Bell Telephone Laboratories, Incorporated     - 1 -     PA-1C600-01
PROGRAM APPLICATION INSTRUCTION     Section 5 (III)
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**ALLOC(III)**        **ALLOC(III)**

**NAME**

       alloc — core allocator

**SYNOPSIS**

       **char \*alloc(size)**

       **free(ptr)**
       **char \*ptr;**

**DESCRIPTION**

       *Alloc* and *free* provide a simple general-purpose core management package. *Alloc* is given a size in bytes; it returns a pointer to an area at least that size which is even and hence can hold an object of any type. The argument to *free* is a pointer to an area previous allocated by *alloc;* this space is made available for further allocation.

       Needless to say, grave disorder will result if the space assigned by *alloc* is overrun or if some random number is handed to *free*.

       The method uses a first-fit algorithm which coalesces blocks being freed with other blocks already free. It calls *sbrk* (see *break* (I)) to get more core from the system when there is no suitable space already free. If that fails, it writes "Out of space" on the standard output and exits.

       The external variable *slop* (which is 2 if not set) is a number such that if $n$ bytes are requested, and if the first free block of size at least $n$ is no larger than $n + slop$, then the whole block will be allocated instead of being split up. Larger values of *slop* tend to reduce fragmentation at the expense of unused space in the allocated blocks.

**DIAGNOSTICS**

       "Out of space" if it needs core and can't get it.

**BUGS**