

## Interactions with other pipelines

because spike\_analysis incorporates the sorted\_neurons table (f.e. unit\_IDs and site\_IDs) into behavior and ephys data, it is used as a first step in all ephys analysis.

Outputs in Y:\Projects\project\ephys\version:

File	Info
population_monkey_session.mat	spike data sorted by unit for each session
sites_monkey_session.mat	LFP data sorted by site for each session
by_block_monkey_session.mat	body signals sorted by block for each session
Mon_sorted_neurons.xls	copies of the used sorted neurons tables from dropbox
keys_Monkey.mat	copy of the keys used when running ph_initiation
tuning_table_combined.mat	Anova results stored in a table
tuning_table_combined_CI.mat	Anova results restructured according to contra/ipsi definitions
tuning_table_combined.xls	simplified excel table
spike_shapes	Spike shapes, firing rates over time, and ISI plots for re-assessing spike sorting

The three main files come in a specific data structure, which contain the same fields except for the respective data:

- by\_block(body signals) - only trial information and body signals
- sites (LFP) - additional site information and LFP, no body signals
- population (spikes) - additional unit information and spike\_arrival times, no LFP, no body signals

## Trial structure subfields (By\_block files)

to be removed:

```

    cue_pos: NaN
    cue_shape: NaN
    all_tar_pos: [2x1 double]
    col_dim: [2x3 double]
    col_bri: [2x3 double]

```

Condition info	Format	Info
type	scalar	from data
effector	scalar	from data
reach_hand	scalar	from data
choice	scalar	from data
success	scalar	from data
completed	scalar	from data
correct_targets	scalar	from data
target_selected	scalar	from data
n_nondistractors	scalar	from data
n_distractors	scalar	from data

Condition info		Format	Info
difficulty		scalar	from data
stimuli_in_2hemifields		scalar	from data
perturbation		scalar	using perturbation_groups key ??
dataset		scalar	Dataset from sorted_neurons (only in spikes so far ??)
Timing info		Format	Info
date		scalar	from data
block		scalar	from data
run		scalar	from data
n		scalar	from data
trial_onset_time		scalar	from data
run_onset_time		scalar	from data
states		array	array of events marked in this trial
states_onset		array [s]	corresponding onset times (relative to state 2)
Spatial info		Format	Info
fix_pos		complex	x is real, y is imaginary (already preprocessed?)
tar_pos		complex	x is real, y is imaginary
stm_pos		complex	x is real, y is imaginary
Response info		Format	Info
rea_off		complex	x is real, y is imaginary
sac_off		complex	x is real, y is imaginary
sac_lat		scalar	Saccade RT (in seconds)
rea_lat		scalar	Reach RT (in seconds)
Specific data		Format	Info
TDT_POX1		array	Data
TDT_POX1_SR		scalar	Sampling rate
TDT_POX1_t0_from_rec_start		scalar	0.0462 this trials
TDT_POX1_tStart		scalar	-0.0462 this trials
LFP		array	Data
arrival_times		array	Data
FR_average		scalar	average firing rate for this unit in this trial
accepted		scalar	trial accepted for this unit
FR		scalar	??
stability_rating		scalar	why is this here ??

## Site files

Fieldname	Example	Info
site_ID	'Bac_20210706_Site_01	as assigned in sorted_neurons, in population files this is the corresponding site for this unit
target	'dPul_R'	recording target from sorted_neurons
perturbation_site	'NA'	perturbation target from sorted_neurons
grid_x	3	grid location from sorted_neurons
grid_y	-4.5	grid location from sorted_neurons
electrode_depth	45	Aimed_electrode_depth from sorted_neurons

Fieldname	Example	Info
monkey	'Bacchus_phys'	as assigned in sorted_neurons (?)
trial	struct	the corresponding trials and data within

## Population file

Population files store additional information about each unit.

Fieldname	Example	Info
unit_ID	'Bac_20210706_01'	as assigned in sorted_neurons
channel	2	channel the unit was recorded in
block_unit	{3×1 cell}	which cluster in which block are combined in this unit
SNR_rating	2	SNR rating (either from sorted_neurons or automatic?)
Single_rating	1	Single rating (either from sorted_neurons or automatic?)
stability_rating	2	stability rating (either from sorted_neurons or automatic?)
quantSNR	11.5	KK automatic SNR
n_waveforms	0	apparently bugged
waveform_average	[1×30 single]	average waveform of this unit
waveform_std	[1×30 single]	std of waveform for each bin
waveform_width	3.0224e-04	width (in time?)
waveform_amplitude	173.2376	amplitude (?)
FR	2.68	average firing rate across all data

From:

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Last update: 2022/12/29 07:15

