

# On the Logical Structure of Contract Law

-Focusing on the United Nations Convention  
on Contracts for International Sale of Goods-

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## Jurisprudence

### 1. Introduction

The object of this report is to clarify the logical structure of contract law by using the example of United Nations Convention on Contracts for International Sale of Goods (CISG).

The standpoint of this report is Logical Jurisprudence. The paper clarifies the basic structure of law from the view point of Logical Jurisprudence. Then it explains the structure of contract law as a system which is able to deduce a legal decision when CISG is applied to a concrete case. In this research, I analyze the relationship between legal sentences and legal meta-rule sentences, which provide the validity of the former. Its main object is to clarify the knowledge structure that constructs the system of contract law.

### 2. The View from Logical

The method of this study is Logical Jurisprudence (Logische Rechtslehre). It is named by myself and is one of the legally progressed forms of which is called legal logic, a kind of Jurisprudence.

Logical Jurisprudence considers that, unlike the traditional Jurisprudence, there are no "legal norm as a meaning". For the understanding, it directly focuses on sentences, or to be more precise, legal sentences. Legal sentences consist of legal rule sentences which have the structure of requirements, effect and of legal fact sentences which describe legal facts. They are units that show the legal world.

Other basic concepts of Logical Jurisprudence are the value of truth and the inference rule. Logical Jurisprudence tries to explain the legal world with these three elements.

Logical Jurisprudence separates legal reasoning into inference of justification and



inference of discovery. In Logical Jurisprudence, legal inference is seen as a progressive (building) process of legal sentences. The judgment is directly not deducible only from the status and the relevant facts. But also from the legal principles which lawyers implicitly rely on, common-sense over legal terms, and several other legal sentences like propositions of legal interpretation made by legal inference of discovery. Logical Jurisprudence analyzes legal information in details and clarifies implicit knowledge of lawyers and newly-made legal sentences, which should lie under the framework of legal inference of justification.

### 3. The Basic Structure of Law

Logical sentences can be classified into element legal sentences and complex legal sentences. A sentence of a contract as a law belongs to the former; e.g. "A should pay the price of \$10,000 to B". The latter is bundles of the former; e.g. a contract between A and B, a section and a part of a statute, and statute itself. With this distinction, we can formalize the effects of legal sentences along with their forms.

Next, the distinction of legal object (rule) sentences and legal meta-rule sentences are important. Object (rule) sentences are sentences, which describe objects.

In the legal world, the object is an obligation. Legal object rule sentences regulate one's obligation. "A should pay the

price \$10,000 to B" is an example. Meta-rule sentences are sentences which describe about sentences. Legal meta-rule sentences represent legal sentences, or precisely, the effect of legal sentences. There are legal meta-rule sentences which regulate legal meta-rule sentences as well. The example is seen in § 1 of (HOUREI), which says "Laws come into effect 20 days after the day of promulgation."

Law eventually regulates one's obligation. What kind of a legal obligation exist, is determined by the validity of the legal sentences which describe obligation, that is, legal object rule sentences. The validity of legal object rule sentences is regulated by legal meta-rule sentences.

### 4. A Certain Case, Questions and Answers

Now I settle a concrete example, a case about contracts for international sale of goods and a question about it, and answer it legally, and to try clarifying the knowledge structure of contract law from which the answer can be deduced if the fact sentences are imputed.

[Example case] On April 1st, a maker of agricultural machines, A, sent a letter of an offer to a Hamburg branch of B, a Japanese trading company. The content of the letter was: A would sell a set of agricultural machines to B for \$50,000; A would deliver the machine to B by May 10th, and B would pay the price by May 20th. On

April 8th, the letter reached to the Hamburg branch of B. On April 9th, B phoned A to tell that B accepted the offer. On May 1st, A delivered the machine to a Japanese container ship at the New York Port. On May 31st, the machine arrived at the Hamburg branch of B. B inspected the machine on June 5th. On May 20th, B paid \$50,000 to A. On August 10th, the machine worked wrongly. It was because there was something wrong with the connective gear. B soon told the fact to A. On September 1st, B claimed that A should repair the machine in a month because of the lack of conformity to the contract. A did not repair it before October 1st. On October 10th, B declared the avoidance of the contract.

[Question] What kind of legal relationship exist between A and B on each of these days; April 5th, April 15th, May 5th, June 15th, August 15th, September 15th, October 5th and November 15th.

[Answer] In the right hand side column of Figure 1, the answers to the question are shown. We can reach these answers by considering the change of legal relationship along with time, shown in the figure as "The Validity of Legal Sentences" in the center column. In the figure, the existence of legal relationship is represented as a belt of valid legal sentences which describe obligations and rights. In the next section, I clarify the knowledge structure of contract law that enables the construction of the belt of legal relationship and sorts out of the answers.

## 5. Legal Relationship and the Validity of Legal Sentences

In Logical Jurisprudence, the existence of A's obligation to do means that a sentence "A has an obligation to do. or .It is obligatory for A to do X. is valid.

If the parties have a certain obligation based on the contract, it is because the validity of the sentences in the contract which describes the obligation (obligation sentences, that is, legal object sentences) is proved. Contract law is a legal meta-rule sentence that regulates the validity of the obligation sentences in the contract. I'll show how legal meta-rule sentences can prove the validity of the legal object rule sentences bellow.

## 6. The Knowledge Structure of Contract Law that Regulates the Changes of the Legal Relationships

### 1. Legal Rule Sentences which Confirm that the Legal Sentences are Valid

The fundamental legal meta-rule sentences exist to confirm that the legal sentences are valid:

mrl: "A legal sentence S is valid at the time T if and only if S becomes valid at T1 and S does not become null since T1 till T,



and in this case only."

This legal rule sentence can not be found as a statutory text in CISG nor in other regulations. This is a fundamental legal meta-rule sentence which is taken granted implicitly, by CISG and all the other regulations and which constructs the legal system. This rule is applied to every case where the validity of legal sentences is considered.

For example, in deciding whether or not a legal sentence "A has an obligation to deliver the goods to B" is valid, we apply this rule and examine its two requirements, "the legal sentence becomes valid" and "the legal sentence does not become null". If both of the satisfied requirements exist, the legal sentence is valid; if not, it is not valid.

Under this fundamental legal meta-rule sentence, how are legal sentences systematized? All the other legal meta-rule sentences are systematized as sub-rules under the two alone requirements of the fundamental legal meta-rule sentence, "the accrual of validity of the legal sentence" and "the non-extinction of validity of the legal sentence." They are used to decide whether these requirements are satisfied or not. Now I clarify the structure of legal knowledge which decides the two factors, i. e. .becomes valid. and .becomes null. of legal (object) rule sentences.

## 2. The Structure of the Law which Decides the Accrual of the Obligation

Legal obligations accrue because legal object rule sentences become valid.

### (1) The Accrual of Validity of Element Legal Sentences along with the Accrual of Validity of Contracts

The accrual of validity of complex legal sentences follows the accrual of validity of element legal sentences. Consider, for example, the change in the legal relationship on April 9th in Figure 1. As the contract as a complex legal sentence has become valid, these two obligation sentences (legal object sentences), that is, element legal sentences, have become valid: "A has an obligation to deliver the goods to B" and "B has an obligation to pay the price A by May 20th." The main part of contract law is legal meta-rule sentences which regulate changes of validity of contract itself as a legal sentence, that is the accrual and extinction of its validity.

Figure 2 shows the flow chart of the legal rule sentence which decides the accrual of validity of the contract. 3AA1BA in Figure 2 means that the contract is concluded. The conclusion of the contract means that it is formed as a legal sentences which is the contract.

Part II of CISG regulates in detail the conclusion of contract from Articles 14 to 24. However, in order to connect them systematically, we need a legal rule sentence like one in Figure 3. This is a general principle of contract law, and part II of CISG is written supposing this legal rule sentence. All the Articles in this part are systematized as a sub-rule of either of

the two requirements of this legal rule sentence.

### (2) The Accrual of Validity of Element Legal Sentences Themselves

-The Accrual of obligation by Exercising the Right-

In some cases, the accrual of validity of the element legal sentence itself is regulated. For example, an obligation accrues along with exercise of the relevant right. In Figure 1, the legal sentence "B has an obligation to repair the machine for A" becomes valid because A exercised the right to claim the repair of the machine at September 1st.

Logical Jurisprudence considers the sentences which describe rights as a kind of legal meta-rule sentence. The fact that a certain right for a person exists means that we can settle a legal sentence connected to it.

The legal meta-rule sentence below is valid:

3AA2 "A legal sentence 'X has an obligation S' becomes valid at time T, if a legal sentence 'Y has a right to claim S against X' is valid, and at T, Y exercises the right to claim S."

The first requirement of this rule, "A legal sentence . . . . is valid", relates to § 46 of CISG which regulates the accrual of buyer's right to claim through the fundamental legal meta-rule sentence mrl. It is because the events in the present case satisfied the requirements in the article that the legal sentence "B can claim the repair to A" became valid on August 1st in

Figure 1.

## 3. The Structure of law which Decides the Extinction of Obligations

(1) The extinction of obligations means that legal object sentences which describe obligations become null.

-The Extinction of Validity of Element Legal Sentences along with the Extinction of the contract-

Validity of element legal sentences extinguishes along with the extinction of the validity of complex legal sentences. If validity of a contract as complex legal sentences extinguishes, validity of element legal sentences in the contract also extinguishes.

Contracts lose their validity on the day when the term is expired, if it is fixed; when the condition subsequent is fulfilled, if it exists, or when the avoidance becomes effective. Regulations which are concerned with these factors can be integrated under a child rule sentence which makes concretely the second requirement of the fundamental legal meta-rule sentence mrl.

In Figure 1, two legal object rule sentences "A has an obligation to B to conform the goods delivered to the contract." and "A has an obligation in terms of B to repair the machine" become valid on the 1st of October because the validity of the contract as a complex legal sentence has extinguished owing to exercise of the dissolution right.

(2)The Extinction of Validity of Element



## Legal Sentences Themselves

### -The Extinction of Validity of Obligation Sentences along with the Execution of the Obligation-

In some cases, one article of the contract extinguishes independent of the validity of the whole contract. The legal rule sentence below is valid:

mr4b "The validity of element legal object sentences extinguishes when the obligation is performed."

For example, because of the delivery by A on the 1st of May, legal sentence "A has an obligation to deliver the goods to B" extinguished its validity on the 1st of May, and because of the payment by B on May 20th, the legal sentence "B has an obligation to pay the price by May 20th" extinguishes its validity on May 20th.

## 6. Conclusion

In this research, I clarified the structure of contract law by taking up CISG as an example and focusing on the systematization of law from the view point of Logical Jurisprudence. By using two standards of legal sentences, that is, complex legal sentences and element legal sentences on the one hand, and legal object rule sentences and legal meta-rule sentences on the other hand, I showed the basic structure of legal knowledge. Applying the frame to cases 1, formalized the change of legal relation as a change of validity of legal sentences that describes obligations. Thus 1 clarified the logical structure of

contract law which can deductively prove the change of the legal relation along with the progress of events in a concrete example.

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## Bibliography:

Yoshino, H., .Zur Anwendbarkeit der Regeln der Logik auf Rechtsnormen . in : Walter(hrsg.), *Die Reine Rechtslehre in wissenschaftlicher Diskussion*, Wien (Manz Verlag), 1982,S.142ff.

Yoshino, H., "About the Applicability of the Principles of Logic to Legal Norm ., in: *Keio Law Journal (Hogakukenkyu)*, Vol.62, No,12, 1993, pp.512-472.

Yoshino, H., " Development of the Legal Expert System -Clarification of Legal and Realization of Legal Reasoning (Japanese)", *The Reports of the Result of the Research of the Project*, March 1994, March 1995, March 1996.

Yoshino, H., "The Systematization of Legal Meta-inference", in: *Proc. The Fifth*

*International Conference of Artificial Intelligence and Law (ACM)*, 1995, pp.266-275.

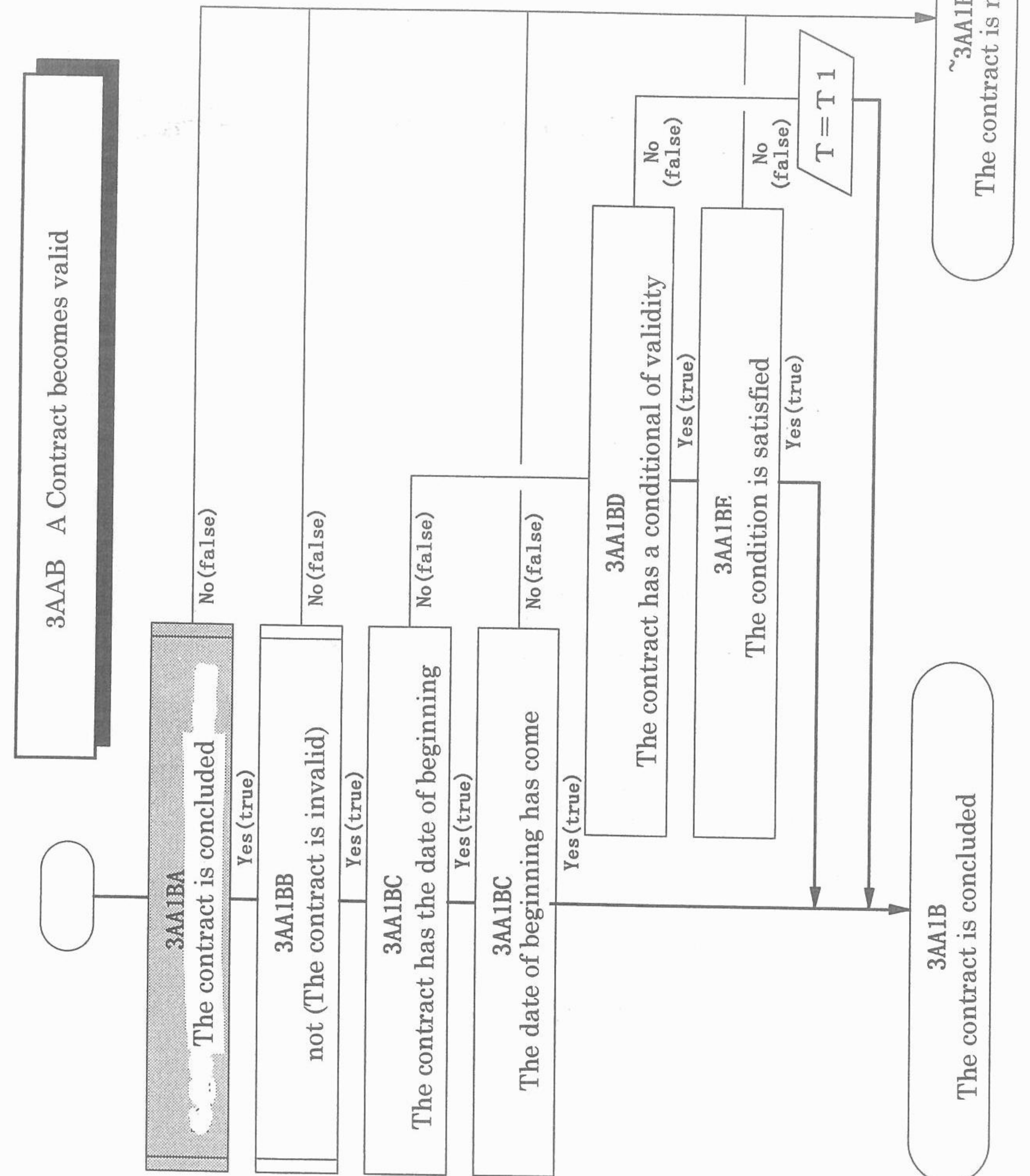
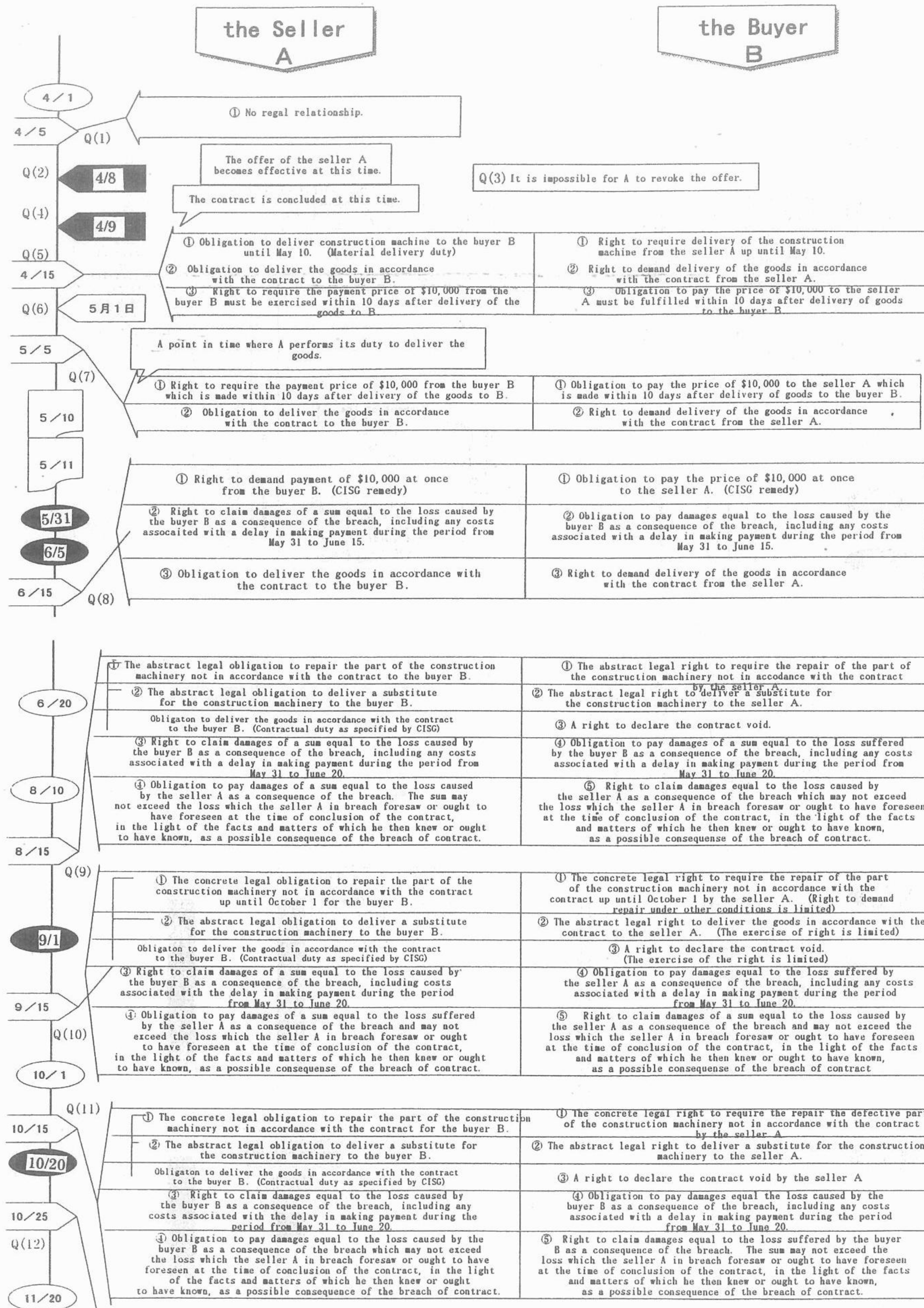


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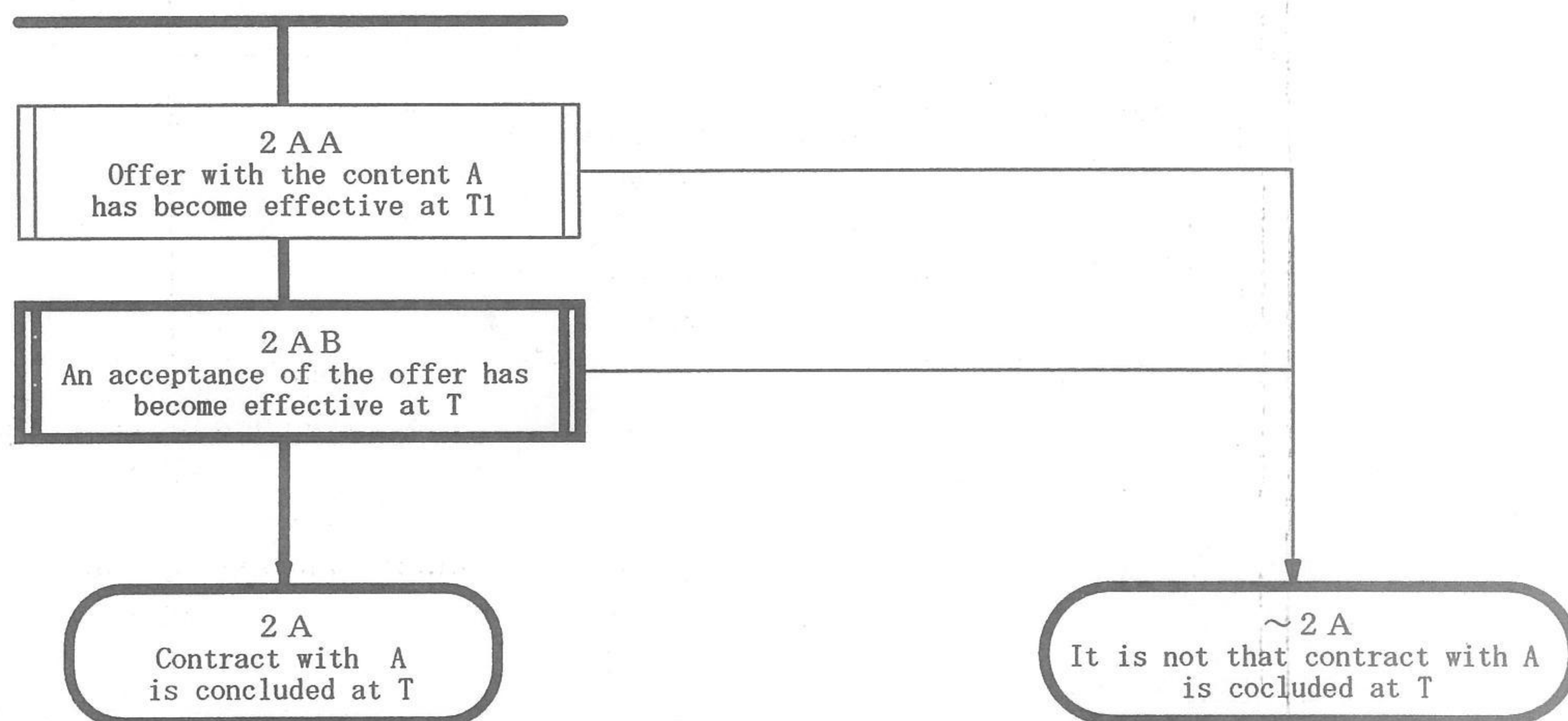


Figure 3