Chapter 14
Theorem on jurisprudence

A verdict of an ideal judge must not depend on the emotional influences of other members of judicial process. He must be neither captivated by the defender's eloquence nor terrified by the prosecutor's accusations. An ideal judge's decision is based only on established facts and the law. In this chapter we will show how the model of an ideal trial can be constructed with the help of the reflexive game theory.

14.1. Ideal trial

According to the traditional arrangement, four subjects participate in a trial: the defendant, the judge, the defender, and the prosecutor. The universal set of choice for the judge consists of two actions: to make the decisions 'guilty' (α) or 'not guilty' (β). So, there are four alternatives, represented as a Boolean lattice in Fig. 14.1.1:
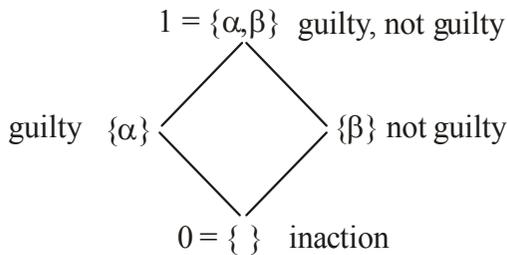

Fig. 14.1.1. A judge's alternatives for choice

The members of the trial may incline the judge to choose one or another alternative by exercising emotional pressure. If a judge chooses { }, it means that he refuses to function. If a judge chooses $\{\alpha, \beta\}$, it means that he can realize either $\{\alpha\}$, or $\{\beta\}$, i.e., declare the defendant either guilty or not guilty based on rational

arguments. We will call the trial *perfect*, if the judge chooses alternative $1 = \{\alpha, \beta\}$ under any emotional pressure from the other members of the trial: prosecutor, defendant, and defender.

The theorem on jurisprudence. The classic trial is perfect.

Proof. The graph in Fig. 14.1.2 depicts relations between the members of a classic trial. The defendant and defender cooperate with each other and are in conflict with the prosecutor. The judge is in a relation of collaboration (cooperation, in our terminology) with all others.
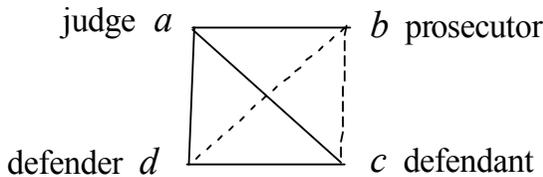

judge *a*   *b* prosecutor

defender *d*   *c* defendant

Fig. 14.1.2. Graph of relations in a classic trial

This graph corresponds to the polynomial

$$a(b + cd) \tag{14.1.1}$$

and the diagonal form

$$
\begin{array}{l}
\qquad\qquad [c]\,[d] \\
\qquad\quad [b] + [cd] \\
\quad [a]\,[b + cd] \\
[a(b + cd)] \qquad\qquad\qquad \equiv 1 = \{\alpha, \beta\}. \qquad \square \tag{14.1.2}
\end{array}
$$

We see that the judge is superactive; this means that he makes his decisions independently of any influence from other members of the trial. For example, suppose all of them - defendant, prosecutor, and defender – are eagerly persuading the judge that the defendant is guilty: $c = \{\alpha\}$, $b = \{\alpha\}$, $d = \{\alpha\}$. In this case, according to equation (14.1.2), the judge will still make an independent decision.

14.2. Trial without defender

Will a trial remain perfect, if the defender is removed from the scheme? In this case, the graph of relations becomes as follows:
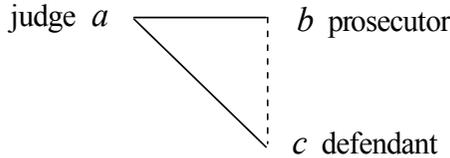
judge a ———————— b prosecutor

c defendant

Fig. 14.2.1. Graph of relations after removal of defender

This graph corresponds to the polynomial

$$a(b + c) \qquad (14.2.1)$$

and the diagonal form

$$[b] + [c]$$
$$[a]\,[b + c]$$
$$[a(b + c)] \qquad\qquad . \qquad (14.2.2)$$

The equation for the judge is

$$a = (b + c)a + \overline{a} \ . \qquad (14.2.3)$$

This equation has no solution if

$$(b + c) \subset 1 \ . \qquad (14.2.4)$$

For example, if $b = \{\alpha\}$ and $c = \{\alpha\}$, i.e., the prosecutor states that the defendant is guilty, and the defendant makes a 'guilty' plea, equation (14.2.4) holds, the judge cannot make a decision, he is in a state of frustration. Therefore, a trial without the defender is not perfect.

The relations graph in Fig. 14.1.2 is the result of centuries-old traditions. We can state with certainty that the ideal judge in the ideal trial will give a verdict independently of any emotional pressure from other members of the judicial procedure.