

gis

Generalized Interval Systems

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Chapter 1

GIS

1.1 Constructing a GIS

1.1.1 GIS (for IsMusicalSpace, IsGroup, IsFunction)

▷ $\text{GIS}(S, IVLS, int)$ (operation)

A Generalized Interval System (*GIS*) is an ordered triple $(S, IVLS, int)$, where the space S of the *GIS* is a set of elements (satisfying *IsObject*), the set $IVLS$ of intervals for the *GIS* is a group in the mathematical sense (satisfying *IsGroup*), and int is a function from $S \times S$ into $IVLS$ such that...

1.2 Computing intervals

1.2.1 GISInt (for IsGIS, IsObject, IsObject)

▷ $\text{GISInt}(GIS, s, t)$ (operation)

$\forall s, t \in S, int(s, t)$ where $gis = (S, IVLS, int)$

1.3 Predefined GIS

1.3.1 PSpace

▷ PSpace (global variable)

$(\mathbb{Z}, (\mathbb{Z}, +), int)$ where $int: \mathbb{Z} \times \mathbb{Z} \rightarrow \mathbb{Z}$ and $int(s, t) = t - s$.

1.3.2 PCSpace

▷ PCSpace (global variable)

$(\mathbb{Z}_{12}, (\mathbb{Z}_{12}, +), int)$ where $int: \mathbb{Z}_{12} \times \mathbb{Z}_{12} \rightarrow \mathbb{Z}_{12}$ and $int(s, t) = (t - s) \bmod 12$.

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