fiberassign efficiency revisited

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Desi-data telecon, Oct. 1, 2019

inputs

Targets:

$DESI_ROOT/target/catalogs/dr8/**0.31.1**/targets/main/resolve

Sky:

$DESI_ROOT/target/catalogs/dr8/**0.31.0**/skies/

Pixweights:

$DESI_ROOT/target/catalogs/dr8/**0.31.1**/pixweight/

Conditions on the input targets

- Only DARK/GRAY targets.
- Small subset on the northern galactic cap: 130 < RA < 180, -10 < DEC < 40
- Truth file with 50 lya qso per sqdeg.

Conditions on the tiles

- Only DARK/GRAY tiles with centers within 130<RA<180, -10 < dec < 40.

- The tiles are split into **four epochs**:
  - GRAY
  - DARK0
  - DARK1
  - DARK2 + DARK3

Two strategies

- Strategy A. Three steps for every layer:
  1. Fiberassign runs on layer **GRAY0**,
  2. Update zcat with the targets assigned in **GRAY0**.
  3. Update mtl with the latest zcat.

- Strategy B. Three steps for every layer:
  1. Fiberassign runs on layer **GRAY0+DARK0+DARK1+DARK2+DARK3**
  2. Update zcat with the targets assigned in **GRAY0**,
  3. Update mtl with the latest zcat.

Two bugfixes (desitarget, desisim)

Fixes bug in quickcat #503

Merged sbailey merged 11 commits into `master` from `fixbug_quickcat` 7 days ago

Conversation 4 · Commits 11 · Checks 0 · Files changed 2

forero commented 17 days ago • edited — Member

(Open for discussion, not ready to merge yet)

This fixes the bug with wrong `NUMOBS` counts after repeated observations.
The issue was that for these lines to work

```
#- targets that are in both zcat and newzcat
repeats = np.in1d(zcat['TARGETID'], newzcat['TARGETID'])

#- update numobs in both zcat and newzcat
ii = np.in1d(newzcat['TARGETID'], zcat['TARGETID'][repeats])
orig_numobs = zcat['NUMOBS'][repeats].copy()
new_numobs = newzcat['NUMOBS'][ii].copy()
zcat['NUMOBS'][repeats] += new_numobs
newzcat['NUMOBS'][ii] += orig_numobs
```

the `TARGETID` in `zcat` and `newzcat` should have the same ordering.

The modification in `quickcat` fixes that bug. But it gives problems in the tests where the `TARGETID`s are expected somehow to have a different `TARGETID` ordering.

Do we have any requirement about the `TARGETID` ordering in `zcat` files?

handles tracer QSO inside mtl #537

Merged geordie666 merged 9 commits into `master` from `update_numobs` 11 days ago

Conversation 17 · Commits 9 · Checks 0 · Files changed 5

forero commented 14 days ago — Member

This solves the main problem around #536.

handles tracer QSO inside mtl — a7bf22f

forero referenced this pull request 14 days ago

using zcat information to update numobs in mtl #536 — Closed

geordie666 commented 14 days ago — Member

Thanks @forero, I'm glad this was a relatively simple fix.

Could you add a unit test in `test/test_mtl.py` that is designed to fail with the bug you were finding before this fix?

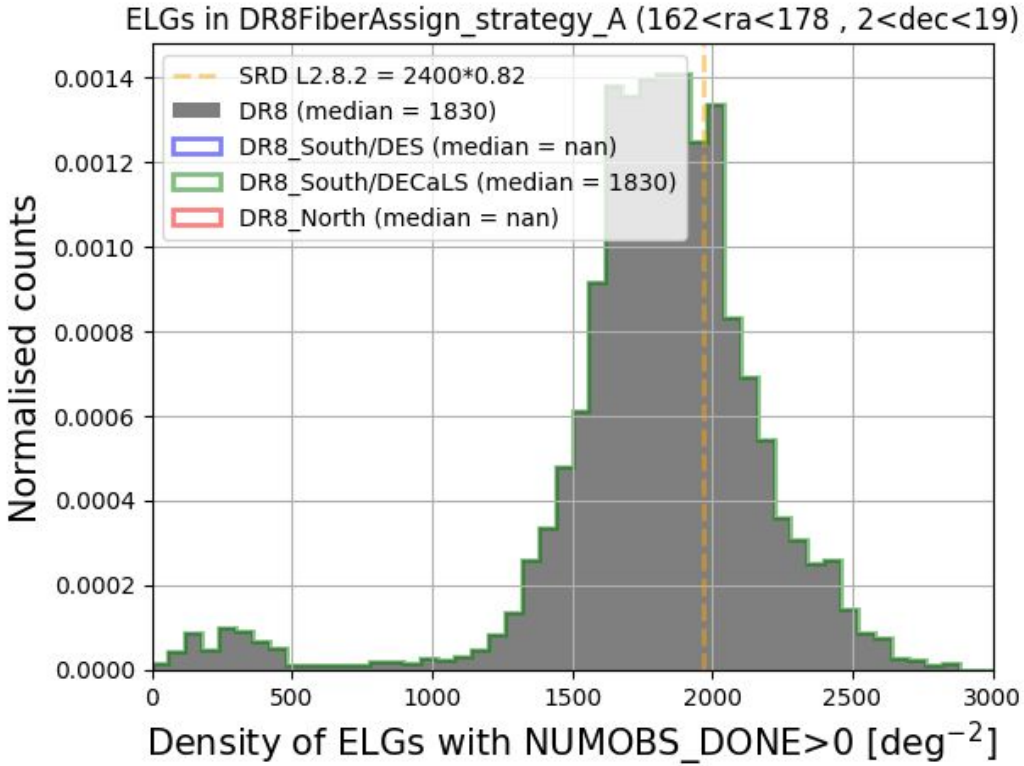
Efficiency = N_zcat / N_input_mtl

	input #/sqdeg	Efficiency Strategy A	Efficiency Strategy B
QSO	270	0.98	0.98
LRG	470	0.95	0.95
ELG	2530	0.71	0.72

Total number of observations

	N=0	N=1	N=2	N=3	N=4	N=5	N=6
QSO	1488	78197	11188	4064	13806	2	1
LRG	8836	134306	44522	0	0	0	0
ELG	291973	717830	0	0	0	0	0

Plot by Anand Raichoor (older results)



Stephen in [desi-clustering 969]

How should we handle ELG+QSO targets on GRAY tiles?

Observations:

1. ELG and QSO target selection cuts overlap.
2. QSOs have higher priority and higher number of requested observations than ELGs.
3. ELG targets are marked as eligible for observing during gray time, including those that overlap with QSOs.

Consequences:

1. For GQC: This implies that the tiling of the GRAY layer isn't some sort of pure ELG-only thing with simple fiberassign systematics since the ELG+QSO targets will get placed at higher priority. Is that ok?
2. For LyA: If an ELG+QSO target has its first observation during gray time, do we want that to be treated the same as those first observed during dark time for the purposes of LyA followup decisions? The answer may depend upon the degree to which the dynamic Exposure Time Calculator (ETC) purposefully optimizes for QSOs too, or just for ELGs.