

ROUTE CHOICE ANALYSIS - LONG DISTANCE

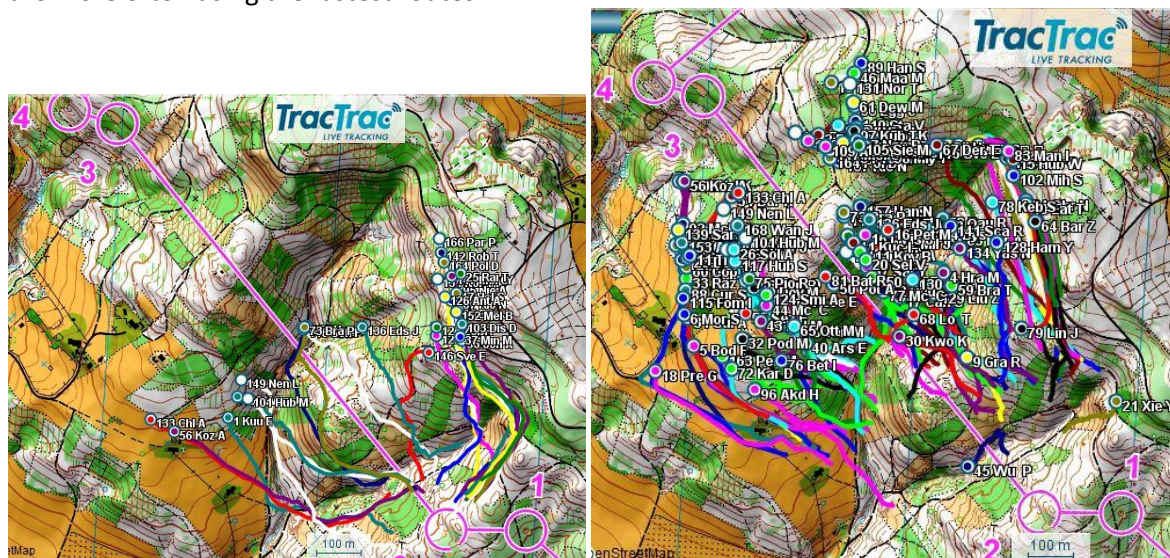
Based on route choice solving and leg execution, facing obstacles, natural challenge. Proper test of running capacity. A flag serves just leg termination and next leg start, rather than as tricky control taking test. Such is the role of long distance in the IOF structure of disciplines, and such was the role of the long within the varied JWOC 2013 concept. From that point of view, the generally underestimated "average continental area" near Odolov suited perfectly to our intentions.

BOYS

The analysis of best male juniors is based on routes of top30 runners, completed by some moments having an impact on top results. As the analysis was originally made for the czech orienteering magazine "Orientacni beh", the czech runners are also displayed here and there.

It is quite obvious, that towards the end of the race, the split times are getting more dependant also on current running capacity, aside of pure route choice decisions.

Still it was quite important to choose a proper race tactics. When comparing the distribution of GPS routes of top30 runners with the distribution of all runners, we can see that the succesfull runners are more often using the fastest routes.

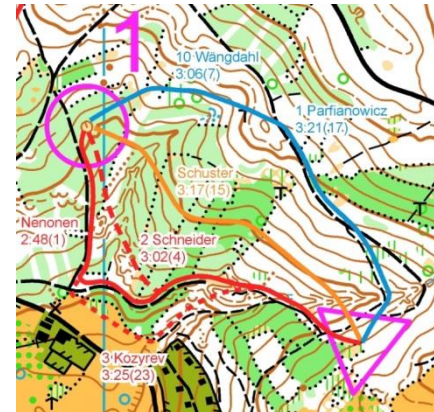


From that point of view, the tactics of the winner Piotr Parfianowicz appeared to be proper. Very effective indeed. Piotr was preferring safe detours, running much on tracks and saving some steep climbing, thus saving power. Moreover, Piotr has run those routes without any unnecessary mistakes, constantly at the proper level of focus.

The analysis provides also comparison with JWOC course testing, which took place in may 2013. Jan Petržela (JWOC double silver 2012) and Pavel Kubát (JWOC long winner 2010), both from one of organising clubs - OK 99 Hradec Králové, have run almost same course then. The whole course at once, without any stop. Finally, their testing performances proved to be incredibly close to the winning time. Those mistake-free performances provided grate basis for final course tuning.

We could also see, that our route choice legs really worked well with respect to the spreading of the field. At most places, each of our 4 test runners namely took different route. After that we have definitely decided for return to traditional, butterfly-free courses. The natural spreading caused by a number of fundamental route-choice legs worked then very effectively during the JWOC race. No need to spoil a course by implementing a butterfly section.

At M20 course there were about 13 legs where a possible route choice fault had a clear impact on leg splittimes. To take all "worse", but still rational alternatives meant a total loss of about 7 minutes - which is equal the final difference between ranks 1 and 30. The proper terrain feeling therefore played its significant role. Several relevant training courses made by JWOC course-setter were offered to make it as fair as possible for everyone.

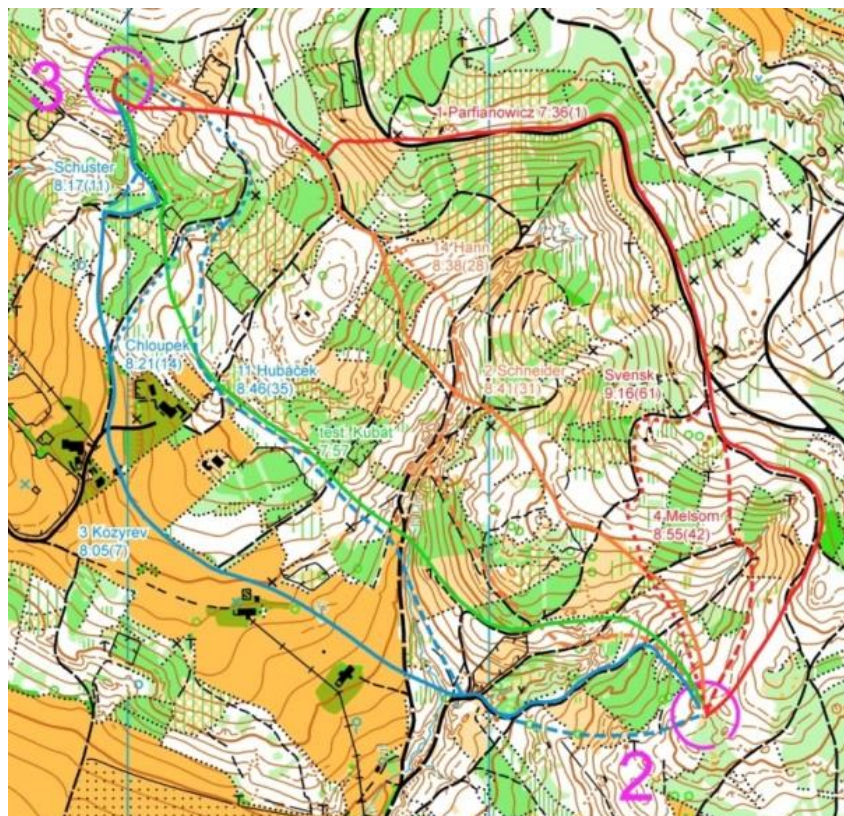


M20 - LEG BY LEG

C1: Short leg, but fundamental decision at the very beginning.

Three alternatives. The decision could have been done while running two hundred meters to the start flag. According to our testing, the lower option proved to be the fastest, despite looking a bit regardless to contours. But navigation was easy there while climbing was same as on upper alternative. Straight alternative was most risky, the runnability of thickets is always a bit uncertain. Czech Marek Schuster was perhaps the fastest one there, loosing about half a minute to the leg winner Nenonen. Both Parfianowicz and Kozyrev are loosing some time directly to the first.

C3: The longest leg desired a very simple solution - to take the uppermost alternative, which completely avoided any steep climbing. About 70% of top30 runners took it, but still there were rather big time differences even inside this group, caused by more or less succesfull descend towards the flag. Some of runners may have lost proper focus up there on the forest road... Parfianowicz has won the leg clearly by as much as 22"! Meanwhile Florian Schneider has lost more than a minute taking it straight. Blue "meadow" alternative of Kozyrev could have been also one of fastest if run optimally. (Worth noticing: each of the medal holders has taken a completely different route here.) Norwegian Borger Melsom has lost a medal by loosing time in a steep slope, which should have been avoided. When testing, Pavel Kubat found a smooth fast way on a lower straight level, which no one of top 30 runners repeated during the race.

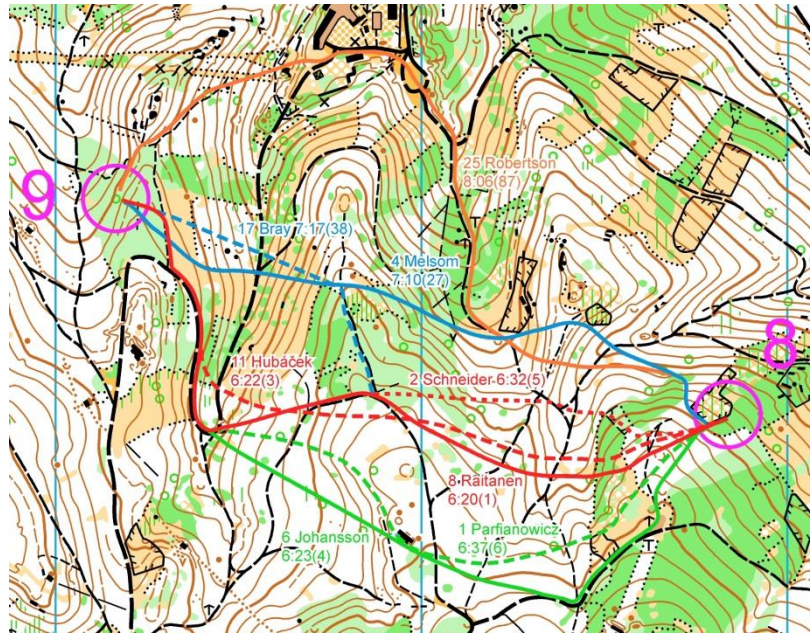


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C7: Another green control. The thicket is quite runnable, perhaps most runnable middle green of the whole area. Still the straight route was rather risky as it was more difficult to relocate when crossing the road then - could have been the case of Kozyrev, who loses a minute here.

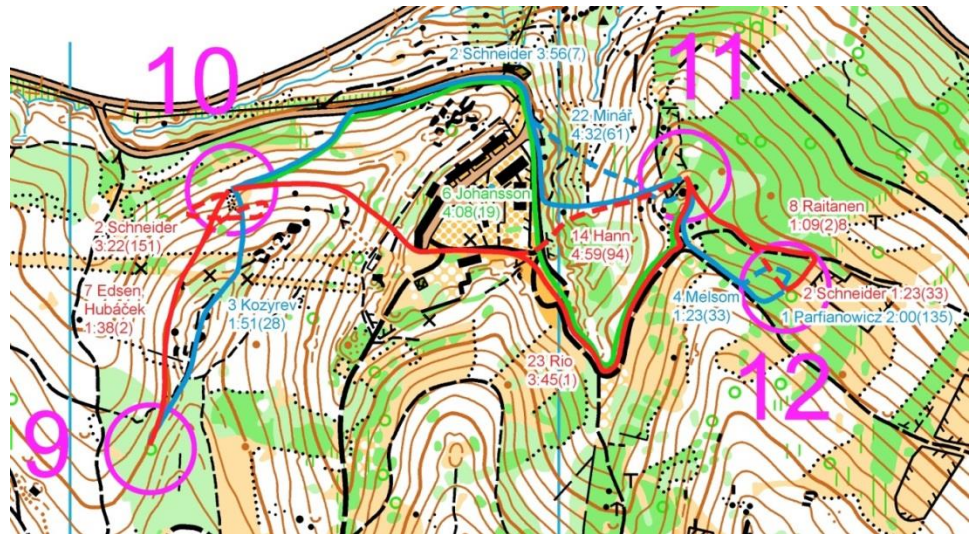
C8: A "last minute" course change, forced by recent cuttings in the slope. Quite a simple leg and a simple control place. Surprisingly quite a big time differences - in many cases caused by attempt to attack the flag from above along the fence, trying to avoid the thicket (average loss of 20").

C9: Various mixture of morphology and vegetation resulted in a large number of alternatives. Almost everyone did his own, somehow unique route here. Most of the best runners did something between red and green routes, these were quite equal. Such was also the course-setting intention here - to keep the runners preferably in upper parts, so that they would not run through same areas as further on. The valley adventure of "young Kiwi" Tim Robertson was rather rare, and cost him eventually ten places. Florian Schneider runs clearly faster than anyone else here, but seems having lost time by control taking. Borger Melsom runs once again straight, which costs him time and power.



C10: The ridge alternative was about 15" slower than the slope - but it was not so important here. The control was namely quite difficult to take - a cliff in a rather steep slope, by foot, flag not visible from above. Unfortunately, Florian Schneider loses as much as 1'40" here - a decisive loss in the battle for gold.

C11: Most of top30 runners choose correctly the red alternative, much comfortable as for climbing. However, many of them are losing time when running out from control over the horizon. Nick Hann has also

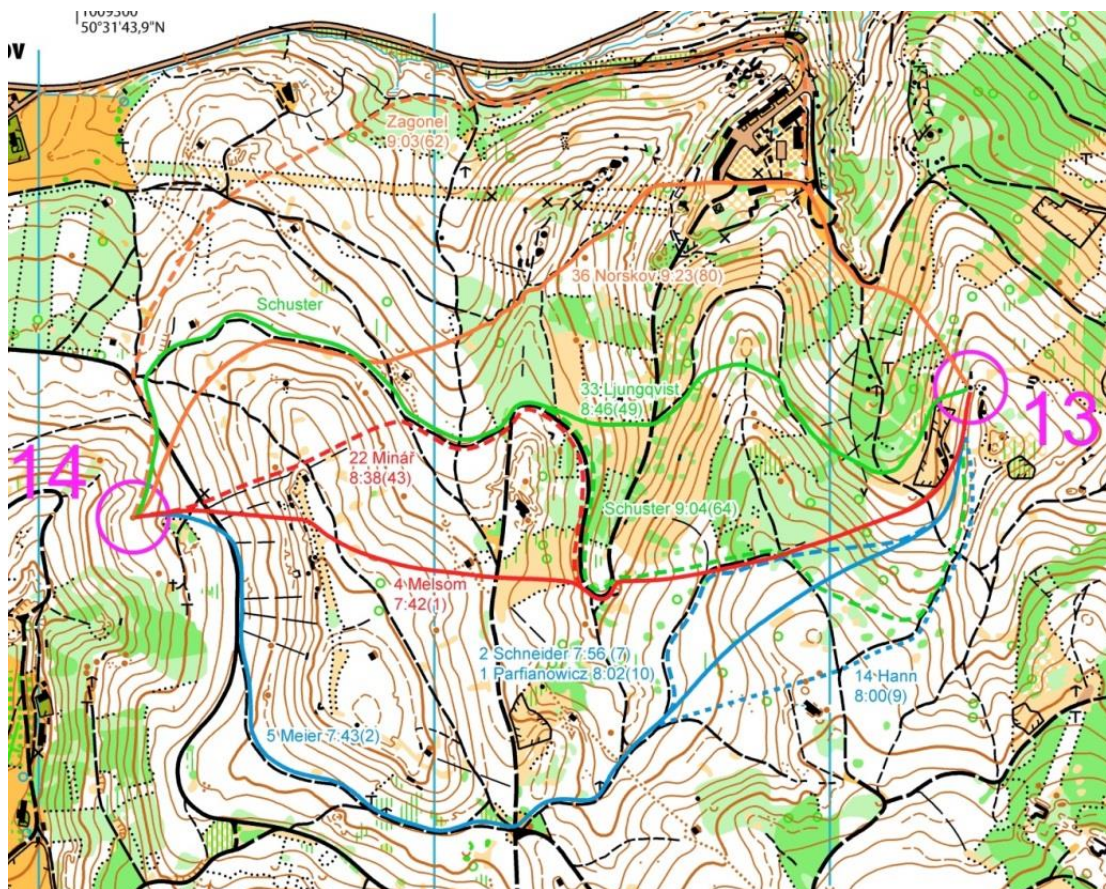


experienced, that crossing the valley at the end was about 40" slower than to take it around (not talking about the slowly disappearing strength).

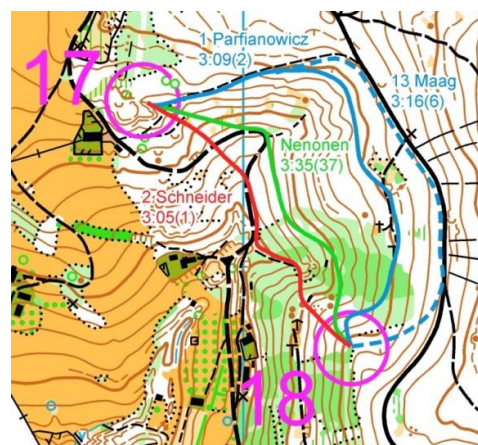
The blue alternative was intended to be a trap for those who would without any proper planning take it down towards the paved road. This was definitely a time loss - except for Florian Schneider, who managed (after previous huge mistake) to run almost equally there. Was he running the red one... Some runners did also a combination of red and blue, which looks crazy, but e.g. Anton Johansson did it quite fast, losing just 20".

C12: Refreshment control. Looks like there is nothing to be solved here. However, the thicket was solid and straight attack through the green was a bit risky (head up and search for the significant tree next to the control). The time difference between the upper and lower track alternatives was about 15-20" then - the lower was faster. Parfianowicz makes a 40" mistake here.

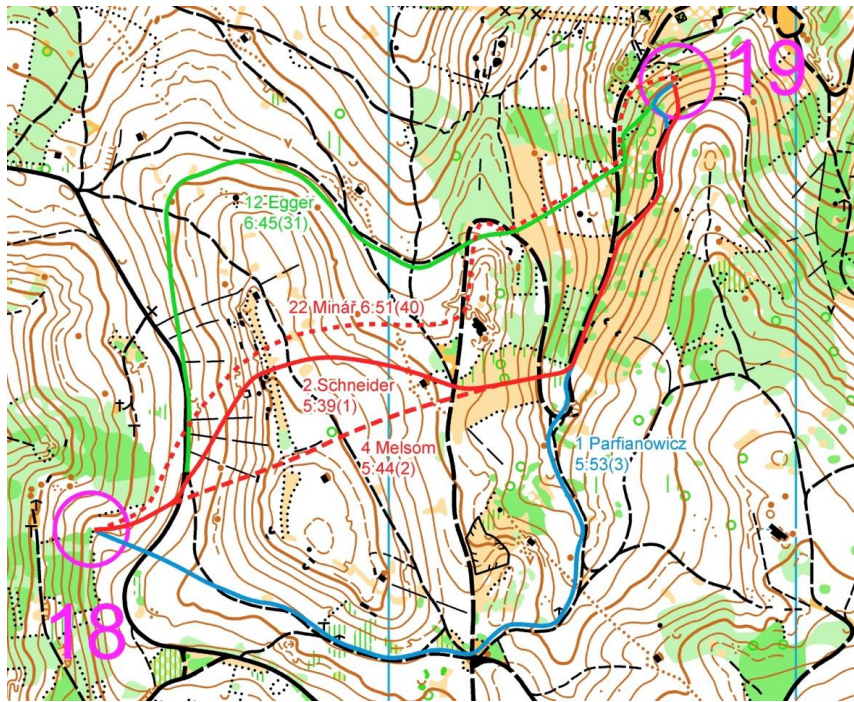
C14: Although the range of alternatives displayed here looks incredible, the reality among top30 runners was more simple. Melsom proved to be really strong, having leg best on the straight route. But no one else could do it fast there. Seems that current physical state starts to influence splittimes quite significantly. Most of top runners did the blue detour around the hill, which was equally fast as Melsom's direttissima and quite simple to implement. On contrary, all alternatives north of Melsom resulted in time loss. Italian Zagonel (71st) did an incredibly long route, where he didn't even save any climbing, while his time is still not a disaster. Would be interesting to see how fast the best guys could do that one... When tested in May, no one of our test runners chose the blue detour, and even during the follow-up discussion this alternative was still not considered to be effective. That's why we were quite surprised that so many runners have eventually used it. Possible explanation could give the recently risen fenced area at the leg beginning, which limited the range of run-out directions and "pushed" runners towards the blue route.



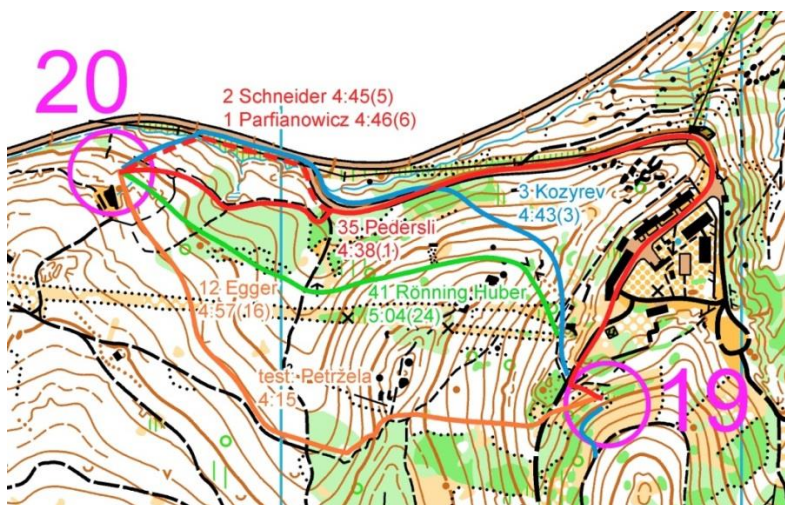
C18: Fundamental option opens the second part of the course after map exchange. Although Schneider is fastest on the straight, perhaps the better one was to take it around as Parfianowicz or Maag. Most runners lost namely more than half a minute to strong Schneider at the straight. The perspective of further ascend when passed nr.18 could also have influence. (While Schneider is beating all theories here when being one of those continuing straight up and winning next leg...) Slope alternatives were slightly slower (note: differences are made also physically here), but once again most risky, as runnability in such a thicket is always a bit uncertain, as mentioned earlier.



C19: Once again, best times are run on the straight, while the blue detour - chosen by most top runners - is just slightly slower. Now it obviously depends much on the running capacity left, and strong will. Despite not making an optimal route (and having climbed a big hill to nr.18), Schneider is fastest here, followed by strong Melsom. The green alternative was not chosen by any of top10 runners, but still it is quite clearly a bit inconvenient, also because of slower control-taking.



K20: When during the test in may Pavel Kubat chooses the long detour on the asphalt road, I was surprised, hardly having counted with such a route. Compared to Jan Petrzela on the left-straight, the asphalt was clearly half a minute slower. So the decision was to keep the leg as it was. The more surprised I was when seeing a huge majority of runners taking this clearly slower option at the end of their JWOC race. Out of all visible GPS records, only one(!) runner - the Swiss Jonas Egger - has taken the fast route of Petrzela. This is almost against the probability distribution laws... According to my belief, all the top runners did a route-choice mistake here. (Having compared the splits, we can see that Schneider was running even slightly faster then Petřela at the end, meaning that he could perhaps be even faster up there.) Also the other fast route (green) was almost left unused, despite being 360m(!) shorter than the red one, having only 15m of climbing more. (The time of Rönning Huber is hardly comparable here as the performance differences at this stage were already too big. According to our testing the route was also possible to be run about 4:15.)



GIRLS

The analysis is based on routes drawn by hand in finish - the girls were not running with GPS. The data mining was then a bit limited. The pool of 25 best runners was selected.

A long distance for girls is rather short - that's why it was even more challenging for a course-setter to create a course including a sufficient number of real classic route-choice legs. Personally I am not fond of any extra long legs in orienteering - my belief is that such a leg significantly limits the number of fundamental decisions made on the course, while it is sometimes almost impossible for an athlete to find the right solution of an ultra-long leg rationally during the race. Such a situation reminds more about a bingo lottery and I try to avoid it.

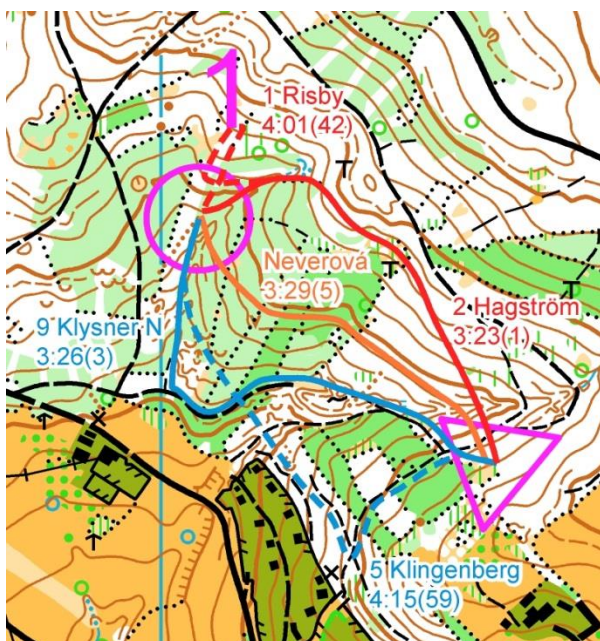
When analysing W20, already from the start it is quite obvious that there are rather big differences among running performances and level of vehemence. We need to keep it in mind when assessing route-choice effectivity. (That's why there are final ranking numbers in front of the names to enable a simple assessment of runner's performance level.)

One interesting conclusion to start with: Lisa Risby - the winner - was losing time on route-choice decisions during large part of her race. But she succeeded in hitting perfect solutions at the end of the course and there she won her gold. Aside of navigation, a very significant component of her great performance was also her running strength in hills.

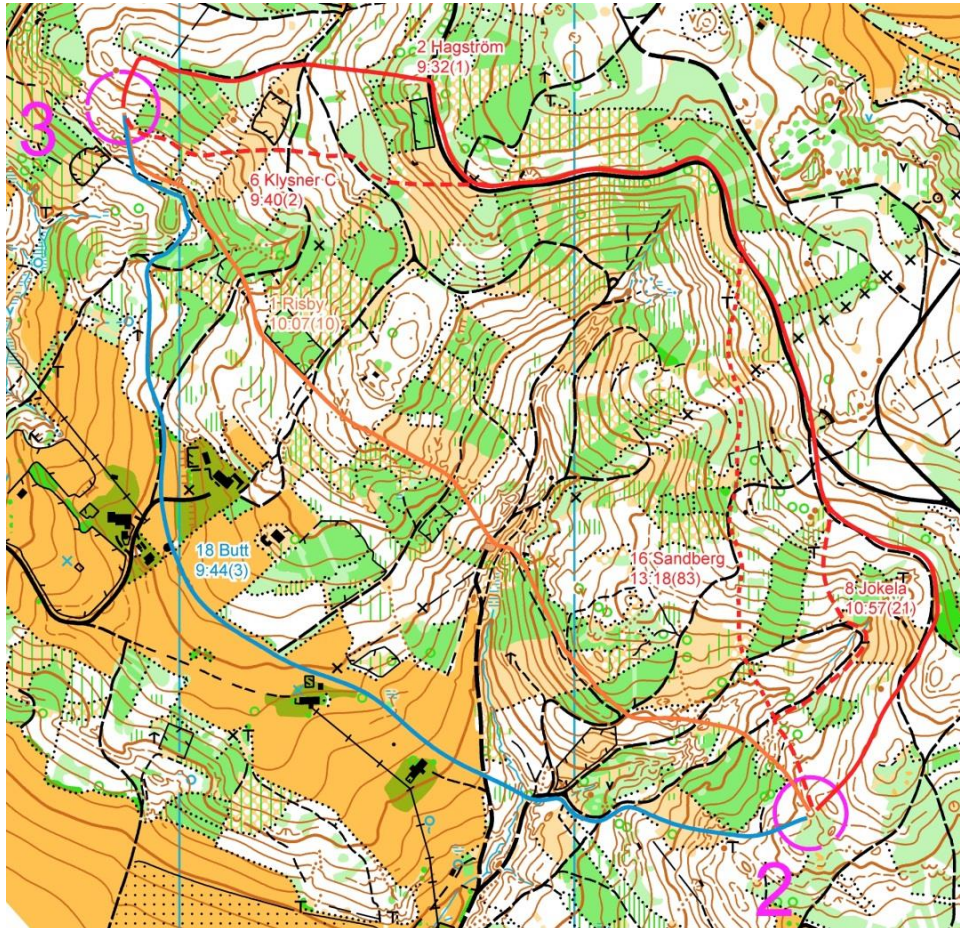
The girls course was not tested for time and the winning time estimation was derived from the boys test results. The official estimation was 59' and personally I hoped for 57' to be closer to the IOF directive. Lisa needed 60:42, having lost totally about 3 minutes on navigation. The calculations were more or less correct. Unfortunately, none of female juniors made a clean race - which on contrary resulted in the dramatic race development.

W20 - LEG BY LEG

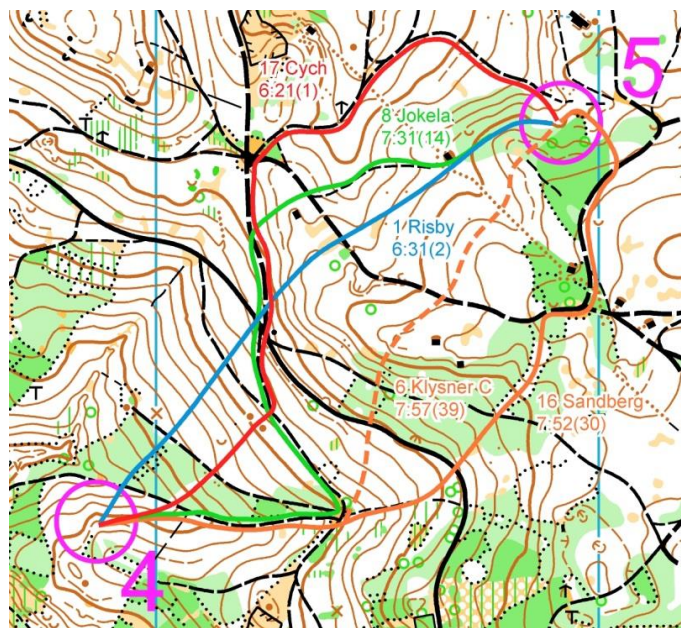
C1: Also girls faced a short-but-fundamental decision right from the start. All three alternatives eventually proved to be equal. Lisa Risby started her golden race by making a control taking mistake.



C3: The longest route of W20 was rather similar as the one of M20 and also the solution was same: to use the upper road and avoid any steep climbing - as Sara Hagström did. (She has a great course start and leads by almost half a minute at this point.) But we can see that also Lucy Butt could note a great split on the "meadow" alternative. The straight alternatives are again a bit slower - Lisa Risby was one of few taking it. Her loss is though not crucial thanks to her strength. Frida Sandberg, one of medal candidates, took an extremely slow option here - the loss of about 3 minutes costs her a podium spot (finished 16th then). Emmi Jokela experiences a similar story - she also lost a podium here.

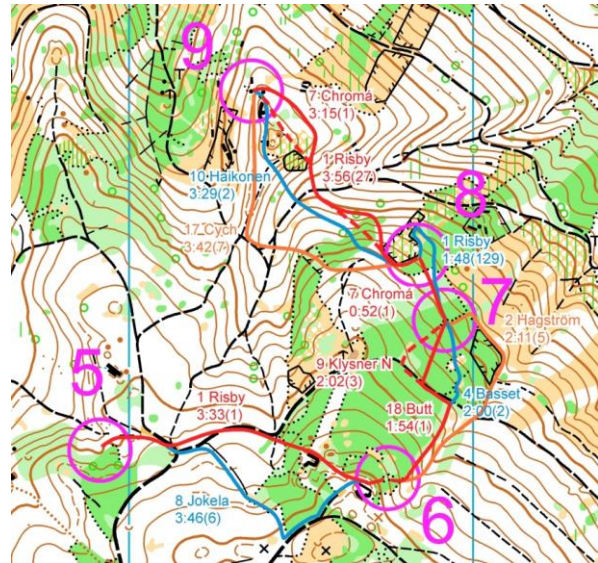


C5: The leg was extremely physical for the girls, about 90m of climbing on 650m. Despite the large variation of routes, running strength was clearly the most decisive factor. Perhaps it was also advantageous to avoid crossing the steepest part of the slope below the edge, which came at the end of a long climb and the slower it might have been.



C6: The beginning of the green section. The control is in east part of the thickets, which opens the possibility to take it around. Nothing significant though. Splits are also influenced by refreshment stop at C5. The control itself is still mostly about control taking (an exception, which makes the course in total more various). Lisa Risby uses the fast white spaces inside the green and picks some time again.

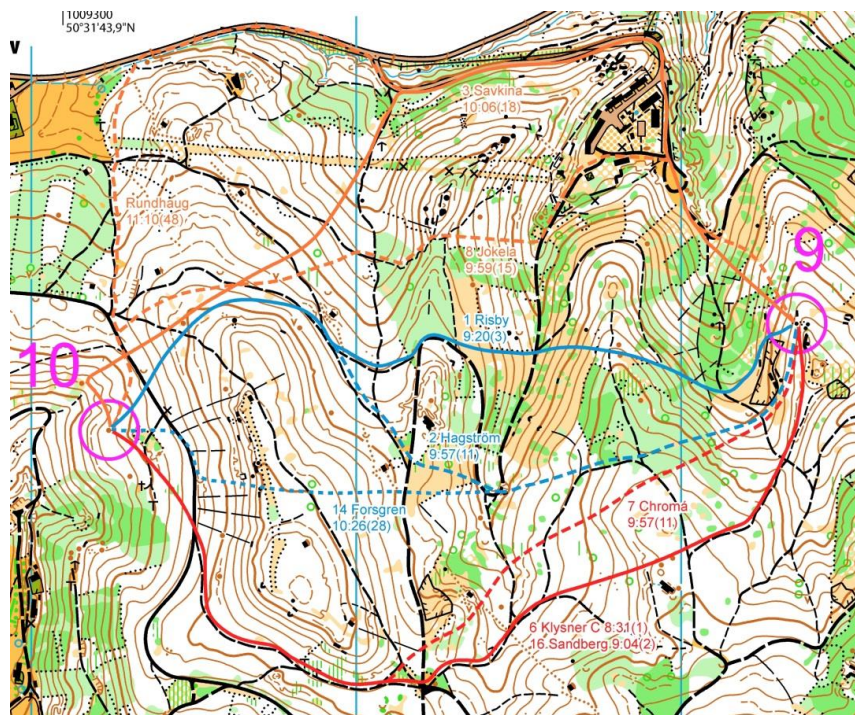
C7: Several approaches are giving similar times. On the other hand - at each of the alternatives there were big time differences among comparable runners. In the green the time depends on certainty, selfconfidence and vehemence. The fastest route of Lucy Butt looks quite risky, but the visibility in the green was rather good and flag visible from a certain distance. By the way, this was the control which we discussed most inside the course-setting team. Some found it completely clear, some insisted the control was a bit fuzzy. The good visibility was the final reason why we decided to keep it.



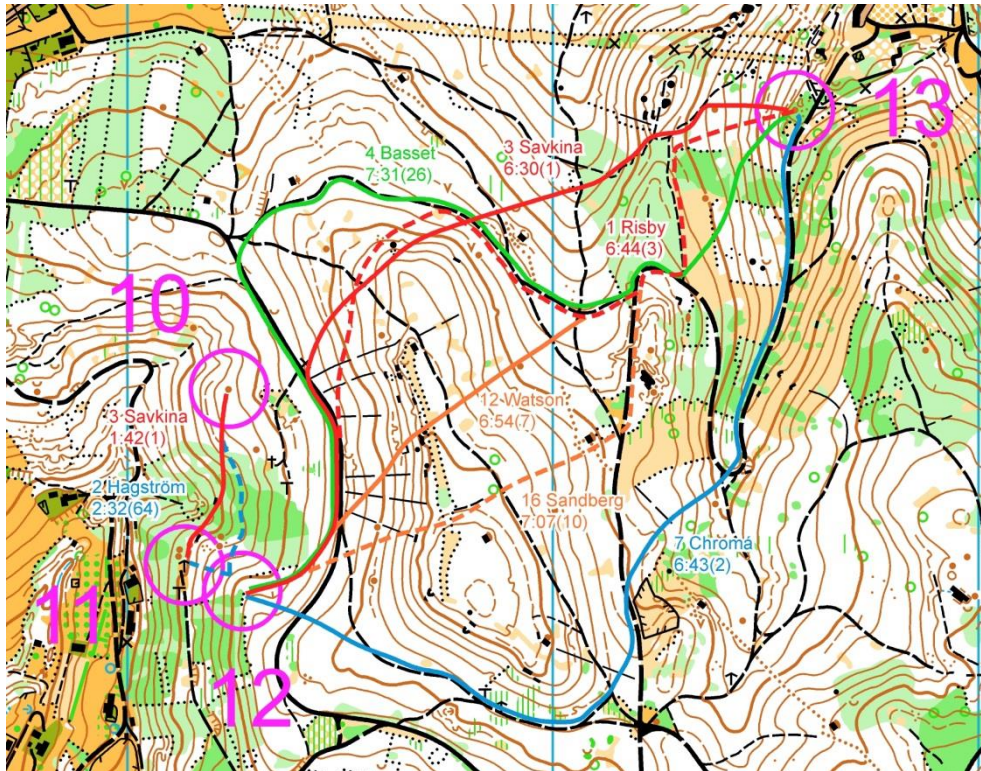
C8: Rather simple leg. Perhaps a bit underestimated by the future winner Risby, who loses a minute here and falls down to current 3rd spot.

C9: Czech Katerina Chromá is clearly best here - perhaps thanks to avoiding the thicket in the beginning (this one was namely one of those rough...). Control taking could obviously have some impact on splits at the straight route as the range of times is rather wide. Risby loses time again.

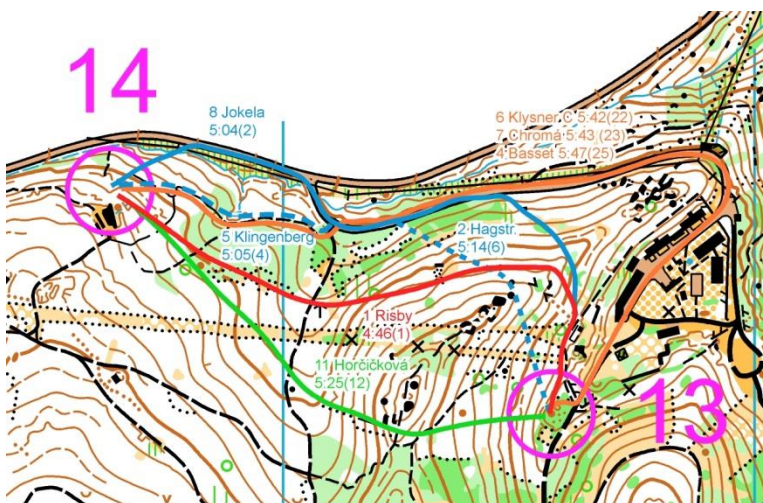
C10: Key leg of central part of the course brings interesting stories. Danish Klysner Fryberg runs half a minute faster than anyone else and jumps from 10th to current 4th spot. Her performance at the leg is equal with e.g. Czech Michal Hubacek, 11th in mens race (boys had an identical leg). Both fast Swedes Hagström and Risby are choosing slower blue alternatives. Russian Savkina, who later becomes a bronze medalist, executes a hardly profitable northern route, which doesn't save any climbing. Something we didn't expect. We were also far from expecting that someone would pass the finish arena on that leg as Norwegian Rundhaug did. Truly interesting to see it!



C13: The location of control nr.13 seems to be too banal. However, the control did a great job - both connected legs offered intricate route choice problems. This is the section where the medals are to be won or lost. French Isia Basset is one of those less lucky falling from 1st to currently 3rd spot here. Neither Risby is taking the most optimal route - but thanks to her running capacity is still able to take the current lead. Right on time... Quite interesting that most runners tended towards red or green alternatives, while the blue one was at least equally fast, as proved by Katerina Chroma.



C14: Risby makes her best decision of the day and hits perhaps the most optimal option, while all the other runners fighting for top positions are losing time on less efficient routes. Unlucky Isia Basset is losing a medal by choosing an asphalt detour. A totally different scenario in comparison with M20.



Conclusions:

- A certain tactics can pay off in such a race.
- Nice to see, that the medals were generally decided by route choice, endurance and leg execution (= key long distance elements) rather than by tricky control taking on 1:15.000 as happens too often nowadays...
- No need for a butterfly when the terrain is suitable for a long distance and courses are set according to valid IOF directives (and according to the philosophy of the discipline).
- The runners are incredibly creative, which makes orienteering even more exciting! ;)

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Lisa Risby and Piotr Parfianowicz (by Petr Kadeřávek)