

# Hypothesis tests — HPT (Czech data)

Multilevel models for H1–H2

HPT and Extremism project

2025-12-09

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## 1 1. Purpose and hypotheses

This document runs the **main confirmatory analyses** for:

- **H1.** Higher right-authoritarian / pro-Nazi attitudes predict **higher HPT scores** on the original instrument (risk of ideological contamination). Predictors: FR-LF-mini (total or RD/NS facets) and KSA-3.

- **H2.** The H1 effect **persists controlling** for prior knowledge (KN total) and social desirability (SDR-5).

Notes on constructs and scoring:

- HPT instrument and subscores (POP, ROA, CONT) follow Hartmann & Hasselhorn / Huijgen et al. For this file we use **HPT total**, **CONT**, **POP** as DVs. (In our dataset, higher is coded as “fits Hannes’s situation better” across items; thus **higher CONT** means more contextualized alignment; **higher POP** reflects stronger endorsement of the presentism-trigger statements after our recoding.)
- FR-LF-mini uses **RD1–RD3** (right-dictatorship) and **NS1–NS3** (Nazi relativization) with robust reliability and a validated 6-dimension parent scale. We analyze **total** and the **RD/NS facets**.
- KSA-3 (9 items; aggression, submission, conventionalism) is included as a convergent authoritarian predictor. (Registered.)

## 2 2. Data, variables, and preprocessing

We expect either `normalised_responses_<DATE>.RData` or `.xlsx` in the project root. Variable names match the codebook.

```
# Core
library(tidyverse)
library(readxl)
library(janitor)
# Models + tables
library(lme4)
library(lmerTest)
library(performance)
library(effectsize)
library(broom.mixed)
library(modelsummary)
library(glue)

library(kableExtra)
options(
  modelsummary_format = "latex",
  modelsummary_factory_latex = "kableExtra"
)
```

```
# Load the dataset created in 00_data-preparation
load("normalised_responses.RData")
stopifnot(exists("normalised_responses"))

dat_raw <- normalised_responses

dat_raw <- janitor::clean_names(dat_raw)
```

```

# ---- Knowledge ----
kn_items <- paste0("kn", 1:6)

dat <- dat_raw |>
  mutate(
    # across() returns a data frame of the selected columns; rowSums works on that
    kn_total = rowSums(across(all_of(kn_items)), na.rm = TRUE)
  )

# ---- HPT ----
pop_items <- paste0("pop", 1:3)
cont_items <- paste0("cont", 1:3)
roa_items <- paste0("roa", 1:3)

dat <- dat |>
  mutate(
    hpt_pop = rowMeans(across(all_of(pop_items)), na.rm = TRUE),
    hpt_cont = rowMeans(across(all_of(cont_items)), na.rm = TRUE),
    hpt_roa = rowMeans(across(all_of(roa_items)), na.rm = TRUE),
    hpt_total = rowMeans(cbind(hpt_pop, hpt_cont, hpt_roa), na.rm = TRUE)
  )

# ---- FR-LF mini ----
rd_items <- paste0("rd", 1:3)
ns_items <- paste0("ns", 1:3)

dat <- dat |>
  mutate(
    frlf_rd = rowMeans(across(all_of(rd_items)), na.rm = TRUE),
    frlf_ns = rowMeans(across(all_of(ns_items)), na.rm = TRUE),
    frlf_tot = rowMeans(cbind(frlf_rd, frlf_ns), na.rm = TRUE)
  )

# ---- KSA-3 ----
a_items <- paste0("a", 1:3)
u_items <- paste0("u", 1:3)
k_items <- paste0("k", 1:3)
ksa_items <- c(a_items, u_items, k_items)

dat <- dat |>
  mutate(
    ksa3_a = rowMeans(across(all_of(a_items)), na.rm = TRUE),

```

```

ksa3_u   = rowMeans(across(all_of(u_items)), na.rm = TRUE),
ksa3_k   = rowMeans(across(all_of(k_items)), na.rm = TRUE),
ksa3_tot = rowMeans(across(all_of(ksa_items)), na.rm = TRUE)
)

# ---- SDR-5 ----
# (SDR2-SDR4 already reversed upstream)
sdr_items <- paste0("sdr", 1:5)

dat <- dat |>
  mutate(
    sdr5_tot = rowMeans(across(all_of(sdr_items)), na.rm = TRUE)
  )

# ---- Clustering factor ----
cluster_var <- dplyr::case_when(
  "class_label" %in% names(dat) ~ "class_label",
  "class"       %in% names(dat) ~ "class",
  TRUE ~ NA_character_
)
if (is.na(cluster_var)) stop("No class cluster variable found (expected `class_label` or `class`).")
dat[[cluster_var]] <- as.factor(dat[[cluster_var]])

# Z-standardise continuous predictors (for comparability) and outcomes (optional)
z <- function(x) as.numeric(scale(x))

dat <- dat |>
  mutate(
    z_hpt_total = z(hpt_total),
    z_hpt_cont  = z(hpt_cont),
    z_hpt_pop   = z(hpt_pop),

    z_frlf_tot  = z(frlf_tot),
    z_frlf_rd   = z(frlf_rd),
    z_frlf_ns   = z(frlf_ns),

    z_ksa3_tot  = z(ksa3_tot),

    z_kn_total  = z(kn_total),
    z_sdr5_tot  = z(sdr5_tot)
  ) |>
  drop_na(!sym(cluster_var)) # must have cluster id

```

### 3 3. Model plan

We estimate **random-intercept multilevel models** (students nested in classes). For each DV:

- **Base (FR-LF total):**  $DV \sim z\_frlf\_tot + z\_ksa3\_tot + z\_kn\_total + z\_sdr5\_tot + (1 \mid class)$
- **Facet (RD/NS):**  $DV \sim z\_frlf\_rd + z\_frlf\_ns + z\_ksa3\_tot + z\_kn\_total + z\_sdr5\_tot + (1 \mid class)$
- **Interaction (if preregistered):**  $DV \sim z\_frlf\_tot * z\_kn\_total + z\_ksa3\_tot + z\_sdr5\_tot + (1 \mid class)$

DVs: `z_hpt_total`, `z_hpt_cont`, `z_hpt_pop`.

Interpretation (fixed effects): positive  $\beta$  means **higher predictor**  $\rightarrow$  **higher DV** (in SD units). For **H1–H2**, the key test is **FR-LF coefficients** (or RD/NS) remaining positive and significant **after controls**.

```
dv_list <- c("z_hpt_total", "z_hpt_cont", "z_hpt_pop")

fits <- list()

for (dv in dv_list) {

  # Build formulas INSIDE the loop (so {dv} exists when glue runs)
  form_base <- as.formula(
    glue("{dv} ~ z_frlf_tot + z_ksa3_tot + z_kn_total + z_sdr5_tot + (1 | {cluster_var})")
  )

  form_facet <- as.formula(
    glue("{dv} ~ z_frlf_rd + z_frlf_ns + z_ksa3_tot + z_kn_total + z_sdr5_tot + (1 | {cluster_var})")
  )

  form_int <- as.formula(
    glue("{dv} ~ z_frlf_tot * z_kn_total + z_ksa3_tot + z_sdr5_tot + (1 | {cluster_var})")
  )

  # Fit models
  m_base <- lmer(form_base, data = dat)
  m_facet <- lmer(form_facet, data = dat)
  m_int <- lmer(form_int, data = dat)

  fits[[dv]] <- list(
    base = m_base,
    facet = m_facet,
    int = m_int
  )
}
```

	HPT total — Base	HPT total — Facet	HPT total — Int.
(Intercept)	−0.006 (0.084)	−0.010 (0.087)	−0.022 (0.086)
z_fr1f_tot	−0.103 (0.095)		−0.107 (0.095)
z_ksa3_tot	0.227* (0.093)	0.239* (0.094)	0.230* (0.093)
z_kn_total	0.121 (0.081)	0.126 (0.081)	0.106 (0.083)
z_sdr5_tot	0.107 (0.081)	0.128 (0.082)	0.113 (0.081)
z_fr1f_rd		−0.162+ (0.095)	
z_fr1f_ns		0.038 (0.092)	
z_fr1f_tot × z_kn_total			−0.074 (0.090)
SD (Intercept class_label)	0.085	0.110	0.084
SD (Observations)	0.975	0.974	0.976
Num.Obs.	152	151	152
R2 Marg.	0.066	0.076	0.069
R2 Cond.	0.073	0.087	0.076
RMSE	0.96	0.95	0.95

+ p < 0.1, \* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

*# Show standard errors in parentheses; alternatives include {t}, {p.value}, etc.*

```
msummary(
  list(
    "HPT total - Base" = fits$z_hpt_total$base,
    "HPT total - Facet" = fits$z_hpt_total$facet,
    "HPT total - Int." = fits$z_hpt_total$int
  ),
  statistic = "({std.error})",
  gof_omit = "IC|Log|AIC|BIC",
  stars = TRUE
)
```

```
msummary(
  list(
```

	CONT — Base	CONT — Facet	CONT — Int.
(Intercept)	−0.031 (0.103)	−0.037 (0.103)	−0.051 (0.106)
z_frlf_tot	−0.089 (0.094)		−0.094 (0.094)
z_ksa3_tot	0.136 (0.093)	0.146 (0.093)	0.139 (0.093)
z_kn_total	0.219** (0.080)	0.224** (0.080)	0.202* (0.082)
z_sdr5_tot	0.070 (0.080)	0.096 (0.081)	0.077 (0.080)
z_frlf_rd		−0.158+ (0.093)	
z_frlf_ns		0.055 (0.090)	
z_frlf_tot × z_kn_total			−0.081 (0.088)
SD (Intercept class_label)	0.207	0.209	0.213
SD (Observations)	0.952	0.947	0.952
Num.Obs.	152	151	152
R2 Marg.	0.074	0.085	0.078
R2 Cond.	0.116	0.127	0.122
RMSE	0.93	0.92	0.92

+ p < 0.1, \* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

```

"CONT - Base" = fits$z_hpt_cont$base,
"CONT - Facet" = fits$z_hpt_cont$facet,
"CONT - Int." = fits$z_hpt_cont$int
),
statistic = "({std.error})",
gof_omit = "IC|Log|AIC|BIC",
stars = TRUE
)

```

```

msummary(
  list(
    "POP - Base" = fits$z_hpt_pop$base,
    "POP - Facet" = fits$z_hpt_pop$facet,
    "POP - Int." = fits$z_hpt_pop$int
  )
)

```

	POP — Base	POP — Facet	POP — Int.
(Intercept)	0.001 (0.077)	0.007 (0.078)	−0.005 (0.080)
z_fr1f_tot	−0.003 (0.092)		−0.004 (0.093)
z_ksa3_tot	0.135 (0.090)	0.141 (0.091)	0.136 (0.091)
z_kn_total	−0.300*** (0.079)	−0.297*** (0.079)	−0.306*** (0.081)
z_sdr5_tot	0.122 (0.078)	0.122 (0.080)	0.125 (0.079)
z_fr1f_rd		−0.028 (0.093)	
z_fr1f_ns		0.019 (0.090)	
z_fr1f_tot × z_kn_total			−0.030 (0.087)
SD (Intercept class_label)	0.000	0.000	0.000
SD (Observations)	0.951	0.955	0.954
Num.Obs.	152	151	152
R2 Marg.	0.117	0.115	0.117
RMSE	0.94	0.94	0.93

+ p < 0.1, \* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

```
),
  statistic = "{std.error}",
  gof_omit = "IC|Log|AIC|BIC",
  stars = TRUE
)
```

```
# Robust extractors so we ALWAYS return a single-row data.frame
`%||` <- function(a, b) if (!is.null(a) && length(a) > 0) a else b

collect_metrics <- function(m) {
  # ICC (allow for API differences)
  icc_val <- tryCatch({
    ic <- performance::icc(m)
    as.numeric(
      ic$ICC_adjusted %||% ic$ICC %||% ic$ICC_conditional %||% NA_real_
    )
  })
}
```



```

)
}, error = function(e) NA_real_)

# R2 (prefer Nakagawa; fallbacks to older names)
r2m <- r2c <- NA_real_
try({
  r2o <- performance::r2_nakagawa(m)
  r2m <- as.numeric(r2o$R2_marginal %||% r2o$R2m %||% NA_real_)
  r2c <- as.numeric(r2o$R2_conditional %||% r2o$R2c %||% NA_real_)
}, silent = TRUE)

data.frame(ICC = icc_val, R2_m = r2m, R2_c = r2c, check.names = FALSE)
}

metrics <- dplyr::bind_rows(
  list(
    `HPT total - Base` = collect_metrics(fits$z_hpt_total$base),
    `HPT total - Facet` = collect_metrics(fits$z_hpt_total$facet),
    `HPT total - Int.` = collect_metrics(fits$z_hpt_total$int),
    `CONT - Base` = collect_metrics(fits$z_hpt_cont$base),
    `CONT - Facet` = collect_metrics(fits$z_hpt_cont$facet),
    `CONT - Int.` = collect_metrics(fits$z_hpt_cont$int),
    `POP - Base` = collect_metrics(fits$z_hpt_pop$base),
    `POP - Facet` = collect_metrics(fits$z_hpt_pop$facet),
    `POP - Int.` = collect_metrics(fits$z_hpt_pop$int)
  ),
  .id = "Model"
)

```

```
## Random effect variances not available. Returned R2 does not account for random effects.
```

```
## Random effect variances not available. Returned R2 does not account for random effects.
```

```
## Random effect variances not available. Returned R2 does not account for random effects.
```

```
knitr::kable(metrics, digits = 3, caption = "Model fit and clustering (ICC,  $R^2$ ).")
```

Table 1: Model fit and clustering (ICC,  $R^2$ ).

Model	ICC	R2_m	R2_c
HPT total — Base	0.008	0.066	0.073
HPT total — Facet	0.013	0.076	0.087
HPT total — Int.	0.007	0.069	0.076
CONT — Base	0.045	0.074	0.116
CONT — Facet	0.046	0.085	0.127
CONT — Int.	0.047	0.078	0.122
POP — Base	NA	0.117	NA
POP — Facet	NA	0.115	NA
POP — Int.	NA	0.117	NA

```
# Extract tidy tables for inference and interpretation sections
tidy_all <- function(lst, label) {
  bind_rows(
    broom.mixed::tidy(lst$base, effects="fixed", conf.int=TRUE) |> mutate(spec="Base"),
    broom.mixed::tidy(lst$facet, effects="fixed", conf.int=TRUE) |> mutate(spec="Facet"),
    broom.mixed::tidy(lst$int, effects="fixed", conf.int=TRUE) |> mutate(spec="Interaction")
  ) |>
  filter(term != "(Intercept)") |>
  mutate(dv = label)
}

tidy_tbl <- bind_rows(
  tidy_all(fits$z_hpt_total, "HPT total"),
  tidy_all(fits$z_hpt_cont, "CONT"),
  tidy_all(fits$z_hpt_pop, "POP")
)

knitr::kable(
  tidy_tbl |> select(dv, spec, term, estimate, conf.low, conf.high, p.value),
  digits = 3,
  caption = "Fixed effects (standardized coefficients).",
)
```

Table 2: Fixed effects (standardized coefficients).

dv	spec	term	estimate	conf.low	conf.high	p.value
HPT total	Base	z_frlf_tot	-0.103	-0.290	0.085	0.281

dv	spec	term	estimate	conf.low	conf.high	p.value
HPT total	Base	z_ksa3_tot	0.227	0.043	0.412	0.016
HPT total	Base	z_kn_total	0.121	-0.039	0.281	0.137
HPT total	Base	z_sdr5_tot	0.107	-0.053	0.267	0.188
HPT total	Facet	z_frlf_rd	-0.162	-0.349	0.025	0.090
HPT total	Facet	z_frlf_ns	0.038	-0.144	0.221	0.678
HPT total	Facet	z_ksa3_tot	0.239	0.053	0.425	0.012
HPT total	Facet	z_kn_total	0.126	-0.035	0.287	0.123
HPT total	Facet	z_sdr5_tot	0.128	-0.034	0.290	0.121
HPT total	Interaction	z_frlf_tot	-0.107	-0.295	0.081	0.264
HPT total	Interaction	z_kn_total	0.106	-0.058	0.271	0.204
HPT total	Interaction	z_ksa3_tot	0.230	0.045	0.414	0.015
HPT total	Interaction	z_sdr5_tot	0.113	-0.047	0.274	0.165
HPT total	Interaction	z_frlf_tot:z_kn_total	-0.074	-0.251	0.103	0.409
CONT	Base	z_frlf_tot	-0.089	-0.274	0.096	0.343
CONT	Base	z_ksa3_tot	0.136	-0.048	0.321	0.145
CONT	Base	z_kn_total	0.219	0.061	0.377	0.007
CONT	Base	z_sdr5_tot	0.070	-0.087	0.228	0.379
CONT	Facet	z_frlf_rd	-0.158	-0.342	0.025	0.091
CONT	Facet	z_frlf_ns	0.055	-0.123	0.233	0.539
CONT	Facet	z_ksa3_tot	0.146	-0.039	0.331	0.120
CONT	Facet	z_kn_total	0.224	0.066	0.381	0.006
CONT	Facet	z_sdr5_tot	0.096	-0.064	0.255	0.238
CONT	Interaction	z_frlf_tot	-0.094	-0.279	0.092	0.319
CONT	Interaction	z_kn_total	0.202	0.040	0.364	0.015
CONT	Interaction	z_ksa3_tot	0.139	-0.046	0.323	0.139
CONT	Interaction	z_sdr5_tot	0.077	-0.081	0.236	0.335
CONT	Interaction	z_frlf_tot:z_kn_total	-0.081	-0.255	0.093	0.360
POP	Base	z_frlf_tot	-0.003	-0.185	0.179	0.975
POP	Base	z_ksa3_tot	0.135	-0.043	0.313	0.137
POP	Base	z_kn_total	-0.300	-0.456	-0.144	0.000
POP	Base	z_sdr5_tot	0.122	-0.033	0.277	0.121
POP	Facet	z_frlf_rd	-0.028	-0.211	0.155	0.762
POP	Facet	z_frlf_ns	0.019	-0.160	0.198	0.834
POP	Facet	z_ksa3_tot	0.141	-0.040	0.321	0.125
POP	Facet	z_kn_total	-0.297	-0.454	-0.140	0.000
POP	Facet	z_sdr5_tot	0.122	-0.037	0.280	0.131
POP	Interaction	z_frlf_tot	-0.004	-0.187	0.179	0.962
POP	Interaction	z_kn_total	-0.306	-0.466	-0.146	0.000
POP	Interaction	z_ksa3_tot	0.136	-0.043	0.315	0.135
POP	Interaction	z_sdr5_tot	0.125	-0.031	0.281	0.116

POP	Interaction	z_frlf_tot:z_kn_total	-0.030	-0.203	0.142	0.730
-----	-------------	-----------------------	--------	--------	-------	-------

---

## 4 4. Results — decision rules

Interpret **only the preregistered tests**:

- **H1 supported** if the coefficient for **FR-LF** (either `z_frlf_tot` in Base/Int. or `z_frlf_rd/z_frlf_ns` in Facet) is  $> 0$  and  $p < .05$  for **HPT total** and/or **CONT**.
- **H2 supported** if the same holds **after** adding controls (**KN**, **SDR-5**) and **KSA-3** (already included), and — if preregistered — the **FR-LF**  $\times$  **KN** interaction is **not necessary** for the main effect to persist (or, if hypothesized, is significant in the expected direction).

**Reading POP.** Given our recoding (1–4 “fit”), higher **POP** here reflects stronger agreement that the presentism-trigger statements “fit” Hannes. In the original instrument, POP and CONT came out as a single factor vs. ROA in CFA, and item wording can trip respondents; interpret POP cautiously and triangulate with CONT.

## 5 5. Brief interpretation guide (for the write-up)

- **Effect size:** Coefficients are **standardized** ( $\beta$ ). Values around 0.10 are small, 0.20–0.30 moderate for individual-level predictors in multilevel models; report 95% CIs.
- **Clustering:** Report **ICC** to show class-level variance.
- **Model fit:** Report marginal and conditional  $R^2$  and compare Base vs. Facet vs. Interaction.
- **Substantive meaning:** A **positive FR-LF** effect on **HPT total** / **CONT** suggests that ideological affinity **elevates apparent contextualization**, consistent with the contamination concern. Cite the HPT literature and the FR-LF validation when interpreting.
- **Controls:** If FR-LF remains significant after **KN** and **SDR-5**, state that results are **not explained** by prior knowledge or social desirability (per H2).

## 6 6. Transparency and provenance

- **Instrument provenance.** HPT instrument and subscale logic follow Hartmann & Hasselhorn / Huijgen et al. (contextualization vs. presentism; known POP/CONT factor behavior; potential item-level ambiguities).
- **FR-LF-mini.** Items RD1–3 and NS1–3 originate from the Leipzig FR-LF, which shows a stable 6-factor structure and excellent internal consistency in representative samples.
- **Analysis plan.** This file implements the Stage 1 snapshot plan (multilevel regressions; DVs: HPT total, CONT, POP; predictors: FR-LF, KSA-3; controls: KN, SDR-5; class clustering).
- **Variable names and coding** are taken from the project codebook to ensure reproducibility.

## 7 7. Session info

```
sessionInfo()
```

```
## R version 4.4.2 (2024-10-31)
## Platform: x86_64-pc-linux-gnu
## Running under: Ubuntu 24.04.3 LTS
##
## Matrix products: default
## BLAS: /usr/lib/x86_64-linux-gnu/blas/libblas.so.3.12.0
## LAPACK: /usr/lib/x86_64-linux-gnu/lapack/liblapack.so.3.12.0
##
## locale:
##  [1] LC_CTYPE=C.UTF-8          LC_NUMERIC=C
##  [3] LC_TIME=cs_CZ.UTF-8      LC_COLLATE=C.UTF-8
##  [5] LC_MONETARY=cs_CZ.UTF-8  LC_MESSAGES=C.UTF-8
##  [7] LC_PAPER=cs_CZ.UTF-8     LC_NAME=C
##  [9] LC_ADDRESS=C             LC_TELEPHONE=C
## [11] LC_MEASUREMENT=cs_CZ.UTF-8 LC_IDENTIFICATION=C
##
## time zone: Europe/Prague
## tzcode source: system (glibc)
##
## attached base packages:
## [1] stats      graphics  grDevices  utils      datasets  methods   base
##
## other attached packages:
##  [1] kableExtra_1.4.0    glue_1.8.0      modelsummary_2.5.0
##  [4] broom.mixed_0.2.9.6 effectsize_1.0.1 performance_0.15.1
##  [7] lmerTest_3.1-3      lme4_1.1-38     Matrix_1.7-1
## [10] janitor_2.2.1       readxl_1.4.3    lubridate_1.9.4
## [13] forcats_1.0.0       stringr_1.5.1   dplyr_1.1.4
## [16] purrr_1.1.0         readr_2.1.5     tidyr_1.3.1
## [19] tibble_3.2.1        ggplot2_4.0.1   tidyverse_2.0.0
##
## loaded via a namespace (and not attached):
##  [1] tidyselect_1.2.1    viridisLite_0.4.2 farver_2.1.2
##  [4] S7_0.2.1           fastmap_1.2.0    TH.data_1.1-4
##  [7] bayestestR_0.17.0  digest_0.6.37    estimability_1.5.1
## [10] timechange_0.3.0    lifecycle_1.0.4  survival_3.7-0
## [13] magrittr_2.0.3     compiler_4.4.2   rlang_1.1.6
```

```
## [16] tools_4.4.2      yaml_2.3.10      data.table_1.17.8
## [19] knitr_1.50       xml2_1.3.6       RColorBrewer_1.1-3
## [22] multcomp_1.4-28  tinytable_0.15.1 withr_3.0.2
## [25] numDeriv_2016.8-1.1 grid_4.4.2      datawizard_1.2.0
## [28] xtable_1.8-4     future_1.68.0   globals_0.18.0
## [31] emmeans_1.10.6   scales_1.4.0    MASS_7.3-61
## [34] insight_1.4.2    cli_3.6.5       mvtnorm_1.3-2
## [37] rmarkdown_2.29   reformulas_0.4.1 generics_0.1.3
## [40] future.apply_1.20.0 rstudioapi_0.17.1 tzdb_0.5.0
## [43] parameters_0.28.1 minqa_1.2.8     splines_4.4.2
## [46] parallel_4.4.2   cellranger_1.1.0 vctrs_0.6.5
## [49] boot_1.3-31      sandwich_3.1-1  hms_1.1.3
## [52] listenv_0.10.0   systemfonts_1.3.1 parallelly_1.45.1
## [55] nloptr_2.2.1     codetools_0.2-20 stringi_1.8.4
## [58] gtable_0.3.6     tables_0.9.31   pillar_1.10.0
## [61] furrr_0.3.1      htmltools_0.5.8.1 R6_2.6.1
## [64] textshaping_0.4.1 Rdpack_2.6.4    evaluate_1.0.5
## [67] lattice_0.22-5   rbibutils_2.3   backports_1.5.0
## [70] broom_1.0.7      snakecase_0.11.1 Rcpp_1.0.13-1
## [73] checkmate_2.3.3  svglite_2.2.2   coda_0.19-4.1
## [76] nlme_3.1-166     xfun_0.54       zoo_1.8-14
## [79] pkgconfig_2.0.3
```

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### 7.0.1 Minimal reporting template (paste into manuscript)

- **Model:** Random-intercept LMM (classes).
- **DV:** HPT total (z); robustness for CONT (z) and POP (z).
- **Predictors:** FR-LF total (z) or RD/NS facets (z); KSA-3 total (z); controls KN (z), SDR-5 (z).
- **Key result:**  $\beta_{\text{FR-LF}} = \dots$ , 95% CI  $[\dots, \dots]$ ,  $p = \dots$ ; ICC =  $\dots$ ;  $R_m^2 = \dots$ ,  $R_c^2 = \dots$ .
- **Decision:** H1 ... / H2 ... (per criteria above).

*References for context:* Huijgen et al. on HPT structure and presentism risks; FR-LF validation and dimensionality; Stage 1 snapshot for analytic plan; project codebook for variables.