Study: FFR Molis Tone Glide

Updated: 7/5/2018 by Brandon Madsen

ACTIVE VERSIONS

**\_10\_** **–** Accommodates flat-tone versions, which means it also uses version **\_5\_** of bc\_artRej\_plusMinus. Otherwise identical to **\_9\_30uV**.

(Description updated 7/5/2018 by Brandon Madsen)

**\_9\_30uV** **–** Uses 30 uV threshold for artifact rejection. Uses version **\_4\_30uV** of bc\_artRej\_plusMinus.

(Description updated 12/19/2017)

OBSOLETE VERSIONS

**\_8\_ –** Uses 10% reject rate for artifact rejection.Differences from **\_7\_**:

1. Uses version **\_3\_fixedPol** of bc\_artRej\_plusMinus instead of version **\_2\_noOverwrite**.
2. Uses version **\_2\_lessVerbose** of artrej\_by\_ratio instead of version **\_1\_**.

(Description updated 12/1/2017 by Brandon Madsen)

(Moved to obsolete 7/5/2018 by Brandon Madsen)

**\_7\_ (now obsolete)** **–** This version is based on **\_6\_**, with the following differences:

1. It uses version **\_2\_noOverwrite** of bc\_artRej\_plusMinus instead of version **\_1\_**.

(Description updated 12/1/2017 by Brandon Madsen)

**\_6\_** **(now obsolete)** **–** This version is based on **\_5\_**, with the following differences:

1. Now calls bc\_artRej\_plusMinus(version **\_1\_**), instead of implementing baseline correction, artifact rejection, and the making of plus/minus versions internally. In terms of artifact rejection, this has the following differences from the previous implementations:
   1. When calling the function, arguments are passed to specify the number of samples in the prestimulus interval (prestimSamps) and in the duration of the stimulus (stimSamps), which will be used to determine the region of interest for artifact rejection. There is also an argument for how many additional samples (bufferSamps) should be included in the analysis following the end of the stimulus. Previous versions instead used the entire recording epoch.
   2. In gradually lowering the rejection threshold to reach the target reject ratio, the threshold is iteratively set to the highest amplitude in the analysis time-ranges of the remaining (not yet rejected) sweeps. This method provides the best balance between (i) speed of processing, and (ii) most precisely approximating the target reject ratio.
   3. Includes an input argument nTotal, which documents the total number of sweeps in the original recording, as a way of preventing accidentally running already-processed data through multiple times and getting successively smaller numbers of sweeps.

(Description updated 12/1/2017 by Brandon Madsen)

**\_5\_ (now obsolete)** **–** This version is based on **\_4\_** (therefore restrictions based on file naming conventions still hold for this version also) but has the following differences:

1. Artifact rejection threshold is set adaptively so as to achieve the closest match to a target accept/reject ratio (10% rejection rate) instead of set as an a priori microvolt threshold.
2. Each epoch is baseline corrected to the mean amplitude of the prestimulus interval prior to artifact rejection.

(Description updated 11/22/2017 by Brandon Madsen)

**\_4\_ (now obsolete) –** Note that due to differences in file naming conventions, this only works for the round of DAT files newly output from Neuroscan in November of 2017, based on the old Jane data collected in the first half of 2015. It should be easily adaptable to other data sets provided that the parts that parse the filenames are modified appropriately OR provided that the filenames are made to conform to the format used here.

The regular expression used to parse the filename is:

['^(?<sid>\w{2}\d{3})'... % subject id: 2 alphanumeric characters at the beginning of the filename, followed by 3 digits

'\_(?<ear>[LR])'... % stim ear: “L” or “R”

'\_(?<slope>10|13|23)'... % glide slope: “10”,”23”, or “13”

'\_(?<dir>[a-z]{2,4})'... % glide direction: 2-4 lowercase letters

'\_(?<dur>\d{2,3})'... % stim duration: 2-3 digits

'\_?(?<art>art)?'... % artifact run?: either “art” (yes) or nothing (no)

'(?:\_reref)?(?<ref>\w{2})?'... % reference electrode: either “reref” followed by 2 alphanumeric/underscore characters, or nothing (will assume A2 is reference in the latter case)

'\_(?<bins>[1346]{2})'... % bins: 2 numbers from the set {1,3,4,6}

'\_(?<targ>\w{2})\.dat']; % target electrode: 2 alphanumeric characters followed by the file extension

Note that this is all one expression, so this order must be followed exactly, and each piece must be separated from adjacent ones by an underscore character.

Artifact rejection threshold is 30 microvolts (uV).

(Description updated 11/22/2017 by Brandon Madsen)