

Grid car race – round #2

The environment used in round #1 is carried over with the following change: From this round on the player cannot see the whole field, only its surroundings in a radius r . The modified environment can be accessed at the following URL: <http://users.itk.ppke.hu/~karacs/AI/competition/env2.html>

Due to the partial observability, the visibility map received as argument `map` of the initialization (`init`) and the movement functions (`moveFunction`) may contain undefined values. Accordingly, two functions in the framework have been changed:

- a) `validVisibleLine(map, pos1, pos2)` replaces `validLine(pos1, pos2)` for checking the validity of a line: It returns true if and only if the line from position `pos1` to position `pos2` is valid and it lies in a known part of map
- b) `visiblePlayerAt(map, pos)` replaces `playerAt(pos)` for checking if there is a player at position `pos`

Note: The track map argument `map` passed to these two query functions can be different from the actual visibility map, so it is possible to aggregate and store field values in a variable and use it when calling these query functions.

JavaScript notes

There is a value named *undefined* in JavaScript, which behaves in the following way:

```
var a = undefined; // a will be undefined
var b; // If we do not pass a value, it will be undefined!
console.log(b); // undefined
console.log(c); // undefined

var typeOfa = typeof a; // the type of a will be „undefined”
// if you want to know if a variable is undefined, you should use:
if (typeof b === „undefined”) {
    willRun();
}
```

Note that if *undefined* is cast to a logical value, then it will become false, thus it is possible to check for it in a simpler way:

```
if (a) {
    willNotRun();
} else {
    willRun();
}
```

However, there is caveat with this solution: defined variables with a logical value of false, such as the number 0 or the empty string will be undifferentiable from an undefined value:

```
var d = 0;
if (d) {
    willNotRun();
} else {
    willRun();
}
```

Thus, it is better to avoid using this method.