# ACOTSP 1000–4500 Estimation of parameter importance with fANOVA

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(We focus for now on the acotps1000-4500-1 data set.)

## 1. Dependent variable: raw performance

```
readImportance <- function(fname) {
  data=read.table(fname,h=T) %>% select(parameter,ind_imp,ind_std) %>% arrange(-ind_imp)
  colnames(data)=c("variable","importance","std_dev")
  return(data)
}

data=readImportance("irace-acotsp1000-4500-1-perf-importance.dat")
kable(data) %>% kable_styling(latex_options=c("striped","hold_position"))
```

| variable | importance | std_dev |
|---|---|---|
| instance | 0.5882921 | 0.1494310 |
| nnls | 0.0392140 | 0.0615101 |
| dlb | 0.0363910 | 0.0517956 |
| localsearch | 0.0159029 | 0.0347473 |
| q0 | 0.0065219 | 0.0099440 |
| ants | 0.0034869 | 0.0075833 |
| beta | 0.0017872 | 0.0028835 |
| alpha | 0.0016282 | 0.0021502 |
| rho | 0.0008965 | 0.0013462 |
| elitistants | 0.0001692 | 0.0001310 |
| dummy | 0.0001059 | 0.0001971 |
| rasrank | 0.0000911 | 0.0003420 |
| algorithm | 0.0000653 | 0.0000705 |

## 2. Dependent variable: normalized performance

```
data=readImportance("irace-acotsp1000-4500-1-norm-importance.dat")
kable(data) %>% kable_styling(latex_options=c("striped","hold_position"))
```

## 3. Dependent variable: performance quantile

```
data=readImportance("irace-acotsp1000-4500-1-quan-importance.dat")
kable(data) %>% kable_styling(latex_options=c("striped","hold_position"))
```

| variable | importance | std_dev |
|---|---|---|
| localsearch | 0.3502917 | 0.3631240 |
| dlb | 0.1832306 | 0.3106844 |
| instance | 0.1265965 | 0.1463130 |
| nnls | 0.1088904 | 0.2567746 |
| alpha | 0.0098674 | 0.0177313 |
| rho | 0.0025393 | 0.0041292 |
| elitistants | 0.0021173 | 0.0018605 |
| beta | 0.0020190 | 0.0013411 |
| q0 | 0.0016083 | 0.0019417 |
| algorithm | 0.0007289 | 0.0009736 |
| ants | 0.0006128 | 0.0007126 |
| dummy | 0.0005210 | 0.0010348 |
| rasrank | 0.0000650 | 0.0002070 |

| variable | importance | std_dev |
|---|---|---|
| localsearch | 0.2313019 | 0.1300735 |
| q0 | 0.0516648 | 0.0756915 |
| elitistants | 0.0237068 | 0.0201179 |
| nnls | 0.0211985 | 0.0236874 |
| algorithm | 0.0184498 | 0.0372949 |
| alpha | 0.0147556 | 0.0159332 |
| instance | 0.0109691 | 0.0055802 |
| dlb | 0.0056922 | 0.0112717 |
| beta | 0.0041731 | 0.0079862 |
| ants | 0.0039420 | 0.0043818 |
| rho | 0.0020138 | 0.0041414 |
| dummy | 0.0007673 | 0.0022063 |
| rasrank | 0.0001209 | 0.0001920 |

## 4. Dependent variable: normalized ranking

```
data=readImportance("irace-acotsp1000-4500-1-rank-importance.dat")
kable(data) %>% kable_styling(latex_options=c("striped","hold_position"))
```

| variable | importance | std_dev |
|---|---|---|
| instance | 0.4657265 | 0.0986057 |
| localsearch | 0.1132810 | 0.0537612 |
| q0 | 0.0188903 | 0.0139314 |
| alpha | 0.0170880 | 0.0262515 |
| nnls | 0.0083441 | 0.0115511 |
| elitistants | 0.0080877 | 0.0111316 |
| dlb | 0.0041219 | 0.0063512 |
| algorithm | 0.0029450 | 0.0048807 |
| ants | 0.0016186 | 0.0021025 |
| rho | 0.0016177 | 0.0047440 |
| beta | 0.0004485 | 0.0005335 |
| dummy | 0.0002607 | 0.0005410 |
| rasrank | 0.0000518 | 0.0000532 |

## 5. Dependent variable: normalized ranking with imputation

```
data=readImportance("irace-acotsp1000-4500-1-irank-importance.dat")
kable(data) %>% kable_styling(latex_options=c("striped","hold_position"))
```

| variable | importance | std_dev |
|---|---|---|
| instance | 0.0797915 | 0.0236334 |
| localsearch | 0.0382287 | 0.0209754 |
| q0 | 0.0109548 | 0.0093348 |
| beta | 0.0056935 | 0.0078560 |
| rho | 0.0045982 | 0.0037962 |
| nnls | 0.0039887 | 0.0041584 |
| alpha | 0.0037712 | 0.0036340 |
| algorithm | 0.0020646 | 0.0042251 |
| dlb | 0.0018600 | 0.0033497 |
| ants | 0.0006944 | 0.0003998 |
| elitistants | 0.0006451 | 0.0014226 |
| rasrank | 0.0004216 | 0.0006532 |
| dummy | 0.0003799 | 0.0003945 |

## 6. Dependent variable: ranking quartile with imputation

```
data=readImportance("irace-acotsp1000-4500-1-qrank-importance.dat")
kable(data) %>% kable_styling(latex_options=c("striped","hold_position"))
```

| variable | importance | std_dev |
|---|---|---|
| instance | 0.7700689 | 0.0222322 |
| localsearch | 0.0037399 | 0.0024699 |
| q0 | 0.0016765 | 0.0013276 |
| nnls | 0.0007211 | 0.0005347 |
| dlb | 0.0004986 | 0.0010430 |
| alpha | 0.0003633 | 0.0002028 |
| algorithm | 0.0003080 | 0.0007105 |
| ants | 0.0002443 | 0.0002724 |
| rasrank | 0.0002404 | 0.0003022 |
| beta | 0.0002190 | 0.0001684 |
| rho | 0.0001932 | 0.0001859 |
| elitistants | 0.0001791 | 0.0002118 |
| dummy | 0.0000438 | 0.0000555 |