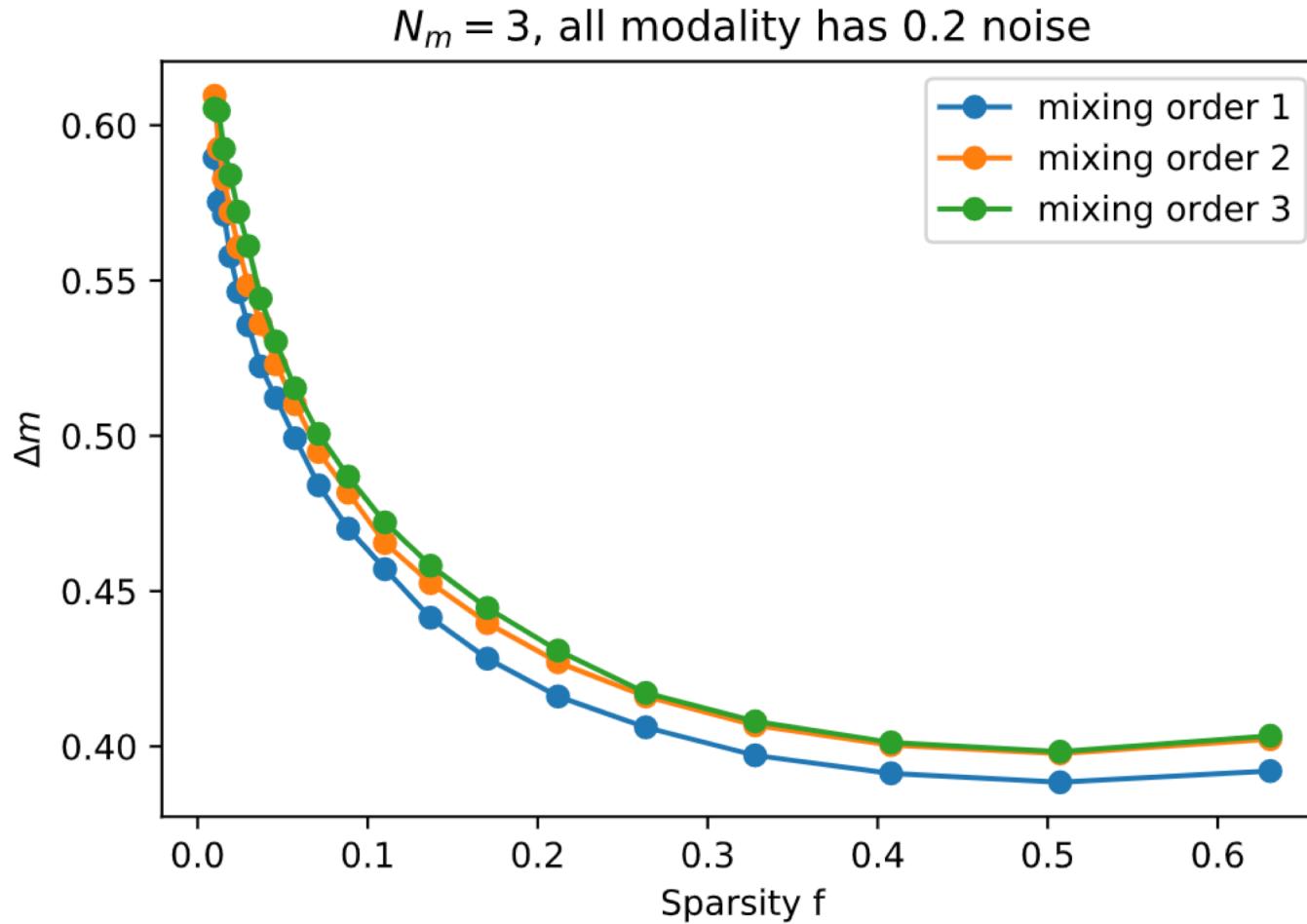


Results Summary 2

May 19

1. About Δm



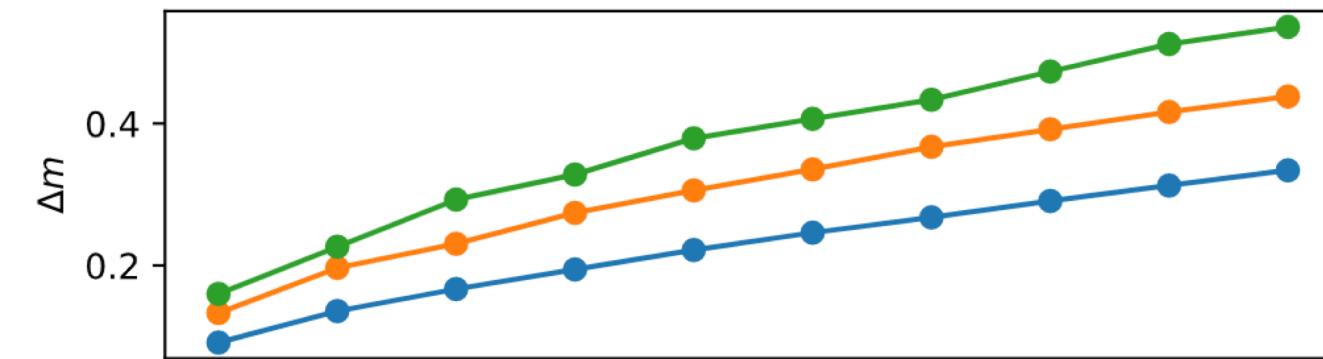
Add Same Noise to all modalities

1. IF All Input source has same level of Noise,
Mixing order will not change Δm
2. Consistent with Arvin's results in thesis
3. Because All neurons are homogeneous,
Babaldi's equation could apply here.

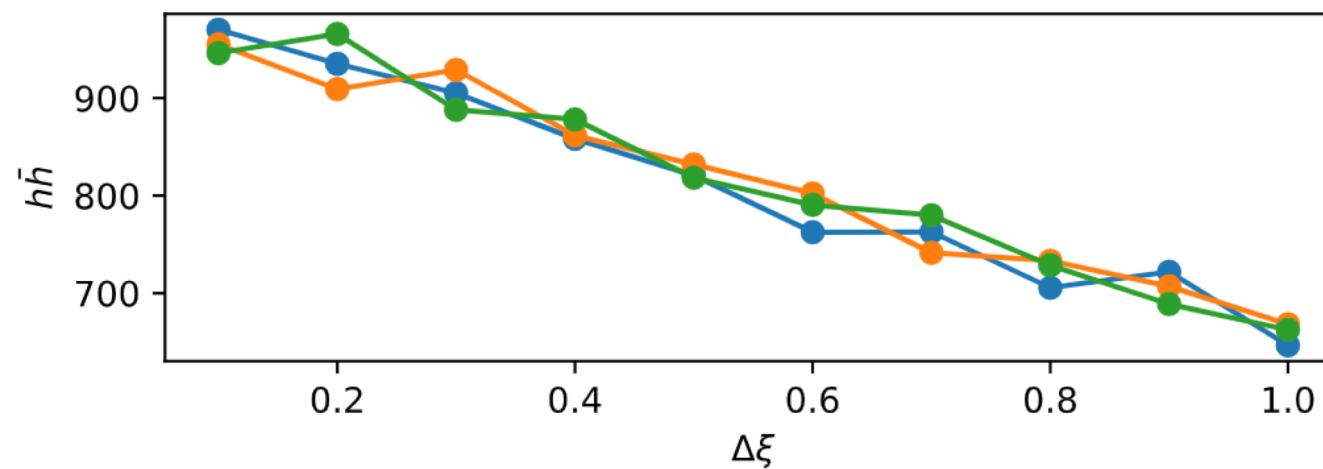
1. About Δm

Only Add Noise to First modality

$$N_m = 3, N_c = 1000, f = 0.5$$



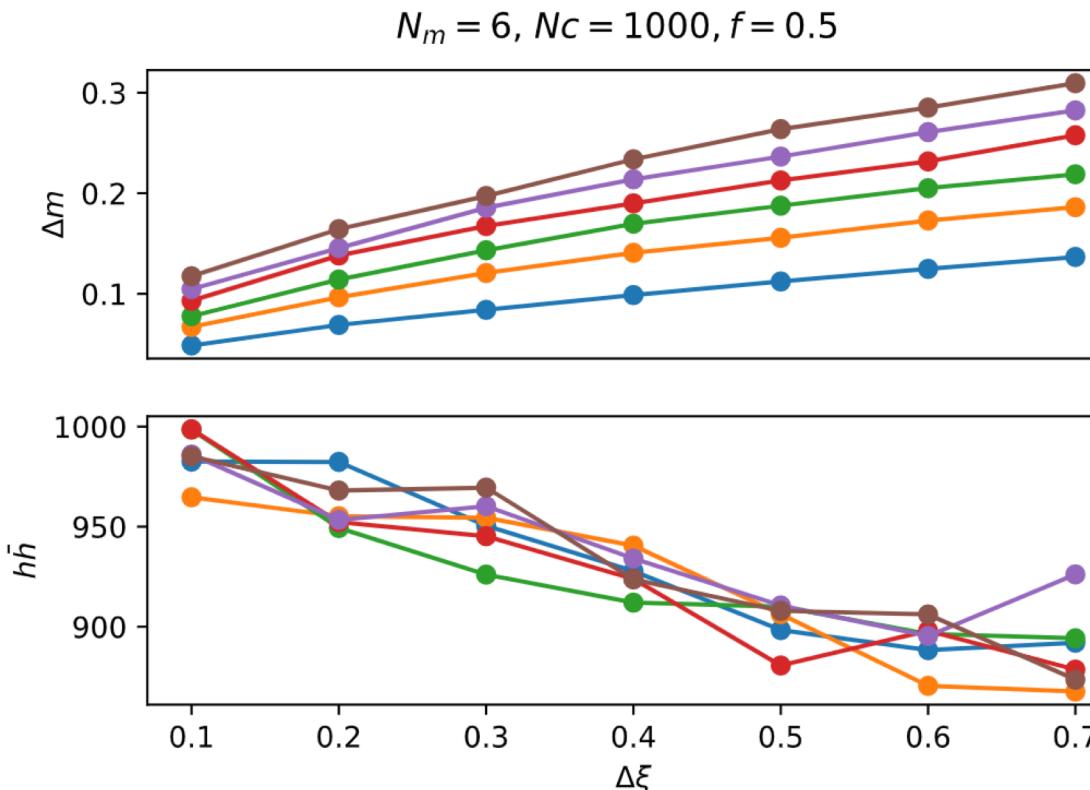
- Mixing Order $m = 1$
- Mixing Order $m = 2$
- Mixing Order $m = 3$



1. If we only induce noise in first task-relevant modality,
Mixing order will change, amplify to be specific, Δm
2. New Results. Because Neurons are heterogeneous,
Babaldi's equation could not apply.

1. About Δm

Only Add Noise to First modality



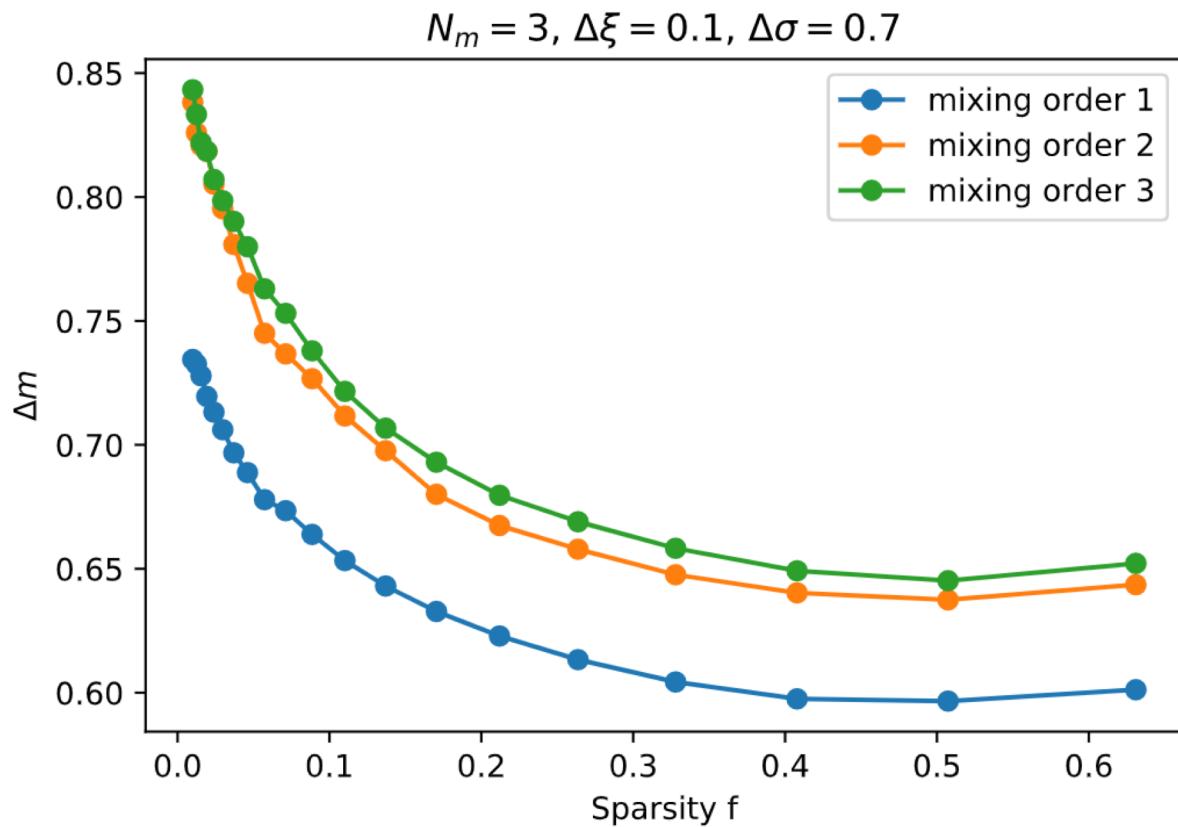
Same results for 6 Modalities

1. If we only induce noise in first task-relevant modality,

Mixing order will change, amplify to be specific, Δm

2. New Results. Because Neurons are heterogeneous, Babaldi's equation could not apply.

1. About Δm , back-up slide



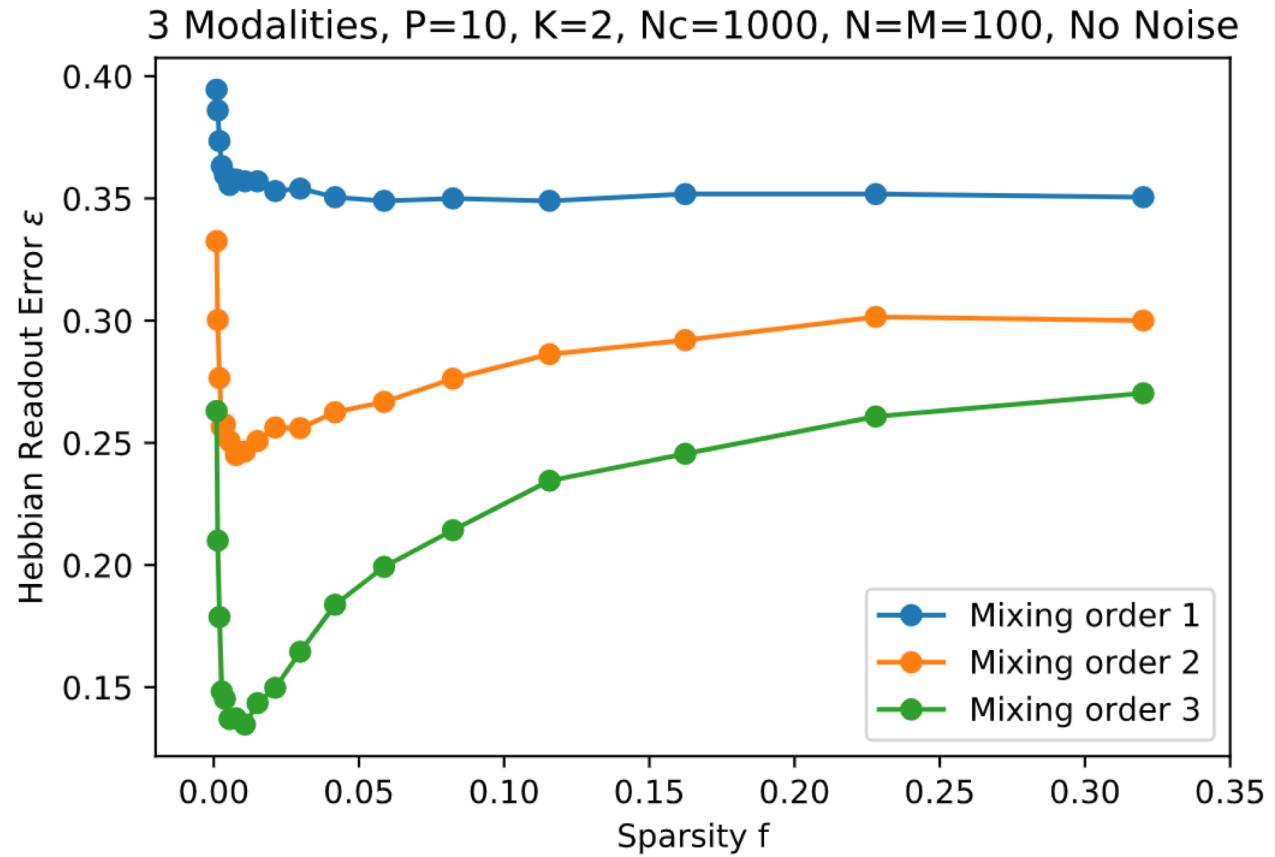
Add different Noise to different modalities

1. In more general case, as long as input source has different level of noise, mixing order m will change Δm

1. About Δm , Conclusion

1. If all Input source has same level of noise, Mixing order will not change Δm
 - 1.1 Babaldi's Equation doesn't apply when neurons has heterogeneous noise.
2. When heterogeneous noise in different source, Mixing order will affect Δm .
If we only has noise at first modality, **the mixing order will monotonically amplify Δm**

2. About Readout Error



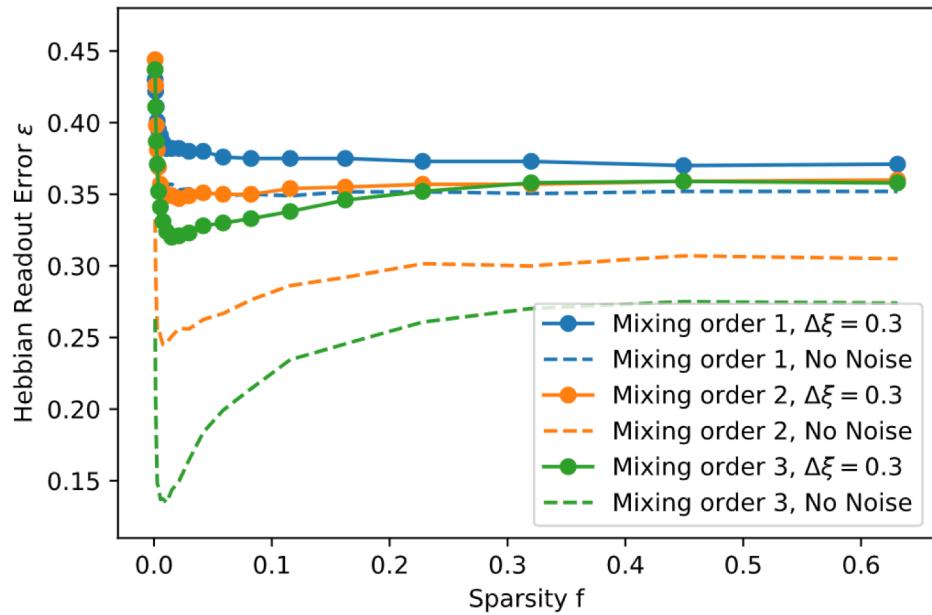
Relation to Sparsity f

Optimal Sparsity ~ 0.005

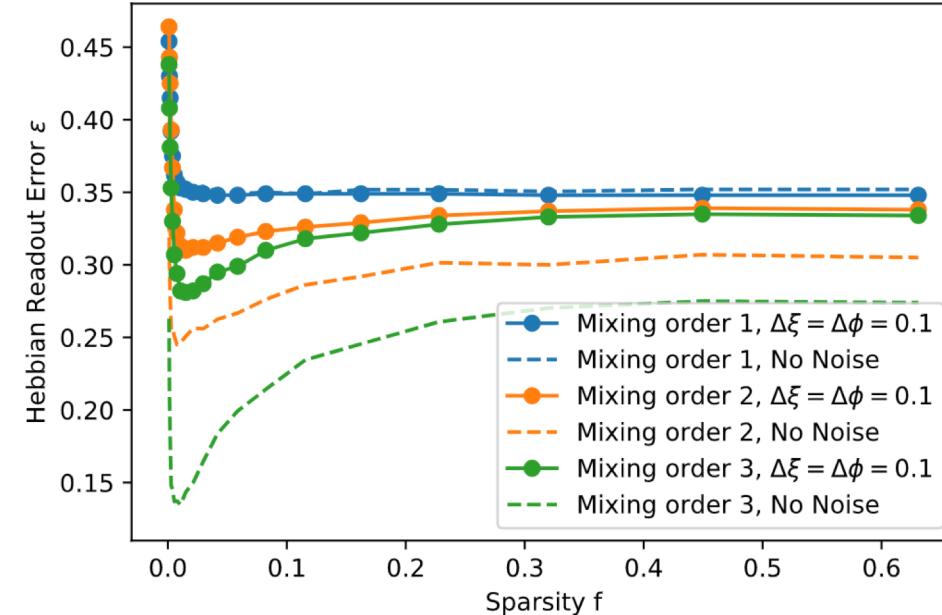
2. About Readout Error

Relation to Sparsity f, Add Noise

3 Modalities, P=10, K=2, Nc=1000, N=M=100, only noise in one modality



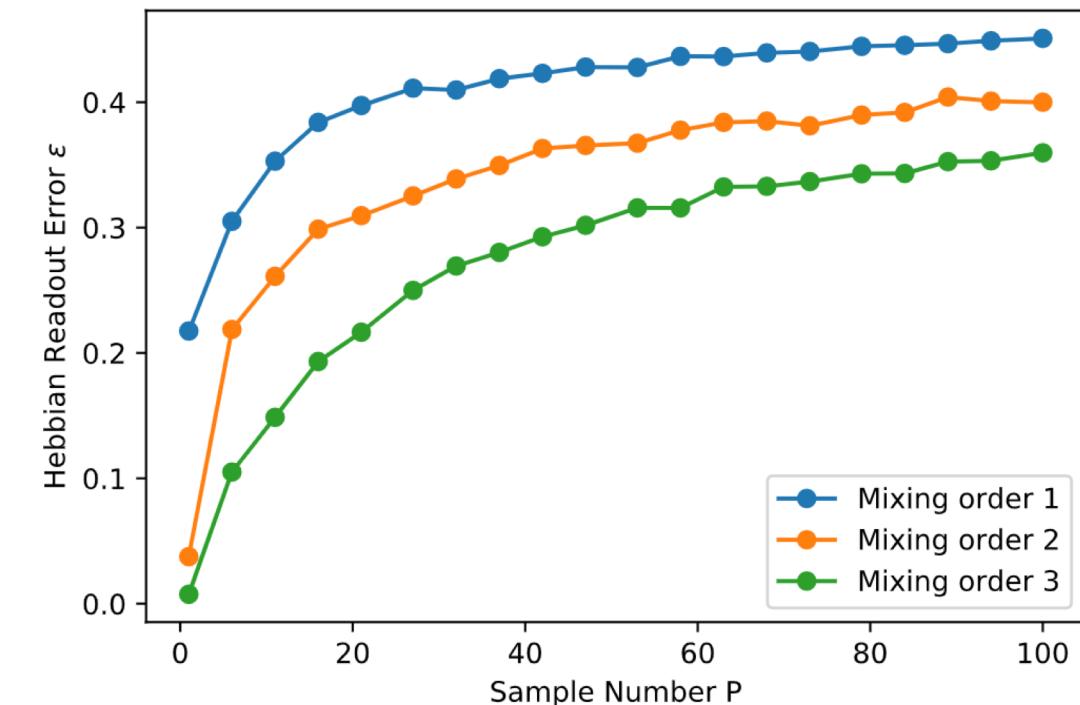
3 Modalities, P=10, K=2, Nc=1000, N=M=100, Noise in All modality



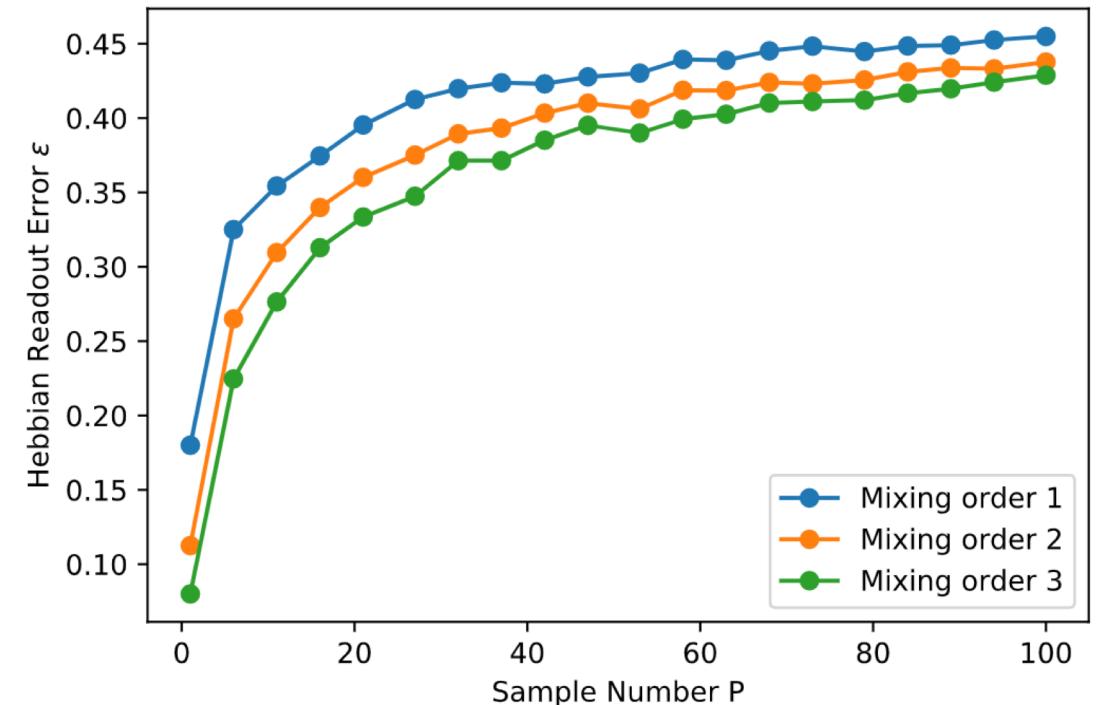
2. About Readout Error

Relation to Sample numbers P, No noise

3 Modalities, K=2, Nc=1000, N=M=100, f = 0.005, No noise



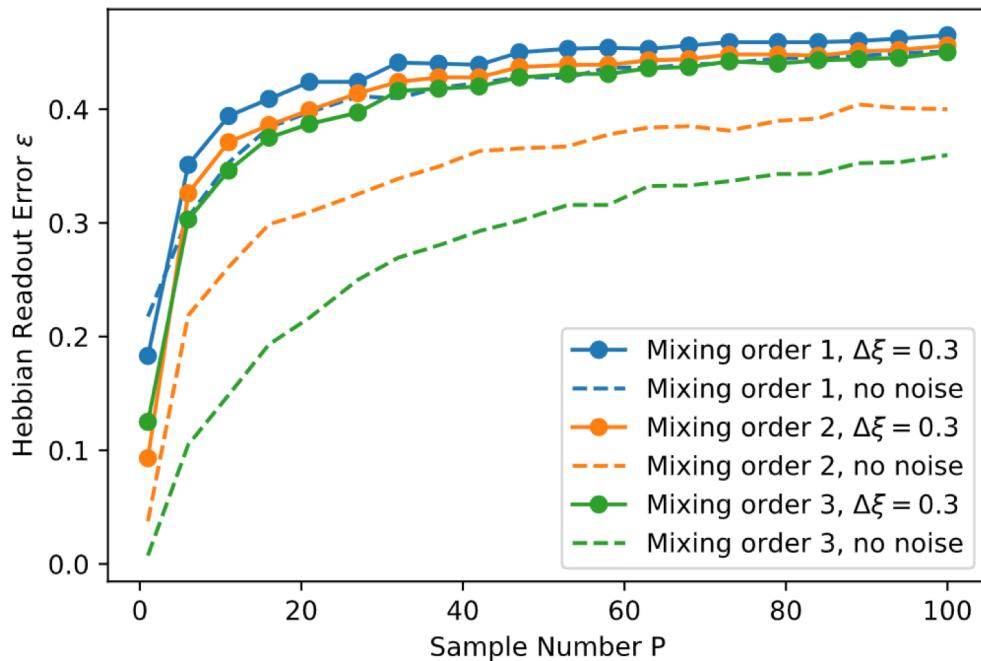
3 Modalities, K=2, Nc=1000, N=M=100, f = 0.2, No noise



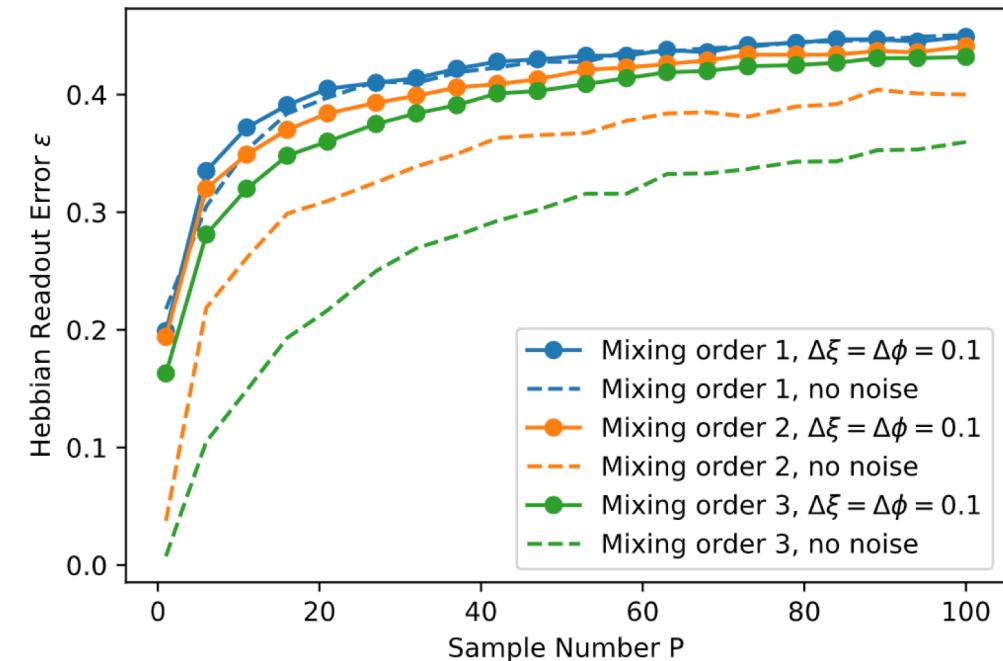
2. About Readout Error

Relation to Sample numbers P, Add noise

3 Modalities, K=2, Nc=1000, N=M=100, f = 0.005, noise to first modality only



3 Modalities, K=2, Nc=1000, N=M=100, f = 0.005, noise to all modalities



2. About Readout error

6 Modalities, K=2, P = 10, Nc=3000, N=M=100, f = 0.005, noise to first modality

