Jackknife variance estimation

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1 Simulation

1.1 Simulation setup $Var(X^T\beta)$

- leva-one-out
- iteration 100
- nominal level 0.8

1.2 None

```
   var_main_effect var_inter_effect cov_main_inter_effect rho_e structure
1:               8                2                 0.622   0.5        un
   decor x_dist
1:  TRUE   1999
```

```
     n sub_est_mean var_jack sub_z_coverage est_var est_mean     method
1: 100         21.2      208           0.84   112.1     21.0 EigenPrism
2: 150         25.1      212           0.72   111.6     25.2 EigenPrism
3: 231         25.1      165           0.56    82.8     25.2 EigenPrism
4: 100         18.0      236           0.86   107.8     18.0       GCTA
5: 150         22.6      299           0.86   148.9     22.7       GCTA
6: 231         22.7      178           0.77    86.1     22.7       GCTA
```

1.3 decorreation

```
   var_main_effect var_inter_effect cov_main_inter_effect rho_e structure
1:               8                2                 0.622   0.5        un
   decor x_dist
1:  TRUE   1999
```

```
     n sub_est_mean var_jack sub_z_coverage est_var est_mean     method
1: 100        11.43     34.1           0.92   14.68    11.42 EigenPrism
2: 150        10.37     22.2           0.95    7.91    10.36 EigenPrism
```

```
3: 231         9.18     15.9           0.81    7.42     9.18 EigenPrism
4: 100        11.17     38.1           0.91   14.11    11.18       GCTA
5: 150        10.76     23.2           0.89    6.78    10.76       GCTA
6: 231        10.30     15.1           0.90    4.37    10.30       GCTA
```

1.4 Simulation setup $Var(X^T\beta)/Var(y)$

- leave-d out $d/n = 0.5$
- iteration 50
- nominal level 0.8

1.5 None leave one

```
   var_main_effect var_inter_effect cov_main_inter_effect rho_e structure
1:               8               2                 0.622   0.5        un
   decor x_dist
1:  TRUE   1999
```

```
     n sub_est_mean var_jack sub_z_coverage est_var est_mean       method
1: 100        1.008    0.401           0.78   0.238    1.003 h_EigenPrism
2: 150        1.125    0.346           0.72   0.179    1.126 h_EigenPrism
3: 231        1.203    0.287           0.46   0.177    1.204 h_EigenPrism
4: 100        0.864    0.438           0.84   0.212    0.867       h_GCTA
5: 150        1.020    0.409           0.78   0.200    1.024       h_GCTA
6: 231        1.088    0.301           0.64   0.190    1.090       h_GCTA
```

1.6 None leave d

```
   var_main_effect var_inter_effect cov_main_inter_effect rho_e structure
1:               8               2                 0.622   0.5        un
   decor x_dist
1:  TRUE   1999
```

```
     n sub_est_mean var_jack sub_z_coverage est_var est_mean       method
1: 100        0.792    0.167           0.76   0.238    1.003 h_EigenPrism
2: 150        0.917    0.153           0.64   0.179    1.126 h_EigenPrism
3: 231        1.034    0.134           0.36   0.177    1.204 h_EigenPrism
4: 100        0.670    0.241           0.88   0.212    0.867       h_GCTA
5: 150        0.765    0.197           0.90   0.200    1.024       h_GCTA
6: 231        0.863    0.146           0.72   0.190    1.090       h_GCTA
```

1.7 decorreation

```
   var_main_effect var_inter_effect cov_main_inter_effect rho_e structure
1:               8               2                 0.622   0.5        un
   decor x_dist
1:  TRUE   1999
```

```
     n sub_est_mean var_jack sub_z_coverage est_var est_mean       method
1: 100        0.553   0.0345           0.90 0.01401    0.553 h_EigenPrism
2: 150        0.511   0.0236           0.92 0.01293    0.478 h_EigenPrism
3: 231        0.460   0.0154           0.82 0.01310    0.423 h_EigenPrism
```

```
4: 100        0.633  44.2184          0.92 0.01295    0.525       h_GCTA
5: 150        0.477   0.0233          0.92 0.00712    0.501       h_GCTA
6: 231        0.463   0.0131          0.88 0.00548    0.474       h_GCTA
```