skfda.misc.metrics.distance_from_norm

skfda.misc.metrics.distance_from_norm(*norm, **kwargs*) [source]

Returns the distance induced by a norm.

Given a norm $\|\cdot\| : X \to \mathbb{R}$, returns the distance $d : X \times X \to \mathbb{R}$ induced by the norm:

$$d(f, g) = \|f - g\|$$

Parameters:	**norm** (`Function`) – Norm function *norm(fdata, **kwargs)*. ****kwargs** (*dict*, *optional*) – Named parameters to be passed to the norm function.
Returns:	Distance function *norm_distance(fdata1, fdata2)*.
Return type:	`Function`

Examples

Computes the $\mathbb{L}^2$ distance between an object containing functional data corresponding to the function $y(x) = x$ defined over the interval [0, 1] and another one containing data of the function $y(x) = x/2$.

Firstly we create the functional data.

```
>>> x = np.linspace(0, 1, 1001)
>>> fd = FDataGrid([x], x)
>>> fd2 =  FDataGrid([x/2], x)
```

To construct the $\mathbb{L}^2$ distance it is used the $\mathbb{L}^2$ norm wich it is used to compute the distance.

```
>>> l2_distance = distance_from_norm(norm_lp, p=2)
>>> d = l2_distance(fd, fd2)
>>> float('%.3f'% d)
0.289
```