Subject: Re: Fuzzy searching of FITS header
Posted by Gray on Wed, 22 Dec 2010 13:40:57 GMT

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On Dec 22, 8:06 am, wlandsman <wlands...@gmail.com> wrote:
> On Tuesday, December 21, 2010 10:49:30 PM UTC-5, Marc Buie wrote:
>> Wayne -
>
>> Why can't this be handled with
>
>> dexp=sxpar(hdr,'D*DEXP')
>
>> sxpar already handles
>
>> naxis=sxpar(hdr,'NAXIS*')
>
>> It seems to me that this is a simple extension of what sxpar already does.
>
> Well, there is a FITS convention for reserved keyword names followed by sequential integers
(e.g. NAXIS1, NAXIS2, NAXIS3...), where (with one exception) you can be sure that the returned
values will all be of the same type (in this case integers).   But for a general wildcard (e.g.
'D*EXP') the returned values might be a mixture of strings, integers and floats.   That is why
Paulo's list/hash approach seems preferable this case.   --Wayne
>
> P.S. The one exception for reserved keyword names is TSCALi for converting 16 bit integers in
a binary table to double/float.   In some cases TSCALi returns a float and in other cases it
returns a double.   That is why MRDFITS currently has a limitation of requiring either all
conversions to float or all conversions to double.   In some other FITS routines I get around
this limitation by using pointers, but it is a pain.   It is a nice application for the new LIST
datatype.

Here's a very basic writeup using lists and hashes and FXPAR() (since
I didn't feel like re-writing the keyword parsing rules).

```
FUNCTION hdregex, header, search
  n = n_elements(search)
  keys = strmid(header,0,8)
  if (n lt 2) then begin
    this = where(stregex(keys,search,/fold,/bool),count)
    if (count eq 0) then return, !null
    out = hash(keys[this])
    for i=0,count-1 do out[keys[this[i]]] = $
      fxpar(header,keys[this[i]],start=this[i],precheck=0)
  endif else begin
    out = list(length=n)
    foreach key,search,i do begin
      this = where(stregex(keys,search,/fold,/bool),count)
      if (count eq 0) then continue
```

```
      temp = hash(keys[this])
      for j=0,count-1 do out[keys[this[j]]] = $
        fxpar(header,keys[this[j]],start=this[j],precheck=0)
      out[i] = temp
    endforeach
  endelse
  return, out
end
```