Notes on the Utility Function used in the Monopolistic Competition Model

The utility function is:

$$u(q_1, q_{2,\ldots\ldots}) = \sum_{i=1}^{\infty} q_i^{\alpha}, \quad \text{where } 0 < \alpha < 1.$$

This function is sometimes called the "love for variety" utility function.

Example 1:
Assume that there are four varieties available and that $\alpha = 1/2$. Suppose the agent can consume a total of 16 units. We will show that the agent will be happier consuming 4 units of each of the commodities than 8 units of only two commodities or 16 units of a single commodity.

	Bundle I (B_I)	Bundle II (B_{II})	Bundle III (B_{III})
q_1	4	8	16
q_2	4	8	0
q_3	4	0	0
q_4	4	0	0
$u(.) = \sum_{i=1}^{4} q_i^{1/2}$	8	5.66	4

Example 2:
Assume that there are two varieties available and that $\alpha = 1/2$. We will calculate the utility of different bundles (B1, B2, and so on) and draw some indifference curves.

	B1	**B2**	**B3**	**B4**	**B5**	**B6**
q_1	6	1.49	5	2.61	3	11.97
q_2	0	1.49	1	2.61	3	0
$u(.) = q_1^{1/2} + q_2^{1/2}$	2.44	2.44	3.23	3.23	3.46	3.46