

This document contains the newgen structures for Manjunathaiah M complementary sections.

*External Pvecteur*

*Import reference from "ri.newgen"*

*Import action from "ri.newgen"*

*simple\_section = context:context\_info x dad:dad\_struct*

A simple section has two parts. a) context information and b) the section descriptor

*context\_info = line:int x rank:int x nest:int*

Context includes the line number of the source, the dimensionality of the array(denoted as rank) and the scope of the array reference

*dad\_struct = rtemps:ref\_temp\* x shape:bound\_pair\**

The descriptor is a two tuple. The first element is used when applying translation algorithm. The second element describes the access shape a.k.a convex polyhedron.

*ref\_temp = index:int x rtype*

Actually we want an array of ints of size = Rank. Hence a partial function index -> rtype. I don't like this roundabout but I don't have the time to look at different options.

*rtype = nonlinear:unit + linvariant:unit + lininvariant:unit*

The different values that each element of rtemps can hold. I would have preferred enumerated types.

*bound\_pair = index:int x lb:Pvecteur x ub:Pvecteur*

Again a partial function to simulate arrays.

*comp\_sec = hull:simple\_section x complements:simple\_section\**

A complementary section is a list of simple sections. It is structured as a pair (E,C) for conceptual reasons. If the second element of this pair is empty then Compsec = simple section!

*comp\_desc = persistant reference x action x section:comp\_sec*

A descriptor includes the array entity and the section information

*comp\_desc\_set = comp\_descs:comp\_desc\**

And finally the set of descriptors.