THE JUDGES' OATH:

I promise that I shall officiate in each BattleBots Tournament with complete impartiality and fairness, respecting and abiding by the rules that govern them, in the true spirit of the sport.

Introduction

If more than one Bot is Responsive at the end of a Match, the winner is determined by a vote of the Judges.

Judging a BattleBots competition is a difficult challenge that requires a thorough knowledge of the rules, keen concentration and, above all, impartiality. Since matches involve a wide variety of BattleBot chassis and weapon designs, a Judge must maintain an open and flexible perspective.

In the end though, judging always involves certain amount of subjectivity. In an effort to add an element of consistency among all the Judges, this document describes the judging criteria and some common questions and issues that come up during judging.

Judging Criteria

Per section 7.6.1 of the BattleBots Tournament Rules, a BattleBot's performance is based on the evaluation of three criteria. Each of the criteria has a point value, as follows:

Damage   **5** points

Aggression **3** points

Control   **3** points

Judges should try to think of the three criteria as being as mutually exclusive as possible.

Based on their observations of a Match, each Judge assigns points to one or the other of the competitors. The competitor with the most points is that Judge's choice for the winner. The winner is then determined by the decision of a majority of the Judges.

Each of the criteria is described further below. Read through the questions and answers for suggestions on how to judge specific situations.

Match Information Cards

Prior to each Match, BattleBots will provide cards for each competitor to fill out; giving them the opportunity to describe how they plan to use their weapon(s), their attack and defense strategies. It can also indicate Bot configuration changes and any other special considerations about their Bot (e.g., it uses ablative armor). The cards are for informational purposes only, and are intended help the Judges better understand each Team's actions during the Match.

Damage

"Damage" means that through deliberate controlled action, a BattleBot either directly (or indirectly using the Arena hazards) reduces the functionality, effectiveness or defensibility of an opponent. It is <u>not</u> considered Damage if an opponent BattleBot inadvertently harms itself. Also, if a pressure vessel or a rapidly spinning device on a BattleBot fragments, any damage to the opposing BattleBot will not be considered "deliberate" and thus should not count as Damage.

Use all of the following factors together to get an overall impression of a BattleBot's Damage:

- **Functionality:** There is a wide variation in the "functionality" on different Bots. One Bot may have a single weapon while another may have multiple weapons and a self-righting mechanism. In general, a Bot that has more functionality should be penalized less for the loss of any single function.

- **Effectiveness:** Not all damage to a BattleBot's functional parts should be counted equally. Certain functions on a Bot are more important to a Bot's effectiveness than others. Damaging an opponent's drive system (reducing or eliminating mobility) should count more than damaging a weapon. Damaging a primary spinning weapon should count more than damaging a self-righting mechanism.

- **Defensibility:** Refers to reducing an opponent's protective capability. Typical types of defensibility reduction include damage to armor, anti-wedge skirts or the basic chassis frame.

Q: What is Cosmetic Damage?

A: Cosmetic damage is defined as scratched paint or armor, or minor dents or scrapes that do not reduce the functionality, effectiveness or defensibility of a Bot.

Q: How do I know what Cosmetic Damage was done during the match?

A: When the Bots enter the Arena, the Judges should note any obvious Cosmetic Damage from previous matches. If there are questions after the match, a Judge can query other Judges and/or the combatants in accordance with the guidelines in the Tournament Rules document.

Q: What is Ablative Armor?

A: Ablative armor is an outer non-structural layer designed to absorb the impact of an attack by breaking apart when hit by an opponent. Examples of this are large pieces of wood or plastic. Damage to Ablative Armor is treated as Cosmetic, but should count as more Damage than dents or scratches. If a Judge is unsure if a damaged exterior was intended to be ablative, they should consult the Match Information Card, and/or ask the combatant in accordance with the Tournament Rules.

Q: How do I judge Damage if only one Bot has detectable Damage, even if Cosmetic?

A: If one Bot inflicted detectable damage on its opponent, and its opponent never caused damage in return, a strong advantage should be given to the attacking Bot. However, if its opponent did cause some damage in return, the opponent should receive some consideration for that damage.

Q: How do you assign points for Functional Damage?

A: If one Bot appears to have less Functional Damage than the other, a Judge should allocate the points depending upon the relative amounts of damage. It could be reasonable in some cases to award all five Damage points to one Bot. In general, loss of Effectiveness (as defined above) should count more than loss of Defensibility. Damage causing seriously reduced mobility should count for somewhat more than damage to a weapon system. If both Bots appear to have equal Functional Damage, award three Damage points to the Bot with the least additional Cosmetic damage.

Q: What about self-inflicted damage?

A: Self-inflicted damage (such as driving over the Kill-Saws) should be considered to be Cosmetic Damage, unless the damage adversely affects the Bot's functionality (maybe it should have had better armor on the bottom). Self-inflicted damage could also reflect poor Control.

Q: What kind of smoke is "normal"?

A: Pneumatic weapons may release short puffs of white "smoke" as part of normal operation. Limited amounts of dark smoke coming from skidding tires or slipping drive belts may mean nothing. However, if the smoke is generally continuous, it may mean that something is rubbing against a wheel, or that a rotating weapon has been damaged.

Q: What kind of smoke indicates Damage?

A: Obvious amounts of white smoke (possibly accompanied by flames) coming from a Bot is likely due to batteries or a motor-controller overheating. Even if the smoking and flame stops, the batteries or controller will have lost functionality, and thus such smoke should be considered "Damage", even if the weapon and/or movement do not appear to be affected.

Q: What do flames indicate?

A: If the flames are accompanied by considerable smoke, the Bot has been Damaged. If a Bot with a flame system shows continuous flames coming from the interior of the Bot (but little smoke), it probably just indicates that the propane storage tank has been damaged. However, the burning gas may also cause other internal damage, so watch for any reduced functionality.

Q: What about damage due to an opponent's flame system?

A: Typically, flame systems don't cause more than Cosmetic Damage to the exterior of a Bot. However, a flame weapon can burn rubber wheels, ignite wood ablative armor or melt plastic armor. In some cases, the flame may penetrate the exterior of the competing Bot and damage internal components. If a Bot that has been "attacked" by a flame system immediately starts showing reduced capability, there may be internal Damage from the flame.

Aggression

The "Aggression" of a BattleBot is judged based on the frequency, severity, boldness and intent of attacks deliberately initiated by the BattleBot against its opponent.

Use all of the following factors together to get an overall impression of a BattleBot's Aggression:

- **Frequency:** The number of attempted attacks during the match. If the opponent Bot moves to avoid an attack, that should still count as an attempt.
- **Severity:** The intensity or forcefulness of each attack. Is the Bot being used with full effectiveness against its opponent, or just making love-taps?
- **Boldness:** The risk-taking of each attack. Is the Bot attacking with a weapon (which could be damaged), or simply hitting the other Bot with an armored wedge?
- **Intent:** Was the attack intended to go after the other Bot, or just a random hit? If a Bot appears to have accidentally damaged an opponent, that act will <u>not</u> be considered Aggression.

Generally, using (or attempting to use) a powered weapon should count more toward Aggression than simply attacking by ramming the other Bot.

If both Bots exhibited about equal Aggression, award more points to the Bot that used its weapon(s) more often or more effectively.

Q: Should avoiding contact with an opponent count against its Aggression?

A: Not necessarily. If a BattleBot is moving away from its opponent in order to get its weapon ready for attack, moving away should not count against Aggression. Examples are when a spinner-bot is spinning-up, or when a pincer-bot is repositioning its weapon. However, if the Bot continues to avoid its opponent when the weapon appears to be ready, that <u>should</u> count against its Aggression.

Q: Does pushing a Bot into an Arena hazard count as Aggression?

A: The act of pushing can count somewhat as Aggression, but this is primarily a Damage action. Just pushing another Bot around the Arena should count as far less Aggression than ramming, though it may enhance the Control score.

Q: What about attacking by ramming?

A: Attacking a Bot by ramming, rather than by using a weapon, counts less toward Aggression than if a weapon is used. However, if the weapons on both Bots are disabled and the Bots are ramming each other, then the frequency and boldness of the attacks should be considered when deciding which Bot was more aggressive.

Q: How can lack of weapon use affect Aggression?

A: If a Bot has a functional weapon but never uses the weapon (or uses it only with little effect near the end of a Match), that Bot should not receive all of the Aggression points, regardless of how much aggression it showed.

Q: Could losing weapon/drive power near the end of a match affect Aggression?

A: Losing weapon power near the very end of a match should not count against Aggression, which should be judged by the Bot's actions up to that point.

Q: Does using a flame count as Aggression?

A: Flame systems are not considered to be weapon and using a flame does not count as Aggression. However, use of a flame system could contribute to Damage.

Control

The "Control" of a BattleBot is the ability of the BattleBot's Operators to move their BattleBot in a specific and deliberate manner. Control means a BattleBot is able to attack an opponent at its weakest point, use its weapons in the most effective way, and avoid being damaged by the opponent's weapons. Control also may count when two Bots are in a "shoving match" if one Bot is able to have more influence on the combined movement of the Bots.

Use the following factors to get an overall impression of a BattleBot's Control:

- How well is a Bot able to dictate when and how it attacks its opponent?
- How well does the Bot avoid putting itself in the path of another Bot's weapon?
- How well does the Bot avoid the changing Arena Hazards (e.g., the Kill Saws)?
- How well does an Operator compensate for Damage (e.g., a broken wheel) that the Bot may have sustained?

Control is about maneuvering and placement. Don't be overly impressed by a Bot moving quickly in a straight line across the Arena. Observe how well it moves to advantageous locations and how well it avoids opposing weapons and Arena hazards.

Q: How does a Bot getting stuck to the Arena reflect on Control?

A: Bots can become stuck to hazards or other parts of the Arena in many ways. If a Bot gets stuck due to its own action, it was probably due to poor Control. If the Bot got stuck due to the actions of its opponent, that may demonstrate superior Control by the opponent. If the Bot subsequently frees itself, the Control factor would depend upon what actions it used to get unstuck.

Q: Could freeing a stuck opponent reflect on Control?

A: Yes, if freeing the opponent was apparently due to poor driving control. However, if a Bot appears to have deliberately freed an opponent, it should not count against the Bot doing the freeing.

Multi-Bots

A "Multi-Bot" is a group of two or more Bots from the same Team that operate together as a single "Bot". All of the Bots must have a weapon capable of doing damage to an opponent. The only exception is that a "MiniBot" is not required to have a weapon. A MiniBot cannot weigh over 20 pounds and may simply be a box on wheels with a wedge or flame system.

A point to keep in mind is that each Bot that is part of a Team's Multi-Bot will usually have its own Operator.

Configurations

Many configurations of Multi-Bots are possible, but most fall into one of three categories:
- A single large Bot with a weapon, and a single MiniBot.
- Two medium-sized Bots with weapons, possibly with an additional MiniBot.
- Multiple smaller Bots with weapons

A possible MiniBot is a drone-copter with downward flames. Some drones may have other weapons designed to attack an opponent's drone.

In general, due to their small size and weight, MiniBots rarely do any significant damage to the larger Bots.

Multi-Bot Judging

Judging Multi-Bots can be more difficult since there will be more than two Bots in the Arena and there can be a considerable size disparity between the robots. As a result, the judging criteria have to be modified somewhat:

- **Damage:** Concentrate on the Damage to the larger Bots (those with weapons. Damage to MiniBots without weapons should usually be considered to be more like Cosmetic Damage.

- **Aggression:** Attacks by a non-weapon MiniBot should count for very little compared to attacks by larger Bots with effective weapons.

- **Control:** Judging Control is complicated by the fact that there are multiple operators. If there are just two large Bots, try to gauge the control of each and average the two. Actions of the MiniBots generally should not count.

As a general rule, those Bots with effective weapons should be most heavily factored into the scores; ignore the actions of a MiniBot without a real weapon. However, when assigning Aggression and Control points, effective use of a non-weapon MiniBot could affect how the points for each criteria are split.

GENERAL TOPICS

Judges' Responsibilities

In certain cases, the Judges may need to confer with each other, or with other BattleBots personnel.

- Judges may discuss among themselves technical or other information about the identity, starting square color, or features of one or more of the competing BattleBots. They may also discuss robot actions or other Arena events that occurred during the Match. However, Judges must not discuss their final scoring values with one another until after their decisions have been publicly displayed.

- If a Judge has a question for a contestant, they should try first to relay their question through a Referee. If that is not satisfactory, the Judge(s) may discuss the matter directly with the Contestant(s). Any time a Contestant is being questioned, at least one member of the opposing Team must be present as an observer.

- If a Judge believes that one Team's BattleBot is violating a Tournament Rule, he or she should inform a BattleBots official of the violation as soon as practical, or else immediately after the Match has completed. Once the official has been notified, the Judge has no further responsibility in the matter.

Judging Damage

Judging Damage requires some understanding of BattleBot materials and functionality:

- Some materials such as Titanium will send off bright sparks when hit or cut by saws, but may be largely undamaged. Other materials such as Aluminum might be dented or gouged by the same actions, but with no sparks. Judges should try to not be influenced by things like sparks, but rather how deep or incapacitating a "wound" is.

- Try not to be unduly influenced by highly visual damage that doesn't affect a Bots functionality, effectiveness or defensibility. A visible gash in a Bot's armor may only minimally reduce the armor's functionality. Loss of a large, non-moving spike may only have a minor effect on the Bot's offensive capabilities.

- Look for damage that may not be visually striking but affects the functionality of a Bot. Some examples:
  - A small bend in a lifting arm or spinner weapon may dramatically affect its functionality by preventing it from having its full range of motion.
  - A wobbly wheel indicates that it is bent and will not get as much traction.
  - Cuts or holes <u>through</u> the armor means there is possibly more Damage inside

Overall, the best way to judge Damage is to observe how the Bot functions before and after the damage occurred.

Rumbles

Judging for Rumbles is slightly different than for the one-on-one matches since, if two or more Bots are functioning at the end, there are no "Knock-Outs". During a Rumble, a Bot may appear to be temporarily unresponsive, then become functional again. This may be a mechanical malfunction, or it may be a "fake" by the Operator to lure other Bots. In either case, this should negatively affect the Bot's Aggression score.

Keeping Track

A competition Match can be fast-moving and chaotic, with potentially several Bots moving around. Some BattleBots are very similar looking. You do not want, at the end of a Match between two flipper-Bots, to be uncertain which Bot is which.

It's a really good idea to use written notes during each Match. Some examples:

- When the Bots are entering the Arena, draw simple pictures of them along with their names. Note distinguishing marks, features, colors and any existing Cosmetic Damage. For Multi-Bots, note which smaller Multi-Bots are associated with which larger Multi-Bot(s).

- Keep written track of Aggression, Control and Damage from the beginning of the Match until the very end. Don't be unduly influenced by what happens at the end of the Match. These records can be as simple as hash marks made as the fight progresses.

Also, make notes from the Match Information Cards about any Bot features or Team strategies that you consider important.