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FUZZY RISK PRESUMPTIVE EVALUATION IN SOFTWARE DEVELOPMENT

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Abstract. *In this paper, we propose the computational rule inferences to tackle the presumptive rate of aggregative risk in software development in fuzzy circumstances. The proposed method of presumptive rate of aggregative risk directly uses the fuzzy numbers rather than the linguistic values to presume. The presumptive rate is close to the human thinking.*
Keywords: Risk assessment, Presumptive rate

1. **Introduction.** There are many problems occurring in the software system development life cycle, such as postponed schedule, increased cost, inefficiency and abandonment [10].

Risk is the traditional manner of expressing uncertainty in the systems life cycle. In a quantitative sense, it is the probability at such a given point in a system's life cycle that predicted goals cannot be achieved with the available resources. Due to the complexity of risk factors and the compounding uncertainty associated with future sources of risk, risk is normally not treated with mathematical rigor during the early life cycle phases [1].

Risk results in project problems such as schedule and cost overrun, so risk minimization is a very important project management activity [21]. Up to now, there are many papers investigating risk identification, risk analysis, risk priority, and risk management planning [1-5,7,8].

In evaluating the rate of risk factors, most decision-makers or project-managers, in fact, viewed those factors as linguistic values (terms), e.g., very high, high, middle, low, very low. After fuzzy sets theory was introduced by Zadeh [22] to deal with problems in which vagueness is present, linguistic value can be used for approximate reasoning within the framework of fuzzy sets theory [23] to effectively handle the ambiguity involved in the data evaluation and the vague property of linguistic expression, and normal triangular fuzzy numbers are used to characterize the fuzzy values of quantitative data and linguistic terms used in approximate reasoning. Lee et al. [12] presented a resource performance evaluating model which can evaluate performance degrees of others collaborators by fuzzy inferences, schedule and distribute the jobs processes based on the evaluated performance degrees. Lin and Lee [15] proposed the new algorithm to the facility site selection.

Based on [2-5,7,8], Lee [10] classified the risk factors into six attributes, divided each attribute into some risk items, built up the hierarchical structured model of aggregative