CoCoALib - Bug #1473

isystem not working as expected

30 Jul 2020 16:05 - John Abbott

Status:	Closed	**Start date:**	30 Jul 2020
Priority:	Normal	**Due date:**	
Assignee:	John Abbott	**% Done:**	100%
Category:	Portability	**Estimated time:**	2.51 hours
Target version:	CoCoALib-0.99800	**Spent time:**	2.45 hours

Description

Anna reports that with her new computer compilation of CoCoALib has trouble with GMP.
Investigation showed that **-isystem $(EXTLIBS)/include** is not working as hoped/expected.

Investigate and correct.

History

#1 - 30 Jul 2020 16:06 - John Abbott

This may be related: I thought I had installed GMP 6.2.0 on my computer, but when I compile CoCoA reports that 6.1.2 was used.

UPDATE it seems that I compiled but did not install 6.2.0.

#2 - 30 Jul 2020 17:05 - John Abbott

- Status changed from New to In Progress

- % Done changed from 0 to 10

A quick search on internet suggests that the **-isystem** flag is a "non-standard" feature of some compilers: **g++** and **clang** both have it.

The documentation for clang could be clearer. I wonder...
do we need to specify the path with **-Idir** and then separately **-isystem dir**?
Would this solve the problem?

UPDATE: specifying both **-I** and **-isystem** seemed to work for me (Linux, g++).

#3 - 06 Oct 2020 15:35 - John Abbott

- % Done changed from 10 to 20

Anna? is this better for you now?
I'm pretty sure I must have checked in the change mentioned here. Do you still have some trouble with GMP?

#4 - 23 Oct 2020 10:07 - Anna Maria Bigatti

Still problematic

```
Using GMP version 6.2.0:
  library is in  /Users/bigatti/0.99/gmp-6.2.0/.libs/libgmp.a
  header  is in  /Users/bigatti/0.99/gmp-6.2.0/gmp.h
```

with isystem I get

```
In file included from utils-gmp.C:19:
In file included from ../../include/CoCoA/utils-gmp.H:21:
In file included from /usr/local/include/gmp.h:50:
/Library/Developer/CommandLineTools/usr/bin/../include/c++/v1/cstddef:49:9: error:
      no member named 'ptrdiff_t' in the global namespace
using ::ptrdiff_t;
      ~~^
```

#5 - 23 Oct 2020 10:31 - John Abbott

I wonder if we should be using extern "C" when including the gmp header (but not the gmpxx header). -- **NO!!** (see next comment)

#6 - 26 Oct 2020 10:38 - John Abbott

I have done a little checking.

The GMP header is automatically C++ safe: it contains all necessary extern "C" declarations, so we **do not need** to use extern "C" ourselves (and it may even be harmful to do so).

I notice that the error message Anna reported says that she configured with her own "private" version of GMP, but the compiler says that it included a system header (from /usr/local/include/gmp.h).
Something is wrong here!!

@Anna: can you investigate why the compiler includes the wrong header file?

#7 - 17 Feb 2021 10:02 - John Abbott

Anna: can you check whether this is still a problem?
I suppose it is, but since I do not have access to your Mac, you'll have to investigate.

#8 - 15 Apr 2021 11:25 - John Abbott

Any update?

#9 - 30 Apr 2021 17:58 - John Abbott

- % Done changed from 20 to 30

2021-04-30 we have just verified that this is still a problem when using clang on MacOS.
The solution seems to be to use **-I** instead of **-isystem**.

Perhaps this can be done via a shell variable (say **ISYSTEM**) whose default value is "isystem", but when using clang on MacOS it is set to **I**... would that work?

#10 - 14 May 2021 17:24 - John Abbott

How to test of the compiler is clang?
Is it enough just to check that the OS is MacOS?

#11 - 23 Jun 2021 15:47 - John Abbott

- % Done changed from 30 to 40

I have a first prototype. Works on my Linux box (but hen it also worked before...)

I'll ask Anna to check on her computer.

#12 - 02 Jul 2021 15:35 - John Abbott

- Status changed from In Progress to Feedback

- Assignee set to John Abbott

- % Done changed from 40 to 90

Anna says it works.

It is just a cheap hack: if uname gives Darwin then it uses -I instead of -isystem.

#13 - 14 Sep 2021 11:56 - John Abbott

- Status changed from Feedback to Closed

- % Done changed from 90 to 100

- Estimated time set to 2.51 h