Paraphrase of a Legal Sentence

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In recent years, administrative procedures that carry out laws and support our life is implemented by information systems. In such an electronic society, we need to examine whether law are established appropriately and whether information systems are correctly built based on laws. It is also meaningful to improve readability of a legal sentence for people and even for legal officers who design laws.

Legal Engineering is a new research filed proposed to achieve a trustworthy electronic society. Legal Engineering serves to examine and verify laws which regulate our society. In order to verify consistency of legal sentences, we need to analyze legal sentences and extract logical structures.

In this paper, we propose a method that analyzes a legal sentence and divide it into several requirements and effectuations to improve logical analysis and readability of legal sentences. Logical structure of a legal sentences consists of a law requisite part and a law effectuation part. The law effectuation part expresses contents that a legal sentence regulates administrative procedures, right and obligation and so on. The requisite part expresses conditions that put the sentences into effect. A legal sentence contains argument ellipses(zero anaphor), requirement expressions embedded in noun phrases and so on when the requisite part and effectuation part have multiple requirements and effects. It is not only causes readability to decrease but also decreases the precision of analyzing legal sentences.

In order to overcome such problems, we propose to explicitly represent its requirements and effectuations.

In this paper, we took up the national pension law and analyzed problems to structurally paraphrase a legal sentence. We considered a case that an embedded sentence represent a requirement.

We focused the usage of *Toutens*(japanese comma) in a legal sentence and linguistic expressions patterns preceding *Toutens* to divide a legal sentence into components including requirements and effectuations. To divide a sentence, we classified components into four types depending on their roles.

And we developed a method that combines components to resolve zero anaphora and represents requirement and effectuations as sentences. For an embedded sentence which functions as a requirement, we developed a method that extracts the embedded sentence as a requirement. We also developed a method for the case that a noun phrase modified by an embedded sentence forms *'A no B'*.

We implemented the proposed method and applied it to the first sentence in each article of National Pension Law, and evaluated how well the processing was carried out for sentences with embedded sentences and zero anaphora. Our experimental result shows that our method extracts requirement expressions from embedded sentences about 59% and processes zero anaphora about 82%. Among errors in the experiment, especially coordination structures and a predicate *'dearu'* are not analyzed well. For *'dearu'*, we found out patterns for clauses of *'dearu'* and our method will be applied based on the patterns.