

# Model Comparison Analysis - Effect Consistency and Significance Changes

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## Model Comparison: Effect Consistency Analysis

This analysis focuses on whether results, interpretations, and significance levels change when switching between different model specifications.

### Load Required Libraries

```
library(lme4)      # For linear mixed effects models
library(lmerTest)   # For p-values in lmer
library(broom.mixed) # For tidy model outputs
library(dplyr)       # For data manipulation
library(readr)       # For reading CSV files
library(knitr)       # For nice tables
library(ggplot2)     # For plotting
```

```
library(tidyr)      # For data reshaping
library(purrr)      # For functional programming
```

## Load and Prepare Data

```
# Load both datasets
oa_data <- read_csv("~/Volumes/YB_Drive/NavAging_Paper/data/oa_merged_results.csv")
ya_data <- read_csv("~/Volumes/YB_Drive/NavAging_Paper/data/ya_merged_results.csv")

# Add Age group variable and combine datasets
oa_data$Age <- "OA"
ya_data$Age <- "YA"

# Remove the index column (first column) and combine
oa_data <- oa_data %>% select(-1)
ya_data <- ya_data %>% select(-1)

# Combine datasets
combined_data <- bind_rows(oa_data, ya_data)

# Convert categorical variables to factors
combined_data <- combined_data %>%
  mutate(
    Age = factor(Age, levels = c("YA", "OA")), # YA as reference level
    Target_Name = factor(Target_Name),
    Participant = factor(Participant),
    Block_Num = factor(Block_Num, levels = c("1", "2", "3")) # Block 1 as reference level
  )

# Define outcome variables
outcome_vars <- c("Total_Time", "Orientation_Time", "Navigation_Time",
                  "Distance", "Speed", "Mean_Dwell",
                  "Teleportations", "Mean_Teleport_Distance")

cat("Dataset prepared. Analyzing", length(outcome_vars), "outcome variables.\n")
```

## Dataset prepared. Analyzing 8 outcome variables.

## Analysis Function for Effect Comparison

```
# Function to extract and compare effects across models
compare_model_effects <- function(dv_name, data) {

  # Define model formulas
  formula1 <- as.formula(paste(dv_name, "~ Age * Block_Num * Target_Name + (1|Participant)"))
  formula2 <- as.formula(paste(dv_name, "~ Age * Block_Num + (1|Target_Name) + (1|Participant)"))
  formula3 <- as.formula(paste(dv_name, "~ Age * Block_Num + (1|Participant)"))

  # Fit models
```

```

model1 <- lmer(formula1, data = data)
model2 <- lmer(formula2, data = data)
model3 <- lmer(formula3, data = data)

# Extract fixed effects for each model
effects1 <- broom.mixed::tidy(model1, effects = "fixed") %>%
  mutate(Model = "Model 1", DV = dv_name)
effects2 <- broom.mixed::tidy(model2, effects = "fixed") %>%
  mutate(Model = "Model 2", DV = dv_name)
effects3 <- broom.mixed::tidy(model3, effects = "fixed") %>%
  mutate(Model = "Model 3", DV = dv_name)

# Combine all effects
all_effects <- bind_rows(effects1, effects2, effects3) %>%
  mutate(
    significant = p.value < 0.05,
    effect_size_category = case_when(
      abs(estimate) < 0.2 ~ "Small",
      abs(estimate) < 0.5 ~ "Medium",
      TRUE ~ "Large"
    )
  )

return(all_effects)
}

# Function to identify effects that change across models
identify_effect_changes <- function(effects_df) {

  # Focus on key effects that appear in multiple models
  common_effects <- effects_df %>%
    group_by(DV, term) %>%
    summarise(n_models = n(), .groups = 'drop') %>%
    filter(n_models >= 2) %>%
    pull(term) %>%
    unique()

  # Analyze changes for common effects
  effect_changes <- effects_df %>%
    filter(term %in% common_effects) %>%
    group_by(DV, term) %>%
    summarise(
      n_models = n(),
      significance_changes = length(unique(significant)) > 1,
      min_p = min(p.value),
      max_p = max(p.value),
      p_value_range = max_p - min_p,
      min_estimate = min(estimate),
      max_estimate = max(estimate),
      estimate_range = max_estimate - min_estimate,
      estimate_sign_changes = (min_estimate < 0 & max_estimate > 0) | (min_estimate > 0 & max_estimate < 0),
      models_significant = paste(Model[significant], collapse = ", "),
      models_nonsignificant = paste(Model[!significant], collapse = ", ")
    )
}

```

```

    .groups = 'drop'
) %>%
mutate(
  substantial_change = significance_changes | estimate_sign_changes | (estimate_range > abs(min_est))
)

return(effect_changes)
}

```

## Run Analysis for All Outcome Variables

```

# Get effects for all outcome variables
all_effects_list <- map(outcome_vars, ~compare_model_effects(.x, combined_data))
names(all_effects_list) <- outcome_vars

# Combine all effects into one dataframe
all_effects_combined <- bind_rows(all_effects_list)

# Identify changes for each outcome variable
effect_changes_list <- map(all_effects_list, identify_effect_changes)
all_changes_combined <- bind_rows(effect_changes_list)

cat("Analysis completed for all outcome variables.\n")

## Analysis completed for all outcome variables.

```

## Summary of Effect Consistency Across Models

```

# Overall summary of which effects are most stable across models
stability_summary <- all_changes_combined %>%
  group_by(term) %>%
  summarise(
    n_variables = n(),
    variables_with_sig_changes = sum(significance_changes),
    variables_with_sign_changes = sum(estimate_sign_changes),
    variables_with_substantial_changes = sum(substantial_change),
    prop_substantial_changes = variables_with_substantial_changes / n_variables,
    avg_p_range = mean(p_value_range, na.rm = TRUE),
    avg_estimate_range = mean(estimate_range, na.rm = TRUE),
    .groups = 'drop'
) %>%
arrange(desc(prop_substantial_changes))

cat("Effect Stability Summary (sorted by most unstable):\n")

## Effect Stability Summary (sorted by most unstable):

```

```
kable(stability_summary, digits = 3)
```

| term             | n_variables | variables_with_sigchanges | variables_with_change | with_substitution | prop_as_substitution | change | change_estimate | range |
|------------------|-------------|---------------------------|-----------------------|-------------------|----------------------|--------|-----------------|-------|
| AgeOA:Block_Num2 | 2           | 1                         | 8                     | 1.000             | 0.221                | 15.616 |                 |       |
| AgeOA:Block_Num3 | 3           | 0                         | 7                     | 0.875             | 0.121                | 17.207 |                 |       |
| Block_Num3       | 8           | 4                         | 0                     | 7                 | 0.875                | 0.137  | 15.740          |       |
| (Intercept)      | 8           | 1                         | 0                     | 6                 | 0.750                | 0.013  | 35.150          |       |
| AgeOA            | 8           | 4                         | 0                     | 6                 | 0.750                | 0.077  | 6.150           |       |
| Block_Num2       | 8           | 4                         | 0                     | 6                 | 0.750                | 0.157  | 12.075          |       |

## Variables with Significance Changes

```
# Focus on cases where significance changes between models
sig_changes <- all_changes_combined %>%
  filter(significance_changes == TRUE) %>%
  select(DV, term, min_p, max_p, models_significant, models_nonsignificant) %>%
  arrange(DV, term)

cat("Effects that change significance across models:\n")

## Effects that change significance across models:

if(nrow(sig_changes) > 0) {
  kable(sig_changes, digits = 4)
} else {
  cat("No effects change significance across models.\n")
}
```

| DV                     | term                  | min_p  | max_p  | models_significant | models_nonsignificant |
|------------------------|-----------------------|--------|--------|--------------------|-----------------------|
| Distance               | AgeOA                 | 0.0001 | 0.1305 | Model 2, Model 3   | Model 1               |
| Distance               | Block_Num2            | 0.0000 | 0.4099 | Model 2, Model 3   | Model 1               |
| Distance               | Block_Num3            | 0.0000 | 0.3662 | Model 2, Model 3   | Model 1               |
| Mean_Teleport_Distance | AgeOA                 | 0.0417 | 0.1540 | Model 2, Model 3   | Model 1               |
| Mean_Teleport_Distance | AgeOA:Block_Num0.0019 | 0.5926 |        | Model 2, Model 3   | Model 1               |
| Navigation_Time        | AgeOA:Block_Num0.0039 | 0.0767 |        | Model 2, Model 3   | Model 1               |
| Navigation_Time        | Block_Num2            | 0.0000 | 0.1793 | Model 2, Model 3   | Model 1               |
| Navigation_Time        | Block_Num3            | 0.0000 | 0.1329 | Model 2, Model 3   | Model 1               |
| Speed                  | AgeOA                 | 0.0063 | 0.2755 | Model 2, Model 3   | Model 1               |
| Speed                  | AgeOA:Block_Num0.0000 | 0.2378 |        | Model 2, Model 3   | Model 1               |
| Speed                  | AgeOA:Block_Num0.0000 | 0.1853 |        | Model 2, Model 3   | Model 1               |
| Teleportations         | (Intercept)           | 0.0000 | 0.0664 | Model 2, Model 3   | Model 1               |
| Teleportations         | AgeOA                 | 0.0000 | 0.1010 | Model 2, Model 3   | Model 1               |
| Teleportations         | Block_Num2            | 0.0003 | 0.5498 | Model 2, Model 3   | Model 1               |
| Teleportations         | Block_Num3            | 0.0000 | 0.5289 | Model 2, Model 3   | Model 1               |
| Total_Time             | AgeOA:Block_Num0.0373 | 0.0783 |        | Model 2, Model 3   | Model 1               |
| Total_Time             | Block_Num2            | 0.0000 | 0.1145 | Model 2, Model 3   | Model 1               |
| Total_Time             | Block_Num3            | 0.0000 | 0.0676 | Model 2, Model 3   | Model 1               |

## Effects with Sign Changes

```
# Identify effects that change direction (sign) across models
sign_changes <- all_changes_combined %>%
  filter(estimate_sign_changes == TRUE) %>%
  select(DV, term, min_estimate, max_estimate) %>%
  arrange(DV, term)

cat("Effects that change direction (sign) across models:\n")

## Effects that change direction (sign) across models:

if(nrow(sign_changes) > 0) {
  kable(sign_changes, digits = 4)
} else {
  cat("No effects change direction across models.\n")
}
```

| DV                     | term             | min_estimate | max_estimate |
|------------------------|------------------|--------------|--------------|
| Mean_Teleport_Distance | AgeOA:Block_Num2 | -0.1165      | 0.0082       |

## Model-Specific Effects Analysis

```
# Identify effects that only appear in certain models
effects_by_model <- all_effects_combined %>%
  group_by(term) %>%
  summarise(
    models_present = paste(unique(Model), collapse = ", "),
    n_models = length(unique(Model)),
    variables_present = paste(unique(DV), collapse = ", "),
    n_variables = length(unique(DV)),
    .groups = 'drop'
  ) %>%
  arrange(n_models, term)

cat("Effects by model presence:\n")

## Effects by model presence:

kable(effects_by_model, digits = 3)
```

| term                                 | models_present | n_models | variables_present  | n_variables |
|--------------------------------------|----------------|----------|--|-------------|
| AgeOA:Block_Num2:TargetModelNameBank | 1              | 1        | Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |

| term   | models_present | variables_present  | n_variables |
|--|----------------|--|-------------|
| AgeOA:Block_Num2:TargetModeNameFireStation         | 1              | Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |
| AgeOA:Block_Num2:TargetModeNameHighSchool          | 1              | Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |
| AgeOA:Block_Num2:TargetModeNamePawnShop            | 1              | Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |
| AgeOA:Block_Num2:TargetModeNamePizzeria            | 1              | Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |
| AgeOA:Block_Num2:TargetModeNamePolicestation       | 1              | Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |
| AgeOA:Block_Num2:TargetModeNameQuattrökiRestaurant | 1              | Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |
| AgeOA:Block_Num3:TargetModeNameBank                | 1              | Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |
| AgeOA:Block_Num3:TargetModeNameFireStation         | 1              | Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |
| AgeOA:Block_Num3:TargetModeNameHighSchool          | 1              | Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |
| AgeOA:Block_Num3:TargetModeNamePawnShop            | 1              | Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |
| AgeOA:Block_Num3:TargetModeNamePizzeria            | 1              | Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |
| AgeOA:Block_Num3:TargetModeNamePolicestation       | 1              | Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |
| AgeOA:Block_Num3:TargetModeNameQuattrökiRestaurant | 1              | Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |
| AgeOA:Target_NameBankModel 1                       | 1              | Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |
| AgeOA:Target_NameFireStationModel 1                | 1              | Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |
| AgeOA:Target_NameHighSchoolModel 1                 | 1              | Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |
| AgeOA:Target_NamePawnShopModel 1                   | 1              | Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |

| term                                      | models_present | variables_present  | n_variables |
|---|----------------|--|-------------|
| AgeOA:Target_NamePizza                    | Model 1        | 1 Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |
| AgeOA:Target_NamePolstation               | Model 1        | 1 Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |
| AgeOA:Target_NameQuattodiRestaurant       | Model 1        | 1 Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |
| Block_Num2:Target_NameBahlk               | Model 1        | 1 Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |
| Block_Num2:Target_NameFide1Station        | Model 1        | 1 Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |
| Block_Num2:Target_NameHighSchool          | Model 1        | 1 Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |
| Block_Num2:Target_NameHawhShop            | Model 1        | 1 Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |
| Block_Num2:Target_NameHizelia             | Model 1        | 1 Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |
| Block_Num2:Target_NameHolidestation       | Model 1        | 1 Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |
| Block_Num2:Target_NameQalitrokiRestaurant | Model 1        | 1 Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |
| Block_Num3:Target_NameBahlk               | Model 1        | 1 Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |
| Block_Num3:Target_NameFide1Station        | Model 1        | 1 Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |
| Block_Num3:Target_NameHighSchool          | Model 1        | 1 Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |
| Block_Num3:Target_NameHawhShop            | Model 1        | 1 Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |
| Block_Num3:Target_NameHizelia             | Model 1        | 1 Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |
| Block_Num3:Target_NameHolidestation       | Model 1        | 1 Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |
| Block_Num3:Target_NameQalitrokiRestaurant | Model 1        | 1 Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance | 8           |

| term                            | models_present                  | n_variables  |
|---------------------------------|---------------------------------|--|
|                                 | models_variables_present        |  |
| Target_NameBank                 | Model 1                         | 1 Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance |
| Target_NameFire Station         | Model 1                         | 1 Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance |
| Target_NameHigh School          | Model 1                         | 1 Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance |
| Target_NamePawn Shop            | Model 1                         | 1 Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance |
| Target_NamePizzeria             | Model 1                         | 1 Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance |
| Target_NamePolice station       | Model 1                         | 1 Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance |
| Target_NameQuattroki Restaurant | Model 1                         | 1 Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance |
| (Intercept)                     | Model 1,<br>Model 2,<br>Model 3 | 3 Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance |
| AgeOA                           | Model 1,<br>Model 2,<br>Model 3 | 3 Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance |
| AgeOA:Block_Num2                | Model 1,<br>Model 2,<br>Model 3 | 3 Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance |
| AgeOA:Block_Num3                | Model 1,<br>Model 2,<br>Model 3 | 3 Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance |
| Block_Num2                      | Model 1,<br>Model 2,<br>Model 3 | 3 Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance |
| Block_Num3                      | Model 1,<br>Model 2,<br>Model 3 | 3 Total_Time, Orientation_Time, Navigation_Time, Distance, Speed, Mean_Dwell, Teleportations, Mean_Teleport_Distance |

## Detailed Comparison for Key Effects

```
# Focus on main effects and key interactions
key_terms <- c("AgeOA", "Block_Num2", "Block_Num3", "AgeOA:Block_Num2", "AgeOA:Block_Num3")

detailed_comparison <- all_effects_combined %>%
  filter(term %in% key_terms) %>%
  select(DV, Model, term, estimate, std.error, p.value, significant) %>%
  arrange(DV, term, Model)
```

```

# Create a wide format for easier comparison
comparison_wide <- detailed_comparison %>%
  pivot_wider(
    names_from = Model,
    values_from = c(estimate, p.value, significant),
    names_sep = "_"
  )

cat("Detailed comparison of key effects across models:\n")

```

## Detailed comparison of key effects across models:

```
kable(comparison_wide, digits = 4)
```

| DV         | term             | estimate | Model_1 | Model_2  | Model_3  | p_Model_1 | p_Model_2 | p_Model_3 | Model_1 | Model_2 | Model_3 | Significant_1 | Significant_2 | Significant_3 | Model_1 | Model_2 | Model_3 |
|------------|------------------|----------|---------|----------|----------|-----------|-----------|-----------|---------|---------|---------|---------------|---------------|---------------|---------|---------|---------|
| Distance   | AgeOA            | 94.4917  | 42.9828 | NA       | NA       | 0.1305    | NA        | NA        | FALSE   | NA      | NA      | NA            | NA            | NA            | NA      | NA      | NA      |
| Distance   | AgeOA            | 41.0960  | NA      | 166.6921 | NA       | NA        | 0.0001    | NA        | NA      | TRUE    | NA      | NA            | NA            | NA            | NA      | NA      | NA      |
| Distance   | AgeOA            | 42.0994  | NA      | NA       | 166.6921 | NA        | NA        | 0.0001    | NA      | NA      | NA      | NA            | NA            | TRUE          | NA      | NA      | NA      |
| Distance   | AgeOA:Blk80Num2  | 73.2785  | NA      | NA       | 0.5695   | NA        | NA        | NA        | FALSE   | NA      | NA      | NA            | NA            | NA            | NA      | NA      | NA      |
| Distance   | AgeOA:Blk167Num2 | -        | NA      | NA       | 0.7606   | NA        | NA        | NA        | FALSE   | NA      | NA      | NA            | NA            | NA            | NA      | NA      | NA      |
| Distance   | AgeOA:Blk80Num2  | 14.0722  | NA      | -        | NA       | NA        | 0.7731    | NA        | NA      | NA      | NA      | NA            | NA            | NA            | NA      | NA      | NA      |
| Distance   | AgeOA:Blk80Num3  | 113.0779 | NA      | NA       | 0.3802   | NA        | NA        | NA        | FALSE   | NA      | NA      | NA            | NA            | NA            | NA      | NA      | NA      |
| Distance   | AgeOA:Blk167Num3 | -        | NA      | NA       | 0.3097   | NA        | NA        | NA        | FALSE   | NA      | NA      | NA            | NA            | NA            | NA      | NA      | NA      |
| Distance   | AgeOA:Blk80Num3  | 46.9149  | NA      | -        | NA       | NA        | 0.3366    | NA        | NA      | NA      | NA      | NA            | NA            | NA            | NA      | NA      | NA      |
| Distance   | Block_N91m2821   | -        | NA      | NA       | 0.4099   | NA        | NA        | NA        | FALSE   | NA      | NA      | NA            | NA            | NA            | NA      | NA      | NA      |
| Distance   | Block_N92m2456   | 75.0795  | NA      | -        | NA       | NA        | 0.0000    | NA        | NA      | TRUE    | NA      | NA            | NA            | NA            | NA      | NA      | NA      |
| Distance   | Block_N94m2101   | NA       | NA      | 142.6159 | NA       | NA        | 0.0000    | NA        | NA      | NA      | NA      | NA            | NA            | TRUE          | NA      | NA      | NA      |
| Distance   | Block_N95m3821   | -        | NA      | NA       | 0.3662   | NA        | NA        | NA        | FALSE   | NA      | NA      | NA            | NA            | NA            | NA      | NA      | NA      |
| Distance   | Block_N96m3456   | 82.3342  | NA      | -        | NA       | NA        | 0.0000    | NA        | NA      | TRUE    | NA      | NA            | NA            | NA            | NA      | NA      | NA      |
| Distance   | Block_N97m3101   | NA       | NA      | 168.3485 | NA       | NA        | 0.0000    | NA        | NA      | NA      | NA      | NA            | NA            | NA            | TRUE    | NA      | NA      |
| Mean_Dwell | AgeOA            | 0.1614   | 1.1264  | NA       | NA       | 0.0000    | NA        | NA        | TRUE    | NA      | NA      | NA            | NA            | NA            | NA      | NA      | NA      |
| Mean_Dwell | AgeOA            | 0.1062   | NA      | 0.4056   | NA       | NA        | 0.0003    | NA        | NA      | TRUE    | NA      | NA            | NA            | NA            | NA      | NA      | NA      |
| Mean_Dwell | AgeOA            | 0.1076   | NA      | NA       | 0.4056   | NA        | NA        | 0.0003    | NA      | NA      | NA      | NA            | NA            | NA            | NA      | NA      | TRUE    |
| Mean_Dwell | AgeOA:Blk851Num2 | 0.6567   | NA      | NA       | 0.0004   | NA        | NA        | NA        | TRUE    | NA      | NA      | NA            | NA            | NA            | NA      | NA      | NA      |
| Mean_Dwell | AgeOA:Blk702Num2 | -        | NA      | NA       | 0.0250   | NA        | NA        | NA        | TRUE    | NA      | NA      | NA            | NA            | NA            | NA      | NA      | NA      |
|            |                  | 0.1574   |         |          |          |           |           |           |         |         |         |               |               |               |         |         |         |

| DV                           | term    | estimate | std.error | 1      | 2      | 3      | estimate | std.error | 1  | 2      | 3  | estimate | std.error | 1  | 2  | 3     | Model |
|------------------------------|---------|----------|-----------|--------|--------|--------|----------|-----------|----|--------|----|----------|-----------|----|----|-------|-------|
| Mean_DwellAgeOA:Bld0763NumNA |         | -0.763   | NA        | NA     | -      | 0.1574 | NA       | NA        | NA | 0.0392 | NA | NA       | NA        | NA | NA | TRUE  |       |
| Mean_DwellAgeOA:Bld0851Num3  |         | -0.8442  | NA        | NA     | 0.0000 | NA     | NA       | NA        | NA | TRUE   | NA | NA       | NA        | NA | NA | NA    |       |
| Mean_DwellAgeOA:Bld0702NumNA |         | -0.702   | NA        | 0.2168 | NA     | NA     | NA       | 0.0020    | NA | NA     | NA | TRUE     | NA        | NA | NA | NA    |       |
| Mean_DwellAgeOA:Bld0763NumNA |         | -0.763   | NA        | NA     | -      | 0.2168 | NA       | NA        | NA | 0.0045 | NA | NA       | NA        | NA | NA | TRUE  |       |
| Mean_DwellBlock_N0nb309      |         | -1.0162  | NA        | NA     | NA     | 0.0000 | NA       | NA        | NA | TRUE   | NA | NA       | NA        | NA | NA | NA    |       |
| Mean_DwellBlock_N0nb296      |         | -0.4166  | NA        | -      | NA     | NA     | 0.0000   | NA        | NA | NA     | NA | TRUE     | NA        | NA | NA | NA    |       |
| Mean_DwellBlock_N0nb239      |         | -0.4166  | NA        | NA     | -      | 0.4166 | NA       | NA        | NA | 0.0000 | NA | NA       | NA        | NA | NA | TRUE  |       |
| Mean_DwellBlock_N0nb309      |         | -1.3012  | NA        | NA     | NA     | 0.0000 | NA       | NA        | NA | TRUE   | NA | NA       | NA        | NA | NA | NA    |       |
| Mean_DwellBlock_N0nb396      |         | -0.5631  | NA        | -      | NA     | NA     | 0.0000   | NA        | NA | NA     | NA | TRUE     | NA        | NA | NA | NA    |       |
| Mean_DwellBlock_N0nb539      |         | -0.5631  | NA        | NA     | -      | 0.5631 | NA       | NA        | NA | 0.0000 | NA | NA       | NA        | NA | NA | TRUE  |       |
| Mean_TeleAgeOA_Dis02388      |         | -0.3427  | NA        | NA     | NA     | 0.1540 | NA       | NA        | NA | FALSE  | NA | NA       | NA        | NA | NA | NA    |       |
| Mean_TeleAgeOA_Dis02055      |         | -0.4274  | NA        | -      | NA     | NA     | 0.0417   | NA        | NA | NA     | NA | TRUE     | NA        | NA | NA | NA    |       |
| Mean_TeleAgeOA_Dis02058      |         | -0.4274  | NA        | NA     | -      | 0.4274 | NA       | NA        | NA | 0.0419 | NA | NA       | NA        | NA | NA | TRUE  |       |
| Mean_TeleAgeOA_Bld0743N0082  |         | -0.0082  | NA        | NA     | NA     | 0.9644 | NA       | NA        | NA | FALSE  | NA | NA       | NA        | NA | NA | NA    |       |
| Mean_TeleAgeOA_Bld0761NumNA  |         | -0.1165  | NA        | -      | NA     | NA     | 0.0826   | NA        | NA | NA     | NA | FALSE    | NA        | NA | NA | NA    |       |
| Mean_TeleAgeOA_Bld0794NumNA  |         | -0.1165  | NA        | NA     | -      | 0.1165 | NA       | NA        | NA | 0.0934 | NA | NA       | NA        | NA | NA | FALSE |       |
| Mean_TeleAgeOA_Bld0743Num3   |         | -0.0986  | NA        | NA     | NA     | 0.5926 | NA       | NA        | NA | FALSE  | NA | NA       | NA        | NA | NA | NA    |       |
| Mean_TeleAgeOA_Bld0761NumNA  |         | -0.2083  | NA        | -      | NA     | NA     | 0.0019   | NA        | NA | NA     | NA | TRUE     | NA        | NA | NA | NA    |       |
| Mean_TeleAgeOA_Bld0794NumNA  |         | -0.2083  | NA        | NA     | -      | 0.2083 | NA       | NA        | NA | 0.0027 | NA | NA       | NA        | NA | NA | TRUE  |       |
| Mean_TeleBlock_DN0nb208      |         | -0.6160  | NA        | NA     | NA     | 0.0000 | NA       | NA        | NA | TRUE   | NA | NA       | NA        | NA | NA | NA    |       |
| Mean_TeleBlock_DN0nb174      |         | -0.3111  | NA        | -      | NA     | NA     | 0.0000   | NA        | NA | NA     | NA | TRUE     | NA        | NA | NA | NA    |       |
| Mean_TeleBlock_DN0nb191      |         | -0.3111  | NA        | NA     | -      | 0.3111 | NA       | NA        | NA | 0.0000 | NA | NA       | NA        | NA | NA | TRUE  |       |
| Mean_TeleBlock_DN0nb303      |         | -0.8569  | NA        | NA     | NA     | 0.0000 | NA       | NA        | NA | TRUE   | NA | NA       | NA        | NA | NA | NA    |       |
| Mean_TeleBlock_DN0nb374      |         | -0.3332  | NA        | -      | NA     | NA     | 0.0000   | NA        | NA | NA     | NA | TRUE     | NA        | NA | NA | NA    |       |
| Mean_TeleBlock_DN0nb191      |         | -0.3332  | NA        | NA     | -      | 0.3332 | NA       | NA        | NA | 0.0000 | NA | NA       | NA        | NA | NA | TRUE  |       |
| Navigation_AFeOA             | 17.9749 | 1.7207   | NA        | NA     | NA     | 0.0041 | NA       | NA        | NA | TRUE   | NA | NA       | NA        | NA | NA | NA    |       |
| Navigation_AFeOA             | 7.9621  | NA       | 52.4274   | NA     | NA     | 0.0000 | NA       | NA        | NA | TRUE   | NA | NA       | NA        | NA | NA | NA    |       |

| DV          | term                               | estimate | std.error | estimate | std.error | estimate | std.error | p      | Model  | Model | Model | Significant | Model | Significant | Model | Significant | Model |
|-------------|------------------------------------|----------|-----------|----------|-----------|----------|-----------|--------|--------|-------|-------|-------------|-------|-------------|-------|-------------|-------|
|             |                                    |          |           | 1        | 2         | 3        | 1         | 2      | 3      | 1     | 2     | 3           | 1     | 2           | 3     | 1           | 2     |
| Navigation  | <u>A<sub>TOA</sub></u>             | 8.0879   | NA        | NA       | 52.4274   | NA       | NA        | 0.0000 | NA     | NA    | NA    | TRUE        | NA    | NA          | NA    | NA          | NA    |
| Navigation  | <u>A<sub>TOA</sub>:Bld402Num2</u>  | 32.4801  | NA        | NA       | NA        | 0.1834   | NA        | NA     | NA     | FALSE | NA    | NA          | NA    | NA          | NA    | NA          | NA    |
| Navigation  | <u>A<sub>TOA</sub>:Bld680Nu</u>    | NA       | -         | NA       | NA        | NA       | 0.0648    | NA     | NA     | NA    | FALSE | NA          | NA    | NA          | NA    | NA          | NA    |
| Navigation  | <u>A<sub>TOA</sub>:Bld1069Nu</u>   | NA       | 16.2043   | NA       | -         | NA       | NA        | NA     | 0.0754 | NA    | NA    | NA          | NA    | NA          | NA    | NA          | NA    |
| Navigation  | <u>A<sub>TOA</sub>:Bld402Num3</u>  | 43.2255  | NA        | NA       | NA        | 0.0767   | NA        | NA     | NA     | FALSE | NA    | NA          | NA    | NA          | NA    | NA          | NA    |
| Navigation  | <u>A<sub>TOA</sub>:Bld680Nu</u>    | NA       | -         | NA       | NA        | 0.0039   | NA        | NA     | NA     | TRUE  | NA    | NA          | NA    | NA          | NA    | NA          | NA    |
| Navigation  | <u>A<sub>TOA</sub>:Bld1069Nu</u>   | NA       | 25.3262   | NA       | -         | NA       | NA        | 0.0055 | NA     | NA    | NA    | NA          | NA    | NA          | NA    | NA          | NA    |
| Navigation  | <u>B<sub>Ticke</sub> N1n2550</u>   | 23.1830  | NA        | NA       | NA        | 0.1793   | NA        | NA     | NA     | FALSE | NA    | NA          | NA    | NA          | NA    | NA          | NA    |
| Navigation  | <u>B<sub>Ticke</sub> N6n199</u>    | NA       | -         | NA       | NA        | 0.0000   | NA        | NA     | NA     | TRUE  | NA    | NA          | NA    | NA          | NA    | NA          | NA    |
| Navigation  | <u>B<sub>Ticke</sub> N6n1396</u>   | NA       | 30.6758   | NA       | -         | NA       | NA        | 0.0000 | NA     | NA    | NA    | NA          | NA    | NA          | NA    | NA          | NA    |
| Navigation  | <u>B<sub>Ticke</sub> N1n2550</u>   | 25.9447  | NA        | NA       | NA        | 0.1329   | NA        | NA     | NA     | FALSE | NA    | NA          | NA    | NA          | NA    | NA          | NA    |
| Navigation  | <u>B<sub>Ticke</sub> N6n199</u>    | NA       | -         | NA       | NA        | 0.0000   | NA        | NA     | NA     | TRUE  | NA    | NA          | NA    | NA          | NA    | NA          | NA    |
| Navigation  | <u>B<sub>Ticke</sub> N6n1396</u>   | NA       | 36.3415   | NA       | -         | NA       | NA        | 0.0000 | NA     | NA    | NA    | NA          | NA    | NA          | NA    | NA          | NA    |
| Orientation | <u>A<sub>TOA</sub></u>             | 1.3348   | 14.2142   | NA       | NA        | 0.0000   | NA        | NA     | NA     | TRUE  | NA    | NA          | NA    | NA          | NA    | NA          | NA    |
| Orientation | <u>A<sub>TOA</sub></u>             | 0.6253   | NA        | 4.9035   | NA        | NA       | 0.0000    | NA     | NA     | NA    | TRUE  | NA          | NA    | NA          | NA    | NA          | NA    |
| Orientation | <u>A<sub>TOA</sub></u>             | 0.6317   | NA        | NA       | 4.9049    | NA       | NA        | 0.0000 | NA     | NA    | NA    | TRUE        | NA    | NA          | NA    | TRUE        | NA    |
| Orientation | <u>A<sub>TOA</sub>:Bld7936Num2</u> | 10.7866  | NA        | NA       | NA        | 0.0000   | NA        | NA     | NA     | TRUE  | NA    | NA          | NA    | NA          | NA    | NA          | NA    |
| Orientation | <u>A<sub>TOA</sub>:Bld6702Nu</u>   | NA       | -         | NA       | NA        | 0.0009   | NA        | NA     | NA     | TRUE  | NA    | NA          | NA    | NA          | NA    | NA          | NA    |
| Orientation | <u>A<sub>TOA</sub>:Bld6877Nu</u>   | NA       | 2.2361    | NA       | -         | NA       | NA        | 0.0012 | NA     | NA    | NA    | NA          | NA    | NA          | NA    | NA          | NA    |
| Orientation | <u>A<sub>TOA</sub>:Bld7936Num3</u> | 11.2978  | NA        | NA       | NA        | 0.0000   | NA        | NA     | NA     | TRUE  | NA    | NA          | NA    | NA          | NA    | NA          | NA    |
| Orientation | <u>A<sub>TOA</sub>:Bld6702Nu</u>   | NA       | -         | NA       | NA        | 0.0000   | NA        | NA     | NA     | TRUE  | NA    | NA          | NA    | NA          | NA    | NA          | NA    |
| Orientation | <u>A<sub>TOA</sub>:Bld6877Nu</u>   | NA       | 2.9230    | NA       | -         | NA       | NA        | 0.0000 | NA     | NA    | NA    | NA          | NA    | NA          | NA    | NA          | NA    |
| Orientation | <u>B<sub>Ticke</sub> N1n2082</u>   | 4.2361   | NA        | NA       | NA        | 0.0009   | NA        | NA     | NA     | TRUE  | NA    | NA          | NA    | NA          | NA    | NA          | NA    |
| Orientation | <u>B<sub>Ticke</sub> N0n1236</u>   | NA       | -         | NA       | NA        | 0.0000   | NA        | NA     | NA     | TRUE  | NA    | NA          | NA    | NA          | NA    | NA          | NA    |
| Orientation | <u>B<sub>Ticke</sub> N0n1260</u>   | NA       | 2.0432    | NA       | -         | NA       | NA        | 0.0000 | NA     | NA    | NA    | TRUE        | NA    | NA          | NA    | NA          | NA    |
| Orientation | <u>B<sub>Ticke</sub> N1n2682</u>   | 5.8141   | NA        | NA       | 2.0432    | NA       | NA        | 0.0000 | NA     | NA    | NA    | TRUE        | NA    | NA          | NA    | NA          | NA    |
| Orientation | <u>B<sub>Ticke</sub> N0n1236</u>   | NA       | -         | NA       | NA        | 0.0000   | NA        | NA     | NA     | TRUE  | NA    | NA          | NA    | NA          | NA    | NA          | NA    |
| Orientation | <u>B<sub>Ticke</sub> N0n1260</u>   | NA       | 2.5742    | NA       | -         | NA       | NA        | 0.0000 | NA     | NA    | NA    | TRUE        | NA    | NA          | NA    | NA          | NA    |

| DV            | term               | estimate      | std.error | estimate | estimate | estimate | p      | Model  | Model | Model | Model | Model | Model | Model | Model | Model |
|---------------|--------------------|---------------|-----------|----------|----------|----------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|
|               |                    |               |           | 1        | 2        | 3        |        | 1      | 2     | 3     | 1     | 2     | 3     | 1     | 2     | 3     |
| Speed         | AgeOA              | 1.3653        | -         | NA       | NA       | 0.2755   | NA     | NA     | NA    | FALSE | NA    | NA    | NA    | NA    | NA    | NA    |
|               |                    |               |           | 1.4912   |          |          |        |        |       |       |       |       |       |       |       |       |
| Speed         | AgeOA              | 0.9058        | NA        | -        | NA       | NA       | 0.0063 | NA     | NA    | TRUE  | NA    | NA    | NA    | NA    | NA    | NA    |
|               |                    |               |           | 2.5465   |          |          |        |        |       |       |       |       |       |       |       |       |
| Speed         | AgeOA              | 0.9342        | NA        | NA       | -        | NA       | NA     | 0.0078 | NA    | TRUE  |
|               |                    |               |           | 2.5465   |          |          |        |        |       |       |       |       |       |       |       |       |
| Speed         | AgeOA:Blck79Num2-  |               |           | NA       | NA       | 0.2378   | NA     | NA     | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    |
|               |                    |               |           | 1.8283   |          |          |        |        |       |       |       |       |       |       |       |       |
| Speed         | AgeOA:Blck602NuNA  |               |           | -        | NA       | NA       | 0.0000 | NA     | NA    | TRUE  | NA    | NA    | NA    | NA    | NA    | NA    |
|               |                    |               |           | 2.7967   |          |          |        |        |       |       |       |       |       |       |       |       |
| Speed         | AgeOA:Blck659NuNA  |               |           | NA       | -        | NA       | NA     | 0.0000 | NA    | TRUE  |
|               |                    |               |           | 2.7967   |          |          |        |        |       |       |       |       |       |       |       |       |
| Speed         | AgeOA:Blck479Num3- |               |           | NA       | NA       | 0.1853   | NA     | NA     | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    |
|               |                    |               |           | 2.0517   |          |          |        |        |       |       |       |       |       |       |       |       |
| Speed         | AgeOA:Blck602NuNA  |               |           | -        | NA       | NA       | 0.0000 | NA     | NA    | TRUE  | NA    | NA    | NA    | NA    | NA    | NA    |
|               |                    |               |           | 4.2191   |          |          |        |        |       |       |       |       |       |       |       |       |
| Speed         | AgeOA:Blck659NuNA  |               |           | NA       | -        | NA       | NA     | 0.0000 | NA    | TRUE  |
|               |                    |               |           | 4.2191   |          |          |        |        |       |       |       |       |       |       |       |       |
| Speed         | Block_Nh02464.3101 |               |           | NA       | NA       | 0.0001   | NA     | NA     | TRUE  | NA    |
| Speed         | Block_N03261       | NA            | 4.9339    | NA       | NA       | 0.0000   | NA     | NA     | NA    | TRUE  | NA    | NA    | NA    | NA    | NA    | NA    |
| Speed         | Block_N04250       | NA            | NA        | 4.9339   | NA       | NA       | 0.0000 | NA     | NA    | NA    | NA    | NA    | NA    | NA    | NA    | TRUE  |
| Speed         | Block_Nh03466.7913 |               |           | NA       | NA       | 0.0000   | NA     | NA     | TRUE  | NA    |
| Speed         | Block_N03961       | NA            | 8.3837    | NA       | NA       | 0.0000   | NA     | NA     | NA    | TRUE  | NA    | NA    | NA    | NA    | NA    | NA    |
| Speed         | Block_N04350       | NA            | NA        | 8.3837   | NA       | NA       | 0.0000 | NA     | NA    | NA    | NA    | NA    | NA    | NA    | NA    | TRUE  |
| Teleportation | AgeOA              | 18.72580.7333 |           | NA       | NA       | 0.1010   | NA     | NA     | NA    | FALSE | NA    | NA    | NA    | NA    | NA    | NA    |
| Teleportation | AgeOA              | 8.4503        | NA        | 35.6917  | NA       | NA       | 0.0000 | NA     | NA    | TRUE  | NA    | NA    | NA    | NA    | NA    | NA    |
| Teleportation | AgeOA              | 8.5852        | NA        | NA       | 35.6917  | NA       | NA     | 0.0001 | NA    | TRUE  |
| Teleportation | AgeOA:Blck295Num2- |               |           | NA       | NA       | 0.4850   | NA     | NA     | NA    | FALSE | NA    | NA    | NA    | NA    | NA    | NA    |
|               |                    |               |           | 17.6667  |          |          |        |        |       |       |       |       |       |       |       |       |
| Teleportation | AgeOA:Blck598NuNA  |               |           | -        | NA       | NA       | 0.7209 | NA     | NA    | FALSE | NA    | NA    | NA    | NA    | NA    | NA    |
|               |                    |               |           | 3.2375   |          |          |        |        |       |       |       |       |       |       |       |       |
| Teleportation | AgeOA:Blck326NuNA  |               |           | NA       | -        | NA       | NA     | 0.7315 | NA    | FALSE |
|               |                    |               |           | 3.2375   |          |          |        |        |       |       |       |       |       |       |       |       |
| Teleportation | AgeOA:Blck295Num3- |               |           | NA       | NA       | 0.3251   | NA     | NA     | NA    | FALSE | NA    | NA    | NA    | NA    | NA    | NA    |
|               |                    |               |           | 24.9000  |          |          |        |        |       |       |       |       |       |       |       |       |
| Teleportation | AgeOA:Blck598NuNA  |               |           | -        | NA       | NA       | 0.3256 | NA     | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    |
|               |                    |               |           | 8.9083   |          |          |        |        |       |       |       |       |       |       |       |       |
| Teleportation | AgeOA:Blck326NuNA  |               |           | NA       | -        | NA       | NA     | 0.3451 | NA    | FALSE |
|               |                    |               |           | 8.9083   |          |          |        |        |       |       |       |       |       |       |       |       |
| Teleportation | Block_Nh02866      | -             |           | NA       | NA       | 0.5498   | NA     | NA     | NA    | FALSE | NA    | NA    | NA    | NA    | NA    | NA    |
|               |                    |               |           | 10.7000  |          |          |        |        |       |       |       |       |       |       |       |       |
| Teleportation | Block_N61462       | NA            | -         | NA       | NA       | 0.0003   | NA     | NA     | NA    | TRUE  | NA    | NA    | NA    | NA    | NA    | NA    |
|               |                    |               |           | 23.2500  |          |          |        |        |       |       |       |       |       |       |       |       |
| Teleportation | Block_N616298      | NA            | NA        | -        | NA       | NA       | 0.0005 | NA     | NA    | NA    | NA    | NA    | NA    | NA    | NA    | TRUE  |
|               |                    |               |           | 23.2500  |          |          |        |        |       |       |       |       |       |       |       |       |
| Teleportation | Block_Nh02866      | -             |           | NA       | NA       | 0.5289   | NA     | NA     | NA    | FALSE | NA    | NA    | NA    | NA    | NA    | NA    |
|               |                    |               |           | 11.2667  |          |          |        |        |       |       |       |       |       |       |       |       |
| Teleportation | Block_N61462       | NA            | -         | NA       | NA       | 0.0000   | NA     | NA     | NA    | TRUE  | NA    | NA    | NA    | NA    | NA    | NA    |
|               |                    |               |           | 27.5208  |          |          |        |        |       |       |       |       |       |       |       |       |
| Teleportation | Block_N616298      | NA            | NA        | -        | NA       | NA       | 0.0000 | NA     | NA    | NA    | TRUE  | NA    | NA    | NA    | NA    | NA    |
|               |                    |               |           | 27.5208  |          |          |        |        |       |       |       |       |       |       |       |       |

| DV         | term               | estimate | std.error | Model 1 | Model 2 | Model 3 | p       | Model 1 | Model 2 | Model 3 | Significant | Model 1 | Model 2 | Model 3 | Model |
|------------|--------------------|----------|-----------|---------|---------|---------|---------|---------|---------|---------|-------------|---------|---------|---------|-------|
| Total_Time | AgeOA              | 18.179   | 65.9350   | NA      | NA      | NA      | 0.0003  | NA      | NA      | NA      | TRUE        | NA      | NA      | NA      | NA    |
| Total_Time | AgeOA              | 8.2233   | NA        | 57.2813 | NA      | NA      | NA      | 0.0000  | NA      | NA      | NA          | TRUE    | NA      | NA      | NA    |
| Total_Time | AgeOA              | 8.3399   | NA        | NA      | NA      | NA      | 57.2813 | NA      | NA      | NA      | 0.0000      | NA      | NA      | NA      | TRUE  |
| Total_Time | AgeOA:Block52Num2  | NA       | NA        | NA      | NA      | NA      | 0.0783  | NA      | NA      | NA      | FALSE       | NA      | NA      | NA      | NA    |
|            |                    |          |           | 43.2667 |         |         |         |         |         |         |             |         |         |         |       |
| Total_Time | AgeOA:Block249Num2 | -        | 18.3907   | NA      | NA      | NA      | 0.0373  | NA      | NA      | NA      | TRUE        | NA      | NA      |         |       |
| Total_Time | AgeOA:Block73Num2  | NA       | -         | NA      | NA      | NA      | NA      | 0.0446  | NA      | NA      | NA          | NA      | TRUE    |         |       |
| Total_Time | AgeOA:Block52Num3  | NA       | 18.3907   | NA      | NA      | NA      | 0.0265  | NA      | NA      | NA      | TRUE        | NA      | NA      |         |       |
| Total_Time | AgeOA:Block249Num3 | NA       | 54.5233   | NA      | NA      | NA      | 0.0014  | NA      | NA      | NA      | TRUE        | NA      | NA      |         |       |
| Total_Time | AgeOA:Block73Num3  | -        | 28.1996   | NA      | NA      | NA      | NA      | 0.0021  | NA      | NA      | TRUE        | NA      |         |         |       |
| Total_Time | Block_N1n3609      | -        | 27.4190   | NA      | NA      | NA      | 0.1145  | NA      | NA      | NA      | FALSE       | NA      | NA      |         |       |
| Total_Time | Block_N6n202       | NA       | -         | 32.7190 | NA      | NA      | NA      | 0.0000  | NA      | NA      | NA          | TRUE    | NA      |         |       |
| Total_Time | Block_N6n181       | NA       | NA        | -       | NA      | NA      | NA      | 0.0000  | NA      | NA      | NA          | NA      | TRUE    |         |       |
| Total_Time | Block_N1n3609      | -        | 31.7588   | NA      | NA      | NA      | 0.0676  | NA      | NA      | NA      | FALSE       | NA      | NA      |         |       |
| Total_Time | Block_N6n202       | NA       | -         | 38.9157 | NA      | NA      | NA      | 0.0000  | NA      | NA      | NA          | TRUE    | NA      |         |       |
| Total_Time | Block_N6n181       | NA       | NA        | -       | 38.9157 | NA      | NA      | 0.0000  | NA      | NA      | NA          | TRUE    |         |         |       |

## Visualization of Effect Consistency

```
# Plot showing how estimates change across models for key effects
if(nrow(detailed_comparison) > 0) {

  # Age effects plot
  age_effects <- detailed_comparison %>%
    filter(term == "AgeOA")

  if(nrow(age_effects) > 0) {
    age_plot <- ggplot(age_effects, aes(x = Model, y = estimate, color = significant)) +
      geom_point(size = 3) +
      geom_line(aes(group = DV), alpha = 0.5) +
      geom_hline(yintercept = 0, linetype = "dashed", color = "gray") +
      facet_wrap(~DV, scales = "free_y", ncol = 4) +
      scale_color_manual(values = c("TRUE" = "red", "FALSE" = "black")) +
      labs(
        title = "Age Effect Consistency Across Models",
        subtitle = "Lines connect the same variable across models",
        y = "Effect Size (Beta Coefficient)",
        x = "Model",
      )
  }
}
```

```

        color = "Significant"
    ) +
    theme_minimal() +
    theme(axis.text.x = element_text(angle = 45, hjust = 1))

    print(age_plot)
}

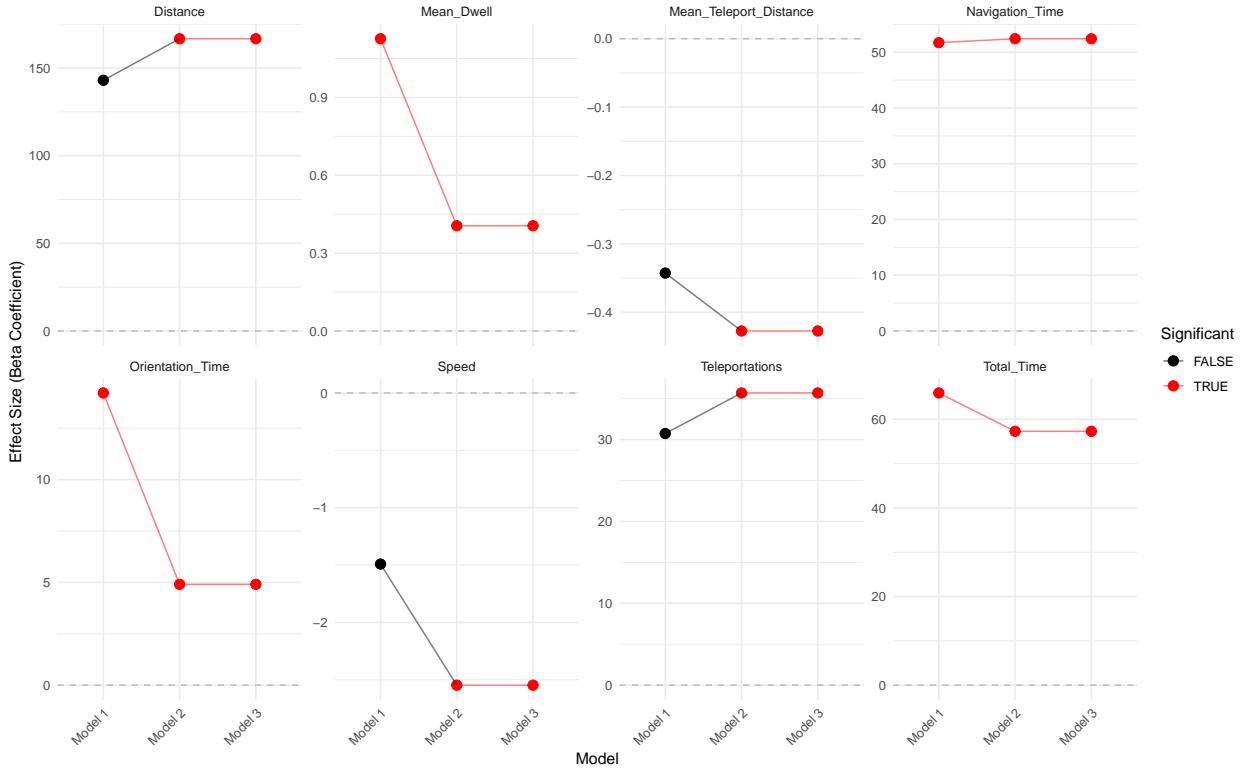
# Block effects plot (Block 2 vs Block 1)
block2_effects <- detailed_comparison %>%
  filter(term == "Block_Num2")

if(nrow(block2_effects) > 0) {
  block_plot <- ggplot(block2_effects, aes(x = Model, y = estimate, color = significant)) +
    geom_point(size = 3) +
    geom_line(aes(group = DV), alpha = 0.5) +
    geom_hline(yintercept = 0, linetype = "dashed", color = "gray") +
    facet_wrap(~DV, scales = "free_y", ncol = 4) +
    scale_color_manual(values = c("TRUE" = "red", "FALSE" = "black")) +
    labs(
      title = "Block 2 Effect Consistency Across Models",
      subtitle = "Lines connect the same variable across models",
      y = "Effect Size (Beta Coefficient)",
      x = "Model",
      color = "Significant"
    ) +
    theme_minimal() +
    theme(axis.text.x = element_text(angle = 45, hjust = 1))

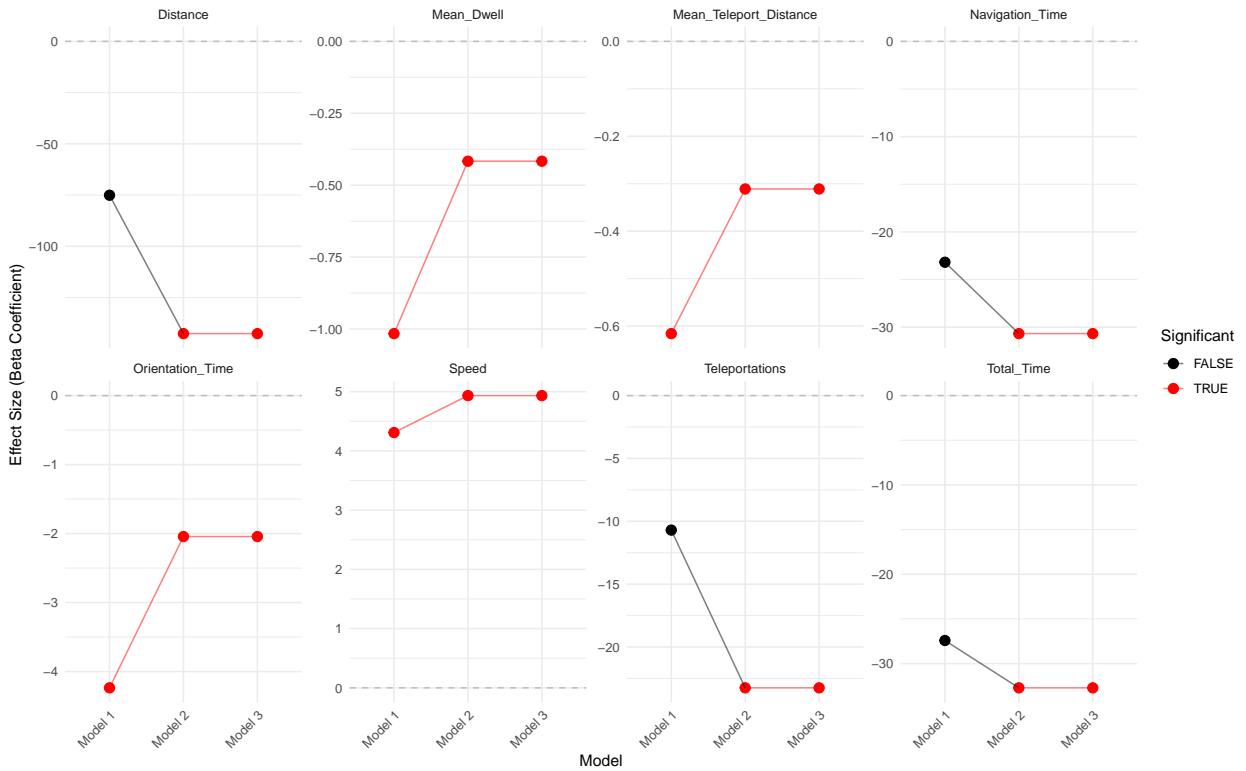
  print(block_plot)
}
}

```

**Age Effect Consistency Across Models**  
Lines connect the same variable across models



**Block 2 Effect Consistency Across Models**  
Lines connect the same variable across models



## Interaction Effects Analysis

```
# Focus on interaction effects and how they vary across models
interaction_effects <- all_effects_combined %>%
  filter(grepl(":", term)) %>% # Interaction terms contain ":"%
  group_by(DV, term) %>%
  summarise(
    n_models_present = n(),
    models_present = paste(Model, collapse = ", "),
    significant_in_models = paste(Model[significant], collapse = ", "),
    min_p = min(p.value),
    max_p = max(p.value),
    min_estimate = min(estimate),
    max_estimate = max(estimate),
    .groups = 'drop'
  ) %>%
  arrange(DV, term)

cat("Interaction effects across models:\n")
```

## Interaction effects across models:

```
kable(interaction_effects, digits = 4)
```

| DV       | term  | n_models | models present                  | significant_in_models | max_p                        | min_p   | max_estimate | min_estimate    |
|----------|---|----------|---------------------------------|-----------------------|------------------------------|---------|--------------|-----------------|
| Distance | AgeOA:Block_Num2                              | 3        | Model 1,<br>Model 2,<br>Model 3 |                       | 0.56950.7731                 | -       | -            | 73.2785 14.0722 |
| Distance | AgeOA:Block_Num2:Target_NaimeModel 1          |          |                                 |                       | 0.94540.9454                 | -       | -            | 12.4690 12.4690 |
| Distance | AgeOA:Block_Num2:Target_NaimeModel Station    |          |                                 |                       | 0.17690.1769246.1207246.1207 |         |              |                 |
| Distance | AgeOA:Block_Num2:Target_NaimeModel School     |          |                                 |                       | 0.73020.730262.8307          | 62.8307 |              |                 |
| Distance | AgeOA:Block_Num2:Target_NaimeModel Shop       |          |                                 |                       | 0.94540.945412.4849          | 12.4849 |              |                 |
| Distance | AgeOA:Block_Num2:Target_NaimeModel station    |          |                                 |                       | 0.80850.808544.1634          | 44.1634 |              |                 |
| Distance | AgeOA:Block_Num2:Target_NaimeModel station    |          |                                 |                       | 0.75070.750757.8983          | 57.8983 |              |                 |
| Distance | AgeOA:Block_Num2:Target_NaimeModel Restaurant |          |                                 |                       | 0.73110.731162.6217          | 62.6217 |              |                 |
| Distance | AgeOA:Block_Num3                              | 3        | Model 1,<br>Model 2,<br>Model 3 |                       | 0.30970.3802                 | -       | -            | 113.077946.9149 |
| Distance | AgeOA:Block_Num3:Target_NaimeModel 1          |          |                                 |                       | 0.41240.4124149.3606149.3606 |         |              |                 |
| Distance | AgeOA:Block_Num3:Target_NaimeModel Station    |          |                                 |                       | 0.29300.2930191.6352191.6352 |         |              |                 |
| Distance | AgeOA:Block_Num3:Target_NaimeModel School     |          |                                 |                       | 0.79080.7908                 | -       | -            | 48.3260 48.3260 |
| Distance | AgeOA:Block_Num3:Target_NaimeModel Shop       |          |                                 |                       | 0.75940.759455.7930          | 55.7930 |              |                 |

| DV         | term                                  | n_models | models                          | present    | significant | in | models | max                  | min          | estimate | estimate |
|------------|---------------------------------------|----------|---------------------------------|------------|-------------|----|--------|----------------------|--------------|----------|----------|
| Distance   | AgeOA:Block_Num3:Target_NamePolice    | Model 1  |                                 |            |             |    |        | 0.88490.884926.3840  | 26.3840      |          |          |
| Distance   | AgeOA:Block_Num3:Target_NamePolice    | Model 1  | station                         |            |             |    |        | 0.58250.5825100.1711 | 100.1711     |          |          |
| Distance   | AgeOA:Block_Num3:Target_NameQuattroki | Model 1  | Restaurant                      |            |             |    |        | 0.76570.765754.2859  | 54.2859      |          |          |
| Distance   | AgeOA:Target_NameBank                 | 1        | Model 1                         |            |             |    |        | 0.24510.2451149.7894 | 149.7894     |          |          |
| Distance   | AgeOA:Target_NameFire                 | 1        | Model 1                         | Station    |             |    |        | 0.20120.2012         | -            | -        |          |
| Distance   | AgeOA:Target_NameHigh                 | 1        | Model 1                         | School     |             |    |        |                      | 164.7318     | 164.7318 |          |
| Distance   | AgeOA:Target_NamePawn                 | 1        | Model 1                         | Shop       |             |    |        | 0.86640.866421.6808  | 21.6808      |          |          |
| Distance   | AgeOA:Target_NamePizzeria             | 1        | Model 1                         |            |             |    |        | 0.68760.6876         | -            | -        |          |
| Distance   | AgeOA:Target_NamePolice               | 1        | Model 1                         | station    |             |    |        | 0.98960.9896         | -            | -        |          |
| Distance   | AgeOA:Target_NameQuattroki            | 1        | Model 1                         | Restaurant |             |    |        |                      | 1.6789       | 1.6789   |          |
| Distance   | Block_Num2:Target_NameBank            | Model 1  |                                 |            |             |    |        | 0.17090.1709         | -            | -        |          |
| Distance   | Block_Num2:Target_NameFire            | 1        | Model 1                         | Station    |             |    |        | 0.77530.7753         | -            | -        |          |
| Distance   | Block_Num2:Target_NameHigh            | 1        | Model 1                         | School     |             |    |        |                      | 36.7683      | 36.7683  |          |
| Distance   | Block_Num2:Target_NamePawn            | 1        | Model 1                         | Shop       |             |    |        | 0.71630.716346.8195  | 46.8195      |          |          |
| Distance   | Block_Num2:Target_NamePizzeria        | Model 1  |                                 |            |             |    |        | 0.98170.9817         | -            | -        |          |
| Distance   | Block_Num2:Target_NamePolice          | Model 1  | station                         |            |             |    |        |                      | 2.9478       | 2.9478   |          |
| Distance   | Block_Num2:Target_NameQuattroki       | Model 1  | Restaurant                      |            |             |    |        | 0.96130.9613         | -            | -        |          |
| Distance   | Block_Num3:Target_NameBank            | Model 1  |                                 |            |             |    |        |                      | 6.2438       | 6.2438   |          |
| Distance   | Block_Num3:Target_NameFire            | 1        | Model 1                         | Station    |             |    |        | 0.88330.8833         | -            | -        |          |
| Distance   | Block_Num3:Target_NameHigh            | 1        | Model 1                         | School     |             |    |        |                      | 18.9040      | 18.9040  |          |
| Distance   | Block_Num3:Target_NamePawn            | 1        | Model 1                         | Shop       |             |    |        | 0.00740.0074         | -            | -        |          |
| Distance   | Block_Num3:Target_NamePizzeria        | Model 1  |                                 |            |             |    |        |                      | 345.7598     | 345.7598 |          |
| Distance   | Block_Num3:Target_NamePolice          | Model 1  | station                         |            |             |    |        | 0.02900.0290         | -            | -        |          |
| Distance   | Block_Num3:Target_NameQuattroki       | Model 1  | Restaurant                      |            |             |    |        |                      | 281.5686     | 281.5686 |          |
| Mean_Dwell | AgeOA:Block_Num2                      | 3        | Model 1,<br>Model 2,<br>Model 3 |            |             |    |        | 0.67970.6797         | -            | -        |          |
| Mean_Dwell | AgeOA:Block_Num2:Target_NameBank      | Model 1  |                                 |            |             |    |        |                      | 53.1890      | 53.1890  |          |
| Mean_Dwell | AgeOA:Block_Num2:Target_NameFire      | Model 1  | Station                         |            |             |    |        | 0.72820.728244.7804  | 44.7804      |          |          |
| Mean_Dwell | AgeOA:Block_Num2:Target_NameHigh      | Model 1  | School                          |            |             |    |        |                      |              |          |          |
| Mean_Dwell | AgeOA:Block_Num2:Target_NamePawn      | Model 1  | Shop                            |            |             |    |        | 0.81860.8186         | -            | -        |          |
| Mean_Dwell | AgeOA:Block_Num2:Target_NamePizzeria  | Model 1  |                                 |            |             |    |        |                      | 29.5418      | 29.5418  |          |
| Mean_Dwell | AgeOA:Block_Num2:Target_NamePolice    | Model 1  | station                         |            |             |    |        | 0.93190.931911.0143  | 11.0143      |          |          |
| Mean_Dwell | AgeOA:Block_Num2:Target_NameQuattroki | Model 1  | Restaurant                      |            |             |    |        |                      | 0.68820.6882 | -        | -        |
| Mean_Dwell | AgeOA:Block_Num3                      | Model 1  |                                 |            |             |    |        |                      |              | 51.6975  | 51.6975  |
| Mean_Dwell | AgeOA:Block_Num3:Target_NameBank      | Model 1  |                                 |            |             |    |        | 0.01100.0110         | -            | -        |          |
| Mean_Dwell | AgeOA:Block_Num3:Target_NameFire      | Model 1  | Station                         |            |             |    |        |                      | 327.9119     | 327.9119 |          |
| Mean_Dwell | AgeOA:Block_Num3:Target_NameHigh      | Model 1  | School                          |            |             |    |        | 0.18220.18220.3493   | 0.3493       |          |          |
| Mean_Dwell | AgeOA:Block_Num3:Target_NamePawn      | Model 1  | Shop                            |            |             |    |        |                      |              |          |          |
| Mean_Dwell | AgeOA:Block_Num3:Target_NamePizzeria  | Model 1  |                                 |            |             |    |        |                      |              |          |          |
| Mean_Dwell | AgeOA:Block_Num3:Target_NamePolice    | Model 1  | station                         |            |             |    |        |                      |              |          |          |
| Mean_Dwell | AgeOA:Block_Num3:Target_NameQuattroki | Model 1  | Restaurant                      |            |             |    |        |                      |              |          |          |

| DV         | term   | n_models | models                          | present | significant            | in_models | max    | min | estimate | estimate |
|------------|--|----------|---------------------------------|---------|------------------------|-----------|--------|-----|----------|----------|
| Mean_Dwell | AgeOA:Block_Num2:Target_NameHigh School          |          | Model 1                         |         | 0.01330.01330.6488     |           | 0.6488 |     |          |          |
| Mean_Dwell | AgeOA:Block_Num2:Target_NameShop                 |          | Model 1                         |         | 0.03270.03270.5594     |           | 0.5594 |     |          |          |
| Mean_Dwell | AgeOA:Block_Num2:Target_NamePizzeria             |          | Model 1                         |         | 0.00840.00840.6903     |           | 0.6903 |     |          |          |
| Mean_Dwell | AgeOA:Block_Num2:Target_NamePolice station       |          | Model 1                         |         | 0.10920.10920.4195     |           | 0.4195 |     |          |          |
| Mean_Dwell | AgeOA:Block_Num2:Target_NameQuattroki Restaurant |          | Model 1                         |         | 0.01270.01270.6530     |           | 0.6530 |     |          |          |
| Mean_Dwell | AgeOA:Block_Num3                                 | 3        | Model 1,<br>Model 2,<br>Model 3 |         | 0.00000.0045<br>0.8442 |           | -      |     |          | 0.2168   |
| Mean_Dwell | AgeOA:Block_Num3:Target_NameBank                 |          | Model 1                         |         | 0.00450.00450.7443     |           | 0.7443 |     |          |          |
| Mean_Dwell | AgeOA:Block_Num3:Target_NameFire Station         |          | Model 1                         |         | 0.05260.05260.5077     |           | 0.5077 |     |          |          |
| Mean_Dwell | AgeOA:Block_Num3:Target_NameHigh School          |          | Model 1                         |         | 0.00300.00300.7789     |           | 0.7789 |     |          |          |
| Mean_Dwell | AgeOA:Block_Num3:Target_NameShop                 |          | Model 1                         |         | 0.00800.00800.6951     |           | 0.6951 |     |          |          |
| Mean_Dwell | AgeOA:Block_Num3:Target_NamePizzeria             |          | Model 1                         |         | 0.00060.00060.9024     |           | 0.9024 |     |          |          |
| Mean_Dwell | AgeOA:Block_Num3:Target_NamePolice station       |          | Model 1                         |         | 0.02650.02650.5813     |           | 0.5813 |     |          |          |
| Mean_Dwell | AgeOA:Block_Num3:Target_NameQuattroki Restaurant |          | Model 1                         |         | 0.00200.00200.8094     |           | 0.8094 |     |          |          |
| Mean_Dwell | AgeOA:Target_NameBank                            | 1        | Model 1                         |         | 0.00000.0000<br>0.8861 |           | -      |     |          | 0.8861   |
| Mean_Dwell | AgeOA:Target_NameFire Station                    | 1        | Model 1                         |         | 0.00210.0021<br>0.5713 |           | -      |     |          | 0.5713   |
| Mean_Dwell | AgeOA:Target_NameHigh School                     | 1        | Model 1                         |         | 0.00000.0000<br>0.9110 |           | -      |     |          | 0.9110   |
| Mean_Dwell | AgeOA:Target_NamePawn Shop                       | 1        | Model 1                         |         | 0.00000.0000<br>0.7858 |           | -      |     |          | 0.7858   |
| Mean_Dwell | AgeOA:Target_NamePizzeria                        | 1        | Model 1                         |         | 0.00000.0000<br>0.9708 |           | -      |     |          | 0.9708   |
| Mean_Dwell | AgeOA:Target_NamePolice station                  | 1        | Model 1                         |         | 0.00010.0001<br>0.7155 |           | -      |     |          | 0.7155   |
| Mean_Dwell | AgeOA:Target_NameQuattroki Restaurant            | 1        | Model 1                         |         | 0.00000.0000<br>0.9259 |           | -      |     |          | 0.9259   |
| Mean_Dwell | Block_Num2:Target_NameBank                       |          | Model 1                         |         | 0.00090.00090.6136     |           | 0.6136 |     |          |          |
| Mean_Dwell | Block_Num2:Target_NameFire 1 Station             |          | Model 1                         |         | 0.00010.00010.7130     |           | 0.7130 |     |          |          |
| Mean_Dwell | Block_Num2:Target_NameHigh1 School               |          | Model 1                         |         | 0.00000.00000.8534     |           | 0.8534 |     |          |          |
| Mean_Dwell | Block_Num2:Target_NamePawn1 Shop                 |          | Model 1                         |         | 0.00000.00000.8094     |           | 0.8094 |     |          |          |
| Mean_Dwell | Block_Num2:Target_NamePizzeria                   |          | Model 1                         |         | 0.00030.00030.6712     |           | 0.6712 |     |          |          |
| Mean_Dwell | Block_Num2:Target_NamePolice station             |          | Model 1                         |         | 0.01490.01490.4513     |           | 0.4513 |     |          |          |
| Mean_Dwell | Block_Num2:Target_NameQuattroki Restaurant       |          | Model 1                         |         | 0.00020.00020.6849     |           | 0.6849 |     |          |          |
| Mean_Dwell | Block_Num3:Target_NameBank                       |          | Model 1                         |         | 0.00000.00000.8120     |           | 0.8120 |     |          |          |

| DV   | term | n_models                        | models              | present                | significant | in_models | max    | min    | estimate | estimate |
|--|------|---------------------------------|---------------------|------------------------|-------------|-----------|--------|--------|----------|----------|
| Mean_Dwell Block_Num3:Target_NameFire Station                | 1    | Model 1                         | Model 1             | 0.00000.00000.8363     | 0.8363      |           |        |        |          |          |
| Mean_Dwell Block_Num3:Target_NameHigh School                 | 1    | Model 1                         | Model 1             | 0.00000.00001.0891     | 1.0891      |           |        |        |          |          |
| Mean_Dwell Block_Num3:Target_NamePaw1 Shop                   | 1    | Model 1                         | Model 1             | 0.00000.00000.9361     | 0.9361      |           |        |        |          |          |
| Mean_Dwell Block_Num3:Target_NamePizzeria                    | 1    | Model 1                         | Model 1             | 0.00010.00010.7496     | 0.7496      |           |        |        |          |          |
| Mean_Dwell Block_Num3:Target_NamePolice station              | 1    | Model 1                         | Model 1             | 0.00080.00080.6234     | 0.6234      |           |        |        |          |          |
| Mean_Dwell Block_Num3:Target_NameQuattro Restaurant          | 1    | Model 1                         | Model 1             | 0.00000.00000.8585     | 0.8585      |           |        |        |          |          |
| Mean_TeleportAgeDiAtBloek_Num2                               | 3    | Model 1,<br>Model 2,<br>Model 3 |                     | 0.08260.9644<br>0.1165 | -           | 0.0082    |        |        |          |          |
| Mean_TeleportAgeDiAtBloek_Num2:Target_NameBank               | 1    | Model 1                         | Model 1             | 0.78280.7828<br>0.0718 | -           | -         | 0.0718 | 0.0718 |          |          |
| Mean_TeleportAgeDiAtBloek_Num2:Target_NameFire Station       | 1    | Model 1                         | Model 1             | 0.36400.36400.2366     | 0.2366      |           |        |        |          |          |
| Mean_TeleportAgeDiAtBloek_Num2:Target_NameHigh School        | 1    | Model 1                         | Model 1             | 0.35550.3555<br>0.2409 | -           | -         | 0.2409 | 0.2409 |          |          |
| Mean_TeleportAgeDiAtBloek_Num2:Target_NamePaw1 Shop          | 1    | Model 1                         | Model 1             | 0.73110.7311<br>0.0896 | -           | -         | 0.0896 | 0.0896 |          |          |
| Mean_TeleportAgeDiAtBloek_Num2:Target_NamePizzeria           | 1    | Model 1                         | Model 1             | 0.35930.3593<br>0.2389 | -           | -         | 0.2389 | 0.2389 |          |          |
| Mean_TeleportAgeDiAtBloek_Num2:Target_NamePolice station     | 1    | Model 1                         | Model 1             | 0.12090.1209<br>0.4044 | -           | -         | 0.4044 | 0.4044 |          |          |
| Mean_TeleportAgeDiAtBloek_Num2:Target_NameQuattro Restaurant | 1    | Model 1                         | Model 1             | 0.46800.4680<br>0.1892 | -           | -         | 0.1892 | 0.1892 |          |          |
| Mean_TeleportAgeDiAtBloek_Num3                               | 3    | Model 1,<br>Model 2,<br>Model 3 | Model 2,<br>Model 3 | 0.00190.5926<br>0.2083 | -           | -         | -      | -      | 0.0986   |          |
| Mean_TeleportAgeDiAtBloek_Num3:Target_NameBank               | 1    | Model 1                         | Model 1             | 0.50890.5089<br>0.1722 | -           | -         | 0.1722 | 0.1722 |          |          |
| Mean_TeleportAgeDiAtBloek_Num3:Target_NameFire Station       | 1    | Model 1                         | Model 1             | 0.69130.69130.1035     | 0.1035      |           |        |        |          |          |
| Mean_TeleportAgeDiAtBloek_Num3:Target_NameHigh School        | 1    | Model 1                         | Model 1             | 0.88950.8895<br>0.0362 | -           | -         | 0.0362 | 0.0362 |          |          |
| Mean_TeleportAgeDiAtBloek_Num3:Target_NamePaw1 Shop          | 1    | Model 1                         | Model 1             | 0.49900.4990<br>0.1762 | -           | -         | 0.1762 | 0.1762 |          |          |
| Mean_TeleportAgeDiAtBloek_Num3:Target_NamePizzeria           | 1    | Model 1                         | Model 1             | 0.20600.2060<br>0.3297 | -           | -         | 0.3297 | 0.3297 |          |          |
| Mean_TeleportAgeDiAtBloek_Num3:Target_NamePolice station     | 1    | Model 1                         | Model 1             | 0.12670.1267<br>0.3982 | -           | -         | 0.3982 | 0.3982 |          |          |
| Mean_TeleportAgeDiAtBloek_Num3:Target_NameQuattro Restaurant | 1    | Model 1                         | Model 1             | 0.61340.61340.1317     | 0.1317      |           |        |        |          |          |
| Mean_TeleportAgeDiAtTarget_NameBank                          | 1    | Model 1                         | Model 1             | 0.20410.2041<br>0.2341 | -           | -         | 0.2341 | 0.2341 |          |          |
| Mean_TeleportAgeDiAtTarget_NameFire Station                  | 1    | Model 1                         | Model 1             | 0.57440.5744<br>0.1035 | -           | -         | 0.1035 | 0.1035 |          |          |
| Mean_TeleportAgeDiAtTarget_NameHigh School                   | 1    | Model 1                         | Model 1             | 0.84020.8402<br>0.0372 | -           | -         | 0.0372 | 0.0372 |          |          |

| DV                         | term                     | n_models | models                          | present             | significant | in_models | max     | min     | estimate | estimate |
|----------------------------|--------------------------|----------|---------------------------------|---------------------|-------------|-----------|---------|---------|----------|----------|
| Mean_Teleport_Age_Dist     | Target_NamePawn          | 1        | Model 1                         |                     | 0.3149      | 0.3149    | -       | -       |          |          |
| Shop                       |                          |          |                                 |                     | 0.1853      | 0.1853    |         |         |          |          |
| Mean_Teleport_Age_Dist     | Target_NamePizzeria      | 1        | Model 1                         |                     | 0.4872      | 0.4872    | -       | -       |          |          |
| Police                     |                          |          |                                 |                     | 0.1281      | 0.1281    |         |         |          |          |
| Mean_Teleport_Age_Dist     | Target_NamePolice        | 1        | Model 1                         |                     | 0.5853      | 0.5853    | 0.1006  | 0.1006  |          |          |
| station                    |                          |          |                                 |                     |             |           |         |         |          |          |
| Mean_Teleport_Age_Dist     | Target_NameQuattroki     | 1        | Model 1                         |                     | 0.6269      | 0.6269    | -       | -       |          |          |
| Restaurant                 |                          |          |                                 |                     | 0.0896      | 0.0896    |         |         |          |          |
| Mean_Teleport_Blo_Dist_Nee | 2:Target_NameBank        | Model 1  |                                 |                     | 0.3914      | 0.3914    | 0.1580  | 0.1580  |          |          |
| Mean_Teleport_Blo_Dist_Nee | 2:Target_NameFire        | Model 1  |                                 |                     | 0.3519      | 0.3519    | 0.1716  | 0.1716  |          |          |
| Station                    |                          |          |                                 |                     |             |           |         |         |          |          |
| Mean_Teleport_Blo_Dist_Nee | 2:Target_NameHigh1       | Model 1  | Model 1                         |                     | 0.0012      | 0.0012    | 0.5990  | 0.5990  |          |          |
| School                     |                          |          |                                 |                     |             |           |         |         |          |          |
| Mean_Teleport_Blo_Dist_Nee | 2:Target_NamePawn1       | Model 1  |                                 |                     | 0.3522      | 0.3522    | 0.1715  | 0.1715  |          |          |
| Shop                       |                          |          |                                 |                     |             |           |         |         |          |          |
| Mean_Teleport_Blo_Dist_Nee | 2:Target_NamePizzeria    | Model 1  | Model 1                         |                     | 0.0077      | 0.0077    | 0.4918  | 0.4918  |          |          |
| Mean_Teleport_Blo_Dist_Nee | 2:Target_NamePolice      | Model 1  | Model 1                         |                     | 0.1875      | 0.1875    | 0.2430  | 0.2430  |          |          |
| station                    |                          |          |                                 |                     |             |           |         |         |          |          |
| Mean_Teleport_Blo_Dist_Nee | 2:Target_NameQuattroki   | Model 1  | Model 1                         |                     | 0.0011      | 0.0011    | 0.6046  | 0.6046  |          |          |
| Restaurant                 |                          |          |                                 |                     |             |           |         |         |          |          |
| Mean_Teleport_Blo_Dist_Nee | 3:Target_NameBank        | Model 1  | Model 1                         |                     | 0.0282      | 0.0282    | 0.4048  | 0.4048  |          |          |
| Mean_Teleport_Blo_Dist_Nee | 3:Target_NameFire        | Model 1  | Model 1                         |                     | 0.0065      | 0.0065    | 0.5024  | 0.5024  |          |          |
| Station                    |                          |          |                                 |                     |             |           |         |         |          |          |
| Mean_Teleport_Blo_Dist_Nee | 3:Target_NameHigh1       | Model 1  | Model 1                         |                     | 0.0000      | 0.0000    | 0.7925  | 0.7925  |          |          |
| School                     |                          |          |                                 |                     |             |           |         |         |          |          |
| Mean_Teleport_Blo_Dist_Nee | 3:Target_NamePawn1       | Model 1  | Model 1                         |                     | 0.0058      | 0.0058    | 0.5091  | 0.5091  |          |          |
| Shop                       |                          |          |                                 |                     |             |           |         |         |          |          |
| Mean_Teleport_Blo_Dist_Nee | 3:Target_NamePizzeria    | Model 1  | Model 1                         |                     | 0.0000      | 0.0000    | 0.8432  | 0.8432  |          |          |
| Mean_Teleport_Blo_Dist_Nee | 3:Target_NamePolice      | Model 1  | Model 1                         |                     | 0.0761      | 0.0761    | 0.3271  | 0.3271  |          |          |
| station                    |                          |          |                                 |                     |             |           |         |         |          |          |
| Mean_Teleport_Blo_Dist_Nee | 3:Target_NameQuattroki   | Model 1  | Model 1                         |                     | 0.0000      | 0.0000    | 0.8101  | 0.8101  |          |          |
| Restaurant                 |                          |          |                                 |                     |             |           |         |         |          |          |
| Navigation_TypeOA          | :Block_Num2              | 3        | Model 1,<br>Model 2,<br>Model 3 |                     | 0.0648      | 0.1834    | -       | -       |          |          |
|                            |                          |          |                                 |                     | 32.4801     | 32.4801   | 16.2043 |         |          |          |
| Navigation_TypeOA          | :Block_Num2:Target_NameB | Model 1  |                                 |                     | 0.8316      | 0.8316    | -       | -       |          |          |
|                            |                          |          |                                 |                     | 7.3405      | 7.3405    |         |         |          |          |
| Navigation_TypeOA          | :Block_Num2:Target_NameE | Model 1  |                                 |                     | 0.1274      | 0.1274    | 52.6354 | 52.6354 |          |          |
| Station                    |                          |          |                                 |                     |             |           |         |         |          |          |
| Navigation_TypeOA          | :Block_Num2:Target_NameH | Model 1  |                                 |                     | 0.4382      | 0.4382    | 26.7591 | 26.7591 |          |          |
| School                     |                          |          |                                 |                     |             |           |         |         |          |          |
| Navigation_TypeOA          | :Block_Num2:Target_NameM | Model 1  |                                 |                     | 0.7040      | 0.7040    | 13.1158 | 13.1158 |          |          |
| Shop                       |                          |          |                                 |                     |             |           |         |         |          |          |
| Navigation_TypeOA          | :Block_Num2:Target_NameP | Model 1  |                                 |                     | 0.4927      | 0.4927    | 23.6820 | 23.6820 |          |          |
|                            |                          |          |                                 |                     | 0.7056      | 0.7056    | 13.0402 | 13.0402 |          |          |
| Navigation_TypeOA          | :Block_Num2:Target_NameR | Model 1  |                                 |                     | 0.8096      | 0.8096    | 8.3144  | 8.3144  |          |          |
| Restaurant                 |                          |          |                                 |                     |             |           |         |         |          |          |
| Navigation_TypeOA          | :Block_Num3              | 3        | Model 1,<br>Model 2,<br>Model 3 | Model 2,<br>Model 3 | 0.0039      | 0.0767    | -       | -       |          |          |
|                            |                          |          |                                 |                     | 43.2255     | 43.2255   | 25.3262 |         |          |          |
| Navigation_TypeOA          | :Block_Num3:Target_NameB | Model 1  |                                 |                     | 0.6735      | 0.6735    | 14.5418 | 14.5418 |          |          |

| DV  | term    | n_models | models | present | significant | in | models | max     | min           | estimate | estimate |
|---|---------|----------|--------|---------|-------------|----|--------|---------|---------------|----------|----------|
| Navigation_TAgeOA:Block_Num3:Target_NameHigh1     | Model 1 |          |        |         |             |    |        | 0.15160 | 0.151649.5074 | 49.5074  |          |
| Station   |         |          |        |         |             |    |        |         |               |          |          |
| Navigation_TAgeOA:Block_Num3:Target_NameHigh1     | Model 1 |          |        |         |             |    |        | 0.80450 | 0.80458.5431  | 8.5431   |          |
| School  |         |          |        |         |             |    |        |         |               |          |          |
| Navigation_TAgeOA:Block_Num3:Target_NameHigh1     | Model 1 |          |        |         |             |    |        | 0.58420 | 0.584218.8897 | 18.8897  |          |
| Shop  |         |          |        |         |             |    |        |         |               |          |          |
| Navigation_TAgeOA:Block_Num3:Target_NameHigh1     | Model 1 |          |        |         |             |    |        | 0.40530 | 0.405328.7308 | 28.7308  |          |
| Pizzeria  |         |          |        |         |             |    |        | 0.67690 | 0.676914.3838 | 14.3838  |          |
| station   |         |          |        |         |             |    |        |         |               |          |          |
| Navigation_TAgeOA:Block_Num3:Target_NameQuattroki | Model 1 |          |        |         |             |    |        | 0.80330 | 0.80338.5974  | 8.5974   |          |
| Restaurant  |         |          |        |         |             |    |        |         |               |          |          |
| Navigation_TAgeOA:Target_NameBank                 | 1       | Model 1  |        |         |             |    |        | 0.08890 | 0.088941.5394 | 41.5394  |          |
| Navigation_TAgeOA:Target_NameFire                 | 1       | Model 1  |        |         |             |    |        | 0.05870 | 0.0587        | -        |          |
| Station   |         |          |        |         |             |    |        |         | 46.1741       | 46.1741  |          |
| Navigation_TAgeOA:Target_NameHigh1                | 1       | Model 1  |        |         |             |    |        | 0.67100 | 0.6710        | -        |          |
| School  |         |          |        |         |             |    |        |         | 10.3662       | 10.3662  |          |
| Navigation_TAgeOA:Target_NamePawn1                | 1       | Model 1  |        |         |             |    |        | 0.91710 | 0.91712.5391  | 2.5391   |          |
| Shop  |         |          |        |         |             |    |        |         |               |          |          |
| Navigation_TAgeOA:Target_NamePizzeria             | 1       | Model 1  |        |         |             |    |        | 0.28950 | 0.2895        | -        |          |
| Navigation_TAgeOA:Target_NamePolice               | 1       | Model 1  |        |         |             |    |        | 0.97720 | 0.9772        | -        |          |
| station   |         |          |        |         |             |    |        |         | 0.6983        | 0.6983   |          |
| Navigation_TAgeOA:Target_NameQuattroki            | 1       | Model 1  |        |         |             |    |        | 0.06740 | 0.067444.6730 | 44.6730  |          |
| Restaurant  |         |          |        |         |             |    |        |         |               |          |          |
| Navigation_TBlock_Num2:Target_NameBank1           | Model 1 |          |        |         |             |    |        | 0.35200 | 0.3520        | -        |          |
|   |         |          |        |         |             |    |        |         | 22.7201       | 22.7201  |          |
| Navigation_TBlock_Num2:Target_NameFire1           | Model 1 |          |        |         |             |    |        | 0.81540 | 0.8154        | -        |          |
| Station   |         |          |        |         |             |    |        |         | 5.6994        | 5.6994   |          |
| Navigation_TBlock_Num2:Target_NameHigh1           | Model 1 |          |        |         |             |    |        | 0.50920 | 0.509216.1133 | 16.1133  |          |
| School  |         |          |        |         |             |    |        |         |               |          |          |
| Navigation_TBlock_Num2:Target_NamePawn1           | Model 1 |          |        |         |             |    |        | 0.96910 | 0.96910.9440  | 0.9440   |          |
| Shop  |         |          |        |         |             |    |        |         |               |          |          |
| Navigation_TBlock_Num2:Target_NamePizzeria        | Model 1 |          |        |         |             |    |        | 0.90530 | 0.90532.9048  | 2.9048   |          |
| Navigation_TBlock_Num2:Target_NamePolice          | Model 1 |          |        |         |             |    |        | 0.95050 | 0.9505        | -        |          |
| station   |         |          |        |         |             |    |        |         | 1.5149        | 1.5149   |          |
| Navigation_TBlock_Num2:Target_NameQuattroki       | Model 1 |          |        |         |             |    |        | 0.04080 | 0.0408        | -        |          |
| Restaurant  |         |          |        |         |             |    |        |         | 49.9702       | 49.9702  |          |
| Navigation_TBlock_Num3:Target_NameBank1           | Model 1 |          |        |         |             |    |        | 0.15140 | 0.1514        | -        |          |
|   |         |          |        |         |             |    |        |         | 35.0290       | 35.0290  |          |
| Navigation_TBlock_Num3:Target_NameFire1           | Model 1 |          |        |         |             |    |        | 0.73790 | 0.7379        | -        |          |
| Station   |         |          |        |         |             |    |        |         | 8.1671        | 8.1671   |          |
| Navigation_TBlock_Num3:Target_NameHigh1           | Model 1 |          |        |         |             |    |        | 0.51790 | 0.517915.7819 | 15.7819  |          |
| School  |         |          |        |         |             |    |        |         |               |          |          |
| Navigation_TBlock_Num3:Target_NamePawn1           | Model 1 |          |        |         |             |    |        | 0.88620 | 0.8862        | -        |          |
| Shop  |         |          |        |         |             |    |        |         | 3.4945        | 3.4945   |          |
| Navigation_TBlock_Num3:Target_NamePizzeria        | Model 1 |          |        |         |             |    |        | 0.94330 | 0.94331.7360  | 1.7360   |          |
| Navigation_TBlock_Num3:Target_NamePolice          | Model 1 |          |        |         |             |    |        | 0.83060 | 0.8306        | -        |          |
| station   |         |          |        |         |             |    |        |         | 5.2222        | 5.2222   |          |
| Navigation_TBlock_Num3:Target_NameQuattroki       | Model 1 |          |        |         |             |    |        | 0.04580 | 0.0458        | -        |          |
| Restaurant  |         |          |        |         |             |    |        |         | 48.7795       | 48.7795  |          |

| DV  | term | n_models | models                          | present                         | significant                       | in_models             | max                    | min                    | estimate                          | estimate  |
|---|------|----------|---------------------------------|---------------------------------|-----------------------------------|-----------------------|------------------------|------------------------|-----------------------------------|---|
| Orientation_TipeOA:Block_Num2                     |      | 3        | Model 1,<br>Model 2,<br>Model 3 | Model 1,<br>Model 2,<br>Model 3 | 0.00000.0012<br>10.7866<br>2.2361 | -<br>9.5775<br>8.3645 | -<br>12.5555<br>9.7997 | -<br>10.6988<br>6.6855 | -<br>10.7887<br>11.2978<br>2.9230 | -<br>9.9775<br>8.1416<br>11.6918<br>9.2564<br>12.2949<br>5.5264<br>10.1758<br>11.3041<br>8.8841<br>12.5518<br>10.3572<br>12.8717<br>7.1648<br>11.4181<br>0.11870.11872.7999<br>0.08540.08543.0872<br>0.24080.24082.1047<br>0.03790.03798.7261<br>0.07310.07313.2164 |
| Orientation_TipeOA:Block_Num2:Target_NameBank1    |      | Model 1  |                                 |                                 |                                   |                       |                        |                        |                                   |   |
| Orientation_TipeOA:Block_Num2:Target_NameFire1    |      | Model 1  |                                 |                                 |                                   |                       |                        |                        |                                   |   |
| Orientation_TipeOA:Block_Num2:Target_NameHigh1    |      | Model 1  |                                 |                                 |                                   |                       |                        |                        |                                   |   |
| Orientation_TipeOA:Block_Num2:Target_NamePawn1    |      | Model 1  |                                 |                                 |                                   |                       |                        |                        |                                   |   |
| Orientation_TipeOA:Block_Num2:Target_NamePizzeria |      | Model 1  |                                 |                                 |                                   |                       |                        |                        |                                   |   |
| Orientation_TipeOA:Block_Num2:Target_NamePolice1  |      | Model 1  |                                 |                                 |                                   |                       |                        |                        |                                   |   |
| Orientation_TipeOA:Target_NameBank                | 1    | Model 1  |                                 |                                 |                                   |                       |                        |                        |                                   |   |
| Orientation_TipeOA:Target_NameFire                | 1    | Model 1  |                                 |                                 |                                   |                       |                        |                        |                                   |   |
| Orientation_TipeOA:Target_NameHigh                | 1    | Model 1  |                                 |                                 |                                   |                       |                        |                        |                                   |   |
| Orientation_TipeOA:Target_NamePawn                | 1    | Model 1  |                                 |                                 |                                   |                       |                        |                        |                                   |   |
| Orientation_TipeOA:Target_NamePizzeria            | 1    | Model 1  |                                 |                                 |                                   |                       |                        |                        |                                   |   |
| Orientation_TipeOA:Target_NamePolice              | 1    | Model 1  |                                 |                                 |                                   |                       |                        |                        |                                   |   |
| Orientation_TipeOA:Target_NameQuattroki           | 1    | Model 1  |                                 |                                 |                                   |                       |                        |                        |                                   |   |
| Orientation_Block_Num2:Target_NameBank1           |      | Model 1  |                                 |                                 |                                   |                       |                        |                        |                                   |   |
| Orientation_Block_Num2:Target_NameFire1           |      | Model 1  |                                 |                                 |                                   |                       |                        |                        |                                   |   |
| Orientation_Block_Num2:Target_NameHigh1           |      | Model 1  |                                 |                                 |                                   |                       |                        |                        |                                   |   |
| Orientation_Block_Num2:Target_NamePawn1           |      | Model 1  |                                 |                                 |                                   |                       |                        |                        |                                   |   |
| Orientation_Block_Num2:Target_NamePizzeria        |      | Model 1  |                                 |                                 |                                   |                       |                        |                        |                                   |   |

| DV          | term   | n_models | models                          | present             | significant            | in      | models             | max    | min | estimate | estimate |
|-------------|--|----------|---------------------------------|---------------------|------------------------|---------|--------------------|--------|-----|----------|----------|
| Orientation | Block_Num2:Target_NamePolice station             | 1        | Model 1                         |                     |                        |         | 0.25570.25572.0395 | 2.0395 |     |          |          |
| Orientation | Block_Num2:Target_NameQuattrolo Restaurant       | 1        | Model 1                         |                     |                        |         | 0.75100.75100.5693 | 0.5693 |     |          |          |
| Orientation | Block_Num3:Target_NameBank Station               | 1        | Model 1                         | Model 1             | 0.02060.02064.1572     | Model 1 | 4.1572             |        |     |          |          |
| Orientation | Block_Num3:Target_NameFire 1                     | 1        | Model 1                         | Model 1             | 0.02050.02054.1600     | Model 1 | 4.1600             |        |     |          |          |
| Orientation | Block_Num3:Target_NameHigh1 School               | 1        | Model 1                         | Model 1             | 0.03490.03493.7866     | Model 1 | 3.7866             |        |     |          |          |
| Orientation | Block_Num3:Target_NamePawn1 Shop                 | 1        | Model 1                         | Model 1             | 0.00530.00535.0066     | Model 1 | 5.0066             |        |     |          |          |
| Orientation | Block_Num3:Target_NamePizzeria                   | 1        | Model 1                         | Model 1             | 0.03790.03793.7279     | Model 1 | 3.7279             |        |     |          |          |
| Orientation | Block_Num3:Target_NamePolice station             | 1        | Model 1                         |                     | 0.05450.05453.4516     |         | 3.4516             |        |     |          |          |
| Orientation | Block_Num3:Target_NameQuattrolo Restaurant       | 1        | Model 1                         |                     | 0.36370.36371.6298     | Model 1 | 1.6298             |        |     |          |          |
| Speed       | AgeOA:Block_Num2                                 | 3        | Model 1,<br>Model 2,<br>Model 3 | Model 2,<br>Model 3 | 0.00000.2378<br>2.7967 | -       | -                  |        |     |          |          |
| Speed       | AgeOA:Block_Num2:Target_NameBank                 | 1        | Model 1                         |                     | 0.21120.2112<br>2.7385 | -       | -                  |        |     |          |          |
| Speed       | AgeOA:Block_Num2:Target_NameFire Station         | 1        | Model 1                         |                     | 0.57330.5733<br>1.2332 | -       | -                  |        |     |          |          |
| Speed       | AgeOA:Block_Num2:Target_NameHigh1 School         | 1        | Model 1                         |                     | 0.95730.95730.1174     | Model 1 | 0.1174             |        |     |          |          |
| Speed       | AgeOA:Block_Num2:Target_NameHigh1 Shop           | 1        | Model 1                         |                     | 0.94040.94040.1637     | Model 1 | 0.1637             |        |     |          |          |
| Speed       | AgeOA:Block_Num2:Target_NamePolice               | 1        | Model 1                         |                     | 0.65420.6542<br>0.9809 | -       | -                  |        |     |          |          |
| Speed       | AgeOA:Block_Num2:Target_NamePizzeria station     | 1        | Model 1                         |                     | 0.55690.5569<br>1.2864 | -       | -                  |        |     |          |          |
| Speed       | AgeOA:Block_Num2:Target_NameQuattrolo Restaurant | 1        | Model 1                         |                     | 0.41380.4138<br>1.7896 | -       | -                  |        |     |          |          |
| Speed       | AgeOA:Block_Num3                                 | 3        | Model 1,<br>Model 2,<br>Model 3 | Model 2,<br>Model 3 | 0.00000.1853<br>4.2191 | -       | -                  |        |     |          |          |
| Speed       | AgeOA:Block_Num3:Target_NameBank                 | 1        | Model 1                         |                     | 0.00100.0010<br>7.1950 | -       | -                  |        |     |          |          |
| Speed       | AgeOA:Block_Num3:Target_NameFire Station         | 1        | Model 1                         |                     | 0.47620.4762<br>1.5601 | -       | -                  |        |     |          |          |
| Speed       | AgeOA:Block_Num3:Target_NameHigh1 School         | 1        | Model 1                         |                     | 0.74820.74820.7028     | Model 1 | 0.7028             |        |     |          |          |
| Speed       | AgeOA:Block_Num3:Target_NameHigh1 Shop           | 1        | Model 1                         |                     | 0.38890.3889<br>1.8867 | -       | -                  |        |     |          |          |
| Speed       | AgeOA:Block_Num3:Target_NamePolice               | 1        | Model 1                         |                     | 0.12020.1202<br>3.4043 | -       | -                  |        |     |          |          |
| Speed       | AgeOA:Block_Num3:Target_NamePizzeria station     | 1        | Model 1                         |                     | 0.07970.0797<br>3.8396 | -       | -                  |        |     |          |          |
| Speed       | AgeOA:Block_Num3:Target_NameQuattrolo Restaurant | 1        | Model 1                         |                     | 0.94290.9429<br>0.1569 | -       | -                  |        |     |          |          |
| Speed       | AgeOA:Target_NameBank                            | 1        | Model 1                         |                     | 0.36030.3603<br>1.4165 | -       | -                  |        |     |          |          |

| DV             | term   | n_models | models                    | present | significant | in_models | max    | min     | estimate | estimate |
|----------------|--|----------|---------------------------|---------|-------------|-----------|--------|---------|----------|----------|
| Speed          | AgeOA:Target_NameFire Station                    | 1        | Model 1                   |         | 0.2410      | 0.2410    | -      | -       |          |          |
| Speed          | AgeOA:Target_NameHigh School                     | 1        | Model 1                   | Model 1 | 0.00390     | 0.0039    | -      | -       |          |          |
| Speed          | AgeOA:Target_NamePawn Shop                       | 1        | Model 1                   |         | 0.74070     | 0.7407    | -      | -       |          |          |
| Speed          | AgeOA:Target_NamePizzeria                        | 1        | Model 1                   |         | 0.71250     | 0.71250   | 0.5705 | 0.5705  |          |          |
| Speed          | AgeOA:Target_NamePolice station                  | 1        | Model 1                   |         | 0.99920     | 0.9992    | -      | -       | 0.0015   | 0.0015   |
| Speed          | AgeOA:Target_NameQuattroki Restaurant            | 1        | Model 1                   |         | 0.60940     | 0.6094    | -      | -       | 0.7910   | 0.7910   |
| Speed          | Block_Num2:Target_NameBank1                      | Model 1  |                           |         | 0.45450     | 0.45451   | 1.1582 | 1.1582  |          |          |
| Speed          | Block_Num2:Target_NameFire 1 Station             | Model 1  |                           |         | 0.15420     | 0.15422   | 2.2068 | 2.2068  |          |          |
| Speed          | Block_Num2:Target_NameHigh1 School               | Model 1  |                           |         | 0.81260     | 0.8126    | -      | -       | 0.3670   | 0.3670   |
| Speed          | Block_Num2:Target_NamePawn1 Shop                 | Model 1  |                           |         | 0.18340     | 0.1834    | -      | -       | 2.0604   | 2.0604   |
| Speed          | Block_Num2:Target_NamePizzeria                   | Model 1  |                           |         | 0.81010     | 0.81010   | 0.3721 | 0.3721  |          |          |
| Speed          | Block_Num2:Target_NamePolice station             | Model 1  |                           |         | 0.52260     | 0.52260   | 0.9900 | 0.9900  |          |          |
| Speed          | Block_Num2:Target_NameQuattroki Restaurant       | Model 1  |                           |         | 0.08240     | 0.08242   | 2.6909 | 2.6909  |          |          |
| Speed          | Block_Num3:Target_NameBank1                      | Model 1  | Model 1                   |         | 0.00740     | 0.00744   | 1.1545 | 4.1545  |          |          |
| Speed          | Block_Num3:Target_NameFire 1 Station             | Model 1  | Model 1                   |         | 0.02990     | 0.02993   | 3.3649 | 3.3649  |          |          |
| Speed          | Block_Num3:Target_NameHigh1 School               | Model 1  |                           |         | 0.74640     | 0.7464    | -      | -       | 0.5007   | 0.5007   |
| Speed          | Block_Num3:Target_NamePawn1 Shop                 | Model 1  |                           |         | 0.41140     | 0.4114    | -      | -       | 1.2718   | 1.2718   |
| Speed          | Block_Num3:Target_NamePizzeria                   | Model 1  |                           |         | 0.22990     | 0.22991   | 1.8595 | 1.8595  |          |          |
| Speed          | Block_Num3:Target_NamePolice station             | Model 1  |                           |         | 0.06150     | 0.06152   | 2.8974 | 2.8974  |          |          |
| Speed          | Block_Num3:Target_NameQuattroki Restaurant       | Model 1  |                           |         | 0.14900     | 0.14902   | 2.2353 | 2.2353  |          |          |
| Teleportations | AgeOA:Block_Num2                                 | 3        | Model 1, Model 2, Model 3 |         | 0.48500     | 0.7315    | -      | -       | 17.6667  | 3.2375   |
| Teleportations | AgeOA:Block_Num2:Target_NameBank1                | Model 1  |                           |         | 0.80140     | 0.8014    | -      | -       | 9.0000   | 9.0000   |
| Teleportations | AgeOA:Block_Num2:Target_NameFire 1 Station       | Model 1  |                           |         | 0.22240     | 0.22244   | 3.6667 | 43.6667 |          |          |
| Teleportations | AgeOA:Block_Num2:Target_NameHigh1 School         | Model 1  |                           |         | 0.70730     | 0.70731   | 3.4333 | 13.4333 |          |          |
| Teleportations | AgeOA:Block_Num2:Target_NamePawn1 Shop           | Model 1  |                           |         | 0.91840     | 0.91843   | 6.6667 | 3.6667  |          |          |
| Teleportations | AgeOA:Block_Num2:Target_NamePolice1              | Model 1  |                           |         | 0.73310     | 0.73311   | 2.2000 | 12.2000 |          |          |
| Teleportations | AgeOA:Block_Num2:Target_NamePolice1 station      | Model 1  |                           |         | 0.50300     | 0.50302   | 3.9667 | 23.9667 |          |          |
| Teleportations | AgeOA:Block_Num2:Target_NameQuattroki Restaurant | Model 1  |                           |         | 0.44220     | 0.44222   | 7.5000 | 27.5000 |          |          |

| DV             | term   | n_models | models                          | present      | significant             | in_models | max     | min     | estimate | estimate |
|----------------|--|----------|---------------------------------|--------------|-------------------------|-----------|---------|---------|----------|----------|
| Teleportations | AgeOA:Block_Num3                                 | 3        | Model 1,<br>Model 2,<br>Model 3 |              | 0.32510.3451<br>24.9000 | -         | -       | 8.9083  |          |          |
| Teleportations | AgeOA:Block_Num3:Target_NameBank                 | 1        | Model 1                         |              | 0.40710.4071            | 29.6667   | 29.6667 |         |          |          |
| Teleportations | AgeOA:Block_Num3:Target_NameFire_Station         | 1        | Model 1                         |              | 0.31530.3153            | 35.9333   | 35.9333 |         |          |          |
| Teleportations | AgeOA:Block_Num3:Target_NameHigh_School          | 1        | Model 1                         |              | 0.81150.8115<br>8.5333  | -         | -       | 8.5333  | 8.5333   |          |
| Teleportations | AgeOA:Block_Num3:Target_NamePawn_Shop            | 1        | Model 1                         |              | 0.68740.6874            | 14.4000   | 14.4000 |         |          |          |
| Teleportations | AgeOA:Block_Num3:Target_NamePolice_Station       | 1        | Model 1                         |              | 0.82310.8231            | 8.0000    | 8.0000  |         |          |          |
| Teleportations | AgeOA:Block_Num3:Target_NamePizzeria             | 1        | Model 1                         |              | 0.38280.3828            | 31.2333   | 31.2333 |         |          |          |
| Teleportations | AgeOA:Block_Num3:Target_NameQuattroki_Restaurant | 1        | Model 1                         |              | 0.63010.6301            | 17.2333   | 17.2333 |         |          |          |
| Teleportations | AgeOA:Target_NameBank                            | 1        | Model 1                         |              | 0.13530.1353            | 7.8000    | 37.8000 |         |          |          |
| Teleportations | AgeOA:Target_NameFire_Station                    | 1        | Model 1                         |              | 0.20610.2061<br>32.0000 | -         | -       | 32.0000 | 32.0000  |          |
| Teleportations | AgeOA:Target_NameHigh_School                     | 1        | Model 1                         |              | 0.82070.8207            | 5.7333    | 5.7333  |         |          |          |
| Teleportations | AgeOA:Target_NamePawn_Shop                       | 1        | Model 1                         |              | 0.79420.7942            | 6.6000    | 6.6000  |         |          |          |
| Teleportations | AgeOA:Target_NamePizzeria                        | 1        | Model 1                         |              | 0.75590.7559<br>7.8667  | -         | -       | 7.8667  | 7.8667   |          |
| Teleportations | AgeOA:Target_NamePolice_Station                  | 1        | Model 1                         |              | 0.76390.7639<br>7.6000  | -         | -       | 7.6000  | 7.6000   |          |
| Teleportations | AgeOA:Target_NameQuattroki_Restaurant            | 1        | Model 1                         |              | 0.14380.1438            | 37.0000   | 37.0000 |         |          |          |
| Teleportation  | Block_Num2:Target_NameBank                       | 1        | Model 1                         |              | 0.29380.2938<br>26.5667 | -         | -       | 26.5667 | 26.5667  |          |
| Teleportation  | Block_Num2:Target_NameFire_Station               | 1        | Model 1                         |              | 0.84330.8433<br>5.0000  | -         | -       | 5.0000  | 5.0000   |          |
| Teleportation  | Block_Num2:Target_NameHigh_School                | 1        | Model 1                         |              | 0.79620.7962            | 6.5333    | 6.5333  |         |          |          |
| Teleportation  | Block_Num2:Target_NamePawn_Shop                  | 1        | Model 1                         |              | 0.98320.9832<br>0.5333  | -         | -       | 0.5333  | 0.5333   |          |
| Teleportation  | Block_Num2:Target_NamePizzeria                   | 1        | Model 1                         |              | 0.90250.9025<br>3.1000  | -         | -       | 3.1000  | 3.1000   |          |
| Teleportation  | Block_Num2:Target_NamePolice_Station             | 1        | Model 1                         |              | 0.88790.8879<br>3.5667  | -         | -       | 3.5667  | 3.5667   |          |
| Teleportation  | Block_Num2:Target_NameQuattroki_Restaurant       | 1        | Model 1                         | 0.00710.0071 | -                       | -         | 68.1667 | 68.1667 |          |          |
| Teleportation  | Block_Num3:Target_NameBank                       | 1        | Model 1                         |              | 0.05960.0596<br>47.7000 | -         | -       | 47.7000 | 47.7000  |          |
| Teleportation  | Block_Num3:Target_NameFire_Station               | 1        | Model 1                         |              | 0.72700.7270<br>8.8333  | -         | -       | 8.8333  | 8.8333   |          |
| Teleportation  | Block_Num3:Target_NameHigh_School                | 1        | Model 1                         |              | 0.80640.8064            | 6.2000    | 6.2000  |         |          |          |
| Teleportation  | Block_Num3:Target_NamePawn_Shop                  | 1        | Model 1                         |              | 0.83000.8300<br>5.4333  | -         | -       | 5.4333  | 5.4333   |          |
| Teleportation  | Block_Num3:Target_NamePizzeria                   | 1        | Model 1                         |              | 0.98840.9884<br>0.3667  | -         | -       | 0.3667  | 0.3667   |          |

| DV            | term   | n_models | models                          | present                         | significant  | in_models | max | min     | estimate | estimate |
|---------------|--|----------|---------------------------------|---------------------------------|--------------|-----------|-----|---------|----------|----------|
| Teleportation | Block_Num3:Target_NamePolice station             | 1        | Model 1                         |                                 | 0.72500.7250 | -         | -   | 8.9000  | 8.9000   |          |
| Teleportation | Block_Num3:Target_NameQuattroki Restaurant       | 1        | Model 1                         |                                 | 0.01030.0103 | -         | -   | 65.0000 | 65.0000  |          |
| Total_Time    | AgeOA:Block_Num2                                 | 3        | Model 1,<br>Model 2,<br>Model 3 | Model 2,<br>Model 3             | 0.03730.0783 | -         | -   | 43.2667 | 18.3907  |          |
| Total_Time    | AgeOA:Block_Num2:Target_NameBank                 | 1        | Model 1                         |                                 | 0.94860.9486 | 2.2370    |     |         |          |          |
| Total_Time    | AgeOA:Block_Num2:Target_NameFire Station         | 1        | Model 1                         |                                 | 0.07920.0792 | 60.9999   |     |         |          |          |
| Total_Time    | AgeOA:Block_Num2:Target_NameHigh School          | 1        | Model 1                         |                                 | 0.25770.2577 | 39.3145   |     |         |          |          |
| Total_Time    | AgeOA:Block_Num2:Target_NameShop                 | 1        | Model 1                         |                                 | 0.50330.5033 | 23.2467   |     |         |          |          |
| Total_Time    | AgeOA:Block_Num2:Target_NamePizzeria             | 1        | Model 1                         |                                 | 0.32230.3223 | 34.3808   |     |         |          |          |
| Total_Time    | AgeOA:Block_Num2:Target_NamePizzeria station     | 1        | Model 1                         |                                 | 0.57010.5701 | 19.7257   |     |         |          |          |
| Total_Time    | AgeOA:Block_Num2:Target_NameQuattroki Restaurant | 1        | Model 1                         |                                 | 0.58230.5823 | 19.1031   |     |         |          |          |
| Total_Time    | AgeOA:Block_Num3                                 | 3        | Model 1,<br>Model 2,<br>Model 3 | Model 1,<br>Model 2,<br>Model 3 | 0.00140.0265 | -         | -   | 54.5233 | 28.1996  |          |
| Total_Time    | AgeOA:Block_Num3:Target_NameBank                 | 1        | Model 1                         |                                 | 0.48020.4802 | 24.5194   |     |         |          |          |
| Total_Time    | AgeOA:Block_Num3:Target_NameFire Station         | 1        | Model 1                         |                                 | 0.09710.0971 | 57.6489   |     |         |          |          |
| Total_Time    | AgeOA:Block_Num3:Target_NameHigh School          | 1        | Model 1                         |                                 | 0.56010.5601 | 20.2350   |     |         |          |          |
| Total_Time    | AgeOA:Block_Num3:Target_NameShop                 | 1        | Model 1                         |                                 | 0.41230.4123 | 28.4773   |     |         |          |          |
| Total_Time    | AgeOA:Block_Num3:Target_NamePizzeria             | 1        | Model 1                         |                                 | 0.23760.2376 | 41.0256   |     |         |          |          |
| Total_Time    | AgeOA:Block_Num3:Target_NamePizzeria station     | 1        | Model 1                         |                                 | 0.56650.5665 | 19.9102   |     |         |          |          |
| Total_Time    | AgeOA:Block_Num3:Target_NameQuattroki Restaurant | 1        | Model 1                         |                                 | 0.58880.5888 | 18.7732   |     |         |          |          |
| Total_Time    | AgeOA:Target_NameBank                            | 1        | Model 1                         | Model 1                         | 0.21840.2184 | 30.2353   |     |         |          |          |
| Total_Time    | AgeOA:Target_NameFire Station                    | 1        | Model 1                         | Model 1                         | 0.02510.0251 | -         | -   | 55.0582 | 55.0582  |          |
| Total_Time    | AgeOA:Target_NameHigh School                     | 1        | Model 1                         |                                 | 0.35080.3508 | -         | -   | 22.9181 | 22.9181  |          |
| Total_Time    | AgeOA:Target_NamePawn Shop                       | 1        | Model 1                         |                                 | 0.74000.7400 | -         | -   | 8.1493  | 8.1493   |          |
| Total_Time    | AgeOA:Target_NamePizzeria                        | 1        | Model 1                         |                                 | 0.11490.1149 | -         | -   | 38.7310 | 38.7310  |          |
| Total_Time    | AgeOA:Target_NamePolice station                  | 1        | Model 1                         |                                 | 0.74880.7488 | -         | -   | 7.8631  | 7.8631   |          |
| Total_Time    | AgeOA:Target_NameQuattroki Restaurant            | 1        | Model 1                         |                                 | 0.17580.1758 | 33.2549   |     |         |          |          |
| Total_Time    | Block_Num2:Target_NameBank                       | 1        | Model 1                         |                                 | 0.41730.4173 | -         | -   | 19.9202 | 19.9202  |          |
| Total_Time    | Block_Num2:Target_NameFire Station               | 1        | Model 1                         |                                 | 0.91530.9153 | -         | -   | 2.6122  | 2.6122   |          |

| DV         | term                           | n_models | models | present | significant | in | models  | max                 | min     | estimate | estimate |
|------------|--------------------------------|----------|--------|---------|-------------|----|---------|---------------------|---------|----------|----------|
| Total_Time | Block_Num2:Target_NameHigh1    | Model 1  |        |         |             |    |         | 0.45820.458218.2180 | 18.2180 |          |          |
|            | School                         |          |        |         |             |    |         |                     |         |          |          |
| Total_Time | Block_Num2:Target_NamePawn1    | Model 1  |        |         |             |    |         | 0.84920.84924.6701  | 4.6701  |          |          |
|            | Shop                           |          |        |         |             |    |         |                     |         |          |          |
| Total_Time | Block_Num2:Target_NamePizzeria | Model 1  |        |         |             |    |         | 0.80320.80326.1212  | 6.1212  |          |          |
| Total_Time | Block_Num2:Target_NamePolice   | Model 1  |        |         |             |    |         | 0.98300.98300.5246  | 0.5246  |          |          |
|            | station                        |          |        |         |             |    |         |                     |         |          |          |
| Total_Time | Block_Num2:Target_NameQuattro  | Model 1  |        |         |             |    | Model 1 | 0.04440.0444        | -       | -        |          |
|            | Restaurant                     |          |        |         |             |    |         | 49.4009             | 49.4009 |          |          |
| Total_Time | Block_Num3:Target_NameBank1    | Model 1  |        |         |             |    |         | 0.20880.2088        | -       | -        |          |
|            |                                |          |        |         |             |    |         |                     | 30.8718 | 30.8718  |          |
| Total_Time | Block_Num3:Target_NameFire 1   | Model 1  |        |         |             |    |         | 0.87040.8704        | -       | -        |          |
|            | Station                        |          |        |         |             |    |         |                     | 4.0070  | 4.0070   |          |
| Total_Time | Block_Num3:Target_NameHigh1    | Model 1  |        |         |             |    |         | 0.42560.425619.5685 | 19.5685 |          |          |
|            | School                         |          |        |         |             |    |         |                     |         |          |          |
| Total_Time | Block_Num3:Target_NamePawn1    | Model 1  |        |         |             |    |         | 0.95090.95091.5121  | 1.5121  |          |          |
|            | Shop                           |          |        |         |             |    |         |                     |         |          |          |
| Total_Time | Block_Num3:Target_NamePizzeria | Model 1  |        |         |             |    |         | 0.82390.82395.4639  | 5.4639  |          |          |
| Total_Time | Block_Num3:Target_NamePolice   | Model 1  |        |         |             |    |         | 0.94250.9425        | -       | -        |          |
|            | station                        |          |        |         |             |    |         |                     | 1.7706  | 1.7706   |          |
| Total_Time | Block_Num3:Target_NameQuattro  | Model 1  |        |         |             |    |         | 0.05500.0550        | -       | -        |          |
|            | Restaurant                     |          |        |         |             |    |         |                     | 47.1497 | 47.1497  |          |

## Summary and Recommendations

```
# Calculate summary statistics
total_effects_analyzed <- nrow(all_changes_combined)
effects_with_sig_changes <- sum(all_changes_combined$significance_changes)
effects_with_sign_changes <- sum(all_changes_combined$estimate_sign_changes)
effects_with_substantial_changes <- sum(all_changes_combined$substantial_change)

cat("EFFECT CONSISTENCY ANALYSIS SUMMARY:\n")

## EFFECT CONSISTENCY ANALYSIS SUMMARY:

cat(paste(rep("=", 50), collapse=""), "\n\n")

## =====

cat("OVERALL STABILITY:\n")

## OVERALL STABILITY:

cat("- Total effects analyzed:", total_effects_analyzed, "\n")

## - Total effects analyzed: 48
```

```

cat("- Effects with significance changes:", effects_with_sig_changes,
    "(", round(effects_with_sig_changes/total_effects_analyzed*100, 1), "%)\n")

## - Effects with significance changes: 18 ( 37.5 %)

cat("- Effects with sign changes:", effects_with_sign_changes,
    "(", round(effects_with_sign_changes/total_effects_analyzed*100, 1), "%)\n")

## - Effects with sign changes: 1 ( 2.1 %)

cat("- Effects with substantial changes:", effects_with_substantial_changes,
    "(", round(effects_with_substantial_changes/total_effects_analyzed*100, 1), "%)\n\n")

## - Effects with substantial changes: 40 ( 83.3 %)

# Most stable effects
stable_effects <- stability_summary %>%
  filter(prop_substantial_changes == 0) %>%
  pull(term)

if(length(stable_effects) > 0) {
  cat("MOST STABLE EFFECTS (no substantial changes across models):\n")
  for(effect in stable_effects) {
    cat("-", effect, "\n")
  }
  cat("\n")
}

# Least stable effects
unstable_effects <- stability_summary %>%
  filter(prop_substantial_changes > 0.5) %>%
  pull(term)

if(length(unstable_effects) > 0) {
  cat("LEAST STABLE EFFECTS (substantial changes in >50% of variables):\n")
  for(effect in unstable_effects) {
    cat("-", effect, "\n")
  }
  cat("\n")
}

## LEAST STABLE EFFECTS (substantial changes in >50% of variables):
## - Age0A:Block_Num2
## - Age0A:Block_Num3
## - Block_Num3
## - (Intercept)
## - Age0A
## - Block_Num2

```

```

cat("INTERPRETATION RECOMMENDATIONS:\n")

## INTERPRETATION RECOMMENDATIONS:

if(effects_with_sig_changes == 0 && effects_with_sign_changes == 0) {
  cat("- Your results are HIGHLY ROBUST across model specifications\n")
  cat("- Model choice does not affect interpretation or conclusions\n")
  cat("- You can confidently report results from any of the three models\n")
} else if(effects_with_sig_changes <= 2 && effects_with_sign_changes == 0) {
  cat("- Your results are MOSTLY ROBUST with minor significance variations\n")
  cat("- Core interpretations remain consistent across models\n")
  cat("- Consider reporting results from the theoretically most appropriate model\n")
} else {
  cat("- Your results show MODERATE SENSITIVITY to model specification\n")
  cat("- Carefully consider which random effects structure is most appropriate\n")
  cat("- Report sensitivity analysis showing results across multiple models\n")
  cat("- Focus interpretation on effects that are consistent across models\n")
}

## - Your results show MODERATE SENSITIVITY to model specification
## - Carefully consider which random effects structure is most appropriate
## - Report sensitivity analysis showing results across multiple models
## - Focus interpretation on effects that are consistent across models

```

---

This analysis focuses specifically on whether your conclusions would change based on model choice, rather than statistical fit metrics. It identifies which effects are robust across specifications and which are sensitive to modeling decisions.