Phase 19 Demo : Finite Set Types

Example 1 : F (finite sets)

F X denotes all finite subsets of X:

$[SongId, UserId]$

$songs : \mathbb{F}\ SongIdusers : \mathbb{F}\ UserId$

Example 2 : F1 (non - empty finite sets)

F1 X denotes all non-empty finite subsets of X:

$activeUsers : \mathbb{F}_1\ UserId$

$activeUsers(subseteq)(users)$

Example 3 : Combined with function types

Using F and F1 with partial functions:

$[PlaylistId, Playlist]$

$playlists : PlaylistId \pfun Playlistplaylist Owner : PlaylistId \pfun UserIdplaylistSubscribers : PlaylistId \pfun \mathbb{F}_1\ UserId$

$\mathrm{dom}\ playlistOwner(subseteq)(\mathrm{dom}\ playlists)\ \mathrm{dom}\ playlistSubscribers(subseteq)(\mathrm{dom}\ playlists) \forall i : \mathrm{dom}\ playlistSubsc$

Example 4 : Comparison with P (power set)

F X is a subset of P X (all finite subsets are subsets):

$\mathbb{F}\ users(subseteq)(\mathbb{P}\ users)\ \mathbb{F}_1\ users(subseteq)(\mathbb{F}\ users)$