Keck School of Medicine of USC

DEPARTMENT OF PSYCHIATRY AND THE BEHAVIORAL SCIENCES

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Della Martin Assistant Professor of Psychiatry

NEUROCOGNITIVE EXAMINATION

CASE NUMBER: 123456
PATIENT NAME: Smalls, Biggie
DATE OF BIRTH: YYYY-MM-DD, Age 18
DATES OF EXAM: YYYY-MM-DD, YYYY-MM-DD, and YYYY-MM-DD
DATE OF REPORT: 2025-01-20

TESTS ADMINISTERED

- Comprehensive Neuropsychiatric Symptom and History Interview
- Conners' Adult ADHD Diagnostic Interview for DSM-IV, Part I: History (CAADID Part 1)
- Conners' Adult ADHD Diagnostic Interview for DSM-IV, Part II: Symptoms? (CAADID Part 2)
- Structured Clinical Interview for DSM-5 Disorders, Clinician Version (SCID-5-CV)
- Beck Anxiety Inventory (BAI)
- Beck Depression Inventory, 2nd ed (BDI-2)
- Brown Executive Function/Attention Scales, Parent Report (Brown EF/A Parent)
- Brown Executive Function/Attention Scales, Self-Report (Brown EF/A Self)
- Brown Executive Function/Attention Scales, Teacher Report (Brown EF/A Teacher)
- California Verbal Learning Test, 3rd ed (CVLT-3), Standard Form
- California Verbal Learning Test, 3rd ed, Brief Form (CVLT-3 Brief)

- Childhood Autism Rating Scale, 2nd ed, High-Functioning Version (CARS-2 HF)
- Comprehensive Executive Function Inventory, Adult, Observer (CEFI Adult Observer)
- Comprehensive Executive Function Inventory, Adult, Self-Report Form (CEFI Adult Self-Report)
- Conners' Adult ADHD and Executive Function Rating Scales, 2nd ed, Self-Report (CAARS-2 Self)
- Conners' Adult ADHD and Executive Function Rating Scales, 2nd ed, Observer Report (CAARS-2 Observer)
- Conners' Adult ADHD Rating Scales–Observer Report: Long Version (CAARS–O:L)
- Conners' Adult ADHD Rating Scales–Self-Report: Long Version (CAARS–S:L)
- Delis-Kaplan Executive Function System (D-KEFS):
  – Color-Word Interference
  – Trail Making
  – Design Fluency
  – Verbal Fluency
- Dot Counting Test (DCT)
- Grooved Pegboard Test
- Repeatable Battery for the Assessment of Neuropsychological Status (RBANS)
- Repeatable Battery for the Assessment of Neuropsychological Status, Update, Form A (RBANS Update Form A):
  – Immediate Memory
  – Language
  – Visuospatial/Constructional
  – Attention
  – Delayed Memory
- Repeatable Battery for the Assessment of Neuropsychological Status, Form B (RBANS)

- Repeatable Battery for the Assessment of Neuropsychological Status, Form C (RBANS)
- Repeatable Battery for the Assessment of Neuropsychological Status, Form D (RBANS)
- Rey-Osterrieth Complex Figure Test (ROCFT)
- Trail Making Test (TMT)
- Wechsler Adult Intelligence Scale, 4th ed (WAIS-IV)
- Wechsler Adult Intelligence Scale, 4th ed (WAIS-IV): Similarities, Matrix Reasoning, Letter-Number Sequencing, Coding, Symbol Search, Digit Span, Vocabulary, Block Design, Figure Weights, Arithmetic, Cancellation
- Wechsler Adult Intelligence Scale, 5th ed (WAIS-5)
- Wechsler Individual Achievement Test, 4th ed (WIAT-4)
- Wechsler Individual Achievement Test, 4th ed (WIAT-4): Word Reading, Reading Comprehension, Pseudoword Decoding, Orthographic Fluency, Decoding Fluency
- Wechsler Memory Scale, 4th ed (WMS-4)
- Wechsler Memory Scale, 4th ed (WMS-4): Logical Memory, Verbal Paired Associates, Visual Reproduction, Visual Paired Associates, Designs, Spatial Addition, Symbol Span, Spatial Span
- Wide Range Achievement Test, 5th ed (WRAT-5)
- Wide Range Achievement Test, 5th ed, Blue Form (WRAT-5): Word Reading
- Wide Range Achievement Test, 5th ed, Green Form (WRAT-5): Word Reading
- NIH Executive Abilities–Measures and Instruments for Neurobehavioral Evaluation and Research (NIH EXAMINER):
  – Behavioral Rating Scale
  – Word Fluency
  – Unstructured Task

- Advanced Clinical Solutions (ACS):
  – Word Choice Test
  – Test of Premorbid Functioning (TOPF)
  – Social Cognition

- Neuropsychological Assessment Battery (NAB):
  – Attention Module
  – Language Module
  – Memory Module
  – Spatial Module
  – Executive Functions Module

- Neuropsychological Assessment Battery, Screener (NAB-S):
  – Attention Module
  – Language Module
  – Memory Module
  – Spatial Module
  – Executive Functions Module

- Neuropsychological Assessment Battery (NAB):
  – Judgment

- Hare Psychopathy Checklist, Revised (PCL-R)

- Personality Assessment Inventory (PAI)

- Comprehensive Neurodevelopmental Symptom and History Interview

- Behavioral Assessment System for Children, 3rd ed, Structured Developmental History (BASC-3 SDH)

- Kiddie-SADS

- Adaptive Behavior Assessment System, 3rd ed, Parent Form (ABAS-3 Parent)

- Adaptive Behavior Assessment System, 3rd ed, Parent/Primary Caregiver Form (ABAS-3 Parent)

- Adaptive Behavior Assessment System, 3rd ed, Self-Report Form (ABAS-3 Self)

- Adaptive Behavior Assessment System, 3rd ed, Teacher Form (ABAS-3 Teacher)

- Behavioral Assessment System for Children, 3rd ed, Parent Rating Scales, Adolescent (BASC-3 PRS Adolescent)
- Behavioral Assessment System for Children, 3rd ed, Parent Rating Scales, Child (BASC-3 PRS Child)
- Behavioral Assessment System for Children, 3rd ed, Parent Rating Scales, Preschool (BASC-3 PRS Preschool)
- Behavioral Assessment System for Children, 3rd ed, Self-Report of Personality, Adolescent (BASC-3 SRP Adolescent)
- Behavioral Assessment System for Children, 3rd ed, Self-Report of Personality, Child (BASC-3 SRP Child)
- Behavioral Assessment System for Children, 3rd ed, Teacher Rating Scales, Adolescent (BASC-3 TRS Adolescent)
- Behavioral Assessment System for Children, 3rd ed, Teacher Rating Scales, Child (BASC-3 TRS Child)
- Behavioral Assessment System for Children, 3rd ed, Teacher Rating Scales, Preschool (BASC-3 TRS Preschool)
- Bracken School Readiness Assessment, 4th ed (BSRA-4)
- Brown Executive Function/Attention Scales, Parent Report (Brown EF/A Parent)
- Brown Executive Function/Attention Scales, Self-Report (Brown EF/A Self)
- Brown Executive Function/Attention Scales, Teacher Report (Brown EF/A Teacher)
- California Verbal Learning Test, Child ed (CVLT-C)
- Childhood Autism Rating Scale, 2nd ed (CARS-2)
- Childhood Autism Rating Scale, 2nd ed, High-Functioning Version (CARS-2 HF)
- Childhood Autism Rating Scale, 2nd ed, Questionnaire for Parents or Caregivers (CARS-2 QPC)

- Children's Memory Scale, 3rd ed (CMS-3)
- Clinical Evaluation of Language Fundamentals Preschool, 3rd ed (CELF Preschool-3)
- Clinical Evaluation of Language Fundamentals, 5th ed, Ages 5-8 (CELF-5)
- Clinical Evaluation of Language Fundamentals, 5th ed, Ages 9-21 (CELF-5)
- Comprehensive Executive Function Inventory, Parent Report (CEFI Parent)
- Comprehensive Executive Function Inventory, Self-Report (CEFI Self)
- Comprehensive Executive Function Inventory, Teacher Report (CEFI Teacher)
- Comprehensive Executive Function Inventory, Youth Report (CEFI Youth)
- Conners' Rating Scale, 4th ed, Parent (Conners-4 Parent)
- Conners' Rating Scale, 4th ed, Self-Report (Conners-4 Self)
- Conners' Rating Scale, 4th ed, Teacher (Conners-4 Teacher)
- Delis-Kaplan Executive Function System (D-KEFS):
  – Color-Word Interference Test
  – Trail Making Test
- Grooved Pegboard Test
- Kaufman Test of Educational Achievement, 3rd ed, Form A (KTEA-3 Form A)
- Kaufman Test of Educational Achievement, 3rd ed, Form B (KTEA-3 Form B)
- NEPSY-II Developmental Neuropsychological Battery
- PROMIS Sleep Assessments Pediatric Parent Proxy
- Rating Scale of Impairment (RSI)
- Repeatable Battery for the Assessment of Neuropsychological Status, Form A (RBANS)

- Repeatable Battery for the Assessment of Neuropsychological Status, Form B (RBANS)
- Repeatable Battery for the Assessment of Neuropsychological Status, Form C (RBANS)
- Repeatable Battery for the Assessment of Neuropsychological Status, Form D (RBANS)
- Rey-Osterrieth Complex Figure Test (ROCFT)
- Test of Memory Malingering (TOMM)
- Trail Making Test (TMT)
- Wechsler Adult Intelligence Scale, 5th ed (WAIS-5)
- Wechsler Adult Intelligence Scale, 4th ed (WAIS-IV)
- Wechsler Abbreviated Scale of Intelligence, 2nd ed (WASI-2)
- Wechsler Individual Achievement Test, 4th ed (WIAT-4)
- Wechsler Individual Achievement Test, 4th ed (WIAT-4): Word Reading, Reading Comprehension, Pseudoword Decoding, Orthographic Fluency, Decoding Fluency
- Wechsler Intelligence Scale for Children, 5th ed (WISC-V)
- Wechsler Preschool and Primary Scale of Intelligence, 4th ed, Ages 2-3 (WPPSI-IV)
- Wechsler Preschool and Primary Scale of Intelligence, 4th ed, Ages 4-7 (WPPSI-IV)
- Personality Assessment Inventory, Adolescent (PAI-A)
- Wide Range Achievement Test, 5th ed (WRAT-5)
- Wide Range Achievement Test, 5th ed, Blue Form (WRAT-5): Word Reading
- Wide Range Achievement Test, 5th ed, Green Form (WRAT-5): Word Reading
- NIH Executive Abilities–Measures and Instruments for Neurobehavioral Evaluation and Research (NIH EXAMINER):

– Behavioral Rating Scale
– Word Fluency
– Unstructured Task

• Personality Assessment Inventory, Adolescent (PAI Adolescent)

NEUROBEHAVIORAL STATUS EXAM

Reason for Referral

Biggie Smalls is a 18-year-old, rightright-handed research assistant with 12 years years of education, including a B.A. in Hustling from the University of Bed-Sty. He was referred in order to determine the nature and extent of neurocognitive sequelae emerging from a history of attention-deficit/hyperactivity disorder (ADHD).

The purpose of the current evaluation is ADHD, anxiety, and depression. This report is based on a review of available medical records and information gathered across multiple days of evaluation. Treatment planning and plans for test accommodations were discussed with Biggie during the feedback visit on the final day of the examination.

Background/History

Developmental/Medical History

Biggie was born full-term with no reported complications during pregnancy or delivery. His early development included some notable features: bed-wetting beyond typical age (with no identified medical cause), difficulties with frustration tolerance when learning new physical skills, and early motor coordination issues described as appearing “a bit floppy when he ran or was active,” which reportedly improved during his high school years.

His medical history includes mild asthma (more significant in childhood), an appendectomy, allergy to Mesquite trees, and vision impairment for which he was prescribed contacts but does not wear them. Biggie experienced a fever above 104° at age 13. He was diagnosed with ADHD in elementary school and prescribed medication, which he refused due to disliking “the feeling.” He is currently unmedicated and

has no history of psychological counseling or psychiatric evaluation. Biggie is right-handed for all activities and typically visits a physician approximately twice yearly, with his last medical visit approximately one year ago.

Behavioral/Emotional/Social

Biggie is described as having "a big heart," being "fun to be with," and "very social." He demonstrates leadership qualities in peer group interactions but exhibits significant behavioral challenges, including reactive anger when challenged or insulted and a history of fighting when provoked. According to reports, "Most of the time, it is not he who causes the issue, but he is quick to fight if challenged." He associates with peers who reportedly use illegal drugs and alcohol.

Behaviorally, Biggie exhibits overstimulation in play, a short attention span consistent with his ADHD diagnosis, and emotional withholding (difficulty expressing affection and feelings). His interests center around football, boxing, and video games, particularly online gaming with friends. There has been no recent decline in his participation in preferred activities.

Family History

Biggie currently resides with his father in an apartment, where he has lived for the past 1.5 years. His parents separated when he was an infant. His mother, NAME, is unemployed with some college education. His father, NAME, is a self-employed executive who completed 11th grade. Biggie has no siblings.

While reportedly closer to his father, Biggie "has a good relationship with mom too." The father serves as the primary disciplinarian with a "more strict" approach, while the mother maintains "more of a friend style relationship." Discipline techniques include grounding and suspension of preferred activities, though Biggie "tends to listen with an attitude." Family activities include sports, conversations, and trips, with English as the primary language spoken at home. He sees his grandparents only a "Few Times a Year."

Significant family health history includes the father's intermittent stress-related hypertension and the mother's "problem with alcohol." Notably, both parents had

ADHD, with the mother having taken Ritalin during her school years, suggesting a strong genetic component to Biggie's own ADHD diagnosis.

Educational History

Biggie is currently in 10th grade at Home School, having transitioned from NAME High School by choice in 2024. His academic performance has improved in the homeschool setting, where he now earns mostly B's with one A. His educational history includes grade retention in elementary school and consistently performing below grade level on academic testing.

He has demonstrated specific difficulties with mathematics, described as being unable to "comprehend complicated, long math problems" and having "a hard time retaining information." Biggie has been evaluated for special education annually since 5th grade and currently has an active Individualized Education Program (IEP) with an ADHD diagnosis. His homeschool curriculum includes adaptations such as "business math instead of algebra." His anticipated graduation is in 2027.

While the father reports satisfaction with the current educational arrangement, he expresses concern about the lack of opportunity for school sports participation, which he believes "would have been very good for him" and might have prevented Biggie from associating with "kids that were trouble and not athletes."

Mental Status/Behavioral Observations

- **Attention/Orientation**: Orientation to person, place, time, and situation was intact.
- **Appearance**: Appropriate grooming and dress for context.
- **Behavior/Attitude**: Cooperative, engaged. No gross behavioral apathy or disinhibition observed.
- **Speech/Language**: Fluent and normal in rate, volume, and prosody.
- **Mood/Affect**: Neutral, range was full and appropriate.
- **Sensory/Motor**: Performance was not limited by any obvious sensory or motor difficulties.
- **Cognitive Process**: Coherent and goal directed.
- **Effort/Validity**: Normal; TOMM Trial 1 = 48/50, TOMM Trial 2 = 50/50, RDS = >6, DCT = 4.3.

NEUROCOGNITIVE FINDINGS

```
<!-- Including 8 domain files -->

## General Cognitive Ability {#sec-iq}

<summary>

Verbal Comprehension (i.e., the ability to verbalize meaningful concepts,
think about verbal information, and express oneself using words) fell within
the High Average and ranked at the 88th percentile. This indicates performance
as good as or better than 88% of same-age peers from the general population.

A subset of intellectual functioning with reduced influences of working
memory and processing speed fell within the Average and ranked at the 61th
percentile. This indicates performance as good as or better than 61% of same-
age peers from the general population.

Ethan's score on RBANS Total Index (composite indicator of general cognitive
functioning) was Average.
Fluid Reasoning (i.e., the ability to use reasoning to identify and apply
solutions to problems) fell within the Average and ranked at the 42th
percentile. This indicates performance as good as or better than 42% of same-
age peers from the general population.

General intellectual ability fell within the Average and ranked at the 39th
percentile. This indicates performance as good as or better than 39% of same-
age peers from the general population.

The patient's ability to evaluate visual details understand spatial relations
among objects and construct geometric design using models fell within the Low
Average and ranked at the 23th percentile. This indicates performance as good
as or better than 23% of same-age peers from the general population.

Working memory (i.e., the ability to consciously register maintain and
manipulate auditory and visual information) fell within the Low Average and
ranked at the 21th percentile. This indicates performance as good as or better
than 21% of same-age peers from the general population.

General intellectual functioning that minimizes expressive language demands
fell within the Low Average and ranked at the 19th percentile. This indicates
performance as good as or better than 19% of same-age peers from the general
population.

Index of cognitive processing proficiency that reduces crystallized knowledge
```

````
verbal reasoning and fluid reasoning demands fell within the Below Average and
ranked at the 8th percentile. This indicates performance as good as or better
than 8% of same-age peers from the general population.

Ability to quickly use reasoning to identify and apply solutions to problems
fell within the Below Average and ranked at the 6th percentile. This indicates
performance as good as or better than 6% of same-age peers from the general
population.


</summary>



```{r}
#| label: setup-iq
#| include: false
#| echo: false

# Source R6 classes
source("R/DomainProcessorR6.R")
source("R/NeuropsychResultsR6.R")
source("R/DotplotR6.R")
source("R/TableGT_ModifiedR6.R")
source("R/score_type_utils.R")

# Filter by domain
domains <- c("General Cognitive Ability")

# Target phenotype
pheno <- "iq"

# Create R6 processor
processor_iq <- DomainProcessorR6$new(
  domains = domains,
  pheno = pheno,
  input_file = "data/neurocog.parquet"
)

# Load and process data
processor_iq$load_data()
processor_iq$filter_by_domain()

# Create the data object with original name for compatibility
iq <- processor_iq$data
````
````

```
# Process and export data using R6
processor_iq$select_columns()
processor_iq$save_data()

# Update the original object
iq <- processor_iq$data

# Load internal data to get standardized scale names
scale_var_name <- paste0("scales_", tolower(pheno))
if (!exists(scale_var_name)) {
  sysdata_path <- here::here("R", "sysdata.rda")
  if (file.exists(sysdata_path)) { load(sysdata_path, envir = .GlobalEnv) }
}
if (exists(scale_var_name)) {
  scales <- get(scale_var_name)
} else {
  warning(paste0("Scale variable '", scale_var_name, "' not found. Using empty
vector."))
  scales <- character(0)
}

# Filter the data directly without using NeurotypR
filter_data <- function(data, domain, scale) {
  # Filter by domain if provided
  if (!is.null(domain)) {
    data <- data[data$domain %in% domain, ]
  }

  # Filter by scale if provided
  if (!is.null(scale)) {
    data <- data[data$scale %in% scale, ]
  }

  return(data)
}

# Apply the filter function
data_iq <- filter_data(data = iq, domain = domains, scale = scales)
```

```
{r}
#| label: text-iq
#| cache: true
#| include: false
```

```
#| echo: false

# Generate text using R6 class
results_processor <- NeuropsychResultsR6$new(
  data = data_iq,
  file = "_02-01_iq_text.qmd"
)
results_processor$process()
```

```
{r}
#| label: qtbl-iq
#| include: false
#| echo: false
#| eval: true

# Table parameters
table_name <- "table_iq"
vertical_padding <- 0
multiline <- TRUE

# Get score types from the lookup table
score_type_map <- get_score_types_from_lookup(data_iq)

# Create a list of test names grouped by score type
score_types_list <- list()

# Process the score type map to group tests by score type
for (test_name in names(score_type_map)) {
  types <- score_type_map[[test_name]]
  for (type in types) {
    if (!type %in% names(score_types_list)) {
      score_types_list[[type]] <- character(0)
    }
    score_types_list[[type]] <- unique(c(score_types_list[[type]], test_name))
  }
}

# Get unique score types present
unique_score_types <- names(score_types_list)

# Define the score type footnotes
fn_list <- list()
if ("t_score" %in% unique_score_types) {
  fn_list$t_score <- "T score: Mean = 50 [50th‰], SD ± 10 [16th‰, 84th‰]"
```

```
}
if ("scaled_score" %in% unique_score_types) {
  fn_list$scaled_score <- "Scaled score: Mean = 10 [50th‰], SD ± 3 [16th‰,
84th‰]"
}
if ("standard_score" %in% unique_score_types) {
  fn_list$standard_score <- "Standard score: Mean = 100 [50th‰], SD ± 15
[16th‰, 84th‰]"
}

# Create groups based on test names that use each score type
grp_list <- score_types_list

# Define which groups support which score types (for dynamic footnotes)
dynamic_grp <- score_types_list

# Default source note if no score types are found
if (length(fn_list) == 0) {
  # Determine default based on pheno
  source_note <- "Standard score: Mean = 100 [50th‰], SD ± 15 [16th‰, 84th‰]"
} else {
  source_note <- NULL # No general source note when using footnotes
}

# Create table using our modified TableGT_ModifiedR6 R6 class
table_gt <- TableGT_ModifiedR6$new(
  data = data_iq,
  pheno = pheno,
  table_name = table_name,
  vertical_padding = vertical_padding,
  source_note = source_note,
  multiline = multiline,
  fn_list = fn_list,
  grp_list = grp_list,
  dynamic_grp = dynamic_grp
)

# Get the table object without automatic saving
tbl <- table_gt$build_table()

# Save the table using our save_table method
table_gt$save_table(tbl, dir = here::here())
```

```
{r}
#| label: fig-iq-subdomain
#| include: false
#| echo: false
#| eval: true

# Create subdomain plot using R6 DotplotR6
dotplot_subdomain <- DotplotR6$new(
  data = data_iq,
  x = "z_mean_subdomain",
  y = "subdomain",
  filename = here::here("fig_iq_subdomain.svg")
)
dotplot_subdomain$create_plot()

# Load plot title from sysdata.rda
plot_title_var <- "plot_title_iq"
if (!exists(plot_title_var)) {
  sysdata_path <- here::here("R", "sysdata.rda")
  if (file.exists(sysdata_path)) {
    load(sysdata_path)
  }
}

# Get the plot title or use default
if (exists(plot_title_var)) {
  plot_title_iq <- get(plot_title_var)
} else {
  plot_title_iq <- "Premorbid Ability is an estimate of an individual's
intellectual functioning prior to known or suspected onset of brain disease or
dysfunction. General Ability is the overall skill to reason, solve problems,
and gain useful knowledge. Crystallized Knowledge involves understanding the
world through language and reasoning. Fluid Reasoning is the logical analysis
and solution of new problems, identifying underlying patterns, and applying
logic."
}
```

```
{r}
#| label: fig-iq-narrow
#| include: false
#| echo: false
#| eval: true

# Create narrow plot using R6 DotplotR6
```

```
dotplot_narrow <- DotplotR6$new(
  data = data_iq,
  x = "z_mean_narrow",
  y = "narrow",
  filename = here::here("fig_iq_narrow.svg")
)
dotplot_narrow$create_plot()

# Load plot title from sysdata.rda
plot_title_var <- "plot_title_iq"
if (!exists(plot_title_var)) {
  sysdata_path <- here::here("R", "sysdata.rda")
  if (file.exists(sysdata_path)) {
    load(sysdata_path)
  }
}

# Get the plot title or use default
if (exists(plot_title_var)) {
  plot_title_iq <- get(plot_title_var)
} else {
  plot_title_iq <- "Premorbid Ability is an estimate of an individual's
intellectual functioning prior to known or suspected onset of brain disease or
dysfunction. General Ability is the overall skill to reason, solve problems,
and gain useful knowledge. Crystallized Knowledge involves understanding the
world through language and reasoning. Fluid Reasoning is the logical analysis
and solution of new problems, identifying underlying patterns, and applying
logic."
}
```

Table 1: General Cognitive Ability Scores

	SCORE	‰ RANK	RANGE
RBANS[1]			
RBANS Total Index	103	58	Average
WISC-V[1,2]			
Verbal Comprehension (VCI)	118	88	High Average
Visual Spatial (VSI)	89	23	Low Average
Fluid Reasoning (FRI)	97	42	Average
Working Memory (WMI)	88	21	Low Average
Processing Speed (PSI)	77	6	Below Average
Full Scale IQ (FSIQ)	96	39	Average
Nonverbal (NVI)	87	19	Low Average
General Ability (GAI)	104	61	Average
Cognitive Proficiency (CPI)	79	8	Below Average

[1] Standard score: Mean = 100 [50th‰], SD ± 15 [16th‰, 84th‰]

[2] Scaled score: Mean = 10 [50th‰], SD ± 3 [16th‰, 84th‰]

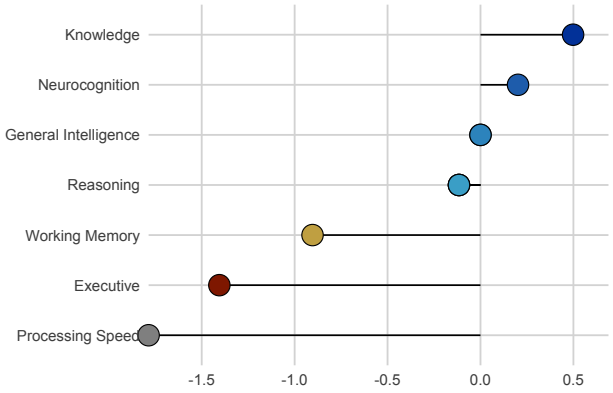

Figure 1: `{r} plot_title_iq`

Table 2: General Cognitive Ability Scores

	SCORE	‰ RANK	RANGE
RBANS[1]			
RBANS Total Index	103	58	Average
WISC-V[1,2]			
Verbal Comprehension (VCI)	118	88	High Average
Visual Spatial (VSI)	89	23	Low Average
Fluid Reasoning (FRI)	97	42	Average
Working Memory (WMI)	88	21	Low Average
Processing Speed (PSI)	77	6	Below Average
Full Scale IQ (FSIQ)	96	39	Average
Nonverbal (NVI)	87	19	Low Average
General Ability (GAI)	104	61	Average
Cognitive Proficiency (CPI)	79	8	Below Average

[1] Standard score: Mean = 100 [50th‰], SD ± 15 [16th‰, 84th‰]

[2] Scaled score: Mean = 10 [50th‰], SD ± 3 [16th‰, 84th‰]

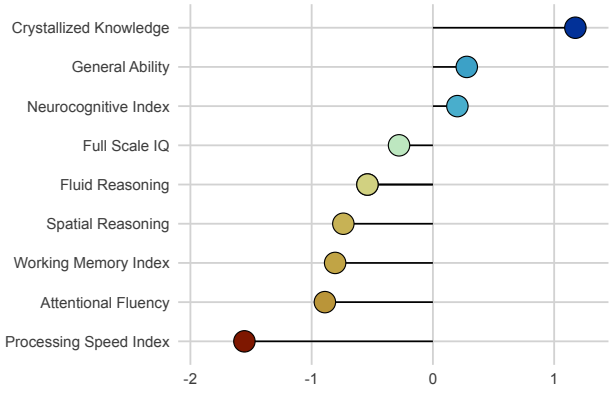

Figure 2: `{r} plot_title_iq`

Academic Skills

Spontaneous writing fluency at the discourse level fell within the Average and ranked at the 42th percentile, indicating performance as good as or better than 42% of same-age peers from the general population. Written spelling of words from dictations fell

within the Low Average and ranked at the 14th percentile, indicating performance as good as or better than 14% of same-age peers from the general population. Single word reading/decoding of a list of regular and irregular words fell within the Low Average and ranked at the 12th percentile, indicating performance as good as or better than 12% of same-age peers from the general population. Paper-and-pencil math calculation skills, ranging from basic operations with integers to geometry, algebra, and calculus problems fell within the Low Average and ranked at the 12th percentile, indicating performance as good as or better than 12% of same-age peers from the general population.

```
{r}
#| label: setup-academics
#| include: false
#| echo: false

# Source R6 classes
source("R/DomainProcessorR6.R")
source("R/NeuropsychResultsR6.R")
source("R/DotplotR6.R")
source("R/TableGT_ModifiedR6.R")
source("R/score_type_utils.R")

# Filter by domain
domains <- c("Academic Skills")

# Target phenotype
pheno <- "academics"

# Create R6 processor
processor_academics <- DomainProcessorR6$new(
  domains = domains,
  pheno = pheno,
  input_file = "data/neurocog.parquet"
)

# Load and process data
processor_academics$load_data()
processor_academics$filter_by_domain()

# Create the data object with original name for compatibility
academics <- processor_academics$data

# Process and export data using R6
```

```
processor_academics$select_columns()
processor_academics$save_data()

# Update the original object
academics <- processor_academics$data

# Load internal data to get standardized scale names
scale_var_name <- paste0("scales_", tolower(pheno))
if (!exists(scale_var_name)) {
  sysdata_path <- here::here("R", "sysdata.rda")
  if (file.exists(sysdata_path)) { load(sysdata_path, envir = .GlobalEnv) }
}
if (exists(scale_var_name)) {
  scales <- get(scale_var_name)
} else {
  warning(paste0("Scale variable '", scale_var_name, "' not found. Using empty
vector."))
  scales <- character(0)
}

# Filter the data directly without using NeurotypR
filter_data <- function(data, domain, scale) {
  # Filter by domain if provided
  if (!is.null(domain)) {
    data <- data[data$domain %in% domain, ]
  }

  # Filter by scale if provided
  if (!is.null(scale)) {
    data <- data[data$scale %in% scale, ]
  }

  return(data)
}

# Apply the filter function
data_academics <- filter_data(data = academics, domain = domains, scale =
scales)
```

```
{r}
#| label: text-academics
#| cache: true
#| include: false
#| echo: false
```

```
# Generate text using R6 class
results_processor <- NeuropsychResultsR6$new(
  data = data_academics,
  file = "_02-02_academics_text.qmd"
)
results_processor$process()
```

```
{r}
#| label: qtbl-academics
#| include: false
#| echo: false
#| eval: true

# Table parameters
table_name <- "table_academics"
vertical_padding <- 0
multiline <- TRUE

# Get score types from the lookup table
score_type_map <- get_score_types_from_lookup(data_academics)

# Create a list of test names grouped by score type
score_types_list <- list()

# Process the score type map to group tests by score type
for (test_name in names(score_type_map)) {
  types <- score_type_map[[test_name]]
  for (type in types) {
    if (!type %in% names(score_types_list)) {
      score_types_list[[type]] <- character(0)
    }
    score_types_list[[type]] <- unique(c(score_types_list[[type]], test_name))
  }
}

# Get unique score types present
unique_score_types <- names(score_types_list)

# Define the score type footnotes
fn_list <- list()
if ("t_score" %in% unique_score_types) {
  fn_list$t_score <- "T score: Mean = 50 [50th‰], SD ± 10 [16th‰, 84th‰]"
}
```

```
if ("scaled_score" %in% unique_score_types) {
  fn_list$scaled_score <- "Scaled score: Mean = 10 [50th‰], SD ± 3 [16th‰,
84th‰]"
}
if ("standard_score" %in% unique_score_types) {
  fn_list$standard_score <- "Standard score: Mean = 100 [50th‰], SD ± 15
[16th‰, 84th‰]"
}

# Create groups based on test names that use each score type
grp_list <- score_types_list

# Define which groups support which score types (for dynamic footnotes)
dynamic_grp <- score_types_list

# Default source note if no score types are found
if (length(fn_list) == 0) {
  # Determine default based on pheno
  source_note <- "Standard score: Mean = 100 [50th‰], SD ± 15 [16th‰, 84th‰]"
} else {
  source_note <- NULL # No general source note when using footnotes
}

# Create table using our modified TableGT_ModifiedR6 R6 class
table_gt <- TableGT_ModifiedR6$new(
  data = data_academics,
  pheno = pheno,
  table_name = table_name,
  vertical_padding = vertical_padding,
  source_note = source_note,
  multiline = multiline,
  fn_list = fn_list,
  grp_list = grp_list,
  dynamic_grp = dynamic_grp
)

# Get the table object without automatic saving
tbl <- table_gt$build_table()

# Save the table using our save_table method
table_gt$save_table(tbl, dir = here::here())
```

```
{r}
#| label: fig-academics-subdomain
```

```
#| include: false
#| echo: false
#| eval: true

# Create subdomain plot using R6 DotplotR6
dotplot_subdomain <- DotplotR6$new(
  data = data_academics,
  x = "z_mean_subdomain",
  y = "subdomain",
  filename = here::here("fig_academics_subdomain.svg")
)
dotplot_subdomain$create_plot()

# Load plot title from sysdata.rda
plot_title_var <- "plot_title_academics"
if (!exists(plot_title_var)) {
  sysdata_path <- here::here("R", "sysdata.rda")
  if (file.exists(sysdata_path)) {
    load(sysdata_path)
  }
}

# Get the plot title or use default
if (exists(plot_title_var)) {
  plot_title_academics <- get(plot_title_var)
} else {
  plot_title_academics <- "Reading, writing, and math are the three
main academic skills assessed on exam. _Reading ability consists of three
interrelated abilities: decoding, comprehension, and fluency. Writing ability
can be described in terms of spelling, grammar, expression of ideas, and
writing fluency. Math ability can be described in terms of calculation skills,
applied problem solving, and math fluency."
}
```

Table 3: Academic Skills Scores

	SCORE	‰ RANK	RANGE
WIAT-4[1]			
Word Reading	82	12	Low Average
Spelling	84	14	Low Average
Essay Composition	97	42	Average
Numerical Operations	82	12	Low Average

[1] Standard score: Mean = 100 [50th‰], SD ± 15 [16th‰, 84th‰]

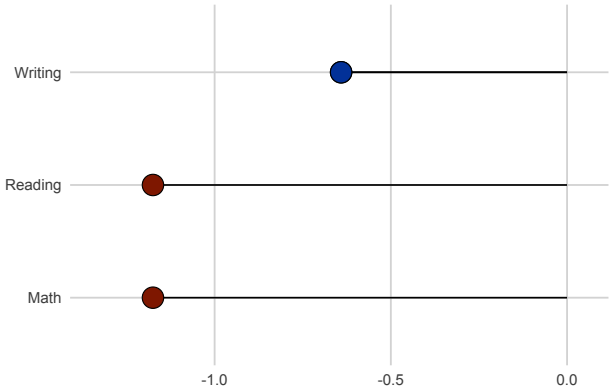

Figure 3: `{r} plot_title_academics`

Verbal/Language

Verbal concept formation and abstract reasoning fell within the Above Average and ranked at the 91th percentile. This indicates performance as good as or better than 91% of same-age peers from the general population.

Ethan's score on Semantic Fluency (semantic word fluency/generativity) was High Average. Verbal concept formation and word knowledge fell within the High Average and ranked at the 84th percentile. This indicates performance as good as or better than 84% of same-age peers from the general population.

Ethan's score on Language Index (general language processing) was Average. Ethan's score on Picture Naming (confrontation naming/expressive vocabulary) was Average. Practical knowledge and judgment of general principles and social situations fell within the Average and ranked at the 25th percentile. This indicates performance as good as or better than 25% of same-age peers from the general population.

```
{r}
#| label: setup-verbal
#| include: false
#| echo: false

# Source R6 classes
source("R/DomainProcessorR6.R")
source("R/NeuropsychResultsR6.R")
source("R/DotplotR6.R")
source("R/TableGT_ModifiedR6.R")
source("R/score_type_utils.R")

# Filter by domain
```

```
domains <- c("Verbal/Language")

# Target phenotype
pheno <- "verbal"

# Create R6 processor
processor_verbal <- DomainProcessorR6$new(
  domains = domains,
  pheno = pheno,
  input_file = "data/neurocog.parquet"
)

# Load and process data
processor_verbal$load_data()
processor_verbal$filter_by_domain()

# Create the data object with original name for compatibility
verbal <- processor_verbal$data

# Process and export data using R6
processor_verbal$select_columns()
processor_verbal$save_data()

# Update the original object
verbal <- processor_verbal$data

# Load internal data to get standardized scale names
scale_var_name <- paste0("scales_", tolower(pheno))
if (!exists(scale_var_name)) {
  sysdata_path <- here::here("R", "sysdata.rda")
  if (file.exists(sysdata_path)) { load(sysdata_path, envir = .GlobalEnv) }
}
if (exists(scale_var_name)) {
  scales <- get(scale_var_name)
} else {
  warning(paste0("Scale variable '", scale_var_name, "' not found. Using empty
vector."))
  scales <- character(0)
}

# Filter the data directly without using NeurotypR
filter_data <- function(data, domain, scale) {
  # Filter by domain if provided
  if (!is.null(domain)) {
    data <- data[data$domain %in% domain, ]
```

```
  }

  # Filter by scale if provided
  if (!is.null(scale)) {
    data <- data[data$scale %in% scale, ]
  }

  return(data)
}

# Apply the filter function
data_verbal <- filter_data(data = verbal, domain = domains, scale = scales)
```

```
{r}
#| label: text-verbal
#| cache: true
#| include: false
#| echo: false

# Generate text using R6 class
results_processor <- NeuropsychResultsR6$new(
  data = data_verbal,
  file = "_02-03_verbal_text.qmd"
)
results_processor$process()
```

```
{r}
#| label: qtbl-verbal
#| include: false
#| echo: false
#| eval: true

# Table parameters
table_name <- "table_verbal"
vertical_padding <- 0
multiline <- TRUE

# Get score types from the lookup table
score_type_map <- get_score_types_from_lookup(data_verbal)

# Create a list of test names grouped by score type
score_types_list <- list()
```

```
# Process the score type map to group tests by score type
for (test_name in names(score_type_map)) {
  types <- score_type_map[[test_name]]
  for (type in types) {
    if (!type %in% names(score_types_list)) {
      score_types_list[[type]] <- character(0)
    }
    score_types_list[[type]] <- unique(c(score_types_list[[type]], test_name))
  }
}

# Get unique score types present
unique_score_types <- names(score_types_list)

# Define the score type footnotes
fn_list <- list()
if ("t_score" %in% unique_score_types) {
  fn_list$t_score <- "T score: Mean = 50 [50th‰], SD ± 10 [16th‰, 84th‰]"
}
if ("scaled_score" %in% unique_score_types) {
  fn_list$scaled_score <- "Scaled score: Mean = 10 [50th‰], SD ± 3 [16th‰,
84th‰]"
}
if ("standard_score" %in% unique_score_types) {
  fn_list$standard_score <- "Standard score: Mean = 100 [50th‰], SD ± 15
[16th‰, 84th‰]"
}

# Create groups based on test names that use each score type
grp_list <- score_types_list

# Define which groups support which score types (for dynamic footnotes)
dynamic_grp <- score_types_list

# Default source note if no score types are found
if (length(fn_list) == 0) {
  # Determine default based on pheno
  source_note <- "Standard score: Mean = 100 [50th‰], SD ± 15 [16th‰, 84th‰]"
} else {
  source_note <- NULL # No general source note when using footnotes
}

# Create table using our modified TableGT_ModifiedR6 R6 class
table_gt <- TableGT_ModifiedR6$new(
  data = data_verbal,
```

```
  pheno = pheno,
  table_name = table_name,
  vertical_padding = vertical_padding,
  source_note = source_note,
  multiline = multiline,
  fn_list = fn_list,
  grp_list = grp_list,
  dynamic_grp = dynamic_grp
)

# Get the table object without automatic saving
tbl <- table_gt$build_table()

# Save the table using our save_table method
table_gt$save_table(tbl, dir = here::here())
```

```
{r}
#| label: fig-verbal-subdomain
#| include: false
#| echo: false
#| eval: true

# Create subdomain plot using R6 DotplotR6
dotplot_subdomain <- DotplotR6$new(
  data = data_verbal,
  x = "z_mean_subdomain",
  y = "subdomain",
  filename = here::here("fig_verbal_subdomain.svg")
)
dotplot_subdomain$create_plot()

# Load plot title from sysdata.rda
plot_title_var <- "plot_title_verbal"
if (!exists(plot_title_var)) {
  sysdata_path <- here::here("R", "sysdata.rda")
  if (file.exists(sysdata_path)) {
    load(sysdata_path)
  }
}

# Get the plot title or use default
if (exists(plot_title_var)) {
  plot_title_verbal <- get(plot_title_var)
} else {
```

```
  plot_title_verbal <- "Verbal and language functioning refers to the ability
to
access and apply acquired word knowledge, to verbalize meaningful concepts, to
understand complex multistep instructions, to think about verbal information,
and to express oneself using words."
}
```

Table 4: Verbal/Language Scores

	SCORE	‰ RANK	RANGE
RBANS[1,2]			
Picture Naming	–	37	Average
Semantic Fluency	13	84	High Average
Language Index	109	73	Average
WISC-V[2]			
Similarities	14	91	Above Average
Vocabulary	13	84	High Average
Comprehension	8	25	Average

[1] Standard score: Mean = 100 [50th‰], SD ± 15 [16th‰, 84th‰]

[2] Scaled score: Mean = 10 [50th‰], SD ± 3 [16th‰, 84th‰]

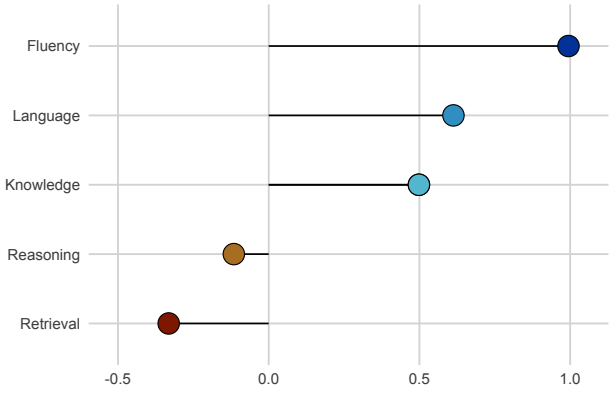

Figure 4: `{r} plot_title_verbal`

Visual Perception/Construction

General sequential (deductive) reasoning and quantitative reasoning fell within the Average and ranked at the 50th percentile. This indicates performance as good as or better than 50% of same-age peers from the general population.

Fluid and inductive reasoning and conceptual thinking fell within the Average and ranked at the 50th percentile. This indicates performance as good as or better than 50% of same-age peers from the general population.

A measure of visual-perceptual reasoning and mental transformation abilities that requires examinees to solve visual puzzles within a time limit fell within the Average and ranked at the 37th percentile. This indicates performance as good as or better than 37% of same-age peers from the general population.

Inductive reasoning and nonverbal problem-solving fell within the Average and ranked at the 37th percentile. This indicates performance as good as or better than 37% of same-age peers from the general population.

Understanding visual-spatial relationships to construct unfamiliar geometric designs from a model fell within the Low Average and ranked at the 16th percentile. This indicates performance as good as or better than 16% of same-age peers from the general population.

Understanding visual-spatial relationships to construct unfamiliar geometric designs from a model (untimed) fell within the Low Average and ranked at the 16th percentile. This indicates performance as good as or better than 16% of same-age peers from the general population.

Ethan's score on Figure Copy (copy of a complex abstract figure) was Low Average. Ethan's score on Line Orientation (basic perception of visual stimuli) was Low Average. Ethan's score on Visuospatial/Constructional Index (broad visuospatial processing) was Below Average.

```
{r}
#| label: setup-spatial
#| include: false
#| echo: false

# Source R6 classes
source("R/DomainProcessorR6.R")
source("R/NeuropsychResultsR6.R")
source("R/DotplotR6.R")
source("R/TableGT_ModifiedR6.R")
source("R/score_type_utils.R")

# Filter by domain
domains <- c("Visual Perception/Construction")

# Target phenotype
pheno <- "spatial"

# Create R6 processor
processor_spatial <- DomainProcessorR6$new(
  domains = domains,
  pheno = pheno,
  input_file = "data/neurocog.parquet"
)

# Load and process data
processor_spatial$load_data()
```

```
processor_spatial$filter_by_domain()

# Create the data object with original name for compatibility
spatial <- processor_spatial$data

# Process and export data using R6
processor_spatial$select_columns()
processor_spatial$save_data()

# Update the original object
spatial <- processor_spatial$data

# Load internal data to get standardized scale names
scale_var_name <- paste0("scales_", tolower(pheno))
if (!exists(scale_var_name)) {
  sysdata_path <- here::here("R", "sysdata.rda")
  if (file.exists(sysdata_path)) { load(sysdata_path, envir = .GlobalEnv) }
}
if (exists(scale_var_name)) {
  scales <- get(scale_var_name)
} else {
  warning(paste0("Scale variable '", scale_var_name, "' not found. Using empty
vector."))
  scales <- character(0)
}

# Filter the data directly without using NeurotypR
filter_data <- function(data, domain, scale) {
  # Filter by domain if provided
  if (!is.null(domain)) {
    data <- data[data$domain %in% domain, ]
  }

  # Filter by scale if provided
  if (!is.null(scale)) {
    data <- data[data$scale %in% scale, ]
  }

  return(data)
}

# Apply the filter function
data_spatial <- filter_data(data = spatial, domain = domains, scale = scales)
```

```
{r}
#| label: text-spatial
#| cache: true
#| include: false
#| echo: false

# Generate text using R6 class
results_processor <- NeuropsychResultsR6$new(
  data = data_spatial,
  file = "_02-04_spatial_text.qmd"
)
results_processor$process()
```

```
{r}
#| label: qtbl-spatial
#| include: false
#| echo: false
#| eval: true

# Table parameters
table_name <- "table_spatial"
vertical_padding <- 0
multiline <- TRUE

# Get score types from the lookup table
score_type_map <- get_score_types_from_lookup(data_spatial)

# Create a list of test names grouped by score type
score_types_list <- list()

# Process the score type map to group tests by score type
for (test_name in names(score_type_map)) {
  types <- score_type_map[[test_name]]
  for (type in types) {
    if (!type %in% names(score_types_list)) {
      score_types_list[[type]] <- character(0)
    }
    score_types_list[[type]] <- unique(c(score_types_list[[type]], test_name))
  }
}

# Get unique score types present
unique_score_types <- names(score_types_list)
```

```
# Define the score type footnotes
fn_list <- list()
if ("t_score" %in% unique_score_types) {
  fn_list$t_score <- "T score: Mean = 50 [50th‰], SD ± 10 [16th‰, 84th‰]"
}
if ("scaled_score" %in% unique_score_types) {
  fn_list$scaled_score <- "Scaled score: Mean = 10 [50th‰], SD ± 3 [16th‰,
84th‰]"
}
if ("standard_score" %in% unique_score_types) {
  fn_list$standard_score <- "Standard score: Mean = 100 [50th‰], SD ± 15
[16th‰, 84th‰]"
}

# Create groups based on test names that use each score type
grp_list <- score_types_list

# Define which groups support which score types (for dynamic footnotes)
dynamic_grp <- score_types_list

# Default source note if no score types are found
if (length(fn_list) == 0) {
  # Determine default based on pheno
  source_note <- "Standard score: Mean = 100 [50th‰], SD ± 15 [16th‰, 84th‰]"
} else {
  source_note <- NULL # No general source note when using footnotes
}

# Create table using our modified TableGT_ModifiedR6 R6 class
table_gt <- TableGT_ModifiedR6$new(
  data = data_spatial,
  pheno = pheno,
  table_name = table_name,
  vertical_padding = vertical_padding,
  source_note = source_note,
  multiline = multiline,
  fn_list = fn_list,
  grp_list = grp_list,
  dynamic_grp = dynamic_grp
)

# Get the table object without automatic saving
tbl <- table_gt$build_table()
```

```
# Save the table using our save_table method
table_gt$save_table(tbl, dir = here::here())
```

```
{r}
#| label: fig-spatial-subdomain
#| include: false
#| echo: false
#| eval: true

# Create subdomain plot using R6 DotplotR6
dotplot_subdomain <- DotplotR6$new(
  data = data_spatial,
  x = "z_mean_subdomain",
  y = "subdomain",
  filename = here::here("fig_spatial_subdomain.svg")
)
dotplot_subdomain$create_plot()

# Load plot title from sysdata.rda
plot_title_var <- "plot_title_spatial"
if (!exists(plot_title_var)) {
  sysdata_path <- here::here("R", "sysdata.rda")
  if (file.exists(sysdata_path)) {
    load(sysdata_path)
  }
}

# Get the plot title or use default
if (exists(plot_title_var)) {
  plot_title_spatial <- get(plot_title_var)
} else {
  plot_title_spatial <- "Perception, construction, and visuospatial processing
refer to abilities such as mentally visualizing how objects should look from
different angles, visualizing how to put objects together so that they fit
correctly, and being able to accurately and efficiently copy and/or reproduce
visual-spatial information onto paper."
}
```

Table 5: Visual Perception/Construction Scores

	SCORE	‰ RANK	RANGE
RBANS[1,2]			
Figure Copy	7	15	Low Average
Line Orientation	–	13	Low Average
Visuospatial/Constructional Index	75	5	Below Average
WISC-V[2]			
Block Design	7	16	Low Average
Visual Puzzles	9	37	Average
Matrix Reasoning	9	37	Average
Figure Weights	10	50	Average
Picture Concepts	10	50	Average
Block Design No Time Bonus	7	16	Low Average

[1] Standard score: Mean = 100 [50th‰], SD ± 15 [16th‰, 84th‰]

[2] Scaled score: Mean = 10 [50th‰], SD ± 3 [16th‰, 84th‰]

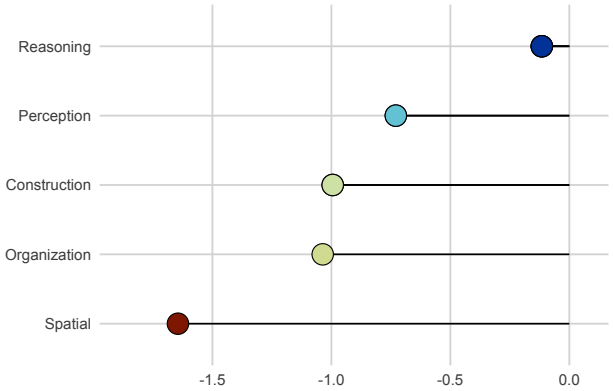

Figure 5: `{r} plot_title_spatial`

Memory

Ethan's score on Story Memory (expository story learning) was Above Average. Ethan's score on Story Recall (long-term recall of a detailed story) was Above Average. Ethan's score on Immediate Memory Index (composite verbal learning of a word list and a logical story) was Above Average. Ethan's score on List Learning (word list learning) was High Average. Ethan's score on List Recognition (delayed recognition of a word list) was Average. Ethan's score on Figure Recall (long-term recall and reconstruction of a complex abstract figure) was Average. Ethan's score on List Recall (long-term recall of a word list) was Average. Ethan's score on Delayed Memory Index (long-term recall of verbal information) was Low Average.

```
{r}
#| label: setup-memory
#| include: false
#| echo: false

# Source R6 classes
source("R/DomainProcessorR6.R")
source("R/NeuropsychResultsR6.R")
source("R/DotplotR6.R")
source("R/TableGT_ModifiedR6.R")
source("R/score_type_utils.R")

# Filter by domain
domains <- c("Memory")
```

```
# Target phenotype
pheno <- "memory"

# Create R6 processor
processor_memory <- DomainProcessorR6$new(
  domains = domains,
  pheno = pheno,
  input_file = "data/neurocog.parquet"
)

# Load and process data
processor_memory$load_data()
processor_memory$filter_by_domain()

# Create the data object with original name for compatibility
memory <- processor_memory$data

# Process and export data using R6
processor_memory$select_columns()
processor_memory$save_data()

# Update the original object
memory <- processor_memory$data

# Load internal data to get standardized scale names
scale_var_name <- paste0("scales_", tolower(pheno))
if (!exists(scale_var_name)) {
  sysdata_path <- here::here("R", "sysdata.rda")
  if (file.exists(sysdata_path)) { load(sysdata_path, envir = .GlobalEnv) }
}
if (exists(scale_var_name)) {
  scales <- get(scale_var_name)
} else {
  warning(paste0("Scale variable '", scale_var_name, "' not found. Using empty
vector."))
  scales <- character(0)
}

# Filter the data directly without using NeurotypR
filter_data <- function(data, domain, scale) {
  # Filter by domain if provided
  if (!is.null(domain)) {
    data <- data[data$domain %in% domain, ]
  }
```

```
  # Filter by scale if provided
  if (!is.null(scale)) {
    data <- data[data$scale %in% scale, ]
  }

  return(data)
}

# Apply the filter function
data_memory <- filter_data(data = memory, domain = domains, scale = scales)
```

```
{r}
#| label: text-memory
#| cache: true
#| include: false
#| echo: false

# Generate text using R6 class
results_processor <- NeuropsychResultsR6$new(
  data = data_memory,
  file = "_02-05_memory_text.qmd"
)
results_processor$process()
```

```
{r}
#| label: qtbl-memory
#| include: false
#| echo: false
#| eval: true

# Table parameters
table_name <- "table_memory"
vertical_padding <- 0
multiline <- TRUE

# Get score types from the lookup table
score_type_map <- get_score_types_from_lookup(data_memory)

# Create a list of test names grouped by score type
score_types_list <- list()

# Process the score type map to group tests by score type
```

```
for (test_name in names(score_type_map)) {
  types <- score_type_map[[test_name]]
  for (type in types) {
    if (!type %in% names(score_types_list)) {
      score_types_list[[type]] <- character(0)
    }
    score_types_list[[type]] <- unique(c(score_types_list[[type]], test_name))
  }
}

# Get unique score types present
unique_score_types <- names(score_types_list)

# Define the score type footnotes
fn_list <- list()
if ("t_score" %in% unique_score_types) {
  fn_list$t_score <- "T score: Mean = 50 [50th‰], SD ± 10 [16th‰, 84th‰]"
}
if ("scaled_score" %in% unique_score_types) {
  fn_list$scaled_score <- "Scaled score: Mean = 10 [50th‰], SD ± 3 [16th‰,
84th‰]"
}
if ("standard_score" %in% unique_score_types) {
  fn_list$standard_score <- "Standard score: Mean = 100 [50th‰], SD ± 15
[16th‰, 84th‰]"
}

# Create groups based on test names that use each score type
grp_list <- score_types_list

# Define which groups support which score types (for dynamic footnotes)
dynamic_grp <- score_types_list

# Default source note if no score types are found
if (length(fn_list) == 0) {
  # Determine default based on pheno
  source_note <- "Standard score: Mean = 100 [50th‰], SD ± 15 [16th‰, 84th‰]"
} else {
  source_note <- NULL # No general source note when using footnotes
}

# Create table using our modified TableGT_ModifiedR6 R6 class
table_gt <- TableGT_ModifiedR6$new(
  data = data_memory,
  pheno = pheno,
```

```
  table_name = table_name,
  vertical_padding = vertical_padding,
  source_note = source_note,
  multiline = multiline,
  fn_list = fn_list,
  grp_list = grp_list,
  dynamic_grp = dynamic_grp
)

# Get the table object without automatic saving
tbl <- table_gt$build_table()

# Save the table using our save_table method
table_gt$save_table(tbl, dir = here::here())
```

```
{r}
#| label: fig-memory-subdomain
#| include: false
#| echo: false
#| eval: true

# Create subdomain plot using R6 DotplotR6
dotplot_subdomain <- DotplotR6$new(
  data = data_memory,
  x = "z_mean_subdomain",
  y = "subdomain",
  filename = here::here("fig_memory_subdomain.svg")
)
dotplot_subdomain$create_plot()

# Load plot title from sysdata.rda
plot_title_var <- "plot_title_memory"
if (!exists(plot_title_var)) {
  sysdata_path <- here::here("R", "sysdata.rda")
  if (file.exists(sysdata_path)) {
    load(sysdata_path)
  }
}

# Get the plot title or use default
if (exists(plot_title_var)) {
  plot_title_memory <- get(plot_title_var)
} else {
  plot_title_memory <- "Learning and memory refer to the rate and ease with
```

```
which new information (e.g., facts, stories, lists, faces, names) can be
encoded, stored, and later recalled from long-term memory."
}
```

Table 6: Memory Scores

	SCORE	‰ RANK	RANGE
RBANS[1]			
Story Memory	16	97	Above Average
List Recall	–	37	Average
List Recognition	–	63	Average
Story Recall	16	97	Above Average

[1] Scaled score: Mean = 10 [50th‰], SD ± 3 [16th‰, 84th‰]

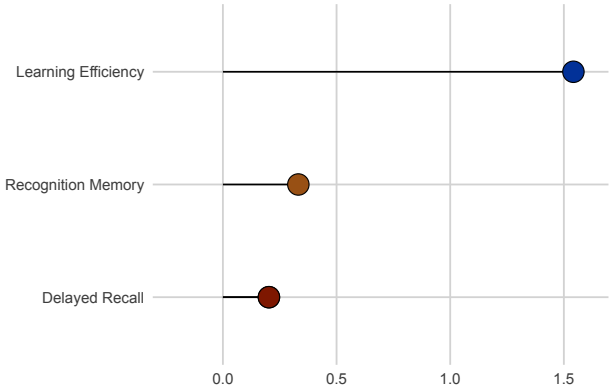

Figure 6: `{r} plot_title_memory`

Attention/Executive

Ethan's score on Coding (speed of information processing) was High Average. Ethan's score on Attention Index (general attentional and executive functioning) was High Average. Ethan's score on Digit Span (attention span and auditory attention) was Average. Maintenance and resequencing of progressively lengthier sets of pictures in spatial working memory fell within the Average and ranked at the 37th percentile. This indicates performance as good as or better than 37% of same-age peers from the general population.

Selective attention and attentional fluency on a cancellation task fell within the Average and ranked at the 37th percentile. This indicates performance as good as or better than 37% of same-age peers from the general population.

Auditory attentional capacity, or how much information can be processed at once fell within the Average and ranked at the 37th percentile. This indicates performance as good as or better than 37% of same-age peers from the general population.

A measure of both attentional capacity and working memory fell within the Average and ranked at the 37th percentile. This indicates performance as good as or better than 37% of same-age peers from the general population.

Rate of test taking, perceptual speed, visual discrimination, and visual attention scanning (random) fell within the Average and ranked at the 37th percentile. This

indicates performance as good as or better than 37% of same-age peers from the general population.

Rate of test taking, perceptual speed, visual discrimination, and visual attention scanning (structured) fell within the Average and ranked at the 37th percentile. This indicates performance as good as or better than 37% of same-age peers from the general population.

Registering, maintaining, and manipulating auditory information fell within the Low Average and ranked at the 16th percentile. This indicates performance as good as or better than 16% of same-age peers from the general population.

Efficiency of psychomotor speed, visual scanning ability, and visual-motor coordination fell within the Low Average and ranked at the 9th percentile. This indicates performance as good as or better than 9% of same-age peers from the general population.

Visual-perceptual decision-making speed fell within the Low Average and ranked at the 9th percentile. This indicates performance as good as or better than 9% of same-age peers from the general population.

Performance on a measures that requires cognitive flexibility, divided attention, visual search, and the ability to shift cognitive sets between number and letter sequences fell within the Below Average range. Maintenance and resequencing of progressively lengthier number strings in working memory fell within the Below Average and ranked at the 2nd percentile. This indicates performance as good as or better than 2% of same-age peers from the general population.

Visual search speed, scanning, speed of processing, and motor speed and coordination on Part A of the Trail Making Test fell within the Exceptionally Low range.

```
{r}
#| label: setup-executive
#| include: false
#| echo: false

# Source R6 classes
source("R/DomainProcessorR6.R")
source("R/NeuropsychResultsR6.R")
source("R/DotplotR6.R")
```

```
source("R/TableGT_ModifiedR6.R")
source("R/score_type_utils.R")

# Filter by domain
domains <- c("Attention/Executive")

# Target phenotype
pheno <- "executive"

# Create R6 processor
processor_executive <- DomainProcessorR6$new(
  domains = domains,
  pheno = pheno,
  input_file = "data/neurocog.parquet"
)

# Load and process data
processor_executive$load_data()
processor_executive$filter_by_domain()

# Create the data object with original name for compatibility
executive <- processor_executive$data

# Process and export data using R6
processor_executive$select_columns()
processor_executive$save_data()

# Update the original object
executive <- processor_executive$data

# Load internal data to get standardized scale names
scale_var_name <- paste0("scales_", tolower(pheno))
if (!exists(scale_var_name)) {
  sysdata_path <- here::here("R", "sysdata.rda")
  if (file.exists(sysdata_path)) { load(sysdata_path, envir = .GlobalEnv) }
}
if (exists(scale_var_name)) {
  scales <- get(scale_var_name)
} else {
  warning(paste0("Scale variable '", scale_var_name, "' not found. Using empty
vector."))
  scales <- character(0)
}

# Filter the data directly without using NeurotypR
```

```
filter_data <- function(data, domain, scale) {
  # Filter by domain if provided
  if (!is.null(domain)) {
    data <- data[data$domain %in% domain, ]
  }

  # Filter by scale if provided
  if (!is.null(scale)) {
    data <- data[data$scale %in% scale, ]
  }

  return(data)
}

# Apply the filter function
data_executive <- filter_data(data = executive, domain = domains, scale =
scales)
```

```
{r}
#| label: text-executive
#| cache: true
#| include: false
#| echo: false

# Generate text using R6 class
results_processor <- NeuropsychResultsR6$new(
  data = data_executive,
  file = "_02-06_executive_text.qmd"
)
results_processor$process()
```

```
{r}
#| label: qtbl-executive
#| include: false
#| echo: false
#| eval: true

# Table parameters
table_name <- "table_executive"
vertical_padding <- 0
multiline <- TRUE

# Get score types from the lookup table
```

```
score_type_map <- get_score_types_from_lookup(data_executive)

# Create a list of test names grouped by score type
score_types_list <- list()

# Process the score type map to group tests by score type
for (test_name in names(score_type_map)) {
  types <- score_type_map[[test_name]]
  for (type in types) {
    if (!type %in% names(score_types_list)) {
      score_types_list[[type]] <- character(0)
    }
    score_types_list[[type]] <- unique(c(score_types_list[[type]], test_name))
  }
}

# Get unique score types present
unique_score_types <- names(score_types_list)

# Define the score type footnotes
fn_list <- list()
if ("t_score" %in% unique_score_types) {
  fn_list$t_score <- "T score: Mean = 50 [50th‰], SD ± 10 [16th‰, 84th‰]"
}
if ("scaled_score" %in% unique_score_types) {
  fn_list$scaled_score <- "Scaled score: Mean = 10 [50th‰], SD ± 3 [16th‰,
84th‰]"
}
if ("standard_score" %in% unique_score_types) {
  fn_list$standard_score <- "Standard score: Mean = 100 [50th‰], SD ± 15
[16th‰, 84th‰]"
}

# Create groups based on test names that use each score type
grp_list <- score_types_list

# Define which groups support which score types (for dynamic footnotes)
dynamic_grp <- score_types_list

# Default source note if no score types are found
if (length(fn_list) == 0) {
  # Determine default based on pheno
  source_note <- "Standard score: Mean = 100 [50th‰], SD ± 15 [16th‰, 84th‰]"
} else {
  source_note <- NULL # No general source note when using footnotes
```

```
}

# Create table using our modified TableGT_ModifiedR6 R6 class
table_gt <- TableGT_ModifiedR6$new(
  data = data_executive,
  pheno = pheno,
  table_name = table_name,
  vertical_padding = vertical_padding,
  source_note = source_note,
  multiline = multiline,
  fn_list = fn_list,
  grp_list = grp_list,
  dynamic_grp = dynamic_grp
)

# Get the table object without automatic saving
tbl <- table_gt$build_table()

# Save the table using our save_table method
table_gt$save_table(tbl, dir = here::here())
```

```
{r}
#| label: fig-executive-subdomain
#| include: false
#| echo: false
#| eval: true

# Create subdomain plot using R6 DotplotR6
dotplot_subdomain <- DotplotR6$new(
  data = data_executive,
  x = "z_mean_subdomain",
  y = "subdomain",
  filename = here::here("fig_executive_subdomain.svg")
)
dotplot_subdomain$create_plot()

# Load plot title from sysdata.rda
plot_title_var <- "plot_title_executive"
if (!exists(plot_title_var)) {
  sysdata_path <- here::here("R", "sysdata.rda")
  if (file.exists(sysdata_path)) {
    load(sysdata_path)
  }
}
```

```
# Get the plot title or use default
if (exists(plot_title_var)) {
  plot_title_executive <- get(plot_title_var)
} else {
  plot_title_executive <- "Attentional and executive functions underlie most,
if
not all, domains of cognitive performance. These are behaviors and skills that
allow individuals to successfully carry-out instrumental and social
activities,
academic work, engage with others effectively, problem solve, and successfully
interact with the environment to get needs met."
}
```

Table 7: Attention/Executive Scores

	SCORE	‰ RANK	RANGE
RBANS[1]			
RBANS Digit Span	11	63	Average
RBANS Coding	14	90	High Average
Attention Index	116	86	High Average
Trail Making Test[2]			
TMT, Part A	9	–	Exceptionally Low
TMT, Part B	30	2	Below Average
WISC-V[3]			
Digit Span	7	16	Low Average
Picture Span	9	37	Average
Coding	6	9	Low Average
Symbol Search	6	9	Low Average
Cancellation	9	37	Average
Digit Span Forward	9	37	Average
Digit Span Backward	9	37	Average
Digit Span Sequencing	4	2	Below Average
Cancellation Random	9	37	Average
Cancellation Structured	9	37	Average

[1] Standard score: Mean = 100 [50th‰], SD ± 15 [16th‰, 84th‰]

[2] T score: Mean = 50 [50th‰], SD ± 10 [16th‰, 84th‰]

[3] Scaled score: Mean = 10 [50th‰], SD ± 3 [16th‰, 84th‰]

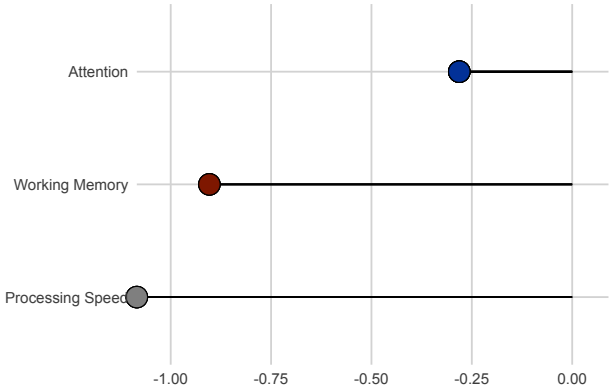

Figure 7: `{r} plot_title_executive`

Motor

Nondominant hand dexterity was Exceptionally Low range. Fine-motor dexterity (dominant hand) fell within the Exceptionally Low range.

```
{r}
#| label: setup-motor
#| include: false
#| echo: false

# Source R6 classes
source("R/DomainProcessorR6.R")
source("R/NeuropsychResultsR6.R")
source("R/DotplotR6.R")
source("R/TableGT_ModifiedR6.R")
source("R/score_type_utils.R")

# Filter by domain
domains <- c("Motor")

# Target phenotype
pheno <- "motor"

# Create R6 processor
processor_motor <- DomainProcessorR6$new(
  domains = domains,
  pheno = pheno,
  input_file = "data/neurocog.parquet"
)

# Load and process data
processor_motor$load_data()
processor_motor$filter_by_domain()

# Create the data object with original name for compatibility
motor <- processor_motor$data

# Process and export data using R6
processor_motor$select_columns()
processor_motor$save_data()

# Update the original object
motor <- processor_motor$data

# Load internal data to get standardized scale names
```

```
scale_var_name <- paste0("scales_", tolower(pheno))
if (!exists(scale_var_name)) {
  sysdata_path <- here::here("R", "sysdata.rda")
  if (file.exists(sysdata_path)) { load(sysdata_path, envir = .GlobalEnv) }
}
if (exists(scale_var_name)) {
  scales <- get(scale_var_name)
} else {
  warning(paste0("Scale variable '", scale_var_name, "' not found. Using empty
vector."))
  scales <- character(0)
}

# Filter the data directly without using NeurotypR
filter_data <- function(data, domain, scale) {
  # Filter by domain if provided
  if (!is.null(domain)) {
    data <- data[data$domain %in% domain, ]
  }

  # Filter by scale if provided
  if (!is.null(scale)) {
    data <- data[data$scale %in% scale, ]
  }

  return(data)
}

# Apply the filter function
data_motor <- filter_data(data = motor, domain = domains, scale = scales)
```

```
{r}
#| label: text-motor
#| cache: true
#| include: false
#| echo: false

# Generate text using R6 class
results_processor <- NeuropsychResultsR6$new(
  data = data_motor,
  file = "_02-07_motor_text.qmd"
)
results_processor$process()
```

```
{r}
#| label: qtbl-motor
#| include: false
#| echo: false
#| eval: true

# Table parameters
table_name <- "table_motor"
vertical_padding <- 0
multiline <- TRUE

# Get score types from the lookup table
score_type_map <- get_score_types_from_lookup(data_motor)

# Create a list of test names grouped by score type
score_types_list <- list()

# Process the score type map to group tests by score type
for (test_name in names(score_type_map)) {
  types <- score_type_map[[test_name]]
  for (type in types) {
    if (!type %in% names(score_types_list)) {
      score_types_list[[type]] <- character(0)
    }
    score_types_list[[type]] <- unique(c(score_types_list[[type]], test_name))
  }
}

# Get unique score types present
unique_score_types <- names(score_types_list)

# Define the score type footnotes
fn_list <- list()
if ("t_score" %in% unique_score_types) {
  fn_list$t_score <- "T score: Mean = 50 [50th‰], SD ± 10 [16th‰, 84th‰]"
}
if ("scaled_score" %in% unique_score_types) {
  fn_list$scaled_score <- "Scaled score: Mean = 10 [50th‰], SD ± 3 [16th‰,
84th‰]"
}
if ("standard_score" %in% unique_score_types) {
  fn_list$standard_score <- "Standard score: Mean = 100 [50th‰], SD ± 15
[16th‰, 84th‰]"
}
```

```
# Create groups based on test names that use each score type
grp_list <- score_types_list

# Define which groups support which score types (for dynamic footnotes)
dynamic_grp <- score_types_list

# Default source note if no score types are found
if (length(fn_list) == 0) {
  # Determine default based on pheno
  source_note <- "Standard score: Mean = 100 [50th‰], SD ± 15 [16th‰, 84th‰]"
} else {
  source_note <- NULL # No general source note when using footnotes
}

# Create table using our modified TableGT_ModifiedR6 R6 class
table_gt <- TableGT_ModifiedR6$new(
  data = data_motor,
  pheno = pheno,
  table_name = table_name,
  vertical_padding = vertical_padding,
  source_note = source_note,
  multiline = multiline,
  fn_list = fn_list,
  grp_list = grp_list,
  dynamic_grp = dynamic_grp
)

# Get the table object without automatic saving
tbl <- table_gt$build_table()

# Save the table using our save_table method
table_gt$save_table(tbl, dir = here::here())
```

```
{r}
#| label: fig-motor-subdomain
#| include: false
#| echo: false
#| eval: true

# Create subdomain plot using R6 DotplotR6
dotplot_subdomain <- DotplotR6$new(
  data = data_motor,
  x = "z_mean_subdomain",
  y = "subdomain",
```

```
  filename = here::here("fig_motor_subdomain.svg")
)
dotplot_subdomain$create_plot()

# Load plot title from sysdata.rda
plot_title_var <- "plot_title_motor"
if (!exists(plot_title_var)) {
  sysdata_path <- here::here("R", "sysdata.rda")
  if (file.exists(sysdata_path)) {
    load(sysdata_path)
  }
}

# Get the plot title or use default
if (exists(plot_title_var)) {
  plot_title_motor <- get(plot_title_var)
} else {
  plot_title_motor <- "Sensorimotor tasks refer to the capacity to control
hand
movements quickly, smoothly, and with adequate precision, which are required
to
engage in activities such as writing and drawing."
}
```

Table 8: Motor Scores

	SCORE	‰ RANK	RANGE
Grooved Pegboard[1]			
Dominant Hand Time	17	–	Exceptionally Low
Nondominant Hand Time	22	1	Exceptionally Low

[1] T score: Mean = 50 [50th‰], SD ± 10 [16th‰, 84th‰]

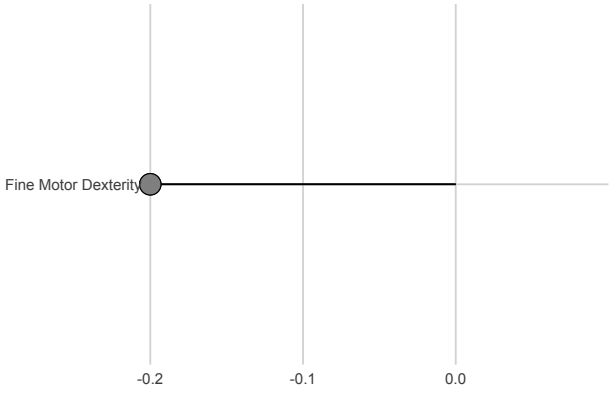

Figure 8: `{r} plot_title_motor`

Behavioral/Emotional/Social

```
{r}
#| label: setup-emotion
#| include: false
#| echo: false
```

```
# Source R6 classes
source("R/DomainProcessorR6.R")
source("R/NeuropsychResultsR6.R")
source("R/DotplotR6.R")
source("R/TableGT_ModifiedR6.R")
source("R/score_type_utils.R")

# Filter by domain
domains <- c(
  "Behavioral/Emotional/Social",
  "Psychiatric Disorders",
  "Personality Disorders",
  "Substance Use",
  "Psychosocial Problems"
)

# Target phenotype
pheno <- "emotion"

# Create R6 processor
processor_emotion <- DomainProcessorR6$new(
  domains = domains,
  pheno = pheno,
  input_file = "data/neurobehav.parquet"
)

# Load and process data
processor_emotion$load_data()
processor_emotion$filter_by_domain()

# Create the data object with original name for compatibility
emotion <- processor_emotion$data

# Process and export data using R6
processor_emotion$select_columns()
processor_emotion$save_data()

# Update the original object
emotion <- processor_emotion$data

# Load internal data to get standardized scale names
# Check if this domain uses child/adult suffixes
use_child_suffix <- tolower(pheno) %in% c("adhd", "emotion")
scale_var_name <- if (use_child_suffix) {
```

```
  paste0("scales_", tolower(pheno), "_child")
} else {
  paste0("scales_", tolower(pheno))
}

if (!exists(scale_var_name)) {
  # Load from sysdata.rda
  sysdata_path <- here::here("R", "sysdata.rda")
  if (file.exists(sysdata_path)) {
    load(sysdata_path)
  } else {
    stop(
      "Could not load ", scale_var_name, " from sysdata.rda. Please ensure the
internal data file exists."
    )
  }
}

scales <- get(scale_var_name)

# Filter the data directly without using NeurotypR
filter_data <- function(data, domain, scale) {
  # Filter by domain if provided
  if (!is.null(domain)) {
    data <- data[data$domain %in% domain, ]
  }

  # Filter by scale if provided
  if (!is.null(scale)) {
    data <- data[data$scale %in% scale, ]
  }

  return(data)
}

# Apply the filter function
data_emotion <- filter_data(data = emotion, domain = domains, scale = scales)
```

```
{r}
#| label: text-emotion-child-self
#| cache: true
#| include: false
#| echo: false
```

```
data_emotion_self <- data_emotion |>
  dplyr::filter(test %in% c("pai_adol", "basc3_srp_adolescent",
"basc3_srp_child"))

# Generate text using R6 class
results_processor <- NeuropsychResultsR6$new(
  data = data_emotion_self,
  file = "_02-10_emotion_child_text_self.qmd"
)
results_processor$process()
```

```
{r}
#| label: text-emotion-child-parent
#| cache: true
#| include: false
#| echo: false

data_emotion_parent <- data_emotion |>
  dplyr::filter(
    test %in%
      c("basc3_prs_adolescent", "basc3_prs_child", "basc3_prs_preschool")
  )

# Generate text using R6 class
results_processor <- NeuropsychResultsR6$new(
  data = data_emotion_parent,
  file = "_02-10_emotion_child_text_parent.qmd"
)
results_processor$process()
```

```
{r}
#| label: text-emotion-child-teacher
#| cache: true
#| include: false
#| echo: false
#| eval: false

data_emotion_teacher <- data_emotion |>
  dplyr::filter(
    test %in%
      c("basc3_trs_adolescent", "basc3_trs_child", "basc3_trs_preschool")
  )
```

```
# Generate text using R6 class
results_processor <- NeuropsychResultsR6$new(
  data = data_emotion_teacher,
  file = "_02-10_emotion_child_text_teacher.qmd"
)
results_processor$process()
```

```
{r}
#| label: qtbl-emotion-self
#| include: false
#| echo: false
#| eval: true

# Table parameters
table_name <- "table_emotion_child_self"
vertical_padding <- 0
multiline <- TRUE

# Get score types from the lookup table
score_type_map <- get_score_types_from_lookup(data_emotion_self)

# Create a list of test names grouped by score type
score_types_list <- list()

# Process the score type map to group tests by score type
for (test_name in names(score_type_map)) {
  types <- score_type_map[[test_name]]
  for (type in types) {
    if (!type %in% names(score_types_list)) {
      score_types_list[[type]] <- character(0)
    }
    score_types_list[[type]] <- unique(c(score_types_list[[type]], test_name))
  }
}

# Get unique score types present
unique_score_types <- names(score_types_list)

# Define the score type footnotes
fn_list <- list()
if ("t_score" %in% unique_score_types) {
  fn_list$t_score <- "T score: Mean = 50 [50th‰], SD ± 10 [16th‰, 84th‰]"
}
if ("scaled_score" %in% unique_score_types) {
```

```
  fn_list$scaled_score <- "Scaled score: Mean = 10 [50th‰], SD ± 3 [16th‰,
84th‰]"
}
if ("standard_score" %in% unique_score_types) {
  fn_list$standard_score <- "Standard score: Mean = 100 [50th‰], SD ± 15
[16th‰, 84th‰]"
}

# Create groups based on test names that use each score type
grp_list <- score_types_list

# Define which groups support which score types (for dynamic footnotes)
dynamic_grp <- score_types_list

# Default source note if no score types are found
if (length(fn_list) == 0) {
  source_note <- "T-score: Mean = 50 [50th‰], SD ± 10 [16th‰, 84th‰]"
} else {
  source_note <- NULL # No general source note when using footnotes
}

# Create table using our modified TableGT_ModifiedR6 R6 class
table_gt <- TableGT_ModifiedR6$new(
  data = data_emotion_self,
  pheno = pheno,
  table_name = table_name,
  vertical_padding = vertical_padding,
  source_note = source_note,
  multiline = multiline,
  fn_list = fn_list,
  grp_list = grp_list,
  dynamic_grp = dynamic_grp
)

# Get the table object without automatic saving
tbl <- table_gt$build_table()

# Save the table using our save_table method
table_gt$save_table(tbl, dir = here::here())
```

```
{r}
#| label: qtbl-emotion-parent
#| include: false
#| echo: false
```

```
#| eval: true

# Table parameters
table_name <- "table_emotion_child_parent"
vertical_padding <- 0
multiline <- TRUE

# Get score types from the lookup table
score_type_map <- get_score_types_from_lookup(data_emotion_parent)

# Create a list of test names grouped by score type
score_types_list <- list()

# Process the score type map to group tests by score type
for (test_name in names(score_type_map)) {
  types <- score_type_map[[test_name]]
  for (type in types) {
    if (!type %in% names(score_types_list)) {
      score_types_list[[type]] <- character(0)
    }
    score_types_list[[type]] <- unique(c(score_types_list[[type]], test_name))
  }
}

# Get unique score types present
unique_score_types <- names(score_types_list)

# Define the score type footnotes
fn_list <- list()
if ("t_score" %in% unique_score_types) {
  fn_list$t_score <- "T score: Mean = 50 [50th‰], SD ± 10 [16th‰, 84th‰]"
}
if ("scaled_score" %in% unique_score_types) {
  fn_list$scaled_score <- "Scaled score: Mean = 10 [50th‰], SD ± 3 [16th‰,
84th‰]"
}
if ("standard_score" %in% unique_score_types) {
  fn_list$standard_score <- "Standard score: Mean = 100 [50th‰], SD ± 15
[16th‰, 84th‰]"
}

# Create groups based on test names that use each score type
grp_list <- score_types_list

# Define which groups support which score types (for dynamic footnotes)
```

```
dynamic_grp <- score_types_list

# Default source note if no score types are found
if (length(fn_list) == 0) {
  source_note <- "T-score: Mean = 50 [50th‰], SD ± 10 [16th‰, 84th‰]"
} else {
  source_note <- NULL # No general source note when using footnotes
}

# Create table using our modified TableGT_ModifiedR6 R6 class
table_gt <- TableGT_ModifiedR6$new(
  data = data_emotion_parent,
  pheno = pheno,
  table_name = table_name,
  vertical_padding = vertical_padding,
  source_note = source_note,
  multiline = multiline,
  fn_list = fn_list,
  grp_list = grp_list,
  dynamic_grp = dynamic_grp
)

# Get the table object without automatic saving
tbl <- table_gt$build_table()

# Save the table using our save_table method
table_gt$save_table(tbl, dir = here::here())
```

```
{r}
#| label: qtbl-emotion-teacher
#| include: false
#| echo: false
#| eval: false

# Table parameters
table_name <- "table_emotion_child_teacher"
vertical_padding <- 0
multiline <- TRUE

# Get score types from the lookup table
score_type_map <- get_score_types_from_lookup(data_emotion_teacher)

# Create a list of test names grouped by score type
score_types_list <- list()
```

```
# Process the score type map to group tests by score type
for (test_name in names(score_type_map)) {
  types <- score_type_map[[test_name]]
  for (type in types) {
    if (!type %in% names(score_types_list)) {
      score_types_list[[type]] <- character(0)
    }
    score_types_list[[type]] <- unique(c(score_types_list[[type]], test_name))
  }
}

# Get unique score types present
unique_score_types <- names(score_types_list)

# Define the score type footnotes
fn_list <- list()
if ("t_score" %in% unique_score_types) {
  fn_list$t_score <- "T score: Mean = 50 [50th‰], SD ± 10 [16th‰, 84th‰]"
}
if ("scaled_score" %in% unique_score_types) {
  fn_list$scaled_score <- "Scaled score: Mean = 10 [50th‰], SD ± 3 [16th‰,
84th‰]"
}
if ("standard_score" %in% unique_score_types) {
  fn_list$standard_score <- "Standard score: Mean = 100 [50th‰], SD ± 15
[16th‰, 84th‰]"
}

# Create groups based on test names that use each score type
grp_list <- score_types_list

# Define which groups support which score types (for dynamic footnotes)
dynamic_grp <- score_types_list

# Default source note if no score types are found
if (length(fn_list) == 0) {
  source_note <- "T-score: Mean = 50 [50th‰], SD ± 10 [16th‰, 84th‰]"
} else {
  source_note <- NULL # No general source note when using footnotes
}

# Create table using our modified TableGT_ModifiedR6 R6 class
table_gt <- TableGT_ModifiedR6$new(
  data = data_emotion_teacher,
```

```
  pheno = pheno,
  table_name = table_name,
  vertical_padding = vertical_padding,
  source_note = source_note,
  multiline = multiline,
  fn_list = fn_list,
  grp_list = grp_list,
  dynamic_grp = dynamic_grp
)

# Get the table object without automatic saving
tbl <- table_gt$build_table()

# Save the table using our save_table method
table_gt$save_table(tbl, dir = here::here())
```

```
{r}
#| label: fig-emotion-subdomain-self
#| include: false
#| echo: false
#| eval: true

# Create subdomain plot using R6 DotplotR6
dotplot_subdomain <- DotplotR6$new(
  data = data_emotion_self,
  x = "z_mean_subdomain",
  y = "subdomain",
  filename = here::here("fig_emotion_subdomain_self.svg")
)
dotplot_subdomain$create_plot()

# Load plot title from sysdata.rda
plot_title_var <- "plot_title_emotion_child_self"
if (!exists(plot_title_var)) {
  sysdata_path <- here::here("R", "sysdata.rda")
  if (file.exists(sysdata_path)) {
    load(sysdata_path)
  }
}

# Get the plot title or use default
if (exists(plot_title_var)) {
  plot_title_emotion_child_self <- get(plot_title_var)
} else {
```

```
  plot_title_emotion_child_self <- "This section presents results from the
Behavioral/Emotional/Social domain assessment."
}
```

```
{r}
#| label: fig-emotion-subdomain-parent
#| include: false
#| echo: false
#| eval: true

# Create subdomain plot using R6 DotplotR6
dotplot_subdomain <- DotplotR6$new(
  data = data_emotion_parent,
  x = "z_mean_subdomain",
  y = "subdomain",
  filename = here::here("fig_emotion_subdomain_parent.svg")
)
dotplot_subdomain$create_plot()

# Load plot title from sysdata.rda
plot_title_var <- "plot_title_emotion_child_parent"
if (!exists(plot_title_var)) {
  sysdata_path <- here::here("R", "sysdata.rda")
  if (file.exists(sysdata_path)) {
    load(sysdata_path)
  }
}

# Get the plot title or use default
if (exists(plot_title_var)) {
  plot_title_emotion_child_parent <- get(plot_title_var)
} else {
  plot_title_emotion_child_parent <- "This section presents parent-rating
results from the Behavioral/Emotional/Social domain assessment."
}
```

```
{r}
#| label: fig-emotion-subdomain-teacher
#| include: false
#| echo: false
#| eval: false

# Create subdomain plot using R6 DotplotR6
```

```
dotplot_subdomain <- DotplotR6$new(
  data = data_emotion_teacher,
  x = "z_mean_subdomain",
  y = "subdomain",
  filename = here::here("fig_emotion_subdomain_teacher.svg")
)
dotplot_subdomain$create_plot()

# Load plot title from sysdata.rda
plot_title_var <- "plot_title_emotion_child_teacher"
if (!exists(plot_title_var)) {
  sysdata_path <- here::here("R", "sysdata.rda")
  if (file.exists(sysdata_path)) {
    load(sysdata_path)
  }
}

# Get the plot title or use default
if (exists(plot_title_var)) {
  plot_title_emotion_child_teacher <- get(plot_title_var)
} else {
  plot_title_emotion_child_teacher <- "This section presents teacher-rated
results from the Behavioral/Emotional/Social domain assessment."
}
```

SELF-REPORT

Ethan's self-reported Rule-breaking behavior was Above Average. Ethan's self-reported Demonstration of clear, logical thought patterns and a general awareness of surroundings was Above Average. Ethan's self-reported Behavioral symptoms index composite scale was Above Average. Ethan's self-reported Maintain necessary levels of attention was Above Average. Ethan's self-reported Externalizing problems composite scale was Above Average. Ethan's self-reported Avoid social situations and appears to be capable of developing and maintaining friendships with others was Above Average. Ethan's self-reported Ratings of aggressive behavior and to act aggressively was High Average. Ethan's self-reported Tendency to be overly active, rush through work or activities, and act without thinking was High Average. Ethan's self-reported Excessive feelings of unhappiness, sadness, or stress was High Average. Ethan's score on Grandiosity (person may have little capacity to recognize personal limitations, to the point where one is not able to think clearly about one's capabilities) was High Average. Ethan's score on Obsessive-Compulsive (scores marked rigidity and significant ruminative concerns) was Average. Ethan's score on Antisocial Behaviors (scores suggest a history of difficulties with authority and with social

convention) was Average. Ethan's score on Egocentricity (suggest a person who tends to be self-centered and pragmatic in interaction with others) was Average. Ethan's score on Alcohol Problems (are indicative of an individual who may drink regularly and may have experienced some adverse consequences as a result) was Average. Ethan's score on Drug Problems (scores are indicative of a person who may use drugs on a fairly regular basis and may have experienced some adverse consequences as a result) was Average. Ethan's score on Warmth (average scores reflect an individual who is likely to be able to adapt to different interpersonal situations, by being able to tolerate close attachment but also capable of maintaining some distance in relationships as needed) was Average. Ethan's score on Antisocial Features (individuals are likely to be impulsive and hostile, perhaps with a history of reckless and/or antisocial acts) was Average. Ethan's score on Anxiety-Related Disorders (reflecting multiple anxiety-disorder diagnoses and broad impairment associated with anxiety) was Average. Ethan's score on Negative Relationships (person is likely to be bitter and resentful about the way past relationships have gone) was Average. Ethan's score on Treatment Rejection (average scores suggest a person who acknowledges major difficulties in their functioning, and perceives an acute need for help in dealing with these problems) was Average. Ethan's self-reported Internalizing problems composite scale was Average. Ethan's score on Traumatic Stress (trauma (single or multiple) is the overriding focus of the person's life) was Average. Ethan's score on Affective (D) (elevations suggest sadness, a loss of interest in normal activities and a loss if one's sense of pleasure in things that were previously enjoyed) was Average. Ethan's score on Physical Aggression (suggest that losses of temper are more common and that the person is prone to more physical displays of anger, perhaps breaking objects or engaging in physical confrontations) was Average. Ethan's score on Dominance (average scores reflect an individual who is likely to be able to adapt to different interpersonal situations, by being able to both take and relinquish control in these relationships as needed) was Average. Ethan's score on Persecution (suggest an individual who is quick to feel that they are being treated inequitably and easily believes that there is concerted effort among others to undermine their best interests) was Average. Ethan's score on Stimulus-Seeking (patient is likely to manifest behavior that is reckless and potentially dangerous to himself and/or those around him) was Average. Ethan's score on Phobias (indicate impairing phobic behaviors, with avoidance of the feared object or situation) was Average. Ethan's self-reported Able to adequately perform simple daily tasks in a safe and efficient manner was Average. Ethan's self-reported Tendency to be nervous, fearful, or worried about real or imagined problems was Average. Ethan's score on Mania (scores are associated with disorders such as mania, hypomania, or cyclothymia) was Average. Ethan's score on Self-

Harm (reflect levels of impulsivity and recklessness that become more hazardous as scores rise) was Average. Ethan's score on Verbal Aggression (reflects a person who is assertive and not intimidated by confrontation and, toward the upper end of this range, he may be verbally aggressive) was Average. Ethan's score on Conversion (moderate elevations may be seen in neurological disorders with CNS impairment involving sensorimotor problems, MS, CVA/stroke, or neuropsychological associated with chronic alcoholism) was Low Average. Ethan's score on Hypervigilance (suggest a person who is pragmatic and skeptical in relationships) was Low Average. Ethan's self-reported Exhibits appropriate expressive and receptive communication skills and displays a strong ability to seek out and find new information independently was Low Average. Ethan's score on Health Concerns (elevations indicate a poor health may be a major component of the self-image, with the person accustomed to being in the patient role) was Low Average. Ethan's score on Suicidal Ideation (scores are typically of an individual who is seen in clinical settings) was Low Average. Ethan's score on Stress (individuals may be experiencing a moderate degree of stress as a result of difficulties in some major life area) was Low Average. Ethan's self-reported Adaptation to most situations and able to quickly recover from situations that are difficult was Low Average. Ethan's score on Social Detachment (reflects a person who neither desires nor enjoys the meaning to personal relationships) was Low Average. Ethan's score on Borderline Features (behaviors typically associated with borderline personality disorder) was Low Average. Ethan's score on Identity Problems (suggest uncertainty about major life issues and difficulties in developing and maintaining a sense of purpose) was Low Average. Ethan's score on Nonsupport (social relationships are perceived as offering little support - family relationships may be either distant or combative, whereas friends are generally seen as unavailable or not helpful when needed) was Low Average. Ethan's self-reported Health-related problems was Low Average. Ethan's score on Somatic Complaints (degree of concern about physical functioning and health matters and the extent of perceived impairment arising from somatic symptoms) was Low Average. Ethan's score on Somatization (high scorers describe general lethargy and malaise, and the presentation is one of complaintiveness and dissatisfaction) was Low Average. Ethan's score on Cognitive (D) (a higher scorer is likely to report feeling hopeless and as having failed at most important life tasks) was Low Average. Ethan's score on Irritability (person is very volatile in response to frustration and his judgment in such situations may be poor) was Low Average. Ethan's score on Aggression (scores are indicative of an individual who may be seen as impatient, irritable, and quick-tempered) was Low Average. Ethan's score on Cognitive (A) (elevations indicate worry and concern about current (often uncontrollable) issues that compromise the person's ability to concentrate and attend) was

Low Average. Ethan's score on Physiological (A) (high scorers my not psychologically experience themselves as anxious, but show physiological signs that most people associate with anxiety) was Low Average. Ethan's score on Depression (person feels hopeless, discouraged and useless) was Low Average. Ethan's score on Paranoia (individuals are likely to be overtly suspicious and hostile) was Low Average. Ethan's score on Thought Disorder (suggest problems in concentration and decision-making) was Low Average. Ethan's self-reported Overall adaptive functioning composite score was Low Average. Ethan's score on Activity Level (this activity level renders the person confused and difficult to understand) was Low Average. Ethan's score on Affective Instability (a propensity to experience a particular negative affect (anxiety, depression, or anger is the typical response)) was Low Average. Ethan's score on Resentment (increasing tendency to attribute any misfortunes to the neglect of others and to discredit the successes of others as being the result of luck or favoritism) was Low Average. Ethan's score on Psychotic Experiences (person may strike others as peculiar and eccentric) was Low Average. Ethan's self-reported Socially adept and at ease was Below Average. Ethan's score on Anxiety (reflecting a generalized impairment associated with anxiety) was Below Average. Ethan's score on Affective (A) (high scorers experience a great deal of tension, have difficulty with relaxing and tend to be easily fatigued as a result of high-perceived stress) was Below Average. Ethan's score on Physiological (D) (elevations suggest a change in level of physical functioning, typically with a disturbance in sleep pattern, a decrease in energy and level of sexual interest and a loss of appetite and/or weight loss) was Below Average. Ethan's score on Schizophrenia (associated with an active schizophrenic episode) was Below Average. Ethan's score on Aggressive Attitude (suggest an individual who is easily angered and frustrated; others may perceive him as hostile and readily provoked) was Below Average. Ethan's self-reported Creative, works well under pressure, and/or can effectively unite others to work together was Below Average.

Table 9: Behavioral/Emotional/Social

	SCORE	‰ RANK	RANGE
PAI Adolescent[7]			
Somatic Complaints	40	15	Low Average
Conversion	43	24	Low Average
Somatization	40	15	Low Average
Health Concerns	42	21	Low Average
Anxiety	36	8	Below Average
Cognitive (A)	39	13	Low Average
Affective (A)	36	8	Below Average
Physiological (A)	39	13	Low Average
Anxiety-Related Disorders	49	46	Average
Obsessive-Compulsive	56	72	Average
Phobias	45	30	Average
Traumatic Stress	47	38	Average
Depression	39	13	Low Average
Cognitive (D)	40	15	Low Average
Affective (D)	47	38	Average
Physiological (D)	35	6	Below Average
Mania	44	27	Average
Activity Level	38	11	Low Average
Grandiosity	57	75	High Average
Irritability	40	15	Low Average
Paranoia	39	13	Low Average
Hypervigilance	43	24	Low Average
Persecution	46	34	Average
Resentment	37	9	Low Average
Schizophrenia	35	6	Below Average
Psychotic Experiences	37	9	Low Average
Social Detachment	41	18	Low Average
Thought Disorder	39	13	Low Average
Borderline Features	41	18	Low Average
Affective Instability	38	11	Low Average
Identity Problems	41	18	Low Average
Negative Relationships	49	46	Average
Self-Harm	44	27	Average
Antisocial Features	50	50	Average
Antisocial Behaviors	53	61	Average
Egocentricity	52	57	Average
Stimulus-Seeking	46	34	Average
Aggression	40	15	Low Average
Aggressive Attitude	34	5	Below Average
Verbal Aggression	44	27	Average
Physical Aggression	47	38	Average
Alcohol Problems	52	57	Average
Drug Problems	52	57	Average
Suicidal Ideation	42	21	Low Average
Stress	42	21	Low Average
Nonsupport	41	18	Low Average
Treatment Rejection	48	42	Average
Dominance	47	38	Average
Warmth	52	57	Average

[7] T score: Mean = 50 [50th‰], SD ± 10 [16th‰, 84th‰]

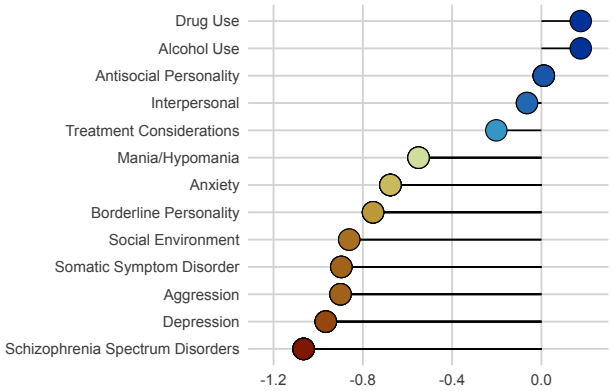

Figure 9: `{r} plot_title_emotion_child_self`

PARENT RATINGS

Ethan's self-reported Rule-breaking behavior was Above Average. Ethan's self-reported Demonstration of clear, logical thought patterns and a general awareness of surroundings was Above Average. Ethan's self-reported Behavioral symptoms index composite scale was Above Average. Ethan's self-reported Maintain necessary levels of attention was Above Average. Ethan's self-reported Externalizing problems composite scale was Above Average. Ethan's self-reported Avoid social situations and appears to be capable of developing and maintaining friendships with others was Above Average. Ethan's self-reported Ratings of aggressive behavior and to act aggressively was High Average. Ethan's self-reported Tendency to be overly active, rush through work or activities, and act without thinking was High Average. Ethan's self-reported Excessive feelings of unhappiness, sadness, or stress was High Average. Ethan's score on Grandiosity (person may have little capacity to recognize personal limitations, to the point where one is not able to think clearly about one's capabilities) was High Average. Ethan's score on Obsessive-Compulsive (scores marked rigidity and significant ruminative concerns) was Average. Ethan's score on Antisocial Behaviors (scores suggest a history of difficulties with authority and with social convention) was Average. Ethan's score on Egocentricity (suggest a person who tends to be self-centered and pragmatic in interaction with others) was Average. Ethan's score on Alcohol Problems (are indicative of an individual who may drink regularly and may have experienced some adverse consequences as a result) was Average. Ethan's score on Drug Problems (scores are indicative of a person who may use drugs on a fairly regular basis and may have experienced some adverse consequences as a result) was Average. Ethan's score on Warmth (average scores reflect an individual who is likely to be able to adapt to different interpersonal situations, by being able to tolerate close attachment but also capable of maintaining some distance in relationships as needed) was Average. Ethan's score on Antisocial Features (individuals are likely to be impulsive and hostile, perhaps with a history of reckless and/or antisocial acts) was Average. Ethan's score on Anxiety-Related Disorders (reflecting multiple anxiety-disorder diagnoses and broad impairment associated with anxiety) was Average. Ethan's score on Negative Relationships (person is likely to be bitter and resentful about the way past relationships have gone) was Average. Ethan's score on Treatment Rejection (average scores suggest a person who acknowledges major difficulties in their functioning, and perceives an acute need for help in dealing with these problems) was Average. Ethan's self-reported Internalizing problems composite scale was Average. Ethan's score on Traumatic Stress (trauma (single or multiple) is the overriding focus of the person's life) was Average. Ethan's score on Affective (D) (elevations suggest sadness, a loss of interest in normal activities and a loss if

one's sense of pleasure in things that were previously enjoyed) was Average. Ethan's score on Physical Aggression (suggest that losses of temper are more common and that the person is prone to more physical displays of anger, perhaps breaking objects or engaging in physical confrontations) was Average. Ethan's score on Dominance (average scores reflect an individual who is likely to be able to adapt to different interpersonal situations, by being able to both take and relinquish control in these relationships as needed) was Average. Ethan's score on Persecution (suggest an individual who is quick to feel that they are being treated inequitably and easily believes that there is concerted effort among others to undermine their best interests) was Average. Ethan's score on Stimulus-Seeking (patient is likely to manifest behavior that is reckless and potentially dangerous to himself and/or those around him) was Average. Ethan's score on Phobias (indicate impairing phobic behaviors, with avoidance of the feared object or situation) was Average. Ethan's self-reported Able to adequately perform simple daily tasks in a safe and efficient manner was Average. Ethan's self-reported Tendency to be nervous, fearful, or worried about real or imagined problems was Average. Ethan's score on Mania (scores are associated with disorders such as mania, hypomania, or cyclothymia) was Average. Ethan's score on Self-Harm (reflect levels of impulsivity and recklessness that become more hazardous as scores rise) was Average. Ethan's score on Verbal Aggression (reflects a person who is assertive and not intimidated by confrontation and, toward the upper end of this range, he may be verbally aggressive) was Average. Ethan's score on Conversion (moderate elevations may be seen in neurological disorders with CNS impairment involving sensorimotor problems, MS, CVA/stroke, or neuropsychological associated with chronic alcoholism) was Low Average. Ethan's score on Hypervigilance (suggest a person who is pragmatic and skeptical in relationships) was Low Average. Ethan's self-reported Exhibits appropriate expressive and receptive communication skills and displays a strong ability to seek out and find new information independently was Low Average. Ethan's score on Health Concerns (elevations indicate a poor health may be a major component of the self-image, with the person accustomed to being in the patient role) was Low Average. Ethan's score on Suicidal Ideation (scores are typically of an individual who is seen in clinical settings) was Low Average. Ethan's score on Stress (individuals may be experiencing a moderate degree of stress as a result of difficulties in some major life area) was Low Average. Ethan's self-reported Adaptation to most situations and able to quickly recover from situations that are difficult was Low Average. Ethan's score on Social Detachment (reflects a person who neither desires nor enjoys the meaning to personal relationships) was Low Average. Ethan's score on Borderline Features (behaviors typically associated with borderline personality disorder) was Low Average. Ethan's score on Identity Problems (suggest

uncertainty about major life issues and difficulties in developing and maintaining a sense of purpose) was Low Average. Ethan's score on Nonsupport (social relationships are perceived as offering little support - family relationships may be either distant or combative, whereas friends are generally seen as unavailable or not helpful when needed) was Low Average. Ethan's self-reported Health-related problems was Low Average. Ethan's score on Somatic Complaints (degree of concern about physical functioning and health matters and the extent of perceived impairment arising from somatic symptoms) was Low Average. Ethan's score on Somatization (high scorers describe general lethargy and malaise, and the presentation is one of complaintiveness and dissatisfaction) was Low Average. Ethan's score on Cognitive (D) (a higher scorer is likely to report feeling hopeless and as having failed at most important life tasks) was Low Average. Ethan's score on Irritability (person is very volatile in response to frustration and his judgment in such situations may be poor) was Low Average. Ethan's score on Aggression (scores are indicative of an individual who may be seen as impatient, irritable, and quick-tempered) was Low Average. Ethan's score on Cognitive (A) (elevations indicate worry and concern about current (often uncontrollable) issues that compromise the person's ability to concentrate and attend) was Low Average. Ethan's score on Physiological (A) (high scorers my not psychologically experience themselves as anxious, but show physiological signs that most people associate with anxiety) was Low Average. Ethan's score on Depression (person feels hopeless, discouraged and useless) was Low Average. Ethan's score on Paranoia (individuals are likely to be overtly suspicious and hostile) was Low Average. Ethan's score on Thought Disorder (suggest problems in concentration and decision-making) was Low Average. Ethan's self-reported Overall adaptive functioning composite score was Low Average. Ethan's score on Activity Level (this activity level renders the person confused and difficult to understand) was Low Average. Ethan's score on Affective Instability (a propensity to experience a particular negative affect (anxiety, depression, or anger is the typical response)) was Low Average. Ethan's score on Resentment (increasing tendency to attribute any misfortunes to the neglect of others and to discredit the successes of others as being the result of luck or favoritism) was Low Average. Ethan's score on Psychotic Experiences (person may strike others as peculiar and eccentric) was Low Average. Ethan's self-reported Socially adept and at ease was Below Average. Ethan's score on Anxiety (reflecting a generalized impairment associated with anxiety) was Below Average. Ethan's score on Affective (A) (high scorers experience a great deal of tension, have difficulty with relaxing and tend to be easily fatigued as a result of high-perceived stress) was Below Average. Ethan's score on Physiological (D) (elevations suggest a change in level of physical functioning, typically with a disturbance in sleep pattern, a decrease in energy and level of

sexual interest and a loss of appetite and/or weight loss) was Below Average. Ethan's score on Schizophrenia (associated with an active schizophrenic episode) was Below Average. Ethan's score on Aggressive Attitude (suggest an individual who is easily angered and frustrated; others may perceive him as hostile and readily provoked) was Below Average. Ethan's self-reported Creative, works well under pressure, and/or can effectively unite others to work together was Below Average.

Table 10: Behavioral/Emotional/Social

	SCORE	‰ RANK	RANGE
BASC-3 PRS Adolescent[1]			
Externalizing Problems	64	91	Above Average
Internalizing Problems	46	40	Average
Behavioral Symptoms Index	65	92	Above Average
Adaptive Skills	37	12	Low Average
Hyperactivity	58	83	High Average
Aggression	61	90	High Average
Conduct Problems	70	95	Above Average
Anxiety	43	27	Average
Depression	55	79	High Average
Somatization	41	15	Low Average
Atypicality	69	94	Above Average
Withdrawal	65	91	Above Average
Attention Problems	66	92	Above Average
Adaptability	41	19	Low Average
Social Skills	34	8	Below Average
Leadership	32	4	Below Average
Activities of Daily Living	45	29	Average
Functional Communication	42	21	Low Average

[1] T score: Mean = 50 [50th‰], SD ± 10 [16th‰, 84th‰]

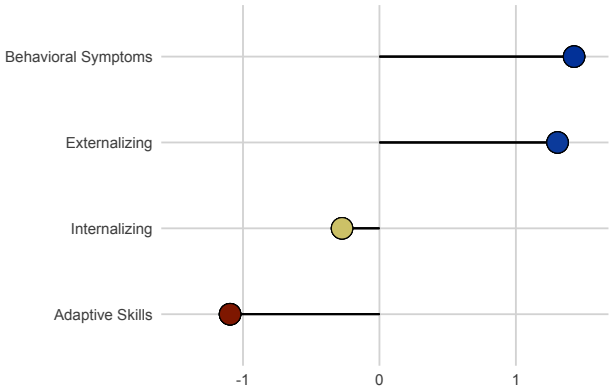

Figure 10: `{r} plot_title_emotion_child_parent`

```
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<!--  -->
```

```
# SUMMARY/IMPRESSION {#sec-sirf}




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      [Overall neurocognitive function subdomain plots of the patient's
strengths and weaknesses. _Note:_ _z_-scores have a mean of 0 and a standard
deviation of 1.],
    ),
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    supplement: [Figure],
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}

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```

Overall Evaluation Interpretation

Neuropsychological evaluation revealed a pattern of cognitive strengths and weaknesses characterized by below-average overall neuropsychological functioning. Notable strengths emerged in visuoperceptual processing and visuoconstructional abilities, where performance reached the high average range for focused spatial tasks. The patient demonstrated average capabilities in basic judgment, decision-making, and orientation to person, place, time, and situation.

Diagnostic Impression

- 294.11 (F02.81) Major Neurocognitive Disorder Due to Another Medical Condition, Moderate, With behavioral disturbance
- 8A68.4 Generalized tonic-clonic seizure
- V61.10 (Z63.0) Relational Problems
```

Mental Health Diversion: Contextual Analysis and Interpretation

1. Does the defendant suffer from any mental disorders as identified in the most recent edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM)?

Yes, the defendant meets the criteria for multiple mental disorders as defined by DSM-5.

2. Were any mental disorders a motivating, causal, or contributing factor to the defendant's involvement in the commission of the offense?

Yes, causal.

3. If any mental disorders were significant factors in the commission of the offense, would the defendant's symptoms of those mental disorders respond to treatment?

Yes. The defendant's symptoms related to cognitive impairment and mood problems would respond well to treatment.

4. Does the defendant agree to comply with treatment as a condition of diversion?

Yes, the defendant agreed to comply with treatment as a condition of diversion.

5. Would the defendant pose an unreasonable risk of danger to public safety (under the meaning of California Penal Code 1001.36), if treated in the community?

The defendant would not pose "an unreasonable risk of danger to public safety" under the meaning of California Penal Code 1001.36, if treated in the community.

RECOMMENDATIONS

Recommendations for Medical/Healthcare

- Biggie should receive interventions to enhance concentration, manage anxiety, and improve emotional understanding. This includes social skills training, psychoeducational interventions for self-image improvement, and monitoring for signs of internalization or externalization of problems.

- **Cognitive Behavioral Therapy (CBT):** To develop strategies for improving executive functions and addressing self-esteem issues.

- **Occupational Therapy:** To enhance graphomotor skills for academic tasks and daily activities.

- **Cognitive Training:** Techniques to boost working memory and attention, along with strategies to improve focus.

- **Speech-Language Therapy:** Working with a speech-language pathologist can help improve memory skills, particularly for verbal material.

- **Psychoeducation:** To empower Biggie with self-awareness and enable his to advocate for his needs in various settings.

- Additional support is recommended in areas like attentional function, processing speed, and cognitive efficiency. This can be achieved through occupational therapy, the use of organizational tools, and creating a distraction-free environment.

- Treatment options for ADHD should include behavioral techniques, stimulant medication consideration, environmental organization, and long-term perspective maintenance. Medical treatment discussion with a child and adolescent psychiatrist could be beneficial.

- Additional support is suggested in areas like auditory comprehension and complex figure copying. This can be accomplished through speech-language pathology and occupational therapy respectively. Use of visual aids and breaking down complex tasks into smaller steps can also be helpful.

Recommendations for School

- **Accommodated Testing:** Extended time accommodations are recommended due to relative weakness in processing speed and academic fluency.

- **Calculator Use:** Please consider allowing Biggie to utilize a calculator for class assignments and examinations as he progresses in the mathematics curriculum.

- Biggie should receive additional support in mathematics through:
  - Individual or small group tutoring.
  - Visual aids and hands-on activities.
  - Technology-based learning tools.
  - Real-life math scenarios practice.
  - Extra time for math-related tasks.

- Support within the educational setting, such as an individualized education plan (IEP) or 504 Plan, to address attentional/executive challenges. Academic accommodations should include extended time on tests, reduced copying from the board, or a note-taker to offset slower psychomotor speed and attentional challenges.

- **Adaptive Writing Tools:** Use of ergonomic pens or pencil grips for better control and fewer errors.

- **Graphomotor Exercises:** Drawing or tracing exercises for improved fine motor coordination.

- **Extra Time for Written Tasks:** Additional time for tasks requiring writing to compensate for slower graphomotor speed.

- **Technology Use:** Keyboard or voice-to-text software use to mitigate graphomotor weaknesses' effect on academic performance.

- Tutoring or teaching assistance is recommended for improving his sentence level writing fluency and overall academic fluency in reading, math, and writing.

- A supportive environment at home and school involving clear instructions, task breakdown into smaller steps, and praise for efforts and achievements.

Recommendations for Home

- **Mnemonic Devices:** Use of mnemonic strategies like acronyms or visual images for memory retention.

- **Organizational Strategies:** Note-taking, list-making, and visual schedules can provide external memory support.

- **Task Simplification:** Break down complex information into smaller, manageable parts for effective processing and remembering.

- **Repeated Exposure and Practice:** Repeated exposure to material and additional practice are beneficial due to below-average learning efficiency.

- **Set Reminders:** Use calendars, alarms, written notes, and lists for task reminders.

- **Mindfulness Training:** Technique to ignore distracting thoughts and concentrate on the task at hand, aiding in cognitive control.

Recommendations for Follow-Up Evaluation

- A follow-up assessment in 12-18 months is suggested to measure progress and assess the interventions' impact, unless urgent concerns arise. Continuous monitoring and reassessment are vital to adjust support as Biggie develops and his needs change.

It was a pleasure to work with Mr. Smalls. I am available to provide further information or clarification as needed.

Sincerely,

Thank you for considering this report in your evaluation of Mr. Smalls. I am available to provide further information or clarification as needed.

Respectfully submitted,

Joey W. Trampush, Ph.D.
Chief Neuropsychologist
Brainworkup Neuropsychology, LLC
Assistant Professor
Department of Psychiatry and the Behavioral Sciences
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APPENDIX

Test Selection Procedures

Neuropsychological tests are performance-based, and cognitive performance is summarized above. Cultural considerations were made in selecting measures, interpreting results, and making diagnostic impressions and recommendations. Test scores are reported in comparison to same-age and sex/gender peers, with labels (e.g., Below Average, Average, Above Average; (Guilmette et al., 2020)), intended to be descriptive, not diagnostic. Standardized scores provide important context, but do not alone lead to accurate diagnosis or treatment recommendations.

Conversion of Test Scores

Range	Standard Score	*T* Score	Scaled Score	z-Score	Percentile (‰)
Exceptionally high score	130 +	70 +	16 +	2 +	98 +
Above average score	120 – 129	63 – 69	14 – 15	1.3 – 1.9	91 – 97
High average score	110 – 119	57 – 62	12 – 13	0.7 – 1.2	75 – 90
Average score	90 – 109	44 – 56	9 – 11	-0.7 – 0.6	25 – 74
Low average score	80 – 89	37 – 43	7 – 8	-1.3 – –0.6	9 – 24
Below average score	70 – 79	30 – 36	4 – 6	-2 – –1.4	2 – 8
Exceptionally low score	< 70	< 30	< 4	< –2	< 2

Guilmette, T. J., Sweet, J. J., Hebben, N., Koltai, D., Mahone, M. E., Spiegler, B. J., Stucky, K., Westerveld, M., & Conference Participants. (2020). American Academy of Clinical Neuropsychology consensus conference statement on uniform labeling of performance test scores. *The Clinical Neuropsychologist*, *34*(3), 437–453. https://doi.org/10.1080/13854046.2020.1722244