def get\_all\_trace\_df(expt\_group, session\_name, trace\_type='dff', column\_names=None):

    """Get a dataframe of all traces from a session (all ophys trace, either dff or events)

def get\_notask\_trace\_df(expt\_group, session\_name, trace\_type='dff', column\_names=None):

    """Get a dataframe of traces from a session (all ophys trace, either dff or events) with no task

    Assume 5 min gray screen before and after task

    and 5 min fingerprint (movie-watching; 30 sec 10 iterations) imaging at the end

    Some sessions don't have them.

def get\_task\_trace\_df(expt\_group, session\_name, remove\_auto\_rewarded=True, column\_names=None):

    """ Get trace\_df for a given session, while the animal was performing the task

    It has an option to remove auto-rewarded stimuli

def get\_all\_annotated\_stimulus\_presentations(exp):

    """ Get stimulus presentations with all behavioral annotations

    Merge dataframe from data\_formatting.get\_annotated\_stimulus\_presentations and data\_formatting.annotate\_stimuli

    For overlapping columns, the ones from data\_formatting.annotate\_stimuli will be dropped.

* This is an unfortunate process due to mindscope\_utilities have two different types of stimulus annotations. Just merging them together

def get\_stim\_annotated\_response\_df(exp, stim\_type, data\_type='dff', image\_order=3, inter\_image\_interval=0.75, output\_sampling\_rate=20):

    """ Get response dataframe with stimulus annotations

def get\_stim\_annotated\_response\_df\_session(expt\_group, session\_name, stim\_type, data\_type='dff', image\_order=3,

                                           inter\_image\_interval=0.75, output\_sampling\_rate=20, remove\_auto\_rewarded=True, column\_names=None):

    """ Get trace dataframe for a given session and stimulus type

    It is just a collection of get\_stim\_annotated\_response\_df for all the experiments in a session

* It has an option to remove auto\_rewarded stimulus presentations

def get\_all\_annotated\_response\_df\_session(expt\_group, session\_name, inter\_image\_interval=0.75, output\_sampling\_rate=20):

    """Get all response\_df for a session from all experiments in a expt\_group

    Most useful to save the results for later use.

* Annotate every stimulus, with ‘images’, ‘changes’, and ‘omissions’
* This uses get\_stim\_annotated\_response\_df with ‘all’ as the stimulus type
  + get\_stim\_annotated\_response\_df can get the df from a specific type of stimulus (among ‘image’, ‘change’, ‘omission’)
* This function is the most useful from this file, since after it is saved you can do almost everything from this DataFrame.

def get\_stim\_trace\_df\_session\_from\_all\_response\_df(response\_df\_session, expt\_group, stim\_type, image\_order=3, inter\_image\_interval=0.75):

    """Get trace DataFrame for a particular stim type from all experiments in a session,

    using response\_df\_session from get\_all\_annotated\_response\_df\_session.

* This will be the most-frequently used function using the response\_df\_session
  + Sorting out specific stimulus type from the ‘all’ response\_df