

LSTM_Captioning

April 4, 2020

1 Image Captioning with LSTMs

In the previous exercise you implemented a vanilla RNN and applied it to image captioning. In this notebook you will implement the LSTM update rule and use it for image captioning.

```
[1]: # As usual, a bit of setup
from __future__ import print_function
import time, os, json
import numpy as np
import matplotlib.pyplot as plt
import nltk

from cs231n.gradient_check import eval_numerical_gradient, \
    ↪eval_numerical_gradient_array
from cs231n.rnn_layers import *
from cs231n.captioning_solver import CaptioningSolver
from cs231n.classifiers.rnn import CaptioningRNN
from cs231n.coco_utils import load_coco_data, sample_coco_minibatch, \
    ↪decode_captions
from cs231n.image_utils import image_from_url

%matplotlib inline
plt.rcParams['figure.figsize'] = (10.0, 8.0) # set default size of plots
plt.rcParams['image.interpolation'] = 'nearest'
plt.rcParams['image.cmap'] = 'gray'

# for auto-reloading external modules
# see http://stackoverflow.com/questions/1907993/
    ↪autoreload-of-modules-in-ipython
%load_ext autoreload
%autoreload 2

def rel_error(x, y):
    """ returns relative error """
    return np.max(np.abs(x - y) / (np.maximum(1e-8, np.abs(x) + np.abs(y))))
```

2 Load MS-COCO data

As in the previous notebook, we will use the Microsoft COCO dataset for captioning.

```
[2]: # Load COCO data from disk; this returns a dictionary
# We'll work with dimensionality-reduced features for this notebook, but feel
# free to experiment with the original features by changing the flag below.
data = load_coco_data(pca_features=True)

# Print out all the keys and values from the data dictionary
for k, v in data.items():
    if type(v) == np.ndarray:
        print(k, type(v), v.shape, v.dtype)
    else:
        print(k, type(v), len(v))
```

```
train_captions <class 'numpy.ndarray'> (400135, 17) int32
train_image_idxes <class 'numpy.ndarray'> (400135,) int32
val_captions <class 'numpy.ndarray'> (195954, 17) int32
val_image_idxes <class 'numpy.ndarray'> (195954,) int32
train_features <class 'numpy.ndarray'> (82783, 512) float32
val_features <class 'numpy.ndarray'> (40504, 512) float32
idx_to_word <class 'list'> 1004
word_to_idx <class 'dict'> 1004
train_urls <class 'numpy.ndarray'> (82783,) <U63
val_urls <class 'numpy.ndarray'> (40504,) <U63
```

3 LSTM

If you read recent papers, you'll see that many people use a variant on the vanilla RNN called Long-Short Term Memory (LSTM) RNNs. Vanilla RNNs can be tough to train on long sequences due to vanishing and exploding gradients caused by repeated matrix multiplication. LSTMs solve this problem by replacing the simple update rule of the vanilla RNN with a gating mechanism as follows.

Similar to the vanilla RNN, at each timestep we receive an input $x_t \in \mathbb{R}^D$ and the previous hidden state $h_{t-1} \in \mathbb{R}^H$; the LSTM also maintains an H -dimensional *cell state*, so we also receive the previous cell state $c_{t-1} \in \mathbb{R}^H$. The learnable parameters of the LSTM are an *input-to-hidden* matrix $W_x \in \mathbb{R}^{4H \times D}$, a *hidden-to-hidden* matrix $W_h \in \mathbb{R}^{4H \times H}$ and a *bias vector* $b \in \mathbb{R}^{4H}$.

At each timestep we first compute an *activation vector* $a \in \mathbb{R}^{4H}$ as $a = W_x x_t + W_h h_{t-1} + b$. We then divide this into four vectors $a_i, a_f, a_o, a_g \in \mathbb{R}^H$ where a_i consists of the first H elements of a , a_f is the next H elements of a , etc. We then compute the *input gate* $g \in \mathbb{R}^H$, *forget gate* $f \in \mathbb{R}^H$, *output gate* $o \in \mathbb{R}^H$ and *block input* $g \in \mathbb{R}^H$ as

$$i = \sigma(a_i) \quad f = \sigma(a_f) \quad o = \sigma(a_o) \quad g = \tanh(a_g)$$

where σ is the sigmoid function and \tanh is the hyperbolic tangent, both applied elementwise.

Finally we compute the next cell state c_t and next hidden state h_t as

$$c_t = f \odot c_{t-1} + i \odot g \qquad h_t = o \odot \tanh(c_t)$$

where \odot is the elementwise product of vectors.

In the rest of the notebook we will implement the LSTM update rule and apply it to the image captioning task.

In the code, we assume that data is stored in batches so that $X_t \in \mathbb{R}^{N \times D}$, and will work with *transposed* versions of the parameters: $W_x \in \mathbb{R}^{D \times 4H}$, $W_h \in \mathbb{R}^{H \times 4H}$ so that activations $A \in \mathbb{R}^{N \times 4H}$ can be computed efficiently as $A = X_t W_x + H_{t-1} W_h$

4 LSTM: step forward

Implement the forward pass for a single timestep of an LSTM in the `lstm_step_forward` function in the file `cs231n/rnn_layers.py`. This should be similar to the `rnn_step_forward` function that you implemented above, but using the LSTM update rule instead.

Once you are done, run the following to perform a simple test of your implementation. You should see errors around `1e-8` or less.

```
[3]: N, D, H = 3, 4, 5
x = np.linspace(-0.4, 1.2, num=N*D).reshape(N, D)
prev_h = np.linspace(-0.3, 0.7, num=N*H).reshape(N, H)
prev_c = np.linspace(-0.4, 0.9, num=N*H).reshape(N, H)
Wx = np.linspace(-2.1, 1.3, num=4*D*H).reshape(D, 4 * H)
Wh = np.linspace(-0.7, 2.2, num=4*H*H).reshape(H, 4 * H)
b = np.linspace(0.3, 0.7, num=4*H)

next_h, next_c, cache = lstm_step_forward(x, prev_h, prev_c, Wx, Wh, b)

expected_next_h = np.asarray([
    [ 0.24635157,  0.28610883,  0.32240467,  0.35525807,  0.38474904],
    [ 0.49223563,  0.55611431,  0.61507696,  0.66844003,  0.7159181 ],
    [ 0.56735664,  0.66310127,  0.74419266,  0.80889665,  0.858299  ]])
expected_next_c = np.asarray([
    [ 0.32986176,  0.39145139,  0.451556,    0.51014116,  0.56717407],
    [ 0.66382255,  0.76674007,  0.87195994,  0.97902709,  1.08751345],
    [ 0.74192008,  0.90592151,  1.07717006,  1.25120233,  1.42395676]])

print('next_h error: ', rel_error(expected_next_h, next_h))
print('next_c error: ', rel_error(expected_next_c, next_c))
```

```
next_h error:  5.7054131185818695e-09
next_c error:  5.8143123088804145e-09
```

5 LSTM: step backward

Implement the backward pass for a single LSTM timestep in the function `lstm_step_backward` in the file `cs231n/rnn_layers.py`. Once you are done, run the following to perform numeric gradient checking on your implementation. You should see errors around $1e-6$ or less.

```
[4]: np.random.seed(231)

N, D, H = 4, 5, 6
x = np.random.randn(N, D)
prev_h = np.random.randn(N, H)
prev_c = np.random.randn(N, H)
Wx = np.random.randn(D, 4 * H)
Wh = np.random.randn(H, 4 * H)
b = np.random.randn(4 * H)

next_h, next_c, cache = lstm_step_forward(x, prev_h, prev_c, Wx, Wh, b)

dnext_h = np.random.randn(*next_h.shape)
dnext_c = np.random.randn(*next_c.shape)

fx_h = lambda x: lstm_step_forward(x, prev_h, prev_c, Wx, Wh, b)[0]
fh_h = lambda h: lstm_step_forward(x, prev_h, prev_c, Wx, Wh, b)[0]
fc_h = lambda c: lstm_step_forward(x, prev_h, prev_c, Wx, Wh, b)[0]
fWx_h = lambda Wx: lstm_step_forward(x, prev_h, prev_c, Wx, Wh, b)[0]
fWh_h = lambda Wh: lstm_step_forward(x, prev_h, prev_c, Wx, Wh, b)[0]
fb_h = lambda b: lstm_step_forward(x, prev_h, prev_c, Wx, Wh, b)[0]

fx_c = lambda x: lstm_step_forward(x, prev_h, prev_c, Wx, Wh, b)[1]
fh_c = lambda h: lstm_step_forward(x, prev_h, prev_c, Wx, Wh, b)[1]
fc_c = lambda c: lstm_step_forward(x, prev_h, prev_c, Wx, Wh, b)[1]
fWx_c = lambda Wx: lstm_step_forward(x, prev_h, prev_c, Wx, Wh, b)[1]
fWh_c = lambda Wh: lstm_step_forward(x, prev_h, prev_c, Wx, Wh, b)[1]
fb_c = lambda b: lstm_step_forward(x, prev_h, prev_c, Wx, Wh, b)[1]

num_grad = eval_numerical_gradient_array

dx_num = num_grad(fx_h, x, dnext_h) + num_grad(fx_c, x, dnext_c)
dh_num = num_grad(fh_h, prev_h, dnext_h) + num_grad(fh_c, prev_h, dnext_c)
dc_num = num_grad(fc_h, prev_c, dnext_h) + num_grad(fc_c, prev_c, dnext_c)
dWx_num = num_grad(fWx_h, Wx, dnext_h) + num_grad(fWx_c, Wx, dnext_c)
dWh_num = num_grad(fWh_h, Wh, dnext_h) + num_grad(fWh_c, Wh, dnext_c)
db_num = num_grad(fb_h, b, dnext_h) + num_grad(fb_c, b, dnext_c)

dx, dh, dc, dWx, dWh, db = lstm_step_backward(dnext_h, dnext_c, cache)

print('dx error: ', rel_error(dx_num, dx))
print('dh error: ', rel_error(dh_num, dh))
```

```

print('dc error: ', rel_error(dc_num, dc))
print('dWx error: ', rel_error(dWx_num, dWx))
print('dWh error: ', rel_error(dWh_num, dWh))
print('db error: ', rel_error(db_num, db))

```

```

dx error:  6.14126356677057e-10
dh error:  3.0914746081903265e-10
dc error:  1.5221723979041107e-10
dWx error: 1.6933642238633748e-09
dWh error: 4.80624861072581e-08
db error:  1.734923562619879e-10

```

6 LSTM: forward

In the function `lstm_forward` in the file `cs231n/rnn_layers.py`, implement the `lstm_forward` function to run an LSTM forward on an entire timeseries of data.

When you are done, run the following to check your implementation. You should see an error around $1e-7$.

```

[5]: N, D, H, T = 2, 5, 4, 3
x = np.linspace(-0.4, 0.6, num=N*T*D).reshape(N, T, D)
h0 = np.linspace(-0.4, 0.8, num=N*H).reshape(N, H)
Wx = np.linspace(-0.2, 0.9, num=4*D*H).reshape(D, 4 * H)
Wh = np.linspace(-0.3, 0.6, num=4*H*H).reshape(H, 4 * H)
b = np.linspace(0.2, 0.7, num=4*H)

h, cache = lstm_forward(x, h0, Wx, Wh, b)

expected_h = np.asarray([
    [[ 0.01764008,  0.01823233,  0.01882671,  0.0194232 ],
     [ 0.11287491,  0.12146228,  0.13018446,  0.13902939],
     [ 0.31358768,  0.33338627,  0.35304453,  0.37250975]],
    [[ 0.45767879,  0.4761092,   0.4936887,   0.51041945],
     [ 0.6704845,   0.69350089,  0.71486014,  0.7346449 ],
     [ 0.81733511,  0.83677871,  0.85403753,  0.86935314]]])

print('h error: ', rel_error(expected_h, h))

```

```
h error:  8.610537452106624e-08
```

7 LSTM: backward

Implement the backward pass for an LSTM over an entire timeseries of data in the function `lstm_backward` in the file `cs231n/rnn_layers.py`. When you are done, run the following to perform numeric gradient checking on your implementation. You should see errors around $1e-7$ or less.

```
[6]: from cs231n.rnn_layers import lstm_forward, lstm_backward
np.random.seed(231)

N, D, T, H = 2, 3, 10, 6

x = np.random.randn(N, T, D)
h0 = np.random.randn(N, H)
Wx = np.random.randn(D, 4 * H)
Wh = np.random.randn(H, 4 * H)
b = np.random.randn(4 * H)

out, cache = lstm_forward(x, h0, Wx, Wh, b)

dout = np.random.randn(*out.shape)

dx, dh0, dWx, dWh, db = lstm_backward(dout, cache)

fx = lambda x: lstm_forward(x, h0, Wx, Wh, b)[0]
fh0 = lambda h0: lstm_forward(x, h0, Wx, Wh, b)[0]
fWx = lambda Wx: lstm_forward(x, h0, Wx, Wh, b)[0]
fWh = lambda Wh: lstm_forward(x, h0, Wx, Wh, b)[0]
fb = lambda b: lstm_forward(x, h0, Wx, Wh, b)[0]

dx_num = eval_numerical_gradient_array(fx, x, dout)
dh0_num = eval_numerical_gradient_array(fh0, h0, dout)
dWx_num = eval_numerical_gradient_array(fWx, Wx, dout)
dWh_num = eval_numerical_gradient_array(fWh, Wh, dout)
db_num = eval_numerical_gradient_array(fb, b, dout)

print('dx error: ', rel_error(dx_num, dx))
print('dh0 error: ', rel_error(dh0_num, dh0))
print('dWx error: ', rel_error(dWx_num, dWx))
print('dWh error: ', rel_error(dWh_num, dWh))
print('db error: ', rel_error(db_num, db))
```

```
dx error: 7.158862183165125e-09
dh0 error: 1.4205074062556152e-08
dWx error: 1.1900401923730641e-09
dWh error: 1.4586831498176073e-07
db error: 1.0502031945014523e-09
```

8 LSTM captioning model

Now that you have implemented an LSTM, update the implementation of the `loss` method of the `CaptioningRNN` class in the file `cs231n/classifiers/rnn.py` to handle the case where `self.cell_type` is `lstm`. This should require adding less than 10 lines of code.

Once you have done so, run the following to check your implementation. You should see a difference

of less than $1e-10$.

```
[7]: N, D, W, H = 10, 20, 30, 40
word_to_idx = {'<NULL>': 0, 'cat': 2, 'dog': 3}
V = len(word_to_idx)
T = 13

model = CaptioningRNN(word_to_idx,
                      input_dim=D,
                      wordvec_dim=W,
                      hidden_dim=H,
                      cell_type='lstm',
                      dtype=np.float64)

# Set all model parameters to fixed values
for k, v in model.params.items():
    model.params[k] = np.linspace(-1.4, 1.3, num=v.size).reshape(*v.shape)

features = np.linspace(-0.5, 1.7, num=N*D).reshape(N, D)
captions = (np.arange(N * T) % V).reshape(N, T)

loss, grads = model.loss(features, captions)
expected_loss = 9.82445935443

print('loss: ', loss)
print('expected loss: ', expected_loss)
print('difference: ', abs(loss - expected_loss))
```

```
loss: 9.82445935443226
expected loss: 9.82445935443
difference: 2.261302256556519e-12
```

9 Overfit LSTM captioning model

Run the following to overfit an LSTM captioning model on the same small dataset as we used for the RNN previously. You should see losses less than 0.5.

```
[8]: np.random.seed(231)

small_data = load_coco_data(max_train=50)

small_lstm_model = CaptioningRNN(
    cell_type='lstm',
    word_to_idx=data['word_to_idx'],
    input_dim=data['train_features'].shape[1],
    hidden_dim=512,
    wordvec_dim=256,
    dtype=np.float32,
```

```

    )

small_lstm_solver = CaptioningSolver(small_lstm_model, small_data,
    update_rule='adam',
    num_epochs=50,
    batch_size=25,
    optim_config={
        'learning_rate': 5e-3,
    },
    lr_decay=0.995,
    verbose=True, print_every=10,
)

small_lstm_solver.train()

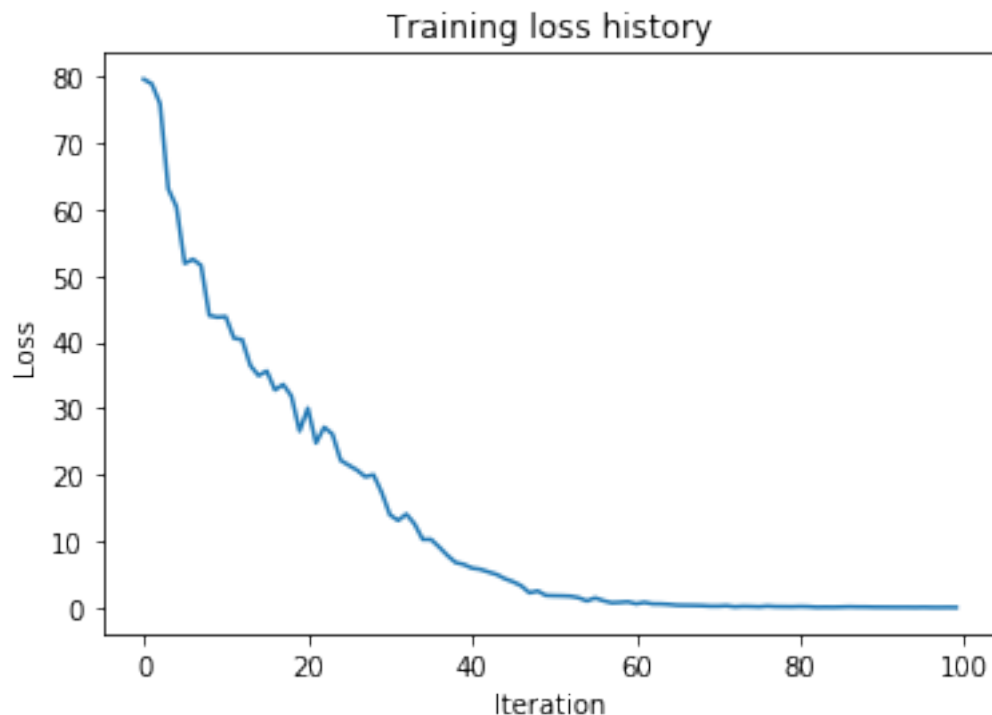
# Plot the training losses
plt.plot(small_lstm_solver.loss_history)
plt.xlabel('Iteration')
plt.ylabel('Loss')
plt.title('Training loss history')
plt.show()

```

```

(Iteration 1 / 100) loss: 79.551150
(Iteration 11 / 100) loss: 43.829099
(Iteration 21 / 100) loss: 30.062615
(Iteration 31 / 100) loss: 14.020094
(Iteration 41 / 100) loss: 6.004652
(Iteration 51 / 100) loss: 1.852045
(Iteration 61 / 100) loss: 0.636446
(Iteration 71 / 100) loss: 0.285606
(Iteration 81 / 100) loss: 0.235673
(Iteration 91 / 100) loss: 0.125125

```

10 LSTM test-time sampling

Modify the `sample` method of the `CaptioningRNN` class to handle the case where `self.cell_type` is `lstm`. This should take fewer than 10 lines of code.

When you are done run the following to sample from your overfit LSTM model on some training and validation set samples.

```
[9]: for split in ['train', 'val']:
    minibatch = sample_coco_minibatch(small_data, split=split, batch_size=2)
    gt_captions, features, urls = minibatch
    gt_captions = decode_captions(gt_captions, data['idx_to_word'])

    sample_captions = small_lstm_model.sample(features)
    sample_captions = decode_captions(sample_captions, data['idx_to_word'])

    for gt_caption, sample_caption, url in zip(gt_captions, sample_captions, u
↪rurls):
        plt.imshow(image_from_url(url))
        plt.title('%s\n%s\nGT:%s' % (split, sample_caption, gt_caption))
        plt.axis('off')
        plt.show()
```

train

a man standing on the side of a road with bags of luggage <END>

GT:<START> a man standing on the side of a road with bags of luggage <END>



train

a man <UNK> with a bright colorful kite <END>

GT:<START> a man <UNK> with a bright colorful kite <END>



val
a person <UNK> with a <UNK> <END>
GT:<START> a sign that is on the front of a train station <END>



val
a cat is <UNK> and a <UNK> <END>
GT:<START> a car is parked on a street at night <END>



11 Train a good captioning model (extra credit for 4803)

Using the pieces you have implemented in this and the previous notebook, train a captioning model that gives decent qualitative results (better than the random garbage you saw with the overfit models) when sampling on the validation set. You can subsample the training set if you want; we just want to see samples on the validation set that are better than random.

In addition to qualitatively evaluating your model by inspecting its results, you can also quantitatively evaluate your model using the BLEU unigram precision metric. In order to achieve full credit you should train a model that achieves a BLEU unigram score of >0.3 . BLEU scores range from 0 to 1; the closer to 1, the better. Here's a reference to the [paper](#) that introduces BLEU if you're interested in learning more about how it works.

Feel free to use PyTorch for this section if you'd like to train faster on a GPU... though you can definitely get above 0.3 using your Numpy code. We're providing you the evaluation code that is compatible with the Numpy model as defined above... you should be able to adapt it for PyTorch if you go that route.

Create the model in the file `cs231n/classifiers/mymodel.py`. You can base it after the `CaptioningRNN` class. Write a text comment in the delineated cell below explaining what you tried in your model.

Also add a cell below that trains and tests your model. Make sure to include the call to `evaluate_model` which prints out your highest validation BLEU score for full credit.

```
[12]: def BLEU_score(gt_caption, sample_caption):
    """
    gt_caption: string, ground-truth caption
    sample_caption: string, your model's predicted caption
    Returns unigram BLEU score.
    """
    reference = [x for x in gt_caption.split(' ')
                  if ('<END>' not in x and '<START>' not in x and '<UNK>' not in
    ↪x)]
    hypothesis = [x for x in sample_caption.split(' ')
                  if ('<END>' not in x and '<START>' not in x and '<UNK>' not
    ↪in x)]
    BLEUScore = nltk.translate.bleu_score.sentence_bleu([reference],
    ↪hypothesis, weights = [1])
    return BLEUScore

def evaluate_model(model):
    """
    model: CaptioningRNN model
    Prints unigram BLEU score averaged over 1000 training and val examples.
    """
    BLEUScores = {}
    for split in ['train', 'val']:
        minibatch = sample_coco_minibatch(data, split=split, batch_size=1000)
```

```

gt_captions, features, urls = minibatch
gt_captions = decode_captions(gt_captions, data['idx_to_word'])

sample_captions = model.sample(features)
sample_captions = decode_captions(sample_captions, data['idx_to_word'])

total_score = 0.0
for gt_caption, sample_caption, url in zip(gt_captions,
↪sample_captions, urls):
    total_score += BLEU_score(gt_caption, sample_caption)

BLEUscores[split] = total_score / len(sample_captions)

print('Average BLEU score: ', BLEUscores)

#     for split in BLEUscores:
#         print('Average BLEU score for %s: %f' % (split, BLEUscores[split]))
return BLEUscores

```

```

[13]: # write a description of your model here:
#For my model, I used the Captioning RNN code with cell type as LSTM, and tried
↪various values for the \
# hyperparameters num_epochs, batch size, learning rate, and lr_decay. The best
↪score was 0.299 for validation.
np.random.seed(231)

data = load_coco_data()

mymodel = CaptioningRNN(
    cell_type='lstm',
    word_to_idx=data['word_to_idx'],
    input_dim=data['train_features'].shape[1],
    hidden_dim=512,
    wordvec_dim=256,
    dtype=np.float32
)

mymodel_solver = CaptioningSolver(mymodel, data,
    update_rule='adam',
    num_epochs=5,
    batch_size=128,
    optim_config={
        'learning_rate': 1e-4,
    },

```

```

        lr_decay=0.997,
        verbose=True, print_every=100,
        callback=evaluate_model
    )

```

```

mymodel_solver.train()

```

(Iteration 1 / 15630) loss: 76.893172

Average BLEU score: {'train': 0.007388741105637643, 'val': 0.007157726692209437}

Average BLEU score: {'train': 0.030048371307388837, 'val': 0.03169793499788517}

Average BLEU score: {'train': 0.049185979946877185, 'val': 0.05042785862854439}

Average BLEU score: {'train': 0.07363372420350832, 'val': 0.07370175738146288}

Average BLEU score: {'train': 0.09595290451924686, 'val': 0.09499026981839805}

Average BLEU score: {'train': 0.09848533481967278, 'val': 0.10281220057716466}

Average BLEU score: {'train': 0.10524002334800195, 'val': 0.10437200949775073}

Average BLEU score: {'train': 0.09794159167288326, 'val': 0.09524922056274973}

Average BLEU score: {'train': 0.08977924255697511, 'val': 0.09231398305487289}

Average BLEU score: {'train': 0.07451860149411828, 'val': 0.07718835931885498}

(Iteration 101 / 15630) loss: 58.322045

Average BLEU score: {'train': 0.13004331560674667, 'val': 0.12700638232584685}

Average BLEU score: {'train': 0.14153363071773073, 'val': 0.1445537951084611}

Average BLEU score: {'train': 0.14497258106589067, 'val': 0.14378385108866024}

Average BLEU score: {'train': 0.1640325233868609, 'val': 0.16121477192950892}

Average BLEU score: {'train': 0.160648011057504, 'val': 0.15987568158087928}

Average BLEU score: {'train': 0.16227668527314448, 'val': 0.1649881131806961}

Average BLEU score: {'train': 0.160595059382128, 'val': 0.16189330638732333}

Average BLEU score: {'train': 0.15735641521288185, 'val': 0.16670405672417146}

Average BLEU score: {'train': 0.16372538215521734, 'val': 0.1682089516036584}

Average BLEU score: {'train': 0.16273112162083864, 'val': 0.15575455416313624}

(Iteration 201 / 15630) loss: 52.542387

Average BLEU score: {'train': 0.16205507800397317, 'val': 0.16377407852711712}

Average BLEU score: {'train': 0.16743330157956673, 'val': 0.16169817819527837}

Average BLEU score: {'train': 0.15163768523252427, 'val': 0.15142600118887292}

Average BLEU score: {'train': 0.15869101441629704, 'val': 0.15712441803515853}

Average BLEU score: {'train': 0.14086750109334342, 'val': 0.15075671668894192}

Average BLEU score: {'train': 0.1090034818934551, 'val': 0.11040320801997544}

Average BLEU score: {'train': 0.12728649305361328, 'val': 0.125293848301399}

Average BLEU score: {'train': 0.106473881038736, 'val': 0.09622199090462587}

Average BLEU score: {'train': 0.10607371827427703, 'val': 0.11222382525904698}

Average BLEU score: {'train': 0.10285216618723632, 'val': 0.10440782522849623}

(Iteration 301 / 15630) loss: 49.955787

Average BLEU score: {'train': 0.05089373476097379, 'val': 0.058356402787819776}

Average BLEU score: {'train': 0.08573429039918312, 'val': 0.08103833476436687}

Average BLEU score: {'train': 0.05301706451309545, 'val': 0.05434639477967857}

Average BLEU score: {'train': 0.06356580394095383, 'val': 0.07332199397615348}

Average BLEU score: {'train': 0.04165023032463041, 'val': 0.03711445404961564}

Average BLEU score: {'train': 0.038920387798050946, 'val': 0.032595887553745394}
 Average BLEU score: {'train': 0.05402254446595936, 'val': 0.05026337293447651}
 Average BLEU score: {'train': 0.03121129829365325, 'val': 0.024610144406207707}
 Average BLEU score: {'train': 0.03493231770979179, 'val': 0.039139842705146165}
 Average BLEU score: {'train': 0.035282019605613994, 'val': 0.03600620173424562}
 (Iteration 401 / 15630) loss: 48.936064
 Average BLEU score: {'train': 0.054691452564850564, 'val': 0.05087171083940584}
 Average BLEU score: {'train': 0.04519757248885678, 'val': 0.041929059919376364}
 Average BLEU score: {'train': 0.017777639716885535, 'val': 0.015662715353759987}
 Average BLEU score: {'train': 0.0388569338502201, 'val': 0.03292121955556447}
 Average BLEU score: {'train': 0.06768091275529582, 'val': 0.07012836768560551}
 Average BLEU score: {'train': 0.05987439171975047, 'val': 0.052311607213364454}
 Average BLEU score: {'train': 0.09464802810479456, 'val': 0.09373524448614706}
 Average BLEU score: {'train': 0.0572630703658403, 'val': 0.054531371092999895}
 Average BLEU score: {'train': 0.09498937551542337, 'val': 0.09460121001948782}
 Average BLEU score: {'train': 0.05782422459523433, 'val': 0.05702373242180738}
 (Iteration 501 / 15630) loss: 46.935165
 Average BLEU score: {'train': 0.09851844572765424, 'val': 0.09816171409231576}
 Average BLEU score: {'train': 0.11730779907966897, 'val': 0.10820682329785984}
 Average BLEU score: {'train': 0.09473372050183468, 'val': 0.10077047730964857}
 Average BLEU score: {'train': 0.10339652961917012, 'val': 0.09743937805252427}
 Average BLEU score: {'train': 0.10895894740168525, 'val': 0.1002202408887222}
 Average BLEU score: {'train': 0.11201826664368418, 'val': 0.1093347550886287}
 Average BLEU score: {'train': 0.10583614342023397, 'val': 0.10910168235648829}
 Average BLEU score: {'train': 0.1402281323685265, 'val': 0.14308184902769347}
 Average BLEU score: {'train': 0.1420103569145486, 'val': 0.14153043446943434}
 Average BLEU score: {'train': 0.1426040592851673, 'val': 0.14275586447837624}
 (Iteration 601 / 15630) loss: 43.927771
 Average BLEU score: {'train': 0.15076053417232937, 'val': 0.14961408579359617}
 Average BLEU score: {'train': 0.16295915763837332, 'val': 0.16382058081793271}
 Average BLEU score: {'train': 0.1263158518287302, 'val': 0.12488003186093455}
 Average BLEU score: {'train': 0.17546751853967146, 'val': 0.17978199251846189}
 Average BLEU score: {'train': 0.17526615579866323, 'val': 0.17057830066035815}
 Average BLEU score: {'train': 0.1327179713008158, 'val': 0.1246126424382693}
 Average BLEU score: {'train': 0.19818542606795128, 'val': 0.18085384145668182}
 Average BLEU score: {'train': 0.20555389094057433, 'val': 0.20140511386389232}
 Average BLEU score: {'train': 0.1648544908771453, 'val': 0.1635580738891186}
 Average BLEU score: {'train': 0.18503353801810044, 'val': 0.1846748165976872}
 (Iteration 701 / 15630) loss: 42.834264
 Average BLEU score: {'train': 0.16027478405756743, 'val': 0.1484538947300552}
 Average BLEU score: {'train': 0.15453662877379956, 'val': 0.15145590860526578}
 Average BLEU score: {'train': 0.1805709416339576, 'val': 0.1708319457767211}
 Average BLEU score: {'train': 0.1901266800644096, 'val': 0.18477696137018038}
 Average BLEU score: {'train': 0.13890462110111892, 'val': 0.14326768622139865}
 Average BLEU score: {'train': 0.18499913218509556, 'val': 0.17837407254436255}
 Average BLEU score: {'train': 0.19844950095931937, 'val': 0.2040774232596419}

Average BLEU score: {'train': 0.1591674388201478, 'val': 0.1481175643622305}
 Average BLEU score: {'train': 0.2034389274465453, 'val': 0.19897830535207103}
 Average BLEU score: {'train': 0.19582951995044226, 'val': 0.19365728019376902}
 (Iteration 801 / 15630) loss: 40.145297
 Average BLEU score: {'train': 0.17207135746615962, 'val': 0.18273603139744937}
 Average BLEU score: {'train': 0.1918578963281783, 'val': 0.19758427544889928}
 Average BLEU score: {'train': 0.15379240780802486, 'val': 0.15631797500155115}
 Average BLEU score: {'train': 0.18454463669773732, 'val': 0.1723003357222554}
 Average BLEU score: {'train': 0.17987974343861274, 'val': 0.1771825881167935}
 Average BLEU score: {'train': 0.1609047666987199, 'val': 0.1491619666344458}
 Average BLEU score: {'train': 0.18975170507709974, 'val': 0.19342550825280191}
 Average BLEU score: {'train': 0.20798052156224853, 'val': 0.21319242708933472}
 Average BLEU score: {'train': 0.15257098896884247, 'val': 0.14762020109279217}
 Average BLEU score: {'train': 0.18474513182210228, 'val': 0.18591118689396435}
 (Iteration 901 / 15630) loss: 39.312988
 Average BLEU score: {'train': 0.1790569119890238, 'val': 0.18151154455661994}
 Average BLEU score: {'train': 0.16837713912322333, 'val': 0.16931724042565813}
 Average BLEU score: {'train': 0.15968654705251997, 'val': 0.16779068493253554}
 Average BLEU score: {'train': 0.1744131241641406, 'val': 0.16129068909087083}
 Average BLEU score: {'train': 0.17233568462157695, 'val': 0.17035209482594538}
 Average BLEU score: {'train': 0.1875369292789951, 'val': 0.17085311043968637}
 Average BLEU score: {'train': 0.19064510163547244, 'val': 0.18375004307755471}
 Average BLEU score: {'train': 0.1685854405698989, 'val': 0.1716173758573682}
 Average BLEU score: {'train': 0.1713378374038378, 'val': 0.16605061372572616}
 Average BLEU score: {'train': 0.1844089856824891, 'val': 0.17520850507816807}
 (Iteration 1001 / 15630) loss: 38.960217
 Average BLEU score: {'train': 0.17225009877839784, 'val': 0.16121749963871726}
 Average BLEU score: {'train': 0.20352663432720566, 'val': 0.18566228945764804}
 Average BLEU score: {'train': 0.174547696374885, 'val': 0.17421734121654237}
 Average BLEU score: {'train': 0.16801667739289095, 'val': 0.1616023473920176}
 Average BLEU score: {'train': 0.1459396466970529, 'val': 0.1413032955711464}
 Average BLEU score: {'train': 0.173744417169413, 'val': 0.17090244470695076}
 Average BLEU score: {'train': 0.16745443616691505, 'val': 0.16330679925235628}
 Average BLEU score: {'train': 0.15957209264912633, 'val': 0.15950634477538125}
 Average BLEU score: {'train': 0.1901707095149224, 'val': 0.18141367067904898}
 Average BLEU score: {'train': 0.15994820855855957, 'val': 0.15933728453082255}
 (Iteration 1101 / 15630) loss: 37.284442
 Average BLEU score: {'train': 0.14467328469592367, 'val': 0.14821373636414867}
 Average BLEU score: {'train': 0.19673261936831934, 'val': 0.19416767662242562}
 Average BLEU score: {'train': 0.16884450265098652, 'val': 0.15432791957057707}
 Average BLEU score: {'train': 0.14870688113535305, 'val': 0.15637800422346823}
 Average BLEU score: {'train': 0.1575354972076255, 'val': 0.1493194544847704}
 Average BLEU score: {'train': 0.15646780108972883, 'val': 0.15443509025319888}
 Average BLEU score: {'train': 0.1961431007538225, 'val': 0.18038376851632282}
 Average BLEU score: {'train': 0.17420049666239962, 'val': 0.15697016985064177}
 Average BLEU score: {'train': 0.14212000727032922, 'val': 0.1456430127701212}
 Average BLEU score: {'train': 0.15592519252758646, 'val': 0.15379149167567382}
 (Iteration 1201 / 15630) loss: 34.763655

Average BLEU score: {'train': 0.1716370259185767, 'val': 0.160359861949202}
 Average BLEU score: {'train': 0.1780347110368126, 'val': 0.17183859482786518}
 Average BLEU score: {'train': 0.1774653786815141, 'val': 0.17302478422573866}
 Average BLEU score: {'train': 0.17806390610875217, 'val': 0.17303010388215145}
 Average BLEU score: {'train': 0.18128005178250717, 'val': 0.17901803999060784}
 Average BLEU score: {'train': 0.16393773518038296, 'val': 0.1581810198731929}
 Average BLEU score: {'train': 0.1691444825248126, 'val': 0.16863276009805672}
 Average BLEU score: {'train': 0.18832622838848612, 'val': 0.18733338302552463}
 Average BLEU score: {'train': 0.18334779919189134, 'val': 0.17819263006548272}
 Average BLEU score: {'train': 0.16744316761752318, 'val': 0.17416153659966124}
 (Iteration 1301 / 15630) loss: 35.891552
 Average BLEU score: {'train': 0.19871987065225805, 'val': 0.18528015531146236}
 Average BLEU score: {'train': 0.17098234319173475, 'val': 0.1538233600239067}
 Average BLEU score: {'train': 0.1606823284691041, 'val': 0.1539074282086875}
 Average BLEU score: {'train': 0.18806983345301057, 'val': 0.18521640860160624}
 Average BLEU score: {'train': 0.17532431993578473, 'val': 0.17205118685161544}
 Average BLEU score: {'train': 0.18038278332234509, 'val': 0.17765552809205812}
 Average BLEU score: {'train': 0.18140348103111814, 'val': 0.1714390374412625}
 Average BLEU score: {'train': 0.19897821832250442, 'val': 0.1886007381189866}
 Average BLEU score: {'train': 0.1727605915102655, 'val': 0.180088856267744}
 Average BLEU score: {'train': 0.170548075685901, 'val': 0.16599322280691112}
 (Iteration 1401 / 15630) loss: 34.901132
 Average BLEU score: {'train': 0.17536158929279483, 'val': 0.174196160729621}
 Average BLEU score: {'train': 0.17484016653260231, 'val': 0.16355598158745255}
 Average BLEU score: {'train': 0.1849986421486017, 'val': 0.17847799198981473}
 Average BLEU score: {'train': 0.18739175110480769, 'val': 0.16943929165560861}
 Average BLEU score: {'train': 0.17873335263993045, 'val': 0.17344611299177823}
 Average BLEU score: {'train': 0.17459024999329245, 'val': 0.16290122554360123}
 Average BLEU score: {'train': 0.17621651883444633, 'val': 0.1752996994254551}
 Average BLEU score: {'train': 0.16629528153508147, 'val': 0.16571507794566778}
 Average BLEU score: {'train': 0.1705308832612344, 'val': 0.17830984757730206}
 Average BLEU score: {'train': 0.17972827994544144, 'val': 0.18057633780210244}
 (Iteration 1501 / 15630) loss: 36.352923
 Average BLEU score: {'train': 0.19791992474692718, 'val': 0.1931650040011551}
 Average BLEU score: {'train': 0.17693291398645997, 'val': 0.174935679374066}
 Average BLEU score: {'train': 0.18326394614911362, 'val': 0.183835081734183}
 Average BLEU score: {'train': 0.18688388029538905, 'val': 0.195042605142468}
 Average BLEU score: {'train': 0.17678526188226718, 'val': 0.17394490435404125}
 Average BLEU score: {'train': 0.1799100497741071, 'val': 0.1635709879019362}
 Average BLEU score: {'train': 0.19777358052601496, 'val': 0.17700176203538268}
 Average BLEU score: {'train': 0.18295671148528522, 'val': 0.18564733974161646}
 Average BLEU score: {'train': 0.18460044111058155, 'val': 0.17828911666655844}
 Average BLEU score: {'train': 0.17889330963701636, 'val': 0.18150165646359012}
 (Iteration 1601 / 15630) loss: 35.584865
 Average BLEU score: {'train': 0.17640152926456143, 'val': 0.18187266484248332}
 Average BLEU score: {'train': 0.17351318356328285, 'val': 0.17670713493644943}
 Average BLEU score: {'train': 0.19946240775736443, 'val': 0.19003402590127919}
 Average BLEU score: {'train': 0.18161760562244514, 'val': 0.18724142492765378}

Average BLEU score: {'train': 0.17836907905619498, 'val': 0.16809032359413706}
 Average BLEU score: {'train': 0.17803116186287482, 'val': 0.17293416294262567}
 Average BLEU score: {'train': 0.1920034309548789, 'val': 0.191224453521276}
 Average BLEU score: {'train': 0.19604490685626486, 'val': 0.18504275261692757}
 Average BLEU score: {'train': 0.17793820443250466, 'val': 0.1695292305227172}
 Average BLEU score: {'train': 0.18892552196709306, 'val': 0.18941079882151976}
 (Iteration 1701 / 15630) loss: 33.520939
 Average BLEU score: {'train': 0.2000712015471115, 'val': 0.20348919898469736}
 Average BLEU score: {'train': 0.17125000487107075, 'val': 0.17207375099505728}
 Average BLEU score: {'train': 0.18666671939595028, 'val': 0.18469327289821066}
 Average BLEU score: {'train': 0.18818092020770855, 'val': 0.17598679708874038}
 Average BLEU score: {'train': 0.2046760857631049, 'val': 0.18603169141434084}
 Average BLEU score: {'train': 0.19002820098223902, 'val': 0.19599629534613244}
 Average BLEU score: {'train': 0.2056066015374265, 'val': 0.21392192593969772}
 Average BLEU score: {'train': 0.19884753134798508, 'val': 0.20085874110240587}
 Average BLEU score: {'train': 0.20289517670380133, 'val': 0.19915157293963015}
 Average BLEU score: {'train': 0.20955119050288437, 'val': 0.20907364891101843}
 (Iteration 1801 / 15630) loss: 34.248973
 Average BLEU score: {'train': 0.20057601086355759, 'val': 0.2002817530467665}
 Average BLEU score: {'train': 0.218082083281438, 'val': 0.20514920621846008}
 Average BLEU score: {'train': 0.20958147885028114, 'val': 0.19807315813919638}
 Average BLEU score: {'train': 0.1863994596561135, 'val': 0.17807084606382337}
 Average BLEU score: {'train': 0.20737278240833767, 'val': 0.19968283851040372}
 Average BLEU score: {'train': 0.21096325813913094, 'val': 0.1974564512583497}
 Average BLEU score: {'train': 0.20070190535826615, 'val': 0.19969761641785383}
 Average BLEU score: {'train': 0.19986011845209078, 'val': 0.19007081959410735}
 Average BLEU score: {'train': 0.23119312341795706, 'val': 0.21369359595990206}
 Average BLEU score: {'train': 0.1932769857724002, 'val': 0.20353934926815032}
 (Iteration 1901 / 15630) loss: 33.266011
 Average BLEU score: {'train': 0.18426763493243978, 'val': 0.20301125155001565}
 Average BLEU score: {'train': 0.1950792750015807, 'val': 0.19246501222952753}
 Average BLEU score: {'train': 0.20722225955111695, 'val': 0.19282825747928384}
 Average BLEU score: {'train': 0.20399105877535004, 'val': 0.1950416771853445}
 Average BLEU score: {'train': 0.20489705213015405, 'val': 0.19882054646951416}
 Average BLEU score: {'train': 0.21380304198412256, 'val': 0.21018606465209436}
 Average BLEU score: {'train': 0.20365277350306366, 'val': 0.21223770304900075}
 Average BLEU score: {'train': 0.19890097131725634, 'val': 0.19857346572740384}
 Average BLEU score: {'train': 0.19884801563214863, 'val': 0.20183034387173818}
 Average BLEU score: {'train': 0.19571391566738483, 'val': 0.20984361443281174}
 (Iteration 2001 / 15630) loss: 33.280607
 Average BLEU score: {'train': 0.17808318283454413, 'val': 0.183538028733687}
 Average BLEU score: {'train': 0.21175170208881658, 'val': 0.21166580662946188}
 Average BLEU score: {'train': 0.1994791850787547, 'val': 0.19728318308001058}
 Average BLEU score: {'train': 0.21103188687860058, 'val': 0.21414485797584076}
 Average BLEU score: {'train': 0.19694926185544728, 'val': 0.1990027655802409}
 Average BLEU score: {'train': 0.2262785050883394, 'val': 0.20998279467417055}
 Average BLEU score: {'train': 0.2202015540292807, 'val': 0.22756875824683842}
 Average BLEU score: {'train': 0.20805266202722147, 'val': 0.21456940921996576}

Average BLEU score: {'train': 0.1982924456083548, 'val': 0.1975522052966103}
 Average BLEU score: {'train': 0.2164022535642755, 'val': 0.21881973302134877}
 (Iteration 2101 / 15630) loss: 33.693027
 Average BLEU score: {'train': 0.22776690602999905, 'val': 0.22951227812239547}
 Average BLEU score: {'train': 0.19743108776700616, 'val': 0.19073576584412222}
 Average BLEU score: {'train': 0.20289121586033723, 'val': 0.20598681087911602}
 Average BLEU score: {'train': 0.21687403115085432, 'val': 0.20636237964341958}
 Average BLEU score: {'train': 0.23135729853779047, 'val': 0.2218585780992941}
 Average BLEU score: {'train': 0.2187856263314135, 'val': 0.2157123440225663}
 Average BLEU score: {'train': 0.19815968857232275, 'val': 0.2027559919381144}
 Average BLEU score: {'train': 0.2124874614731131, 'val': 0.2155877301811131}
 Average BLEU score: {'train': 0.22686132283245813, 'val': 0.21752819730745088}
 Average BLEU score: {'train': 0.22048084733646447, 'val': 0.21401570138736398}
 (Iteration 2201 / 15630) loss: 34.259152
 Average BLEU score: {'train': 0.2375586778323747, 'val': 0.22314154787085597}
 Average BLEU score: {'train': 0.21749241821219803, 'val': 0.21883666051213668}
 Average BLEU score: {'train': 0.22395039183994786, 'val': 0.2117779352015494}
 Average BLEU score: {'train': 0.22201006112209973, 'val': 0.21442856117672293}
 Average BLEU score: {'train': 0.2095927621312813, 'val': 0.22069579844575002}
 Average BLEU score: {'train': 0.22258507034587074, 'val': 0.22555913200543445}
 Average BLEU score: {'train': 0.21732537127986604, 'val': 0.216156788957965}
 Average BLEU score: {'train': 0.21953360843476993, 'val': 0.21175890971380149}
 Average BLEU score: {'train': 0.22081697726815813, 'val': 0.2142935811021616}
 Average BLEU score: {'train': 0.18796778149786847, 'val': 0.19012795955527978}
 (Iteration 2301 / 15630) loss: 32.993583
 Average BLEU score: {'train': 0.21304623361544386, 'val': 0.20870915515037328}
 Average BLEU score: {'train': 0.22325545058001922, 'val': 0.22389949883015392}
 Average BLEU score: {'train': 0.21519024031350784, 'val': 0.21167983032950943}
 Average BLEU score: {'train': 0.23615512379398382, 'val': 0.22710999480860264}
 Average BLEU score: {'train': 0.2238657409656223, 'val': 0.21093631423903633}
 Average BLEU score: {'train': 0.21810452171432854, 'val': 0.21075390549160083}
 Average BLEU score: {'train': 0.23172134093929972, 'val': 0.23481108720069474}
 Average BLEU score: {'train': 0.20736033283442104, 'val': 0.20838504519882753}
 Average BLEU score: {'train': 0.22563689162753403, 'val': 0.21144635086108485}
 Average BLEU score: {'train': 0.21772659244079617, 'val': 0.22437948809811017}
 (Iteration 2401 / 15630) loss: 31.844382
 Average BLEU score: {'train': 0.2080528845377233, 'val': 0.2147430186432461}
 Average BLEU score: {'train': 0.21357584524737558, 'val': 0.2169899308303504}
 Average BLEU score: {'train': 0.23035691726282412, 'val': 0.23033554243811796}
 Average BLEU score: {'train': 0.2343306985902635, 'val': 0.22563000552658521}
 Average BLEU score: {'train': 0.23477190939813178, 'val': 0.23426785978920933}
 Average BLEU score: {'train': 0.22529865247343403, 'val': 0.2162245482233279}
 Average BLEU score: {'train': 0.250353954031917, 'val': 0.23430207228722388}
 Average BLEU score: {'train': 0.24033798243726048, 'val': 0.21640119202594188}
 Average BLEU score: {'train': 0.23682567787222106, 'val': 0.22839359405665483}
 Average BLEU score: {'train': 0.23885498419304382, 'val': 0.22372129742376753}
 (Iteration 2501 / 15630) loss: 31.488014
 Average BLEU score: {'train': 0.21670742935903964, 'val': 0.20863038341145054}

Average BLEU score: {'train': 0.2423063329114936, 'val': 0.23687482055578563}
 Average BLEU score: {'train': 0.2388647380451673, 'val': 0.22916031281411495}
 Average BLEU score: {'train': 0.24789271345388372, 'val': 0.2321363198799001}
 Average BLEU score: {'train': 0.23157978040190666, 'val': 0.2215668498034945}
 Average BLEU score: {'train': 0.24284235612308566, 'val': 0.22711080326016034}
 Average BLEU score: {'train': 0.23108529356040708, 'val': 0.21734390489262687}
 Average BLEU score: {'train': 0.221651429219814, 'val': 0.22040206362064033}
 Average BLEU score: {'train': 0.22733056102784507, 'val': 0.23038822619444185}
 Average BLEU score: {'train': 0.23066940713682244, 'val': 0.22539752453684675}
 (Iteration 2601 / 15630) loss: 31.660476
 Average BLEU score: {'train': 0.22806890641912161, 'val': 0.20978304248100635}
 Average BLEU score: {'train': 0.2367152092209494, 'val': 0.2194505637831551}
 Average BLEU score: {'train': 0.22964320486844877, 'val': 0.220187576118881}
 Average BLEU score: {'train': 0.23207467997675535, 'val': 0.22936060188457474}
 Average BLEU score: {'train': 0.2325502082212601, 'val': 0.23334288736020492}
 Average BLEU score: {'train': 0.23242518115478938, 'val': 0.23133996182820887}
 Average BLEU score: {'train': 0.22368004264655925, 'val': 0.2261958642031929}
 Average BLEU score: {'train': 0.24243420384067127, 'val': 0.2405754504930506}
 Average BLEU score: {'train': 0.23743605597219306, 'val': 0.2280384581547991}
 Average BLEU score: {'train': 0.21889572008441976, 'val': 0.22874717586689308}
 (Iteration 2701 / 15630) loss: 33.742209
 Average BLEU score: {'train': 0.23558840433507264, 'val': 0.2219566809452336}
 Average BLEU score: {'train': 0.2360990530506827, 'val': 0.21152264676808796}
 Average BLEU score: {'train': 0.2254844140980621, 'val': 0.2270162675079957}
 Average BLEU score: {'train': 0.22623075077693863, 'val': 0.22942152633230872}
 Average BLEU score: {'train': 0.2364955926293446, 'val': 0.24526458129852338}
 Average BLEU score: {'train': 0.22966399814876187, 'val': 0.22071567082908522}
 Average BLEU score: {'train': 0.22059489076853653, 'val': 0.22238316493015917}
 Average BLEU score: {'train': 0.2337457395278447, 'val': 0.23442056311882725}
 Average BLEU score: {'train': 0.23125183841122166, 'val': 0.23010411772352096}
 Average BLEU score: {'train': 0.2445884315053257, 'val': 0.22485086859407974}
 (Iteration 2801 / 15630) loss: 31.258218
 Average BLEU score: {'train': 0.23656340056344655, 'val': 0.23591730303713263}
 Average BLEU score: {'train': 0.22367985805655977, 'val': 0.2207716187691049}
 Average BLEU score: {'train': 0.24150950472275962, 'val': 0.23111565993375743}
 Average BLEU score: {'train': 0.23990876760133387, 'val': 0.2353467309451943}
 Average BLEU score: {'train': 0.22045118983712353, 'val': 0.20962368398579098}
 Average BLEU score: {'train': 0.2479846217462626, 'val': 0.21246910686255835}
 Average BLEU score: {'train': 0.21982509574855835, 'val': 0.2235637751802658}
 Average BLEU score: {'train': 0.22138924234099397, 'val': 0.23287539520313927}
 Average BLEU score: {'train': 0.2325894655909097, 'val': 0.22689639883695245}
 Average BLEU score: {'train': 0.23868777581481987, 'val': 0.2344355773658331}
 (Iteration 2901 / 15630) loss: 31.246238
 Average BLEU score: {'train': 0.2461729533797256, 'val': 0.23971345283424064}
 Average BLEU score: {'train': 0.2428189510090723, 'val': 0.24713376682478852}
 Average BLEU score: {'train': 0.23194533074624082, 'val': 0.2285738153610903}
 Average BLEU score: {'train': 0.23568184582377577, 'val': 0.2150151247774879}
 Average BLEU score: {'train': 0.2439947352713476, 'val': 0.2426126709303576}

Average BLEU score: {'train': 0.2177647208477594, 'val': 0.2235165932730001}
 Average BLEU score: {'train': 0.24053722888405232, 'val': 0.24049847468053698}
 Average BLEU score: {'train': 0.23106568591818102, 'val': 0.21306241856233302}
 Average BLEU score: {'train': 0.2422522395847554, 'val': 0.22687692999904707}
 Average BLEU score: {'train': 0.24279554066769182, 'val': 0.2316769280500307}
 (Iteration 3001 / 15630) loss: 32.607295
 Average BLEU score: {'train': 0.22627530533793389, 'val': 0.21907247654101866}
 Average BLEU score: {'train': 0.24544888563565231, 'val': 0.2389641782032859}
 Average BLEU score: {'train': 0.25059928678345106, 'val': 0.23805030148011763}
 Average BLEU score: {'train': 0.23658445390515556, 'val': 0.22044687786573575}
 Average BLEU score: {'train': 0.23882597512849565, 'val': 0.23221175561744872}
 Average BLEU score: {'train': 0.2536275944213835, 'val': 0.23183846708424102}
 Average BLEU score: {'train': 0.22625573557636103, 'val': 0.22879096606022506}
 Average BLEU score: {'train': 0.24435438381453853, 'val': 0.2364295135599277}
 Average BLEU score: {'train': 0.24219777430605974, 'val': 0.22527491015740936}
 Average BLEU score: {'train': 0.2378703896197206, 'val': 0.2304656776115702}
 (Iteration 3101 / 15630) loss: 31.704344
 Average BLEU score: {'train': 0.23660115251201713, 'val': 0.23942376431732107}
 Average BLEU score: {'train': 0.23255331514414782, 'val': 0.22395097422839003}
 Average BLEU score: {'train': 0.2356979316300138, 'val': 0.23484444090084103}
 Average BLEU score: {'train': 0.23372724071039652, 'val': 0.22655688882177177}
 Average BLEU score: {'train': 0.24121967749941714, 'val': 0.24150925664748163}
 Average BLEU score: {'train': 0.255345828403715, 'val': 0.2554033721900217}
 Average BLEU score: {'train': 0.2364174847556573, 'val': 0.23248554203115032}
 Average BLEU score: {'train': 0.24349716204445518, 'val': 0.23521097052439216}
 Average BLEU score: {'train': 0.26764569996097315, 'val': 0.25053561675772185}
 Average BLEU score: {'train': 0.23043225255988692, 'val': 0.22835381084321887}
 (Iteration 3201 / 15630) loss: 30.093200
 Average BLEU score: {'train': 0.22575171437204708, 'val': 0.21887845057756122}
 Average BLEU score: {'train': 0.25551612777801647, 'val': 0.25628693064037184}
 Average BLEU score: {'train': 0.23702523310354598, 'val': 0.22008731543866047}
 Average BLEU score: {'train': 0.24971765217522618, 'val': 0.23035838645595688}
 Average BLEU score: {'train': 0.24375883888279315, 'val': 0.2353368152387963}
 Average BLEU score: {'train': 0.23487388730023095, 'val': 0.24349711369007307}
 Average BLEU score: {'train': 0.24081204506068818, 'val': 0.2448562524521814}
 Average BLEU score: {'train': 0.2467308542717143, 'val': 0.23527955407985354}
 Average BLEU score: {'train': 0.24505472265159792, 'val': 0.2314493637578111}
 Average BLEU score: {'train': 0.2538417935324593, 'val': 0.22755082474592853}
 (Iteration 3301 / 15630) loss: 31.810487
 Average BLEU score: {'train': 0.24823536394435392, 'val': 0.23682811890392028}
 Average BLEU score: {'train': 0.23737297292140244, 'val': 0.22160697617173308}
 Average BLEU score: {'train': 0.24364044330747042, 'val': 0.24654946159361857}
 Average BLEU score: {'train': 0.24494458785484186, 'val': 0.23309747030492756}
 Average BLEU score: {'train': 0.2406497163687473, 'val': 0.25024156456751223}
 Average BLEU score: {'train': 0.26029264224527104, 'val': 0.25600235360595325}
 Average BLEU score: {'train': 0.24757314980032302, 'val': 0.24115407036138795}
 Average BLEU score: {'train': 0.2349925781825426, 'val': 0.22447732338898344}
 Average BLEU score: {'train': 0.24323859484911375, 'val': 0.24601283393903486}

Average BLEU score: {'train': 0.24599612300045784, 'val': 0.24644556665159054}
 (Iteration 3401 / 15630) loss: 30.349910
 Average BLEU score: {'train': 0.2464512489284756, 'val': 0.23645016122500861}
 Average BLEU score: {'train': 0.24344978733414094, 'val': 0.2431762536962722}
 Average BLEU score: {'train': 0.24487516125836575, 'val': 0.24199069325654216}
 Average BLEU score: {'train': 0.24177078698056914, 'val': 0.22767008466203356}
 Average BLEU score: {'train': 0.2568315225319381, 'val': 0.23360456599777316}
 Average BLEU score: {'train': 0.2498639181202026, 'val': 0.23529766328160667}
 Average BLEU score: {'train': 0.24978199188371716, 'val': 0.2462459419681036}
 Average BLEU score: {'train': 0.2358308450945176, 'val': 0.2433509034577222}
 Average BLEU score: {'train': 0.2324311767462145, 'val': 0.23558740251935717}
 Average BLEU score: {'train': 0.2525800913036778, 'val': 0.2458189773722938}
 (Iteration 3501 / 15630) loss: 29.871162
 Average BLEU score: {'train': 0.23582437813095714, 'val': 0.2444891683863467}
 Average BLEU score: {'train': 0.23734652797176892, 'val': 0.2366168970404457}
 Average BLEU score: {'train': 0.2507726371092697, 'val': 0.2283874934122137}
 Average BLEU score: {'train': 0.25458440590895953, 'val': 0.24956927673769352}
 Average BLEU score: {'train': 0.24958830991850828, 'val': 0.2507484087082732}
 Average BLEU score: {'train': 0.24985022555554887, 'val': 0.24147336043881815}
 Average BLEU score: {'train': 0.26513919245776285, 'val': 0.24571063020540926}
 Average BLEU score: {'train': 0.25730100003455286, 'val': 0.25431375486724617}
 Average BLEU score: {'train': 0.249644580232058, 'val': 0.24772217462920026}
 Average BLEU score: {'train': 0.2532361819886511, 'val': 0.2428542587737642}
 (Iteration 3601 / 15630) loss: 30.427266
 Average BLEU score: {'train': 0.2356847737268412, 'val': 0.23346739456570703}
 Average BLEU score: {'train': 0.24290450941890404, 'val': 0.234788548290601}
 Average BLEU score: {'train': 0.24291045786414886, 'val': 0.24184753695820504}
 Average BLEU score: {'train': 0.25011291448152667, 'val': 0.25347639595098803}
 Average BLEU score: {'train': 0.24029644496899744, 'val': 0.2480735852045259}
 Average BLEU score: {'train': 0.24553972445095243, 'val': 0.23696535546378378}
 Average BLEU score: {'train': 0.23827267597786628, 'val': 0.24223523807370492}
 Average BLEU score: {'train': 0.2620993550295597, 'val': 0.2528542675283339}
 Average BLEU score: {'train': 0.24950830245220063, 'val': 0.2385851866557556}
 Average BLEU score: {'train': 0.24804892506114443, 'val': 0.2387095021781972}
 (Iteration 3701 / 15630) loss: 30.554768
 Average BLEU score: {'train': 0.23377282031951457, 'val': 0.23428394773336844}
 Average BLEU score: {'train': 0.24730530504055015, 'val': 0.22897723672488254}
 Average BLEU score: {'train': 0.24837587537797012, 'val': 0.249463718125324}
 Average BLEU score: {'train': 0.23578566088834124, 'val': 0.22815435189345193}
 Average BLEU score: {'train': 0.2501154233996593, 'val': 0.2410254791819948}
 Average BLEU score: {'train': 0.2674906434604615, 'val': 0.2562576008614473}
 Average BLEU score: {'train': 0.23979451263788296, 'val': 0.23050065930076044}
 Average BLEU score: {'train': 0.246099974412249, 'val': 0.24057689231202653}
 Average BLEU score: {'train': 0.258167199474054, 'val': 0.2533607952167477}
 Average BLEU score: {'train': 0.2383662564225205, 'val': 0.2403493942273563}
 (Iteration 3801 / 15630) loss: 30.842747
 Average BLEU score: {'train': 0.24538069371614485, 'val': 0.24752745921812175}
 Average BLEU score: {'train': 0.25205240675488144, 'val': 0.24681060802550428}

Average BLEU score: {'train': 0.2404098823419988, 'val': 0.22854759602840913}
 Average BLEU score: {'train': 0.2458968589542834, 'val': 0.2475168861700773}
 Average BLEU score: {'train': 0.2547026348525773, 'val': 0.23606784967486824}
 Average BLEU score: {'train': 0.23755452058650783, 'val': 0.2335236896824528}
 Average BLEU score: {'train': 0.24289324291970266, 'val': 0.23169627235359017}
 Average BLEU score: {'train': 0.24756145081645367, 'val': 0.2391982636835225}
 Average BLEU score: {'train': 0.24215360333962757, 'val': 0.24073384697079872}
 Average BLEU score: {'train': 0.2508344504867908, 'val': 0.25263235453379973}
 (Iteration 3901 / 15630) loss: 30.592579
 Average BLEU score: {'train': 0.25237147776040136, 'val': 0.23338669653422306}
 Average BLEU score: {'train': 0.25658730265570323, 'val': 0.24508075607292346}
 Average BLEU score: {'train': 0.25301360254025906, 'val': 0.24871383440292458}
 Average BLEU score: {'train': 0.2555100641392074, 'val': 0.25600667689787016}
 Average BLEU score: {'train': 0.2687909186429394, 'val': 0.24524858585359077}
 Average BLEU score: {'train': 0.24592829881679737, 'val': 0.23747364170908253}
 Average BLEU score: {'train': 0.24545108444687191, 'val': 0.245565933254653}
 Average BLEU score: {'train': 0.2456046926711696, 'val': 0.24270057163360292}
 Average BLEU score: {'train': 0.24092056105131518, 'val': 0.23668048187589794}
 Average BLEU score: {'train': 0.25339777581317263, 'val': 0.2411924285167422}
 (Iteration 4001 / 15630) loss: 30.584047
 Average BLEU score: {'train': 0.25488119730938347, 'val': 0.24250590786431153}
 Average BLEU score: {'train': 0.25009801164526896, 'val': 0.247614425705882}
 Average BLEU score: {'train': 0.26277622373957144, 'val': 0.2531723533820078}
 Average BLEU score: {'train': 0.25125387149917244, 'val': 0.26175481472528844}
 Average BLEU score: {'train': 0.23715062005779708, 'val': 0.2344374649398355}
 Average BLEU score: {'train': 0.26172627932068243, 'val': 0.25463708708210736}
 Average BLEU score: {'train': 0.25536873919573283, 'val': 0.2522322945459151}
 Average BLEU score: {'train': 0.2476477475900074, 'val': 0.24849020621311665}
 Average BLEU score: {'train': 0.26106478666248883, 'val': 0.2503689785167314}
 Average BLEU score: {'train': 0.2511628167066608, 'val': 0.24609239037593028}
 (Iteration 4101 / 15630) loss: 30.054241
 Average BLEU score: {'train': 0.25560407192676143, 'val': 0.24305950366784296}
 Average BLEU score: {'train': 0.2616154927760156, 'val': 0.2474271998163796}
 Average BLEU score: {'train': 0.2595696753485602, 'val': 0.25110387532412254}
 Average BLEU score: {'train': 0.25202178336196923, 'val': 0.2448302254131293}
 Average BLEU score: {'train': 0.2550413303642064, 'val': 0.23911122645196603}
 Average BLEU score: {'train': 0.2500602467581561, 'val': 0.23172831385309633}
 Average BLEU score: {'train': 0.2568072789958304, 'val': 0.24959687176871545}
 Average BLEU score: {'train': 0.25874163720783494, 'val': 0.24976002473464035}
 Average BLEU score: {'train': 0.25880016635786546, 'val': 0.23137658694000593}
 Average BLEU score: {'train': 0.2673268254212179, 'val': 0.2569798975809117}
 (Iteration 4201 / 15630) loss: 28.823764
 Average BLEU score: {'train': 0.26962905171506407, 'val': 0.25258978591515774}
 Average BLEU score: {'train': 0.23999320408903996, 'val': 0.24398126159256803}
 Average BLEU score: {'train': 0.26506581807349705, 'val': 0.2507974731657338}
 Average BLEU score: {'train': 0.26359319073277687, 'val': 0.25783295268919}
 Average BLEU score: {'train': 0.26067625509207354, 'val': 0.24325272844460188}
 Average BLEU score: {'train': 0.25799783282285577, 'val': 0.24890542116930314}

Average BLEU score: {'train': 0.2609399502379011, 'val': 0.24949202795572348}
 Average BLEU score: {'train': 0.25280185279977196, 'val': 0.26348877991281283}
 Average BLEU score: {'train': 0.2577938399924094, 'val': 0.26111113503823125}
 Average BLEU score: {'train': 0.26498159411478145, 'val': 0.2508778253366958}
 (Iteration 4301 / 15630) loss: 29.905406
 Average BLEU score: {'train': 0.2395704998270974, 'val': 0.22354818771886084}
 Average BLEU score: {'train': 0.2579723592772347, 'val': 0.2502237518807889}
 Average BLEU score: {'train': 0.25203177440998553, 'val': 0.25696034837445525}
 Average BLEU score: {'train': 0.25428148355461666, 'val': 0.2340657707944041}
 Average BLEU score: {'train': 0.24246494087912185, 'val': 0.2391859199787406}
 Average BLEU score: {'train': 0.24398319270453686, 'val': 0.22917078941269592}
 Average BLEU score: {'train': 0.2431332096288463, 'val': 0.24605595071766725}
 Average BLEU score: {'train': 0.2537597120680993, 'val': 0.25108818053440685}
 Average BLEU score: {'train': 0.25408989564646656, 'val': 0.24533929838703092}
 Average BLEU score: {'train': 0.2439734702489076, 'val': 0.24061294483112727}
 (Iteration 4401 / 15630) loss: 28.848633
 Average BLEU score: {'train': 0.24648226072526933, 'val': 0.24350433666705878}
 Average BLEU score: {'train': 0.24852578366345968, 'val': 0.24389549445225164}
 Average BLEU score: {'train': 0.2498679877975352, 'val': 0.25239434878659733}
 Average BLEU score: {'train': 0.24463174940567017, 'val': 0.2410473865901742}
 Average BLEU score: {'train': 0.2604728890910634, 'val': 0.2419438678564894}
 Average BLEU score: {'train': 0.25558923348417706, 'val': 0.24575437541705622}
 Average BLEU score: {'train': 0.24371543307368093, 'val': 0.2329320226697399}
 Average BLEU score: {'train': 0.2579138247028213, 'val': 0.2433545328472643}
 Average BLEU score: {'train': 0.2628125690046492, 'val': 0.25104903491033403}
 Average BLEU score: {'train': 0.2674619032644457, 'val': 0.2579391292759688}
 (Iteration 4501 / 15630) loss: 30.008256
 Average BLEU score: {'train': 0.2607173999525739, 'val': 0.2531672958211012}
 Average BLEU score: {'train': 0.2588677517043257, 'val': 0.25157852696271005}
 Average BLEU score: {'train': 0.2689654113109157, 'val': 0.25534682762971234}
 Average BLEU score: {'train': 0.2616269708001857, 'val': 0.2478678826740886}
 Average BLEU score: {'train': 0.25902233520747125, 'val': 0.24003936751166438}
 Average BLEU score: {'train': 0.25887928180507497, 'val': 0.25515840487411984}
 Average BLEU score: {'train': 0.258372877712492, 'val': 0.26149029347937147}
 Average BLEU score: {'train': 0.25577721028935885, 'val': 0.25426233932887615}
 Average BLEU score: {'train': 0.2679346014980447, 'val': 0.2586786089949039}
 Average BLEU score: {'train': 0.26060722500071176, 'val': 0.2553463109813724}
 (Iteration 4601 / 15630) loss: 29.320205
 Average BLEU score: {'train': 0.2506251174324627, 'val': 0.24564849513925407}
 Average BLEU score: {'train': 0.2737217490475553, 'val': 0.257442428148728}
 Average BLEU score: {'train': 0.25539960198472117, 'val': 0.25457671645243724}
 Average BLEU score: {'train': 0.2587489999419198, 'val': 0.25162744674718523}
 Average BLEU score: {'train': 0.25490966779303337, 'val': 0.25185340776565535}
 Average BLEU score: {'train': 0.24221174077465282, 'val': 0.240690579449204}
 Average BLEU score: {'train': 0.2649663691684093, 'val': 0.24053586273581035}
 Average BLEU score: {'train': 0.25655915676583313, 'val': 0.24926667221031495}
 Average BLEU score: {'train': 0.26195843333502217, 'val': 0.2347105618032029}
 Average BLEU score: {'train': 0.256624499169746, 'val': 0.24228705653146454}


```

(Iteration 4701 / 15630) loss: 28.256359
Average BLEU score: {'train': 0.25643106121988374, 'val': 0.26841405041155403}
Average BLEU score: {'train': 0.25165853312248365, 'val': 0.24459547350758382}
Average BLEU score: {'train': 0.2609603274476883, 'val': 0.25098255871924013}
Average BLEU score: {'train': 0.24690679677848643, 'val': 0.24976163260832437}
Average BLEU score: {'train': 0.2582576527949952, 'val': 0.2481138258005086}
Average BLEU score: {'train': 0.2553604171034606, 'val': 0.25385993217899794}
Average BLEU score: {'train': 0.2646736696342787, 'val': 0.24768647581650327}
Average BLEU score: {'train': 0.2664069414787875, 'val': 0.2610772253027204}
Average BLEU score: {'train': 0.26099610457222117, 'val': 0.25596764542559003}
Average BLEU score: {'train': 0.2529265968478738, 'val': 0.25713257013816854}
(Iteration 4801 / 15630) loss: 29.350679
Average BLEU score: {'train': 0.2657501351298238, 'val': 0.2514416570620579}
Average BLEU score: {'train': 0.26028053756057046, 'val': 0.25126324005452716}
Average BLEU score: {'train': 0.28060540756327496, 'val': 0.2385708672851213}
Average BLEU score: {'train': 0.26082993591933795, 'val': 0.2527677852905951}
Average BLEU score: {'train': 0.26561366556014554, 'val': 0.2566692448035337}
Average BLEU score: {'train': 0.2655998285731341, 'val': 0.25978871604571097}
Average BLEU score: {'train': 0.2635068666734073, 'val': 0.2558640924500884}
Average BLEU score: {'train': 0.26753798704407933, 'val': 0.2643398943178763}
Average BLEU score: {'train': 0.25159145279504036, 'val': 0.25652638474256256}
Average BLEU score: {'train': 0.2563046529629288, 'val': 0.25253273020819367}
(Iteration 4901 / 15630) loss: 29.072164
Average BLEU score: {'train': 0.2575479224128103, 'val': 0.25749981940184385}
Average BLEU score: {'train': 0.2675647476989621, 'val': 0.246593942280112}
Average BLEU score: {'train': 0.263809787305624, 'val': 0.24322154709735314}
Average BLEU score: {'train': 0.25645836418822715, 'val': 0.255424615946104}
Average BLEU score: {'train': 0.2516309832011458, 'val': 0.2547263527983986}
Average BLEU score: {'train': 0.2662298568139074, 'val': 0.2534510456176228}
Average BLEU score: {'train': 0.2694488997499612, 'val': 0.2516441288038126}
Average BLEU score: {'train': 0.24532933626264297, 'val': 0.24380671724145583}
Average BLEU score: {'train': 0.26701457412102464, 'val': 0.25183723966893307}
Average BLEU score: {'train': 0.2702221153205404, 'val': 0.2611717125600266}
(Iteration 5001 / 15630) loss: 29.034506
Average BLEU score: {'train': 0.27119261488939794, 'val': 0.2592420660577913}
Average BLEU score: {'train': 0.2546034033912014, 'val': 0.24201172116845046}
Average BLEU score: {'train': 0.26576029185146655, 'val': 0.24654592603558126}
Average BLEU score: {'train': 0.2730076619506732, 'val': 0.262676894811545}
Average BLEU score: {'train': 0.2616851380245422, 'val': 0.2626087934949558}
Average BLEU score: {'train': 0.2748930440570008, 'val': 0.25713033164795135}
Average BLEU score: {'train': 0.2640375692383755, 'val': 0.2482539865516031}
Average BLEU score: {'train': 0.2656844386289752, 'val': 0.2455844969558911}
Average BLEU score: {'train': 0.2569048552490714, 'val': 0.25785042442290246}
Average BLEU score: {'train': 0.26386265783333335, 'val': 0.2642613477019243}
(Iteration 5101 / 15630) loss: 28.728149
Average BLEU score: {'train': 0.2672318518863271, 'val': 0.24349834159650843}
Average BLEU score: {'train': 0.26997191027312967, 'val': 0.26170426464700636}
Average BLEU score: {'train': 0.27243039528553714, 'val': 0.2682001116562517}

```

Average BLEU score: {'train': 0.26660784815035204, 'val': 0.2462621599991294}
 Average BLEU score: {'train': 0.2643692639766134, 'val': 0.24990063580996996}
 Average BLEU score: {'train': 0.23793064359620364, 'val': 0.2462987013033313}
 Average BLEU score: {'train': 0.2552461035092607, 'val': 0.24964652181533165}
 Average BLEU score: {'train': 0.2572415478242655, 'val': 0.23805398172054437}
 Average BLEU score: {'train': 0.25697247467811973, 'val': 0.2527089617046434}
 Average BLEU score: {'train': 0.2666901749957709, 'val': 0.2593666807181771}
 (Iteration 5201 / 15630) loss: 29.928400
 Average BLEU score: {'train': 0.2761582530843311, 'val': 0.25684729322030414}
 Average BLEU score: {'train': 0.2717100523923469, 'val': 0.2560564596955891}
 Average BLEU score: {'train': 0.2745815019429776, 'val': 0.2743283941706734}
 Average BLEU score: {'train': 0.26710027417041915, 'val': 0.25374843405938396}
 Average BLEU score: {'train': 0.24926638250936495, 'val': 0.2522438042447039}
 Average BLEU score: {'train': 0.26246938698899125, 'val': 0.26286791547381766}
 Average BLEU score: {'train': 0.26636864443074726, 'val': 0.2606657759605127}
 Average BLEU score: {'train': 0.2639503818529435, 'val': 0.24600449566166768}
 Average BLEU score: {'train': 0.2771800503628927, 'val': 0.25756670438618745}
 Average BLEU score: {'train': 0.2713649079822482, 'val': 0.26504775607526115}
 (Iteration 5301 / 15630) loss: 28.921618
 Average BLEU score: {'train': 0.26734969440620154, 'val': 0.25279748088645193}
 Average BLEU score: {'train': 0.2721829141651304, 'val': 0.255345430773832}
 Average BLEU score: {'train': 0.2555563704128025, 'val': 0.25524365114459097}
 Average BLEU score: {'train': 0.2706719820931369, 'val': 0.2740724895538063}
 Average BLEU score: {'train': 0.2641918174116838, 'val': 0.2628419027280374}
 Average BLEU score: {'train': 0.2574781713533269, 'val': 0.24832467401555727}
 Average BLEU score: {'train': 0.27620557505049886, 'val': 0.26545417436858626}
 Average BLEU score: {'train': 0.26100646364531427, 'val': 0.25398566694072716}
 Average BLEU score: {'train': 0.26794054167758946, 'val': 0.2540704029139839}
 Average BLEU score: {'train': 0.2617227698567006, 'val': 0.2573584349235005}
 (Iteration 5401 / 15630) loss: 29.800947
 Average BLEU score: {'train': 0.26118713771971436, 'val': 0.25237164404061013}
 Average BLEU score: {'train': 0.2574336896381535, 'val': 0.24607649329661443}
 Average BLEU score: {'train': 0.2543906868096786, 'val': 0.2541368183939546}
 Average BLEU score: {'train': 0.2577015549587567, 'val': 0.25443069237256427}
 Average BLEU score: {'train': 0.2799645137164555, 'val': 0.2692416869046454}
 Average BLEU score: {'train': 0.2660193069771931, 'val': 0.25216372827299166}
 Average BLEU score: {'train': 0.27357341351749753, 'val': 0.2751549867939099}
 Average BLEU score: {'train': 0.27213679761824844, 'val': 0.25681360536651854}
 Average BLEU score: {'train': 0.2684404387759033, 'val': 0.25690792245771815}
 Average BLEU score: {'train': 0.2732438986084752, 'val': 0.26219793958910137}
 (Iteration 5501 / 15630) loss: 29.670712
 Average BLEU score: {'train': 0.2648536558224897, 'val': 0.2698436293392402}
 Average BLEU score: {'train': 0.2738376524073705, 'val': 0.258823919531708}
 Average BLEU score: {'train': 0.25547993375298295, 'val': 0.24043611841804932}
 Average BLEU score: {'train': 0.2611645742753006, 'val': 0.25018557563123267}
 Average BLEU score: {'train': 0.2567858907600219, 'val': 0.2545650267153203}
 Average BLEU score: {'train': 0.2611071697618385, 'val': 0.2497077391830292}
 Average BLEU score: {'train': 0.2703619168154002, 'val': 0.24920359738942308}

Average BLEU score: {'train': 0.25877163638217965, 'val': 0.2544636729084081}
 Average BLEU score: {'train': 0.272923154488901, 'val': 0.26984590809531556}
 Average BLEU score: {'train': 0.26525461893212876, 'val': 0.2560266425633061}
 (Iteration 5601 / 15630) loss: 28.377639
 Average BLEU score: {'train': 0.2807816063844427, 'val': 0.26625570530180376}
 Average BLEU score: {'train': 0.26537331803505004, 'val': 0.2613778804511451}
 Average BLEU score: {'train': 0.2735784717329805, 'val': 0.2644022990688807}
 Average BLEU score: {'train': 0.2721966954374264, 'val': 0.25299553315489315}
 Average BLEU score: {'train': 0.2672284971545354, 'val': 0.24462426847962687}
 Average BLEU score: {'train': 0.2725082214866069, 'val': 0.26385012687661763}
 Average BLEU score: {'train': 0.2675861637278117, 'val': 0.2641192037863914}
 Average BLEU score: {'train': 0.27403208393187733, 'val': 0.26252546370966223}
 Average BLEU score: {'train': 0.26612744952396117, 'val': 0.25591013221677206}
 Average BLEU score: {'train': 0.2725095950511516, 'val': 0.2609536212945419}
 (Iteration 5701 / 15630) loss: 28.249152
 Average BLEU score: {'train': 0.27919454980934444, 'val': 0.26028696815964675}
 Average BLEU score: {'train': 0.26425365133109885, 'val': 0.24299282809574646}
 Average BLEU score: {'train': 0.2757595554971179, 'val': 0.2554832054013322}
 Average BLEU score: {'train': 0.25208704624293493, 'val': 0.24550758205152196}
 Average BLEU score: {'train': 0.27622448728818133, 'val': 0.2651001336298663}
 Average BLEU score: {'train': 0.2752198426906871, 'val': 0.25899661428243004}
 Average BLEU score: {'train': 0.2754490877689977, 'val': 0.26169710418074654}
 Average BLEU score: {'train': 0.2769765714169279, 'val': 0.26029066395123035}
 Average BLEU score: {'train': 0.27343232634043374, 'val': 0.2652081781566385}
 Average BLEU score: {'train': 0.27467540536371216, 'val': 0.25667266657906945}
 (Iteration 5801 / 15630) loss: 26.821703
 Average BLEU score: {'train': 0.2745488000168307, 'val': 0.2688586525946278}
 Average BLEU score: {'train': 0.27532028274877896, 'val': 0.2663480424702822}
 Average BLEU score: {'train': 0.273417229227058, 'val': 0.2562795641063862}
 Average BLEU score: {'train': 0.26139410965238347, 'val': 0.25567729791652793}
 Average BLEU score: {'train': 0.28014239564930643, 'val': 0.26805919961468383}
 Average BLEU score: {'train': 0.26909959506906717, 'val': 0.2596754936170853}
 Average BLEU score: {'train': 0.272662011805969, 'val': 0.2596484341116178}
 Average BLEU score: {'train': 0.27771550702670394, 'val': 0.2724794843879076}
 Average BLEU score: {'train': 0.2664216617745683, 'val': 0.26358271766557473}
 Average BLEU score: {'train': 0.27139344887200795, 'val': 0.26952203786351847}
 (Iteration 5901 / 15630) loss: 28.948195
 Average BLEU score: {'train': 0.262454488067059, 'val': 0.26197114361843404}
 Average BLEU score: {'train': 0.2739025865892353, 'val': 0.27526776789125323}
 Average BLEU score: {'train': 0.25646469191637145, 'val': 0.25070718471685005}
 Average BLEU score: {'train': 0.2627555153083942, 'val': 0.26163835280559283}
 Average BLEU score: {'train': 0.2840562285963264, 'val': 0.260014275238658}
 Average BLEU score: {'train': 0.25977197404138763, 'val': 0.25193324638678444}
 Average BLEU score: {'train': 0.2705526084657219, 'val': 0.2677778118713808}
 Average BLEU score: {'train': 0.2731837513189472, 'val': 0.2570212086722094}
 Average BLEU score: {'train': 0.27476148421351604, 'val': 0.25466210332352573}
 Average BLEU score: {'train': 0.2814809686803225, 'val': 0.2662073146882088}
 (Iteration 6001 / 15630) loss: 29.215538

Average BLEU score: {'train': 0.26297230242674047, 'val': 0.25534480992112046}
 Average BLEU score: {'train': 0.26790233478879005, 'val': 0.255620279008962}
 Average BLEU score: {'train': 0.2651723600864174, 'val': 0.2685479051066353}
 Average BLEU score: {'train': 0.25133043512843717, 'val': 0.26176860840289}
 Average BLEU score: {'train': 0.2699987857615424, 'val': 0.2608281873807494}
 Average BLEU score: {'train': 0.2693554951532467, 'val': 0.2536136503653307}
 Average BLEU score: {'train': 0.26323977257686965, 'val': 0.265138018234406}
 Average BLEU score: {'train': 0.2688136748347341, 'val': 0.25946093913083307}
 Average BLEU score: {'train': 0.2787930943133836, 'val': 0.2600048235772491}
 Average BLEU score: {'train': 0.2840328057852342, 'val': 0.2687032201492912}
 (Iteration 6101 / 15630) loss: 29.848436
 Average BLEU score: {'train': 0.2757245156624032, 'val': 0.2557672365262365}
 Average BLEU score: {'train': 0.2685101246409677, 'val': 0.2723396886347651}
 Average BLEU score: {'train': 0.2766629694683699, 'val': 0.24840111585897598}
 Average BLEU score: {'train': 0.27717401164765304, 'val': 0.2643273851029139}
 Average BLEU score: {'train': 0.26443608189948714, 'val': 0.24908019637254641}
 Average BLEU score: {'train': 0.2756492935897723, 'val': 0.2646308134093727}
 Average BLEU score: {'train': 0.2748231676120276, 'val': 0.26524027781992077}
 Average BLEU score: {'train': 0.2556648571954401, 'val': 0.2513875956997865}
 Average BLEU score: {'train': 0.2769825021690174, 'val': 0.2665715556210762}
 Average BLEU score: {'train': 0.2785757889027626, 'val': 0.2608439651096963}
 (Iteration 6201 / 15630) loss: 27.701871
 Average BLEU score: {'train': 0.25906960486811753, 'val': 0.2418019247153925}
 Average BLEU score: {'train': 0.2705428251507538, 'val': 0.25310591278229433}
 Average BLEU score: {'train': 0.2785108952149338, 'val': 0.26925530123904823}
 Average BLEU score: {'train': 0.28314197982543066, 'val': 0.2804430089954548}
 Average BLEU score: {'train': 0.27652080058389183, 'val': 0.2746764476627279}
 Average BLEU score: {'train': 0.279038199277914, 'val': 0.26251451807424175}
 Average BLEU score: {'train': 0.27684877383440903, 'val': 0.2565367276012092}
 Average BLEU score: {'train': 0.2769698780829593, 'val': 0.2703138367274289}
 Average BLEU score: {'train': 0.2821283871941819, 'val': 0.2674496137953767}
 Average BLEU score: {'train': 0.2728506438484919, 'val': 0.26106153625488543}
 (Iteration 6301 / 15630) loss: 27.878326
 Average BLEU score: {'train': 0.2818154856842221, 'val': 0.2739892540637958}
 Average BLEU score: {'train': 0.2685011323686618, 'val': 0.2599034218654988}
 Average BLEU score: {'train': 0.26718657030659654, 'val': 0.272780886860138}
 Average BLEU score: {'train': 0.2670514223964532, 'val': 0.27321096822983815}
 Average BLEU score: {'train': 0.27795821372402857, 'val': 0.2772092485731372}
 Average BLEU score: {'train': 0.27329732873488677, 'val': 0.2652396808050444}
 Average BLEU score: {'train': 0.27211307354575526, 'val': 0.26763937316299197}
 Average BLEU score: {'train': 0.2674667899082618, 'val': 0.261876073240395}
 Average BLEU score: {'train': 0.2816391252277169, 'val': 0.2556115480111727}
 Average BLEU score: {'train': 0.2855983043629345, 'val': 0.2744874607118232}
 (Iteration 6401 / 15630) loss: 28.102925
 Average BLEU score: {'train': 0.2965205664553304, 'val': 0.2714888216503824}
 Average BLEU score: {'train': 0.27575554405895913, 'val': 0.26359264523037834}
 Average BLEU score: {'train': 0.28262090190357453, 'val': 0.2634464085252178}
 Average BLEU score: {'train': 0.27985838949489306, 'val': 0.2618986730169967}

Average BLEU score: {'train': 0.2752846316519272, 'val': 0.26514750361860995}
 Average BLEU score: {'train': 0.26707897599836256, 'val': 0.2567102404739194}
 Average BLEU score: {'train': 0.27669057760959864, 'val': 0.2763257615724072}
 Average BLEU score: {'train': 0.2739056971790819, 'val': 0.2526958523977345}
 Average BLEU score: {'train': 0.25788527681041634, 'val': 0.25830155408981426}
 Average BLEU score: {'train': 0.2643812247682518, 'val': 0.24876284251640043}
 (Iteration 6501 / 15630) loss: 29.117931
 Average BLEU score: {'train': 0.26201737881574194, 'val': 0.24336794502324113}
 Average BLEU score: {'train': 0.27405686206525337, 'val': 0.2705628748460826}
 Average BLEU score: {'train': 0.26353912401979124, 'val': 0.2673730187067748}
 Average BLEU score: {'train': 0.2815922800299377, 'val': 0.26361712020641836}
 Average BLEU score: {'train': 0.27447103283873486, 'val': 0.2741353902834724}
 Average BLEU score: {'train': 0.27640606338929535, 'val': 0.26933236094973173}
 Average BLEU score: {'train': 0.28608888083985345, 'val': 0.27236487543982685}
 Average BLEU score: {'train': 0.26908513613518475, 'val': 0.2709959204708027}
 Average BLEU score: {'train': 0.26972922944119365, 'val': 0.2625251541577752}
 Average BLEU score: {'train': 0.2822639675602218, 'val': 0.26606023649185306}
 (Iteration 6601 / 15630) loss: 26.858726
 Average BLEU score: {'train': 0.2754782444246981, 'val': 0.2629150771630611}
 Average BLEU score: {'train': 0.2634190558020463, 'val': 0.2612903857299224}
 Average BLEU score: {'train': 0.26704101942791764, 'val': 0.26390914646015545}
 Average BLEU score: {'train': 0.2665545260842968, 'val': 0.27759205029900547}
 Average BLEU score: {'train': 0.2881948088919622, 'val': 0.26912309581111094}
 Average BLEU score: {'train': 0.29000225802436935, 'val': 0.26893047547197513}
 Average BLEU score: {'train': 0.2734112563411058, 'val': 0.266890333017354}
 Average BLEU score: {'train': 0.2631198066843718, 'val': 0.261780003989824}
 Average BLEU score: {'train': 0.2972361591352419, 'val': 0.27550910442108356}
 Average BLEU score: {'train': 0.28338094151649684, 'val': 0.2675082122938648}
 (Iteration 6701 / 15630) loss: 26.642580
 Average BLEU score: {'train': 0.27241903068648887, 'val': 0.25258517878390757}
 Average BLEU score: {'train': 0.28861588963989143, 'val': 0.2677970287714221}
 Average BLEU score: {'train': 0.2750258246004084, 'val': 0.27317220225268807}
 Average BLEU score: {'train': 0.2668386551618757, 'val': 0.25315359746860294}
 Average BLEU score: {'train': 0.28531172255758014, 'val': 0.26973666035410365}
 Average BLEU score: {'train': 0.27252670120020184, 'val': 0.26119067202863533}
 Average BLEU score: {'train': 0.27062151405129486, 'val': 0.25799446633832457}
 Average BLEU score: {'train': 0.2723414918576203, 'val': 0.2769650682757302}
 Average BLEU score: {'train': 0.27864336097284026, 'val': 0.27250425828209035}
 Average BLEU score: {'train': 0.2723080210577507, 'val': 0.26465219906134996}
 (Iteration 6801 / 15630) loss: 28.801216
 Average BLEU score: {'train': 0.28981468331088805, 'val': 0.2769473484170447}
 Average BLEU score: {'train': 0.278324433618408, 'val': 0.2648875437110945}
 Average BLEU score: {'train': 0.2741035078465463, 'val': 0.26697205933530455}
 Average BLEU score: {'train': 0.2734631064188042, 'val': 0.27389005674918626}
 Average BLEU score: {'train': 0.28172203817958735, 'val': 0.26430036772106014}
 Average BLEU score: {'train': 0.27266392462298633, 'val': 0.2519488630372768}
 Average BLEU score: {'train': 0.26905562218927515, 'val': 0.2618203522382927}
 Average BLEU score: {'train': 0.28105015900990915, 'val': 0.2664261626523896}

Average BLEU score: {'train': 0.2697295463725709, 'val': 0.25635555077466804}
 Average BLEU score: {'train': 0.2685414345906758, 'val': 0.2709487400328517}
 (Iteration 6901 / 15630) loss: 26.334305
 Average BLEU score: {'train': 0.28696893605838814, 'val': 0.27840093402099897}
 Average BLEU score: {'train': 0.2894445081114266, 'val': 0.27808194483114596}
 Average BLEU score: {'train': 0.28192898614424394, 'val': 0.2601534727534907}
 Average BLEU score: {'train': 0.28182168657978846, 'val': 0.2719739018194899}
 Average BLEU score: {'train': 0.2731898261627088, 'val': 0.25784959853918493}
 Average BLEU score: {'train': 0.2754200581377385, 'val': 0.26581995948233733}
 Average BLEU score: {'train': 0.2890539131961755, 'val': 0.27488861378269625}
 Average BLEU score: {'train': 0.2665534744285748, 'val': 0.2657498368095284}
 Average BLEU score: {'train': 0.2776361967312697, 'val': 0.2613291182548178}
 Average BLEU score: {'train': 0.26861821992179824, 'val': 0.26498369656720133}
 (Iteration 7001 / 15630) loss: 27.925628
 Average BLEU score: {'train': 0.2810144185796552, 'val': 0.2645432898041905}
 Average BLEU score: {'train': 0.2760344517233486, 'val': 0.2742654232026463}
 Average BLEU score: {'train': 0.273875896367521, 'val': 0.2630892914147882}
 Average BLEU score: {'train': 0.28091685987003545, 'val': 0.26615256728987985}
 Average BLEU score: {'train': 0.25689733677733867, 'val': 0.2556096248922494}
 Average BLEU score: {'train': 0.27925568863023104, 'val': 0.2587522085514626}
 Average BLEU score: {'train': 0.27214931669246084, 'val': 0.2611409657061213}
 Average BLEU score: {'train': 0.267565317942906, 'val': 0.2478713043494456}
 Average BLEU score: {'train': 0.2726024282592669, 'val': 0.2688566346431601}
 Average BLEU score: {'train': 0.28052328069048893, 'val': 0.2696582018755253}
 (Iteration 7101 / 15630) loss: 27.019925
 Average BLEU score: {'train': 0.2889366886181397, 'val': 0.2616461365372425}
 Average BLEU score: {'train': 0.26423505665391633, 'val': 0.26041006055471044}
 Average BLEU score: {'train': 0.2695605014548249, 'val': 0.2541358791326653}
 Average BLEU score: {'train': 0.2679616693651457, 'val': 0.2658460269463177}
 Average BLEU score: {'train': 0.26292683356668234, 'val': 0.2481132684388156}
 Average BLEU score: {'train': 0.27694248966297286, 'val': 0.2647358962630253}
 Average BLEU score: {'train': 0.28424886455717024, 'val': 0.2714027996689015}
 Average BLEU score: {'train': 0.2671956694146691, 'val': 0.2665289292948091}
 Average BLEU score: {'train': 0.2724602437733302, 'val': 0.26668636303596915}
 Average BLEU score: {'train': 0.27279991574263396, 'val': 0.2718716585035996}
 (Iteration 7201 / 15630) loss: 28.190800
 Average BLEU score: {'train': 0.280946778190001, 'val': 0.2847823872891996}
 Average BLEU score: {'train': 0.27672594730553757, 'val': 0.2750208911379247}
 Average BLEU score: {'train': 0.28726286118931205, 'val': 0.2681085316967823}
 Average BLEU score: {'train': 0.2848325862643989, 'val': 0.2659797776614207}
 Average BLEU score: {'train': 0.2784677432571885, 'val': 0.27039755730298587}
 Average BLEU score: {'train': 0.27298634034850433, 'val': 0.27048315546700835}
 Average BLEU score: {'train': 0.27266089589543013, 'val': 0.2658399655848193}
 Average BLEU score: {'train': 0.28713799299447534, 'val': 0.292355744557457}
 Average BLEU score: {'train': 0.2737753203152137, 'val': 0.26254046521940266}
 Average BLEU score: {'train': 0.26497818317740074, 'val': 0.27080196724189165}
 (Iteration 7301 / 15630) loss: 28.629645
 Average BLEU score: {'train': 0.27953042441962456, 'val': 0.2560877313158653}

Average BLEU score: {'train': 0.2770224071939297, 'val': 0.2685325421578764}
 Average BLEU score: {'train': 0.27890429671811806, 'val': 0.26706992416974656}
 Average BLEU score: {'train': 0.27720521547282734, 'val': 0.25749345026157106}
 Average BLEU score: {'train': 0.285611196965853, 'val': 0.2675733718841106}
 Average BLEU score: {'train': 0.2750442464041977, 'val': 0.2722772155916862}
 Average BLEU score: {'train': 0.2786264620727977, 'val': 0.27064192688790134}
 Average BLEU score: {'train': 0.28073410664696147, 'val': 0.270640066141932}
 Average BLEU score: {'train': 0.2664185312035922, 'val': 0.27764736730206657}
 Average BLEU score: {'train': 0.27676227207503373, 'val': 0.2722563761206416}
 (Iteration 7401 / 15630) loss: 28.761496
 Average BLEU score: {'train': 0.28212466543113757, 'val': 0.26870258896586485}
 Average BLEU score: {'train': 0.29029111698313337, 'val': 0.26848853538451983}
 Average BLEU score: {'train': 0.2912302682290478, 'val': 0.27368879718187294}
 Average BLEU score: {'train': 0.2793618217912022, 'val': 0.26140432383555384}
 Average BLEU score: {'train': 0.2836087888156557, 'val': 0.2657150241807447}
 Average BLEU score: {'train': 0.2720042404555234, 'val': 0.26868849583620086}
 Average BLEU score: {'train': 0.27399331558119167, 'val': 0.2609504633990647}
 Average BLEU score: {'train': 0.2791650631328878, 'val': 0.25607679085250873}
 Average BLEU score: {'train': 0.27480364017280734, 'val': 0.27409933416813936}
 Average BLEU score: {'train': 0.28481537155443315, 'val': 0.2664292325786023}
 (Iteration 7501 / 15630) loss: 28.277770
 Average BLEU score: {'train': 0.28747701085152655, 'val': 0.27648750493633306}
 Average BLEU score: {'train': 0.27878935133995, 'val': 0.259767234000258}
 Average BLEU score: {'train': 0.28533033190408397, 'val': 0.25535857650130156}
 Average BLEU score: {'train': 0.2813266204294627, 'val': 0.2718086289149826}
 Average BLEU score: {'train': 0.2873544181014415, 'val': 0.26350675950557484}
 Average BLEU score: {'train': 0.26975734725366635, 'val': 0.25500611363228937}
 Average BLEU score: {'train': 0.28394994061282386, 'val': 0.2680184936758264}
 Average BLEU score: {'train': 0.29219392883402295, 'val': 0.26640187605254034}
 Average BLEU score: {'train': 0.2565695360592698, 'val': 0.23874472765380633}
 Average BLEU score: {'train': 0.28982152782676346, 'val': 0.2733734599115444}
 (Iteration 7601 / 15630) loss: 27.111614
 Average BLEU score: {'train': 0.26126687649594965, 'val': 0.2692998990701474}
 Average BLEU score: {'train': 0.28858355870740005, 'val': 0.27308012294274353}
 Average BLEU score: {'train': 0.2940203003370737, 'val': 0.27176262610304347}
 Average BLEU score: {'train': 0.281375459511435, 'val': 0.26056621282782527}
 Average BLEU score: {'train': 0.27991767373339754, 'val': 0.271325541313226}
 Average BLEU score: {'train': 0.28231007465518504, 'val': 0.27644061374510553}
 Average BLEU score: {'train': 0.2870704763289162, 'val': 0.2630585435333753}
 Average BLEU score: {'train': 0.28596430759173225, 'val': 0.26533061430137894}
 Average BLEU score: {'train': 0.26816478142527245, 'val': 0.2563884556836552}
 Average BLEU score: {'train': 0.2720259829062792, 'val': 0.2609487734446468}
 (Iteration 7701 / 15630) loss: 26.461978
 Average BLEU score: {'train': 0.2739922268100008, 'val': 0.27354176512886996}
 Average BLEU score: {'train': 0.2884655073877416, 'val': 0.2777324840204754}
 Average BLEU score: {'train': 0.2808330662643695, 'val': 0.25954497861668807}
 Average BLEU score: {'train': 0.27100305706471745, 'val': 0.2575872869934748}
 Average BLEU score: {'train': 0.28360077813654877, 'val': 0.2694273375490008}

Average BLEU score: {'train': 0.27441847118416746, 'val': 0.2684647768076648}
 Average BLEU score: {'train': 0.27977109598478617, 'val': 0.27195350907381033}
 Average BLEU score: {'train': 0.2720565735628362, 'val': 0.2540996497629627}
 Average BLEU score: {'train': 0.2826470210086899, 'val': 0.26903948643792935}
 Average BLEU score: {'train': 0.2841565674732323, 'val': 0.2663112092749364}
 (Iteration 7801 / 15630) loss: 27.378151
 Average BLEU score: {'train': 0.27841088837874967, 'val': 0.26175414388133006}
 Average BLEU score: {'train': 0.2808350178600031, 'val': 0.26562820519613295}
 Average BLEU score: {'train': 0.2713640318128695, 'val': 0.26146061327739994}
 Average BLEU score: {'train': 0.276987088671356, 'val': 0.26875592587107183}
 Average BLEU score: {'train': 0.27682540072280815, 'val': 0.2659683680302641}
 Average BLEU score: {'train': 0.27682505654050155, 'val': 0.26409361321751235}
 Average BLEU score: {'train': 0.2845134326584748, 'val': 0.2657544169486725}
 Average BLEU score: {'train': 0.28032698242959114, 'val': 0.2694818557755353}
 Average BLEU score: {'train': 0.2766253752737792, 'val': 0.27540796554337826}
 Average BLEU score: {'train': 0.2848523980337488, 'val': 0.2617240793773045}
 (Iteration 7901 / 15630) loss: 26.282244
 Average BLEU score: {'train': 0.29225639259997593, 'val': 0.2773266191362401}
 Average BLEU score: {'train': 0.28049177583148877, 'val': 0.2731462434920234}
 Average BLEU score: {'train': 0.2889876886788402, 'val': 0.26856874911668704}
 Average BLEU score: {'train': 0.29625313786884466, 'val': 0.28225192738726645}
 Average BLEU score: {'train': 0.27736222172746194, 'val': 0.27726001345924406}
 Average BLEU score: {'train': 0.27886538322935644, 'val': 0.26603846656156177}
 Average BLEU score: {'train': 0.27190502897683044, 'val': 0.26428704455500657}
 Average BLEU score: {'train': 0.2764284055928894, 'val': 0.26766018940069025}
 Average BLEU score: {'train': 0.2706636113545286, 'val': 0.2692694236461253}
 Average BLEU score: {'train': 0.2988965779525077, 'val': 0.2697005640650951}
 (Iteration 8001 / 15630) loss: 27.348087
 Average BLEU score: {'train': 0.28865673584689294, 'val': 0.26427964261440534}
 Average BLEU score: {'train': 0.2750122740373007, 'val': 0.2685138899457246}
 Average BLEU score: {'train': 0.28109194266639853, 'val': 0.26814600612510026}
 Average BLEU score: {'train': 0.2869944289671554, 'val': 0.27067962688726194}
 Average BLEU score: {'train': 0.295686458505182, 'val': 0.2666403022441674}
 Average BLEU score: {'train': 0.2929962522579954, 'val': 0.2732296316572403}
 Average BLEU score: {'train': 0.2749186476830097, 'val': 0.2682010114063511}
 Average BLEU score: {'train': 0.2768997279742952, 'val': 0.2565234091945281}
 Average BLEU score: {'train': 0.2920223273726838, 'val': 0.2776910215717382}
 Average BLEU score: {'train': 0.28399552884736873, 'val': 0.2656607045026655}
 (Iteration 8101 / 15630) loss: 26.623994
 Average BLEU score: {'train': 0.28917527518596137, 'val': 0.2825096095488796}
 Average BLEU score: {'train': 0.2687274022780452, 'val': 0.266829867072466}
 Average BLEU score: {'train': 0.2789029415361966, 'val': 0.27116548429853005}
 Average BLEU score: {'train': 0.280844103194776, 'val': 0.27707803857950547}
 Average BLEU score: {'train': 0.2773909812467088, 'val': 0.26650572549491786}
 Average BLEU score: {'train': 0.28756572637437555, 'val': 0.2596819289641753}
 Average BLEU score: {'train': 0.27356571997348883, 'val': 0.27165343342068293}
 Average BLEU score: {'train': 0.28729108268269266, 'val': 0.26939403772216647}
 Average BLEU score: {'train': 0.2730949637943931, 'val': 0.2533562688188027}

Average BLEU score: {'train': 0.28323796088090053, 'val': 0.2668550549081809}
 (Iteration 8201 / 15630) loss: 28.143227
 Average BLEU score: {'train': 0.2746002416055284, 'val': 0.2678565658023584}
 Average BLEU score: {'train': 0.267825547636827, 'val': 0.2561315354302873}
 Average BLEU score: {'train': 0.29365007988883457, 'val': 0.26962882650763054}
 Average BLEU score: {'train': 0.28376325852227113, 'val': 0.26319372315017237}
 Average BLEU score: {'train': 0.2852268501602513, 'val': 0.27460486939446177}
 Average BLEU score: {'train': 0.2854477018022922, 'val': 0.27908022172670466}
 Average BLEU score: {'train': 0.28969889538843124, 'val': 0.2731515702964624}
 Average BLEU score: {'train': 0.25423832053345263, 'val': 0.26226881601365937}
 Average BLEU score: {'train': 0.28783273651139557, 'val': 0.27912600330966286}
 Average BLEU score: {'train': 0.2893331078529065, 'val': 0.26154630587132227}
 (Iteration 8301 / 15630) loss: 26.577481
 Average BLEU score: {'train': 0.27912155464527677, 'val': 0.28527582434397214}
 Average BLEU score: {'train': 0.2950611547801273, 'val': 0.26550206942418114}
 Average BLEU score: {'train': 0.267758679954005, 'val': 0.26789076308016235}
 Average BLEU score: {'train': 0.2856677651911576, 'val': 0.27435599879817685}
 Average BLEU score: {'train': 0.29572286374088386, 'val': 0.2712305129531351}
 Average BLEU score: {'train': 0.27950083866668834, 'val': 0.2655796714357744}
 Average BLEU score: {'train': 0.2821241932050024, 'val': 0.2818060346525788}
 Average BLEU score: {'train': 0.29030004627760936, 'val': 0.2751381987110063}
 Average BLEU score: {'train': 0.2684073707774166, 'val': 0.26512311004652755}
 Average BLEU score: {'train': 0.2796330393793732, 'val': 0.26973279535162303}
 (Iteration 8401 / 15630) loss: 27.355369
 Average BLEU score: {'train': 0.26773091949507144, 'val': 0.2622276749536922}
 Average BLEU score: {'train': 0.28148215328562276, 'val': 0.2728950879648628}
 Average BLEU score: {'train': 0.2929184303074862, 'val': 0.272356088519566}
 Average BLEU score: {'train': 0.2912859783873513, 'val': 0.28585618240741173}
 Average BLEU score: {'train': 0.29201385539451435, 'val': 0.28493467228026015}
 Average BLEU score: {'train': 0.2849744659508705, 'val': 0.27427103763825067}
 Average BLEU score: {'train': 0.2752776720535802, 'val': 0.26940219181056313}
 Average BLEU score: {'train': 0.2818231360499884, 'val': 0.25789663193527096}
 Average BLEU score: {'train': 0.28776840422908917, 'val': 0.2735895075168408}
 Average BLEU score: {'train': 0.28555665265802443, 'val': 0.2719092911260909}
 (Iteration 8501 / 15630) loss: 26.844758
 Average BLEU score: {'train': 0.2842657808354298, 'val': 0.2756780744314631}
 Average BLEU score: {'train': 0.29495285747333155, 'val': 0.27359713860525925}
 Average BLEU score: {'train': 0.28925097191863225, 'val': 0.26924596453991767}
 Average BLEU score: {'train': 0.28530250518005973, 'val': 0.28535980087014823}
 Average BLEU score: {'train': 0.29773250731054157, 'val': 0.2821962498896802}
 Average BLEU score: {'train': 0.2814788797012002, 'val': 0.27003481994296896}
 Average BLEU score: {'train': 0.28860519014566277, 'val': 0.2752225262346264}
 Average BLEU score: {'train': 0.28184314726926835, 'val': 0.26646500372104}
 Average BLEU score: {'train': 0.2839470487152436, 'val': 0.2719089946088879}
 Average BLEU score: {'train': 0.2937094375546867, 'val': 0.2686438952391296}
 (Iteration 8601 / 15630) loss: 27.300873
 Average BLEU score: {'train': 0.29580539098323444, 'val': 0.2697365068327845}
 Average BLEU score: {'train': 0.2823799693859647, 'val': 0.26961385214581396}

Average BLEU score: {'train': 0.2801216831530375, 'val': 0.27479197654156895}
 Average BLEU score: {'train': 0.28511941422516146, 'val': 0.27096470584445725}
 Average BLEU score: {'train': 0.27740736346653133, 'val': 0.26476549036843533}
 Average BLEU score: {'train': 0.2823926011242752, 'val': 0.2592038314481783}
 Average BLEU score: {'train': 0.27817822864741604, 'val': 0.27857320387174545}
 Average BLEU score: {'train': 0.28673930910320466, 'val': 0.26958692303878784}
 Average BLEU score: {'train': 0.27920965996344627, 'val': 0.2669098571001825}
 Average BLEU score: {'train': 0.26719587562076197, 'val': 0.2744918425252164}
 (Iteration 8701 / 15630) loss: 27.126297
 Average BLEU score: {'train': 0.2857627525908277, 'val': 0.2625116294322537}
 Average BLEU score: {'train': 0.27743103858197415, 'val': 0.2616903173827432}
 Average BLEU score: {'train': 0.2897840117371621, 'val': 0.2768300936826108}
 Average BLEU score: {'train': 0.28279335929876964, 'val': 0.26738440037380395}
 Average BLEU score: {'train': 0.26829601737381875, 'val': 0.27014827207576303}
 Average BLEU score: {'train': 0.28714541272954336, 'val': 0.25757652746386384}
 Average BLEU score: {'train': 0.28561457108092775, 'val': 0.26050381087172975}
 Average BLEU score: {'train': 0.27413796372673555, 'val': 0.26737574322387603}
 Average BLEU score: {'train': 0.2983581357329954, 'val': 0.27574972958760513}
 Average BLEU score: {'train': 0.28665382823109176, 'val': 0.27544524561203604}
 (Iteration 8801 / 15630) loss: 27.095653
 Average BLEU score: {'train': 0.29488589636537127, 'val': 0.2657140328628819}
 Average BLEU score: {'train': 0.2876033202673202, 'val': 0.2586493594635107}
 Average BLEU score: {'train': 0.28336434300466534, 'val': 0.26127283668112555}
 Average BLEU score: {'train': 0.2799701375975076, 'val': 0.26694864858418116}
 Average BLEU score: {'train': 0.2858018016796841, 'val': 0.2696535333270747}
 Average BLEU score: {'train': 0.29283934668381845, 'val': 0.2700272252657264}
 Average BLEU score: {'train': 0.28900971194156805, 'val': 0.2803619863065362}
 Average BLEU score: {'train': 0.28407608200573864, 'val': 0.2828100771168894}
 Average BLEU score: {'train': 0.2767576619723788, 'val': 0.2845960633541063}
 Average BLEU score: {'train': 0.28269700898417766, 'val': 0.28179513431317715}
 (Iteration 8901 / 15630) loss: 25.907020
 Average BLEU score: {'train': 0.2912047127468214, 'val': 0.28193438778674357}
 Average BLEU score: {'train': 0.28653831486109965, 'val': 0.2736384295499482}
 Average BLEU score: {'train': 0.28297931010132343, 'val': 0.26271915756178144}
 Average BLEU score: {'train': 0.2856204505786307, 'val': 0.2805782917430802}
 Average BLEU score: {'train': 0.280284190962461, 'val': 0.2685149495285984}
 Average BLEU score: {'train': 0.2809524864484798, 'val': 0.2698232645422677}
 Average BLEU score: {'train': 0.2794638524698975, 'val': 0.27744853231344263}
 Average BLEU score: {'train': 0.2802718445941252, 'val': 0.2612067310098315}
 Average BLEU score: {'train': 0.299160484440929, 'val': 0.27460207215224136}
 Average BLEU score: {'train': 0.28777805764655723, 'val': 0.27611146381695134}
 (Iteration 9001 / 15630) loss: 26.718017
 Average BLEU score: {'train': 0.28638768864192293, 'val': 0.27364072535793743}
 Average BLEU score: {'train': 0.29211476262810276, 'val': 0.26524635929263457}
 Average BLEU score: {'train': 0.27491713712900545, 'val': 0.268080410213188}
 Average BLEU score: {'train': 0.29667864903217384, 'val': 0.25458821298072787}
 Average BLEU score: {'train': 0.2790951870850518, 'val': 0.2596940557587383}
 Average BLEU score: {'train': 0.2842754518909279, 'val': 0.2674401218929162}

Average BLEU score: {'train': 0.29103319738430494, 'val': 0.285918286131647}
 Average BLEU score: {'train': 0.2943945366763691, 'val': 0.2823967959989854}
 Average BLEU score: {'train': 0.28511658650134214, 'val': 0.2720918393849962}
 Average BLEU score: {'train': 0.2959445628865087, 'val': 0.2801157310747619}
 (Iteration 9101 / 15630) loss: 27.607482
 Average BLEU score: {'train': 0.3029065483556166, 'val': 0.2719267912491914}
 Average BLEU score: {'train': 0.28308268287218713, 'val': 0.28318872996174277}
 Average BLEU score: {'train': 0.2854441261301207, 'val': 0.2893452577041844}
 Average BLEU score: {'train': 0.2837381088798211, 'val': 0.2800473528345679}
 Average BLEU score: {'train': 0.2837979996153002, 'val': 0.2716335493553869}
 Average BLEU score: {'train': 0.29001364234040844, 'val': 0.27508882872330154}
 Average BLEU score: {'train': 0.28431678790162274, 'val': 0.2703188624577656}
 Average BLEU score: {'train': 0.29171100527146776, 'val': 0.27952859378880024}
 Average BLEU score: {'train': 0.2882469523147489, 'val': 0.2904163501261295}
 Average BLEU score: {'train': 0.2858130026730206, 'val': 0.27645348663248037}
 (Iteration 9201 / 15630) loss: 27.246815
 Average BLEU score: {'train': 0.2782215312304415, 'val': 0.2737228074457525}
 Average BLEU score: {'train': 0.2918447535321961, 'val': 0.2695535849724368}
 Average BLEU score: {'train': 0.2855697365184373, 'val': 0.2614559496031252}
 Average BLEU score: {'train': 0.27717955279526185, 'val': 0.26811734490831896}
 Average BLEU score: {'train': 0.2880367027491219, 'val': 0.26735391920854}
 Average BLEU score: {'train': 0.2819674455397098, 'val': 0.269164427807521}
 Average BLEU score: {'train': 0.27672881227368934, 'val': 0.26751232790818386}
 Average BLEU score: {'train': 0.2776196238745836, 'val': 0.257293364753614}
 Average BLEU score: {'train': 0.28866436661491424, 'val': 0.26648407966652915}
 Average BLEU score: {'train': 0.29639856701036554, 'val': 0.28113137118697434}
 (Iteration 9301 / 15630) loss: 25.898294
 Average BLEU score: {'train': 0.29754581227943966, 'val': 0.26672264908143783}
 Average BLEU score: {'train': 0.2881613307530513, 'val': 0.28013600272497685}
 Average BLEU score: {'train': 0.3032335117563222, 'val': 0.280099215240448}
 Average BLEU score: {'train': 0.2910169190469356, 'val': 0.272305283262368}
 Average BLEU score: {'train': 0.2931695137007195, 'val': 0.2700780907384112}
 Average BLEU score: {'train': 0.27920251442318855, 'val': 0.26368172844812904}
 Average BLEU score: {'train': 0.28743014626531493, 'val': 0.2766332896155106}
 Average BLEU score: {'train': 0.28201363762024056, 'val': 0.27143486243311743}
 Average BLEU score: {'train': 0.2975002984903602, 'val': 0.27442007831336496}
 Average BLEU score: {'train': 0.2938443504385718, 'val': 0.2799273582172788}
 (Iteration 9401 / 15630) loss: 27.376964
 Average BLEU score: {'train': 0.2906537671499447, 'val': 0.2715408942899348}
 Average BLEU score: {'train': 0.29195728814993543, 'val': 0.27701663639056}
 Average BLEU score: {'train': 0.28568586516593797, 'val': 0.26296859655860977}
 Average BLEU score: {'train': 0.2834747310298293, 'val': 0.2602180390029571}
 Average BLEU score: {'train': 0.28189098239721067, 'val': 0.26670969146349915}
 Average BLEU score: {'train': 0.26785729651001483, 'val': 0.2610641096242362}
 Average BLEU score: {'train': 0.2887539172290941, 'val': 0.2797199772253888}
 Average BLEU score: {'train': 0.2806155550330732, 'val': 0.2778705313719213}
 Average BLEU score: {'train': 0.2929985721356206, 'val': 0.2729438755443521}
 Average BLEU score: {'train': 0.2904260474671609, 'val': 0.26569612123212705}

```

(Iteration 9501 / 15630) loss: 26.849208
Average BLEU score: {'train': 0.27135075765369837, 'val': 0.25622199115780575}
Average BLEU score: {'train': 0.3013081656882418, 'val': 0.27986918042636516}
Average BLEU score: {'train': 0.2928021595675123, 'val': 0.2734727791396483}
Average BLEU score: {'train': 0.27611306531606844, 'val': 0.2694012711124981}
Average BLEU score: {'train': 0.28368332961839055, 'val': 0.27878412583361994}
Average BLEU score: {'train': 0.29139196305855597, 'val': 0.27179211260409264}
Average BLEU score: {'train': 0.29162510072517667, 'val': 0.2721467250652551}
Average BLEU score: {'train': 0.28860912994122806, 'val': 0.26262414864562256}
Average BLEU score: {'train': 0.2921455129538002, 'val': 0.2637268920472694}
Average BLEU score: {'train': 0.29134509704470196, 'val': 0.26709949617959017}
(Iteration 9601 / 15630) loss: 27.459458
Average BLEU score: {'train': 0.2867833327539848, 'val': 0.2734688064824899}
Average BLEU score: {'train': 0.27620970805664186, 'val': 0.25964518130073655}
Average BLEU score: {'train': 0.28951029190743416, 'val': 0.26132306177916276}
Average BLEU score: {'train': 0.2800829349051702, 'val': 0.26732878257788834}
Average BLEU score: {'train': 0.283337031766312, 'val': 0.269559552283625}
Average BLEU score: {'train': 0.2692107111521921, 'val': 0.25842099167690147}
Average BLEU score: {'train': 0.28262999495049407, 'val': 0.25991978433269874}
Average BLEU score: {'train': 0.28774846331288967, 'val': 0.27118782038759304}
Average BLEU score: {'train': 0.28596567226452035, 'val': 0.26506977542248233}
Average BLEU score: {'train': 0.2906080503230339, 'val': 0.2677335585635115}
(Iteration 9701 / 15630) loss: 26.638394
Average BLEU score: {'train': 0.30382864466969484, 'val': 0.2816633019007812}
Average BLEU score: {'train': 0.3034973095207963, 'val': 0.28632624722499195}
Average BLEU score: {'train': 0.2885381960235552, 'val': 0.28022181991780337}
Average BLEU score: {'train': 0.2911286952031592, 'val': 0.2747205903982887}
Average BLEU score: {'train': 0.29766580564481054, 'val': 0.2828844326405991}
Average BLEU score: {'train': 0.28708603860195375, 'val': 0.26591605826411435}
Average BLEU score: {'train': 0.3006741029525393, 'val': 0.28370184647974744}
Average BLEU score: {'train': 0.28383574601028366, 'val': 0.2849528450313331}
Average BLEU score: {'train': 0.2936246112736939, 'val': 0.2766093281799546}
Average BLEU score: {'train': 0.2840088612200232, 'val': 0.27973786364854053}
(Iteration 9801 / 15630) loss: 27.834317
Average BLEU score: {'train': 0.29020850191400666, 'val': 0.274427647212684}
Average BLEU score: {'train': 0.2955722169887209, 'val': 0.2880770829126262}
Average BLEU score: {'train': 0.30030995085558043, 'val': 0.28098154232413786}
Average BLEU score: {'train': 0.28602484299087777, 'val': 0.2662450733065181}
Average BLEU score: {'train': 0.2853566739960985, 'val': 0.27386195373489036}
Average BLEU score: {'train': 0.29880484897478954, 'val': 0.2848359841334309}
Average BLEU score: {'train': 0.2869805566567431, 'val': 0.2725838496516936}
Average BLEU score: {'train': 0.2886966213086006, 'val': 0.28131491597322916}
Average BLEU score: {'train': 0.2899776900398947, 'val': 0.2737635910727257}
Average BLEU score: {'train': 0.2951999805229375, 'val': 0.2581782424236705}
(Iteration 9901 / 15630) loss: 26.918962
Average BLEU score: {'train': 0.2809299002585605, 'val': 0.27027867344337586}
Average BLEU score: {'train': 0.2894443646863523, 'val': 0.27278775263842103}
Average BLEU score: {'train': 0.29953346941579756, 'val': 0.2798602948562969}

```

Average BLEU score: {'train': 0.2874382632214743, 'val': 0.27659836435094876}
 Average BLEU score: {'train': 0.2968692635210813, 'val': 0.28373017664303934}
 Average BLEU score: {'train': 0.28351293666486105, 'val': 0.2776491223850068}
 Average BLEU score: {'train': 0.28740802805079185, 'val': 0.2704628788373754}
 Average BLEU score: {'train': 0.29359032805980717, 'val': 0.290611283691875}
 Average BLEU score: {'train': 0.27953506551220164, 'val': 0.26774354666091965}
 Average BLEU score: {'train': 0.2848165261167154, 'val': 0.2709978686284771}
 (Iteration 10001 / 15630) loss: 26.872456
 Average BLEU score: {'train': 0.29614894673141606, 'val': 0.27748026227859857}
 Average BLEU score: {'train': 0.29171768390330566, 'val': 0.28046940190291647}
 Average BLEU score: {'train': 0.2882460594359476, 'val': 0.28486895036502774}
 Average BLEU score: {'train': 0.2917056970045398, 'val': 0.2859212522623919}
 Average BLEU score: {'train': 0.2789364004042314, 'val': 0.26525601978323016}
 Average BLEU score: {'train': 0.2876853797239298, 'val': 0.26916288639014474}
 Average BLEU score: {'train': 0.27405819720078317, 'val': 0.2668506527794251}
 Average BLEU score: {'train': 0.28009598547065023, 'val': 0.25993528692281953}
 Average BLEU score: {'train': 0.2832105620798576, 'val': 0.26778065657248196}
 Average BLEU score: {'train': 0.290008108837675, 'val': 0.26887408591621426}
 (Iteration 10101 / 15630) loss: 27.142935
 Average BLEU score: {'train': 0.3031396863728261, 'val': 0.2822015803357405}
 Average BLEU score: {'train': 0.3107452607533106, 'val': 0.2803890755633909}
 Average BLEU score: {'train': 0.29124455148128076, 'val': 0.2812193221364982}
 Average BLEU score: {'train': 0.3053031223959682, 'val': 0.2794751352982227}
 Average BLEU score: {'train': 0.2935514820484728, 'val': 0.26921776010017545}
 Average BLEU score: {'train': 0.2824163805614957, 'val': 0.26638749144352525}
 Average BLEU score: {'train': 0.29386552194326027, 'val': 0.2719226369548321}
 Average BLEU score: {'train': 0.28683175645385733, 'val': 0.2747649011679193}
 Average BLEU score: {'train': 0.29617519566703865, 'val': 0.27908183692464017}
 Average BLEU score: {'train': 0.28641369782644027, 'val': 0.2855740899582315}
 (Iteration 10201 / 15630) loss: 25.973820
 Average BLEU score: {'train': 0.2859094062672166, 'val': 0.2760093930539949}
 Average BLEU score: {'train': 0.28401344328493194, 'val': 0.27165973229138307}
 Average BLEU score: {'train': 0.3078368336588784, 'val': 0.2866703964965491}
 Average BLEU score: {'train': 0.29785365291908833, 'val': 0.2791790949037253}
 Average BLEU score: {'train': 0.29805436251818535, 'val': 0.2737714961584826}
 Average BLEU score: {'train': 0.3038448622413252, 'val': 0.27898025233212126}
 Average BLEU score: {'train': 0.30087182531291506, 'val': 0.2705091476686469}
 Average BLEU score: {'train': 0.2970121282845812, 'val': 0.27269139288205896}
 Average BLEU score: {'train': 0.276609390403499, 'val': 0.270500493168828}
 Average BLEU score: {'train': 0.29230049916057094, 'val': 0.27340188989550707}
 (Iteration 10301 / 15630) loss: 26.540850
 Average BLEU score: {'train': 0.29848543874805916, 'val': 0.2864280352112544}
 Average BLEU score: {'train': 0.29991282502884486, 'val': 0.2808520912040858}
 Average BLEU score: {'train': 0.29715503139074656, 'val': 0.2702859660503952}
 Average BLEU score: {'train': 0.2887421121385349, 'val': 0.2781534069158074}
 Average BLEU score: {'train': 0.281101116453775, 'val': 0.27798448043853674}
 Average BLEU score: {'train': 0.29356859010884323, 'val': 0.2749071919478085}
 Average BLEU score: {'train': 0.29552047571418594, 'val': 0.2612580085466265}

Average BLEU score: {'train': 0.28805528191462587, 'val': 0.27565795482531325}
 Average BLEU score: {'train': 0.2925268364468354, 'val': 0.273317731784756}
 Average BLEU score: {'train': 0.2714260420019135, 'val': 0.263741147866446}
 (Iteration 10401 / 15630) loss: 26.971985
 Average BLEU score: {'train': 0.284874653688585, 'val': 0.2757036673468537}
 Average BLEU score: {'train': 0.2866880424322719, 'val': 0.2616601353474824}
 Average BLEU score: {'train': 0.2929689487334069, 'val': 0.27352799264816346}
 Average BLEU score: {'train': 0.2862188554130932, 'val': 0.27705874715743606}
 Average BLEU score: {'train': 0.2897019905254279, 'val': 0.2834108723021139}
 Average BLEU score: {'train': 0.2920036008132056, 'val': 0.281440848984454}
 Average BLEU score: {'train': 0.2807916739185375, 'val': 0.2736459218572556}
 Average BLEU score: {'train': 0.2811359711746504, 'val': 0.27092277035016216}
 Average BLEU score: {'train': 0.2970079069444537, 'val': 0.28911300900664366}
 Average BLEU score: {'train': 0.2908866898415452, 'val': 0.2712633216577798}
 (Iteration 10501 / 15630) loss: 27.450020
 Average BLEU score: {'train': 0.29087890993133997, 'val': 0.2848028601492048}
 Average BLEU score: {'train': 0.28881748647546546, 'val': 0.26949147568143506}
 Average BLEU score: {'train': 0.29269970946624374, 'val': 0.27720585588604324}
 Average BLEU score: {'train': 0.29594433582168667, 'val': 0.27628676221654364}
 Average BLEU score: {'train': 0.2904997931411872, 'val': 0.28159964417506567}
 Average BLEU score: {'train': 0.2911119008298922, 'val': 0.2715057756672107}
 Average BLEU score: {'train': 0.2956155619057498, 'val': 0.2783826361842102}
 Average BLEU score: {'train': 0.28682999712060325, 'val': 0.2690196526650389}
 Average BLEU score: {'train': 0.28546611474970274, 'val': 0.27728367527695125}
 Average BLEU score: {'train': 0.2924238997746371, 'val': 0.26979871866513905}
 (Iteration 10601 / 15630) loss: 27.196251
 Average BLEU score: {'train': 0.2980588219673425, 'val': 0.27561641819782035}
 Average BLEU score: {'train': 0.2959856131990887, 'val': 0.2712232810747732}
 Average BLEU score: {'train': 0.28809133218688066, 'val': 0.2748754413874235}
 Average BLEU score: {'train': 0.2928687416574657, 'val': 0.2825696005798594}
 Average BLEU score: {'train': 0.29197386887510185, 'val': 0.27948940255941945}
 Average BLEU score: {'train': 0.2881144622738275, 'val': 0.2680122161895221}
 Average BLEU score: {'train': 0.2849043642388588, 'val': 0.282832861521507}
 Average BLEU score: {'train': 0.29894918880191534, 'val': 0.28043227698173306}
 Average BLEU score: {'train': 0.3020682208226231, 'val': 0.2897538785373154}
 Average BLEU score: {'train': 0.29373297815764166, 'val': 0.2666691294910154}
 (Iteration 10701 / 15630) loss: 26.173547
 Average BLEU score: {'train': 0.279900042240268, 'val': 0.27980469528217033}
 Average BLEU score: {'train': 0.2705386814471566, 'val': 0.2677742843054989}
 Average BLEU score: {'train': 0.29053012938074013, 'val': 0.2778273738243233}
 Average BLEU score: {'train': 0.3024685431099564, 'val': 0.285099354101025}
 Average BLEU score: {'train': 0.2879768347594909, 'val': 0.28640962841448253}
 Average BLEU score: {'train': 0.29194009864170395, 'val': 0.27645932654421485}
 Average BLEU score: {'train': 0.290024897333114, 'val': 0.2718365648727027}
 Average BLEU score: {'train': 0.26197167786581443, 'val': 0.2634455938524017}
 Average BLEU score: {'train': 0.3033041076207387, 'val': 0.28405165522054804}
 Average BLEU score: {'train': 0.2937032945757641, 'val': 0.2763533399543714}
 (Iteration 10801 / 15630) loss: 27.101096

Average BLEU score: {'train': 0.28682654507515637, 'val': 0.2889592309446803}
 Average BLEU score: {'train': 0.29597935655467483, 'val': 0.2795622919993201}
 Average BLEU score: {'train': 0.3063379951404056, 'val': 0.2821394802707168}
 Average BLEU score: {'train': 0.2989872695952685, 'val': 0.2804573939131012}
 Average BLEU score: {'train': 0.2879979004392791, 'val': 0.26735360969100497}
 Average BLEU score: {'train': 0.2816040727673764, 'val': 0.2709537728444225}
 Average BLEU score: {'train': 0.3023178921481117, 'val': 0.2780572355514552}
 Average BLEU score: {'train': 0.2877465016099356, 'val': 0.26690767511841357}
 Average BLEU score: {'train': 0.29792373405800027, 'val': 0.286388970297842}
 Average BLEU score: {'train': 0.29054209406836284, 'val': 0.27986422476872924}
 (Iteration 10901 / 15630) loss: 25.187453
 Average BLEU score: {'train': 0.2917718061983754, 'val': 0.267066564402908}
 Average BLEU score: {'train': 0.28001652693588175, 'val': 0.2727154006639922}
 Average BLEU score: {'train': 0.29424736429922155, 'val': 0.28397417985949847}
 Average BLEU score: {'train': 0.28762585720581746, 'val': 0.2716868050797375}
 Average BLEU score: {'train': 0.2926052033666382, 'val': 0.27180030103961444}
 Average BLEU score: {'train': 0.29395307149596095, 'val': 0.28730113303183097}
 Average BLEU score: {'train': 0.28958204437204904, 'val': 0.28103981625022334}
 Average BLEU score: {'train': 0.2878772328631896, 'val': 0.2658486634358483}
 Average BLEU score: {'train': 0.2848291921094942, 'val': 0.26551419889062067}
 Average BLEU score: {'train': 0.290499755258668, 'val': 0.27025039252566296}
 (Iteration 11001 / 15630) loss: 26.652392
 Average BLEU score: {'train': 0.2991783377291113, 'val': 0.2671327147250891}
 Average BLEU score: {'train': 0.2863239551393556, 'val': 0.28150785126426303}
 Average BLEU score: {'train': 0.2881163365120597, 'val': 0.26384321774961156}
 Average BLEU score: {'train': 0.30052600382337696, 'val': 0.2832927892446383}
 Average BLEU score: {'train': 0.3013017611364427, 'val': 0.28426757681250325}
 Average BLEU score: {'train': 0.2827929779551536, 'val': 0.26703264070122973}
 Average BLEU score: {'train': 0.29364240413987924, 'val': 0.28156988092887303}
 Average BLEU score: {'train': 0.2788723215043834, 'val': 0.2675396969270689}
 Average BLEU score: {'train': 0.2805718058991093, 'val': 0.2744763363016321}
 Average BLEU score: {'train': 0.2867497545570078, 'val': 0.28458128847575137}
 (Iteration 11101 / 15630) loss: 25.244621
 Average BLEU score: {'train': 0.2927343720678348, 'val': 0.287672249613441}
 Average BLEU score: {'train': 0.30084581369003466, 'val': 0.2968993701777819}
 Average BLEU score: {'train': 0.2977394021942937, 'val': 0.27390679719085564}
 Average BLEU score: {'train': 0.28839437268563894, 'val': 0.27177852927152785}
 Average BLEU score: {'train': 0.2830028829281448, 'val': 0.27279881890282115}
 Average BLEU score: {'train': 0.29176720445989185, 'val': 0.2781229132657052}
 Average BLEU score: {'train': 0.3013651241877222, 'val': 0.2745849818469159}
 Average BLEU score: {'train': 0.294610002920868, 'val': 0.28305094793596924}
 Average BLEU score: {'train': 0.2932124023716335, 'val': 0.2965692353483668}
 Average BLEU score: {'train': 0.2871885250315164, 'val': 0.2824757763036761}
 (Iteration 11201 / 15630) loss: 26.010586
 Average BLEU score: {'train': 0.2981518833421618, 'val': 0.27417728184398804}
 Average BLEU score: {'train': 0.2836586714391945, 'val': 0.2664085195333963}
 Average BLEU score: {'train': 0.2869509055101415, 'val': 0.2682515451677841}
 Average BLEU score: {'train': 0.2893609017899634, 'val': 0.27323655606000685}

Average BLEU score: {'train': 0.2856512268689577, 'val': 0.26946568943585825}
 Average BLEU score: {'train': 0.3001852016556717, 'val': 0.28402538618766027}
 Average BLEU score: {'train': 0.30787731490866077, 'val': 0.27349767164752986}
 Average BLEU score: {'train': 0.2808038735678596, 'val': 0.2537066706079425}
 Average BLEU score: {'train': 0.3012551230710792, 'val': 0.28511686089877813}
 Average BLEU score: {'train': 0.29313214800803317, 'val': 0.26998292269927326}
 (Iteration 11301 / 15630) loss: 26.370731
 Average BLEU score: {'train': 0.2829428077294577, 'val': 0.2674899525791086}
 Average BLEU score: {'train': 0.3071949692056011, 'val': 0.2795065500640257}
 Average BLEU score: {'train': 0.29710560398975805, 'val': 0.28100930293484105}
 Average BLEU score: {'train': 0.29133072009917055, 'val': 0.27515419288102455}
 Average BLEU score: {'train': 0.3051649709032472, 'val': 0.2740765213462938}
 Average BLEU score: {'train': 0.2856362927582337, 'val': 0.2737823448114981}
 Average BLEU score: {'train': 0.29098511116669906, 'val': 0.285272309976741}
 Average BLEU score: {'train': 0.2951306926346844, 'val': 0.27628419577071306}
 Average BLEU score: {'train': 0.2876404889177156, 'val': 0.268550926703402}
 Average BLEU score: {'train': 0.2947169357922386, 'val': 0.2719828535915691}
 (Iteration 11401 / 15630) loss: 24.604686
 Average BLEU score: {'train': 0.28948833846813143, 'val': 0.2730440780913499}
 Average BLEU score: {'train': 0.2981135128746765, 'val': 0.2693700298808493}
 Average BLEU score: {'train': 0.29641898262559746, 'val': 0.2881414319661866}
 Average BLEU score: {'train': 0.2814280024709912, 'val': 0.264340411258257}
 Average BLEU score: {'train': 0.2920156528701654, 'val': 0.2813741682138763}
 Average BLEU score: {'train': 0.31326263414597605, 'val': 0.284691292298822}
 Average BLEU score: {'train': 0.2965021356071717, 'val': 0.28550149567199185}
 Average BLEU score: {'train': 0.2909909919098229, 'val': 0.2723816020360713}
 Average BLEU score: {'train': 0.2820472201429498, 'val': 0.2674151229753062}
 Average BLEU score: {'train': 0.2846445264906, 'val': 0.27291454243674607}
 (Iteration 11501 / 15630) loss: 26.551192
 Average BLEU score: {'train': 0.2954127319933155, 'val': 0.2839053716611307}
 Average BLEU score: {'train': 0.28776735729591074, 'val': 0.27333934957912204}
 Average BLEU score: {'train': 0.2781352781854828, 'val': 0.27525376599470547}
 Average BLEU score: {'train': 0.2992522135082933, 'val': 0.2899573233966254}
 Average BLEU score: {'train': 0.2993844624389813, 'val': 0.28547798458543744}
 Average BLEU score: {'train': 0.28480901691759397, 'val': 0.26157153216909096}
 Average BLEU score: {'train': 0.3033166883222362, 'val': 0.2925986355113735}
 Average BLEU score: {'train': 0.30467116595497634, 'val': 0.2832918361244956}
 Average BLEU score: {'train': 0.30930685537595354, 'val': 0.2925290762530082}
 Average BLEU score: {'train': 0.3046801005309833, 'val': 0.27449347540777064}
 (Iteration 11601 / 15630) loss: 26.989457
 Average BLEU score: {'train': 0.30186503268102877, 'val': 0.2727246744067835}
 Average BLEU score: {'train': 0.30684876697983177, 'val': 0.28269510252628643}
 Average BLEU score: {'train': 0.30088341649034767, 'val': 0.2828663563674478}
 Average BLEU score: {'train': 0.3007769600821185, 'val': 0.2787883287967389}
 Average BLEU score: {'train': 0.3016205447253084, 'val': 0.27169267727804736}
 Average BLEU score: {'train': 0.2924094273196505, 'val': 0.27412132374374515}
 Average BLEU score: {'train': 0.29729440230115833, 'val': 0.27786764453859525}
 Average BLEU score: {'train': 0.3026141317733675, 'val': 0.2725052273294749}

Average BLEU score: {'train': 0.3003422751111075, 'val': 0.28072170060522195}
 Average BLEU score: {'train': 0.30629305627268155, 'val': 0.27507877145607673}
 (Iteration 11701 / 15630) loss: 25.581214
 Average BLEU score: {'train': 0.3109366742530073, 'val': 0.28856417774211895}
 Average BLEU score: {'train': 0.29145403809410614, 'val': 0.2798674060734966}
 Average BLEU score: {'train': 0.3074819650170981, 'val': 0.28761912708621334}
 Average BLEU score: {'train': 0.2935671639547048, 'val': 0.2860187943021389}
 Average BLEU score: {'train': 0.28950968065365357, 'val': 0.27053901799506075}
 Average BLEU score: {'train': 0.2821222073896748, 'val': 0.28532139200179535}
 Average BLEU score: {'train': 0.2911703603912269, 'val': 0.27055904378993567}
 Average BLEU score: {'train': 0.29261633007511206, 'val': 0.27060539289191976}
 Average BLEU score: {'train': 0.29516613541068615, 'val': 0.28292547544827934}
 Average BLEU score: {'train': 0.29993725523306214, 'val': 0.2848667414940274}
 (Iteration 11801 / 15630) loss: 25.953828
 Average BLEU score: {'train': 0.29976326366637734, 'val': 0.2788551607770425}
 Average BLEU score: {'train': 0.3000050144135614, 'val': 0.2762758792573987}
 Average BLEU score: {'train': 0.2859886786005633, 'val': 0.2706900763193744}
 Average BLEU score: {'train': 0.2977425433048404, 'val': 0.2830581250595206}
 Average BLEU score: {'train': 0.29654175391746906, 'val': 0.2848618177031882}
 Average BLEU score: {'train': 0.2883404290204763, 'val': 0.28686253693036345}
 Average BLEU score: {'train': 0.30901834863310274, 'val': 0.2859167665991709}
 Average BLEU score: {'train': 0.297953730454099, 'val': 0.2826525944683663}
 Average BLEU score: {'train': 0.2985606900008828, 'val': 0.27212367702777335}
 Average BLEU score: {'train': 0.29989262720174426, 'val': 0.27552389685792766}
 (Iteration 11901 / 15630) loss: 26.735719
 Average BLEU score: {'train': 0.2964988557243452, 'val': 0.27781676076362016}
 Average BLEU score: {'train': 0.29725376874599724, 'val': 0.26309357274115985}
 Average BLEU score: {'train': 0.2914795441410862, 'val': 0.2792535791436657}
 Average BLEU score: {'train': 0.28803155780425643, 'val': 0.26842056799472425}
 Average BLEU score: {'train': 0.2893403638859798, 'val': 0.2683114646993221}
 Average BLEU score: {'train': 0.2876061617774762, 'val': 0.2639620773400341}
 Average BLEU score: {'train': 0.29422108957113274, 'val': 0.2780671989305468}
 Average BLEU score: {'train': 0.300734498397306, 'val': 0.2870245740212245}
 Average BLEU score: {'train': 0.2953379731550166, 'val': 0.27628783725587114}
 Average BLEU score: {'train': 0.3082021662479058, 'val': 0.2779619274733924}
 (Iteration 12001 / 15630) loss: 25.981758
 Average BLEU score: {'train': 0.2895114656083222, 'val': 0.2826932711778714}
 Average BLEU score: {'train': 0.28751221450021147, 'val': 0.27152531784987777}
 Average BLEU score: {'train': 0.2943069034178272, 'val': 0.27192520710524964}
 Average BLEU score: {'train': 0.29096964543521386, 'val': 0.2777694911113024}
 Average BLEU score: {'train': 0.30138624989394225, 'val': 0.296037751179667}
 Average BLEU score: {'train': 0.3005173658818276, 'val': 0.2822724828684793}
 Average BLEU score: {'train': 0.300279361184405, 'val': 0.28266379157845756}
 Average BLEU score: {'train': 0.29746750775182185, 'val': 0.2663618156271909}
 Average BLEU score: {'train': 0.29914016851132147, 'val': 0.28110879534982036}
 Average BLEU score: {'train': 0.28414653982483706, 'val': 0.2765496061299448}
 (Iteration 12101 / 15630) loss: 27.239624
 Average BLEU score: {'train': 0.2848945692456939, 'val': 0.2761518931827867}

Average BLEU score: {'train': 0.3037097626238474, 'val': 0.27177872341500686}
 Average BLEU score: {'train': 0.2868538057513926, 'val': 0.2753362728228677}
 Average BLEU score: {'train': 0.30687416221500247, 'val': 0.2698168254164254}
 Average BLEU score: {'train': 0.3005239964907152, 'val': 0.2789729055546505}
 Average BLEU score: {'train': 0.29368719617936073, 'val': 0.2714503763108626}
 Average BLEU score: {'train': 0.28771531143021645, 'val': 0.2765629187647216}
 Average BLEU score: {'train': 0.29881287107781346, 'val': 0.28547764607607545}
 Average BLEU score: {'train': 0.30067350218477623, 'val': 0.28339523838369546}
 Average BLEU score: {'train': 0.2994049560084632, 'val': 0.2710244394560468}
 (Iteration 12201 / 15630) loss: 26.936337
 Average BLEU score: {'train': 0.3109727012310803, 'val': 0.2874238199139624}
 Average BLEU score: {'train': 0.28757393762419325, 'val': 0.27112243116450563}
 Average BLEU score: {'train': 0.29061989218177836, 'val': 0.27770166878719366}
 Average BLEU score: {'train': 0.2947985883345382, 'val': 0.2847209992023177}
 Average BLEU score: {'train': 0.2938337731029721, 'val': 0.2750522228557013}
 Average BLEU score: {'train': 0.2814194906676935, 'val': 0.27536098185976005}
 Average BLEU score: {'train': 0.28968325147503626, 'val': 0.27493398562856686}
 Average BLEU score: {'train': 0.2875225557014706, 'val': 0.27989709456638373}
 Average BLEU score: {'train': 0.29337519947212337, 'val': 0.2816765104972014}
 Average BLEU score: {'train': 0.2864049150386396, 'val': 0.2765626823927336}
 (Iteration 12301 / 15630) loss: 26.862646
 Average BLEU score: {'train': 0.2936932746253556, 'val': 0.2767795566352546}
 Average BLEU score: {'train': 0.2998141945990441, 'val': 0.2659919925476546}
 Average BLEU score: {'train': 0.295089845265321, 'val': 0.2745421215522534}
 Average BLEU score: {'train': 0.29516862954004824, 'val': 0.26461764433842727}
 Average BLEU score: {'train': 0.2924251425161753, 'val': 0.280852960624982}
 Average BLEU score: {'train': 0.2823020507802496, 'val': 0.27381613500538965}
 Average BLEU score: {'train': 0.28413519403904386, 'val': 0.2843507043378289}
 Average BLEU score: {'train': 0.3055541406528795, 'val': 0.28008242119298765}
 Average BLEU score: {'train': 0.3019317281329912, 'val': 0.2811380314317568}
 Average BLEU score: {'train': 0.30250649190063533, 'val': 0.27223068922337534}
 (Iteration 12401 / 15630) loss: 23.688824
 Average BLEU score: {'train': 0.29491372415865985, 'val': 0.2755886876255802}
 Average BLEU score: {'train': 0.28817504838044716, 'val': 0.27778515126049835}
 Average BLEU score: {'train': 0.292447138495533, 'val': 0.2759497872541884}
 Average BLEU score: {'train': 0.29089295057534675, 'val': 0.27152647804726243}
 Average BLEU score: {'train': 0.29512097048182334, 'val': 0.27222917927081575}
 Average BLEU score: {'train': 0.29361399868559634, 'val': 0.27604195071083865}
 Average BLEU score: {'train': 0.28761408462278265, 'val': 0.26994827227203994}
 Average BLEU score: {'train': 0.2974671817034673, 'val': 0.27251267950760694}
 Average BLEU score: {'train': 0.2952953952996893, 'val': 0.29122760000238335}
 Average BLEU score: {'train': 0.303839805671361, 'val': 0.28895880396950474}
 (Iteration 12501 / 15630) loss: 26.196046
 Average BLEU score: {'train': 0.28678636968349686, 'val': 0.2847146549414402}
 Average BLEU score: {'train': 0.2903593186840887, 'val': 0.2726981783934466}
 Average BLEU score: {'train': 0.3067639797423131, 'val': 0.2792210923621077}
 Average BLEU score: {'train': 0.30286856534366424, 'val': 0.2864796266416978}
 Average BLEU score: {'train': 0.2946191952418132, 'val': 0.28491124256233247}

Average BLEU score: {'train': 0.29571921604319884, 'val': 0.2819739990621831}
 Average BLEU score: {'train': 0.29339451213076406, 'val': 0.2850895786438468}
 Average BLEU score: {'train': 0.2940358047077222, 'val': 0.2675334325494484}
 Average BLEU score: {'train': 0.2932646600276048, 'val': 0.2839833562168179}
 Average BLEU score: {'train': 0.305392421336751, 'val': 0.28625680877776855}
 (Iteration 12601 / 15630) loss: 25.987505
 Average BLEU score: {'train': 0.2980700248801679, 'val': 0.2769484665282297}
 Average BLEU score: {'train': 0.3032750462017304, 'val': 0.2808736527036387}
 Average BLEU score: {'train': 0.3087757884215525, 'val': 0.27238249811866444}
 Average BLEU score: {'train': 0.2866433667349727, 'val': 0.2974330689725971}
 Average BLEU score: {'train': 0.2948681018629829, 'val': 0.27382077761408213}
 Average BLEU score: {'train': 0.2968294078994522, 'val': 0.2794904773350704}
 Average BLEU score: {'train': 0.30308483317644835, 'val': 0.2825505000202899}
 Average BLEU score: {'train': 0.2835438775969107, 'val': 0.2769338203773702}
 Average BLEU score: {'train': 0.30433201752930295, 'val': 0.2810467747503392}
 Average BLEU score: {'train': 0.2919103938982525, 'val': 0.2845590739636715}
 (Iteration 12701 / 15630) loss: 26.061493
 Average BLEU score: {'train': 0.29665013586248246, 'val': 0.2757320421861012}
 Average BLEU score: {'train': 0.3019932332915436, 'val': 0.290291609056112}
 Average BLEU score: {'train': 0.28361891956958496, 'val': 0.272459065663101}
 Average BLEU score: {'train': 0.29642311860628406, 'val': 0.2713973079252171}
 Average BLEU score: {'train': 0.298319182891584, 'val': 0.28649245450363203}
 Average BLEU score: {'train': 0.2935787973867421, 'val': 0.28742917756041064}
 Average BLEU score: {'train': 0.2944016340241674, 'val': 0.2639733722675152}
 Average BLEU score: {'train': 0.30803264400536606, 'val': 0.27802164011506647}
 Average BLEU score: {'train': 0.29968217939439046, 'val': 0.2798328835011963}
 Average BLEU score: {'train': 0.28961577247987424, 'val': 0.26398144638759874}
 (Iteration 12801 / 15630) loss: 26.420145
 Average BLEU score: {'train': 0.29050798808232764, 'val': 0.2734604747312934}
 Average BLEU score: {'train': 0.2983689893469893, 'val': 0.27789487965890125}
 Average BLEU score: {'train': 0.30229195372052176, 'val': 0.2848344287511939}
 Average BLEU score: {'train': 0.3058423860393327, 'val': 0.282974275276466}
 Average BLEU score: {'train': 0.29358704777536254, 'val': 0.2775058354703821}
 Average BLEU score: {'train': 0.30546438771778145, 'val': 0.2967896090818613}
 Average BLEU score: {'train': 0.306367363533387, 'val': 0.27886229727823003}
 Average BLEU score: {'train': 0.2928932661088108, 'val': 0.28156828181190446}
 Average BLEU score: {'train': 0.2807318236777403, 'val': 0.26888276116010223}
 Average BLEU score: {'train': 0.29329185203830316, 'val': 0.2724831465823244}
 (Iteration 12901 / 15630) loss: 25.309593
 Average BLEU score: {'train': 0.28921235496414255, 'val': 0.26952664642479}
 Average BLEU score: {'train': 0.2901349651410661, 'val': 0.2759013032389971}
 Average BLEU score: {'train': 0.30125178887469456, 'val': 0.2859631348114433}
 Average BLEU score: {'train': 0.2925491516705342, 'val': 0.2797140850470986}
 Average BLEU score: {'train': 0.3072228430414646, 'val': 0.2915598300598257}
 Average BLEU score: {'train': 0.3102298249684943, 'val': 0.2812361741622627}
 Average BLEU score: {'train': 0.30022121328166523, 'val': 0.27437252450077193}
 Average BLEU score: {'train': 0.3021288732059554, 'val': 0.2818043925190926}
 Average BLEU score: {'train': 0.29941197515861545, 'val': 0.28741414128995935}

Average BLEU score: {'train': 0.3036218132505346, 'val': 0.2668150134491847}
 (Iteration 13001 / 15630) loss: 25.839870
 Average BLEU score: {'train': 0.293477233852751, 'val': 0.2809580791829966}
 Average BLEU score: {'train': 0.29362923298157434, 'val': 0.27234016626503355}
 Average BLEU score: {'train': 0.29281545159008476, 'val': 0.27753880823931615}
 Average BLEU score: {'train': 0.2965606640725463, 'val': 0.2723904342422884}
 Average BLEU score: {'train': 0.3044106961401618, 'val': 0.2954711734432983}
 Average BLEU score: {'train': 0.3065968049145127, 'val': 0.2844391897057623}
 Average BLEU score: {'train': 0.304015654923932, 'val': 0.27580032239119306}
 Average BLEU score: {'train': 0.29850871033584986, 'val': 0.2688428679123296}
 Average BLEU score: {'train': 0.2962150272735339, 'val': 0.2751338177319261}
 Average BLEU score: {'train': 0.3094170936383296, 'val': 0.28549178058000013}
 (Iteration 13101 / 15630) loss: 26.899388
 Average BLEU score: {'train': 0.2894355191499828, 'val': 0.2818421480367275}
 Average BLEU score: {'train': 0.3003682261158402, 'val': 0.2878368126973294}
 Average BLEU score: {'train': 0.301887404649524, 'val': 0.279749747159869}
 Average BLEU score: {'train': 0.3061749352533046, 'val': 0.2827021116747548}
 Average BLEU score: {'train': 0.30080878557860774, 'val': 0.279078943108038}
 Average BLEU score: {'train': 0.29710236987841443, 'val': 0.28374485241248604}
 Average BLEU score: {'train': 0.2966411401818051, 'val': 0.27047265803303694}
 Average BLEU score: {'train': 0.30296788543145603, 'val': 0.27900468522970523}
 Average BLEU score: {'train': 0.2941797625431014, 'val': 0.28313561022765066}
 Average BLEU score: {'train': 0.3015706325395293, 'val': 0.28270396339664733}
 (Iteration 13201 / 15630) loss: 26.287659
 Average BLEU score: {'train': 0.288889672870373, 'val': 0.2724409966927671}
 Average BLEU score: {'train': 0.2932926523579926, 'val': 0.285978932991952}
 Average BLEU score: {'train': 0.2989279764264272, 'val': 0.2896946258703993}
 Average BLEU score: {'train': 0.2914118314715702, 'val': 0.26597934787608557}
 Average BLEU score: {'train': 0.29986766875244736, 'val': 0.27819145721002125}
 Average BLEU score: {'train': 0.30162474904319514, 'val': 0.27619100972955263}
 Average BLEU score: {'train': 0.29520803076955177, 'val': 0.28745987572657555}
 Average BLEU score: {'train': 0.30778037835637984, 'val': 0.27736093597111466}
 Average BLEU score: {'train': 0.3129233177169397, 'val': 0.28900626505096194}
 Average BLEU score: {'train': 0.2931215177232793, 'val': 0.2723415767894895}
 (Iteration 13301 / 15630) loss: 26.177818
 Average BLEU score: {'train': 0.2966440210087024, 'val': 0.2870669368444429}
 Average BLEU score: {'train': 0.29946282218721465, 'val': 0.2802675397498294}
 Average BLEU score: {'train': 0.29713571155105, 'val': 0.28788314094564843}
 Average BLEU score: {'train': 0.30758091329258824, 'val': 0.2895414012332231}
 Average BLEU score: {'train': 0.30298601300921946, 'val': 0.27159501413885184}
 Average BLEU score: {'train': 0.3068204024849909, 'val': 0.282038434610669}
 Average BLEU score: {'train': 0.3080463231519198, 'val': 0.28601749996883247}
 Average BLEU score: {'train': 0.30700399563196956, 'val': 0.28149900841855013}
 Average BLEU score: {'train': 0.29344413893176685, 'val': 0.27434875931226516}
 Average BLEU score: {'train': 0.3001264549570371, 'val': 0.26236714507774755}
 (Iteration 13401 / 15630) loss: 27.032239
 Average BLEU score: {'train': 0.29836159346697383, 'val': 0.2828992794473586}
 Average BLEU score: {'train': 0.29386654937880397, 'val': 0.2851025765412831}

Average BLEU score: {'train': 0.29194401725404473, 'val': 0.27228897086456794}
 Average BLEU score: {'train': 0.29139298909010986, 'val': 0.27742569883496365}
 Average BLEU score: {'train': 0.2838111224106912, 'val': 0.2706301229397051}
 Average BLEU score: {'train': 0.30209956049717795, 'val': 0.2872377468872644}
 Average BLEU score: {'train': 0.28985365494808396, 'val': 0.27014823834254187}
 Average BLEU score: {'train': 0.2911898955451196, 'val': 0.2735137303371085}
 Average BLEU score: {'train': 0.2901064791148717, 'val': 0.28572437598157574}
 Average BLEU score: {'train': 0.29680153024633743, 'val': 0.28745141475475894}
 (Iteration 13501 / 15630) loss: 25.937407
 Average BLEU score: {'train': 0.2904676146141364, 'val': 0.2774712725909364}
 Average BLEU score: {'train': 0.2994747570601899, 'val': 0.2700838282718252}
 Average BLEU score: {'train': 0.3044102179561251, 'val': 0.2816587121911582}
 Average BLEU score: {'train': 0.29734823501293633, 'val': 0.28193808659739844}
 Average BLEU score: {'train': 0.30357637749462096, 'val': 0.28373978650958576}
 Average BLEU score: {'train': 0.2951605003753623, 'val': 0.27988404270937634}
 Average BLEU score: {'train': 0.2980114672185743, 'val': 0.27032674095059933}
 Average BLEU score: {'train': 0.2991163748296555, 'val': 0.27531148515465914}
 Average BLEU score: {'train': 0.2970887293951152, 'val': 0.27669957387851996}
 Average BLEU score: {'train': 0.28454712677153776, 'val': 0.2674132280237213}
 (Iteration 13601 / 15630) loss: 24.668007
 Average BLEU score: {'train': 0.2973250020593091, 'val': 0.286775855470836}
 Average BLEU score: {'train': 0.29151348727411963, 'val': 0.2672681685061304}
 Average BLEU score: {'train': 0.2958162065264407, 'val': 0.2827695754139675}
 Average BLEU score: {'train': 0.3080961315069363, 'val': 0.27562521776171134}
 Average BLEU score: {'train': 0.2944781545136909, 'val': 0.2818917093119616}
 Average BLEU score: {'train': 0.3070232419629858, 'val': 0.28450389896229694}
 Average BLEU score: {'train': 0.29825228900422174, 'val': 0.2821655478187871}
 Average BLEU score: {'train': 0.2959234578565385, 'val': 0.27620805628501555}
 Average BLEU score: {'train': 0.3069105075899723, 'val': 0.271863144582287}
 Average BLEU score: {'train': 0.2968098392916359, 'val': 0.27795784111528143}
 (Iteration 13701 / 15630) loss: 26.021242
 Average BLEU score: {'train': 0.29379082109680543, 'val': 0.2827805404583637}
 Average BLEU score: {'train': 0.29636204703158137, 'val': 0.27198154287953336}
 Average BLEU score: {'train': 0.30485241460799356, 'val': 0.27372135720768137}
 Average BLEU score: {'train': 0.3126619136067428, 'val': 0.28642990229020265}
 Average BLEU score: {'train': 0.30661495611330875, 'val': 0.2732644613284771}
 Average BLEU score: {'train': 0.30216626805170005, 'val': 0.2812289270960154}
 Average BLEU score: {'train': 0.2935092460196081, 'val': 0.28667111937182427}
 Average BLEU score: {'train': 0.30214511838980906, 'val': 0.28207275548109056}
 Average BLEU score: {'train': 0.29980013381556897, 'val': 0.2782723687163625}
 Average BLEU score: {'train': 0.2900393147263024, 'val': 0.27272292773778367}
 (Iteration 13801 / 15630) loss: 24.291461
 Average BLEU score: {'train': 0.2943212960100257, 'val': 0.2753597174622729}
 Average BLEU score: {'train': 0.3026648273559973, 'val': 0.27959365814103787}
 Average BLEU score: {'train': 0.30426000667930153, 'val': 0.29790871625458315}
 Average BLEU score: {'train': 0.29397403134749406, 'val': 0.28856673118300524}
 Average BLEU score: {'train': 0.30643193650016975, 'val': 0.28516912205703226}
 Average BLEU score: {'train': 0.3149030745156111, 'val': 0.28284838979273424}

Average BLEU score: {'train': 0.3121743684369517, 'val': 0.29110867040503946}
 Average BLEU score: {'train': 0.30443498645019684, 'val': 0.2814671812691251}
 Average BLEU score: {'train': 0.30206706587454973, 'val': 0.27619356929157185}
 Average BLEU score: {'train': 0.2929411606653931, 'val': 0.2911251080001102}
 (Iteration 13901 / 15630) loss: 26.933112
 Average BLEU score: {'train': 0.28975478330416704, 'val': 0.2747115355377925}
 Average BLEU score: {'train': 0.30523197520068657, 'val': 0.2878680119625106}
 Average BLEU score: {'train': 0.2941407405114995, 'val': 0.2754594648634082}
 Average BLEU score: {'train': 0.2973336996195287, 'val': 0.2710095135774183}
 Average BLEU score: {'train': 0.30625808491333534, 'val': 0.28631136596996715}
 Average BLEU score: {'train': 0.3063087188646189, 'val': 0.29071132232788777}
 Average BLEU score: {'train': 0.3045935296435107, 'val': 0.2892184427438555}
 Average BLEU score: {'train': 0.31432509629262295, 'val': 0.28623082630456764}
 Average BLEU score: {'train': 0.2959238355878837, 'val': 0.28191298627324557}
 Average BLEU score: {'train': 0.30178444351346767, 'val': 0.28783553309758225}
 (Iteration 14001 / 15630) loss: 25.567749
 Average BLEU score: {'train': 0.3111110337807735, 'val': 0.2887226104317318}
 Average BLEU score: {'train': 0.30494910843850737, 'val': 0.27926158523726197}
 Average BLEU score: {'train': 0.30832698860840274, 'val': 0.2937391253705237}
 Average BLEU score: {'train': 0.31004656207448605, 'val': 0.2769740207249378}
 Average BLEU score: {'train': 0.29610521596791384, 'val': 0.27017431182670465}
 Average BLEU score: {'train': 0.2939703230699005, 'val': 0.27799355921933566}
 Average BLEU score: {'train': 0.3108211400650285, 'val': 0.29116846817068837}
 Average BLEU score: {'train': 0.29919256764118246, 'val': 0.2768766011972707}
 Average BLEU score: {'train': 0.29773432708332404, 'val': 0.27840415153551956}
 Average BLEU score: {'train': 0.28203656864465504, 'val': 0.2645259325168721}
 (Iteration 14101 / 15630) loss: 25.294658
 Average BLEU score: {'train': 0.2982190941525956, 'val': 0.2800713891264725}
 Average BLEU score: {'train': 0.29336042728167677, 'val': 0.27418533206600976}
 Average BLEU score: {'train': 0.3044459199261544, 'val': 0.2868127660006935}
 Average BLEU score: {'train': 0.30969005655048826, 'val': 0.28916386268455774}
 Average BLEU score: {'train': 0.302347167195324, 'val': 0.2795058482615622}
 Average BLEU score: {'train': 0.28976345015589755, 'val': 0.2765940434204023}
 Average BLEU score: {'train': 0.31342238217436375, 'val': 0.29153973399273936}
 Average BLEU score: {'train': 0.29089487039483714, 'val': 0.28328217845532017}
 Average BLEU score: {'train': 0.31477756063820683, 'val': 0.2881915545939385}
 Average BLEU score: {'train': 0.3088589374488173, 'val': 0.28197457931302317}
 (Iteration 14201 / 15630) loss: 24.864679
 Average BLEU score: {'train': 0.3032750702214543, 'val': 0.2722075534770535}
 Average BLEU score: {'train': 0.3023304264556344, 'val': 0.2791229037977994}
 Average BLEU score: {'train': 0.30775558614593435, 'val': 0.28850929469431413}
 Average BLEU score: {'train': 0.31719396968587377, 'val': 0.2842084869385315}
 Average BLEU score: {'train': 0.3108960176222103, 'val': 0.28744518444632156}
 Average BLEU score: {'train': 0.2924069636920377, 'val': 0.28062549419786775}
 Average BLEU score: {'train': 0.3108715547495248, 'val': 0.28099715978184564}
 Average BLEU score: {'train': 0.31491246571499015, 'val': 0.2821730542544756}
 Average BLEU score: {'train': 0.2859051791272681, 'val': 0.27940546516564213}
 Average BLEU score: {'train': 0.2932748434488988, 'val': 0.2869534329781202}

```

(Iteration 14301 / 15630) loss: 27.086960
Average BLEU score: {'train': 0.3004400417265004, 'val': 0.2706821780662119}
Average BLEU score: {'train': 0.3072112744676521, 'val': 0.2705012602113877}
Average BLEU score: {'train': 0.31116134511426047, 'val': 0.2661884727554532}
Average BLEU score: {'train': 0.2860915284564479, 'val': 0.27587481645489975}
Average BLEU score: {'train': 0.298545598083847, 'val': 0.27303035944397713}
Average BLEU score: {'train': 0.30595478558720235, 'val': 0.278048439876689}
Average BLEU score: {'train': 0.30354830896522467, 'val': 0.28505754101667535}
Average BLEU score: {'train': 0.29951262960314035, 'val': 0.2818415587052266}
Average BLEU score: {'train': 0.299652054985734, 'val': 0.293198718505593}
Average BLEU score: {'train': 0.31763717722385165, 'val': 0.2816781575670496}
(Iteration 14401 / 15630) loss: 24.593186
Average BLEU score: {'train': 0.29249930676305563, 'val': 0.2811878271460843}
Average BLEU score: {'train': 0.2937383174815127, 'val': 0.2760577548919122}
Average BLEU score: {'train': 0.2976035187501288, 'val': 0.27516950205656837}
Average BLEU score: {'train': 0.2779136251290579, 'val': 0.2811367553609714}
Average BLEU score: {'train': 0.2951836858612291, 'val': 0.2783165105359742}
Average BLEU score: {'train': 0.3089286204692517, 'val': 0.2799652855393664}
Average BLEU score: {'train': 0.3092226949410157, 'val': 0.2926174321196932}
Average BLEU score: {'train': 0.2988233168632945, 'val': 0.28791290785907564}
Average BLEU score: {'train': 0.2988322845361942, 'val': 0.2803183887532409}
Average BLEU score: {'train': 0.319641872328174, 'val': 0.28789115816742306}
(Iteration 14501 / 15630) loss: 24.701982
Average BLEU score: {'train': 0.30707265292576896, 'val': 0.28247475454498666}
Average BLEU score: {'train': 0.31186500481611235, 'val': 0.2863376543855639}
Average BLEU score: {'train': 0.2965728784634552, 'val': 0.2833101732830449}
Average BLEU score: {'train': 0.3023779716466647, 'val': 0.2763949850547906}
Average BLEU score: {'train': 0.3107587348304062, 'val': 0.2880223776383152}
Average BLEU score: {'train': 0.3026990850622303, 'val': 0.28712906305260155}
Average BLEU score: {'train': 0.3101075379090251, 'val': 0.28706598706584113}
Average BLEU score: {'train': 0.31250017898334614, 'val': 0.2739826959969455}
Average BLEU score: {'train': 0.3130932698777303, 'val': 0.2844347325164418}
Average BLEU score: {'train': 0.30635314092765265, 'val': 0.2875082846348469}
(Iteration 14601 / 15630) loss: 26.470521
Average BLEU score: {'train': 0.30436026156982565, 'val': 0.2781377883803262}
Average BLEU score: {'train': 0.3080112365913379, 'val': 0.27813257077857473}
Average BLEU score: {'train': 0.3040264591450976, 'val': 0.29084067981129474}
Average BLEU score: {'train': 0.3102832450101179, 'val': 0.2872616042737379}
Average BLEU score: {'train': 0.2968710497825272, 'val': 0.2844169330588744}
Average BLEU score: {'train': 0.30509003605962765, 'val': 0.2830079338250342}
Average BLEU score: {'train': 0.30243922858521566, 'val': 0.28104321595205356}
Average BLEU score: {'train': 0.287344608785488, 'val': 0.29865210984739227}
Average BLEU score: {'train': 0.30273464580943815, 'val': 0.2827650874394425}
Average BLEU score: {'train': 0.3065824185547647, 'val': 0.2779588508620753}
(Iteration 14701 / 15630) loss: 26.213465
Average BLEU score: {'train': 0.2937363649648211, 'val': 0.2822079096058445}
Average BLEU score: {'train': 0.29712689741659565, 'val': 0.2744471981815009}
Average BLEU score: {'train': 0.31162423963686964, 'val': 0.278861756518564}

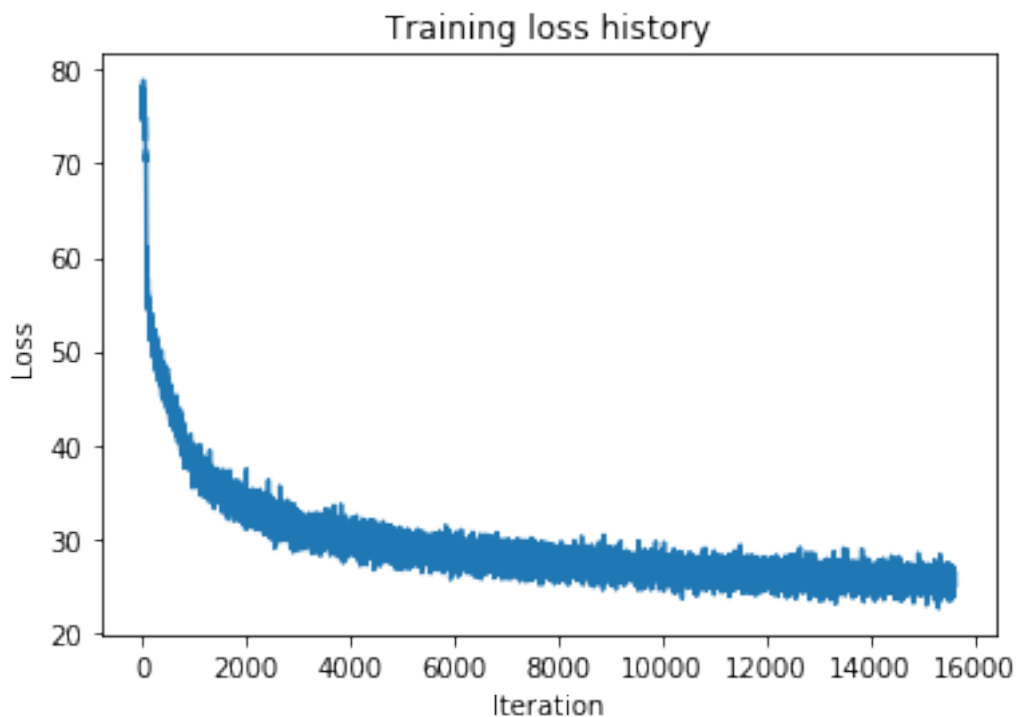
```

Average BLEU score: {'train': 0.3097855522033602, 'val': 0.28872668230364723}
 Average BLEU score: {'train': 0.3069816479815334, 'val': 0.28291605296664246}
 Average BLEU score: {'train': 0.31816284367553227, 'val': 0.2956979406563019}
 Average BLEU score: {'train': 0.3027626729408999, 'val': 0.28372893052225584}
 Average BLEU score: {'train': 0.309089436733049, 'val': 0.28507236000650754}
 Average BLEU score: {'train': 0.30972932579857304, 'val': 0.2909356858826971}
 Average BLEU score: {'train': 0.30435210949729957, 'val': 0.2878513254625943}
 (Iteration 14801 / 15630) loss: 25.427243
 Average BLEU score: {'train': 0.31345148432846276, 'val': 0.27860406016253225}
 Average BLEU score: {'train': 0.30765538969230644, 'val': 0.29511631050833337}
 Average BLEU score: {'train': 0.3067376452818947, 'val': 0.29953151893601404}
 Average BLEU score: {'train': 0.30960399961809587, 'val': 0.28261073796472325}
 Average BLEU score: {'train': 0.303159186853656, 'val': 0.2834422744484157}
 Average BLEU score: {'train': 0.3053945276507626, 'val': 0.29797968036002287}
 Average BLEU score: {'train': 0.3074947377115143, 'val': 0.28253724342732145}
 Average BLEU score: {'train': 0.30102878126128546, 'val': 0.28985585117638946}
 Average BLEU score: {'train': 0.29935027524179336, 'val': 0.29926545254174836}
 Average BLEU score: {'train': 0.3152121666723409, 'val': 0.2865878040936258}
 (Iteration 14901 / 15630) loss: 25.864453
 Average BLEU score: {'train': 0.3039982255467448, 'val': 0.284741787116952}
 Average BLEU score: {'train': 0.301739421606317, 'val': 0.28779115070314926}
 Average BLEU score: {'train': 0.3019236056487972, 'val': 0.27592592583788794}
 Average BLEU score: {'train': 0.299070764310927, 'val': 0.27359588098888493}
 Average BLEU score: {'train': 0.29542200975847377, 'val': 0.2740154094918624}
 Average BLEU score: {'train': 0.30203432071252445, 'val': 0.27850801160679933}
 Average BLEU score: {'train': 0.3040482575140315, 'val': 0.2781297908642601}
 Average BLEU score: {'train': 0.29787012656287765, 'val': 0.26796607985926985}
 Average BLEU score: {'train': 0.30017286533337073, 'val': 0.28517556451068715}
 Average BLEU score: {'train': 0.30326390862241565, 'val': 0.2852349155149518}
 (Iteration 15001 / 15630) loss: 25.223474
 Average BLEU score: {'train': 0.30537875845331053, 'val': 0.2688573189453263}
 Average BLEU score: {'train': 0.2985307412346382, 'val': 0.28188307174407357}
 Average BLEU score: {'train': 0.3064083682130229, 'val': 0.27682090146810423}
 Average BLEU score: {'train': 0.3130534098393501, 'val': 0.2836870245876918}
 Average BLEU score: {'train': 0.307454356451122, 'val': 0.28369403056085224}
 Average BLEU score: {'train': 0.2970972135377839, 'val': 0.2877500182007671}
 Average BLEU score: {'train': 0.2977254236344712, 'val': 0.27950893167301905}
 Average BLEU score: {'train': 0.2972390582637503, 'val': 0.2802253405186897}
 Average BLEU score: {'train': 0.30611401071695116, 'val': 0.2749232189825581}
 Average BLEU score: {'train': 0.2943949826895796, 'val': 0.2825885271107536}
 (Iteration 15101 / 15630) loss: 27.193249
 Average BLEU score: {'train': 0.3102110166677493, 'val': 0.28464378324068673}
 Average BLEU score: {'train': 0.3123136997413973, 'val': 0.28380910990442954}
 Average BLEU score: {'train': 0.30137663582972496, 'val': 0.2759285203758893}
 Average BLEU score: {'train': 0.3096310160797061, 'val': 0.2767018955414696}
 Average BLEU score: {'train': 0.3000104350402318, 'val': 0.29362871858032175}
 Average BLEU score: {'train': 0.3086185683102216, 'val': 0.2856888733655904}
 Average BLEU score: {'train': 0.31167703975848343, 'val': 0.29148827020825574}

Average BLEU score: {'train': 0.30258084671047414, 'val': 0.2778547711432587}
 Average BLEU score: {'train': 0.3002766204129638, 'val': 0.27953374512244084}
 Average BLEU score: {'train': 0.2988831602993036, 'val': 0.2811449979212529}
 (Iteration 15201 / 15630) loss: 26.313544
 Average BLEU score: {'train': 0.29706347457825605, 'val': 0.27281529353620665}
 Average BLEU score: {'train': 0.3007050937161437, 'val': 0.2665488217032045}
 Average BLEU score: {'train': 0.30059712670682776, 'val': 0.2782996736746835}
 Average BLEU score: {'train': 0.2994170361203002, 'val': 0.28675840667662467}
 Average BLEU score: {'train': 0.3071790651806217, 'val': 0.28572868165884024}
 Average BLEU score: {'train': 0.29294617585916827, 'val': 0.28098968193536294}
 Average BLEU score: {'train': 0.29950318355041405, 'val': 0.2860831748860757}
 Average BLEU score: {'train': 0.30323746878158764, 'val': 0.27851430944176975}
 Average BLEU score: {'train': 0.2956318878985309, 'val': 0.2782206038352494}
 Average BLEU score: {'train': 0.29490621501609593, 'val': 0.27805394134618244}
 (Iteration 15301 / 15630) loss: 25.923855
 Average BLEU score: {'train': 0.30515641759304307, 'val': 0.29793093105615553}
 Average BLEU score: {'train': 0.3114277030997417, 'val': 0.28365105964514964}
 Average BLEU score: {'train': 0.3009467828908289, 'val': 0.28286971517072085}
 Average BLEU score: {'train': 0.28952027994875656, 'val': 0.2850000318913154}
 Average BLEU score: {'train': 0.30712697791528487, 'val': 0.28153936660791407}
 Average BLEU score: {'train': 0.30834030665228984, 'val': 0.27979304732587557}
 Average BLEU score: {'train': 0.30930246975029124, 'val': 0.2796730413200819}
 Average BLEU score: {'train': 0.2880901227674878, 'val': 0.27674731700640687}
 Average BLEU score: {'train': 0.3060631310871079, 'val': 0.2862834151355247}
 Average BLEU score: {'train': 0.28872914455917137, 'val': 0.2708698597383909}
 (Iteration 15401 / 15630) loss: 27.400060
 Average BLEU score: {'train': 0.3007108142866445, 'val': 0.2867966558771147}
 Average BLEU score: {'train': 0.2948767778122675, 'val': 0.26894611228015863}
 Average BLEU score: {'train': 0.3113596537299349, 'val': 0.2953826080188857}
 Average BLEU score: {'train': 0.3156970610903438, 'val': 0.28512273755498346}
 Average BLEU score: {'train': 0.2954156517204133, 'val': 0.2903129012255866}
 Average BLEU score: {'train': 0.2928904399014779, 'val': 0.2792953287739104}
 Average BLEU score: {'train': 0.29770765824273915, 'val': 0.277712962286677}
 Average BLEU score: {'train': 0.29942140412589896, 'val': 0.2797171440448121}
 Average BLEU score: {'train': 0.30060251933557636, 'val': 0.2846646855710885}
 Average BLEU score: {'train': 0.31820025358228193, 'val': 0.2958454803230102}
 (Iteration 15501 / 15630) loss: 24.521367
 Average BLEU score: {'train': 0.3063385886635511, 'val': 0.28556100503625037}
 Average BLEU score: {'train': 0.2942405572862248, 'val': 0.27668732270145985}
 Average BLEU score: {'train': 0.3058406692092257, 'val': 0.28082131595206883}
 Average BLEU score: {'train': 0.3137258592816555, 'val': 0.2964600485271104}
 Average BLEU score: {'train': 0.3051752533287432, 'val': 0.2860764870789322}
 Average BLEU score: {'train': 0.3097559764275577, 'val': 0.2923377632717884}
 Average BLEU score: {'train': 0.3029068908507302, 'val': 0.2893339388429508}
 Average BLEU score: {'train': 0.3117718917752151, 'val': 0.28264439524470075}
 Average BLEU score: {'train': 0.30233803908320683, 'val': 0.28222889466486645}
 Average BLEU score: {'train': 0.29291688017772, 'val': 0.27799128648365046}
 (Iteration 15601 / 15630) loss: 25.666089

```
Average BLEU score: {'train': 0.31231536486889994, 'val': 0.27959383106655133}  
Average BLEU score: {'train': 0.3078661897499633, 'val': 0.2811279483815393}  
Average BLEU score: {'train': 0.30547922823104356, 'val': 0.2839537247917573}
```

```
[14]: # Plot the training losses  
plt.plot(mymodel_solver.loss_history)  
plt.xlabel('Iteration')  
plt.ylabel('Loss')  
plt.title('Training loss history')  
plt.show()
```



```
[15]: # write your code to train your model here.  
# make sure to include the call to evaluate_model which prints out your highest  
# validation BLEU score.  
print('Best Iteration:', mymodel_solver.best_iterations)  
# evaluate_model(mymodel_solver.best_model)
```

Best Iteration: 14820

```
[16]: mymodel_solver.best_score
```

```
[16]: 0.29953151893601404
```