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Non-Manual Articulators in Irish Sign Language Verbs: An Analysis with Data Mining Association Rules

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Non-Manual Articulators in Irish Sign Language Verbs: An Analysis with Data Mining Association Rules

The Signs of Ireland (SOI) corpus (Leeson et al., 2006) deploys a complex multi-tiered temporal data structure. The process of manually analysing such data is laborious, cannot eliminate bias and often, important patterns can go completely unnoticed. In addition to this, as a result of the complex nature of grammatical structures contained in the corpus, identifying complex linguistic associations or patterns across tiers is simply too intricate a task for a human to carry out in an acceptable timeframe. This work explores the application of data mining techniques on a set of multi-tiered temporal data from the SOI corpus. Building on Mc Donnell's work on verb categories in Irish Sign Language (McDonnell, 1996); this research explores the emerging patterns of articulation among ISL verbs, paying particular attention to the depicting verb. We use the 'Rapidminer' software tool to carry out an association rules analysis between the Plain verb, Indicating verb and Depicting verb on the one hand and the articulation of various non-manual features on the other. Results will show associations between these verbs and various non-manual articulations. The original contribution of this work is in the novel methodological approach. To the author's knowledge, this is the first time an association rules analysis has been carried out on a sign language dataset.

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