First ATC championship
It's all about safety...

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Generally most people share the opinion that the job of the air traffic controller is primarily focused on the safe and efficient provision of air traffic service and consider it to be too serious to go beyond this.
As a whole this point of view is correct and that is what training for this very interesting profession is based on.

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However, a group of ATCOs have looked at this from a slightly different perspective. While preserving the main principles of the job, they have added a competitive element and an innovative assessment system. Imagine an environment resembling the real ops room with simulated air traffic and contestants in the role of controllers and what you get in your mind is the idea of the authors of this project – an ATC championship.

It is not an easy task to develop a system to evaluate a contestant's performance. Basically there are two approaches to determine if one contestant is better than another. You can have a set of strict rules that determine the result or you can use an oracle[1] to say that "Player "A" performed better than player "B"".

The first approach is used in most sports (e.g. football, basketball, high jump) and computer games. The issue here is to create rules that are simple to use, make the game interesting and challenging and ensure the better player usually wins. If the rules are not well balanced, the players will start to abuse their weaknesses and, unless proper measures are taken, ruin the game and spoil the fun.

The second approach is mostly employed when entertainment is involved (e.g. reality shows where the audience or a jury decides who is the best singer). Some sports like figure skating and rhythmic gymnastics also use it. The problem here is that different people have different tastes and therefore the evaluation is prone to be very subjective and it is quite possible to get (very) different scores for the same performance.

How might we evaluate air traffic control? There are two main components we have to measure – safety and efficiency. The objective evaluation of the safety component is relatively easy – if there is a separation breach, the student / examinee / contestant fails. Deciding whether or not a conflict has been spotted early enough is somewhat difficult, but is still do-able (e.g. by stating that if no adequate action has been taken by 4 minutes before the separation breach, then the student / examinee / contestant has not detected the problem early enough).

1- a 'voice' which is considered to be the source of ultimate wisdom and was traditionally inspired by the gods

or is it?

The problem comes when we try to measure the efficiency of the service provided. Usually there is some mixture of the two approaches leaning toward the "artistic" one. There are some general standards (e.g. Mach number restrictions should be within ± 0.02 of the desired one, etc.). There are also situations where specific standards are applicable (e.g. when vectoring an aircraft in order to climb it above another one that is going the same route, the separation should be between 5 nm and 10 nm). The question here is what happens if the separation achieved exceeds 10 nm, perhaps it is 10.1 nm or 10.2 nm? This is where the oracle comes into play. It is up to the instructor/examiner/jury to decide whether 10.1 nm is a significant misjudgment or not and most people wouldn't consider it so when giving a final mark (and that's the right thing to do). After all, the job is focused on cooperation rather than competition, so in real life "stretching" the efficiency standard a little is not much of an issue.

In ATCO training a person's performance is compared against a minimum standard. This works well enough for the purpose but unfortunately cannot be used to justify that Controller "A" works better than Controller "B", which is exactly what any championship is all about. What is needed is a means of comparing the performance of one contestant against another. The objectivity of the standard suddenly becomes very important. It's unfair to "stretch" the rules for some person and use them strictly when evaluating another.
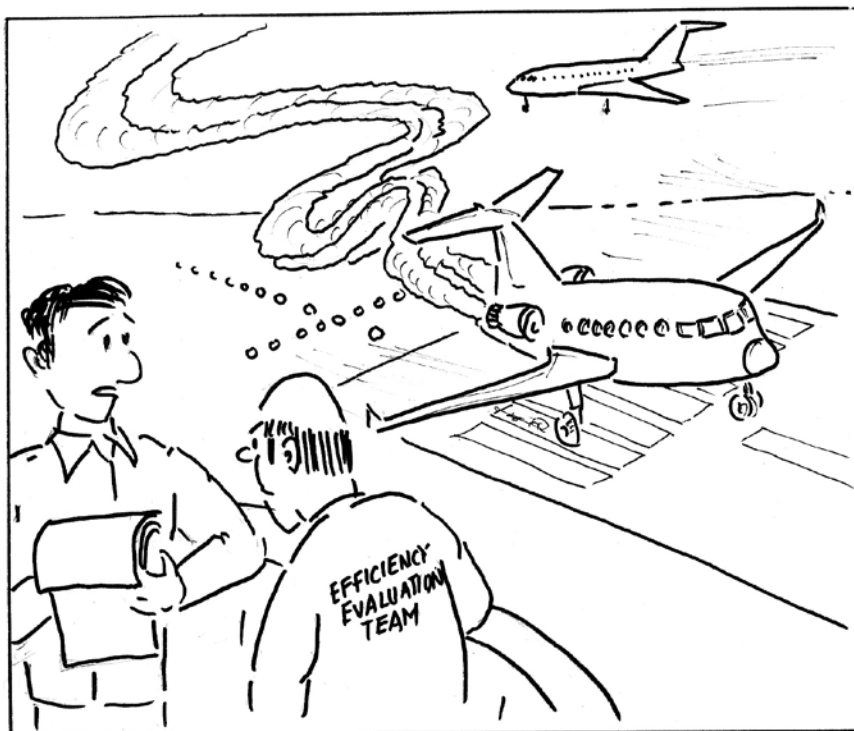
First ATC championship – It's all about safety… or is it? (cont'd)

Creating an evaluation system that would support controller-like behavior while at the same time being simple enough to be used by a machine could never be an easy task. It has to combine the points of view of an air traffic controller, a contestant and a computer. The computer would say "Keep it straightforward and simple, so that I can easily understand". The controller would claim "This solution is the best for this situation". The contestant would (of course) say "I only wish it's fair and just" and would (of course) also think "if only I could somehow find a way to beat the system". Taking into account all three points of view the PLANE system was developed.

The name is an acronym of its main features: Precise, Logical, Accurate and Non-biased Evaluation. PLANE is simple enough to be understood by a machine. It gives the user the freedom of choice and evaluates not just the actions themselves but also the outcome they lead to. One can use vectoring, speed control or a level change to solve any conflict but there is no best method as a general rule. It all depends on the circumstances. Just like in real life. Finally, the system is (supposed to be) tamper-proof. Doing things a controller would not normally do result in penalties that reduce the contestant's score compared to someone who is "doing it right".

Ah, yes, the penalties. PLANE is a point-based system, or, rather, a penalty-based system. Each contestant starts each exercise with exactly 121.5 points and tries to lose as few of them as possible. Most (almost all) actions lead to loss of points. That is not really an issue however, since all contestants are treated the same way. You see, it's not about getting a certain score like it would be in ATCO training. It's about

That rather original last minute vector on short final may only have saved a few seconds, but it certainly deserves a bonus for artistic impression!

getting the highest score amongst the contestants. It's just like any other championship.

So far the PLANE system has been developed for en-route (area) control only. One might argue that this might mean a lack of diversity which could become an obstacle and could spoil the idea after several championships. "We strongly believe that we have a solution." the authors of the project say. "A different block of airspace must be used for each championship. It will be either a real one or one that is actually used for initial ATCO training. And, since each airspace has its own local peculiarities, each event will be very different and will give everyone involved something new to think about To further enrich the experience, additional features will be added every now and then – non standard

situations, special procedures, etc. This could also give us an added benefit. The creation of exercises and introduction of new procedures will be done in close cooperation with professionals from various countries. Over time, this process could help to further harmonise the standards and best practices at an international level."

The project aims to bring together people who have passion for the job in a way that has not been done before – an ATC championship. The best part of it is that when you gather people to do something new and exciting, the outcome will be beneficial for everyone whether you are a professional or not. What matters here is the Olympic Spirit and the attitude towards the air traffic control! ⑤