tf.contrib.distributions.normal_conjugates_known_scale_posterior

```
normal_conjugates_known_scale_posterior(
    prior,
    scale,
    s,
    n
)
```

Defined in `tensorflow/contrib/distributions/python/ops/normal_conjugate_posteriors.py`.

See the guide: Statistical Distributions (contrib) > Normal likelihood with conjugate prior

Posterior Normal distribution with conjugate prior on the mean.

This model assumes that `n` observations (with sum `s`) come from a Normal with unknown mean `loc` (described by the Normal `prior`) and known variance `scale**2`. The "known scale posterior" is the distribution of the unknown `loc`.

Accepts a prior Normal distribution object, having parameters `loc0` and `scale0`, as well as known `scale` values of the predictive distribution(s) (also assumed Normal), and statistical estimates `s` (the sum(s) of the observations) and `n` (the number(s) of observations).

Returns a posterior (also Normal) distribution object, with parameters `(loc', scale'**2)`, where:

```
mu ~ N(mu', sigma'**2)
sigma'**2 = 1/(1/sigma0**2 + n/sigma**2),
mu' = (mu0/sigma0**2 + s/sigma**2) * sigma'**2.
```

Distribution parameters from `prior`, as well as `scale`, `s`, and `n`. will broadcast in the case of multidimensional sets of parameters.

Args:

- `prior`: `Normal` object of type `dtype`: the prior distribution having parameters `(loc0, scale0)`.
- `scale`: tensor of type `dtype`, taking values `scale > 0`. The known stddev parameter(s).
- `s`: Tensor of type `dtype`. The sum(s) of observations.
- `n`: Tensor of type `int`. The number(s) of observations.

Returns:

A new Normal posterior distribution object for the unknown observation mean `loc`.

Raises:

- `TypeError`: if dtype of `s` does not match `dtype`, or `prior` is not a Normal object.

Last updated November 2, 2017.