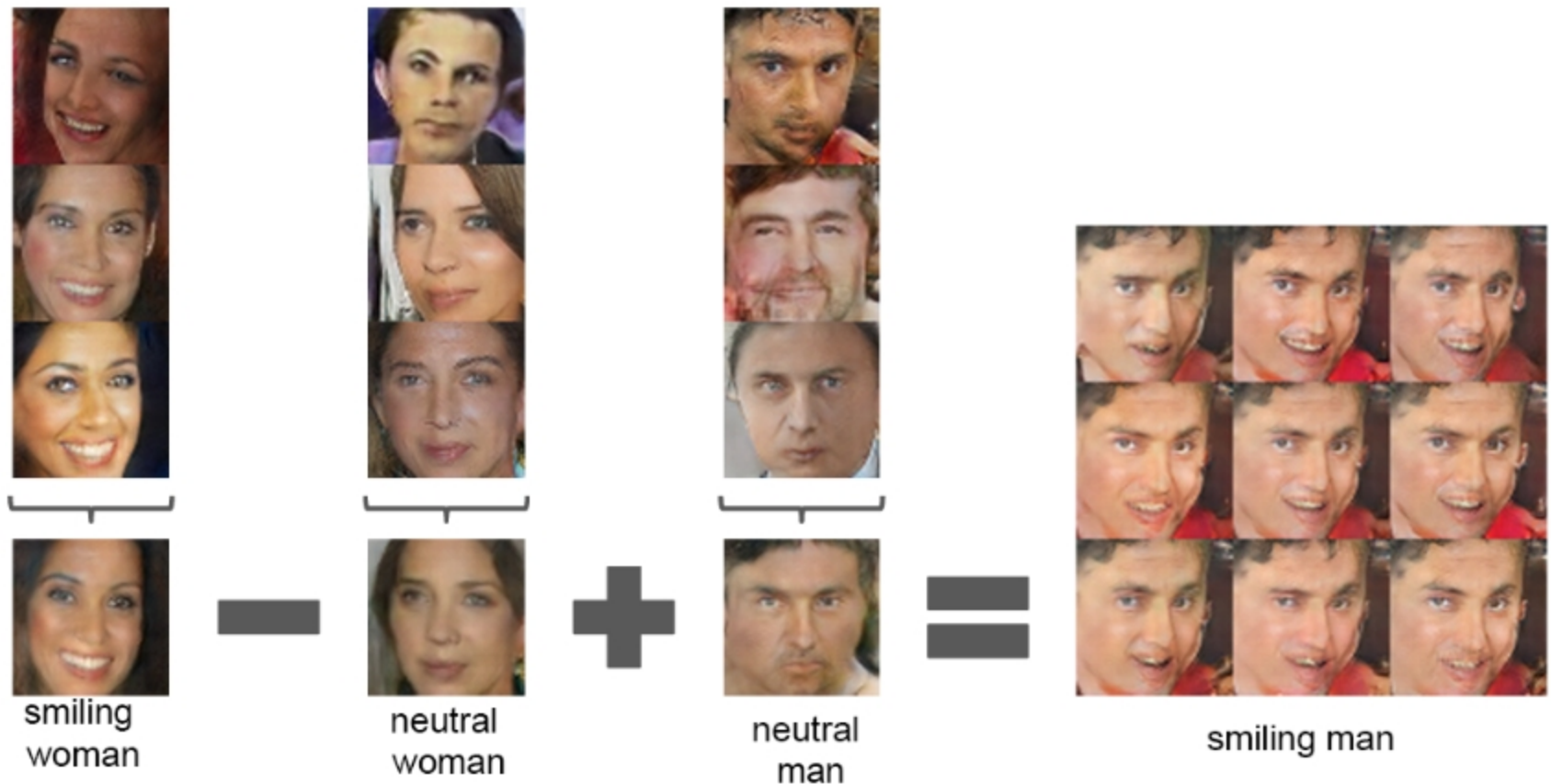Some GAN examples

Generate photo realistic images
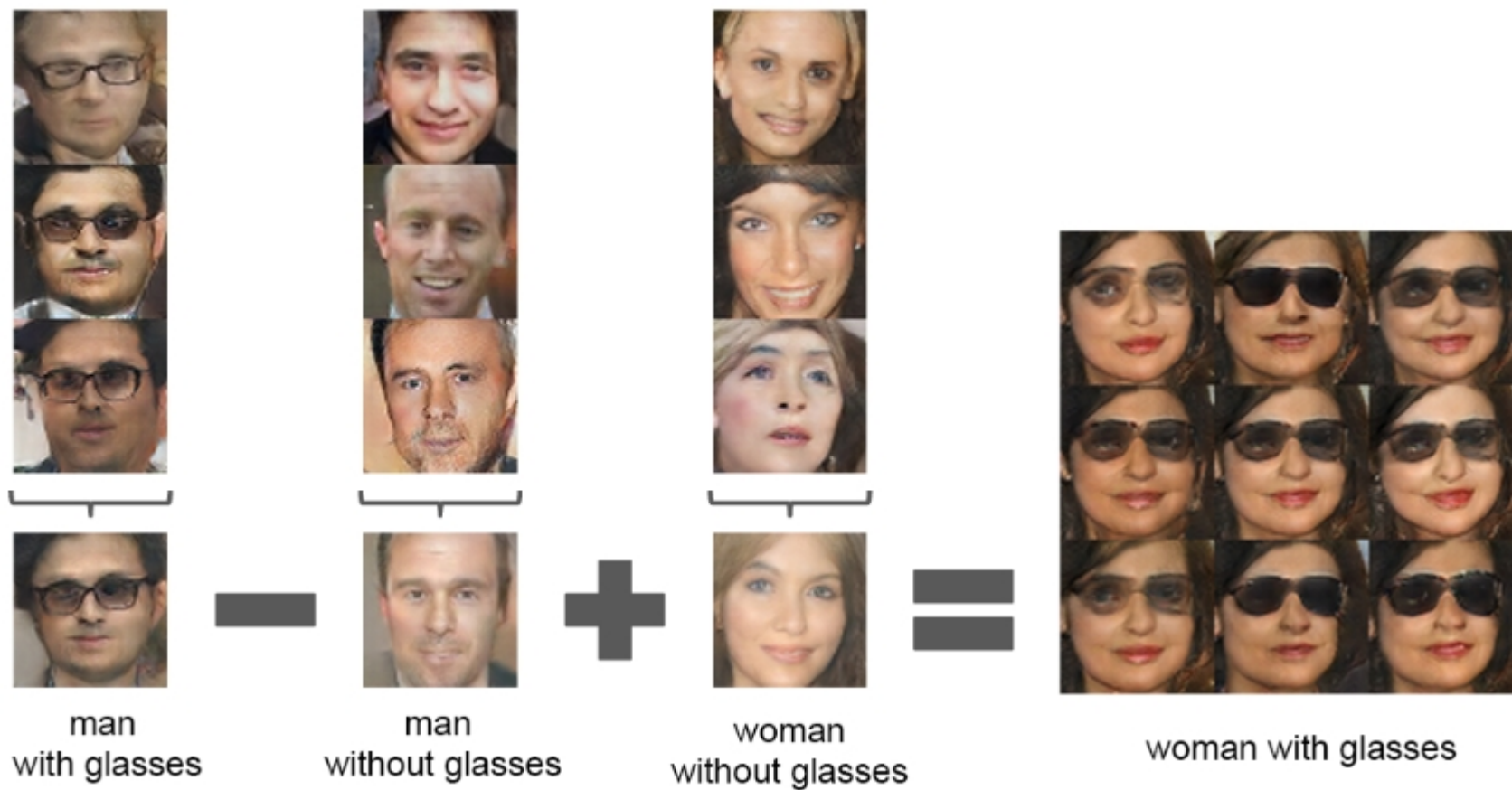

Large Scale GAN Training for High Fidelity Natural Image Synthesis

Vector arithmetic (latent space)

smiling woman − neutral woman + neutral man = smiling man

Unsupervised Representation Learning with Deep Convolutional Generative Adversarial Networks

man with glasses − man without glasses + woman without glasses = woman with glasses

Unsupervised Representation Learning with Deep Convolutional Generative Adversarial Networks

Even more impressive images...

Examples of Photorealistic GAN-Generated Faces.Taken from Progressive Growing of GANs for Improved Quality, Stability, and Variation, 2017.
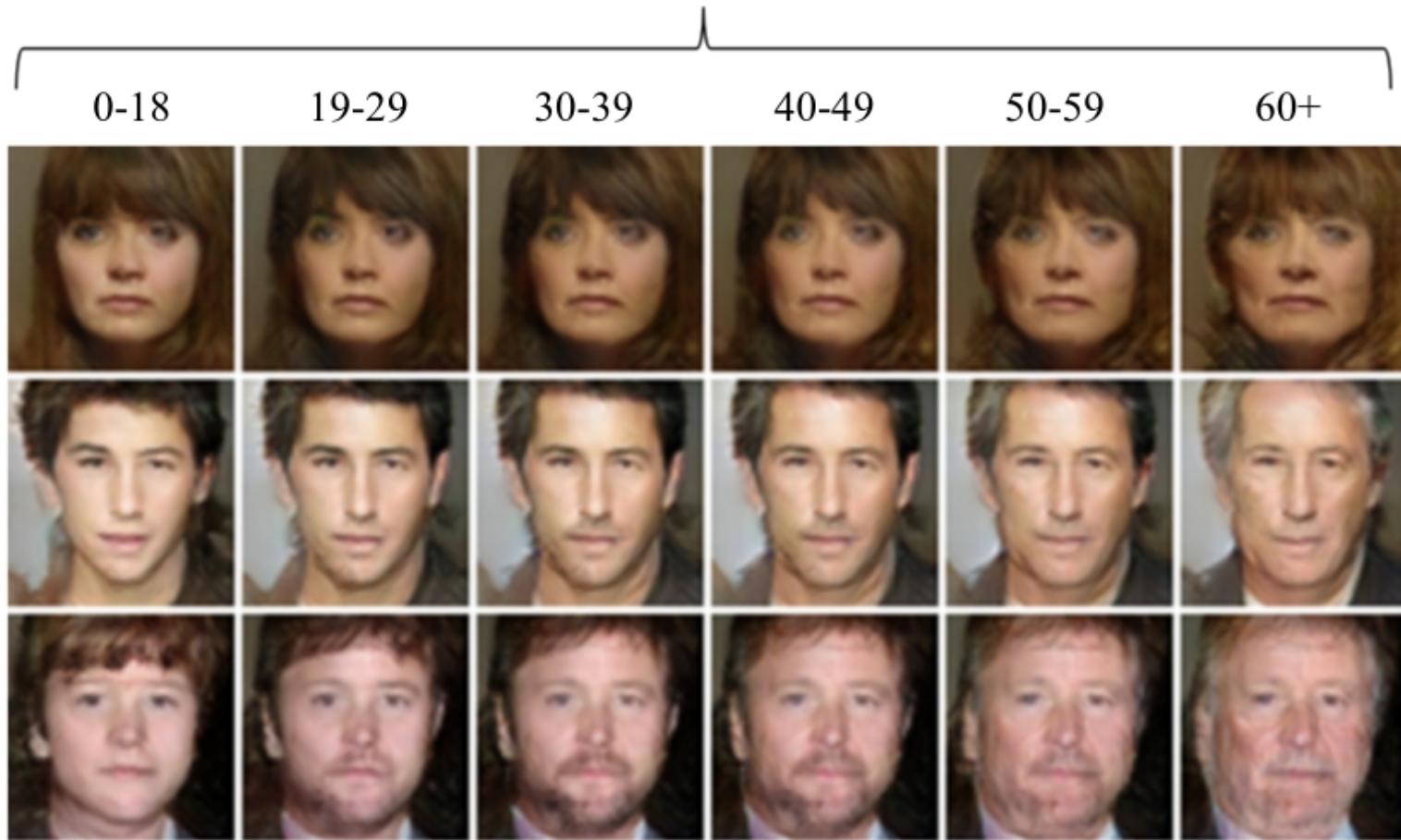
Progressive Growing of GANs for Improved Quality, Stability, and Variation

Conditional Generative Adversarial Networks (cGAN)
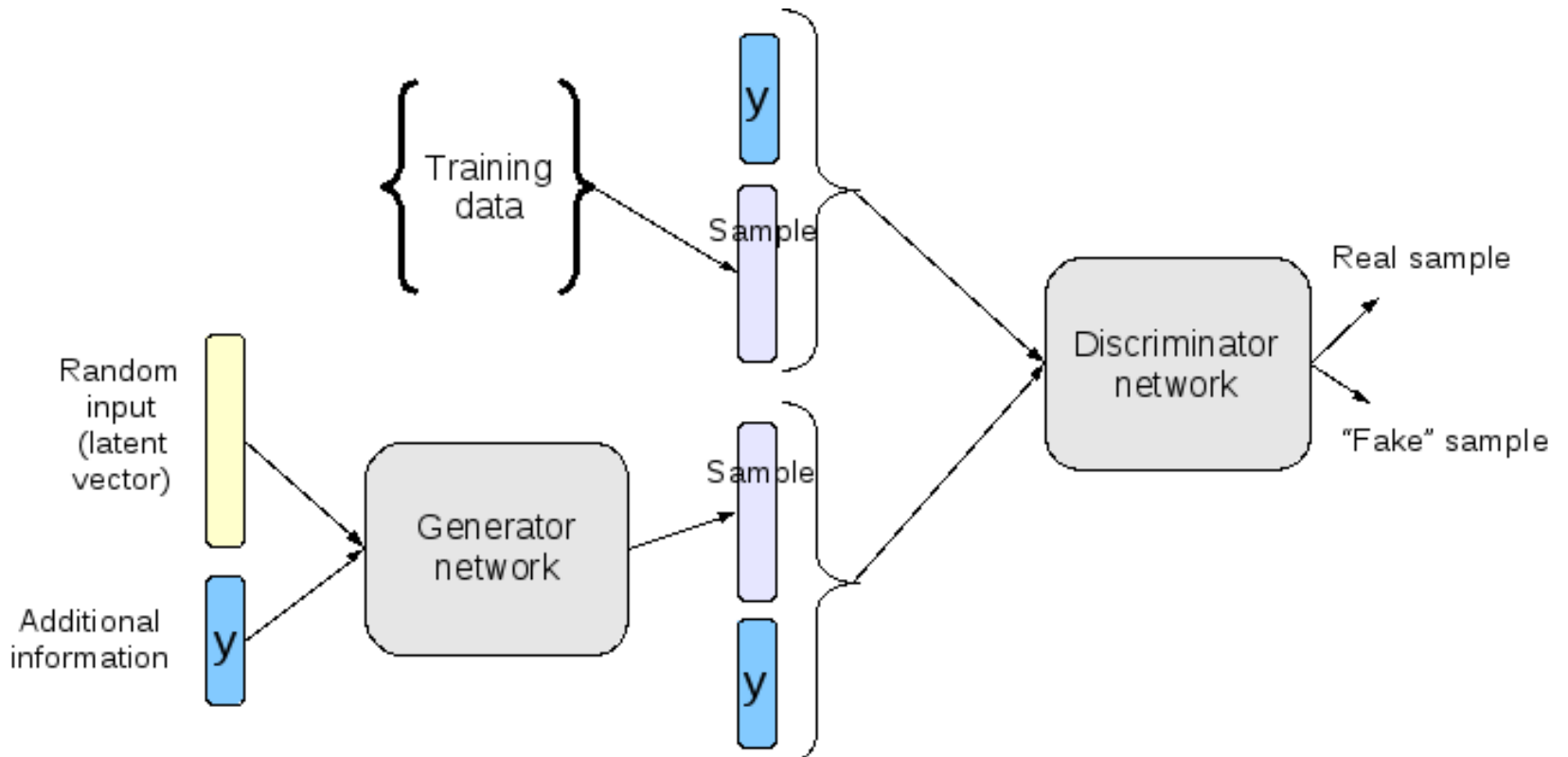
(Example trainin with MNIST images and labels (=y))

Face Aging

0-18 19-29 30-39 40-49 50-59 60+

Face Aging With Conditional Generative Adversarial Networks

Images as conditional inputs:
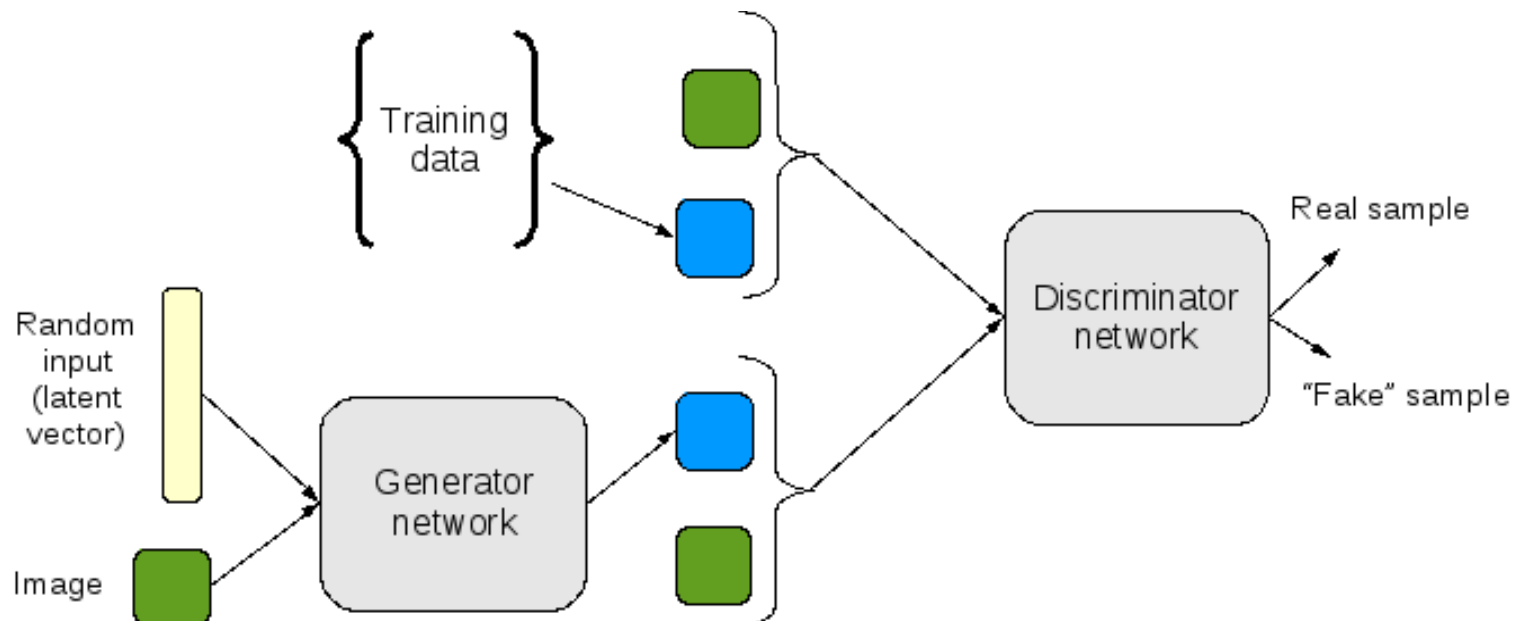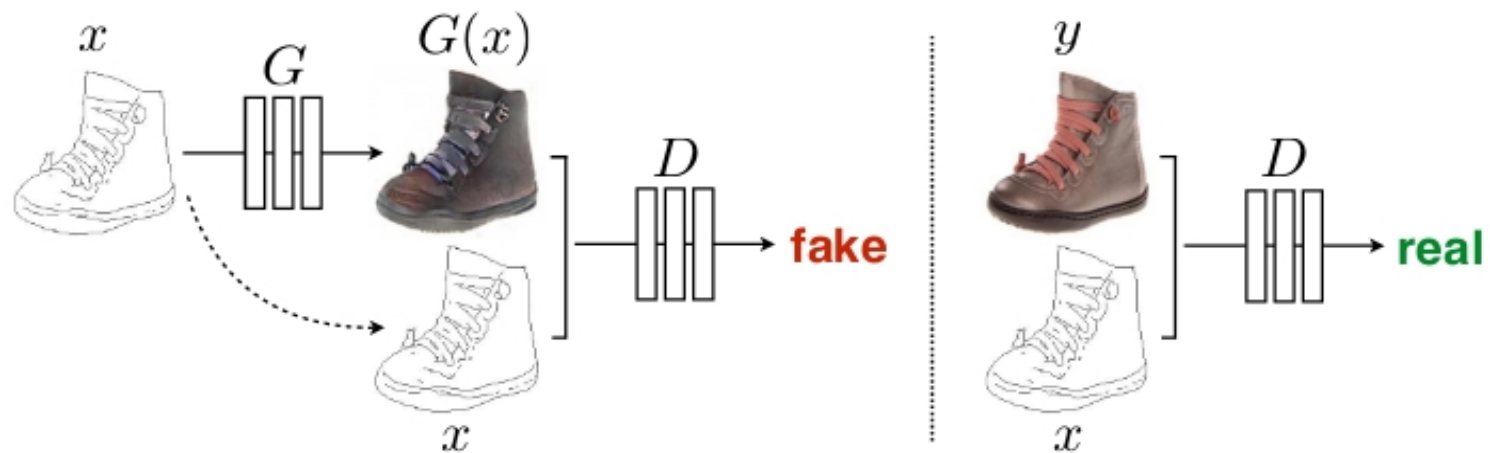## Image – to – image translation (pix2pix)

Image-to-Image Translation with Conditional Adversarial Networks

Note: In this model the random input was removes and replaced with dropout both during training and testing. It is not clear to what extend this still can be called a generative model.

Some examples from their paper:

Figure 16: Example results of our method on automatically detected edges→handbags, compared to ground truth.
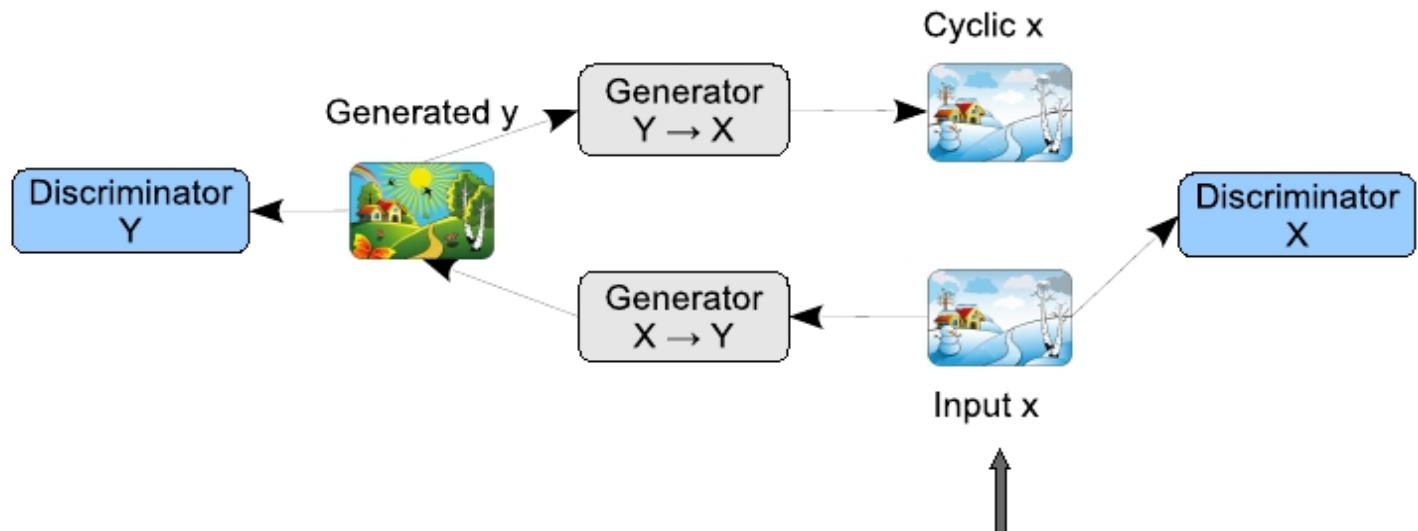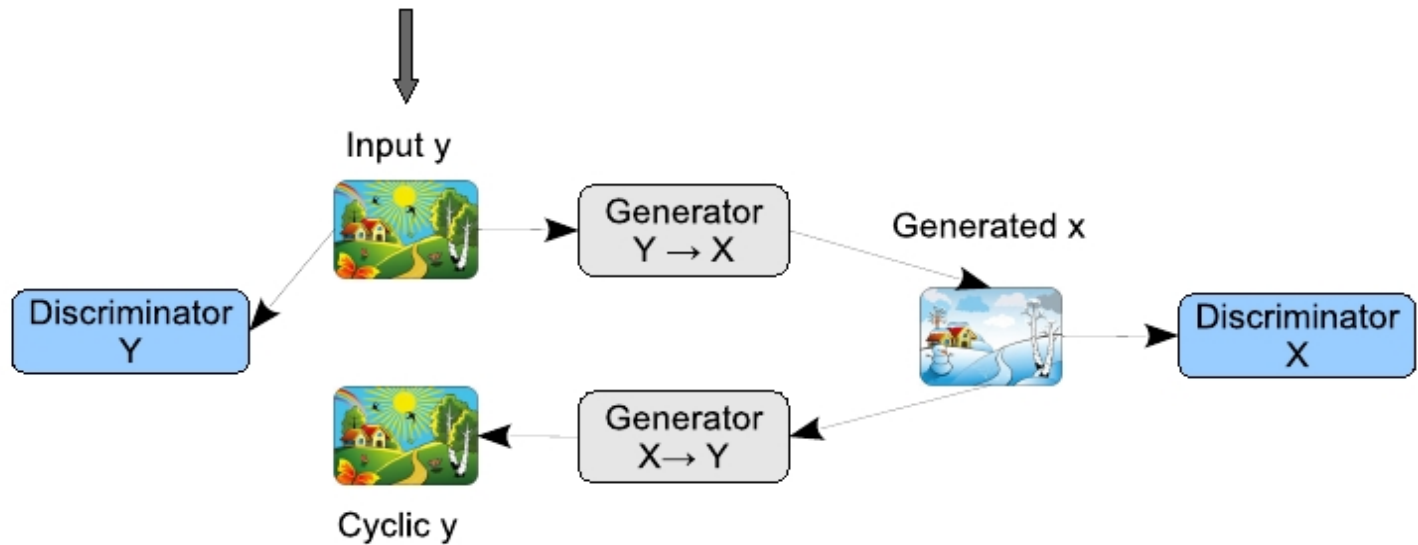
Image-to-Image Translation with Conditional Adversarial Networks

Some examples from their paper:

Figure 15: Example results of our method on day→night, compared to ground truth.

Image-to-Image Translation with Conditional Adversarial Networks

The cycle GAN

Unpaired Image-to-Image Translation using Cycle-Consistent Adversarial Networks

Some examples from their paper:

Unpaired Image-to-Image Translation using Cycle-Consistent Adversarial Networks

Some examples from their paper:

| Input | Monet | Van Gogh | Cezanne | Ukiyo-e |

Some examples from their paper:

apple → orange

orange → apple

Unpaired Image-to-Image Translation using Cycle-Consistent Adversarial Networks