Spatial analysis in R

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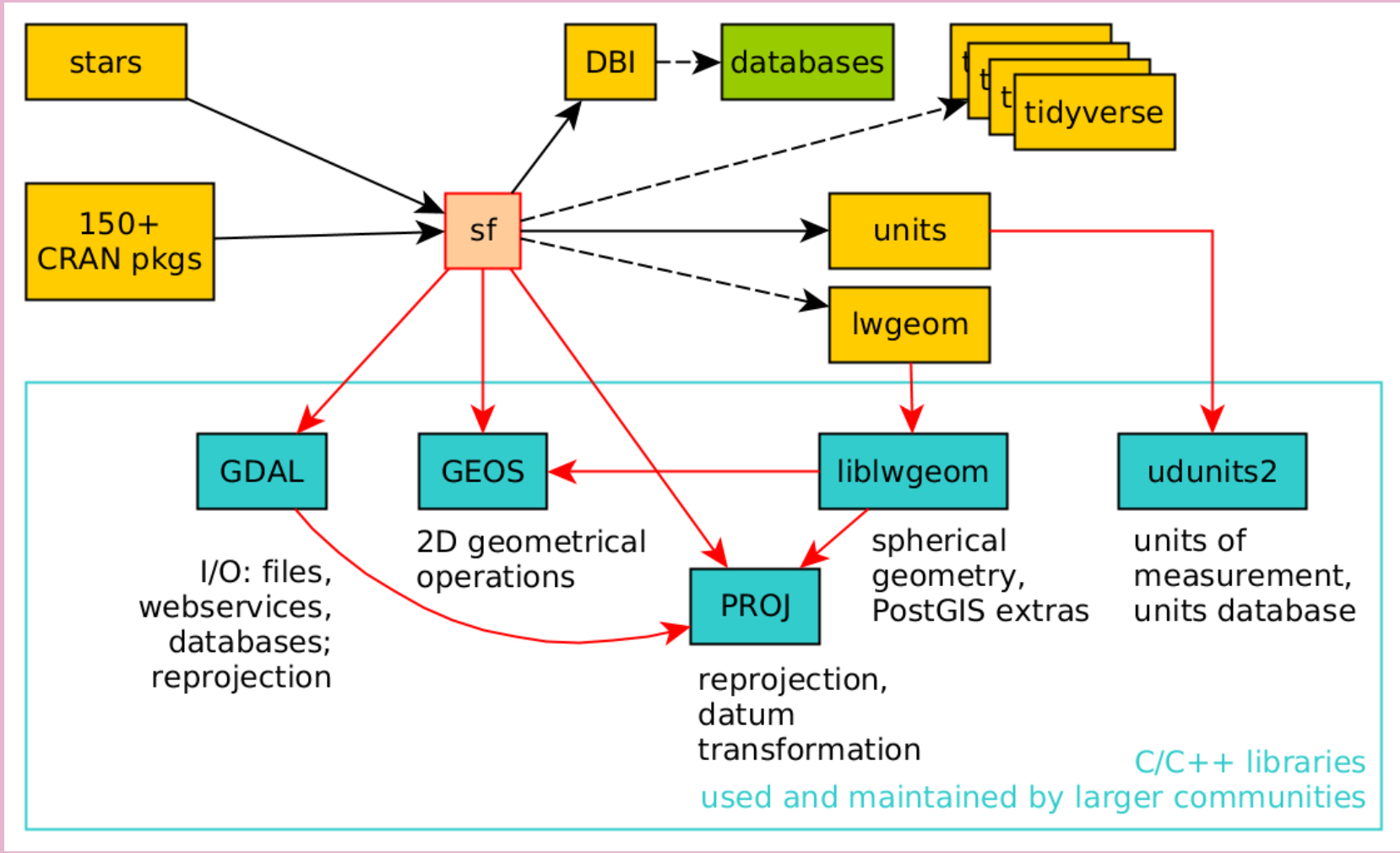
First, a discussion: why use R for spatial analysis?

Spatial R ecosystem



CRAN Task Views: Spatial and SpatioTemporal. History of R spatial

Types of spatial data

Raster Vector

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Vector file formats: Shapefile

+ widely used and supported

- multifile format

- limit to 10 character attribute names, automatic

- maximum file size of 2-4GB

- limited to single geometry types

```
input/
├── breweries.dbf
├── breweries.prj
├── breweries.shp
└── breweries.shx
```

`

Vector file formats: GeoJSON

```
{
  "type": "Feature",
  "geometry": {
    "type": "Point",
    "coordinates": [125.6, 10.1]
  },
  "properties": {
    "name": "Dinagat Islands"
  }
}
```

`

Vector file formats: GeoPackage

+ single file

+ stores vectors and rasters

+ widely supported

+ uses a SQLite backend

- non-streaming format

`

Encoding vectors: Simple features

Raster data

https://bookdown.org/robinlovelace/geocompr/spatial-class.html#raster-data

`

Encoding rasters

`

Resources

This is not a comprehensive list

Packages

- `sf`
- `raster`
- `mapview`

Books / Websites

Spatial

- Geocomputation with R - Robin Lovelace, Jakub Nowosad, Jannes Muenchow
- Spatial Data Science - Edzer Pebesma, Roger Bivand
- Spatial Data Science with R
- A good basic overview: mapschool.io