Sundials 4

1

Laurence D. Finston

Last updated: September 9, 2021

This document is part of GNU 3DLDF, a package for three-dimensional drawing.

Copyright (C) 2021 The Free Software Foundation, Inc.

GNU 3DLDF is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation, Inc.; either version 3 of the License, or (at your option) any later version.

GNU 3DLDF is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

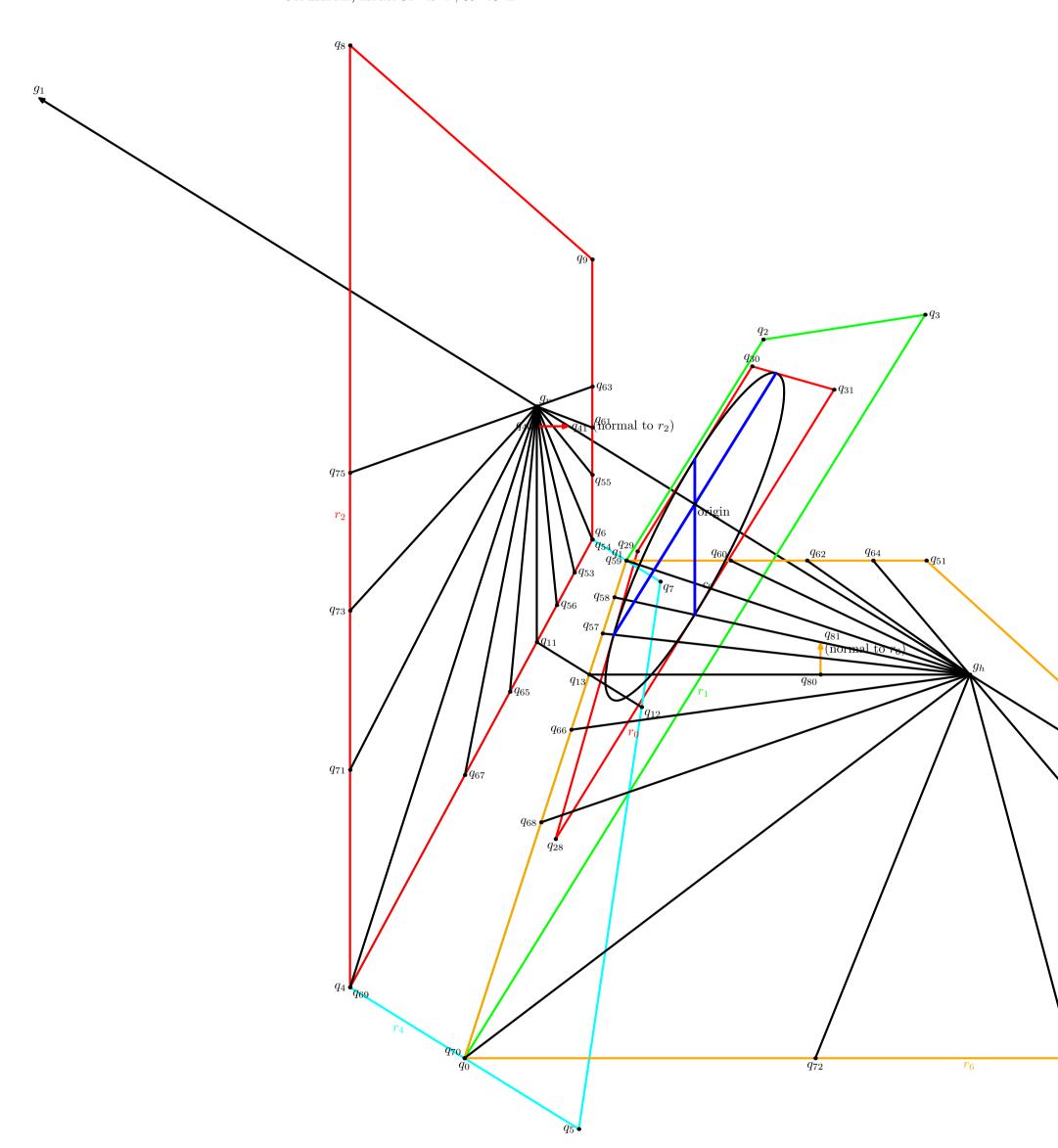
You should have received a copy of the GNU General Public License along with GNU 3DLDF; if not, write to the Free Software Foundation, Inc., 51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA

See the GNU Free Documentation License for the copying conditions that apply to this document.

You should have received a copy of the GNU Free Documentation License along with GNU 3DLDF; if not, write to the Free Software Foundation, Inc., 51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA

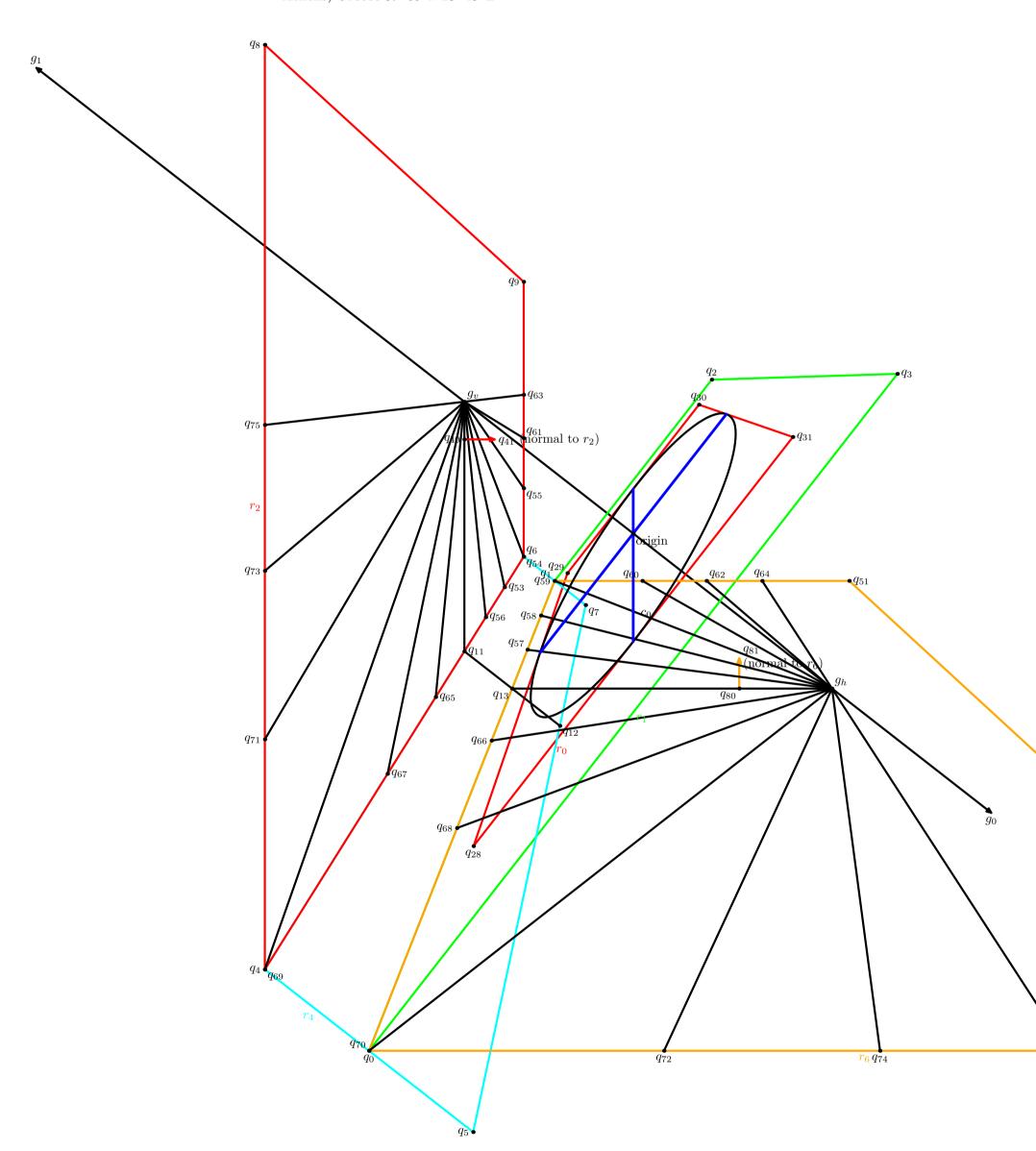
	Table of Contents	
1. Jerusalem, Israel		
2. Athens, Greece		

Jerusalem, Israel 31° 47′ N, 35° 13′ E



Perspective projection

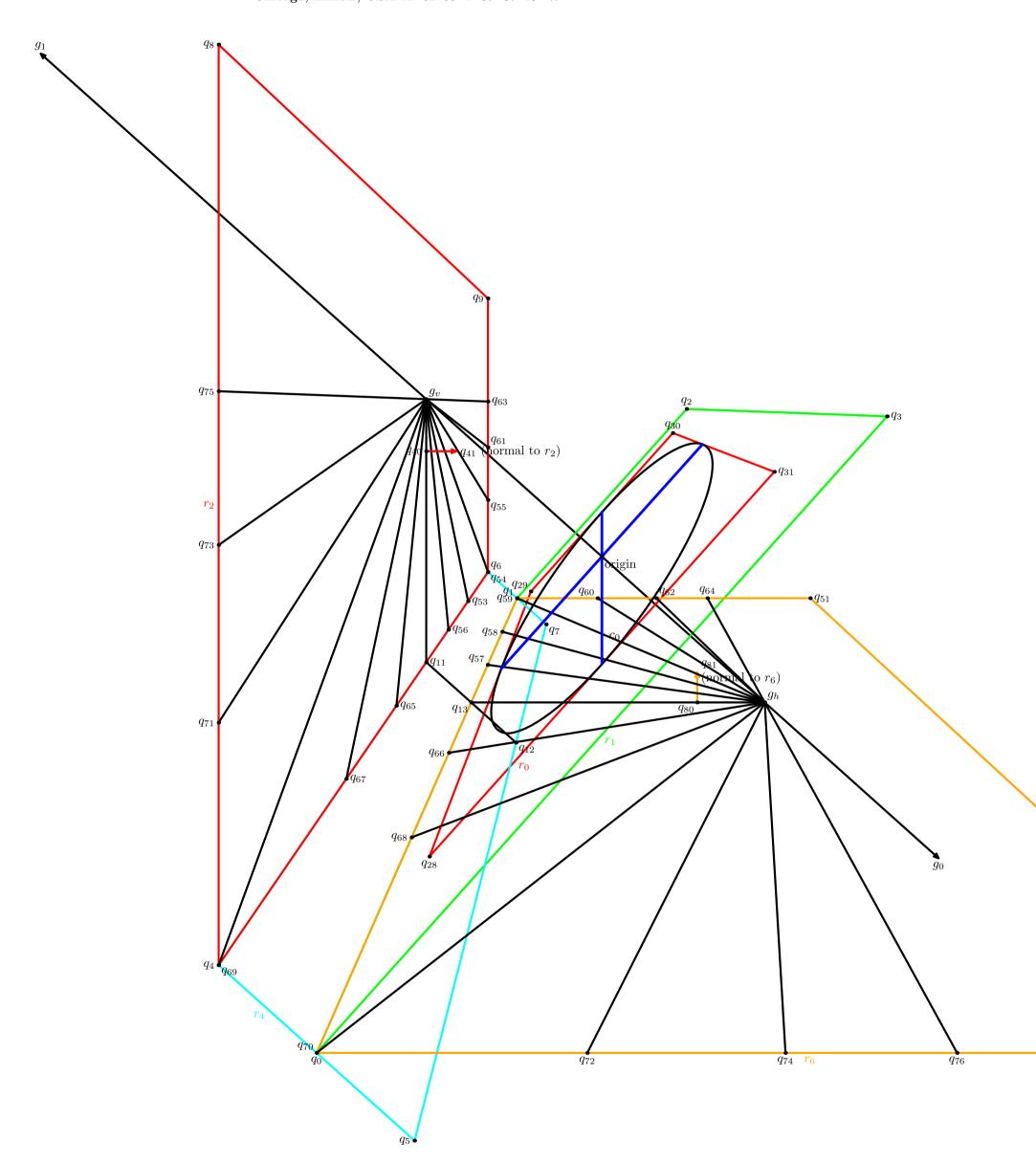
Jerusalem, Israel 31° 47′ N, 35° 13′ E Focus: position = (0,5,-12), direction = (0,5,10), distance = 10 (dimensions in centimeters)



Perspective projection

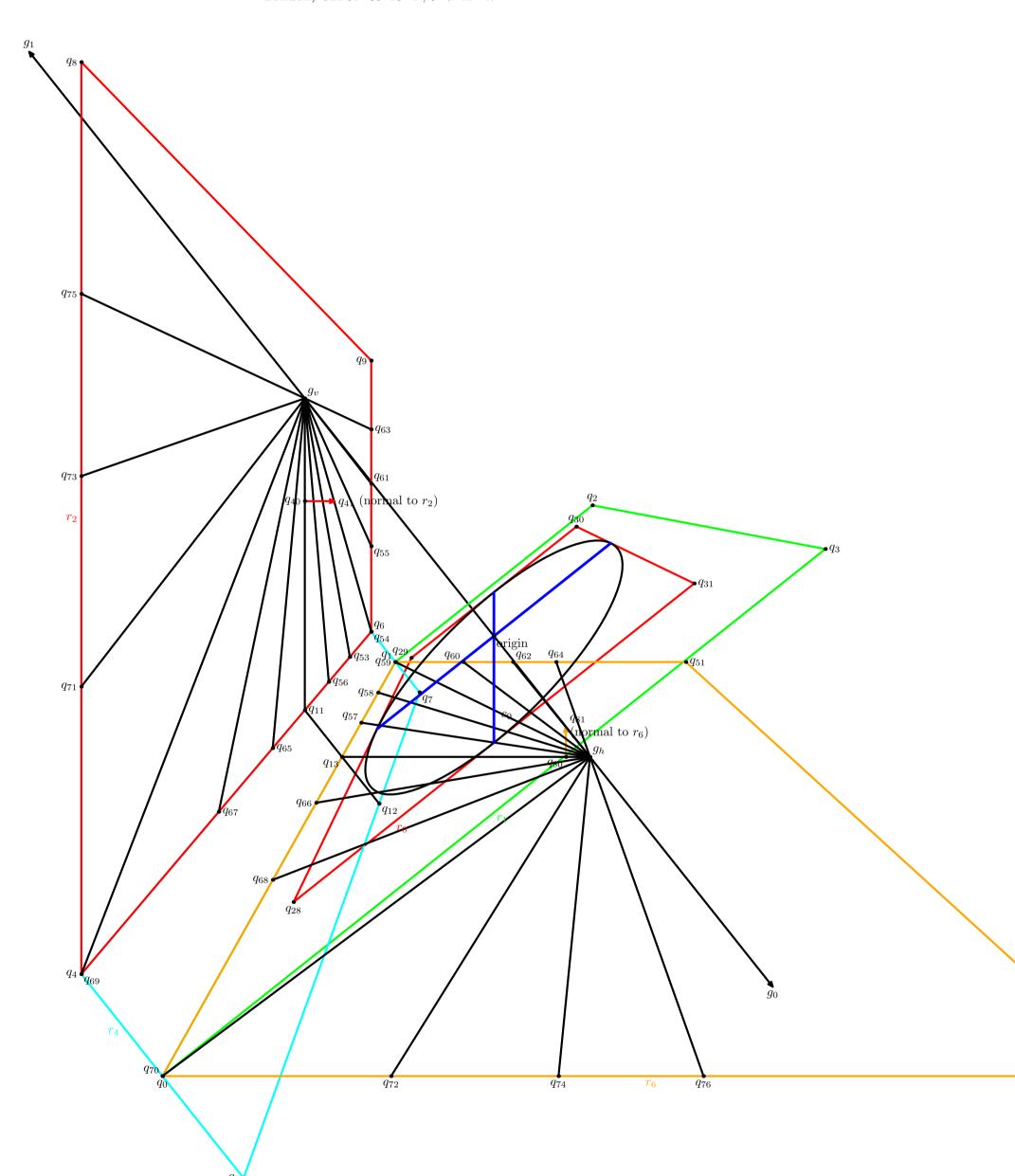
Latitude 41° 54′ N (Athens, Greece) Focus: position = (0,5,-12), direction = (0,5,10), distance = 10 (dimensions in centimeters)

Chicago, Illinois, USA 41° 52' 55'' N 87° 37' 40'' W



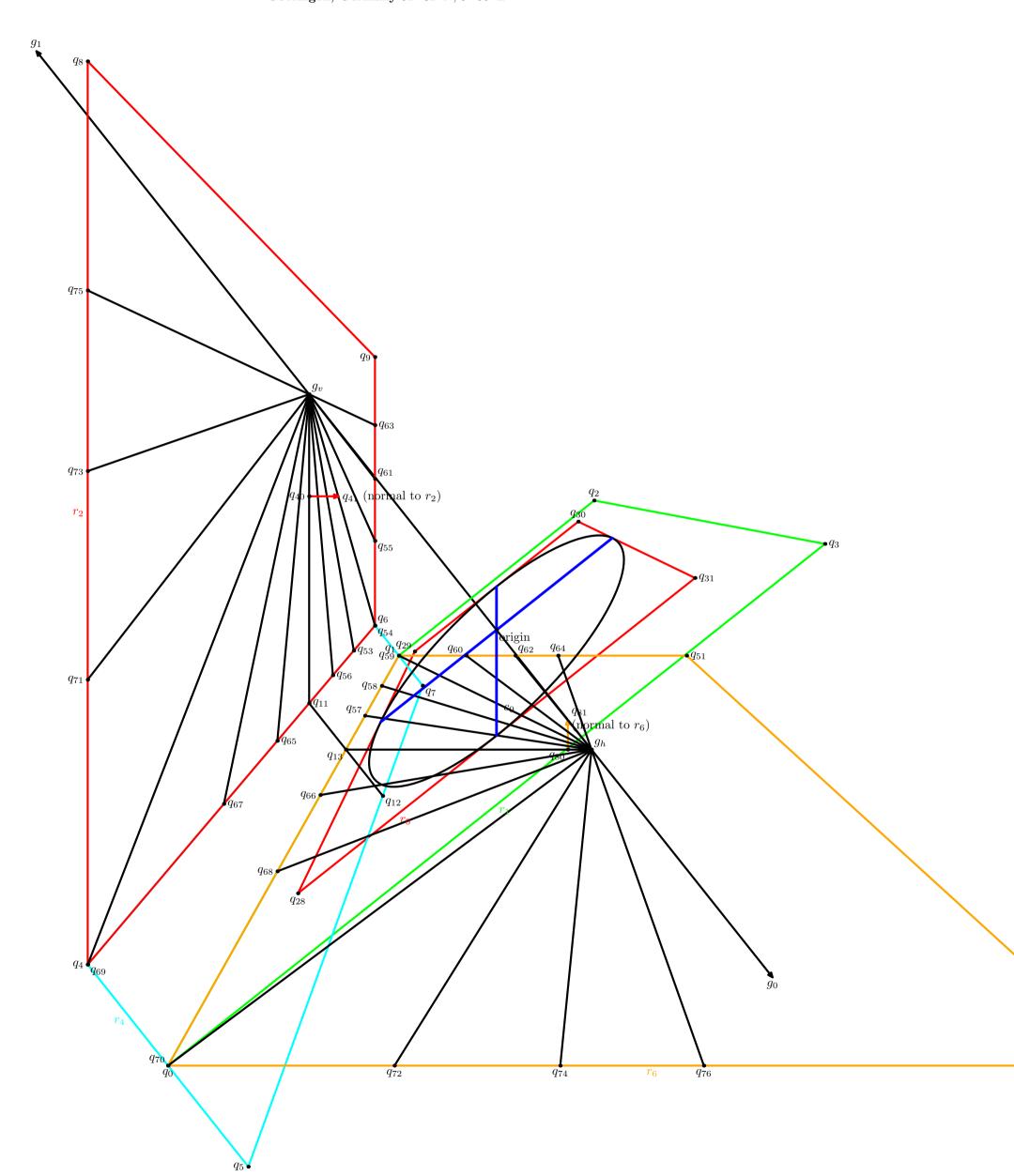
Chicago, Illinois, USA 41° 52′ 55″ N 87° 37′ 40″ W Focus: position = (0,5,-12), direction = (0,5,10), distance = 10 (dimensions in centimeters)

London, UK 51° 30′ 28″ N, 0° 7′ 41″ W



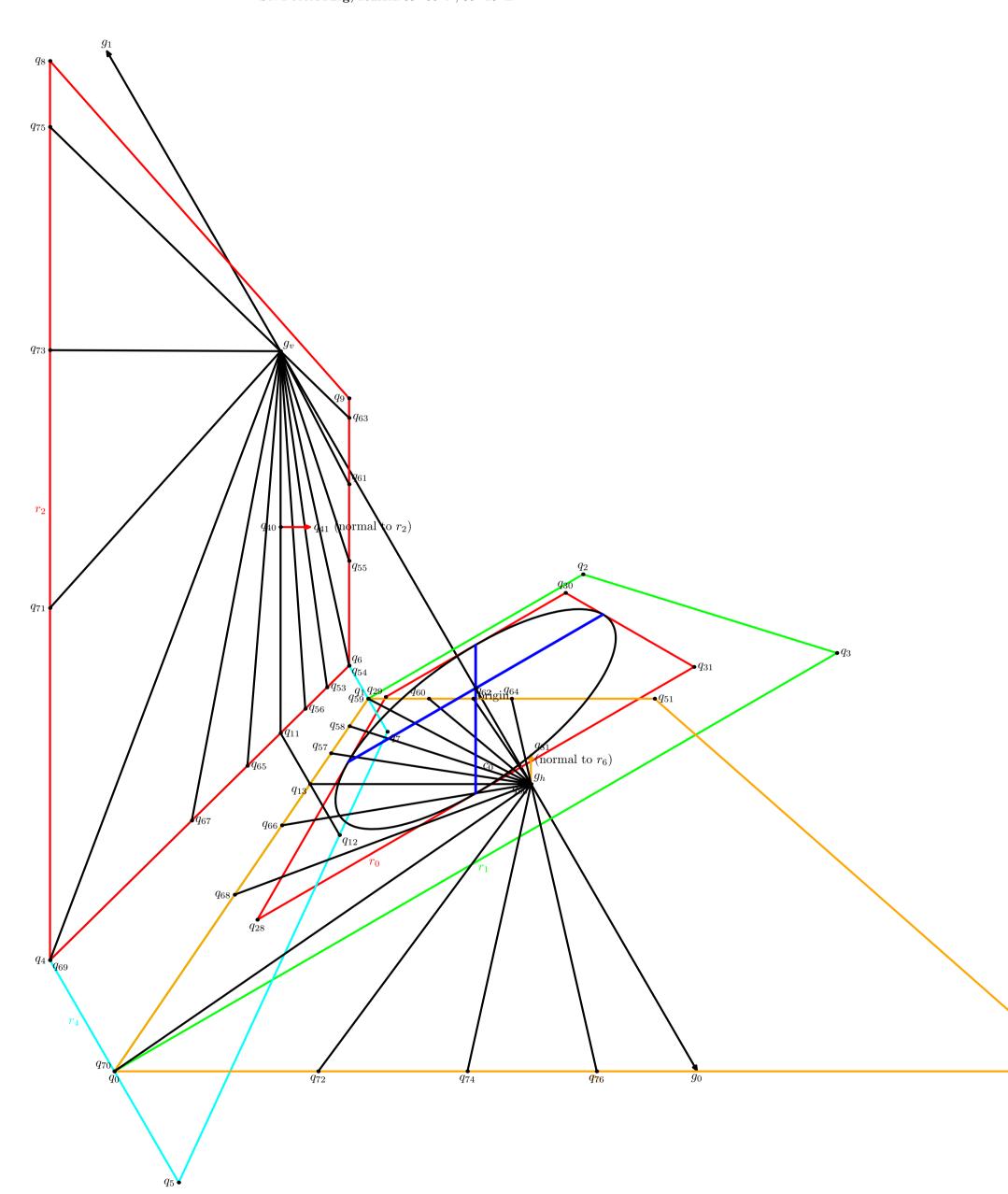
Latitude 51° 30′ 28″ N (London, UK) Focus: position = (0,5,-12), direction = (0,5,10), distance = 10 (dimensions in centimeters)

Göttingen, Germany 51° 32′ N, 9° 56′ E



Latitude 51° 32′ N (Göttingen, Germany) Focus: position = (0,5,-12), direction = (0,5,10), distance = 10 (dimensions in centimeters)

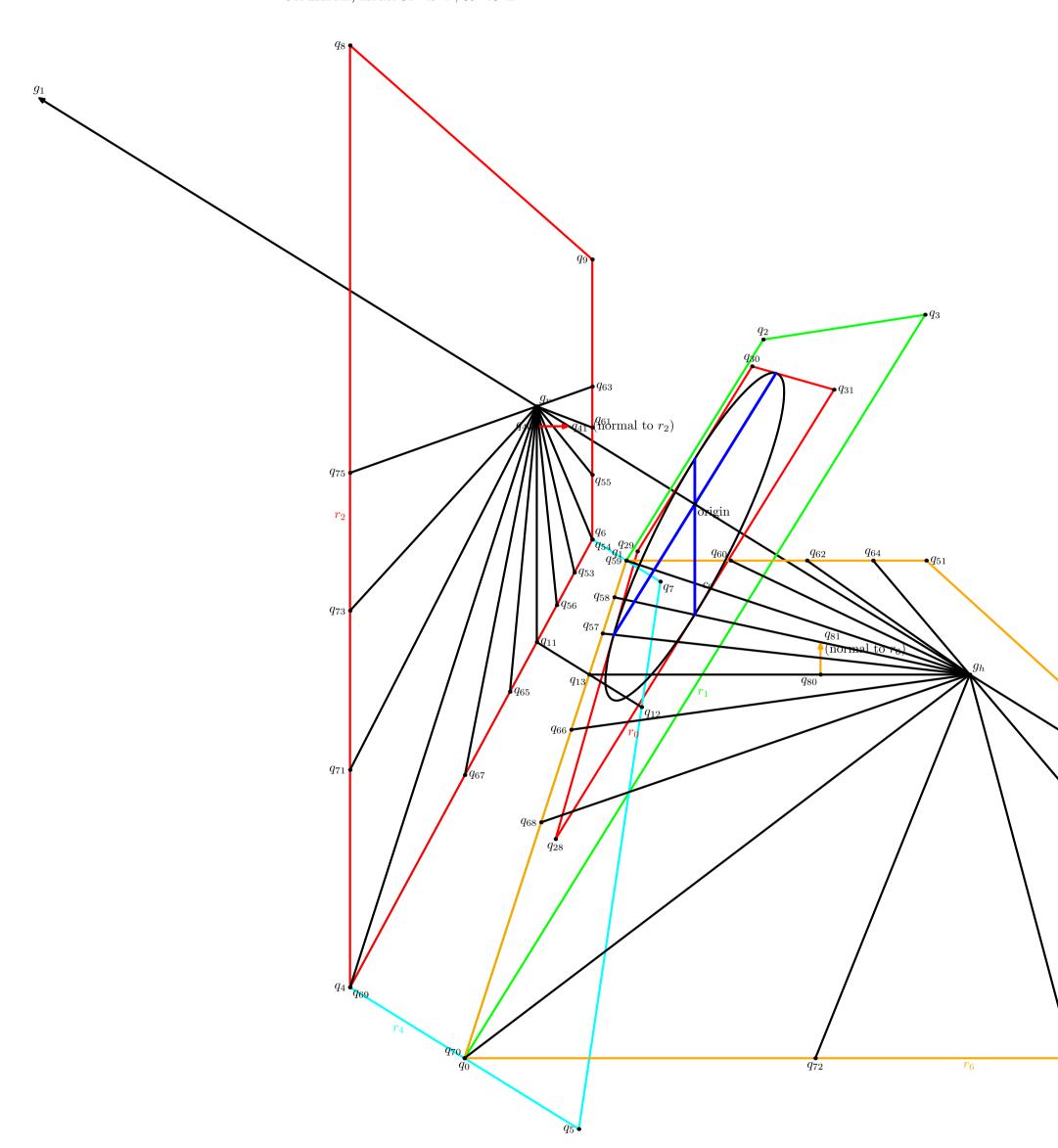
St. Petersburg, Russia 59° 56' N, 30° 20' E



Perspective projection

Latitude 51° 32′ N (Göttingen, Germany) Focus: position = (0, 5, -12), direction = (0, 5, 10), distance = 10 (dimensions in centimeters)

Jerusalem, Israel 31° 47′ N, 35° 13′ E

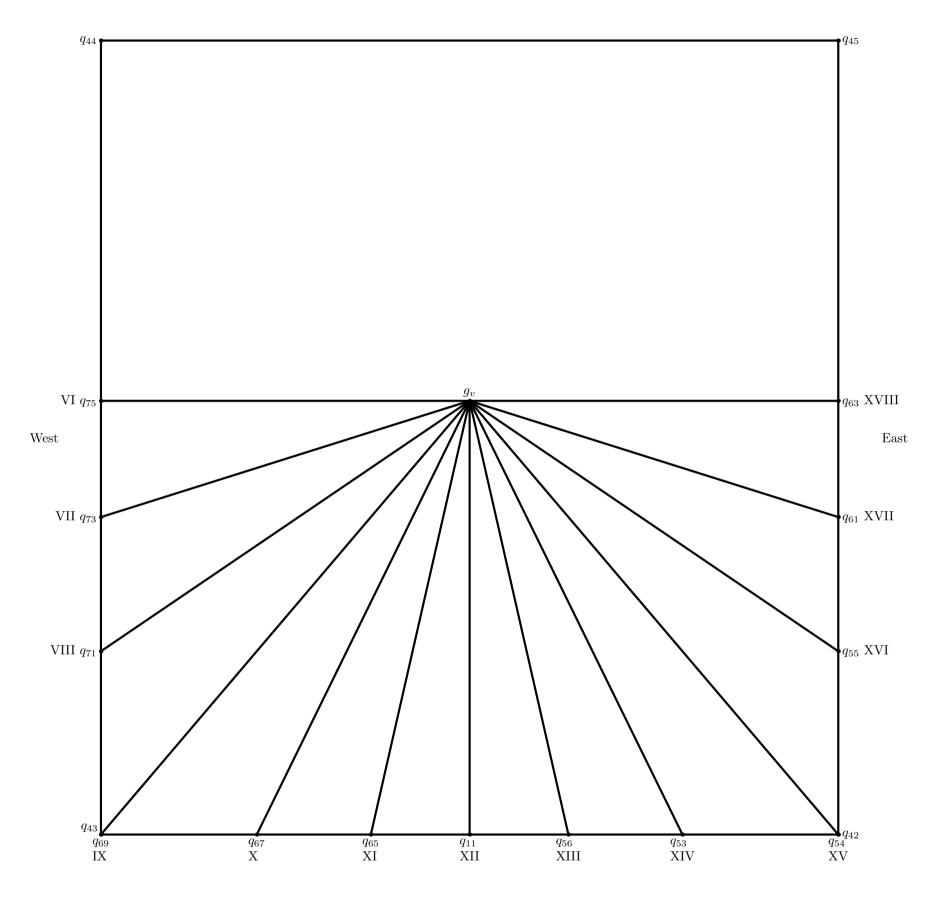


Perspective projection

Jerusalem, Israel 31° 47′ N, 35° 13′ E Focus: position = (0,5,-12), direction = (0,5,10), distance = 10 (dimensions in centimeters)

Jerusalem, Israel $31^{\circ}~47'~\mathrm{N},\,35^{\circ}~13'~\mathrm{E}$

 Up



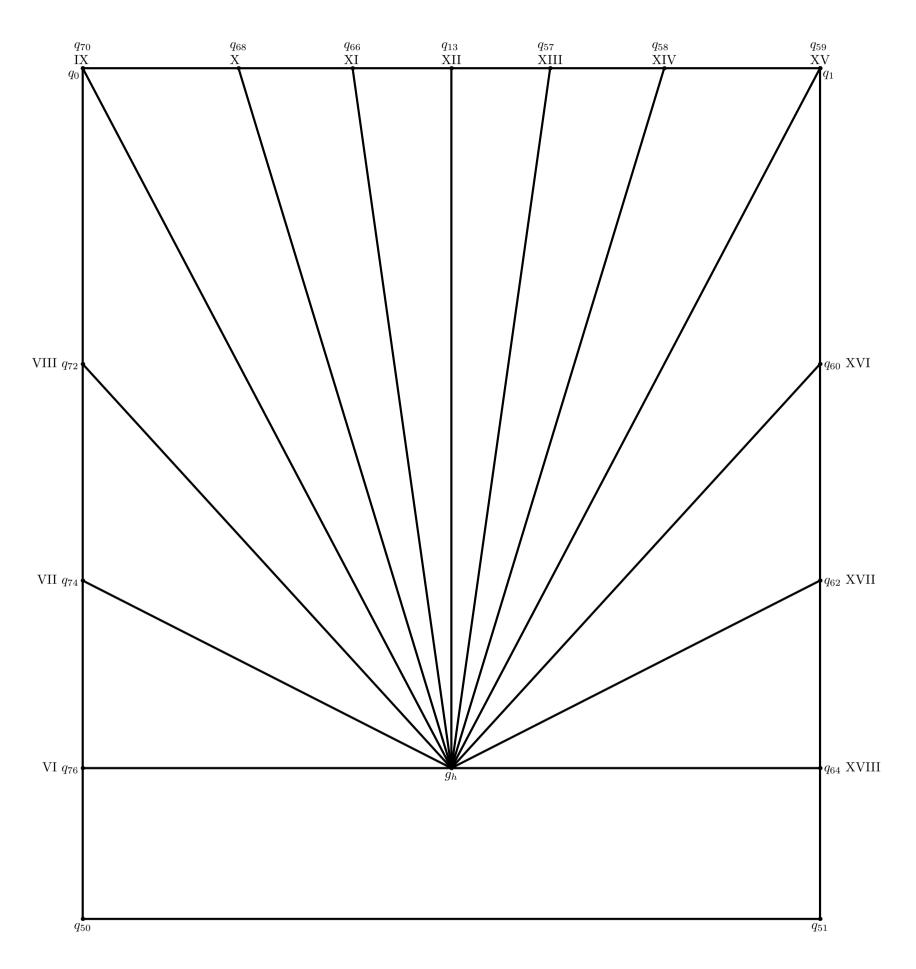
Down

Parallel projection onto the vertical plane (plane of r_1)

Vertical dial facing due south Jerusalem, Israel 31° 47′ N, 35° 13′ E

Jerusalem, Israel $31^{\circ}~47'~\mathrm{N},\,35^{\circ}~13'~\mathrm{E}$

North



South

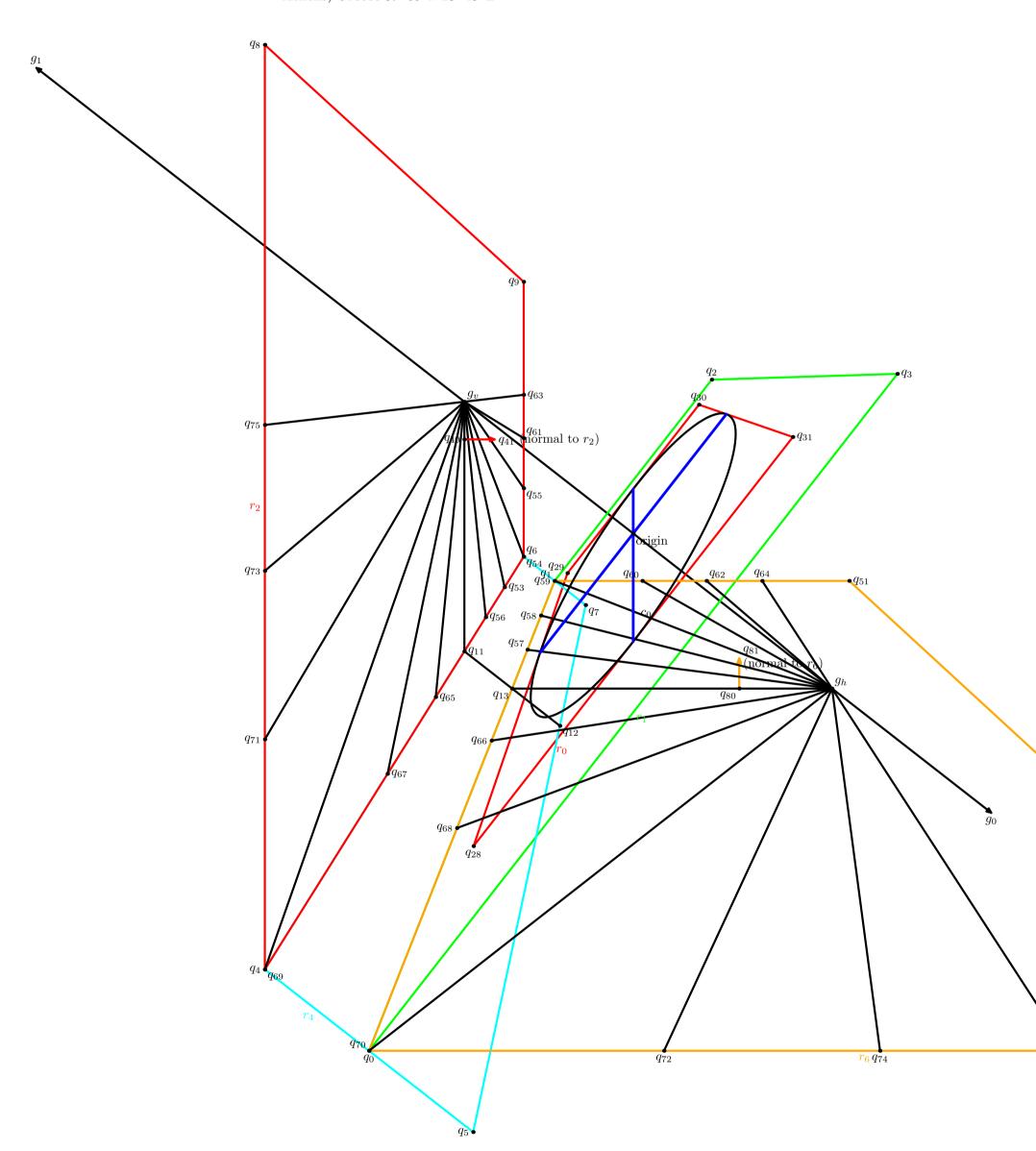
Parallel projection onto the horizontal plane (plane of r_6)

Horizontal dial

West

Jerusalem, Israel 31° 47′ N, 35° 13′ E

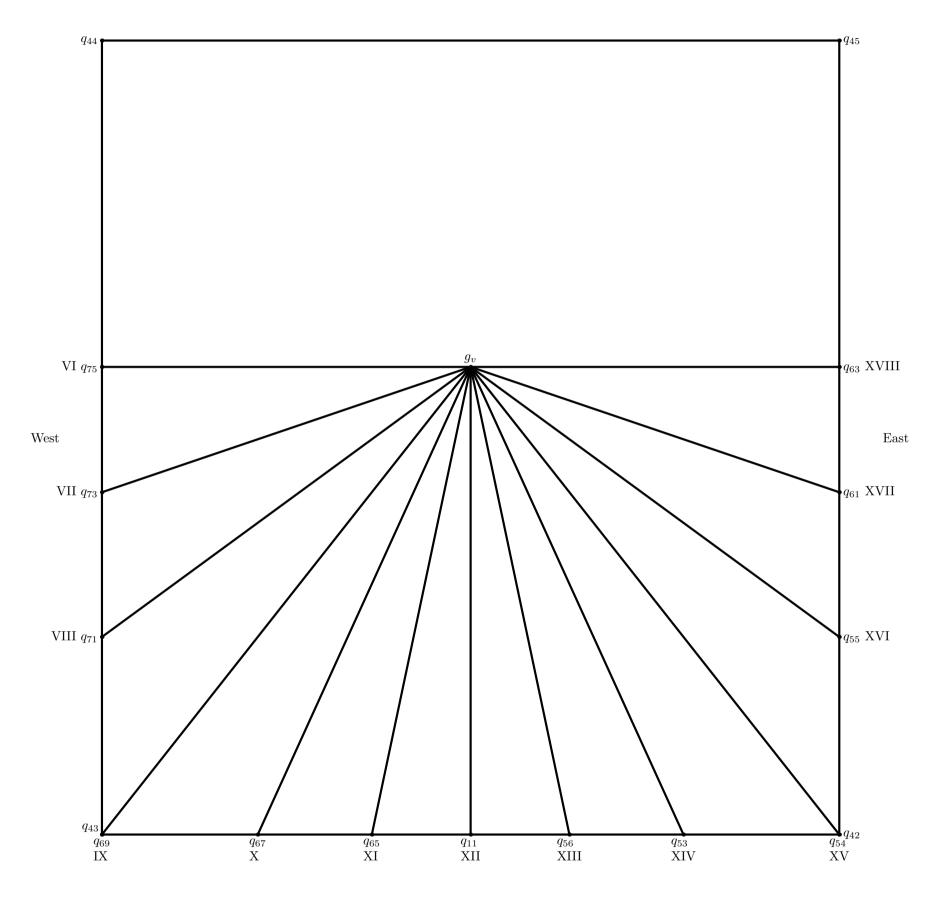
East



Perspective projection

Latitude 41° 54′ N (Athens, Greece) Focus: position = (0,5,-12), direction = (0,5,10), distance = 10 (dimensions in centimeters)

 Up

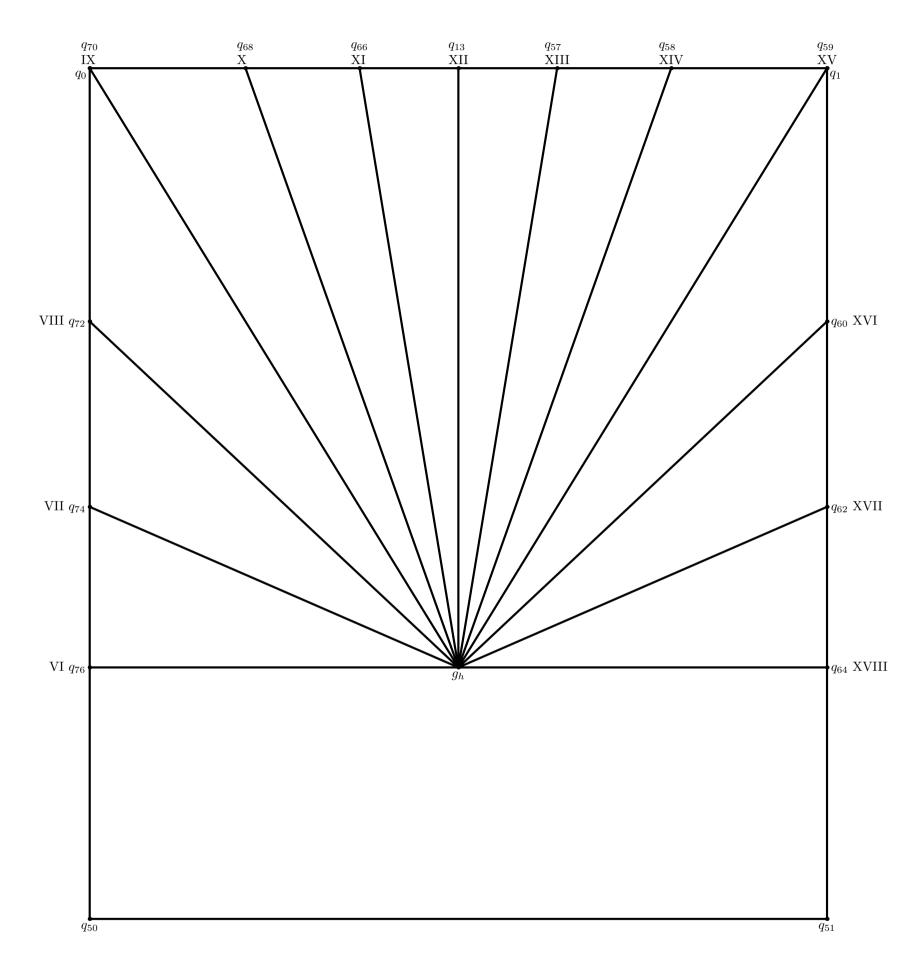


Down

Parallel projection onto the vertical plane (plane of r_1)

Vertical dial facing due south Latitude 41° 54′ N (Athens, Greece)

North



South

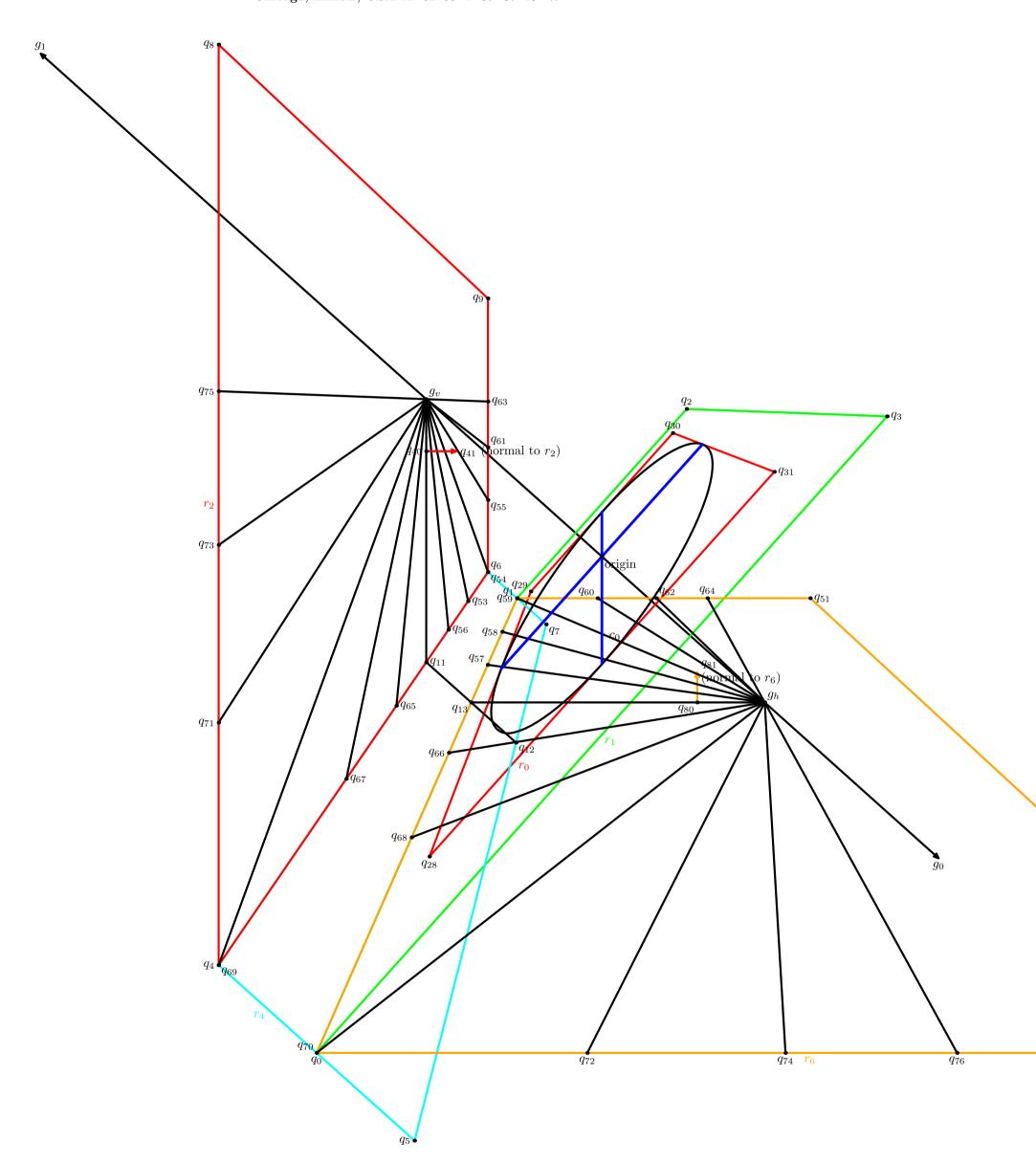
Parallel projection onto the horizontal plane (plane of r_6) Horizontal dial

Latitude 41° 54′ N (Athens, Greece)

West

East

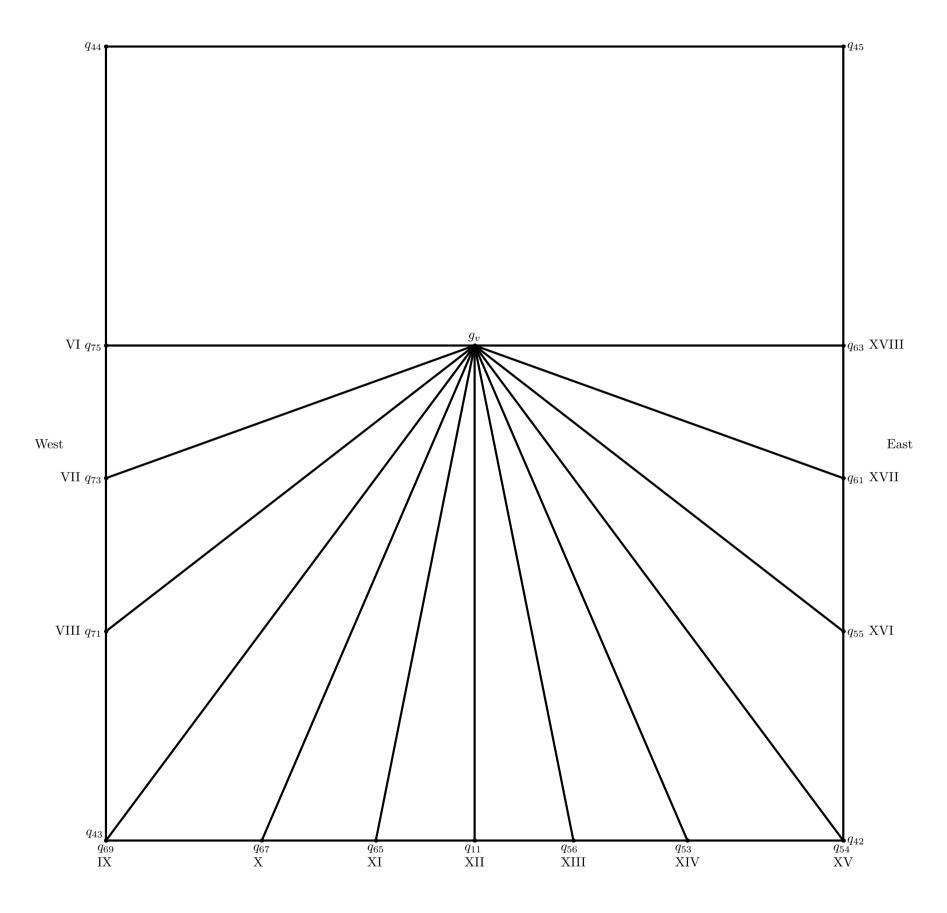
Chicago, Illinois, USA 41° 52′ 55″ N 87° 37′ 40″ W



Chicago, Illinois, USA 41° 52′ 55″ N 87° 37′ 40″ W Focus: position = (0,5,-12), direction = (0,5,10), distance = 10 (dimensions in centimeters)

Chicago, Illinois, USA 41° 52′ 55″ N 87° 37′ 40″ W

 Up



Down

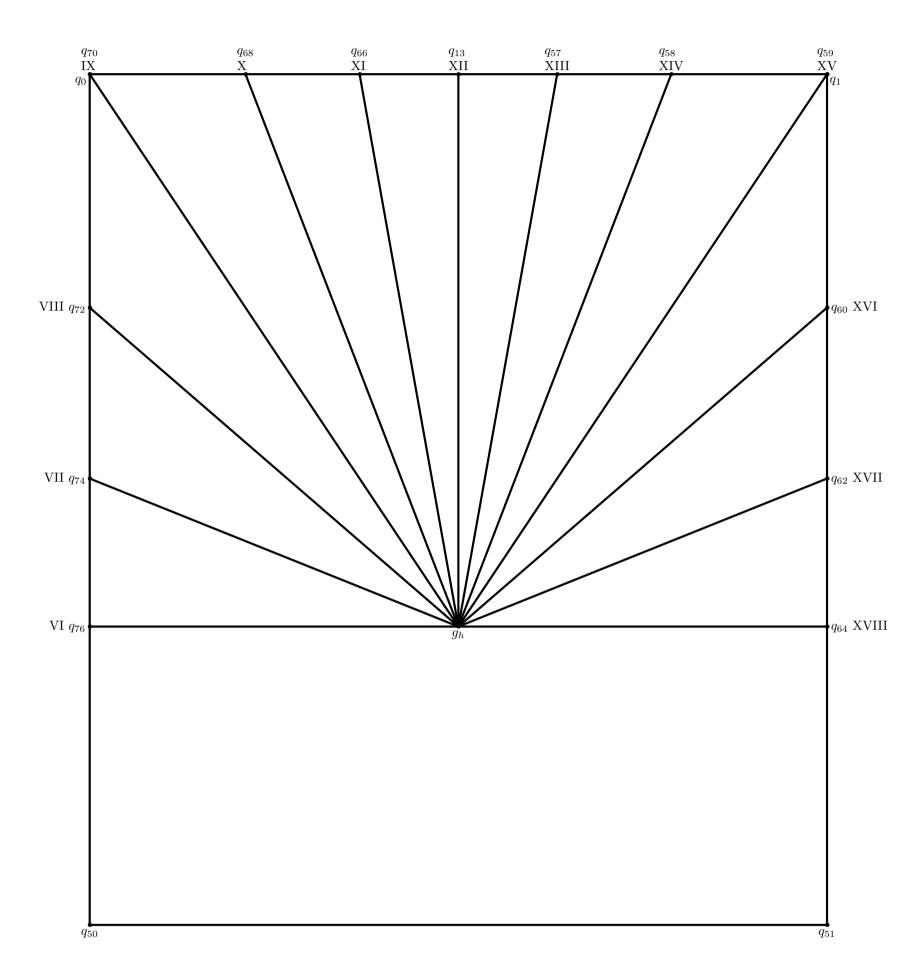
Parallel projection onto the vertical plane (plane of r_1)

Vertical dial facing due south

Chicago, Illinois, USA 41° 52′ 55″ N 87° 37′ 40″ W

Chicago, Illinois, USA 41° 52′ 55″ N 87° 37′ 40″ W

North



South

Parallel projection onto the horizontal plane (plane of r_6)

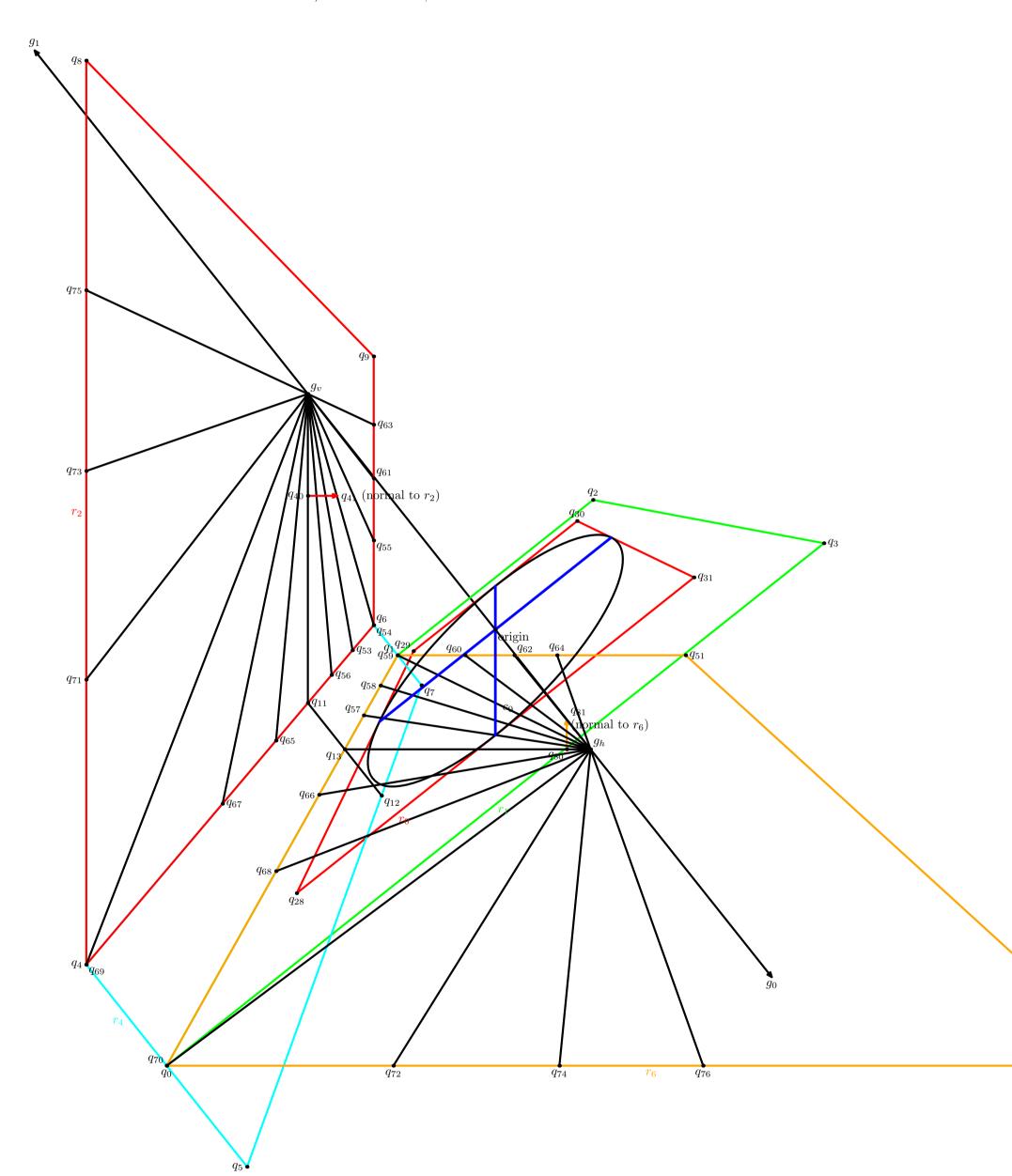
Horizontal dial

West

Chicago, Illinois, USA 41° 52′ 55″ N 87° 37′ 40″ W

East

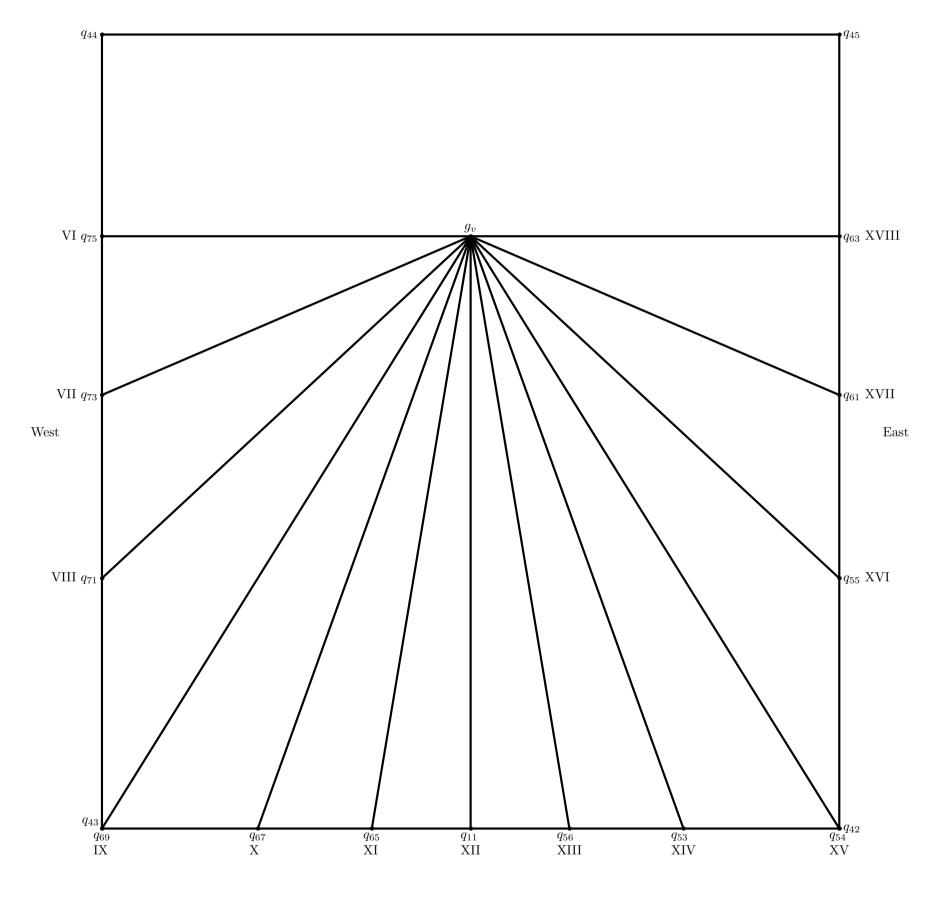
London, UK 51° 30′ 28″ N, 0° 7′ 41″ W



Latitude 51° 30′ 28″ N (London, UK) Focus: position = (0,5,-12), direction = (0,5,10), distance = 10 (dimensions in centimeters)

London, UK 51° 30′ 28″ N, 0° 7′ 41″ W

 Up



Down

Parallel projection onto the vertical plane (plane of r_1)

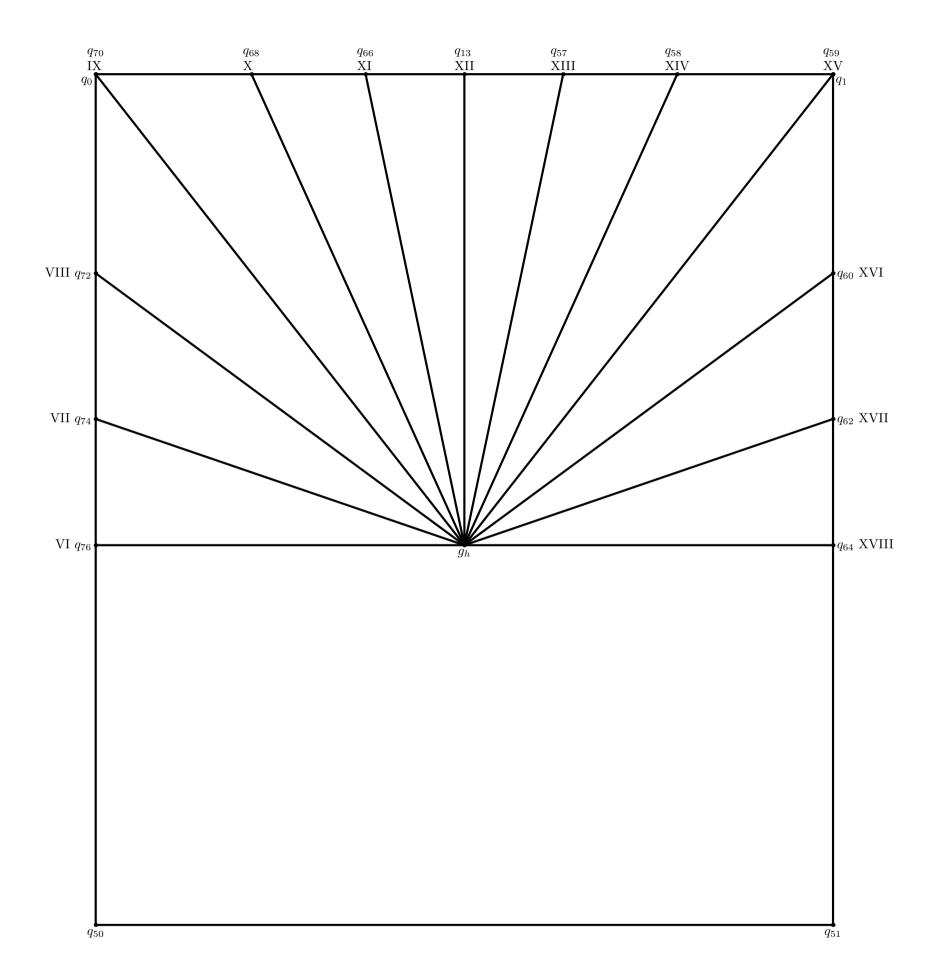
Vertical dial facing due south

Latitude 51° 30′ 28″ N (London, UK)

East

London, UK 51° 30′ 28″ N, 0° 7′ 41″ W

North



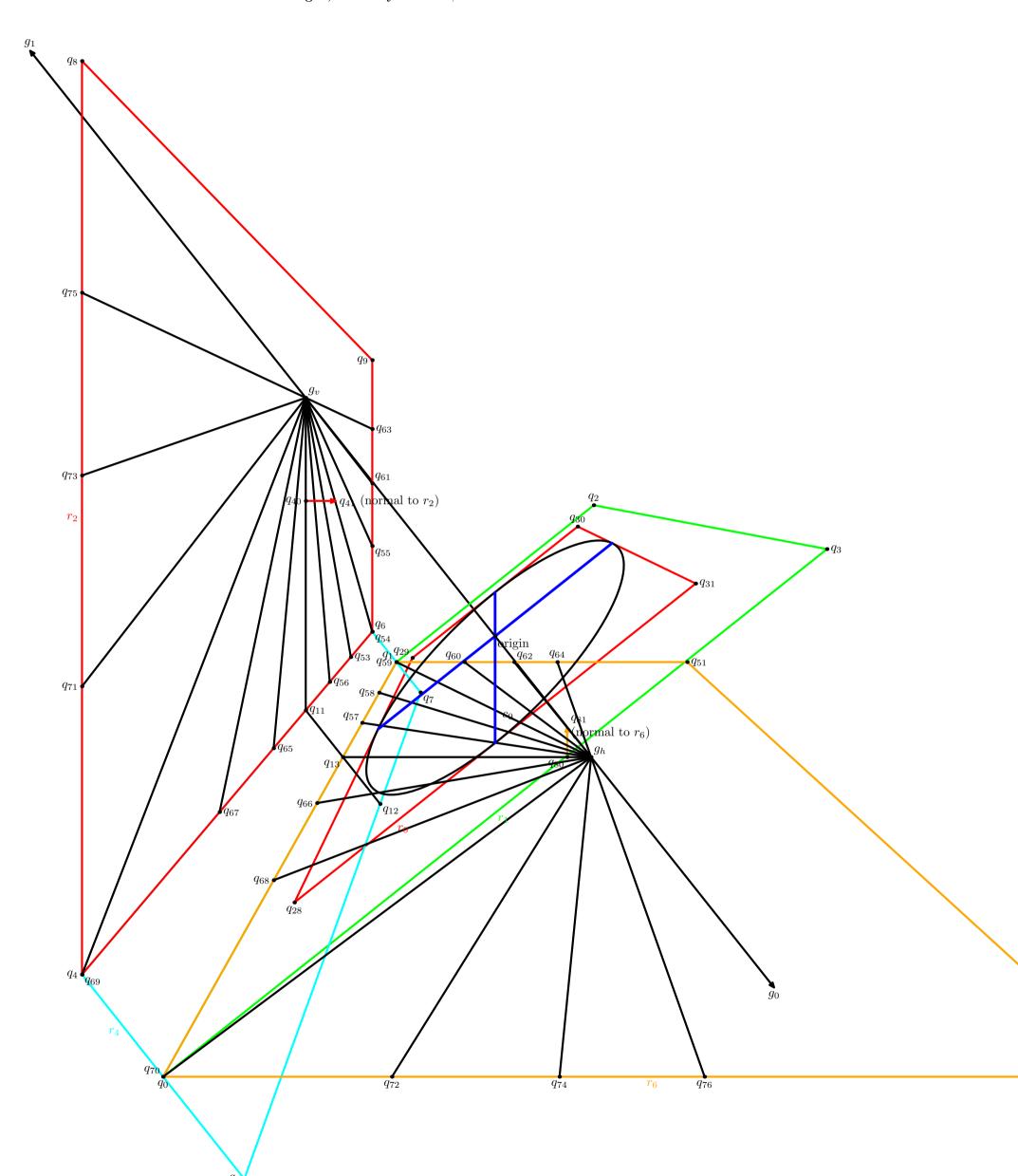
South

Parallel projection onto the horizontal plane (plane of r_6) Horizontal dial

Latitude 51° 30′ 28″ N (London, UK)

West

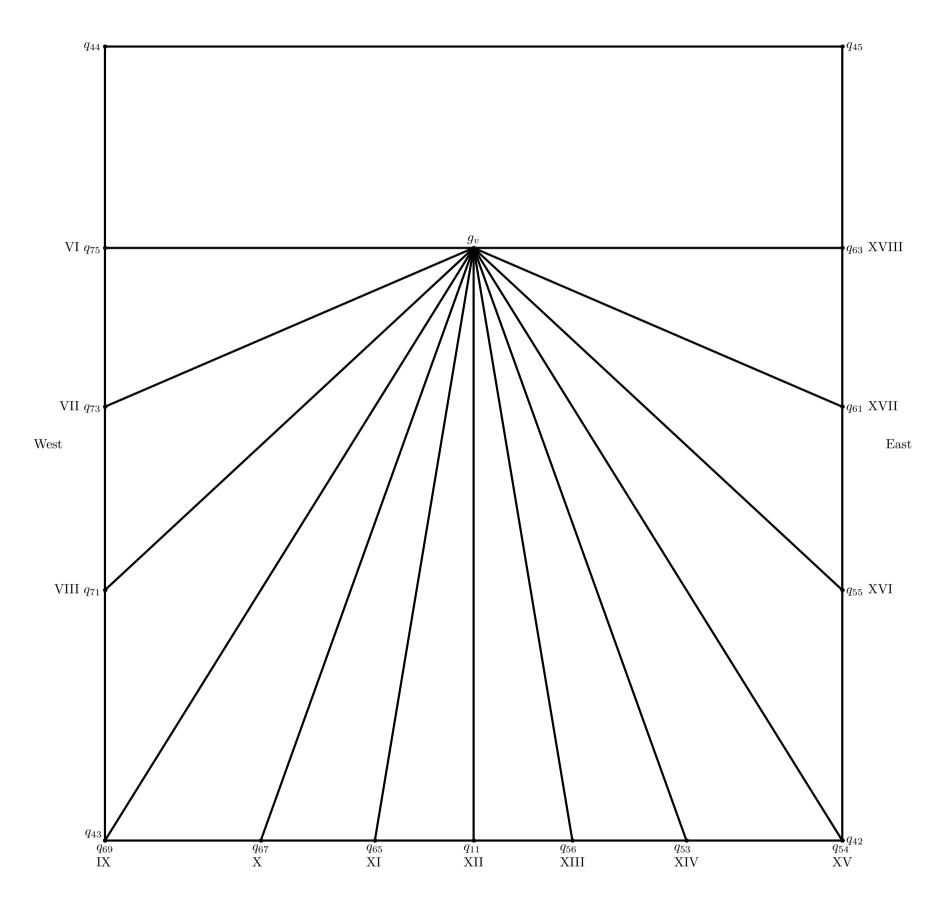
Göttingen, Germany 51° 32′ N, 9° 56′ E



Latitude 51° 32′ N (Göttingen, Germany) Focus: position = (0,5,-12), direction = (0,5,10), distance = 10 (dimensions in centimeters)

Göttingen, Germany 51° 32′ N, 9° 56′ E

 Up



Down

Parallel projection onto the vertical plane (plane of r_1)

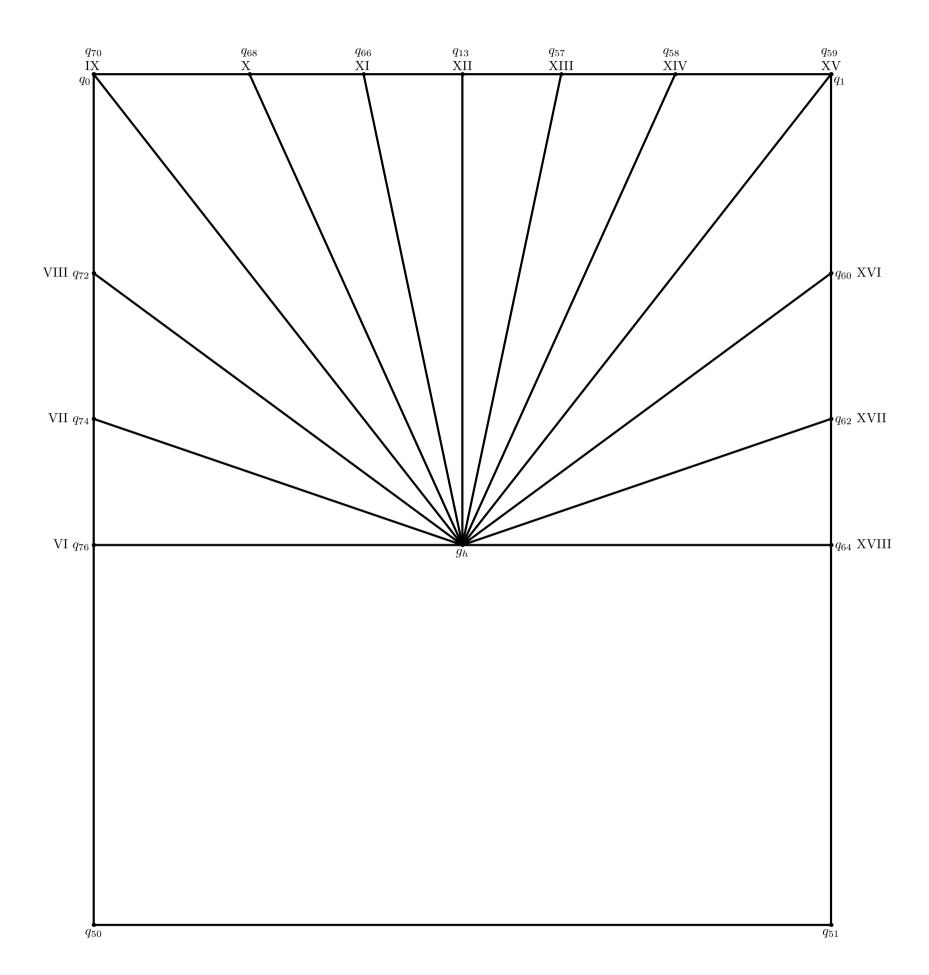
Vertical dial facing due south

Latitude $51^{\circ}~32'$ N (Göttingen, Germany)

East

Göttingen, Germany 51° 32′ N, 9° 56′ E

North



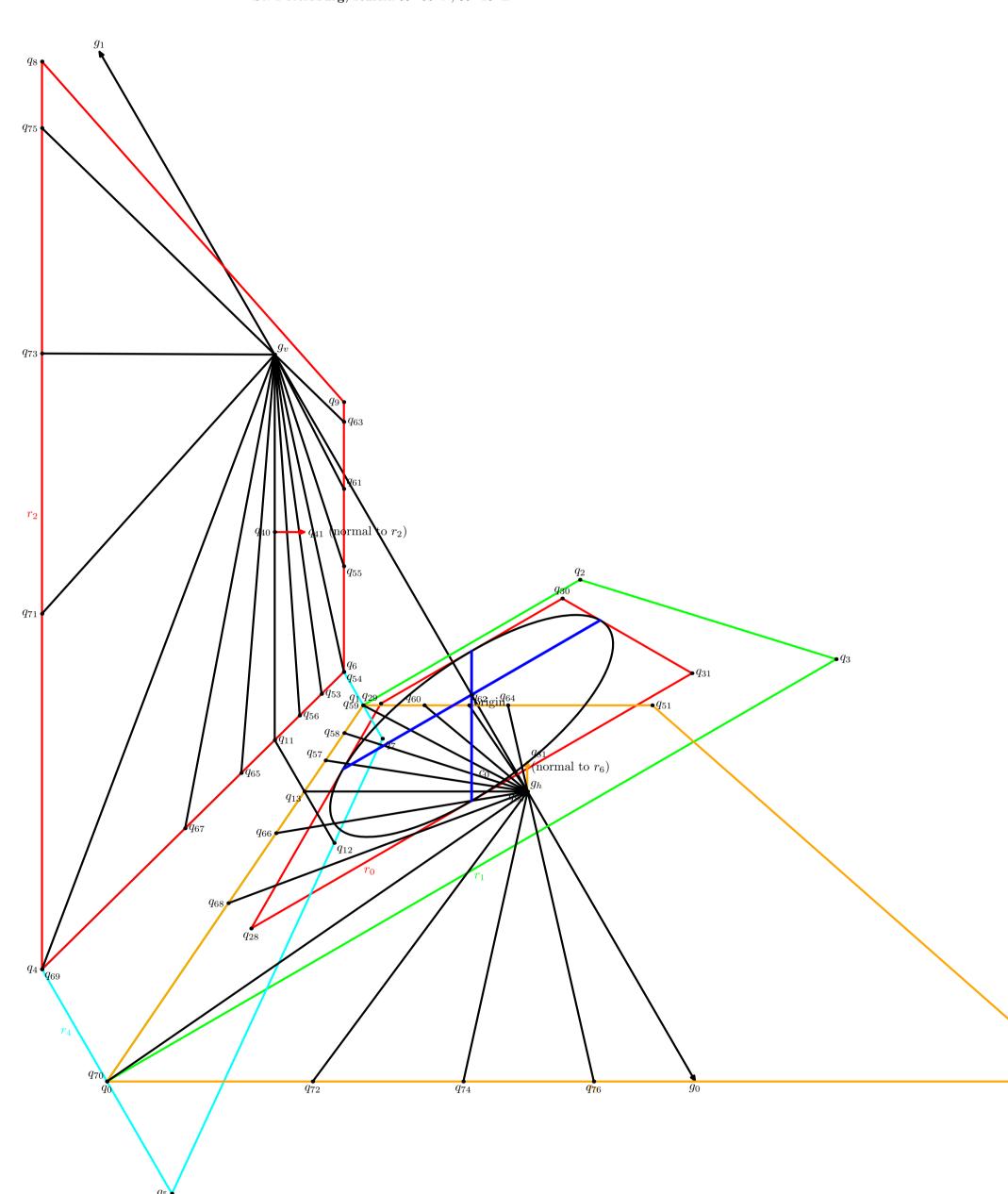
South

Parallel projection onto the horizontal plane (plane of r_6). Horizontal dial

Latitude 51° 32′ N (Göttingen, Germany)

West

St. Petersburg, Russia 59° 56′ N, 30° 20′ E

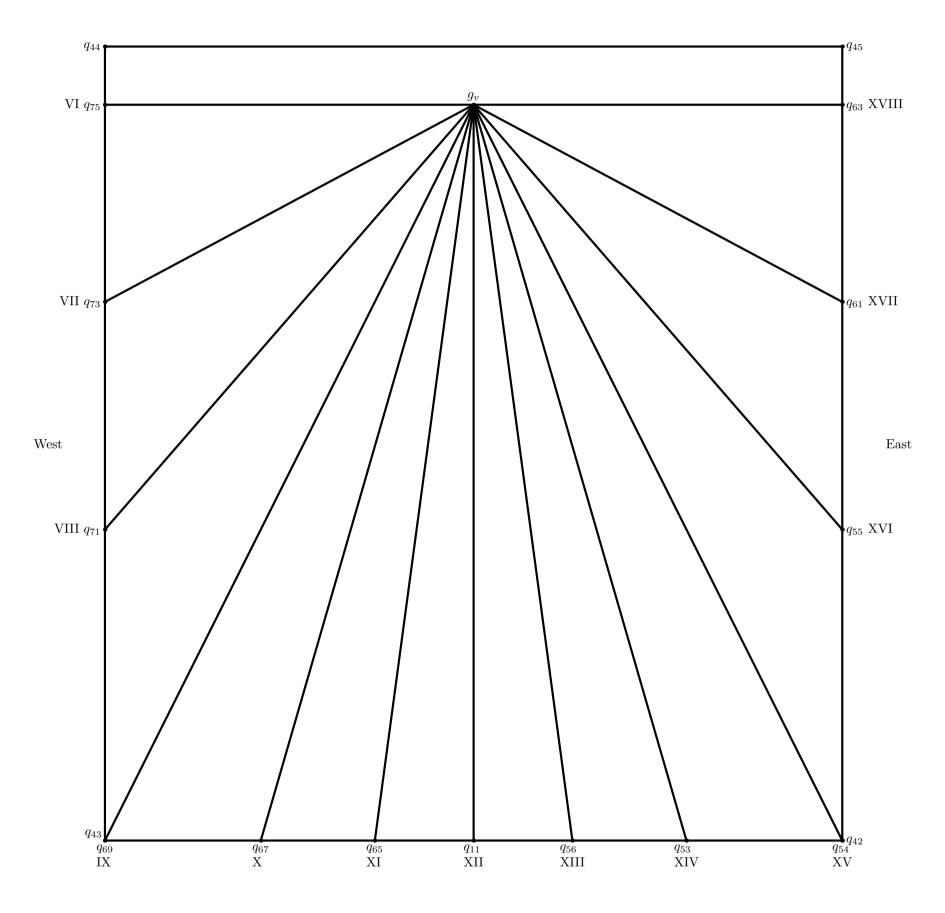


Perspective projection

St. Petersburg, Russia 59° 56′ N, 30° 20′ E Focus: position = (0,5,-12), direction = (0,5,10), distance = 10 (dimensions in centimeters)

St. Petersburg, Russia 59° 56′ N, 30° 20′ E

 Up



Down

Parallel projection onto the vertical plane (plane of r_1)

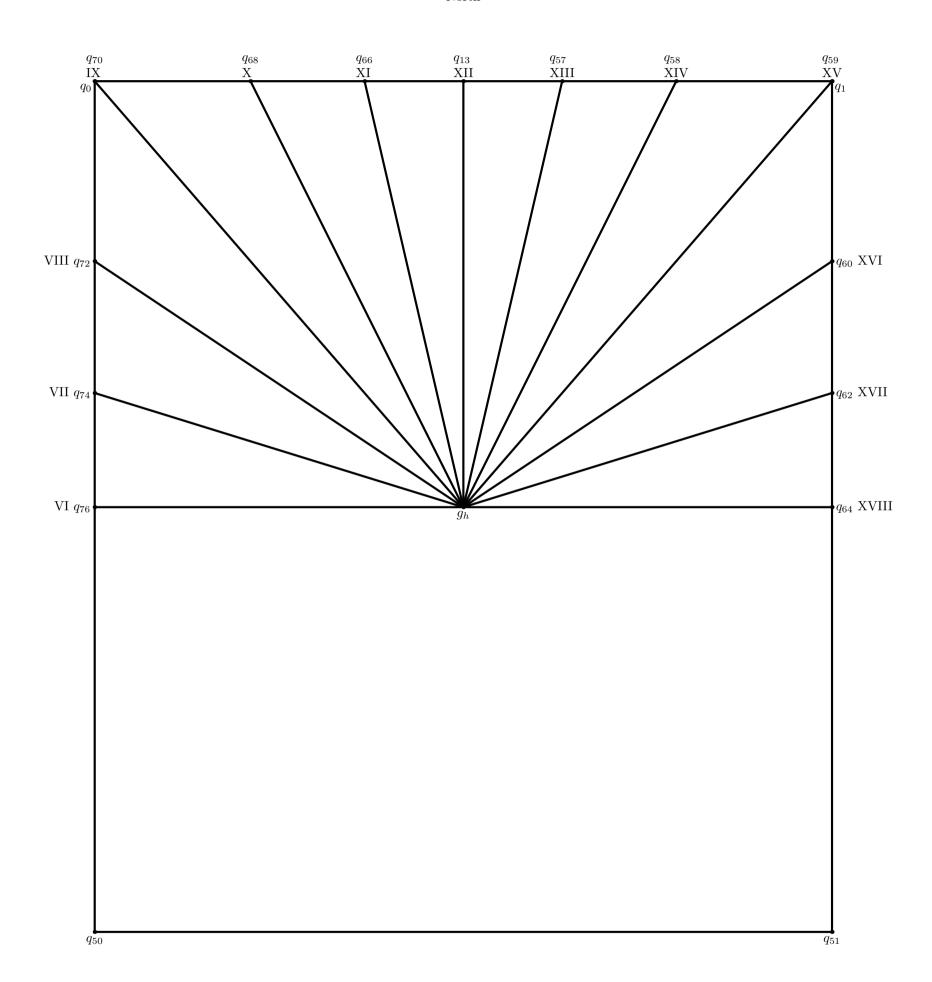
Vertical dial facing due south

St. Petersburg, Russia $59^{\circ}~56'~\mathrm{N},\,30^{\circ}~20'~\mathrm{E}$

East

St. Petersburg, Russia 59° 56′ N, 30° 20′ E

North



South

Parallel projection onto the horizontal plane (plane of r_6).

Horizontal dial

West

St. Petersburg, Russia 59° 56′ N, 30° 20′ E