0.1 Testing for Autocorrelation

To "understand" the movement patterns of an animal, is it essential to check the parameters stored in the trajectory (dist, dx, dy, angle) for autocorrelation. A positive autocorrelation means, that values closer to each other tend to be more similar.

To test for autocorrelation, the ltraj object needs to be of type 1 or consist of constant time lags. As our time lags are not constant, we transform our trajectory into type 1 by using a simple `typeII2typeI` function.

```
> xmpl.ltr.t1 = typeII2typeI(xmpl.cut)
```

The new format does not include any information concerning time and date:

```
> xmpl.ltr.t1
```

0.1.1 Linear Parameters

To test the three linear parameters (`dist, dx, dy`), the independence test of Wald and Wolfowitz (1994) can be used. It tests the sequential autocorrelation in a vector. It can be implemented as `wawotest.ltraj` for each burst in a `ltraj` object. This function removes all NAs before running the test. [**?**]

```
> wawotest(xmpl.ltr.t1)
```

The p-Values indicate the correlation but as our time lag is not constatnt, the interpretation does not make much sense.

To identify at which scales autocorrelation occurs, an autocorrelation function (ACF) can be used. Here, the ltraj object needs to be regular. For further information check out the tutorial by Clement Calenge. [**?**]

0.1.2 Angles

testdist.ltraj(x, nrep = 999, alter = c("two-sided","less","greater"))
and
testang.ltraj(x, which = c("absolute", "relative"), nrep = 999, alter = c("two-sided","less","greater"))
they are working but i dont know what exactly they simulate