Spare | 1, 3 | 3, 4 $A_H V$ | Opponents Share SS) KK |

8. "Rational" Combat (over B's Territory) [same as 7 and 10]

| | | | | |
|-------|-------|------------------------|------------------------|------------------------|
| | | | A_E | |
| | | Kill | Spare | |
| B_H | Kill | 2, 2 | 3, 1 | |
| | Spare | 1, 4 $A_E V$ | 4, 3 $B_H V$ | Opponents Share SS) KK |

9. "Rational-Chivalrous" Combat (over A's Territory) [same as 1]

| | | | | |
|--------------------|-------|------|-----------------------------------|------------------------|
| | | | A_H (Rational) | |
| | | Kill | Spare | |
| B_E (Chivalrous) | Kill | 2, 2 | 3, 1 | |
| | Spare | 1, 3 | 4, 4 $A_H V$ $B_E V$ | Opponents Share SS) KK |

10. "Rational-Chivalrous" Combat (over B's Territory) [same as 7 and 8]

| | | | | |
|--------------------|-------|------------------|-----------------|------------------------|
| | | A_E (Rational) | | |
| | Kill | Kill | Spare | |
| Kill | 2, 2 | 3, 1 | | |
| B_H (Chivalrous) | | | | |
| | Spare | 1, 4 $A_E V$ | 4, 3 $B_H V$ | Opponents Share SS) KK |

11. "Rational-Kamikaze" Combat (over A's Territory) [same as 4]

| | | | | |
|------------------|-------|------------------|-----------------|--------------------|
| | | A_H (Rational) | | |
| | Kill | Kill | Spare | |
| Kill | 3, 2 | 4, 1 $B_E V$ | | |
| B_E (Kamikaze) | | | | |
| | Spare | 1, 3 | 2, 4 $A_H V$ | No Common Ordering |

12. "Rational-Kamikaze" Combat (over B's Territory)

| | | | | |
|------------------|-------|------------------|-------|--------------------|
| | | A_E (Rational) | | |
| | Kill | Kill | Spare | |
| Kill | 3, 2 | 4, 1 $B_H V$ | | |
| B_H (Kamikaze) | | | | |
| | Spare | 1, 4 $A_E V$ | 2, 3 | No Common Ordering |

13. "Rational-Jossarian" Combat (over A's Territory) [same as 5]

| | | | |
|-------------------|-------|------------------|---|
| | | A_H (Rational) | |
| | Kill | Spare | |
| B_E (Jossarian) | Kill | 1, 2 | 2, 1 $B_E V$ |
| | Spare | 1, 3 | 2, 4 $B_E V$ $A_H V$ |
| | | | Opponents Share SS) KK |

14. "Rational-Jossarian" Combat (over B's Territory)

| | | | |
|-------------------|-------|------------------|---|
| | | A_E (Rational) | |
| | Kill | Spare | |
| B_H (Jossarian) | Kill | 1, 2 | 2, 1 $B_E V$ |
| | Spare | 1, 4 | 2, 3 $A_H V$ $B_E V$ |
| | | | Opponents Share SS) KK |

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