Firstly, L's self-revelation was insanely unpredictable. After Light had killed the 12 FBI agents and reduced L's influence to a handful of task force members, one would think L would hide even more. But he decides to reveal himself to Light instead. He uses this to watch Light's reaction upon this shocking event.

This reveal is also perfectly shielded. Firstly, L used an alias by the name of the famous pop star, 'Hideki Ryuga'. If Light were to write this name, he might end up killing the pop star instead and this would immediately tell L that his suspicions were correct. Even if he got the Shinigami eyes to find out L's name and kill him, the nature of this reveal makes it so that any attempt to kill L at all would put the suspicions on Light. L has only revealed himself to Light, if anything were to happen to him, Light would be the prime suspect. In fact, Light cannot even be sure that the person he is seeing is L, he might just be sending a proxy. This multi-layered shielding completely neutralises Kira's supernatural abilities and any attempt to harm him in general, he overcomes an asymmetrical position flawlessly.

This revelation serves long-term goals as well. He uses this revelation to get closer to Light. He anticipates that Light would ask for some kind of confirmation for L's identity, and the only way for that is for them to visit the task force together because L has revealed himself to the task force, Light does not know this, but he infers it, and L anticipates that Light would infer it. The whole tennis match is basically mind reading of several layers. By having Light come to the task force, he's also getting Light to help with the investigation about himself, while being able to watch him closer.

After Light visits the task force, a second Kira appears. We will not be delving too deep into the second Kira drama here, but just the aftermath of it. The second Kira was sending hidden messages that only Kiras would know in the videos they were recording. The second Kira revealed that she found Kira, but at that point, they hadn't met yet. Misa then goes to Light's house unexpectedly, and Light comes up with another video for Misa to record as second Kira, saying how she will now rest her case with the police, but she will still help Kira. The thing is, Light designed this message to hide the fact that he has met Misa, but L catches on to the fact that they have met immediately. Light gets more and more pressured to kill L.

Light then gets Rem and Misa to cooperate, and Rem agrees to kill L for Misa and Light. Light still needs to find a way to kill L without being suspected because he's the only 'outsider' that knows L. L anticipates this because if the second Kira and Kira are working together, he figured he'd be in some deep trouble. So he tells the task force pre-emptively that if he dies in the next few days, Light is Kira.

L appears on campus and finds Light, and tells him what he told the task force, which makes Light rethink his decision to kill L during these days. Suddenly, Misa appears and introduces herself as Light's girlfriend as Misa. L introduces himself as Hideki Ryuga, but Misa is visibly confused because it does not match the name she is seeing and L sees through this. Light thinks he has basically won because Misa has seen his real name. After the crowd disperses, Light immediately rings Misa in hopes of finding L's real name, but it turns out L had taken advantage of the crowd to take her phone. They then apprehend Misa in suspicion of being the second Kira because of physical evidence they found on the video tapes.

Even when they were face-to-face with L having less information and resources, L was constantly out-anticipating Light.