```r
library(tidyverse)
```

```
## -- Attaching packages -------------------------------------- tidyverse 1.3.2 --
## v ggplot2 3.5.0      v purrr   1.0.1
## v tibble  3.2.1      v dplyr   1.1.4
## v tidyr   1.3.0      v stringr 1.5.0
## v readr   2.1.3      v forcats 0.5.2
## -- Conflicts ----------------------------------------- tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```

```r
library(here)
```

```
## here() starts at /Users/caoanjie/Desktop/projects/metalabr_exp
```

```r
library(kableExtra)
```

```
##
## Attaching package: 'kableExtra'
##
## The following object is masked from 'package:dplyr':
##
##     group_rows
```

```r
library(gt)
all_slope_estimates <- readRDS(here("cached_data/all_slope_estimates.Rds"))
pub_bias_weight_function <- readRDS(here("cached_data/pub_bias_weight_function.Rds"))
pub_bias_egger_test <- readRDS(here("cached_data/pub_bias_egger_test.Rds"))
delta_age_model <- readRDS( here("cached_data/delta_age.Rds"))
bh_model_estimates <- readRDS(here("cached_data/better_half_age_model_estimate.Rds"))
toddler_slope <- readRDS(here('cached_data/all_toddler_slope_estimates.Rds'))
```

Dataset	Linear Growth	Publication Bias		Methods Adaptation	Theoreti
		Weight Function	Egger's Test		
Abstract rule learning	X	X	X	X	
Audio-Visual Congruence	X	X	â	X	
Categorization bias		X	â		
Cross-situational word learning	X		X	X	
Familiar word recognition	â	X		X	X
Gaze following	â	X	X		
Label advantage in concept learning	X	X	X		
Language discrimination	X		X	X	
Language preference	X	X	X	X	
Mispronunciation sensitivity	X	X	X		
Mutual exclusivity	â	â	X	X	â
Natural speech preference	X	X	X	X	
Neonatal Imitation	â	X	X		
Online word recognition	â			â	
Prosocial agents	X		X	X	X
Simple arithmetic competences	X				
Sound symbolism	â		X	X	X
Statistical sound category learning	â			â	â
Statistical word segmentation	X	X	X	X	X
Switch task	X	X	X	X	X
Switch task	X	X	X	X	X
Syntactic bootstrapping	X	X	â	X	X
Vowel discrimination (native)	X	X	X	X	
Vowel discrimination (non-native)	X	â	X	X	
Word segmentation	X	X	X	X	
Infant directed speech preference	X	X	X	X	

ds name + age trend in original

```r
ds_name_with_og_age_trend_df <- all_slope_estimates %>%
  filter(term == "mean_age_months") %>%
  mutate(
    age_trend = p.value < .05
  ) %>%
  select(dataset, age_trend)

ds_name_with_og_age_trend_df
```

```
## # A tibble: 25 x 2
##    dataset                            age_trend
##    <chr>                              <lgl>
##  1 Abstract rule learning             FALSE
##  2 Audio-Visual Congruence            FALSE
##  3 Categorization bias                TRUE
##  4 Cross-situational word learning    FALSE
##  5 Familiar word recognition          TRUE
```

```
##  6 Gaze following (combined)                           TRUE
##  7 Label advantage in concept learning                 FALSE
##  8 Language discrimination and preference (discrimination) FALSE
##  9 Language discrimination and preference (preference)    FALSE
## 10 Mispronunciation sensitivity                        FALSE
## # i 15 more rows
```

h1

```r
pub_bias_wf_df <- pub_bias_weight_function %>%
  select(ds_clean, comparison_direction) %>%
  ungroup() %>%
  rename(dataset = ds_clean,
         wf_comparison_direction = comparison_direction)

pub_bias_et_df <- pub_bias_egger_test %>%
  select(ds_clean, comparison_direction) %>%
  ungroup() %>%
  rename(dataset= ds_clean,
         et_comparison_direction = comparison_direction)

ds_name_with_publicaiton_bias <- ds_name_with_og_age_trend_df %>%
  select(dataset) %>%
  left_join(pub_bias_wf_df, by = c("dataset")) %>%
  left_join(pub_bias_et_df, by = c("dataset")) %>%
  mutate(
    pub_bias_explain_wf = case_when(
      wf_comparison_direction == "younger_more_severe" ~ TRUE,
      is.na(wf_comparison_direction) ~ NA,
      TRUE ~ FALSE
    ),
    pub_bias_explain_et = case_when(
      et_comparison_direction == "younger_more_severe" ~ TRUE,
      is.na(et_comparison_direction) ~ NA,
      TRUE ~ FALSE
    )
  ) %>%
  select(-wf_comparison_direction, -et_comparison_direction)

ds_name_with_publicaiton_bias
```

```
## # A tibble: 25 x 3
##    dataset                        pub_bias_explain_wf pub_bias_explain_et
##    <chr>                          <lgl>               <lgl>
##  1 Abstract rule learning         FALSE               FALSE
##  2 Audio-Visual Congruence        FALSE               TRUE
##  3 Categorization bias            FALSE               TRUE
##  4 Cross-situational word learning NA                 FALSE
##  5 Familiar word recognition      FALSE               NA
##  6 Gaze following (combined)      FALSE               FALSE
##  7 Label advantage in concept learning  FALSE         FALSE
```

```
##  8 Language discrimination and preferen~ NA                    FALSE
##  9 Language discrimination and preferen~ FALSE                  FALSE
## 10 Mispronunciation sensitivity          FALSE                  FALSE
## # i 15 more rows
```

#h2

```
ds_name_with_method_adaptation <- ds_name_with_og_age_trend_df %>%
  select(dataset) %>%
  left_join(
    delta_age_model %>%
  filter(term == "delta_age") %>%
  mutate(
    same_method_delta_age = p.value < .05
  ) %>%
  select(dataset, same_method_delta_age)
  )
```

```
## Joining with `by = join_by(dataset)`
```

```
ds_name_with_method_adaptation
```

```
## # A tibble: 25 x 2
##    dataset                                               same_method_delta_age
##    <chr>                                                 <lgl>
##  1 Abstract rule learning                                FALSE
##  2 Audio-Visual Congruence                               FALSE
##  3 Categorization bias                                   NA
##  4 Cross-situational word learning                       FALSE
##  5 Familiar word recognition                             FALSE
##  6 Gaze following (combined)                             NA
##  7 Label advantage in concept learning                   NA
##  8 Language discrimination and preference (discrimination) FALSE
##  9 Language discrimination and preference (preference)   FALSE
## 10 Mispronunciation sensitivity                          NA
## # i 15 more rows
```

h3

```
bh_df <- bh_model_estimates %>%
  filter(term == "mean_age_months") %>%
  filter(ds_half != "full") %>%
  mutate(
    better_half_trend = p.value < .05
  ) %>%
  select(dataset, better_half_trend)

ds_name_with_bh <- ds_name_with_og_age_trend_df %>%
  select(dataset) %>%
  left_join(bh_df)
```

```
## Joining with `by = join_by(dataset)`
```

h4

```r
toddler_df <- toddler_slope %>%
  filter(term == "mean_age_months") %>%
  mutate(
    toddler_sig = p.value < .05
  ) %>%
  select(dataset, toddler_sig)

ds_name_with_toddler <- ds_name_with_og_age_trend_df %>%
  select(dataset) %>%
  left_join(toddler_df)
```

```
## Joining with `by = join_by(dataset)`
```

put everything together

```r
logical_to_symbol <- function(x){
  if (is.na(x)){
    return ("")
  }

  if (x == TRUE){
    return (" ")
  }else{
    return ("X")
  }
}


table_df <- ds_name_with_og_age_trend_df %>%
  left_join(ds_name_with_publicaiton_bias, by = c("dataset")) %>%
  left_join(ds_name_with_method_adaptation, by = c("dataset")) %>%
  left_join(ds_name_with_bh, by = c("dataset")) %>%
  left_join(ds_name_with_toddler, by = c("dataset")) %>%
  rowwise() %>%
  mutate_if(is_logical, logical_to_symbol) %>%
  mutate(
    summary = case_when(
      dataset == "Abstract rule learning" ~ "Unknown",
      dataset == "Audio-Visual Congruence" ~ "Not applicable.",
      dataset == "Categorization bias" ~ "More severe publication bias for younger infants.",
      dataset == "Cross-situational word learning" ~ "Late emergence of growth.",
      dataset == "Familiar word recognition" ~ "Not applicable.",
      dataset == "Gaze following (combined)" ~ "Not applicable.",
      dataset == "Label advantage in concept learning" ~ "Unknown",
      dataset == "Language discrimination and preference (discrimination)" ~ "Unknown",
      dataset == "Language discrimination and preference (preference)" ~ "Unknown",
      dataset == "Mispronunciation sensitivity" ~ "Late emergence of growth.",
```

```r
      dataset == "Mutual exclusivity" ~ "Not applicable",
      dataset == "Natural speech preference" ~ "Unknown",
      dataset == "Neonatal Imitation" ~ "Not applicable",
      dataset == "Online word recognition" ~ "Not applicable",
      dataset == "Prosocial agents" ~ "Unknown",
      dataset == "Simple arithmetic competences" ~ "Unknown",
      dataset == "Sound symbolism" ~ "Not applicable",
      dataset == "Statistical sound category learning" ~ "Not applicable",
      dataset == "Statistical word segmentation" ~ "Unknown",
      dataset == "Switch task" ~ "Unknown",
      dataset == "Syntactic bootstrapping" ~ "More severe publication bias for younger infants.",
      dataset == "Vowel discrimination (native)" ~ "Unknown",
      dataset == "Vowel discrimination (non-native)" ~ "More severe publication bias for younger infants
      dataset == "Word Segmentation (combined)" ~ "Unknown",
      dataset == "Infant directed speech preference" ~ "Unknown"
    )
  ) %>%
  mutate(
    dataset = case_when(
      dataset == "Language discrimination and preference (discrimination)" ~ "Language discrimination",
      dataset == "Language discrimination and preference (preference)" ~ "Language preference",
      dataset == "Gaze following (combined)" ~ "Gaze following",
      dataset == "Word Segmentation (combined)" ~ "Word segmentation",
      TRUE ~ dataset
  ))


kable(table_df,
      #"html",
      booktabs = T,
      align = c("l"),
      col.names = c("","","Weight Function","Egger's Test", "", "", "", "")) %>%
  kable_styling("striped", full_width = F,
                position = "left", font_size = 8) %>%
  add_header_above(c("Dataset" = 1, "Linear Growth" = 1, "Publication Bias" = 2,
                   "Methods Adaptation" = 1, "Theoretical Constraints" = 1, "Late emergence of growth"=
```

Dataset	Linear Growth	Publication Bias		Methods Adaptation	Theoretical Constraints	I
		Weight Function	Egger's Test			
Abstract rule learning	X	X	X	X		
Audio-Visual Congruence	X	X		X		X
Categorization bias		X				X
Cross-situational word learning	X		X	X		
Familiar word recognition		X		X	X	
Gaze following		X	X			
Label advantage in concept learning	X	X	X			X
Language discrimination	X		X	X		
Language preference	X	X	X	X		
Mispronunciation sensitivity	X	X	X			
Mutual exclusivity			X	X		
Natural speech preference	X	X	X	X		
Neonatal Imitation		X	X			
Online word recognition						
Prosocial agents	X		X	X	X	X
Simple arithmetic competences	X					
Sound symbolism			X	X	X	X
Statistical sound category learning						
Statistical word segmentation	X	X	X	X	X	
Switch task	X	X	X	X	X	X
Switch task	X	X	X	X	X	X
Syntactic bootstrapping	X	X		X	X	X
Vowel discrimination (native)	X	X	X	X		X
Vowel discrimination (non-native)	X		X	X		X
Word segmentation	X	X	X	X		X
Infant directed speech preference	X	X	X	X		X

```r
apa <- function(x, title = " ") {
  gt(x) %>%
  tab_options(
    table.border.top.color = "white",
    heading.title.font.size = px(16),
    column_labels.border.top.width = 3,
    column_labels.border.top.color = "black",
    column_labels.border.bottom.width = 3,
    column_labels.border.bottom.color = "black",
    table_body.border.bottom.color = "black",
    table.border.bottom.color = "white",
    table.width = pct(100),
    table.background.color = "white"
  ) %>%
  cols_align(align="center") %>%
  tab_style(
    style = list(
      cell_borders(
        sides = c("top", "bottom"),
        color = "white",
        weight = px(1)
      ),
      cell_text(
        align="center"
      ),
      cell_fill(color = "white", alpha = NULL)
```

Table 1

dataset	age_trend	pub_bias_explain_wf	pub_bias_explain_et	same_method_delta
Abstract rule learning	X	X	X	X
Audio-Visual Congruence	X	X		X
Categorization bias		X		
Cross-situational word learning	X		X	X
Familiar word recognition		X		X
Gaze following		X	X	
Label advantage in concept learning	X	X	X	
Language discrimination	X		X	X
Language preference	X	X	X	X
Mispronunciation sensitivity	X	X	X	
Mutual exclusivity			X	X
Natural speech preference	X	X	X	X
Neonatal Imitation		X	X	
Online word recognition				
Prosocial agents	X		X	X
Simple arithmetic competences	X			
Sound symbolism			X	X
Statistical sound category learning				
Statistical word segmentation	X	X	X	X
Switch task	X	X	X	X
Switch task	X	X	X	X
Syntactic bootstrapping	X	X		X
Vowel discrimination (native)	X	X	X	X
Vowel discrimination (non-native)	X		X	X
Word segmentation	X	X	X	X
Infant directed speech preference	X	X	X	X

```
    ),
    locations = cells_body(
      columns = everything(),
      rows = everything()
    )
  ) %>%
    #title setup
    tab_header(
    title = html("<i>", title, "</i>")
  ) %>%
  opt_align_table_header(align = "left")
}

library(papaja)
```

```
## Loading required package: tinylabels
```

```
apa_table(table_df)
```