# timbralSimilaritySolScatteringTechniqueSlides

Mathieu Lagrange

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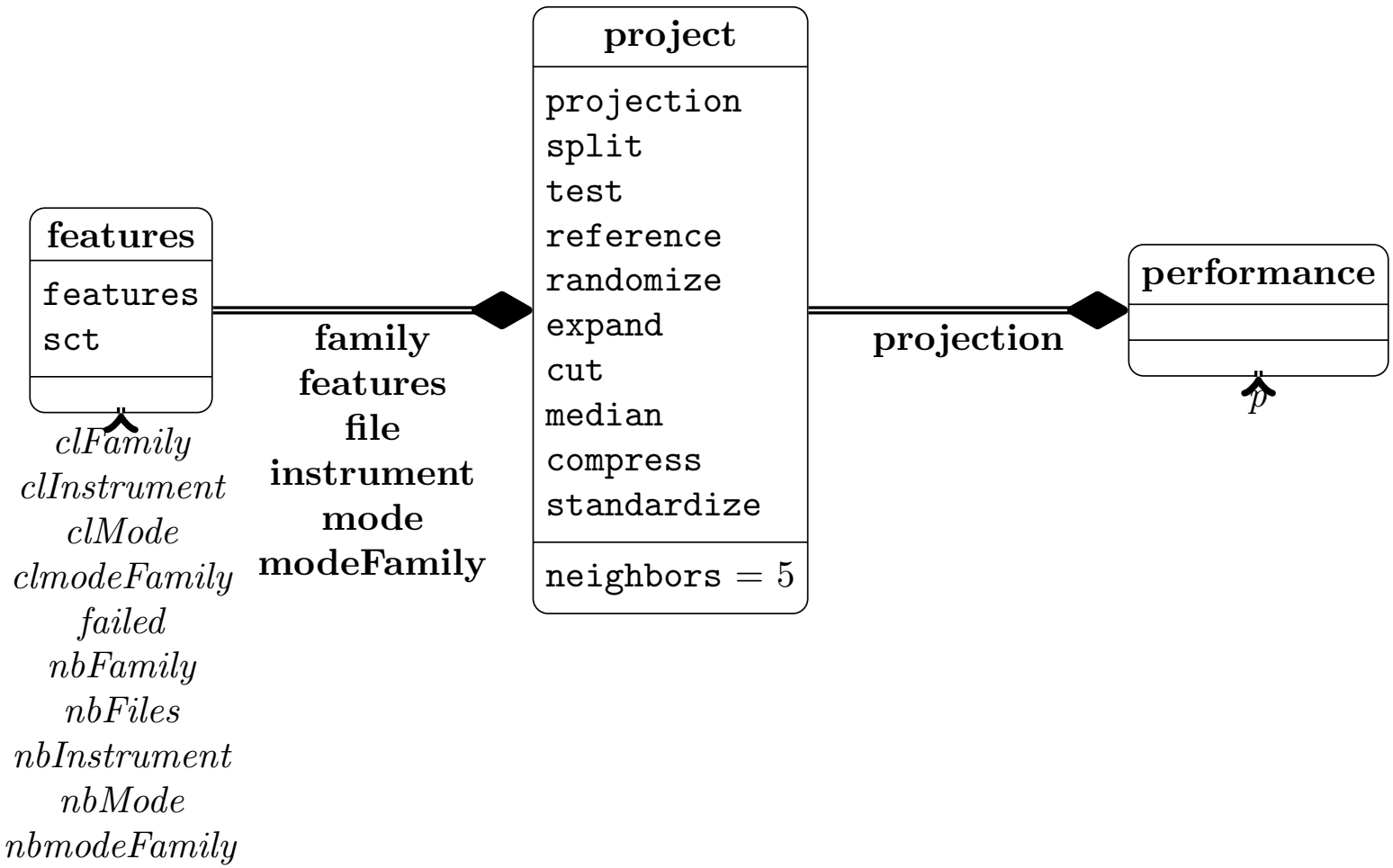
This is the report to document the expLanes project timbralSimilaritySol using LaTeX.

# Factors flow graph



# Sol db

| nbFiles | 25444 |
|---|---|
| nbFamily | 16 |
| nbInstrument | 33 |
| nbMode | 469 |
| nbmodeFamily | 143 |

# Sol db

| clFamily | 1590 ±936 |
|---|---|
| clInstrument | 771 ±814 |
| clMode | 54 ±59 |
| clmodeFamily | 178 ±429 |

## Mel / mfcc: sct: 25, projection: none, split: none, reference: family, randomize: 0, expand: 0

| features | cut | standardize | p (%) |
|---|---|---|---|
| mfcc | 0 | 0 | 85 |
| mfcc | 0 | 1 | 84 |
| mfcc | 1 | 0 | 88 |
| mfcc | 1 | 1 | **89** |
| mel | | 0 | 53 |
| mel | | 1 | 50 |

## Mel / mfcc: sct: 25, projection: none, split: none, reference: modeFamily, randomize: 0, expand: 0

| features | cut | standardize | p (%) |
|---|---|---|---|
| mfcc | 0 | 0 | 35 |
| mfcc | 0 | 1 | 32 |
| mfcc | 1 | 0 | **46** |
| mfcc | 1 | 1 | 45 |
| mel | | 0 | 19 |
| mel | | 1 | 19 |

# Scattering: features: scat, sct: 25, projection: none, split: none, reference: family, randomize: 0

| median | compress | standardize | p (%) |
|---|---|---|---|
| 0 | 0 | 0 | 64 |
| 0 | 0 | 1 | 76 |
| 0 | 1 | 0 | 84 |
| 0 | 1 | 1 | 83 |
| 1 | 0 | 0 | 77 |
| 1 | 0 | 1 | 76 |
| 1 | 1 | 0 | **89** |
| 1 | 1 | 1 | 89 |

## Scattering: features: scat, sct: 25, projection: none, split: none, reference: modeFamily, randomize: 0

| median | compress | standardize | p (%) |
|---|---|---|---|
| 0 | 0 | 0 | 28 |
| 0 | 0 | 1 | 38 |
| 0 | 1 | 0 | 43 |
| 0 | 1 | 1 | 43 |
| 1 | 0 | 0 | 40 |
| 1 | 0 | 1 | 38 |
| 1 | 1 | 0 | 50 |
| 1 | 1 | 1 | **50** |

Projection: sct: 25, split: none, reference: family, randomize: 0, expand: 0, cut: 1, median: 1, compress: 1, standardize: 1

| features | mfcc | scat |
|---|---|---|
| none | 89 | 89 |
| lmnn | 90 | 98 |
| lda | 87 | 96 |

Projection: sct: 25, split: none, reference: modeFamily, randomize: 0, expand: 0, cut: 1, median: 1, compress: 1, standardize: 1

| features | mfcc | scat |
|---|---|---|
| none | 45 | 50 |
| lmnn | 48 | 53 |
| lda | 50 | 52 |

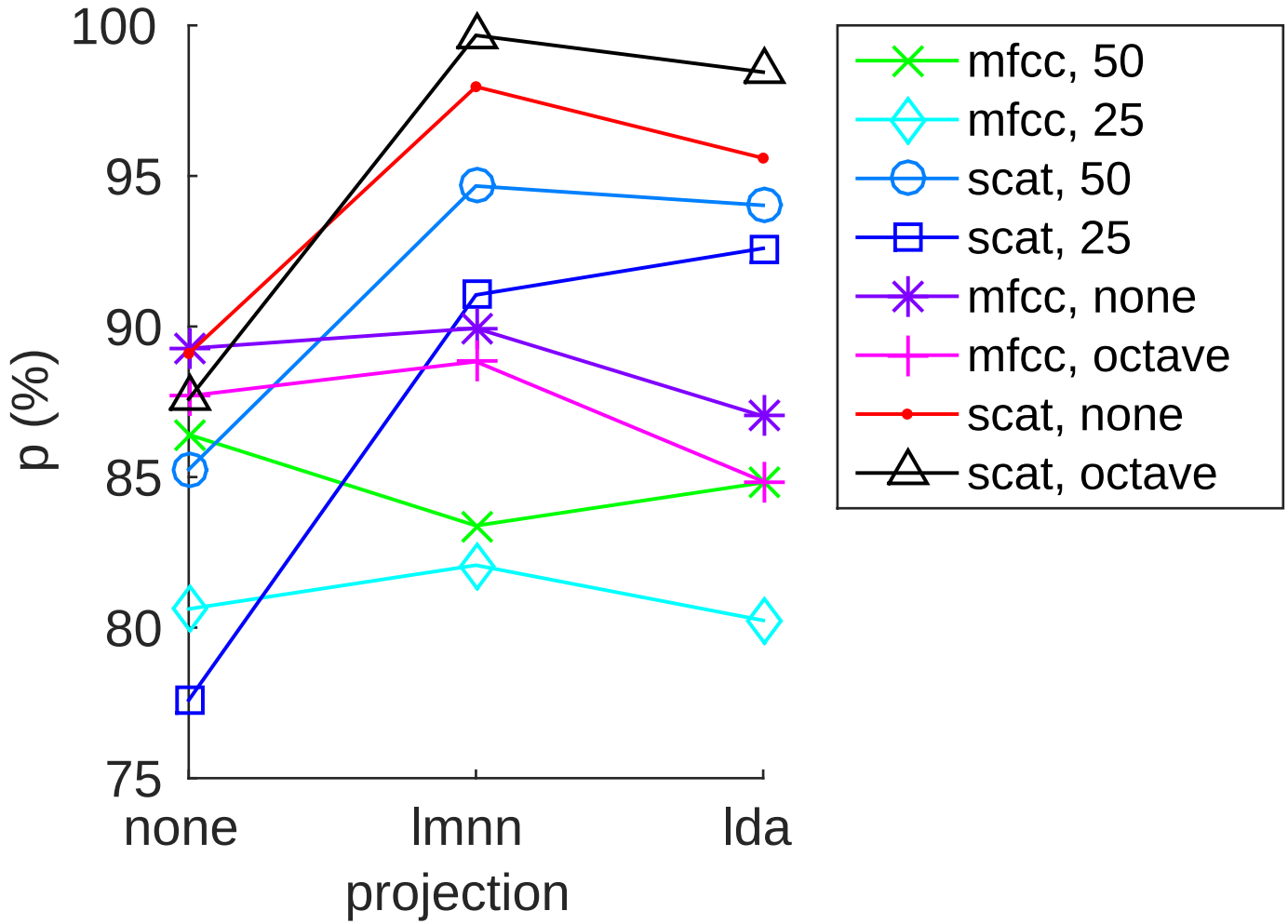
## Control learning: sct: 25, split: none, reference: family, cut: 1, median: 1, compress: 1, standardize: 1

| features | randomize | expand | none | lmnn | lda |
|---|---|---|---|---|---|
| mfcc | 0 | 0 | 89 | 90 | 87 |
| mfcc | 0 | 494 | 88 | 91 | 89 |
| mfcc | 1 | 0 | 8 | 8 | 8 |
| mfcc | 1 | 494 | 8 | 9 | 9 |
| scat | 0 | | 89 | 98 | 96 |
| scat | 1 | | 8 | 9 | 9 |

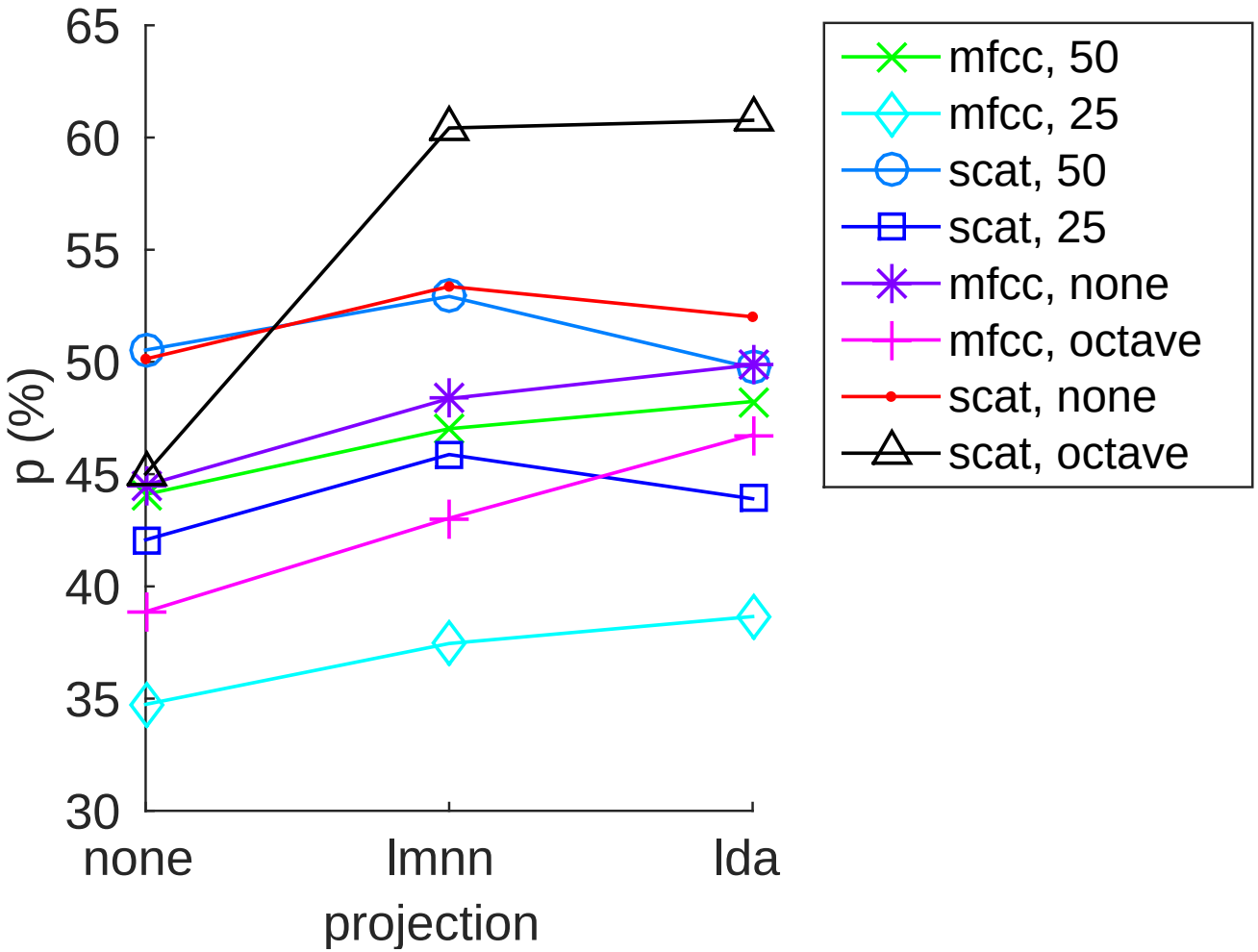
## Control learning: sct: 25, split: none, reference: modeFamily, cut: 1, median: 1, compress: 1, standardize: 1

| features | randomize | expand | none | lmnn | lda |
|---|---|---|---|---|---|
| mfcc | 0 | 0 | 45 | 48 | 50 |
| mfcc | 0 | 494 | 43 | 49 | 49 |
| mfcc | 1 | 0 | 5 | 5 | 5 |
| mfcc | 1 | 494 | 5 | 4 | 5 |
| scat | 0 | | 50 | 53 | 52 |
| scat | 1 | | 5 | 4 | 5 |

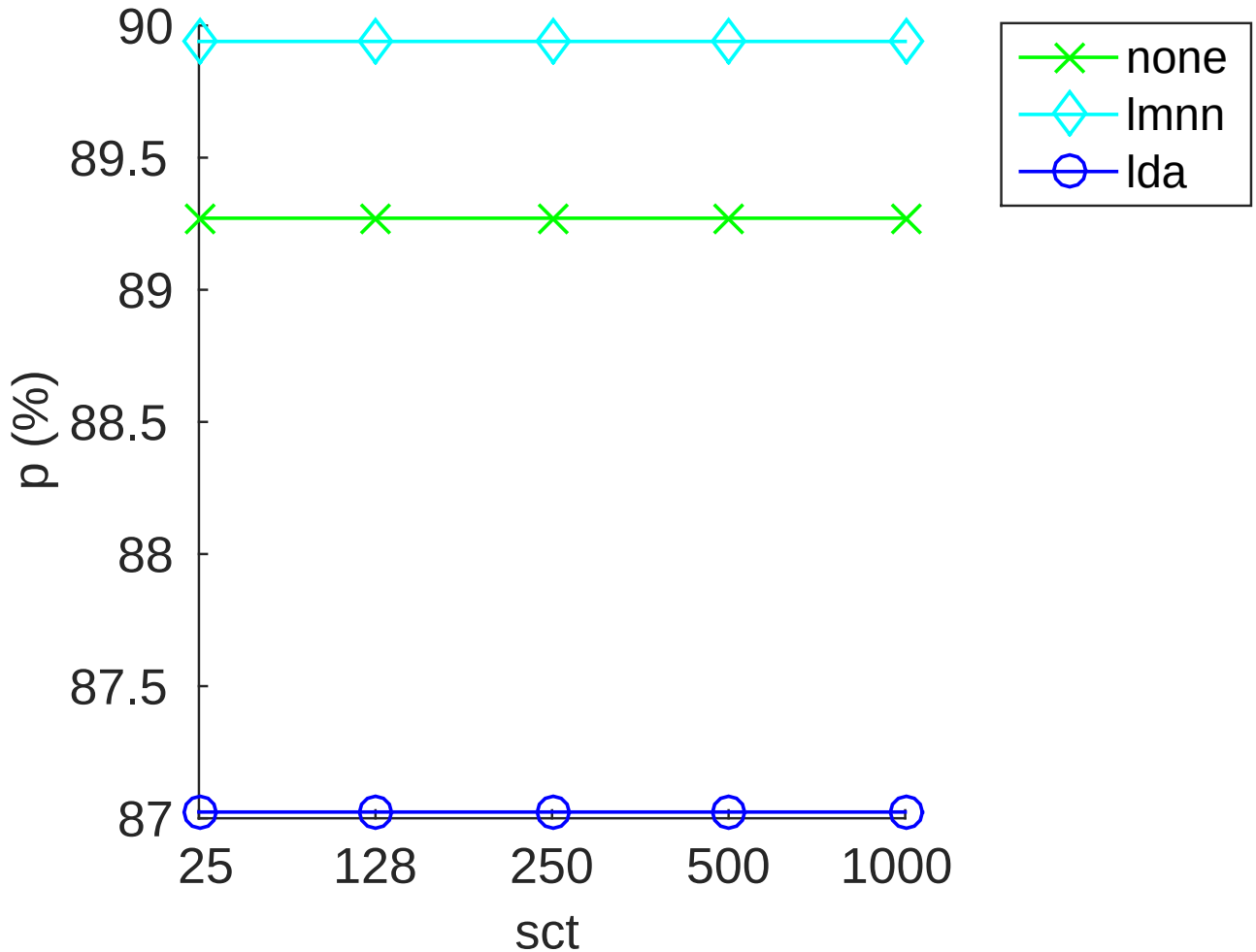
db splitting: sct: 25, test: 1, reference: family, randomize: 0, expand: 0, cut: 1, median: 1, compress: 1, standardize: 1



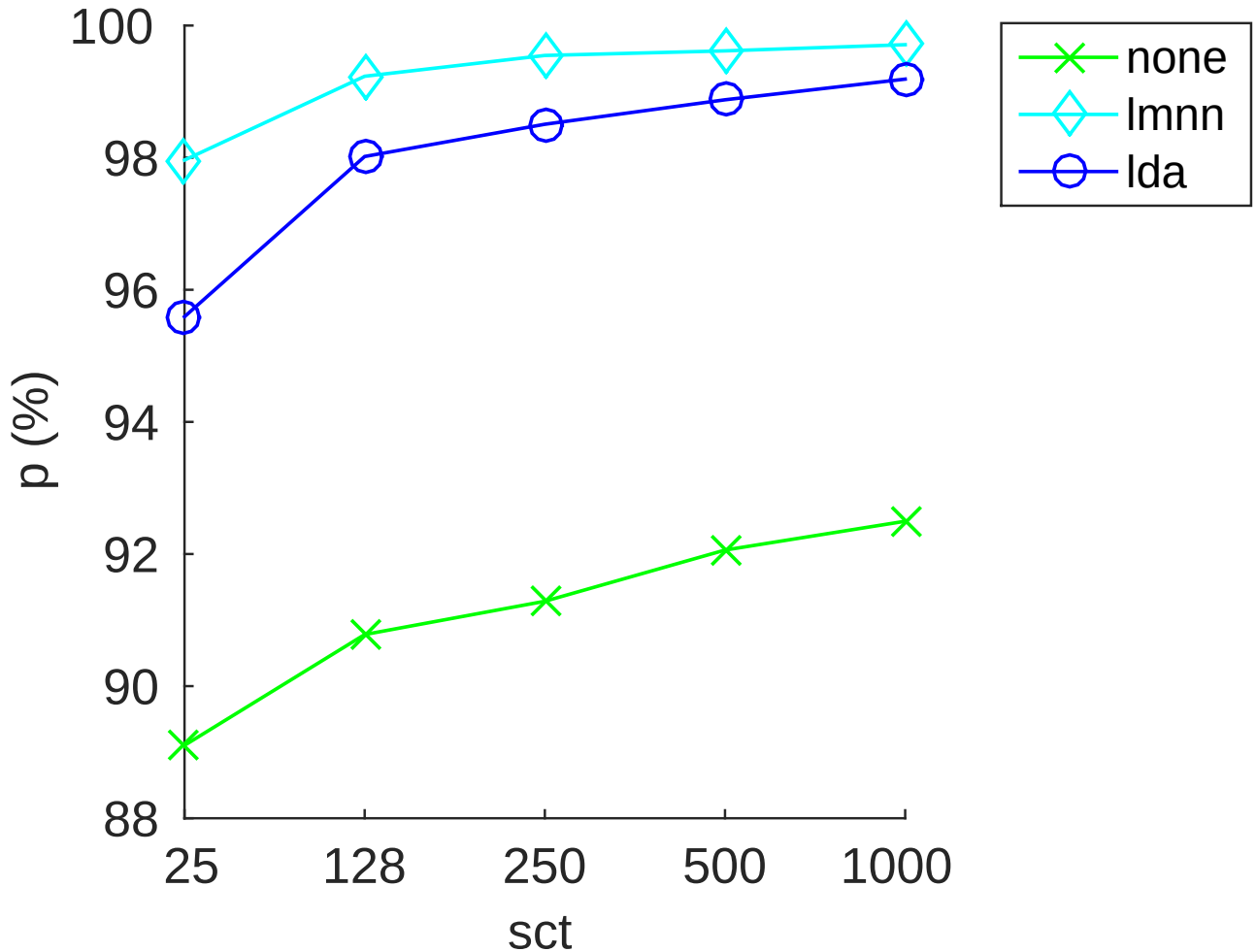
db splitting: sct: 25, test: 1, reference: modeFamily, randomize: 0, expand: 0, cut: 1, median: 1, compress: 1, standardize: 1



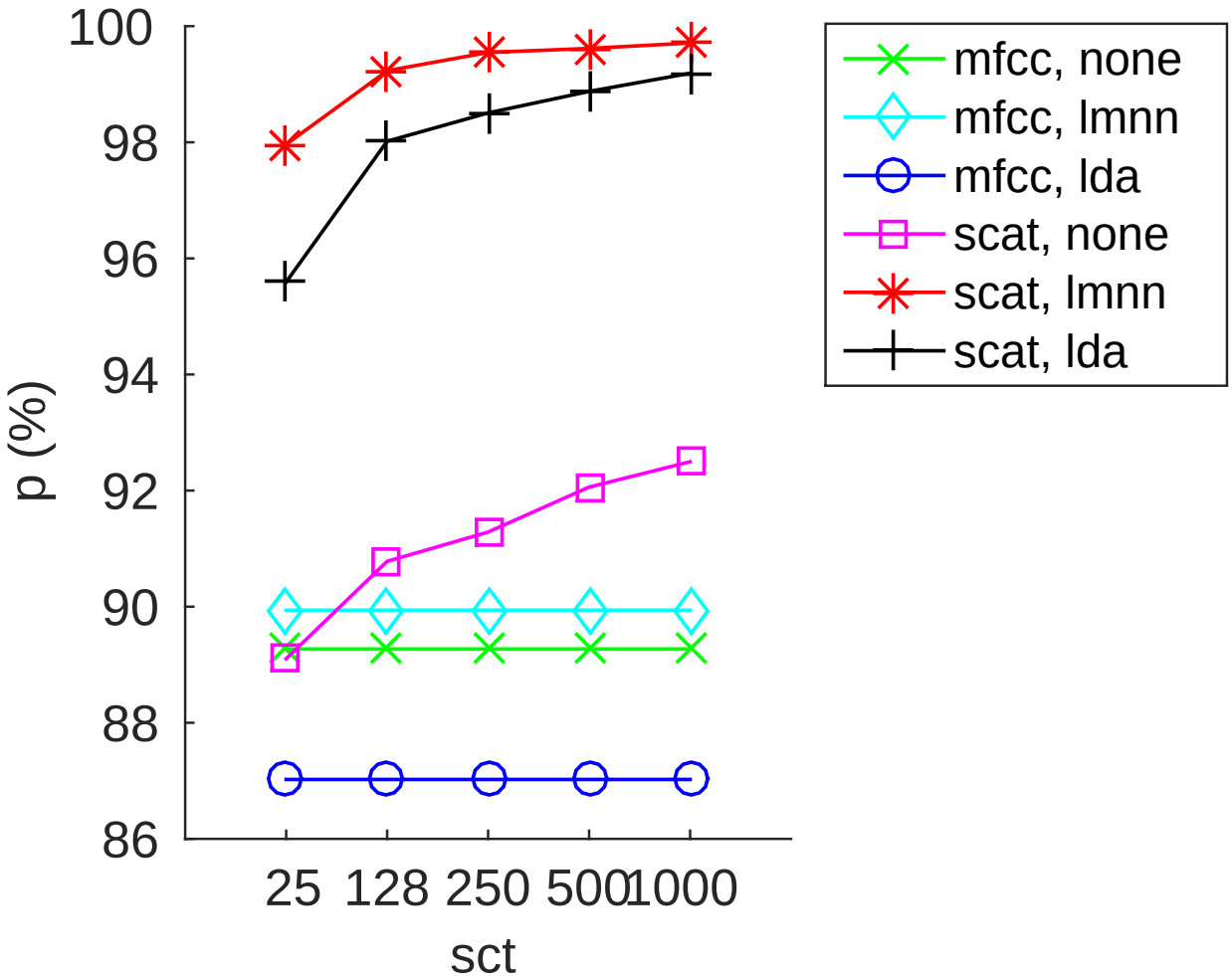
T: features: mfcc, reference: family, split: none, randomize: 0, expand: 0, cut: 1, standardize: 1



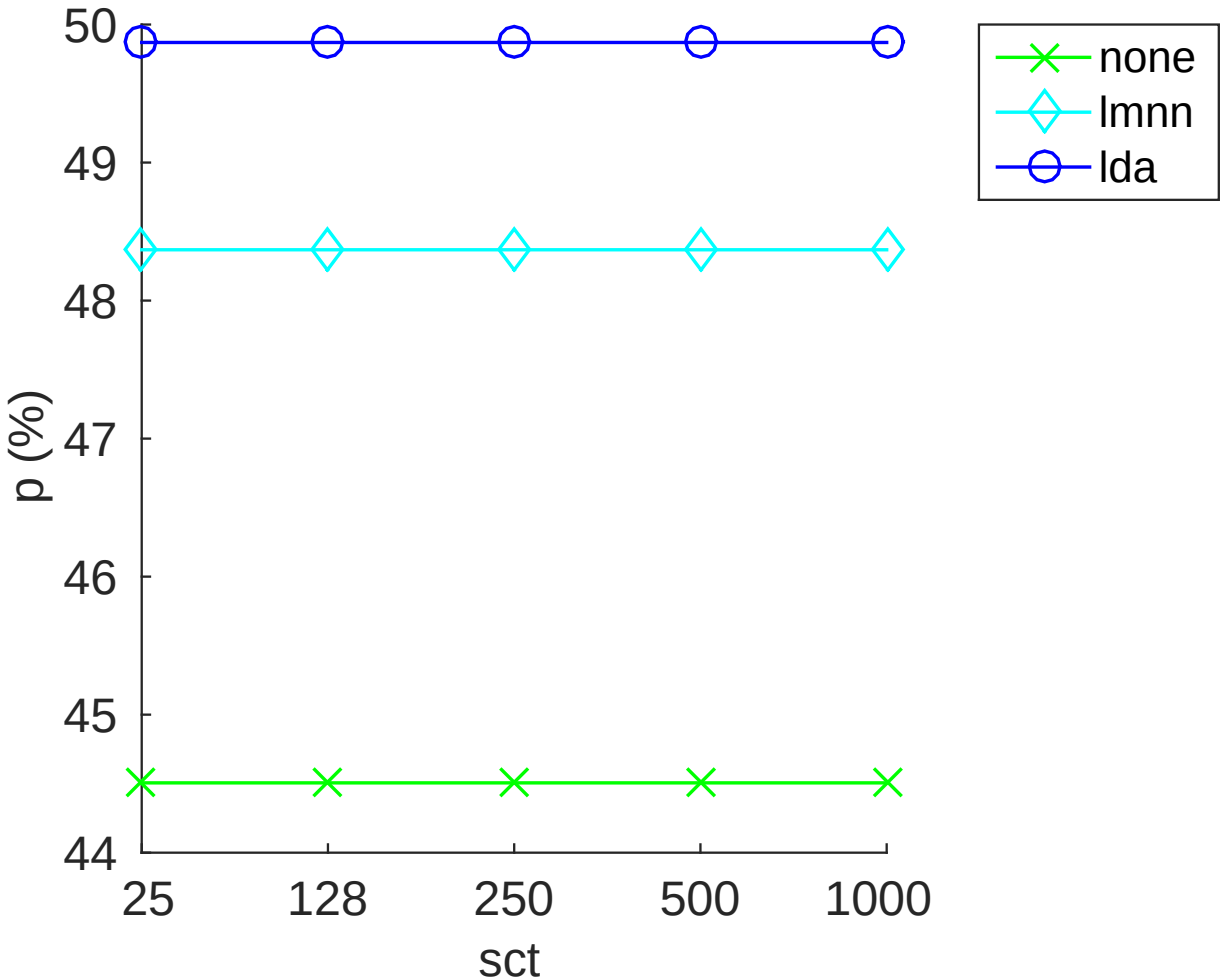
T: features: scat, reference: family, split: none, randomize: 0, median: 1, compress: 1, standardize: 1



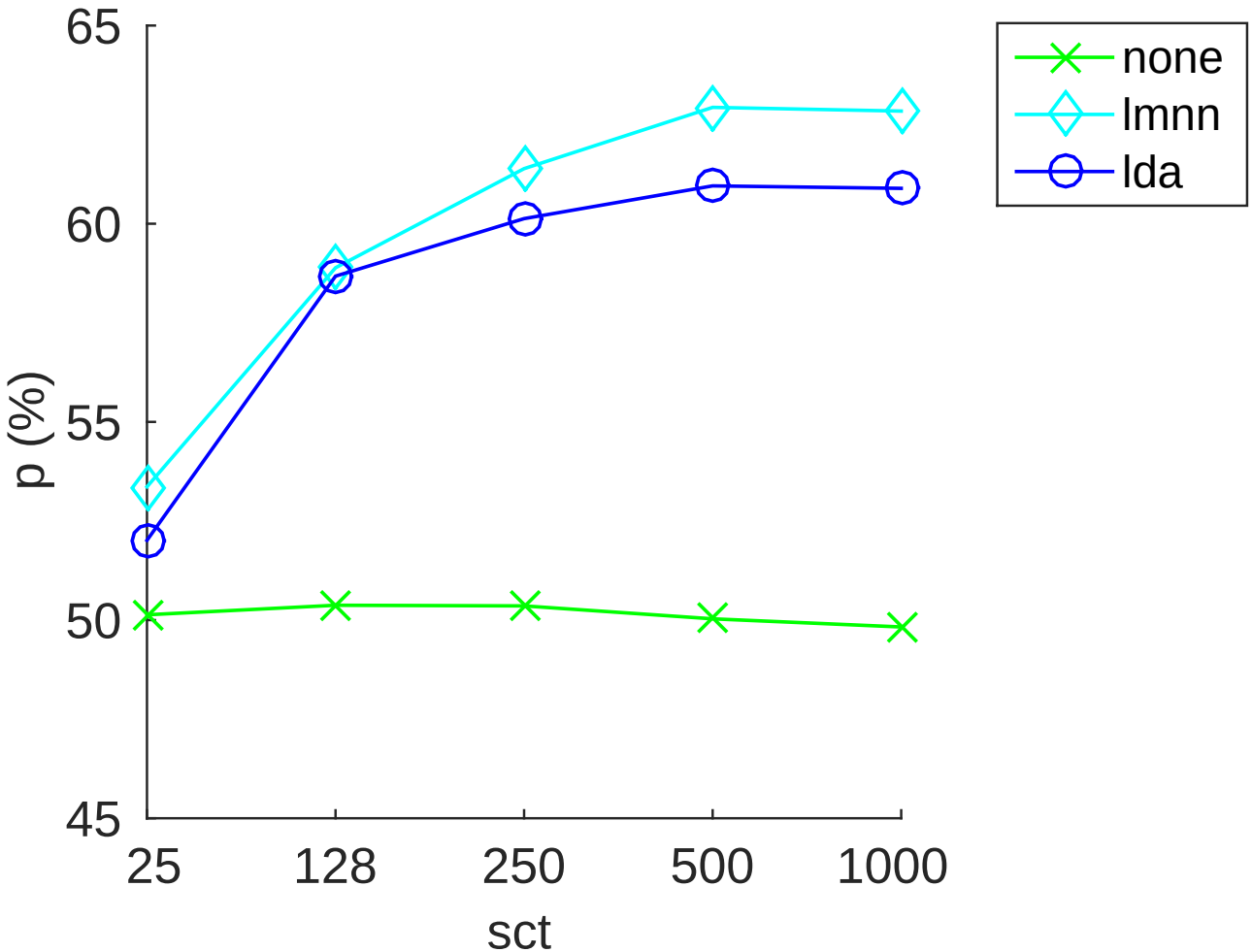
T: reference: family, split: none, randomize: 0, expand: 0, cut: 1, median: 1, compress: 1, standardize: 1



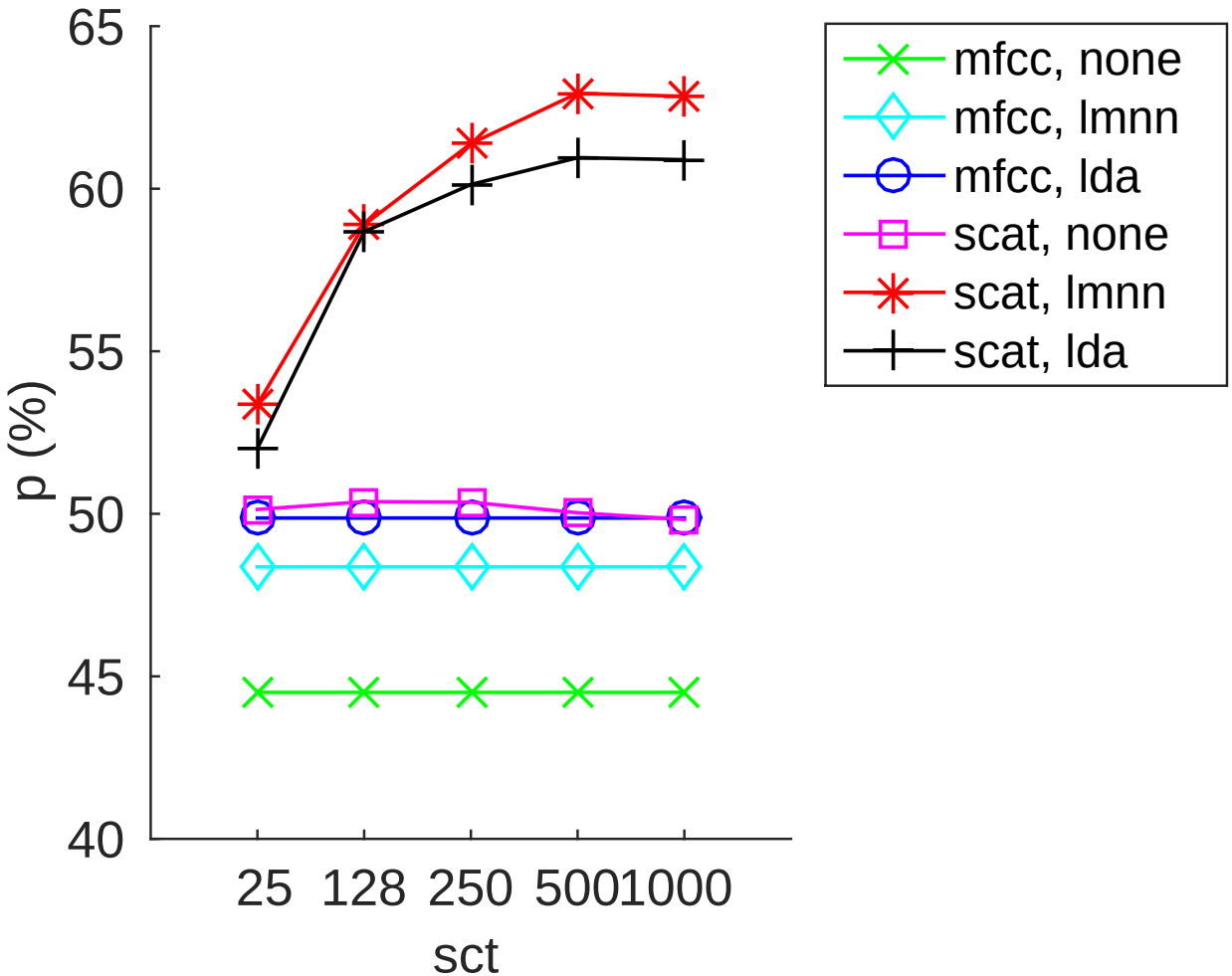
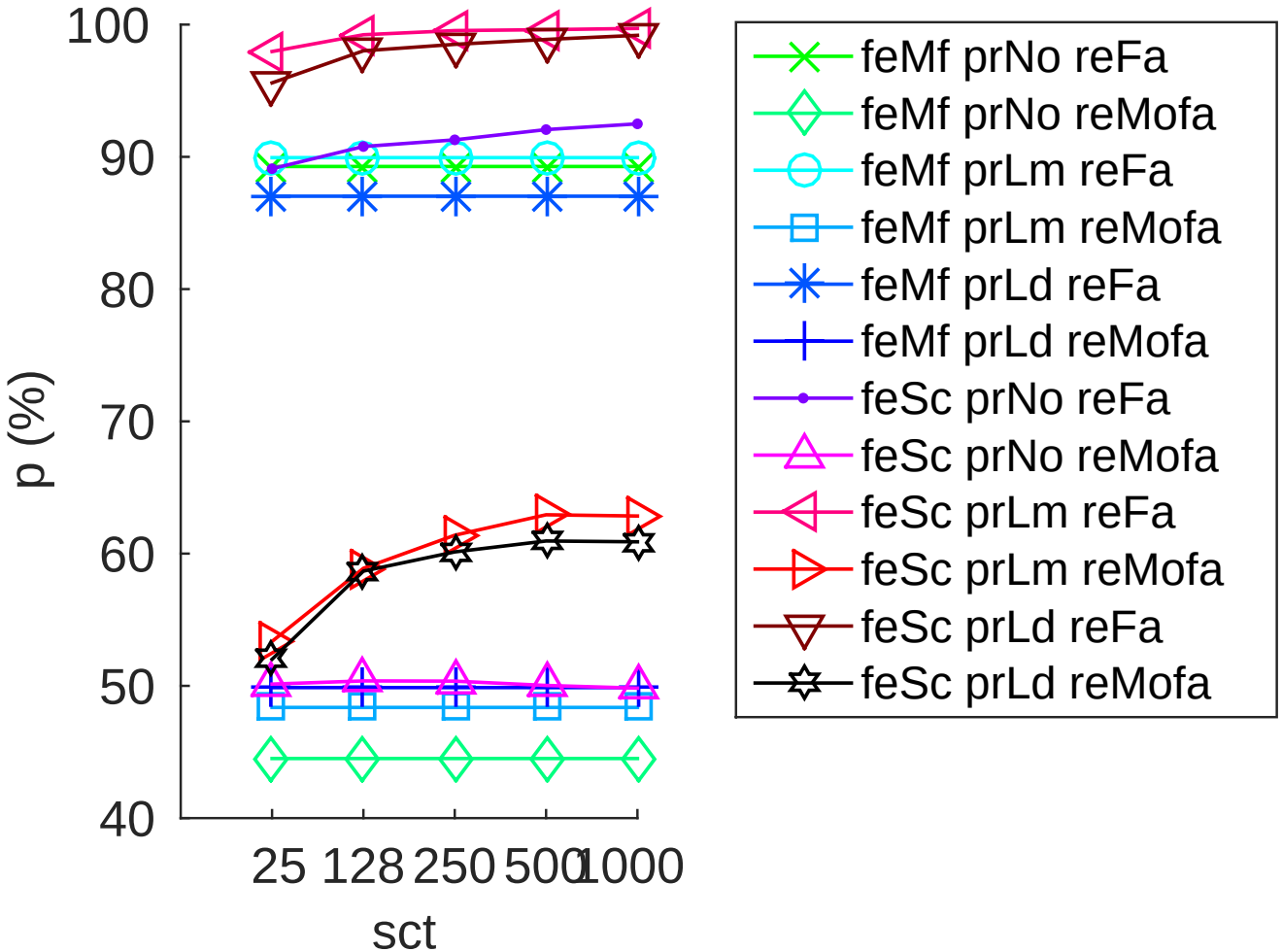
T: features: mfcc, reference: modeFamily, split: none, randomize: 0, expand: 0, cut: 1, standardize: 1



T: features: scat, reference: modeFamily, split: none, randomize: 0, median: 1, compress: 1, standardize: 1



T: reference: modeFamily, split: none, randomize: 0, expand: 0, cut: 1, median: 1, compress: 1, standardize: 1



conclusion: split: none, randomize: 0, expand: 0, cut: 1, median: 1, compress: 1, standardize: 1