

tf.contrib.bayesflow.csiszar_divergence.dual_csiszar_function

```
dual_csiszar_function(
    logu,
    csiszar_function,
    name=None
)
```

Defined in [tensorflow/contrib/bayesflow/python/ops/csiszar_divergence_impl.py](#).

Calculates the dual Csiszar-function in log-space.

A Csiszar-function is a member of,

$$F = \{ f: \mathbb{R}_+ \rightarrow \mathbb{R} : f \text{ convex} \}.$$

The Csiszar-dual is defined as:

$$f^*(u) = u f(1/u)$$

where f is some other Csiszar-function.

For example, the dual of `kl_reverse` is `kl_forward`, i.e.,

$$\begin{aligned} f(u) &= -\log(u) \\ f^*(u) &= u f(1/u) = -u \log(1/u) = u \log(u) \end{aligned}$$

The dual of the dual is the original function:

$$f^{**}(u) = \{u f(1/u)\}^*(u) = u (1/u) f(1/(1/u)) = f(u)$$



Warning: this function makes non-log-space calculations and may therefore be numerically unstable for $|\log u| \gg 0$.

Args:

- `logu`: `float`-like `Tensor` representing `log(u)` from above.
- `csiszar_function`: Python `callable` representing a Csiszar-function over log-domain.
- `name`: Python `str` name prefixed to Ops created by this function.

Returns:

- `dual_f_of_u`: `float`-like `Tensor` of the result of calculating the dual of `f` at `u = exp(logu)`.

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