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WATSANA TAUNGWIWAT : APPLICATIONS OF LOG-LINEAR
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Nowadays, one of the important problems which has appeared in the metropolis, with fast economic growth, is road traffic accidents. In Thailand, Bangkok is the province which has the greatest number of road accidents. There are many metropolitan police stations which take care of traffic and gather road accident data. In this study, the police stations with the greatest number of road accidents are selected, namely Pathum Wan, Rat Bhurana and Bang Khen police stations from the Southern, Thonburi and Northern Bangkok Metropolitan Divisions respectively. These police stations were representative of the road accident occurrence studied in Bangkok in 1996.

The main objective of this study is to test association between road accident variables by log-linear models. In each area, a test of independence is used to find the relationships between any two variables which are chi-square tested and Cramer's V valued and two-dimensional log-linear models are used to obtain estimated parameters, expected frequencies and standardized residuals. For all three areas, the three-dimensional log-linear models are applied to test association between any three variables. Among these models which were obtained, the best was chosen one by analysis of deviance.

The results of this study show that most paired variables are significantly related at p -value < 0.05 . The variable human factors, that is, over speed limit driving, passing in front of the previous car rapidly and tailgate driving are highly related to other variables and provide the highest Cramer's V value. Since the traffic characteristics in each area are different, the relationships between two response variables are also different. Therefore, different accident prevention measures should be considered in each specific area. Consequently, the road accident occurrence control has to focus on the people who use vehicles and roads; those people must have more care and respect for the traffic law.