



# Tplyr Validation Report

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2020-08-31

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## Validation Files Information

### Specifications

Specification Name	Last updated by	Last updated date
specification.Rmd	Nathan Kosiba	2020-08-31

### Test case

Test Case Name	Last updated by	Last updated date
test_cases.Rmd	Nathan Kosiba	2020-08-31

### Test code

Test Code Name	Last updated by	Last updated date
test_cases.R	Nathan Kosiba	2020-08-31

## Validation Results

### Specifications

- A: Population data can be specified by the user
- B: Treatment variable can be manually specified for population data
- C: Population data subset can be specified on user specified conditions
- D: Header N counts will be specified by combining different subgroups available within the population data
- E: Manual groups can be specified by combining different subgroups
- F: Analysis data can be specified by the user
- G: Analysis data subset can be specified on user specified conditions
- H: Treatment variable can be manually specified for analysis data
- I: n counts of values within a variable can be produced
- J: n counts of values within a group of variables can be produced
- K: Total n counts can be added
- L: Missing n count handling can be specified including presentation and denominator handling
- M: Dummy values can be specified for categories that need to be presented but may not exist within the data
- N: Counts can be produced as n (%)
- O: When producing n (%), the denominator can be specified using the analysis data
- P: When producing n (%), the denominator can be specified using a particular manually specified subset
- Q: When producing n (%), the denominator can be specified using the population data
- R: When producing n (%), the denominator can be specified using grouping of variables
- S: Risk difference including confidence interval can be produced based on specified treatment groupings
- T: Risk difference arguments can be passed forward into prop.test using args parameter

- U: Risk difference can be calculated over user specified cols arguments
- V: Risk difference can be calculated over nested count layers and by variables
- W: The descriptive statistic of n can be produced based on an input variable
- X: The descriptive statistic of mean can be produced based on an input variable
- Y: The descriptive statistic of median can be produced based on an input variable
- Z: The descriptive statistic of IQR/Q1/Q3 can be produced based on an input variable
- AA: The descriptive statistic of standard deviation can be produced based on an input variable
- AB: The descriptive statistic of variance can be produced based on an input variable
- AC: The descriptive statistic of min can be produced based on an input variable
- AD: The descriptive statistic of max can be produced based on an input variable
- AE: The descriptive statistic of missing can be produced based on an input variable
- AF: Custom descriptive statistics can be produced based on an input variable and a specified formula
- AG: Descriptive statistics can be performed across discrete values within a grouping variable or a group of grouping variables
- AH: Multiple statistics can be presented in one line (i.e. combining Q1, Q3 or Min, Max)
- AI: Decimal precision can be specified by the user
- AJ: Integer length can be specified by the user
- AK: Decimal precision can be dynamically created from analysis data
- AL: Integer length can be dynamically created from analysis data
- AM: Presentation format can be specified by the user including desired non-numeric text
- AN: Strings are built to align per user specification within a display
- AO: Descriptive statistic missing values can be set to a user specified string
- AP: Shift n counts of values using two variables, a 'from' and a 'to' variable, can be produced
- AQ: Shift n counts of values within a variable can be produced
- AR: Shift n counts of values within a group of variables can be produced
- AS: Dummy values for shift counts can be specified for categories that need to be presented but may not exist within the data
- AT: Shift counts can be produced as n (%)
- AU: For shift counts when producing n (%), the denominator can be specified using the analysis data
- AV: For shift counts when producing n (%), the denominator can be specified using a particular manually specified subset
- AW: For shift counts when producing n (%), the denominator can be specified using the population data
- AX: For shift counts when producing n (%), the denominator can be specified using a grouping of variables
- AY: Row labels can be manually specified by the user
- AZ: Row labels can be nested to put a subgroup within a parent group
- BA: Summaries can be stacked on top of one another
- BB: Summaries can be sorted based on manual sorting by presentation specified order
- BC: Summaries can be sorted based on count based sorting (either ascending or descending) by a specified treatment group
- BD: Summaries can be sorted based on alphabetical sorting based on data values
- BE: Summaries can be sorted based on a numeric version of the target variable if available
- BF: Summary by variables will be sorted by a numeric variable if available and then by factor
- BG: Nested layers can be sorted independently using different methods
- BH: Independent layers can be sorted using different methods and stacked using common sorting variables
- BI: Count layer default formats can be set at the table level
- BJ: Descriptive statistics layer default formats can be set at the table level
- BK: Shift layer default formats can be set at the table level
- BLL: Option for count layer default formats can be specified by the user
- BM: Option for descriptive statistics layer default formats can be specified by the user
- BN: Option for shift layer default formats can be specified by the user
- BO: Option for a cap on auto precision can be specified by the user

- BP: Option for custom descriptive statistics can be specified by the user for use in the table
- BQ: Option for setting scipen internal option can be specified by the user
- BR: Option for setting quantile algorithm choice can be specified by the user
- BS: Column headers can be added to the output object
- BT: Row breaks can be added between sections based on grouping variables
- BU: Row labels can be masked in a hierarchical fashion
- BV: A table object is returned in a format that is ready to be cosmetically prepared

Matrix

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
T1	X	X																								
T2			X																							
T3				X	X																					
T4						X	X																			
T5	X	X				X	X																			
T6								X																		
T7									X																	
T8										X																
T9											X															
T10												X														
T11													X													
T12														X												
T13															X											
T14																X										
T15																	X									
T16																		X								
T17																			X	X						
T18																				X						
T19																					X					
T20																						X	X	X	X	
T21																										
T22																										
T23																										
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T27																										
T28																										
T29																										
T30																										
T31																										
T32																										
T33																										

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
T34																										
T35																										
T36																										
T37																										
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T58																										
T59																										

	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ
T1																										
T2																										
T3																										
T4																										
T5																										

Matrix

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	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ
T6																										
T7																										
T8																										
T9																										
T10																										
T11																										
T12																										
T13																										
T14																										
T15																										
T16																										
T17																										
T18																										
T19																										
T20	X	X	X	X	X																					
T21						X																				
T22							X																			
T23								X																		
T24									X	X																
T25											X	X														
T26													X	X												
T27															X											
T28																X										
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T30																		X								
T31																			X							
T32																				X						
T33																					X					
T34																						X				
T35																							X			
T36																								X		
T37																									X	
T38																										X

Math  
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LIC  
RE  
LIS



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AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX		
T39																									
T40																									
T41																									
T42																									
T43																									
T44																									
T45																									
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T57																									
T58																									
T59																									
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BA	BB	BC	BD	BE	BF	BG	BH	BI	BJ	BK	BLL	BM	BN	BO	BP	BQ	BR	BS	BT	BU	BV				
T1																									
T2																									
T3																									
T4																									
T5																									
T6																									
T7																									
T8																									
T9																									
T10																									

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	BA	BB	BC	BD	BE	BF	BG	BH	BI	BJ	BK	BLL	BM	BN	BO	BP	BQ	BR	BS	BT	BU	BV
T11																						
T12																						
T13																						
T14																						
T15																						
T16																						
T17																						
T18																						
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T36																						
T37																						
T38																						
T39	X																					
T40		X																				
T41			X																			
T42				X																		
T43					X																	

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	BA	BB	BC	BD	BE	BF	BG	BH	BI	BJ	BK	BLL	BM	BN	BO	BP	BQ	BR	BS	BT	BU	BV
T44						X																
T45							X															
T46								X														
T47									X													
T48										X												
T49											X											
T50																						
T51													X									
T52														X								
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T54																X						
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T56																		X				
T57																			X			
T58																				X	X	
T59																						X

## Test Cases

This section contains details of each test executed. Checks verifying each test are included as sub-bullets of their associated test.

- Setup: *No prerequisites required*
  - T1: Population data can be specified by the user and treatment variable can be specified
    - \* T1.1: Verify target dataset in table is the same as specified
    - \* T1.2: Verify treatment variable in table is the same as specified
  - T2: Population data subset can be specified on user specified conditions
    - \* T2.1: Population data created matches data subset as specified
  - T3: Manual groups can be specified by combining different subgroups and header N counts will be specified from these groups within the population data
    - \* T3.1: Population groups can be added by combining existing groups
    - \* T3.2: Header N counts of combined groups match the combined total of the groups
  - T4: Analysis data can be specified by the user and treatment variable can be specified for the analysis population
    - \* T4.1: Verify analysis dataset in layer is the same as specified when inherited from table
    - \* T4.2: Verify treatment variable in layer is the same as specified when inherited from table
  - T5: Population data and treatment variable can be specified independent of analysis data and treatment variable
    - \* T5.1: Verify population data can be manually specified if not the same as analysis data
    - \* T5.2: Verify analysis data can be manually specified if not the same as population data
    - \* T5.3: Verify population treatment variable can be manually specified if not the same as analysis treatment variable
    - \* T5.4: Verify analysis treatment variable can be manually specified if not the same as population treatment variable
  - T6: Analysis data subset can be specified on user specified conditions
    - \* T6.1: Analysis data created matches data subset as specified
  - T7: n counts of values within a variable can be produced
    - \* T7.1: Complete data value n counts can be produced within a variable
    - \* T7.2: Distinct data value n counts can be produced within a variable
  - T8: n counts of values within a group of variables can be produced
    - \* T8.1: Complete data value n counts can be produced within a group of variables
    - \* T8.2: Distinct data value n counts can be produced within a group of variables
  - T9: Total n counts can be added
    - \* T9.1: Total n count can be added within a layer
  - T10: Missing n count handling can be specified including presentation and denominator handling
    - \* T10.1: Missing n count rows can be added within a layer
    - \* T10.2: Missing values can be excluded from the layer denominator
  - T11: Dummy values can be specified for categories that need to be presented but may not exist within the data and missing values can be set to a user specified string
    - \* T11.1: Values specified by user are presented in the output table
    - \* T11.2: Missing values can be set to a user specified string
  - T12: Counts can be produced as n (%)
    - \* T12.1: When specified, both n and % can be displayed in a n (%) fashion
    - \* T12.2: Distinct n and % can be displayed in a n (%) fashion
    - \* T12.3: Distinct and non-distinct n and % can be presented together
  - T13: When producing n (%), the denominator can be specified using the analysis data
    - \* T13.1: Check denominators created match counts from analysis data
    - \* T13.2: Check % produced use denominators matching counts from analysis data
  - T14: When producing n (%), the denominator can be specified using a particular manually specified subset
    - \* T14.1: Check denominators created match counts using specified conditions

- \* T14.2: Check % produced use denominators matching counts using specified conditions
- T15: When producing n (%), the denominator can be specified using the population data
  - \* T15.1: Check % produced use denominators matching counts from population data
  - \* T15.2: Check denominators created match counts from population data
- T16: For shift counts when producing n (%), the denominator can be specified using a grouping of variables
  - \* T16.1: Check % produced use denominators matching counts from grouping variables
- T17: Risk difference including confidence interval can be produced based on specified treatment groupings and arguments can be passed through to prop.test
  - \* T17.1: Check that risk difference calculated between groupings is correct
  - \* T17.2: Check that confidence interval calculated between groupings is correct
  - \* T17.3: Arguments passed through to prop.test create the correct output
- T18: Risk difference can be calculated over user specified cols arguments
  - \* T18.1: Risk difference estimate and confidence interval can be computed across values of the treatment variable and cols argument
- T19: Risk difference can be calculated over nested count layers and by variables
  - \* T19.1: Risk difference estimate and confidence interval can be computed across values of the treatment variable and nested count layer
  - \* T19.2: Risk difference estimate and confidence interval can be computed across values of the treatment variable and by variable
  - \* T19.3: Risk difference estimate and confidence interval can be computed across values of the treatment variable, nested count layer and by variable
- T20: The descriptive statistics of n, mean, median, IQR, Q1, Q3, standard deviation, variance, min, max, and missing can be produced based on an input variable
  - \* T20.1: Check the computed statistic of n matches the expected value
  - \* T20.2: Check the computed statistic of mean matches the expected value
  - \* T20.3: Check the computed statistic of median matches the expected value
  - \* T20.4: Check the computed statistic of IQR matches the expected value
  - \* T20.5: Check the computed statistic of Q1 matches the expected value
  - \* T20.6: Check the computed statistic of Q3 matches the expected value
  - \* T20.7: Check the computed statistic of standard deviation matches the expected value
  - \* T20.8: Check the computed statistic of variance matches the expected value
  - \* T20.9: Check the computed statistic of min matches the expected value
  - \* T20.10: Check the computed statistic of max matches the expected value
  - \* T20.11: Check the computed statistic of missing matches the expected value
- T21: Custom descriptive statistics can be produced based on an input variable and a specified formula
  - \* T21.1: Check that the computed statistic value matches the value from the specified formula
- T22: Descriptive statistics can be performed across discrete values within a grouping variable or a group of grouping variables
  - \* T22.1: Check the statistic values match the values from the specified grouping variable
- T23: Multiple statistics can be presented in one line
  - \* T23.1: Check that the output can include multiple statistics on the same line
- T24: Decimal precision and integer length can be specified by the user
  - \* T24.1: The output decimal precision and integer length is the same as the user specified values
- T25: Decimal precision and integer length can be dynamically created from analysis data
  - \* T25.1: The output decimal precision and integer length is the same as the decimal precision and integer length from the target data variable
- T26: Presentation format can be specified by the user including desired non-numeric text and align per user specification
  - \* T26.1: The output string is formatted the same as user specification including non-numeric text and alignment
- T27: Descriptive statistic missing values can be set to a user specified string
  - \* T27.1: Missing values can be set to a user specified string

- T28: Shift n counts of values using two variables, a ‘from’ and a ‘to’ variable, can be produced
  - \* T28.1: n counts can be created in a shift manner using a from and to variable
- T29: Shift n counts of values within a variable can be produced
  - \* T29.1: n counts can be created in a shift manner using a from and to variable and a by variable
- T30: Shift n counts of values within a group of variables can be produced
  - \* T30.1: n counts can be created in a shift manner using a from and to variable and multiple by variables
- T31: Dummy values for shift counts can be specified for categories that need to be presented but may not exist within the data
  - \* T31.1: Values specified by user for the shift variables are presented in the output table
- T32: Shift counts can be produced as n (%)
  - \* T32.1: When specified, both n and % can be displayed in a n (%) fashion for shift layer
- T33: For shift counts when producing n (%), the denominator can be specified using the analysis data
  - \* T33.1: Check % produced use denominators matching counts from analysis data
- T34: For shift counts when producing n (%), the denominator can be specified using a particular manually specified subset
  - \* T34.1: Check % produced use denominators matching counts using specified conditions
- T35: For shift counts when producing n (%), the denominator can be specified using the population data
  - \* T35.1: Check % produced use denominators matching counts from population data
- T36: For shift counts when producing n (%), the denominator can be specified using a grouping of variables
  - \* T36.1: Check % produced use denominators matching counts from grouping variables
- T37: Row labels can be manually specified by the user
  - \* T37.1: Check row labels in output table match user specified values
- T38: Row labels can be nested to put a subgroup within a parent group
  - \* T38.1: Check row labels and nesting in output table match user specified values and nesting
- T39: Summaries can be stacked on top of one another
  - \* T39.1: Check multiple summaries mixed between descriptive statistics and count are created they can be stacked
- T40: Summaries can be sorted based on manual sorting by presentation specified order
  - \* T40.1: Check that output table has correct count sorting variables matching specified order
- T41: Summaries can be sorted based on count based sorting (either ascending or descending) by a specified treatment group
  - \* T41.1: Check that output table has correct count sorting variables for count based sorting
- T42: Summaries can be sorted based on alphabetical sorting based on data values
  - \* T42.1: Check that output table has correct count sorting variables for data values
- T43: Summaries can be sorted based on a numeric version of the target variable if available
  - \* T43.1: Check that output table has correct count sorting variables for the corresponding numeric variable
- T44: Summary by variables will be sorted by a numeric variable if available and then by factor
  - \* T44.1: Check that output table has correct sorting variables for supplied by variables
- T45: Nested layers can be sorted independently using different methods
  - \* T45.1: Check that when different methods are supplied for nested layers they are applied correctly
- T46: Independent layers can be sorted using different methods and stacked using common sorting variables
  - \* T46.1: Check that when different methods are supplied for independent layers they are applied correctly
- T47: Count layer default formats can be set at the table level
  - \* T47.1: Check that count layer formats set at the table level are applied to layers created
  - \* T47.2: Check that count layer formats applied at the layer level take precedence over table

- level formats
- T48: Descriptive statistics layer default formats can be set at the table level
  - \* T48.1: Check that descriptive statistics layer formats set at the table level are applied to layers created
  - \* T48.2: Check that descriptive statistics layer formats applied at the layer level take precedence over table level formats
- T49: Shift layer default formats can be set at the table level
  - \* T49.1: Check that shift layer formats set at the table level are applied to layers created
  - \* T49.2: Check that shift layer formats applied at the layer level take precedence over table level formats
- T50: Option for count layer default formats can be specified by the user
  - \* T50.1: Check that the count layer default formats specified in the option are displayed in the table
- T51: Option for descriptive statistics layer default formats can be specified by the user
  - \* T51.1: Check that the descriptive statistics layer default formats specified in the option are displayed in the table
- T52: Option for shift layer default formats can be specified by the user
  - \* T52.1: Check that the shift layer default formats specified in the option are displayed in the table
- T53: Option for a cap on auto precision can be specified by the user
  - \* T53.1: Check that the cap on auto precision specified by the user is displayed correctly in the table for both integers and decimals
- T54: Option for custom descriptive statistics can be specified by the user for use in the table
  - \* T54.1: Check that custom descriptive statistics set in the options can be used and displayed correctly in the table
- T55: Option for setting scipen internal option can be specified by the user
  - \* T55.1: Check that scientific notation supplied is displayed correctly in the table
- T56: Option for setting quantile algorithm choice can be specified by the user
  - \* T56.1: Check that the quantile algorithm supplied is used in table q1 and q3 calculation
- T57: Column headers can be added to the output object
  - \* T57.1: Check that column headers added match those in the output object
- T58: Row breaks can be added between sections based on grouping variables and row labels can be masked in a hierarchical fashion
  - \* T58.1: Check that a row break is added between each section based on the supplied grouping variables and row labels can be masked in a hierarchical fashion
- T59: A table object is returned in a format that is ready to be cosmetically prepared
  - \* T59.1: Check that the table object can be easily cosmetically prepared

## Test Cases Results

[1] “/home/nkosiba/Tplyr/uat/references/input”

Check	Results	Pass/Fail
T1.1	As expected	Pass
T1.2	As expected	Pass
T2.1	As expected	Pass
T3.1	As expected	Pass
T3.2	As expected	Pass
T4.1	As expected	Pass
T4.2	As expected	Pass
T5.1	As expected	Pass
T5.2	As expected	Pass
T5.3	As expected	Pass

*(continued)*

Check	Results	Pass/Fail
T5.4	As expected	Pass
T6.1	As expected	Pass
T7.1	As expected	Pass
T7.2	As expected	Pass
T8.1	As expected	Pass
T8.2	As expected	Pass
T9.1	As expected	Pass
T10.1	As expected	Pass
T11.1	As expected	Pass
T12.1	As expected	Pass
T12.2	As expected	Pass
T12.3	As expected	Pass
T13.1	As expected	Pass
T13.2	As expected	Pass
T14.1	As expected	Pass
T14.2	As expected	Pass
T15.1	As expected	Pass
T15.2	As expected	Pass
T16.1	As expected	Pass
T17.1	As expected	Pass
T17.2	As expected	Pass
T17.3	As expected	Pass
T18.1	As expected	Pass
T19.1	As expected	Pass
T19.2	As expected	Pass
T19.3	As expected	Pass
T20.1	As expected	Pass
T20.2	As expected	Pass
T20.3	As expected	Pass
T20.4	As expected	Pass
T20.5	As expected	Pass
T20.6	As expected	Pass
T20.7	As expected	Pass
T20.8	As expected	Pass
T20.9	As expected	Pass
T20.10	As expected	Pass
T20.11	As expected	Pass
T21.1	As expected	Pass
T22.1	As expected	Pass
T23.1	As expected	Pass
T24.1	As expected	Pass
T25.1	As expected	Pass
T26.1	As expected	Pass
T27.1	As expected	Pass
T28.1	As expected	Pass
T29.1	As expected	Pass
T30.1	As expected	Pass
T31.1	As expected	Pass
T32.1	As expected	Pass
T33.1	As expected	Pass



*(continued)*

Check	Results	Pass/Fail
T34.1	As expected	Pass
T35.1	As expected	Pass
T36.1	As expected	Pass
T37.1	As expected	Pass
T38.1	As expected	Pass
T39.1	As expected	Pass
T40.1	As expected	Pass
T41.1	As expected	Pass
T42.1	As expected	Pass
T43.1	As expected	Pass
T44.1	As expected	Pass
T45.1	As expected	Pass
T46.1	As expected	Pass
T47.1	As expected	Pass
T47.2	As expected	Pass
T48.1	As expected	Pass
T48.2	As expected	Pass
T49.1	As expected	Pass
T49.2	As expected	Pass
T50.1	As expected	Pass
T51.1	As expected	Pass
T52.1	As expected	Pass
T53.1	As expected	Pass
T54.1	As expected	Pass
T55.1	As expected	Pass
T56.1	As expected	Pass
T57.1	As expected	Pass
T58.1	As expected	Pass
T59.1	As expected	Pass

## System Information

R version 3.6.2 (2019-12-12) Platform: x86\_64-pc-linux-gnu (64-bit) Running under: Ubuntu 18.04.4 LTS

Matrix products: default BLAS: /usr/lib/x86\_64-linux-gnu/blas/libblas.so.3.7.1 LAPACK: /usr/lib/x86\_64-linux-gnu/lapack/liblapack.so.3.7.1

locale: [1] LC\_CTYPE=C.UTF-8 LC\_NUMERIC=C LC\_TIME=C.UTF-8

[4] LC\_COLLATE=C.UTF-8 LC\_MONETARY=C.UTF-8 LC\_MESSAGES=C.UTF-8

[7] LC\_PAPER=C.UTF-8 LC\_NAME=C LC\_ADDRESS=C

[10] LC\_TELEPHONE=C LC\_MEASUREMENT=C.UTF-8 LC\_IDENTIFICATION=C

attached base packages: [1] stats graphics grDevices utils datasets methods base

other attached packages: [1] rlang\_0.4.6 forcats\_0.4.0 readr\_1.3.1 tidyr\_1.0.2

[5] tibble\_3.0.1 ggplot2\_3.2.1 tidyverse\_1.3.0 Tplyr\_0.1.2

[9] purrr\_0.3.4 stringr\_1.4.0 kableExtra\_1.2.1 knitr\_1.28

[13] testthat\_2.3.1 dplyr\_0.8.4 plyr\_1.8.5

loaded via a namespace (and not attached): [1] clisymbols\_1.2.0 tidyselect\_1.0.0 xfun\_0.12 haven\_2.2.0  
 [5] lattice\_0.20-38 colorspace\_1.4-1 vctrs\_0.3.1 generics\_0.0.2  
 [9] htmltools\_0.5.0 viridisLite\_0.3.0 yaml\_2.2.1 pillar\_1.4.4  
 [13] glue\_1.4.1 withr\_2.1.2 DBI\_1.1.0 dbplyr\_1.4.2  
 [17] readxl\_1.3.1 modelr\_0.1.5 prompt\_1.0.0 lifecycle\_0.2.0  
 [21] cellranger\_1.1.0 munsell\_0.5.0 gtable\_0.3.0 rvest\_0.3.5  
 [25] evaluate\_0.14 fansi\_0.4.1 broom\_0.5.4 Rcpp\_1.0.3  
 [29] scales\_1.1.0 backports\_1.1.5 jsonlite\_1.6.1 webshot\_0.5.2  
 [33] fs\_1.3.1 hms\_0.5.3 digest\_0.6.25 stringi\_1.4.5  
 [37] grid\_3.6.2 cli\_2.0.2 tools\_3.6.2 magrittr\_1.5  
 [41] lazyeval\_0.2.2 crayon\_1.3.4 pkgconfig\_2.0.3 ellipsis\_0.3.1  
 [45] xml2\_1.3.2 reprex\_0.3.0 lubridate\_1.7.4 assertthat\_0.2.1 [49] rmarkdown\_2.1 httr\_1.4.1 rstudioapi\_0.11  
 R6\_2.4.1  
 [53] nlme\_3.1-142 compiler\_3.6.2

## Manual Check Completion History

Check	Output File Reviewed	Response	Log
T59.1	test_59.rtf	TRUE	nkosiba:2020-08-31 15:37:41