

# SWRL Rules for MUSICO

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1) workMood:
    MusicalWork(?work) ^ MusicianParticipation(?part) ^ Genre(?gen) ^
    genre(?work,?gen) ^
    played_musical_work(?part, ?work) ^ expressed_mood(?part, ?mood)
    ->
    recognized_mood(?work, ?mood) ^ recognized_mood(?gen, ?mood)

2) venueGenre:
    MusicianParticipation(?part) ^ MusicalEvent(?ev) ^
    MusicVenue(?pl) ^ Genre(?gen) ^
    involved_event(?part, ?ev) ^ played_musical_work(?part, ?work) ^
    location(?ev, ?pl) ^ genre(?work, ?gen)
    ->
    played_genre(?pl, ?gen)

3) userRecommendation:
    HumanMusician(?u) ^ HumanMusician(?o) ^
    swrlb:notEqual(?u, ?o) ^
    foaf:based_near(?u, ?city) ^ foaf:based_near(?o, ?city) ^
    plays_genre(?u, ?gen) ^ similar_to(?gen, ?ggen) ^
    plays_genre(?o, ?ggen)
    ->
    gets_recommended_user(?u, ?o)

4) genreRecommendation:
    HumanMusician(?u) ^
    plays_genre(?u, ?gen) ^
    similar_to(?gen,?ggen) ^ swrlb:notEqual(?gen, ?ggen)
    ->
    gets_recommended_genre(?u, ?ggen)

5) venueRecommendation:
    HumanMusician(?u) ^ MusicVenue(?pl) ^
    plays_genre(?u, ?gen) ^ played_genre(?pl,?gen)
    ->
    gets_recommended_venue(?u, ?pl)

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These rules, written according to the syntax of SWRL, an extension of the OWL language, were used to implement the inferential logic of the MUSICO ontology. These rules were written primarily to materialize new data that could be suggested to the end user.

- Rule 1) allows the inference of the mood of a musical genre and MusicalWork from the mood expressed during the performance of that song during a musician's participation in an event.

- Rule 2) allows the inference of the genre of music played at a particular venue by inferring it from the appearances of musicians held there.
- Rule 3) allows inference of a user's recommendation to another user by analyzing whether they live in the same city and play similar genres.
- Rule 4) allows inferring the recommendation of a music genre to a user based on the similarity of the genres they play.
- Similarly, rule 5) allows inferring the recommendation of a venue to a user based on the genres it plays and that are played at that venue.