PLSA (baseline)

1.0.1

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1.1 Data Structures

Here are the data structures with brief descriptions:

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2.1 File List

Here is a list of all files with brief descriptions:

Chapter 3

Data Structure Documentation

3.1 cooccur Struct Reference

`#include <plsa-defn.h>`

Data Fields

- PROBNODE x
- unsigned int column

3.1.1 Field Documentation

3.1.1.1 PROBNODE cooccur::x

The co-occurrence count, as a log value

3.1.1.2 unsigned int cooccur::column

Column position of this value

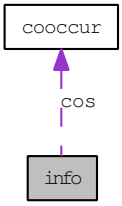
The documentation for this struct was generated from the following file:

- plsa-defn.h

3.2 info Struct Reference

`#include <plsa-defn.h>`

Collaboration diagram for info:



Data Fields

- bool verbose
- bool debug
- bool textio
- bool rounding
- bool no_output
- unsigned int seed
- unsigned int num_clusters
- char * base_fn
- unsigned int maxiter
- unsigned int m
- unsigned int n
- char * co_fn
- COOCCUR ** cos
- unsigned int * row_ids
- unsigned int * column_ids
- unsigned int iter
- PROBNODE * probw1_z
- PROBNODE * probw2_z
- PROBNODE * probz
- PROBNODE ** probz_w1w2
- signed int world_id
- signed int world_size
- unsigned int block_start
- unsigned int block_end
- unsigned int block_size
- unsigned int sigfpe_count
- time_t program_start
- double run_time
- double readCO_time
- double initEM_time
- double calculateML_time
- double applyEStep_time
- double applyMStep_time
- double normalizeProbs_time
- double printCoProbs_time
- time_t program_end

3.2.1 Field Documentation

3.2.1.1 bool info::verbose

Verbose output?

3.2.1.2 bool info::debug

Debugging output?

3.2.1.3 bool info::textio

Text I/O

3.2.1.4 bool info::rounding

Should the output values be rounded?

3.2.1.5 bool info::no_output

Suppress output

3.2.1.6 unsigned int info::seed

Random seed

3.2.1.7 unsigned int info::num_clusters

Number of clusters

3.2.1.8 char* info::base_fn

Base filename for the output file

3.2.1.9 unsigned int info::maxiter

Maximum number of iterations

3.2.1.10 unsigned int info::m

Number of unique query terms

3.2.1.11 unsigned int info::n

Number of terms in the document collection

3.2.1.12 char* info::co_fn

Co-occurrence filename

3.2.1.13 COOCCUR** info::cos

Co-occurrence counts in a COOCCUR data structure

3.2.1.14 unsigned int* info::row_ids

List of row identifiers (m of them)

3.2.1.15 unsigned int* info::column_ids

List of column identifiers (m of them)

3.2.1.16 unsigned int info::iter

Iteration; only calculated by the main process and broadcasted to others

3.2.1.17 PROBNODE* info::probw1_z

P(w1|z) of size (k * m)

3.2.1.18 PROBNODE* info::probw2_z

P(w2|z) of size (k * n)

3.2.1.19 PROBNODE* info::probz

P(z) of size (k); one-dimensional array does not need a pointer

3.2.1.20 PROBNODE** info::probz_w1w2

P(z|w1w2) of size (k * m * n)

3.2.1.21 signed int info::world_id

ID of this process

3.2.1.22 signed int info::world_size

Number of processes total

3.2.1.23 unsigned int info::block_start

Starting block (cluster) for this process to handle

3.2.1.24 unsigned int info::block_end

Ending block (cluster) for this process to handle

3.2.1.25 unsigned int info::block_size

Size of the block for this process to handle

3.2.1.26 unsigned int info::sigfpe_count

Number of floating point exception errors

3.2.1.27 time_t info::program_start

3.2.1.28 double info::run_time

3.2.1.29 double info::readCO_time

3.2.1.30 double info::initEM_time

3.2.1.31 double info::calculateML_time

3.2.1.32 double info::applyEStep_time

3.2.1.33 double info::applyMStep_time

3.2.1.34 double info::normalizeProbs_time

3.2.1.35 double info::printCoProbs_time

3.2.1.36 time_t info::program_end

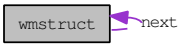
The documentation for this struct was generated from the following file:

- plsa-defn.h

3.3 wmstruct Struct Reference

`#include <wmalloc.h>`

Collaboration diagram for wmstruct:



Data Fields

- void * ptr
- size_t size
- char * file
- unsigned int line
- struct wmstruct * next

3.3.1 Field Documentation

3.3.1.1 void* wmstruct::ptr

3.3.1.2 size_t wmstruct::size

3.3.1.3 char* wmstruct::file

3.3.1.4 unsigned int wmstruct::line

3.3.1.5 struct wmstruct* wmstruct::next [read]

The documentation for this struct was generated from the following file:

- wmalloc.h

Chapter 4

File Documentation

4.1 config.h File Reference

Defines

- #define HAVE_FLOAT_H 1
- #define HAVE_INTTYPES_H 1
- #define HAVE_LIMITS_H 1
- #define HAVE_MALLOC 1
- #define HAVE_MEMORY_H 1
- #define HAVE_REALLOC 1
- #define HAVE_STDBOOL_H 1
- #define HAVE_STDINT_H 1
- #define HAVE_STDLIB_H 1
- #define HAVE_STRINGS_H 1
- #define HAVE_STRING_H 1
- #define HAVE_SYS_STAT_H 1
- #define HAVE_SYS_TYPES_H 1
- #define HAVE_UNISTD_H 1
- #define HAVE__BOOL 1
- #define PACKAGE "plsa-base"
- #define PACKAGE_BUGREPORT "r.wan@aist.go.jp"
- #define PACKAGE_NAME "PLSA-BASE"
- #define PACKAGE_STRING "PLSA-BASE 1.0"
- #define PACKAGE_TARNAME "plsa-base"
- #define PACKAGE_VERSION "1.0"
- #define STDC_HEADERS 1
- #define VERSION "1.0"

4.1.1 Define Documentation

4.1.1.1 #define HAVE__BOOL 1

4.1.1.2 #define HAVE_FLOAT_H 1

4.1.1.3 #define HAVE_INTTYPES_H 1

4.1.1.4 #define HAVE_LIMITS_H 1

4.1.1.5 #define HAVE_MALLOC 1

4.1.1.6 #define HAVE_MEMORY_H 1

4.1.1.7 #define HAVE_REALLOC 1

4.1.1.8 #define HAVE_STDBOOL_H 1

4.1.1.9 #define HAVE_STDINT_H 1

4.1.1.10 #define HAVE_STDLIB_H 1

4.1.1.11 #define HAVE_STRING_H 1

4.1.1.12 #define HAVE_STRINGS_H 1

4.1.1.13 #define HAVE_SYS_STAT_H 1

4.1.1.14 #define HAVE_SYS_TYPES_H 1

4.1.1.15 #define HAVE_UNISTD_H 1

4.1.1.16 #define PACKAGE "plsa-base"

4.1.1.17 #define PACKAGE_BUGREPORT "r.wan@aist.go.jp"

4.1.1.18 #define PACKAGE_NAME "PLSA-BASE"

4.1.1.19 #define PACKAGE_STRING "PLSA-BASE 1.0"

4.1.1.20 #define PACKAGE_TARNAME "plsa-base"

4.1.1.21 #define PACKAGE_VERSION "1.0"

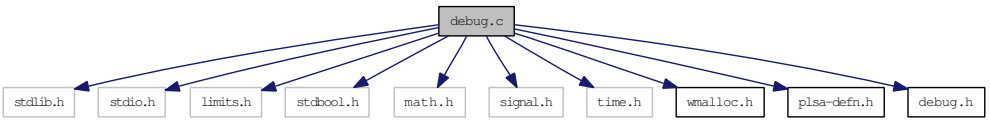
4.1.1.22 #define STDC_HEADERS 1

4.1.1.23 #define VERSION "1.0"

4.2 debug.c File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <limits.h>
#include <stdbool.h>
#include <math.h>
#include <signal.h>
#include <time.h>
#include "wmalloc.h"
#include "plsa-defn.h"
#include "debug.h"
```

Include dependency graph for debug.c:



Functions

- void handler_sigfpe ()
- void debugCheckCo (INFO *info)
- void checkCoProb (INFO *info)

4.2.1 Function Documentation

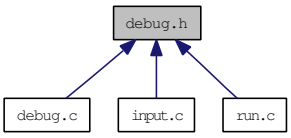
4.2.1.1 void checkCoProb (INFO * *info*)

4.2.1.2 void debugCheckCo (INFO * *info*)

4.2.1.3 void handler_sigfpe ()

4.3 debug.h File Reference

This graph shows which files directly or indirectly include this file:



Functions

- void handler_sigfpe ()
- void debugCheckCo (INFO *info)
- void checkCoProb (INFO *info)

4.3.1 Function Documentation

4.3.1.1 void checkCoProb (INFO * *info*)

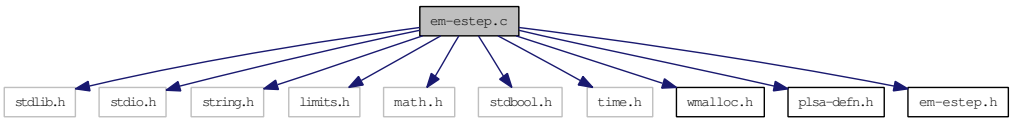
4.3.1.2 void debugCheckCo (INFO * *info*)

4.3.1.3 void handler_sigfpe ()

4.4 em-estep.c File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <string.h>
#include <limits.h>
#include <math.h>
#include <stdbool.h>
#include <time.h>
#include "wmalloc.h"
#include "plsa-defn.h"
#include "em-estep.h"
```

Include dependency graph for em-estep.c:



Functions

- void initEM (INFO *info)
- void applyEStep (INFO *info)
- PROBNODE calculateML (INFO *info)

4.4.1 Function Documentation

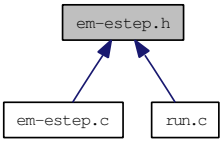
4.4.1.1 void applyEStep (INFO * *info*)

4.4.1.2 PROBNODE calculateML (INFO * *info*)

4.4.1.3 void initEM (INFO * *info*)

4.5 em-estep.h File Reference

This graph shows which files directly or indirectly include this file:



Functions

- void initEM (INFO *info)
- void applyEStep (INFO *info)
- PROBNODE calculateML (INFO *info)

4.5.1 Function Documentation

4.5.1.1 void applyEStep (INFO * *info*)

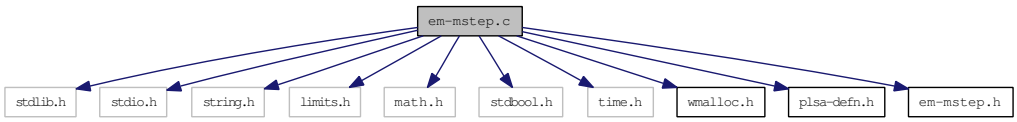
4.5.1.2 PROBNODE calculateML (INFO * *info*)

4.5.1.3 void initEM (INFO * *info*)

4.6 em-mstep.c File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <string.h>
#include <limits.h>
#include <math.h>
#include <stdbool.h>
#include <time.h>
#include "wmalloc.h"
#include "plsa-defn.h"
#include "em-mstep.h"
```

Include dependency graph for em-mstep.c:



Functions

- void applyMStep (INFO *info)
- void normalizeProbs (INFO *info)

4.6.1 Function Documentation

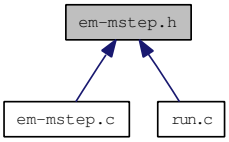
4.6.1.1 void applyMStep (INFO * *info*)

4.6.1.2 void normalizeProbs (INFO * *info*)

Normalize probabilities

4.7 em-mstep.h File Reference

This graph shows which files directly or indirectly include this file:



Functions

- void applyMStep (INFO *info)
- void normalizeProbs (INFO *info)

4.7.1 Function Documentation

4.7.1.1 void applyMStep (INFO * *info*)

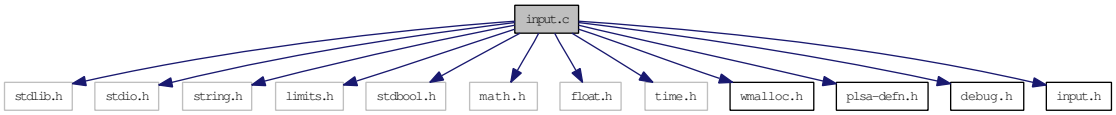
4.7.1.2 void normalizeProbs (INFO * *info*)

Normalize probabilities

4.8 input.c File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <string.h>
#include <limits.h>
#include <stdbool.h>
#include <math.h>
#include <float.h>
#include <time.h>
#include "wmalloc.h"
#include "plsa-defn.h"
#include "debug.h"
#include "input.h"
```

Include dependency graph for input.c:



Functions

- void initializePostInput (INFO *info)
- bool readCO (INFO *info)

4.8.1 Function Documentation

4.8.1.1 void initializePostInput (INFO * *info*)

Initialization that depends on the input file or parameters

4.8.1.2 bool readCO (INFO * *info*)

Read the co-occurrence data from file. The format of the file is:

[rows][columns][row id+][column id+][w1 cos_count (w21 c21) ... (w2n c2n)]+**

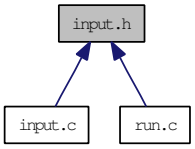
row and column ids are integer values that map to the original vocabulary. The number of values should be (info -> m) and (info -> n), respectively.

Every value is an unsigned integer in binary format, unless textmode is TRUE – if so, values are in text, separated by white space (tab).

Note: i indexes for rows (w1); j indexes for columns (w2)

4.9 input.h File Reference

This graph shows which files directly or indirectly include this file:



Functions

- void initializePostInput (INFO *info)
- bool readCO (INFO *info)

4.9.1 Function Documentation

4.9.1.1 void initializePostInput (INFO * *info*)

Initialization that depends on the input file or parameters

4.9.1.2 bool readCO (INFO * *info*)

Read the co-occurrence data from file. The format of the file is:

[rows][columns][row id+][column id+][w1 cos_count (w21 c21) ... (w2n c2n)]+**

row and column ids are integer values that map to the original vocabulary. The number of values should be (info -> m) and (info -> n), respectively.

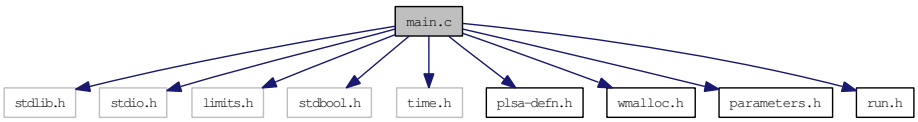
Every value is an unsigned integer in binary format, unless textmode is TRUE – if so, values are in text, separated by white space (tab).

Note: i indexes for rows (w1); j indexes for columns (w2)

4.10 main.c File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <limits.h>
#include <stdbool.h>
#include <time.h>
#include "plsa-defn.h"
#include "wmalloc.h"
#include "parameters.h"
#include "run.h"
```

Include dependency graph for main.c:



Functions

- int main (int argc, char ∗argv[ ])

4.10.1 Function Documentation

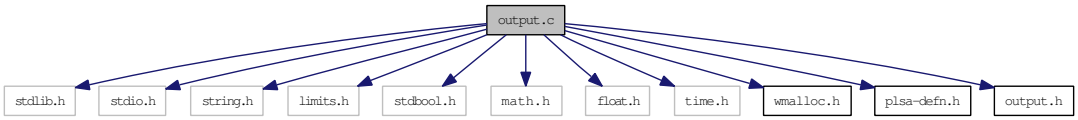
4.10.1.1 int main (int *argc*, char ∗ *argv*[ ])

Main function

4.11 output.c File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <string.h>
#include <limits.h>
#include <stdbool.h>
#include <math.h>
#include <float.h>
#include <time.h>
#include "wmalloc.h"
#include "plsa-defn.h"
#include "output.h"
```

Include dependency graph for output.c:



Functions

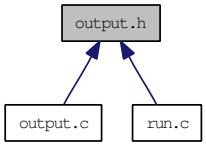
- void printCoProb (INFO *info)

4.11.1 Function Documentation

4.11.1.1 void printCoProb (INFO * *info*)

4.12 output.h File Reference

This graph shows which files directly or indirectly include this file:



Functions

- void printCoProb (INFO *info)

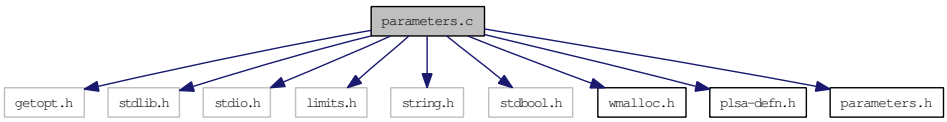
4.12.1 Function Documentation

4.12.1.1 void printCoProb (INFO * *info*)

4.13 parameters.c File Reference

```
#include <getopt.h>
#include <stdlib.h>
#include <stdio.h>
#include <limits.h>
#include <string.h>
#include <stdbool.h>
#include "wmalloc.h"
#include "plsa-defn.h"
#include "parameters.h"
```

Include dependency graph for parameters.c:



Defines

- #define _GNU_SOURCE

Functions

- void usage (char *progname)
- bool checkSettings (INFO *info)
- bool processOptions (int argc, char *argv[ ], INFO *info)

4.13.1 Define Documentation

4.13.1.1 #define _GNU_SOURCE

4.13.2 Function Documentation

4.13.2.1 bool checkSettings (INFO * *info*)

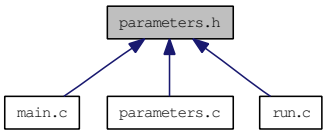
4.13.2.2 bool processOptions (int *argc*, char * *argv*[ ], INFO * *info*)

4.13.2.3 void usage (char * *progname*)

Print out usage information

4.14 parameters.h File Reference

This graph shows which files directly or indirectly include this file:



Functions

- void usage (char *progname)
- bool checkSettings (INFO *info)
- bool processOptions (int argc, char *argv[ ], INFO *info)

4.14.1 Function Documentation

4.14.1.1 bool checkSettings (INFO * *info*)

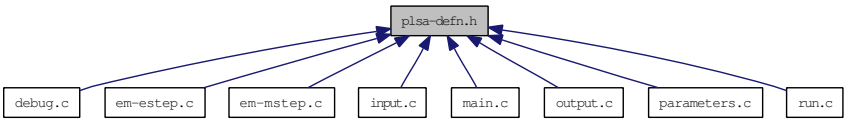
4.14.1.2 bool processOptions (int *argc*, char * *argv*[ ], INFO * *info*)

4.14.1.3 void usage (char * *progname*)

Print out usage information

4.15 plsa-defn.h File Reference

This graph shows which files directly or indirectly include this file:



Data Structures

- struct cooccur
- struct info

Defines

- #define LN_LIMIT 23.02585093
- #define MIN_PROB (1.0E-24)
- #define DOLOG(X) (logf (X))
- #define DOEXP(X) (expf (X))
- #define DOLOGONE(X) (log1pf (X))
- #define DOLOG1PEXP(x) DOLOGONE(DOEXP(x))
- #define RANDOM_FLOAT ((PROBNODE)rand () / ((PROBNODE)RAND_MAX + (PROBNODE)1.0))
- #define DBL_LESS(A, B) ((B - A) > DBL_EPSILON)
- #define ML_DELTA 0.001
- #define MAINPROC 0
- #define ROUND_DIGITS 100000000
- #define BLOCK_SIZE(id, p, n) (BLOCK_LOW ((id) + 1, p, n)-BLOCK_LOW(id, p, n))
- #define PROGRESS_MSG(A)
- #define FOPEN(FILENAME, FP, MODE)
- #define FCLOSE(FP) (void) fclose (FP);
- #define SET_COS(W, X, Y, Z)
- #define GET_COS(W, X) (info → cos[W][X].x)
- #define GET_COS_POSITION(W, X) (info → cos[W][X].column)
- #define GET_PROBW1_Z(X, Y) (info → probw1_z[X ∗ info → m + Y])
- #define GET_PROBW2_Z(X, Y) (info → probw2_z[X ∗ info → n + Y])
- #define GET_PROBZ(X) (info → probz[X])
- #define GET_PROBZ_W1W2(W, X, Y) (info → probz_w1w2[W][X ∗ info → n + Y])
- #define logSumsInline(A, B)

Typedefs

- typedef double PROBNODE
- typedef struct cooccur COOCCUR
- typedef struct info INFO

4.15.1 Define Documentation

4.15.1.1 #define BLOCK_SIZE(id, p, n) (BLOCK_LOW ((id) + 1, p, n)-BLOCK_LOW(id, p, n))

4.15.1.2 #define DBL_LESS(A, B) ((B - A) > DBL_EPSILON)

Test if two double values are close to each other

4.15.1.3 #define DOEXP(X) (expf (X))

Macro to perform the exp function

4.15.1.4 #define DOLOG(X) (logf (X))

Macro to perform a log

4.15.1.5 #define DOLOG1PEXP(x) DOLOGONE(DOEXP(x))

Macro to perform log (1 + expt(x))

4.15.1.6 #define DOLOGONE(X) (log1pf (X))

Macro to perform log (1 + x)

4.15.1.7 #define FCLOSE(FP) (void) fclose (FP);

4.15.1.8 #define FOPEN(FILENAME, FP, MODE)

Value:

```
FP = fopen ((char*) FILENAME, MODE); \
  if (FP == NULL) { \
    fprintf (stderr, "Error %s %s.\n", (strcmp (MODE, "w") == 0) ? "creating" : "opening", FILENAME); \
    exit (EXIT_FAILURE); \
  }
```

4.15.1.9 #define GET_COS(W, X) (info → cos[W][X].x)

Function to retrieve the position from the cooccurrence array

4.15.1.10 #define GET_COS_POSITION(W, X) (info → cos[W][X].column)

Function to retrieve the cooccurrence count from the cooccurrence array

4.15.1.11 #define GET_PROBW1_Z(X, Y) (info → probw1_z[X ∗ info → m + Y])

Function to retrieve from P(w1|z); translate 2D to 1D co-ordinates

4.15.1.12 #define GET_PROBW2_Z(X, Y) (info → probw2_z[X ∗ info → n + Y])

Function to retrieve from P(w2|z); translate 2D to 1D co-ordinates

4.15.1.13 #define GET_PROBZ(X) (info → probz[X])

Function to retrieve from P(z)

4.15.1.14 #define GET_PROBZ_W1W2(W, X, Y) (info → probz_w1w2[W][X ∗ info → n + Y])

Function to retrieve from P(z|w1w2); translate 3D to 1D co-ordinates

4.15.1.15 #define LN_LIMIT 23.02585093

Accuracy of floating point values as a log (base e) value, multiplied by -1

4.15.1.16 #define logSumsInline(A, B)

Value:

```
{                           \
  register PROBNODE x, y;   \
  if (A > B) {              \
    x = A;  y = B;          \
  }                         \
  else {                    \
    x = B;  y = A;          \
  }                         \
                            \
  /*  a > b  */             \
                            \
  A = (fabs (y - x) > LN_LIMIT) ? x : x + DOLOG1PEXP (y - x);   \
}
```

4.15.1.17 #define MAINPROC 0

ID of the main processor is always 0

4.15.1.18 #define MIN_PROB (1.0E-24)

Minimum probability

4.15.1.19 #define ML_DELTA 0.001

Minimum difference between two maximum likelihoods

4.15.1.20 #define PROGRESS_MSG(A)

Value:

```
if (info -> verbose) { \
  fprintf (stderr, "==\t%s\n", A); \
}
```

Define'd function to indicate program progress

4.15.1.21 #define RANDOM_FLOAT ((PROBNODE)rand () / ((PROBNODE)RAND_MAX + (PROBNODE)1.0))

Generate a random number between [0, 1); cast to floating point first to prevent overflow

4.15.1.22 #define ROUND_DIGITS 100000000

Number of digits to round; used when outputting to binary only

4.15.1.23 #define SET_COS(W, X, Y, Z)

Value:

```
{ \
  info -> cos[W][X].column = Y; \
  info -> cos[W][X].x = Z; \
}
```

Function to retrieve from the cooccurrence array

4.15.2 Typedef Documentation

4.15.2.1 typedef struct cooccur COOCCUR

4.15.2.2 typedef struct info INFO

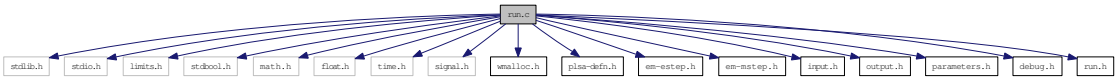
4.15.2.3 typedef double PROBNODE

Data type to use for probabilities

4.16 run.c File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <limits.h>
#include <stdbool.h>
#include <math.h>
#include <float.h>
#include <time.h>
#include <signal.h>
#include "wmalloc.h"
#include "plsa-defn.h"
#include "em-estep.h"
#include "em-mstep.h"
#include "input.h"
#include "output.h"
#include "parameters.h"
#include "debug.h"
#include "run.h"
```

Include dependency graph for run.c:



Functions

- INFO ∗ initialize ()
- void uninitialize (INFO ∗info)
- bool run (INFO ∗info)

4.16.1 Function Documentation

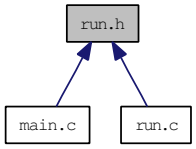
4.16.1.1 INFO∗ initialize ()

4.16.1.2 bool run (INFO ∗ *info*)

4.16.1.3 void uninitialize (INFO ∗ *info*)

4.17 run.h File Reference

This graph shows which files directly or indirectly include this file:



Functions

- INFO ∗ initialize ()
- void uninitialize (INFO ∗info)
- bool run (INFO ∗info)

4.17.1 Function Documentation

4.17.1.1 INFO∗ initialize ()

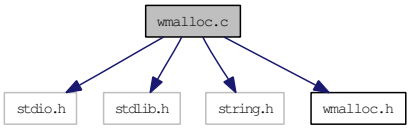
4.17.1.2 bool run (INFO ∗ *info*)

4.17.1.3 void uninitialize (INFO ∗ *info*)

4.18 wmalloc.c File Reference

```
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include "wmalloc.h"
```

Include dependency graph for wmalloc.c:



Functions

- void * wmalloc (size_t y_arg)
- void * wrealloc (void *x_arg, size_t y_arg)
- void wfree (void *x_arg)
- static unsigned int hash (char *v, signed int M)
- void initWMalloc ()
- void printWMalloc ()
- void printInUseWMalloc (void)
- void countMalloc (void *ptr, size_t amount, const char *file, const unsigned int line)
- void countFree (void *ptr)

Variables

- static unsigned int inuse_malloc = 0
- static unsigned int max_malloc = 0
- static WMSTRUCT ** wm_array
- static char * tempstr

4.18.1 Function Documentation

4.18.1.1 void countFree (void * *ptr*)

4.18.1.2 void countMalloc (void * *ptr*, size_t *amount*, const char * *file*, const unsigned int *line*)

4.18.1.3 static unsigned int hash (char * *v*, signed int *M*) [static]

4.18.1.4 void initWMalloc (void)

4.18.1.5 void printInUseWMalloc (void)

4.18.1.6 void printWMalloc (void)

4.18.1.7 void wfree (void * *x_arg*)

4.18.1.8 void* wmalloc (size_t *y_arg*)

4.18.1.9 void* wrealloc (void * *x_arg*, size_t *y_arg*)

4.18.2 Variable Documentation

4.18.2.1 unsigned int inuse_malloc = 0 [static]

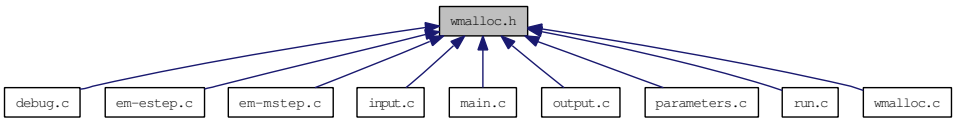
4.18.2.2 unsigned int max_malloc = 0 [static]

4.18.2.3 char* tempstr [static]

4.18.2.4 WMSTRUCT** wm_array [static]

4.19 wmalloc.h File Reference

This graph shows which files directly or indirectly include this file:



Data Structures

- struct wmstruct

Defines

- #define WM_SIZE 65536
- #define TEMPSTRLEN 80

Typedefs

- typedef struct wmstruct WMSTRUCT

Functions

- void * wmalloc (size_t y_arg)
- void * wrealloc (void *x_arg, size_t y_arg)
- void wfree (void *x_arg)
- void initWMalloc (void)
- void printWMalloc (void)
- void printInUseWMalloc (void)
- void countMalloc (void *ptr, size_t amount, const char *file, unsigned int line)
- void countFree (void *ptr)

4.19.1 Define Documentation

4.19.1.1 #define TEMPSTRLEN 80

4.19.1.2 #define WM_SIZE 65536

4.19.2 Typedef Documentation

4.19.2.1 typedef struct wmstruct WMSTRUCT

4.19.3 Function Documentation

4.19.3.1 void countFree (void * *ptr*)

4.19.3.2 void countMalloc (void * *ptr*, size_t *amount*, const char * *file*, unsigned int *line*)

4.19.3.3 void initWMalloc (void)

4.19.3.4 void printInUseWMalloc (void)

4.19.3.5 void printWMalloc (void)

4.19.3.6 void wfree (void * *x_arg*)

4.19.3.7 void* wmalloc (size_t *y_arg*)

4.19.3.8 void* wrealloc (void * *x_arg*, size_t *y_arg*)

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