

Quantifying the male gain curve

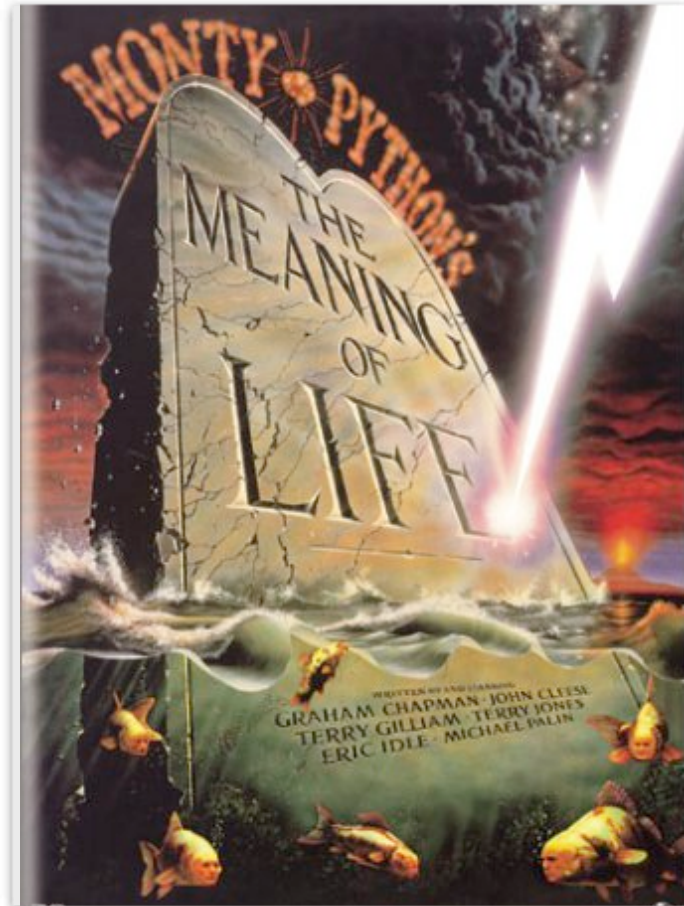
How much pollen is enough?

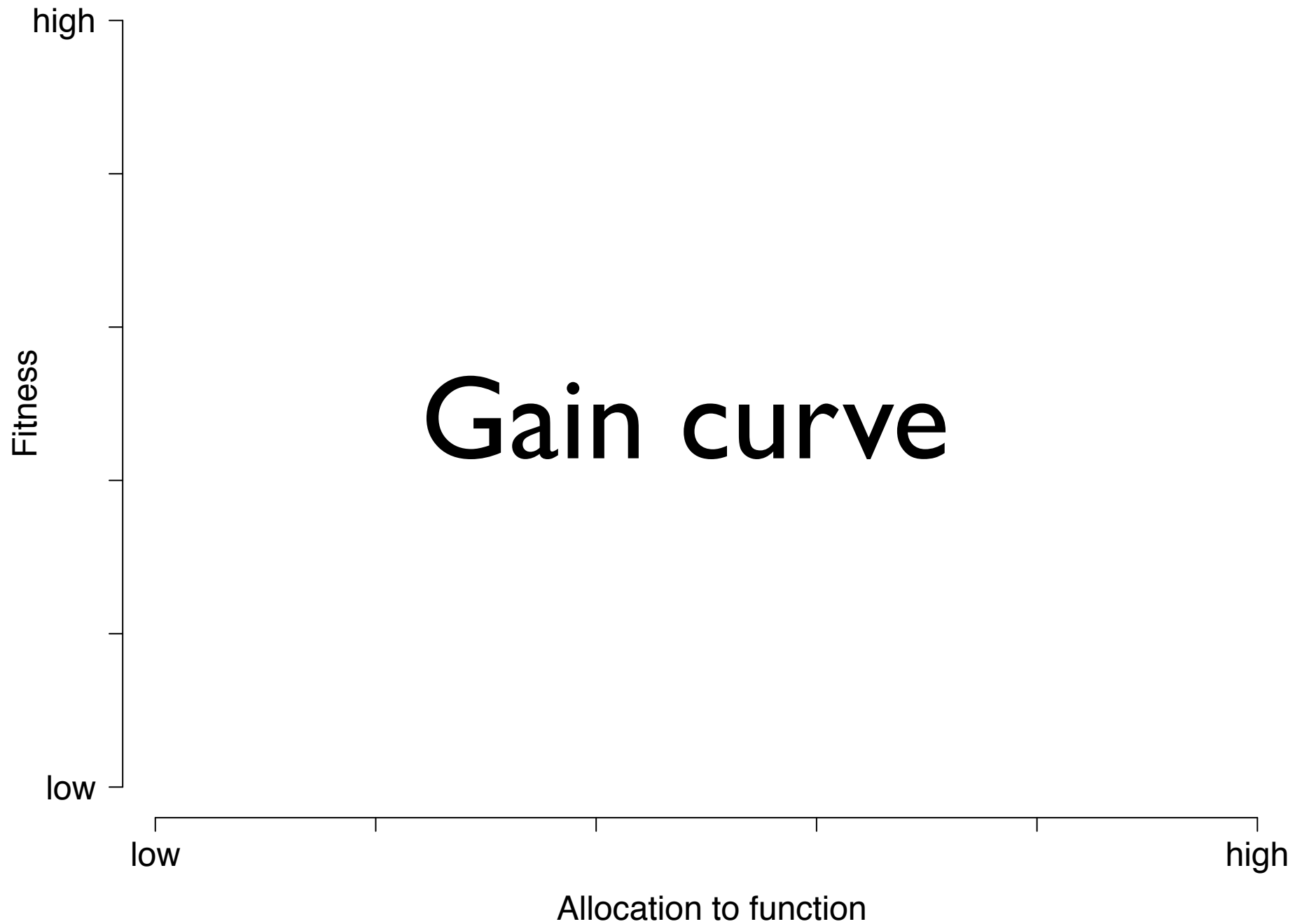




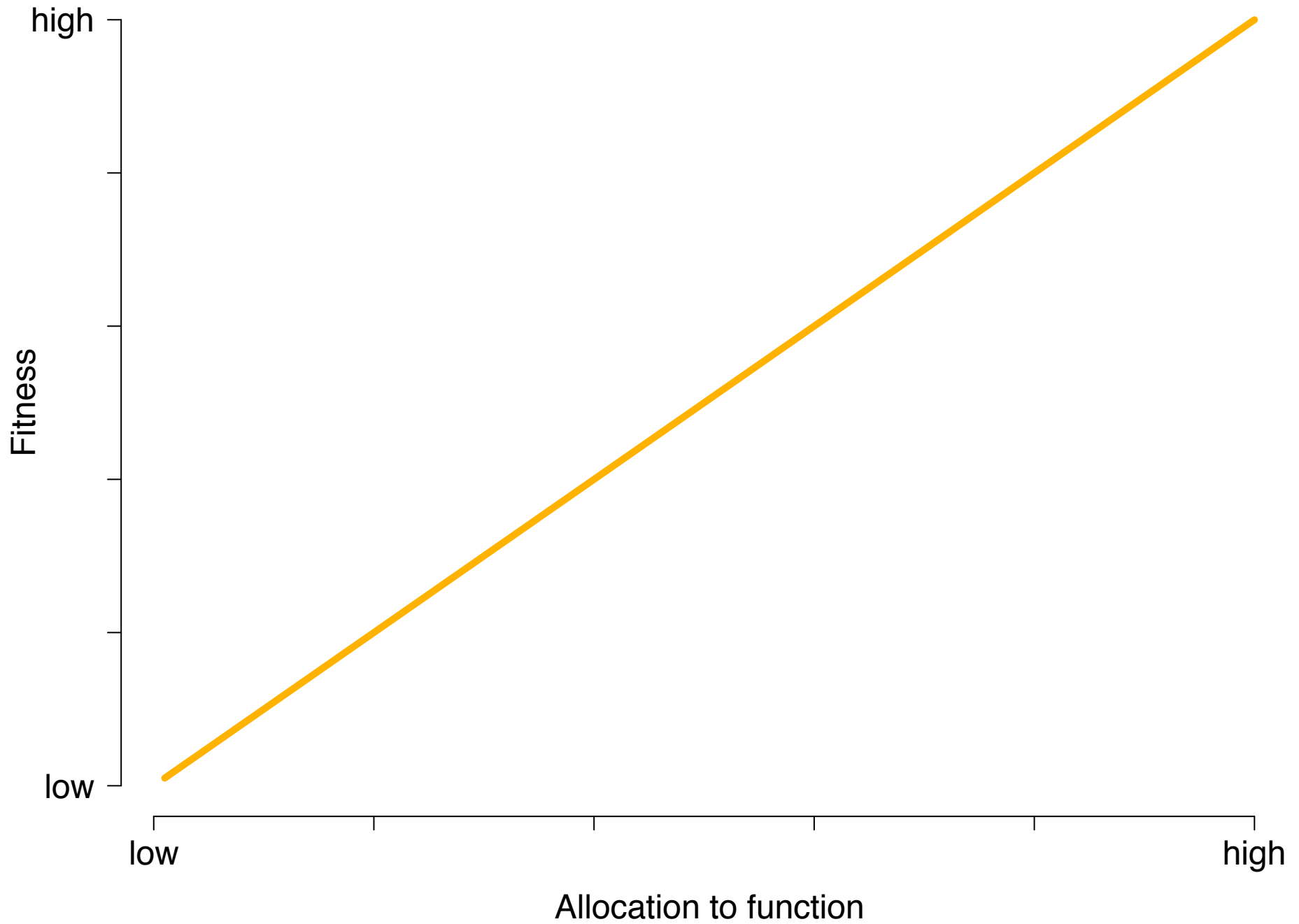
Monty-Python Principle

Every sperm is sacred
Every sperm is good
Every sperm is needed
In your neighbourhood
Every sperm is sacred
Every sperm is great
If a sperm is wasted
God gets quite irate

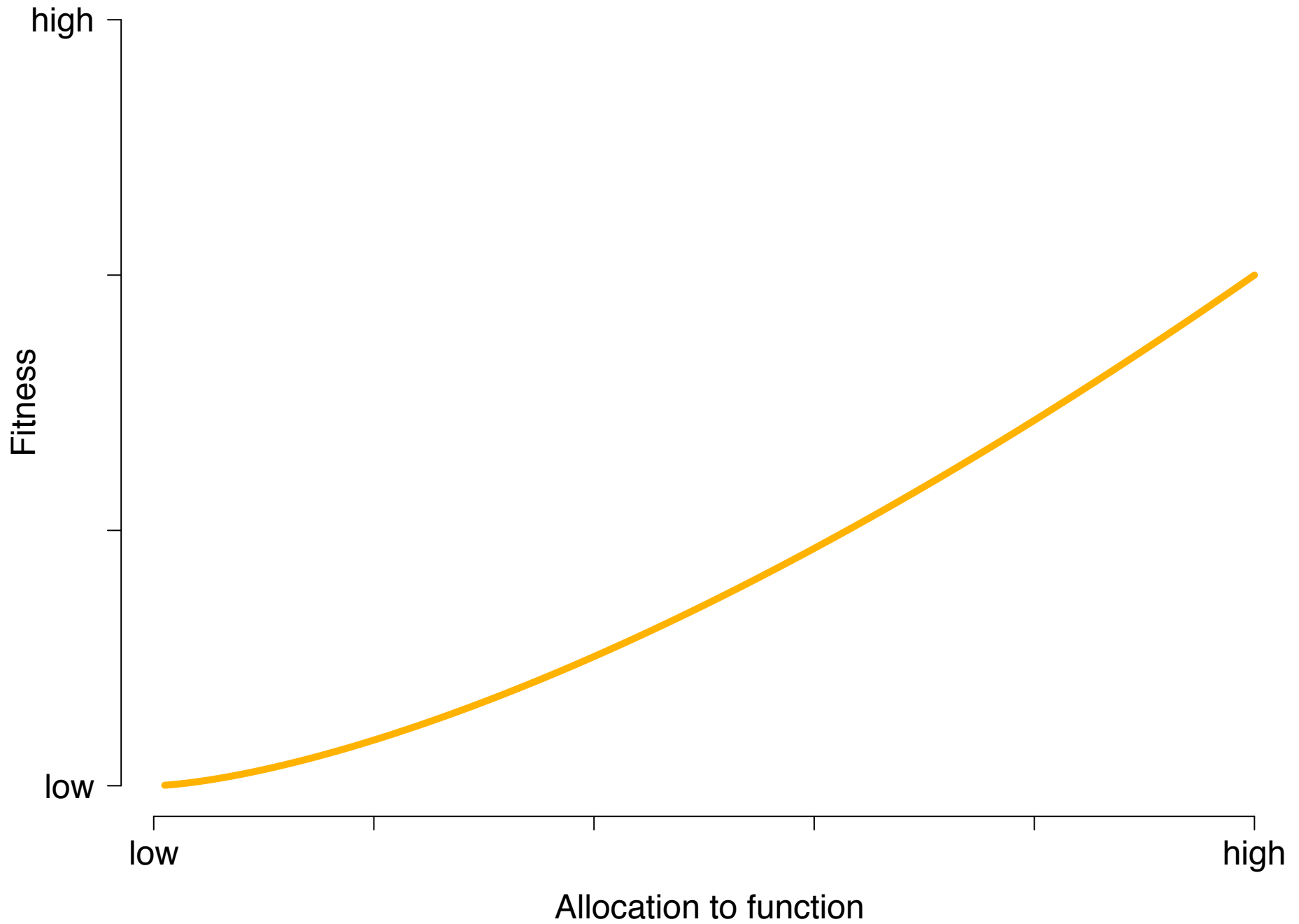




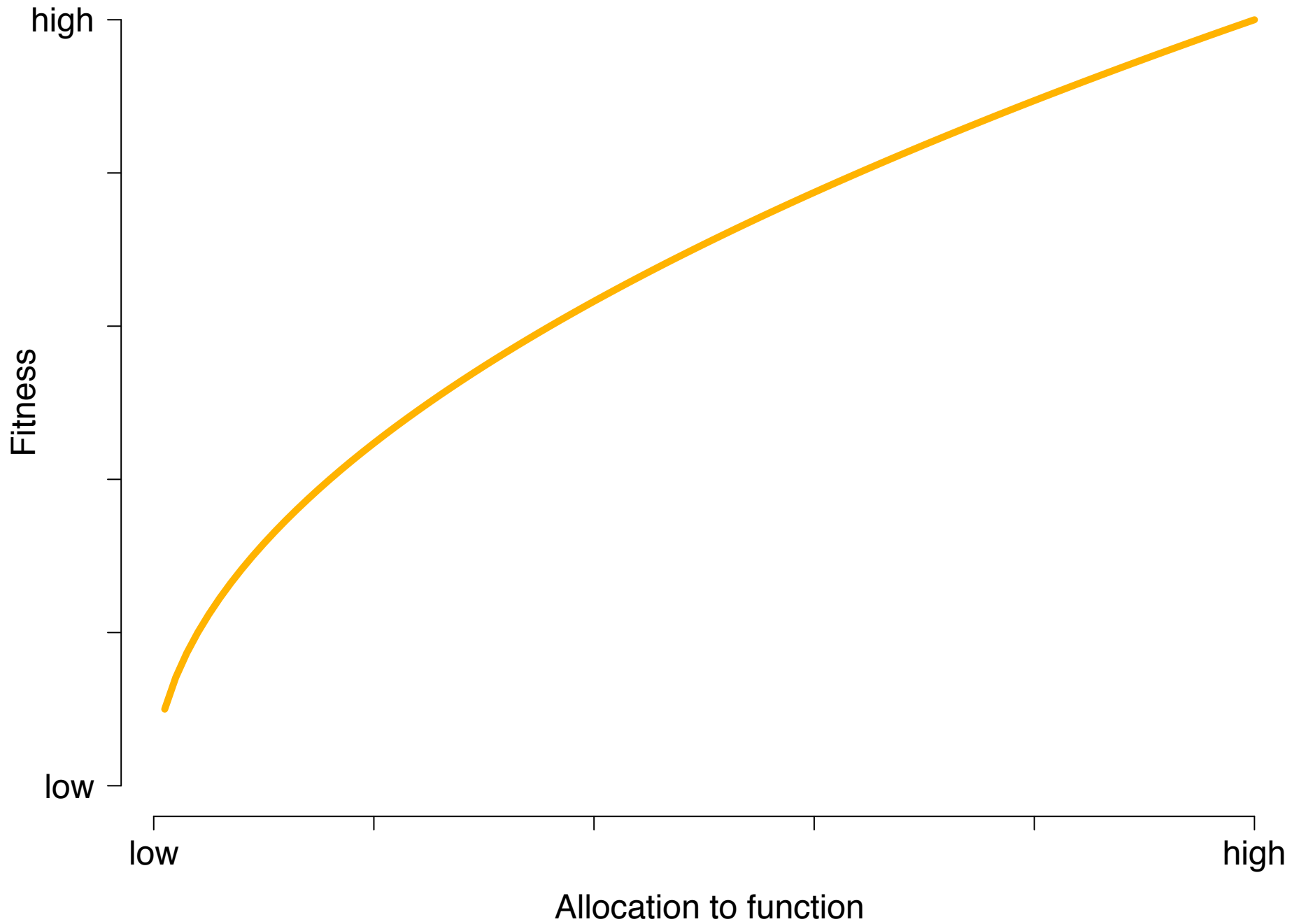
Linear



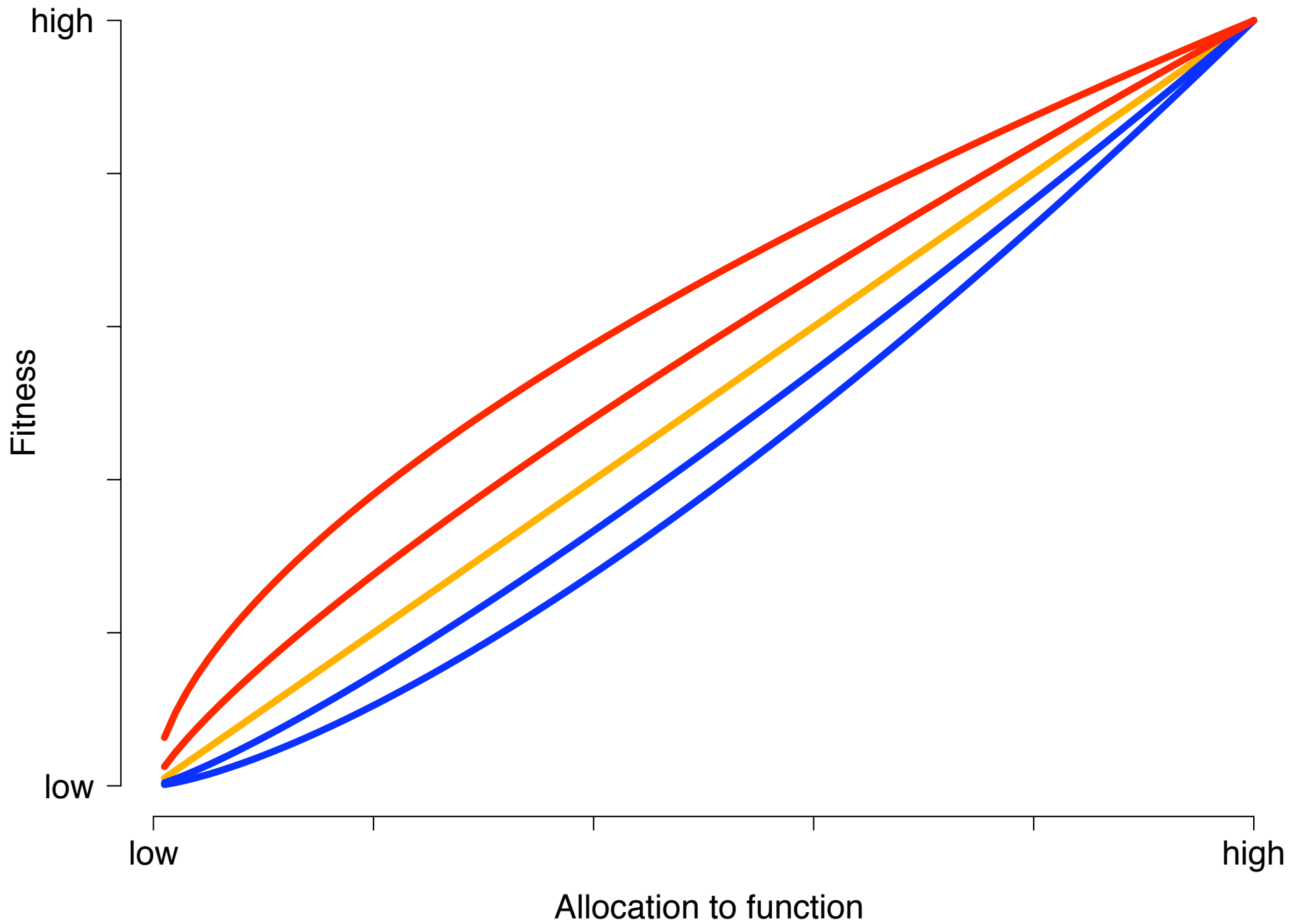
Accelerating



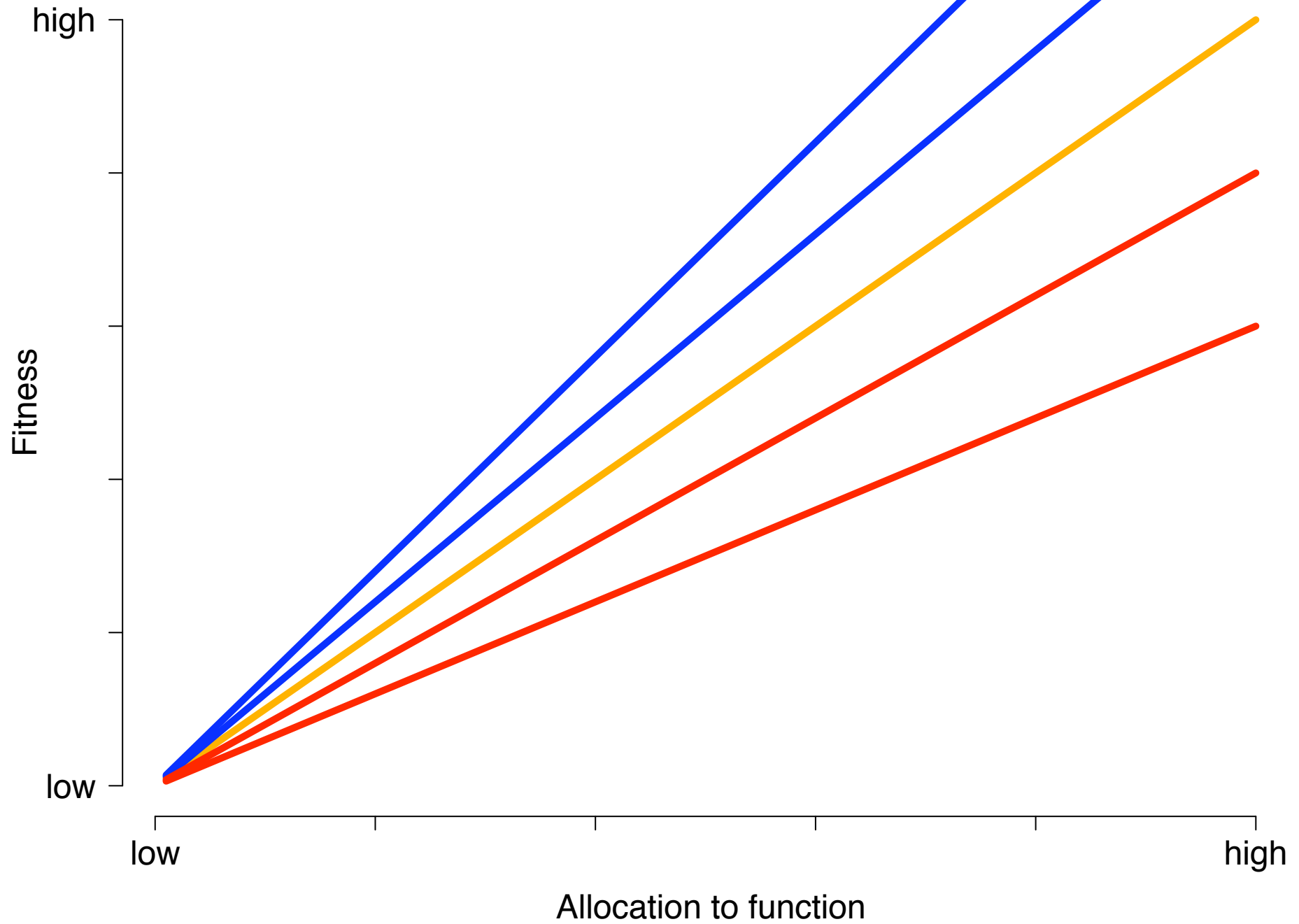
Decelerating



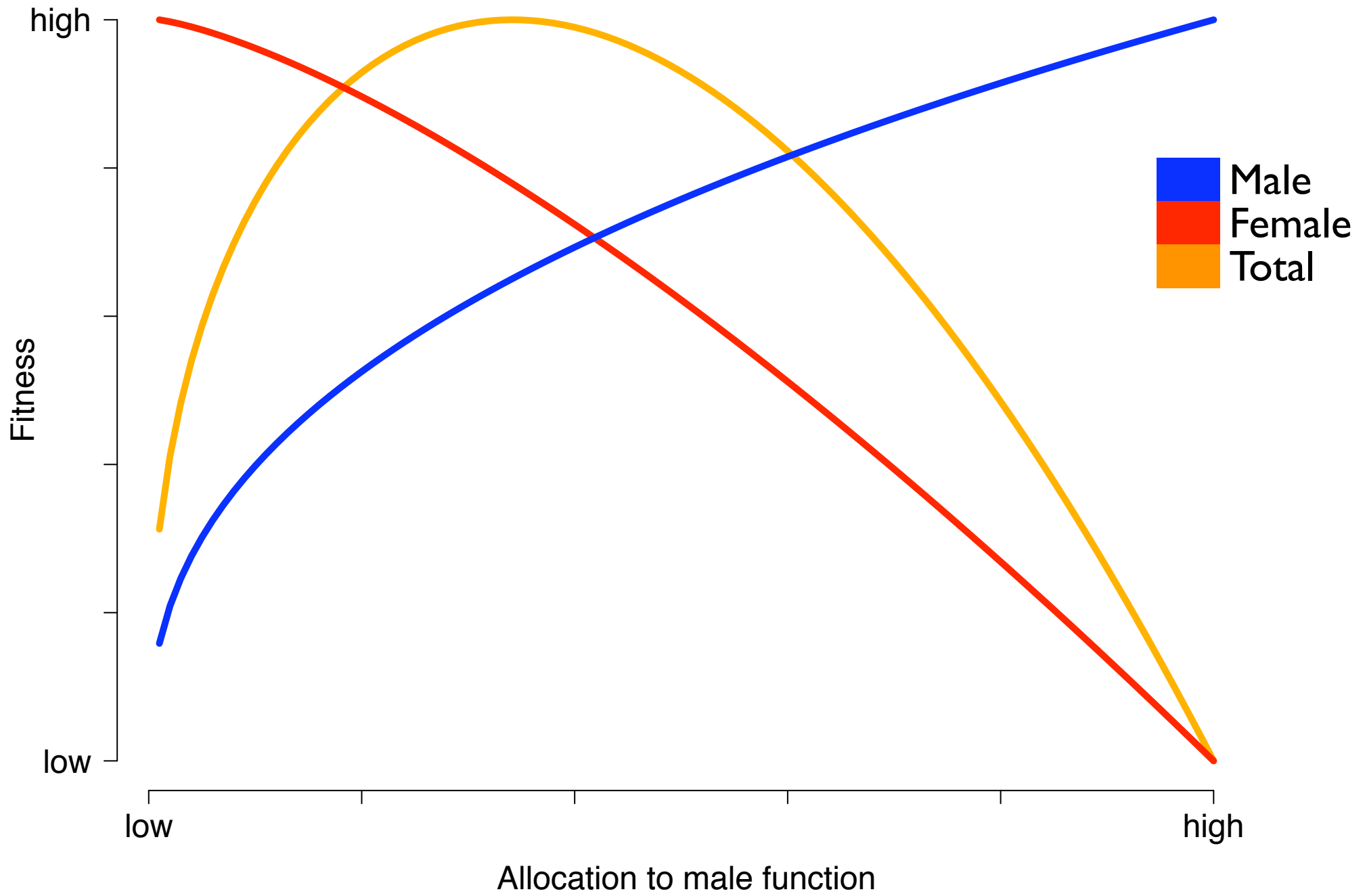
$$y = ax^b$$

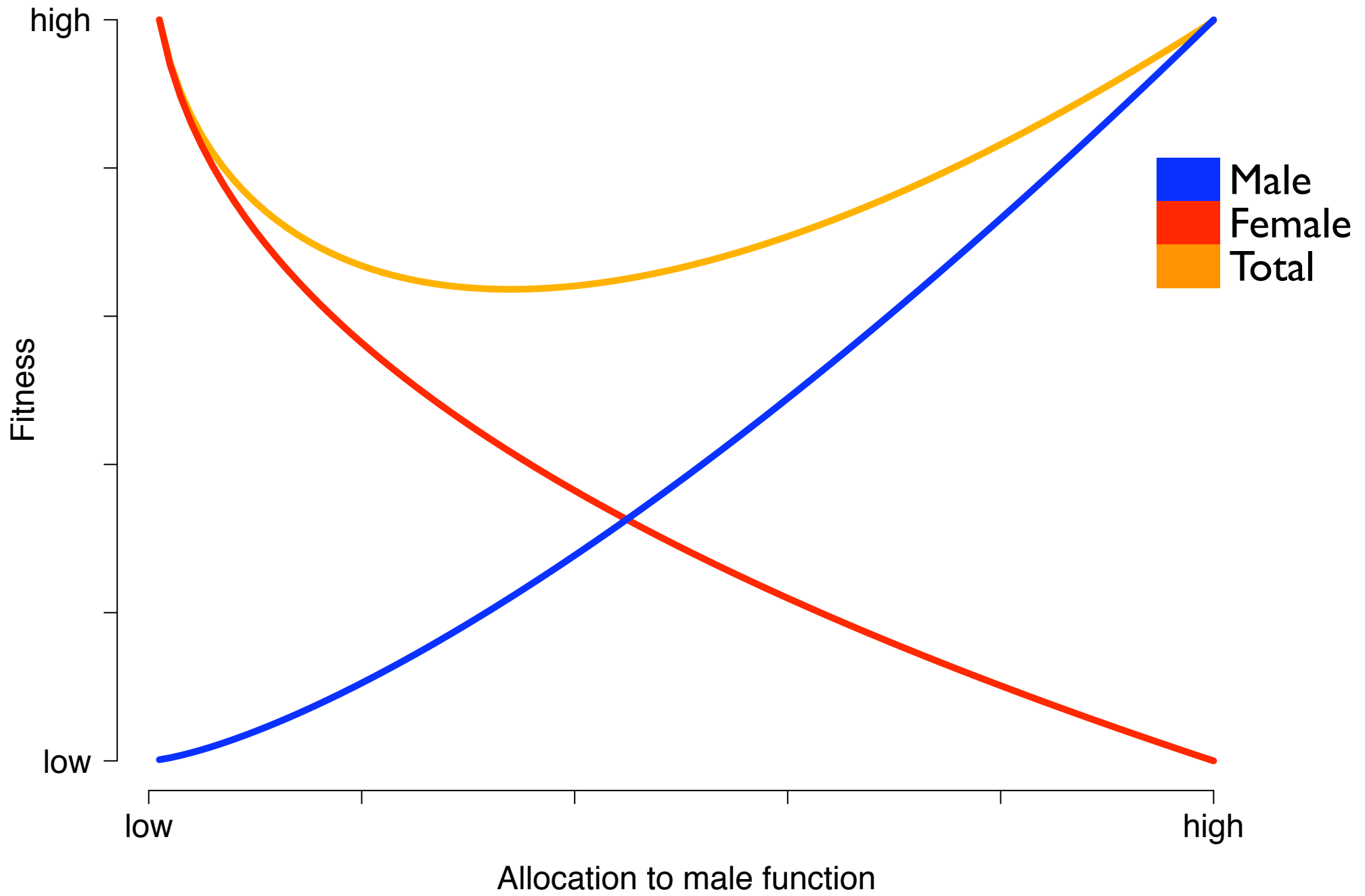


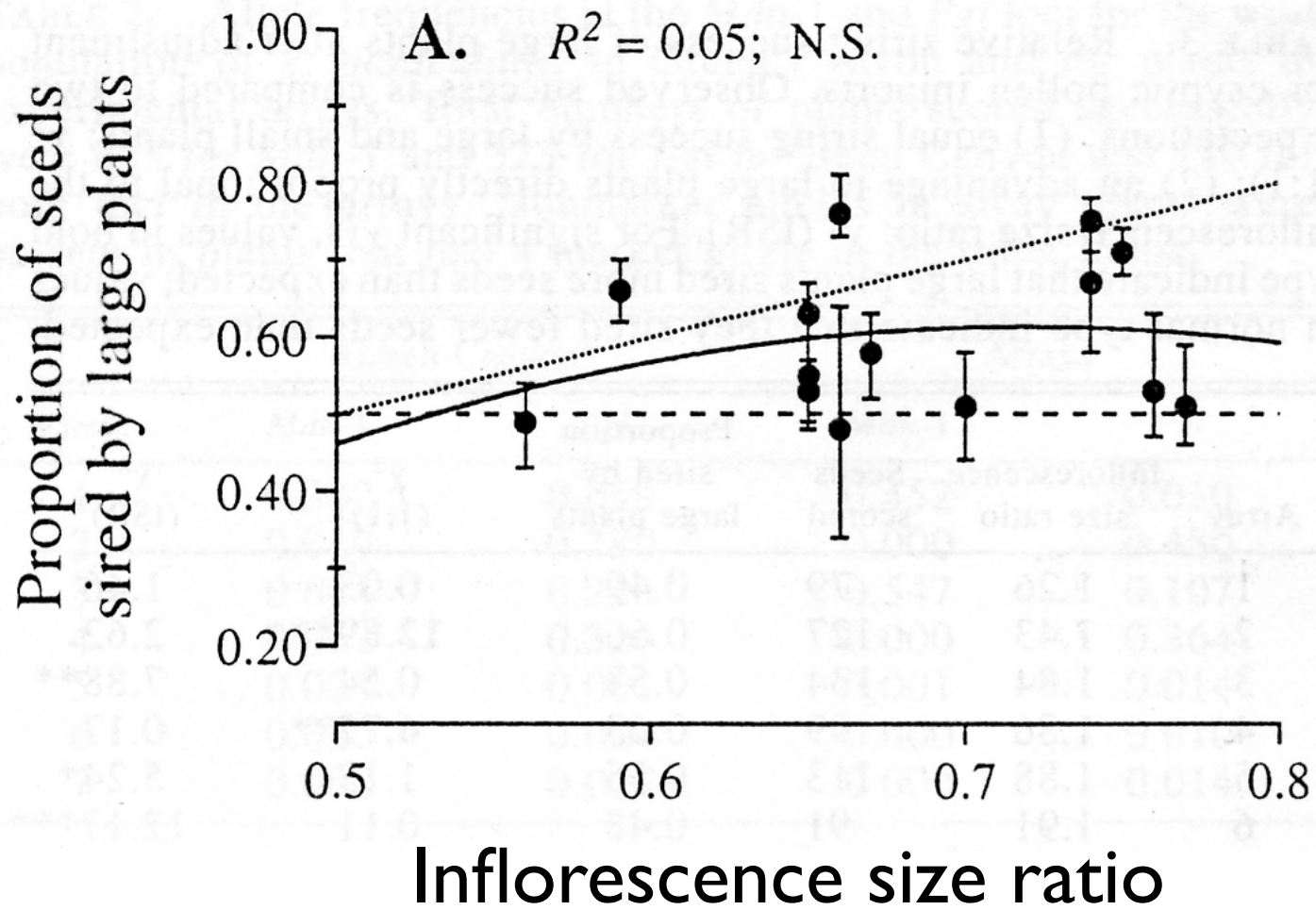
$$y = ax^b$$



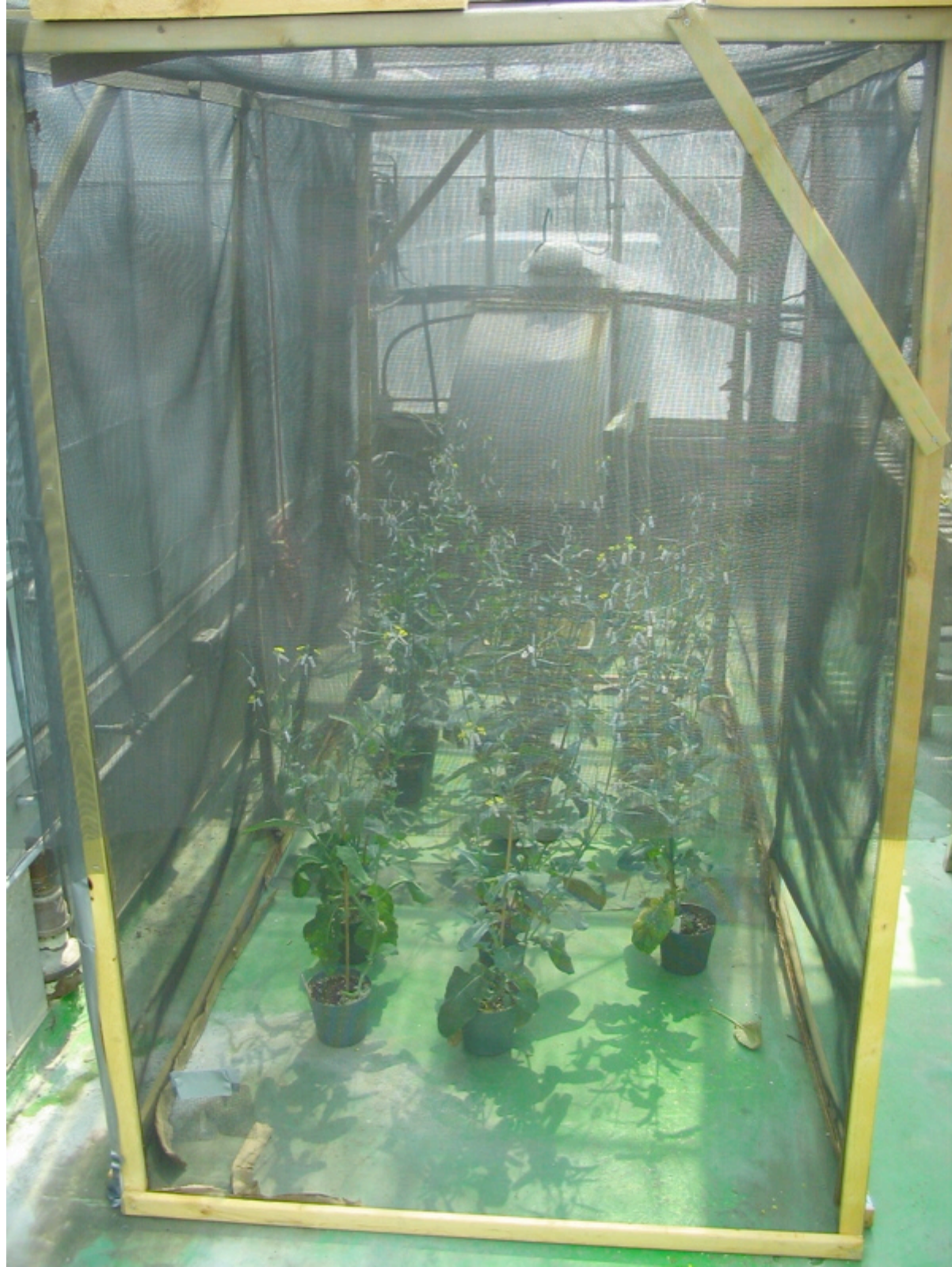












Experimental Design

| Anthers/ flower | Plants | Anthers/ array |
|--------------------|--------|-------------------|
| 1 | 30 | 30 |
| 2 | 15 | 30 |
| 3 | 10 | 30 |
| 4 | 7 | 28 |
| 5 | 6 | 30 |
| 6 | 5 | 30 |

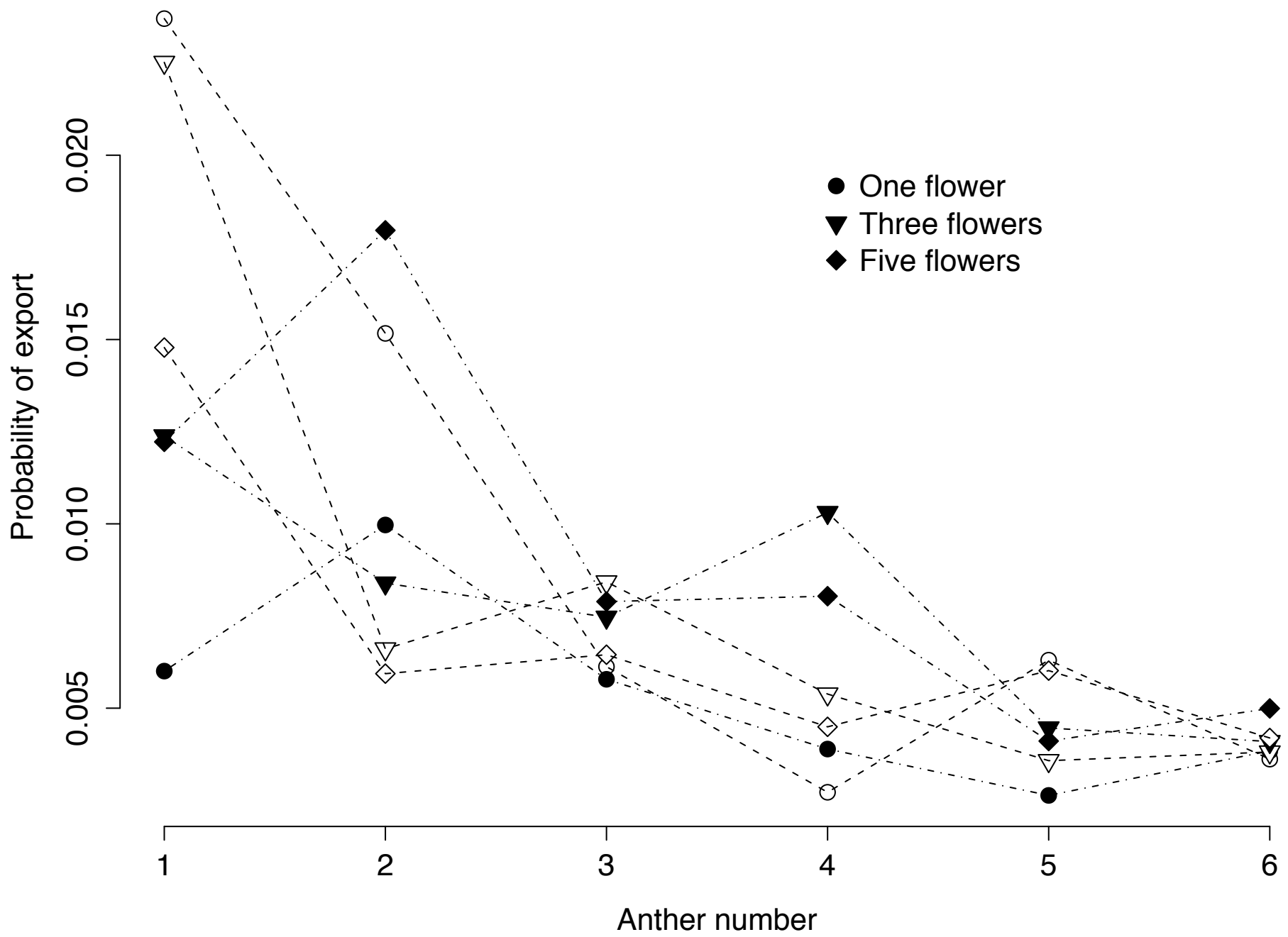


SYSTEMS
OLOGICA
Bombus impatiens
PROJECT XADIA 2010

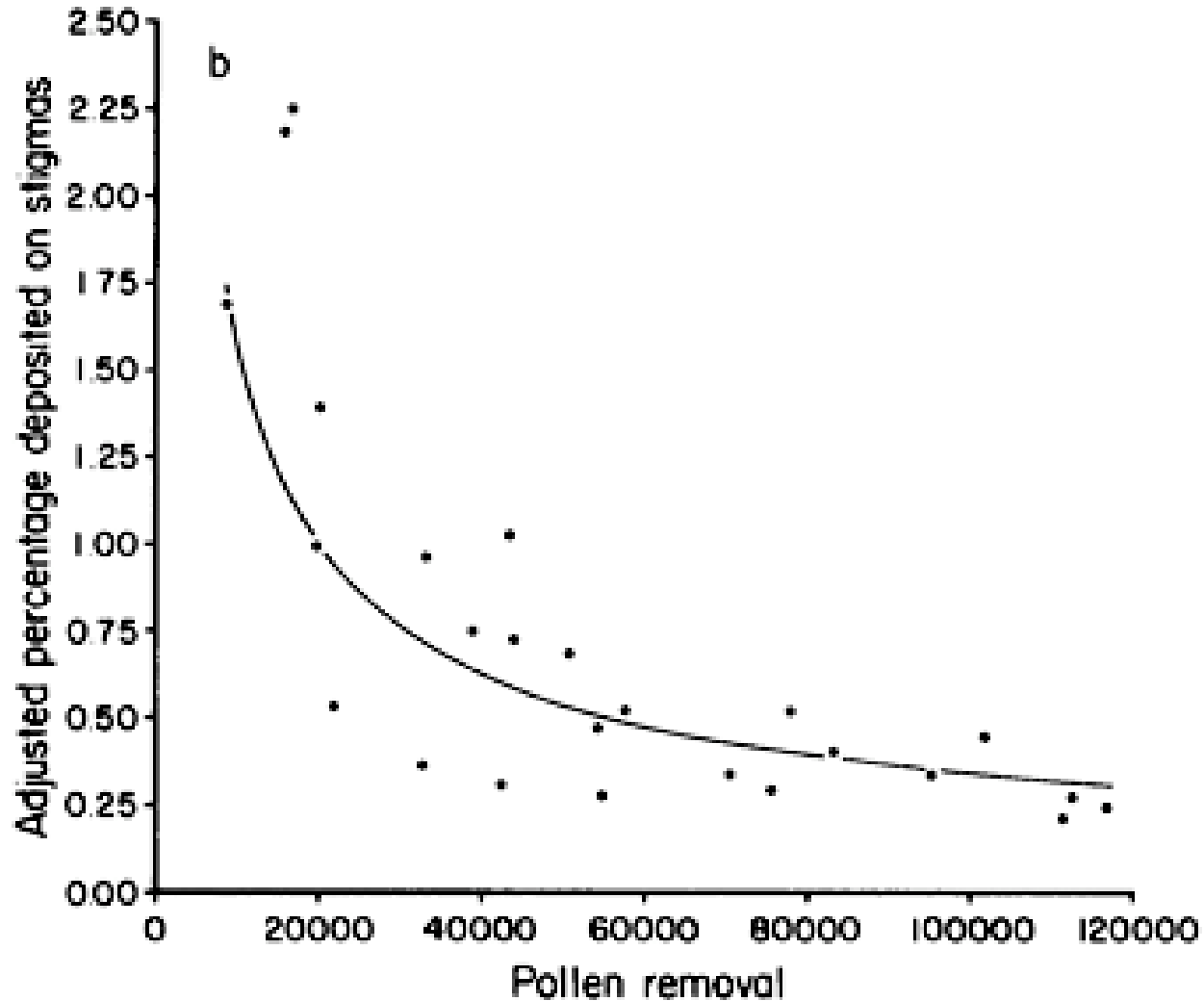
29c

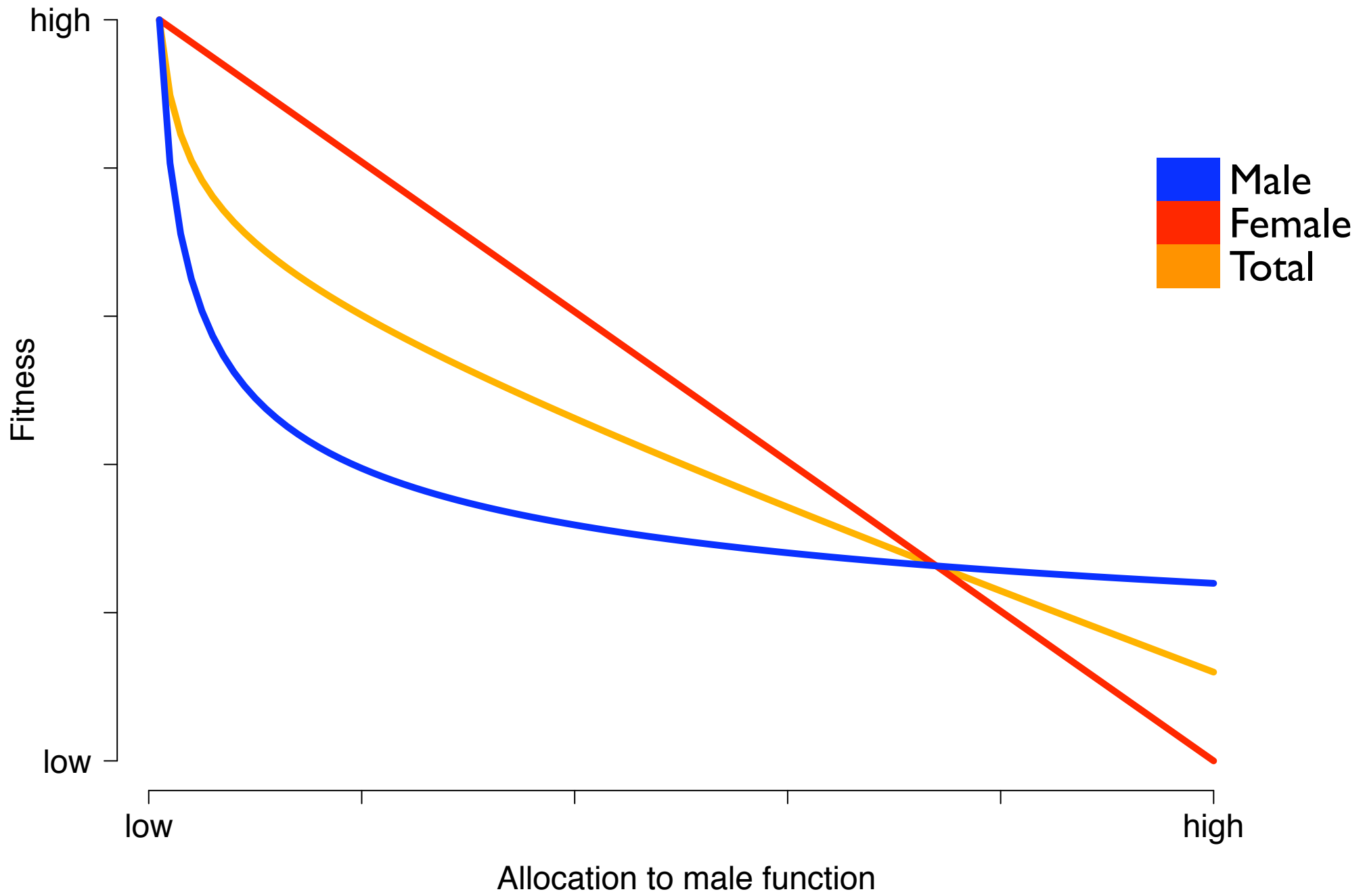
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BUMBLEBEE POLLINATION





Diminishing returns





Why so many anthers?

- Male-male competition
- Pollinator attraction
- Structural feature
- Constraint

