

Activity 2 – Explaining the shape of indifference curves

Despite the indifference curves in Figure 1 all representing different levels of utility, each indifference curve has a similar shape. They are *downwards sloping*, and they are *convex*.

Let's begin with the first feature. Each indifference curve slopes downwards because Harry faces a trade-off. In order to increase his consumption of one good, he must consume less of the other. To move from point A to point B on indifference curve U_H , Harry must sacrifice some of his consumption of apples if he is to be able to afford a greater number of oranges.

- Intuitively, Harry can only spend as much on apples and oranges as his income allows him to. Harry faces a *budget constraint*.
- Precisely, the *marginal utility* (another way of saying the extra bit of “happiness”) that Harry gains from increased consumption of oranges must equal the loss in marginal utility from reduced consumption of apples if his total utility is to remain constant.
- For this reason, the *slope* of each indifference curve is referred to as the *marginal rate of substitution (MRS)*, or the rate at which Harry would be willing to trade-off less consumption of one good for a greater level of consumption of the other!

The MRS is illustrated in Figure 2 below.

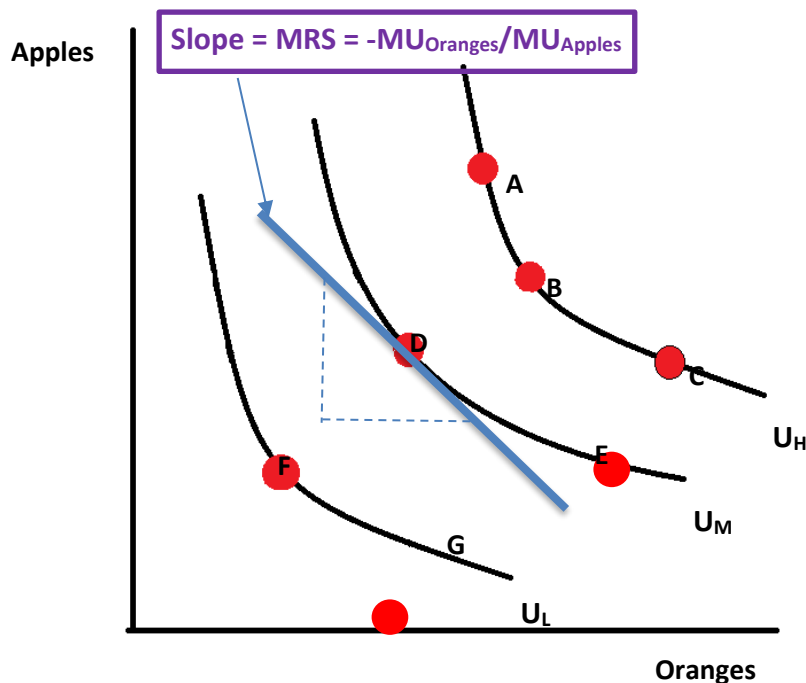


Figure 1



The second feature of the indifference curves, their convexity, is shown by them being steeper on the left-hand side than the right-hand side. This is why they are curved, rather than a straight line. This is because of the concept of *diminishing marginal utility*. As Harry consumes more and more of a particular item, the marginal utility he gets from each additional unit of consumption falls. It would make him very happy to go from consuming 0 apples to 1 apple but going from consuming 1 apple to 2 apples would make him only slightly more happy and going to 2 to 3 apples would similarly only make him a little bit happier again.

Considering Harry's consumption choice along the vertical axis, the steepness on the left-hand side of the indifference curve demonstrates Harry's willingness to trade units of apples in order to consume a greater number of oranges.

- We already know that Harry faces a trade-off over his bundle choices: to get more oranges, he must give up some number of apples.
- As he does this, the marginal utility he gets from an additional unit of apples *increases*. Because he has fewer apples, it would make him a lot happier to have one more apple.
- This describes bundle A on indifference curve U_H : the marginal utility of an extra unit of apples for Harry will be relatively low, while the marginal utility of an extra unit of oranges will be relatively high.
- For this reason, as his consumption of apples increases, Harry is willing to trade more and more of them for valuable additional oranges!
- The opposite is true for bundle C: Harry would be willing to trade a relatively large number of oranges for additional apples.

There is one important takeaway from all of this – the *slope* of the indifference curve *changes*. Knowing what you do, this shouldn't be surprising. The slope of the indifference curve represents Harry's MRS and we know his willingness to trade-off consumption of apples for oranges changes as we move between bundles along each indifference curve!