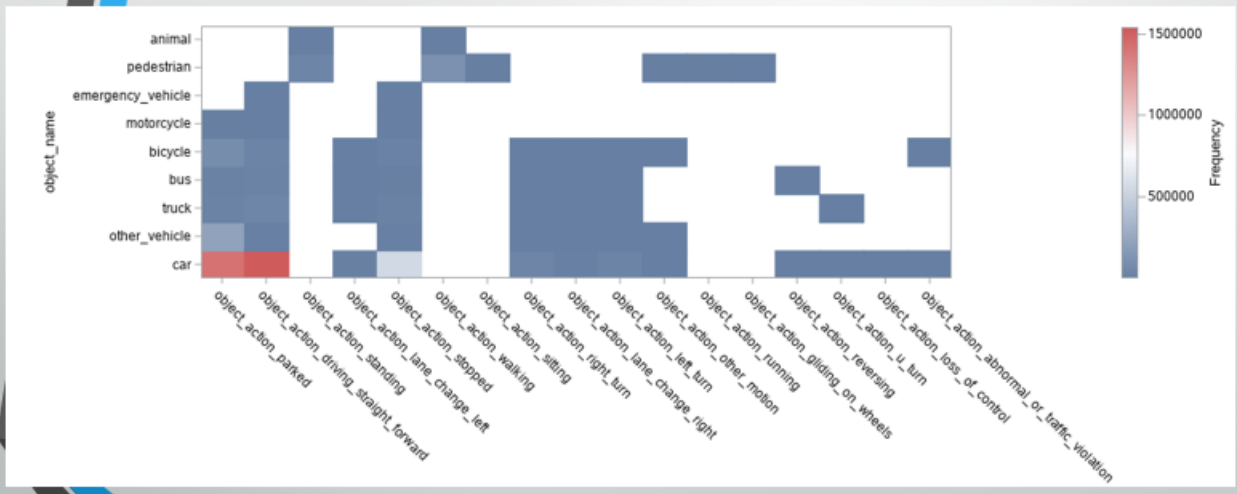
# Figure 14: Attribute Influence On Object Classification

## Question 2: Do available characteristics of an object strongly influence how they are classified?




Additional anedotial evidence for correlation between the attribute observed and the object's category.

## Question 2: Do available characteristics of an object strongly influence how they are classified?

PROC LOGISTIC (glogit)

Response=category_name Parameters=nbr_annotations, attribute_name

Analysis of Maximum Likelihood Estimates

| Parameter | | category_name | DF | Estimate | Standard Error | Wald Chi-Square | Pr > ChiSq |
|---|---|---|---|---|---|---|---|
| Intercept | | animal | 1 | 0.8517 | 0.000919 | 859015.409 | <.0001 |
| Intercept | | bicycle | 1 | 2.5461 | 0.000049 | 2674502712 | <.0001 |
| Intercept | | bus | 1 | -0.5732 | 0.000079 | 53230355.0 | <.0001 |
| Intercept | | car | 1 | 4.4403 | 0.000025 | 3.07998E10 | <.0001 |
| Intercept | | emergency_vehicle | 1 | -3.1248 | 0.000508 | 37812624.6 | <.0001 |
| Intercept | | motorcycle | 1 | -1.5334 | 0.000233 | 43197369.8 | <.0001 |
| Intercept | | other_vehicle | 1 | 0.4720 | 0.000034 | 194015818 | <.0001 |
| Intercept | | pedestrian | 1 | 13.6247 | 0.000106 | 1.66313E10 | <.0001 |
| nbr_annotations | | animal | 1 | -0.0442 | 0.000021 | 4464805.13 | <.0001 |
| nbr_annotations | | bicycle | 1 | -0.0278 | 1.001E-6 | 772227009 | <.0001 |
| nbr_annotations | | bus | 1 | 0.00421 | 9.248E-7 | 20708421.3 | <.0001 |
| nbr_annotations | | car | 1 | -0.0144 | 3.795E-7 | 1433538680 | <.0001 |
| nbr_annotations | | emergency_vehicle | 1 | -0.0461 | 0.000012 | 15165930.5 | <.0001 |
| nbr_annotations | | motorcycle | 1 | -0.0321 | 5.205E-6 | 38132668.9 | <.0001 |
| nbr_annotations | | other_vehicle | 1 | 0.00494 | 5.056E-7 | 95655512.6 | <.0001 |
| nbr_annotations | | pedestrian | 1 | -0.0127 | 1.621E-6 | 60977362.9 | <.0001 |

nbr_annotations was significant, to varying degrees, for all categories

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PROC LOGISTIC (glogit)

Response=category_name Parameters=nbr_annotations, attribute_name

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| attribute_name | object_action_running | animal | 1 | -3.3124 | 0.00408 | 658265.186 | <.0001 |
| attribute_name | object_action_running | bicycle | 1 | -0.5932 | 295703 | 0.0000 | 1.0000 |
| attribute_name | object_action_running | bus | 1 | -0.0466 | 477730 | 0.0000 | 1.0000 |
| attribute_name | object_action_running | car | 1 | -0.0139 | 63898.4 | 0.0000 | 1.0000 |
| attribute_name | object_action_running | emergency_vehicle | 1 | 0.2308 | 4636351 | 0.0000 | 1.0000 |
| attribute_name | object_action_running | motorcycle | 1 | 0.4189 | 1491490 | 0.0000 | 1.0000 |
| attribute_name | object_action_running | other_vehicle | 1 | 0.5368 | 206746 | 0.0000 | 1.0000 |
| attribute_name | object_action_running | pedestrian | 1 | 28.5665 | 0.00408 | 48959107.7 | <.0001 |
| attribute_name | object_action_sitting | animal | 1 | -3.5734 | 0.00408 | 766101.690 | <.0001 |
| attribute_name | object_action_sitting | bicycle | 1 | -0.7574 | 303086 | 0.0000 | 1.0000 |
| attribute_name | object_action_sitting | bus | 1 | -0.0217 | 498133 | 0.0000 | 1.0000 |
| attribute_name | object_action_sitting | car | 1 | -0.0988 | 63858.3 | 0.0000 | 1.0000 |
| attribute_name | object_action_sitting | emergency_vehicle | 1 | -0.0411 | 5136679 | 0.0000 | 1.0000 |
| attribute_name | object_action_sitting | motorcycle | 1 | 0.2292 | 1551646 | 0.0000 | 1.0000 |
| attribute_name | object_action_sitting | other_vehicle | 1 | 0.5660 | 216456 | 0.0000 | 1.0000 |
| attribute_name | object_action_sitting | pedestrian | 1 | 28.4918 | 0.00408 | 48703244.0 | <.0001 |

Expected not significant assessments for attributes we normally ascribe to humans/animals (running and sitting)

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PROC LOGISTIC (glogit)

Response=category_name Parameters=nbr_annotations, attribute_name

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| attribute_name | object_action_loss_of_control | animal | 1 | -3.9665 | 0.00408 | 943920.526 | <.0001 |
| attribute_name | object_action_loss_of_control | bicycle | 1 | -1.0048 | 0.0779 | 166.5318 | <.0001 |
| attribute_name | object_action_loss_of_control | bus | 1 | 0.0158 | 0.1285 | 0.0151 | 0.9023 |
| attribute_name | object_action_loss_of_control | car | 1 | 0.9725 | 0.0373 | 677.9397 | <.0001 |
| attribute_name | object_action_loss_of_control | emergency_vehicle | 1 | -0.4506 | 1.3624 | 0.1094 | 0.7408 |
| attribute_name | object_action_loss_of_control | motorcycle | 1 | -0.0565 | 0.3986 | 0.0201 | 0.8872 |
| attribute_name | object_action_loss_of_control | other_vehicle | 1 | 0.6100 | 0.0565 | 116.7598 | <.0001 |
| attribute_name | object_action_loss_of_control | pedestrian | 1 | -13.0106 | 0.00408 | 10174338.4 | <.0001 |

Surprising significance ascribed to attributes we normally ascribe to vehicles, but not humans/animals (running and sitting)