

Representing time has always been challenging in the domain of artificial intelligence. There have been researchers working in natural language processing domain who have found ways to extract this information. This paper particularly considers the work presented by James Allen and the 13 temporal relations that he coined in his research. Further, it has been studied that representing these relations in string format of MSO (Monadic Second Order) logic brings out various characteristics of this kind of knowledge. This helps in processing the temporal information and finding new results in this field of research. In a research conducted by Büchi, Elgot, Trakhtenbrot, it was proved that MSO logic is related to finite state methods. Thus, in this paper, we consider two case studies - Zebra Puzzle and Allen Relations, whose constraints are converted to MSO logic and further solved using superposition theorem. To understand how probabilities can be involved in these constraints, we consider the research done by James Allen for the Allen relations and extend it to calculate the conditional probability for the relations. Also, these Allen relations are equiprobable. Thus, to obtain a different probability for each relation, we assign weights to them and apply the equation given in Markov Logic Network. Finally, to get a uniform probability, appropriate weights are allotted to the relations.