Ejercicio Clase: Obtencion de Parametros de un host

Obtención datos de otra máquina: los resolvers

gethostbyname(const char* host)
gethostbyaddr(int addr, int leng)
gethostent(void)

Archivo: */etc/hosts*

estructura host

```
struct hostent {
    char     *h_name;       The official name of the host.
    char   **h_aliases;     A zero-terminated array of alternative names for the host.
    int          h_addrtype; The type of address; always AF_INET at present
    int          h_length;     The length of the address in bytes.
    char    **h_addr_list    A zero-terminated array of network addresses
                                 for  the  host  in network byte order
}

#define h_addr  h_addr_list[0] The first address in h_addr_list for backward compatibility.
```

Encabezado

```
#include <stdio.h>
#include <netdb.h>
#include <netinet/in.h>

struct hostent *he;
struct in_addr a;
```

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Corrida

```
$ quien-es whdh
quien-es: Unknown host
$ quien-es webdia
Nombre Oficial (h__name): webcem01.cem.itesm.mx
Tipo direccion (h_addrtype): 2
Longitud direccion en bytes (h_length): 4
Alias (h_aliases): webdia.cem.itesm.mx
Direcciones (h_addr_list): 10.48.6.164
$
```

DNS library functions

`gethostbyname`

`gethostbyaddr`

`gethostbyname2`

gethostbyname

```
struct hostent *gethostbyname
  ( const char *hostname);
```

`struct hostent` is defined in netdb.h:

```
#include <netdb.h>
```

struct hostent

```
struct hostent {
  char *h_name;
  char **h_aliases;
  int h_addrtype;
  int h_length;
  char **h_addr_list;
};
```

official name (canonical)

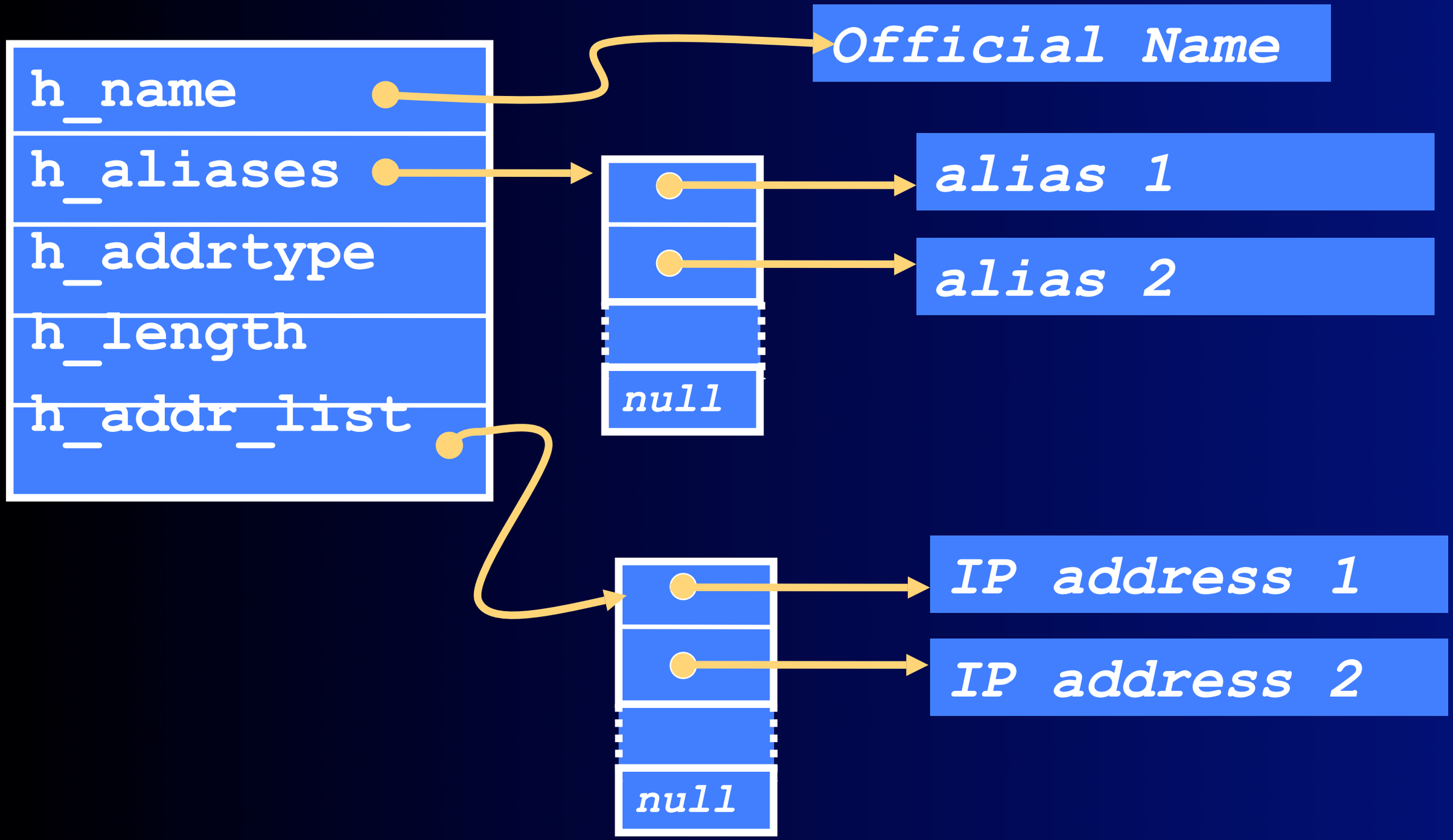
other names

AF_INET or AF_INET6

address length (4 or 16)

array of ptrs to addresses

hostent picture



Which Address?

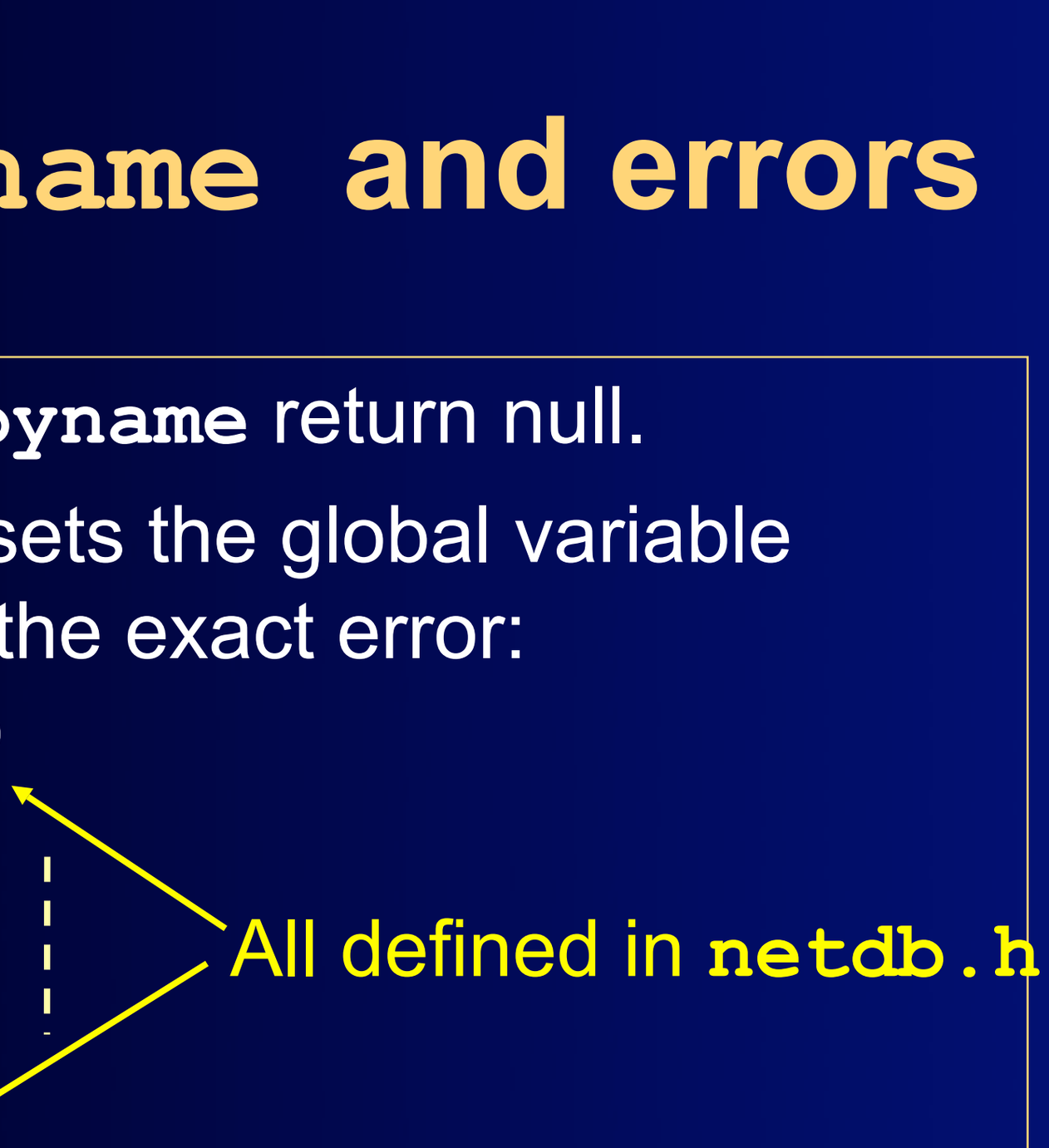
On success, gethostbyname returns the address of a hostent that has been created.

- has an array of ptrs to IP addresses
- Usually use the first one:

```
#define h_addr h_addr_list[0]
```

`gethostbyname` and errors

- On error **`gethostbyname`** return null.
- **`Gethostbyname`** sets the global variable h_errno to indicate the exact error:
  - **`HOST_NOT_FOUND`**
  - **`TRY_AGAIN`**
  - **`NO_RECOVERY`**
  - **`NO_DATA`**
  - **`NO_ADDRESS`**



Getting at the address:
`char **h_addr_list;`

```
h = gethostbyname("joe.com");
sockaddr.sin_addr.s_addr =
  *(h->h_addr_list[0]);
```

This won't work!!!!

`h_addr_list[0]` is a `char*` !

Using `memcpy`

- You can copy the 4 bytes (IPv4) directly:

```
h = gethostbyname("joe.com");

memcpy(&sockaddr.sin_addr,
       h->h_addr_list[0],
        sizeof(struct in_addr));
```

Network Byte Order

- All the IP addresses returned via the hostent are in network byte order!

- Repeat after me:

  "Thank you **`gethostbyname`**!"