

With Cardiopulmonary Bypass

Replacement of ventricular assist device pump(s); implantable intracorporeal, single ventricle, with cardiopulmonary bypass

“cardiopulmonary bypass” sounds a lot like “cardiac bypass” or “aortofemoral bypass”.

We have a wordgroup

Body part bypass

which would catch “cardiopulmonary bypass”, and turn it into a bypass of an artery, using a piece of vein or artery.

But...

Cardiopulmonary bypass is the use of a heart-lung machine to maintain circulation – it has nothing to do with the other type of bypass.

This calls into question the use of a type of wordgroup using a parent (such as “body part” or “surgery”, or even “body part surgery”, which catches “upper eyelid blepharoplasty”).

How do we avoid the mistake?

Cardiopulmonary bypass (CPB) is a technique that temporarily takes over the function of the heart and lungs during surgery, maintaining the circulation of blood and the oxygen content of the body. The **CPB** pump itself is often referred to as a heart–lung machine or “the pump”.

Aortofemoral bypass surgery (also called aorto-BI-femoral **bypass** surgery) is used to **bypass** diseased large blood vessels in the abdomen and groin.

Their descriptions could not be more different – we may need to run a meaning check every time we use a parent wordgroup to recognise a concept – this would slow reading to a crawl – probably needs to be a background task.

“replacement;with cardiopulmonary bypass” – there is another code with “without cardiopulmonary bypass”, so we could use its existence to work out which meaning of “with” is meant (including, having, using, accompanying, in the presence of, collocating with relations – he replaced A with B) – but this would be cheating – the human reader doesn’t need to do that – “surgery uses technique” is the meaning.

We can’t place great grammatical faith in the medical code syntax – it is not very good – making it even more important that the system understands how objects go together – you can actually replace a pump with a technique, if it is a technique that renders the pump unnecessary (we will fix the syntactic errors for the moment, until the system is mature enough to do its own correcting).