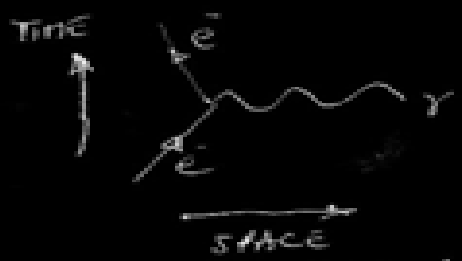
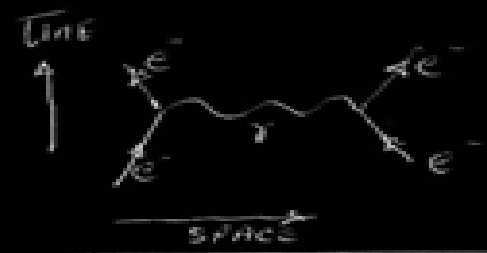


VIRTUAL PARTICLES ARE
WAVY LINES OR
BROKEN LINES



SOLID LINES ARE
PARTICLES



LINES LEAVING OR ENTERING
REPRESENT OBSERVABLE
PARTICLES

HERE, 2 ELECTRONS ENTER,
EXCHANGE A PHOTON,
THEN EXIT



CHARGES
ELECTROMAGNETIC



QUARKS
STRONG



WEAK
INTERACTION



LEPTON
WEAK INTER.

Feynman Diagrams

Human presentation of Particle Physics Processes

Cultural Collisions February 2017



FERMIONS
PHOTON, W, Z
USUALLY
GLUONS
USUALLY

STRONG

UP	CHARM	TOP
DOWN	STRANGE	BOTTOM
d	s	b

WEAK

ELECTRON	MUON	TAU
NEUTRINO	NEUTRINO	NEUTRINO
ν_e	ν_μ	ν_τ

GLUON

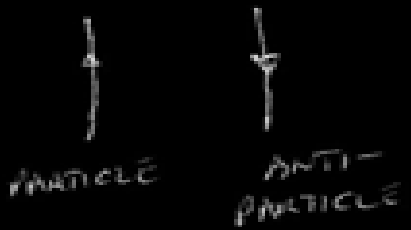
PHOTON

HIGGS
BOSON
H

Z BOSON
Z

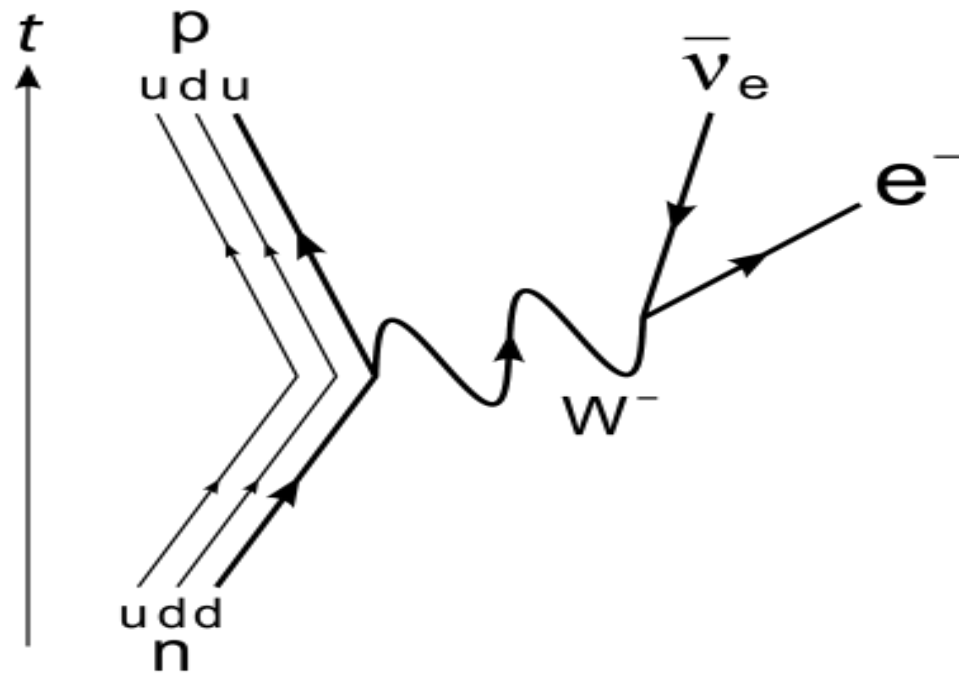
W BOSON
W

FORCES



eg e^- or e^+
 s or \bar{s}
 d or \bar{d}

Human presentation of particle physics processes



Some more particle decays





- How can you make your own image?
- To produce your own images I suggest you do the following:
- Look through images of Feynman diagrams and become familiar with the shapes that are used to construct each one. Learn what the symbols mean. There is a brief guide in a later section, and also links to further information.
- Choose a diagram you like.
- Work with friends in a small group, exploring body positions and poses which look like the diagrams or bits of the diagrams. Be adventurous and see how different bodies or parts of the body can form shapes. Keep thinking of what might be useful to you later on.
- Use cameras or mobile phones to take pictures of these poses. It is better to take lots and then reject the ones you don't want. Tip: Think about the background of your photos. A plain background will make it easier to do your editing later.
- Combine images or parts of images together such that the shapes form your chosen Feynman diagram.
 - You can use image editing programmes to do this. There are many available, like Photoshop or Gimp (which is an Open Source programme and free to use).
 - Alternatively, print the images and cut out the bits you want. Glue them together to form a collage.
- Once you start working on your image you might wish you had posed differently or think of a better pose. If you need to, go and take more pictures.
- Keep a record of all you do, even when you are editing or sticking pictures down. Photographs are great for this, and fun to go through afterwards.
- Remember that there are no rules to what you are doing. I did my work one way, and this guide is based on that. I am sure many of you can come up with more creative ideas. Use them and see what you can come up with!