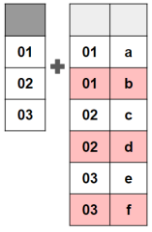
admiral :: CHEAT SHEET

What you need to know

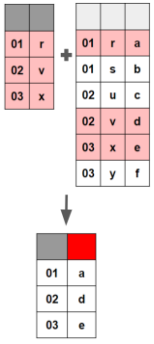
{admiral} is an open-source, modularized toolbox that enables the development of ADaM datasets in R.
{admiral} code is comprised of interchangeable blocks, i.e. function calls, that sequentially derive new variables or parameters to help construct an ADaM dataset.

Generic Variable-Adding Functions



derive_vars_merged(dataset, dataset_add, new_vars, filter_add, order, mode...)
Add new variable(s) to the input dataset based on variables from another dataset. Merged observations can be selected by a condition and/or selecting the first/last observation for each by group.

```
derive_vars_merged(
  dataset = adsl,
  dataset_add = vs,
  by_vars = exprs(STUDYID, USUBJID),
  order = exprs(convert_dtc_to_dtm(VSDTC)),
  mode = "last",
  new_vars = exprs(LASTWGT = VSSTRESN),
  filter_add = VSTESTCD == "WEIGHT"
)
```

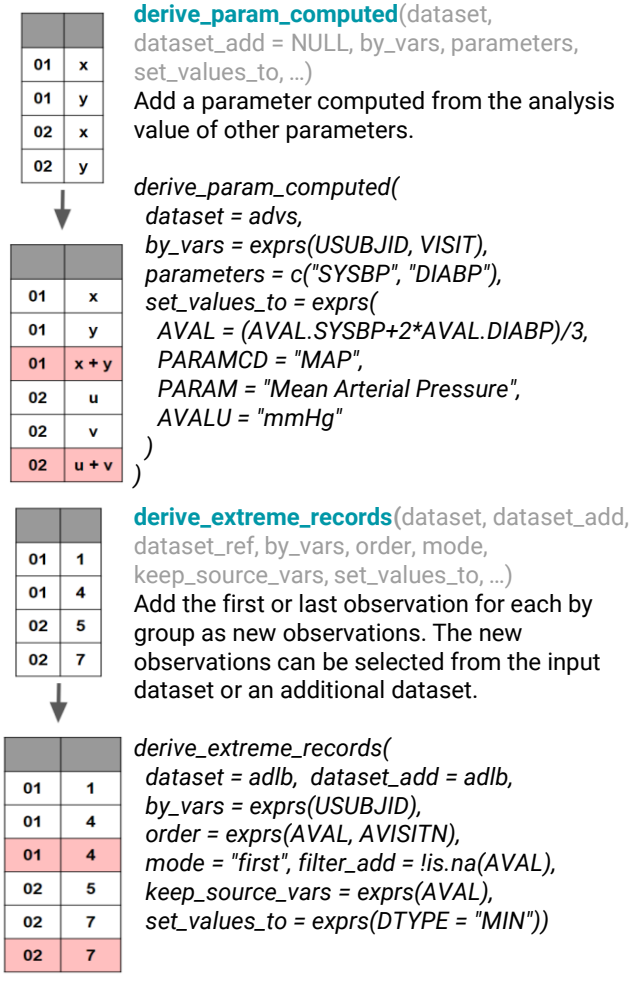


derive_vars_joined(dataset, dataset_add, new_vars, join_type, filter_add, order, mode...)
Add variables from an additional dataset to the input dataset. The selection of the observations from the additional dataset can depend on variables from both datasets.

```
derive_vars_joined(
  dataset = adae, dataset_add = period_ref,
  by_vars = exprs(STUDYID, USUBJID),
  join_vars = exprs(APERSDT, APEREDT),
  join_type = "all",
  filter_join = APERSDT <= ASTDT & [...])
```

Notable others:
derive_vars_extreme_event() **derive_vars_merged_lookup**()
derive_vars_transposed(), **derive_var_merged_ef_msrc**()
derive_vars_computed(), **derive_var_merged_summary**()
derive_vars_cat(), **derive_vars_crit_flag**()

Generic Parameter-Adding Functions



derive_param_computed(dataset, dataset_add = NULL, by_vars, parameters, set_values_to, ...)
Add a parameter computed from the analysis value of other parameters.

```
derive_param_computed(
  dataset = advs,
  by_vars = exprs(USUBJID, VISIT),
  parameters = c("SYSBP", "DIABP"),
  set_values_to = exprs(
    AVAL = (AVAL.SYSBP+2*AVAL.DIABP)/3,
    PARAMCD = "MAP",
    PARAM = "Mean Arterial Pressure",
    AVALU = "mmHg"
  )
)
```

derive_extreme_records(dataset, dataset_add, dataset_ref, by_vars, order, mode, keep_source_vars, set_values_to, ...)
Add the first or last observation for each by group as new observations. The new observations can be selected from the input dataset or an additional dataset.

```
derive_extreme_records(
  dataset = adlb,  dataset_add = adlb,
  by_vars = exprs(USUBJID),
  order = exprs(AVAL, AVISITN),
  mode = "first", filter_add = !is.na(AVAL),
  keep_source_vars = exprs(AVAL),
  set_values_to = exprs(DTYPE = "MIN"))
```

Notable others:
derive_expected_records(), **derive_locf_records**()
derive_extreme_event(), **derive_param_exposure**(),
derive_summary_records()

Note: These functions are just some examples of the many generic variable/parameter-adding functions in {admiral}. Check the reference page for all of them!

Functions Treating Days/Dates/Datetimes

derive_vars_(dt/dtm)(dataset, new_vars_prefix, ...)
Derive or impute a date/datetime from a date character Vector.

```
derive_vars_dt(admh, new_vars_prefix = "AST", dtc = MHSTDTC)
```

derive_vars_dy(dataset, reference_date, source_vars)
Adds relative day variables (--DY).

```
derive_vars_dy(
  dataset = adsl, reference_date = TRTSDTM,
  source_vars = exprs(TRTSDTM, ASTDTM, AENDT)
)
```

derive_vars_dtm_to_(dt/tm)(dataset, source_vars,...)
Derive date/time variables from datetime variables.

```
derive_vars_dtm_to_tm(
   dataset = adcm, source_var = exprs(TRTSDTM)
)
```

derive_vars_duration(dataset, new_var, new_var_unit, start_date, end_date).
Derive duration between two dates.

```
derive_vars_duration(
  dataset = adsl, new_var = AAGE, new_var_unit = AAGEU,
  start_date = BRTHDT, end_date = RANDDT,
  out_unit =  "years"
)
```

Computation Functions for Vectors

These functions do what their names suggest and can be used inside dplyr:: mutate() or other {admiral} functions.

compute_age_years()
compute_dtf()
compute_duration()
compute_tmf()
convert_date_to_dtm()
transform_range()
convert_dtc_to_dt()
convert_dtc_to_dtm()
impute_dtc_dt()
impute_dtc_dtm()

Links: Github Repo - Documentation - Join the Pharmaverse Slack

Special Variable-Adding Functions

derive_var_age_years(dataset, age_var, age_unit, new_var)
Derive age in years.

derive_vars_period(dataset, dataset_ref, new_vars)
Add subperiod, period, or phase variables.

derive_var_anrind(dataset, use_a1h1lo)
Derive analysis reference range indicator (ANRIND)

derive_var_atoxgr(dataset, lotox_description_var, hitox_description_var)
Derive character lab grade based on high and low severity/toxicity grade(s).

derive_var_(base/chg/pchg)(dataset, ...)
Derive baseline/change/percent change variables.

derive_vars_crit_flag(dataset, condition, description, ...)
Derive criterion flag variables (CRITy, CRITyFL(N)).

derive_var_ontrtfl(dataset, start_date, ref_start_date, ref_end_date, ref_end_window ...)
Derive on-treatment flag (ONTRTFL) with a single assessment date (e.g ADT) or event start and end dates (e.g. ASTDT/AENDT).

derive_var_trtemfl(dataset, new_var, start_date, end_date, trt_start_date, trt_end_date, end_window, ...)
Derive treatment emergent analysis flag (TRTEMFL).

derive_vars_query(dataset, dataset_queries)
Derive query variables.

derive_vars_atc(dataset, dataset_facm, by_vars, id_vars, value_var)
Derive ATC class variables from FACM to ADCM.

Special Parameter-Adding Functions

***derive_param_bmi**(dataset, by_vars, set_values_to, ...)
Derive BMI parameter.

***derive_param_bsa**(dataset, by_vars, set_values_to, ...)
Derive body surface area parameter (multiple methods).

***derive_param_map**(dataset, by_vars, set_values_to, ...)
Derive mean arterial pressure parameter.

derive_param_doseint(dataset, by_vars, set_values_to, ...)
Derive dose intensity parameter.

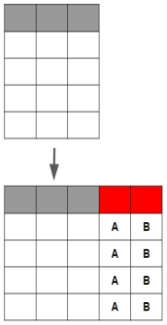
derive_param_tte(dataset, dataset_adsl, source_datasets, by_vars, start_date, event_conditions, censor_conditions, ...)
Derive time-to-event parameter.

* wrapper of derive_param_computed().

Note: These functions are just some examples of the many special variable/parameter-adding functions in {admiral}. Check the reference page for all of them!

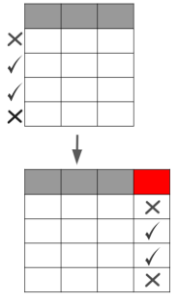
Higher Order Functions

Meta-functions that take {admiral} functions as input and facilitate their execution.



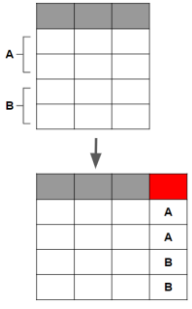
call_derivation(dataset, derivation, variable_params, ...)
Call a single derivation multiple times with some parameters/arguments fixed across calls and others varying.

```
call_derivation(
  dataset = adae,
  derivation = derive_vars_dt,
  variable_params = list(
    params([...]),
    params([...])
))
```



restrict_derivation(dataset, derivation, args, filter)
Execute a derivation on a subset of the input dataset.

```
restrict_derivation(
  dataset = adlb,
  derivation = derive_vars_merged,
  args = params([...]),
  filter = AVISITN > 0
)
```



slice_derivation(dataset, derivation, args, ...)
The input dataset is split into slices (subsets) and for each slice the derivation is called separately. Some or all arguments of the derivation may vary depending on the slice.

```
slice_derivation(
  dataset = advs,
  derivation = derive_vars_dtm,
  args = params([...]),
  derivation_slice(filter = [...], args = [...]),
  derivation_slice(filter = [...], args = [...]),
)
```

Links: Github Repo - Documentation - Join the Pharmaverse Slack

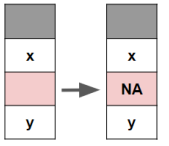
Templates

Example scripts to be used as a starting point for ADaM creation.

list_all_templates(package)
List all available ADaM templates in {admiral} (or another package).

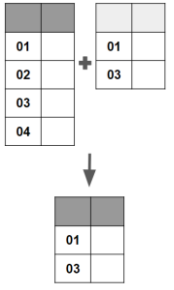
use_ad_template(adam_name, package, overwrite, open)
Open an ADaM template script. *use_ad_template("adsl")*

Utilities



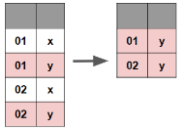
convert_blanks_to_na()
Turn SAS blank strings into R NAs.

convert_blanks_to_na(c("a", "", "b"))



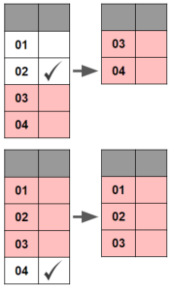
filter_exist(dataset, dataset_add, by_vars, filter_add)
Returns all records in the input dataset belonging to by groups present in a (possibly filtered) source dataset.

```
filter_exist(
  dataset = adsl, dataset_add = adae,
  by_vars = exprs(USUBJID),
  filter_add = AEDECOD == "FATIGUE")
)
```



filter_extreme(dataset, by_vars, order, mode, check_type = "warning")
Filters the first/last record in by group.

```
filter_extreme(by_vars = exprs(USUBJID),
   order = exprs(EXSEQ), mode = "first")
```



(dataset, by_vars, order, condition, mode, selection, inclusive...)
Filters the observations before or after the observation where a specified condition is fulfilled for each by group.

```
filter_relative(
  response,
    by_vars = exprs(USUBJID),
    order = exprs(AVISITN),
    condition = AVALC == "PD",
    mode = "first", selection = "before",
    inclusive = TRUE
)
```