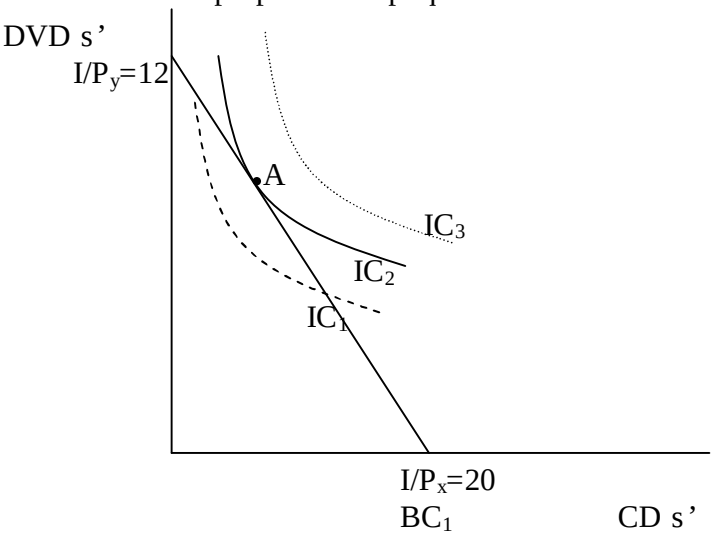
Chapter 4 In class problems

1. Daniel has the preferences regarding purchasing CD s' and DVD s' as shown below by the indifference curves. If the P_{CD} = \$15 and the P_{DVD} = \$25 and Daniel has \$300 a month to spend on either CD s' or DVD s' find the optimal consumption bundle (graphically, you cannot calculate it) for Daniel. Also, please denote the proper intercept quantities for CD s' and DVD s' on BC_1.

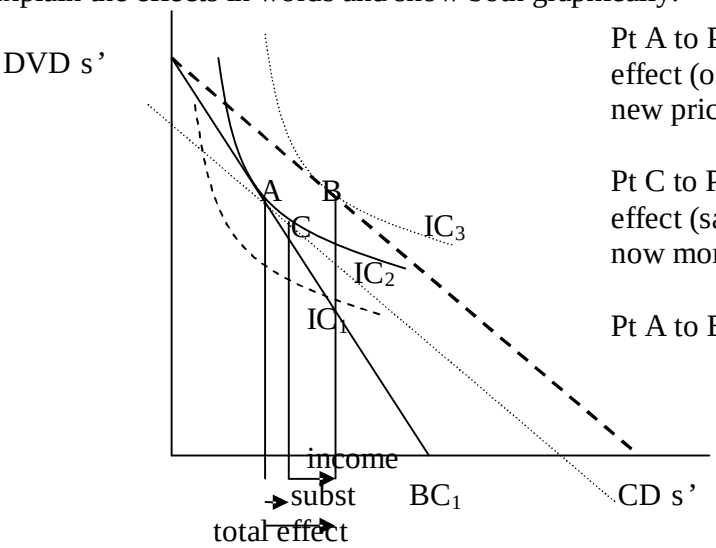


a) Explain (in words) why this is the utility maximizing consumption bundle.

$MRS_{CD} = P_C/P_D$. Therefore, at point A the consumer values additional units of CD s' (MRS) the same as the market (ratio of the prices).

b) Now suppose the P_{CD} falls to \$10. Show the new utility maximizing consumption bundle. What two effects change the quantity of CD s' consumed? **There are both income and substitution effects**

Explain the effects in words and show both graphically.



Pt A to Pt C is the subst effect (on same IC with new prices).

Pt C to Pt B is the income effect (same price ratio now more income)

Pt A to B is total effect

Substitution Effect is that CD s' are relatively more inexpensive than DVD s' so we will substitute towards them. The income Effect is that our purchasing power has increased and we can buy the same combination of goods as before and still have income left over.

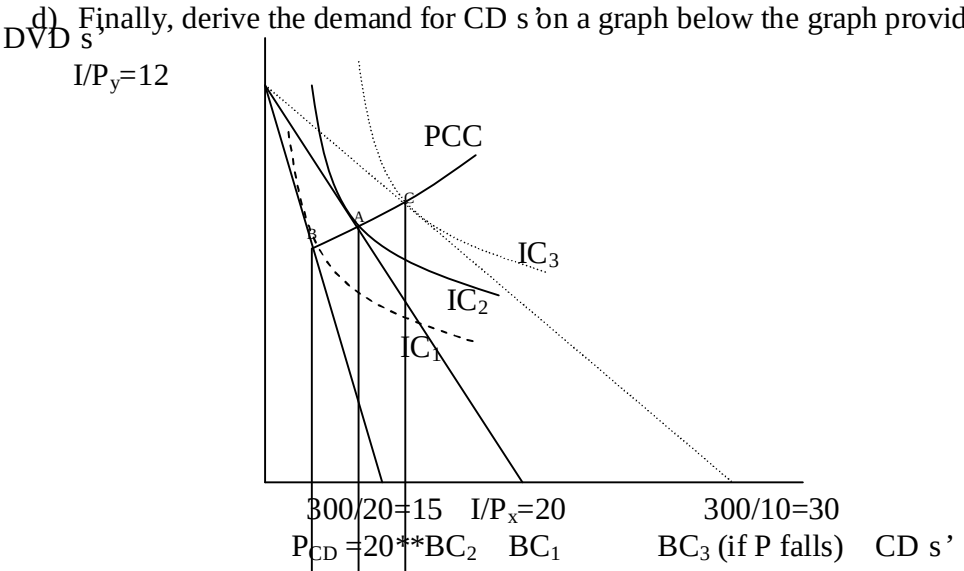
Describe the type of good this is.

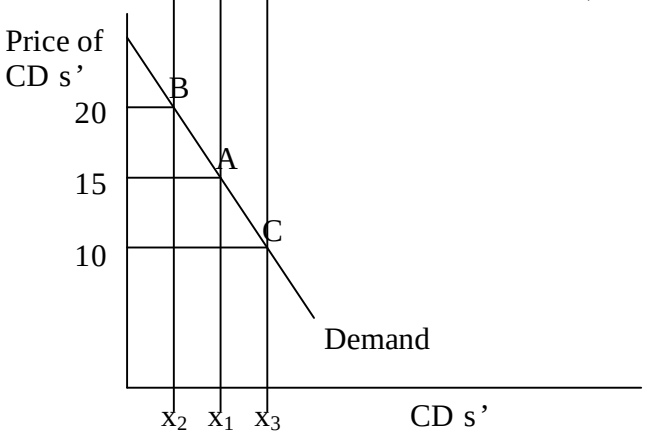
Because the income effect is positive when price falls, this is a normal good.

c) Now assume that the P_{CD} increases to $20, using the graph below, illustrate the optimal consumption bundle (again denoting intercept quantities for CD s' and DVD s'), be sure to indicate which BC this refers to. Finally, on the graph below, explain what could cause the remaining BC to exist and find the optimal consumption bundle (graphically). Find the price-consumption curve (PCC) and explain what the shape of the PCC curve indicates.

PCC is upward sloping, so these goods are complements (alright not so logical but let s' assume we like the soundtracks to watch with our movies). NOTE: This depends on where you plotted the points, I m' sure some of you have pt B higher so there is a decreasing line (and the goods are subst. there).

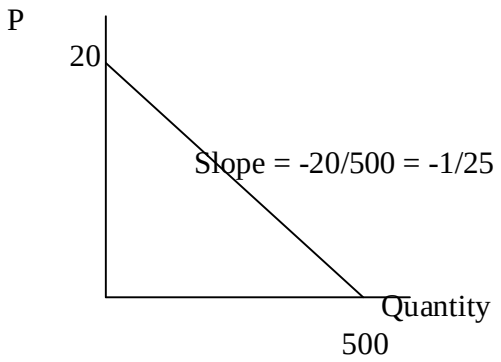
d) Finally, derive the demand for CD s' on a graph below the graph provided.





2. Suppose there are 100 people in Maryland who each have the following (inverse) demand monthly for movies, $P = 20 - 4q$. What is the total market inverse demand for movies in Maryland? Show graphically.

$q = 5 - 1/4P$ is the demand for one person.

$Q = q_1 + q_2 + \ldots + q_{100} = 100\ (q)$ as all 100 have the same demand.
$Q = 500 - 25P$

However, to plot we need the inverse demand:
$P = 20 - 1/25Q$