

- Objects:
- ① Space  $S_k(N, \chi)$  identifier N.K.i or N.K.n
    - Dimension
    - decomposition
    - old siblings
    - Sturm bound
    - Eisenstein dimension
    - dimension  $S_k(N, \chi), M_k(N, \chi)$
    - Dirichlet character database (limited range)
  - ② Hecke orbit
    - Dimension
    - Is CM
    - label N.K.i.X analytic
    - Has inner twist
    - field poly, label, polredabs?
    - CM discriminant
    - trace(an)  $n \leq 100$
    - trace-hash
    - algebraic ans
  - ③ complex ans?
    - embedding label
    - orbit-label, n
    - some well-defined ordering? TBD
    - precision digits
    - enough data to reconstruct alg. ans up to Sturm bound
  - ④ primitive deg 2 L-function
    - KK
    - France
  - ⑤ rational L-function (degree 2-d) Drew

$N.K.i: [d_1, \dots, d_r]$  space  $Nk \leq 500$   
 $\xrightarrow{\text{sorted}}$

$N.K.i: [\frac{a_1}{d_1}, \dots, \frac{a_r}{d_r}]$  orbits  $\xleftarrow{\text{sorted lexicographically}}$

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• Database schema David Alex

• Web page design/layout

• Rigor/completeness/source knobs

• Dirichlet characters Paul, Doherty

LMFDB  $N \leq 10000$

Conrey labels/orbit labels

Magma ← Drew  
 Pari ← JC  
 Analytic ← JB  
 (LMFDB-Mongo)

① lookup polredabs polys in LMFDB } Edgar  
 ② polredabs Field polys

• Browse/search David Alex JV weight 1

• L-function data (Andy, JB)

• Algebraic coeffs /JC, JV

• complex data?