

Q&A4_Online

For questions received by June 15, 2021.

New questions and answers from June 16, 2021 to Aug. 15, 2021 are shown in the red letters.

New questions and answers including revised answers from Aug. 16, 2021 to Oct. 15, 2021 are shown in the blue letters.

New questions and answers including revised answers from Oct. 16, 2021 to Nov. 15, 2021 are shown in the blue letters

Note that the Q&A is only intended to explain the game rulebook, and it is not the basis for the judgement in the game. The only basis for the game is the rulebook.

Please send your questions after carefully reading the Rulebook and express your meaning as clearly as possible. Thank you in advance for your cooperation.

If you can't find the answers for the question you submitted in ASK page of ABU Robocon official website, these questions may fall into following two situations:

1. The answer to the question can be found directly from the rulebook.
2. They duplicate with other question.

1 Terms and Definitions

Q1-1) Real Rule 1.8 says that " they can extend into the space above the Fence and touch the inner side of the Fence." Does this apply to the online rules as well? In online rules, there is no description of TR's movement above the Fence.

A: The Real Rule 1.8 does not apply to the online game. As stated in the response for Q2.4-16), the robot TR or AR shall not touch the top of fence or extend into space above it. It is strongly recommended that they stay as far from the fence between the throwing area and the scoring area as possible when they throw arrow to avoid misjudgment by the referee.

2 Game Procedure and Competition Tasks

2.1 Game Facilities and Score Objects

Q2.1-1) What is the arrow made of? carbon fiber tube solid or carbon fiber tube hollow

A: The Arrow Body is made of hollow carbon fiber tube.

2.2 Before the Game Starts

Q2.2-1) Can team members hold the remaining Arrows outside the field as mentioned in online rule 2.2.4 and set Arrows on the jig before replenishing them to the Rack?

A: Using a jig when replenishing is allowed. The jig must be moved out of the game field immediately after replenishing. But, you said a wrong time to put the arrow on the jig. As per Rule 2.2.4, the remaining arrows, before the game start, can only be put on the off-field ground near the storage zone SZ. It means that the remaining arrows can't be put on the jig before the game starts.

Q2.2-2) Can the remaining arrows shown in the Q&A2.2-1 be placed anywhere as long as they are in full contact with the ground near the storage zone, and not touching the jig?

A: There is no strict requirement for the placement of the remaining arrows, but they must appear in the field of view of at least one camera.

2.3 At the start of the game and during the game

Q2.3-1) Is it possible to use auxiliary equipment etc. when setting an arrow on the Arrow Racks in Rulebook 2.3c?

A: It is allowed to use no powered auxiliary tools for arranging Arrows on the Arrow Rack, providing that those tools should not damage the Arrows, and they must be removed from the game field immediately after setting arrows.

Q2.3-2) In online rule 2.3.c, "During the game, when an Arrow Rack is completely empty, one assigned team member can enter into the field near the Arrow Rack to replenish the five (5) spare Arrows to the Rack". Does this mean that one team member must enter into the field when replenishing Arrows? Specifically, can team member replenish arrows from outside the field using a jig? Also, can the robot be moving when replenishing?

A: You should understand that the meanings of word "can" and word "must" are different. Team member can replenish arrows from outside the field using a jig or tool. The robot can move when replenishing, but the safety of team member must be ensured.

Q2.3-3) In online rule 2.3.c, "During the game, when an Arrow Rack is completely empty, one assigned team member can enter into the field near the Arrow Rack to replenish the five (5) spare Arrows to the Rack". In this case, is it necessary to decide in advance who will replenish the Arrow and inform the referee? Can we change the person who replenishes the Arrow to another team member during the match?

A: It doesn't matter who will replenish arrows. It is important to know that only one team member is allowed to replenish the arrows.

Q2.3-4) When setting an arrow on the Arrow Racks in Rulebook 2.3.c, according to Q2.3-1, we can't use a powered jig to refill arrows. Are each of the following cases allowed? 1. A jig equipped with a mechanism that uses air pressure to move an air cylinder. A team member equips an air tank and connects a tube to the jig to make it work. The air tank will be refilled manually before the match. 2. A jig that grasps arrows by spring force; arrows are refilled by unfastening the spring with human hands.

A: They are all not allowed. "No powered" or "unpowered" means no using of any power source. Compressed air and elastic force are all power sources as said in Rule 4.8 a).

2.4 Tasks of Robots

Q2.4-1) In Rulebook 2.4.1 2.4.2, can TR and AR shoot arrows at the same time?

A: Yes, they can.

Q2.4-2) In Rulebook 2.4.2, can AR pick up an arrow from Arrow Racks?

A: It is allowed providing that the five (5) Arrows preloaded on TR and/or DR are used up.

Q2.4-3) Can AR receive arrows from TR directly?

A: No, it is not allowed.

Q2.4-4) The 5 arrows preload on the TR robot only. When the AR robot starts, can it immediately pick up the arrow on the arrow rack while TR throws the arrow?

A: No. AR must wait for TR to throw out the 5 preloaded arrows before taking the arrows from the arrow rack.

Q2.4-5) When 5 arrows are preloaded on both robots, if one robot has thrown all the arrows it is carrying, can that robot immediately take the arrows on the arrow rack? Does the robot have to wait until the arrows on both robots have all been thrown?

A: Yes, the robot must wait for both robots to throw out all the five preloaded arrows and then take the arrows from the rack.

Q2.4-6) Can AR retrieve arrows from arrow racks after arrows from previous arrow racks have been picked up by TR but not yet used?

A: Yes, it is allowed, providing that the arrow rack is not empty.

Q2.4-7) Can TR throw arrow at the same scoring spot but different pot before?

A: Yes, it is allowed. The Rule 2.4.1 in the ABU Robocon 2021 Online Rulebook does not restrict for it. Please pay attention to the differences between two rulebooks for real and online contests.

Q2.4-8) In rule 2.4.1b, "it can only throw one (1) Arrow each time. Before the Arrow enters into a Pot or lands somewhere, it can't throw out next Arrow". 1) At what point is a thrown arrow considered to have entered the pot? For example, when a part of the arrow enters the pot, is it allowed to throw the next arrow? 2) At what point is a thrown arrow considered to land somewhere? For example, when an arrow hits the field and is rebounding and floating, is it allowed to throw the next arrow?

A: 1) Only after the arrow enters into a pot and does not move, it can be considered as entering into the pot, because it may also rebound out from the pot. 2) Only after the arrow lands on somewhere and does not move, it can be considered as landing on somewhere, because it may also rebound and enter into a pot.

Q2.4-9) Rule 2.4.2(c) says "AR can pick up the Arrows that landed on the ground of the Scoring Area or the Throwing Area". (i) If the Arrow lands on a Pot Table (for both type I, II and III) (instead of on the ground of the Scoring Area), can AR pick up the Arrow? (ii) If AR can pick up the Arrow landing on a Pot Table, can AR touch the top surface of Pot Table? (iii) If AR cannot touch the top surface of Pot Table, can AR touch the Arrow such that it falls back on the ground of the Scoring Area, and then AR pick it up?

A: The rules for online contest have evolved from the rules for real contest, and some where there are traces of the latter. One example is that "AR can pick up the Arrows that landed on the ground". In the real contest, to prevent robots from getting too close to the pot and the pot table and blocking the opponent, this rule was made only. In the online contest there is no opponent, also no blocking, so it is unnecessary to limit the robot from picking up arrows only on the ground. It is also OK to take out the arrow which is already in the pot if you wish.

Q2.4-10) If an Arrow is in contact with both Pots (described in Rule 2.6.3, Fig. 5), can AR touch the Arrow such that it falls back on the ground of the Scoring Area, and then AR pick it up?

A: It can, and it is allowed for AR to pick up the arrow directly. However, such an action is risky. If the arrow falls into a pot in the process, it will be judged as AR violates the rule because it throws arrow into a pot.

Q2.4-11) Rule 2.4.2(c) says "AR can pick up the Arrows that landed on the ground of the Scoring Area or the Throwing Area and throw/put them into the Throwing Area or directly deliver them to TR running in the Throwing Area." After AR picks up the Arrows, can AR directly carry the Arrows to go to the Throwing Area to throw them by itself (instead of the above-mentioned options)?

A: Of course, it can. The AR, with arrow(s) into the throwing area, is another TR.

Q2.4-12) Rule 2.4.2(d) says "During retry, the team members can adjust and change the position of the Arrows carried on the robot." (i) After AR picks up Arrow(s) in the Throwing Area, provided that the Arrow(s) are not in contact with the ground, can the team call for retry and then reposition the Arrow(s) on AR when AR is in AR Start Zone? (ii) After AR picks up Arrow(s) in the Throwing Area, provided that the Arrow(s) are not in contact with the ground, can the team call for retry and then reposition the Arrows before AR is back into AR Start Zone?

A: (i) Yes, you can. It is even allowed to set the arrow having been picked up onto the throwing

mechanism. (ii) It is not allowed. Reposition of the arrow is a retry action and can only be made in the retry area, which is the starting area then.

Q2.4-13) Q&A1_Online Q2.4-7 mentioned "TR can throw arrow at the same scoring spot but different pot as before." (Note that this is specifically for DIFFERENT pot but same scoring spot.) After scoring in one pot, can I score in the same pot using the same robot right afterwards? Or that the robot must aim for another Pot?

A: Q2.4-7 only asked "Can TR throw arrow at the same scoring spot but different pot before" and the reply of "It is allowed" was not wrong but incomplete, so added a sentence "The Rule 2.4.1 in the ABU Robocon 2021 Online Rulebook does not restrict for it. Please pay attention to the differences between two rulebooks for real and online contests". If you carefully compare the two rulebooks for real and online contests, you will find that in online contest, robot is not required to turn to another pot after scoring in a certain pot.

Q2.4-14) Online rule 2.4.1.b) says "TR can throw or launch Arrows to any Pot in the Scoring Area from any location in the throwing Area.". Can TR throw Arrows at the same Pot two or more times in a row?

A: Yes, it can.

Q2.4-15) Q&A1_Real 2.4-6 says "Can DR take arrows from pots of own team in order to shoot the arrow again or use it for blocking opponent's shooting? A: The arrow in your team's pot has been scored. If you want to give up this score, your DR can take it out, but can't put it back again. If you want to use the removed arrow for other purpose, should be careful not to violate other rules."" Once an Arrow is removed from the Pot, can we use that Arrow to throw from the Outer Area into the Pot to get score again?"

A: Sorry, your question is unrelated with the online contest.

Q2.4-16) About the fence that separates the throwing area from the scoring area, which area is above this one? Can the orthographic projection of the TR overlap above this fence?

A: The space above the fence does not belong to the space above the throwing area. TR or AR can touch the top of the fence and extend into the space above the fence.

2.5 Retry

Q2.5-1) In online rule 2.5.f, "After necessary adjustments to the robot, the team members can start the robot themselves." In the retry, can the team members start the robot at their own decision without a referee's permission?

A: Yes, they can. However, it should be noted that once the retried robot is restarted, the retry process has been finished.

2.6 Scoring

Q2.6-1) In rule 2.6.3, "If an Arrow contacts with both Pots and/or Arrows in these Pots, it can score, but it is not the Arrow in a Pot and it is not considered as an Arrow in a "twinning", shown in Fig. 5.". If two or more Arrows contact with both Pots and/or the Arrows in these Pots, are they considered as Arrows in a "twinning"?

A: As stated in Rule 2.6.3, if there is one arrow in each pot of a scoring spot, it can be considered as a "twinning". The arrows you mentioned, whether they are single or more, are not in the red or blue pot, thus are not considered as "twinning". But they meet the scoring criteria and can score.

Q2.6-2) If in a scoring spot which wants to achieve 3 "twinning", there are 3 arrows in the red pot while 2 arrows in the blue pot and 1 lying horizontally on the blue pot without touching the red pot, is it considered as 3 "twinning" or 2 "twinning" & 2 single points?

A: 3 "twinning".

2.7 End of the game

3 Deciding the winner

4 Robot

Q4-1) 4.6 c) states that the team member operating the AR should be outside the game field and there is no such restriction for the team member operating the TR. And 2.4.2 e) states that when AR is in the throwing area then it can be treated as another TR. So when TR is already present in the throwing area and the AR enters the throwing area to throw the arrows can the team member operating the AR enter into the game field?

A: When you read the rulebook, you must pay attention to the context. The first sentence of Rule 4.6 c) is intended to state that AR can only be operated wirelessly, although it mentions that the operator is outside the game field, but not important. The second sentence is intended to show that the TR can be operated both wirelessly or through cable, and the position of the operator is equally unimportant. Since the first sentence has stated the position of the operator, there is no need to repeat in the second sentence. Read the last sentence of 4.6 c), Both wireless or cable operation, the team members are not allowed to enter the game field, also 2.3 b), All team members must be outside the game field except during start of operation or retry. Is it very clear about the position of the team members in the game?

Q4-2) According to rule 4.6, "At the game beginning, TR and DR must all be less than 1000mm in width and 1000mm in length". Is it allowed that though robots are less than 1000mm in width and 1000mm in length, they exceed the limitation because robots hold arrows at the game beginning? In short, is it allowed for arrows preloaded to protrude from the 1000mm*1000mm restricted zone?

A: It is allowed, because the arrows held by the robot are not the parts of the robot.

Q4-3) About Rule 4.6c), when a robot is controlled wirelessly, is it allowed for the team member to carry a WiFi access point as part of the controller? If permitted, is the WiFi access point included in the total weight in Rule 4.7?

A: Since your WiFi access point is a part of your controller, also according to Rule 4.7, the weight of the controller must be counted into the total weight, thus the weight of WiFi access point should be counted in the total weight.

5 Violations

6 Disqualifications

7 Teams

8 Others

Q8-1) Appendix3 in the Online Game Rules says, some field facilities and scoring objects, such as the Pot Table, Arrow Rack and Arrow, can be ordered on ABU ROBOCON 2021 website. We wondered,

1. When will you start to sale the objects of ABU ROBOCON 2021?
2. Pot is not mentioned in the examples, will you sell Pot?

A: Due to the high logistics cost, we have decided not to sell ABU ROBOCON 2021 items except arrows. We suggest that you make them yourself to avoid high logistics expenses.