



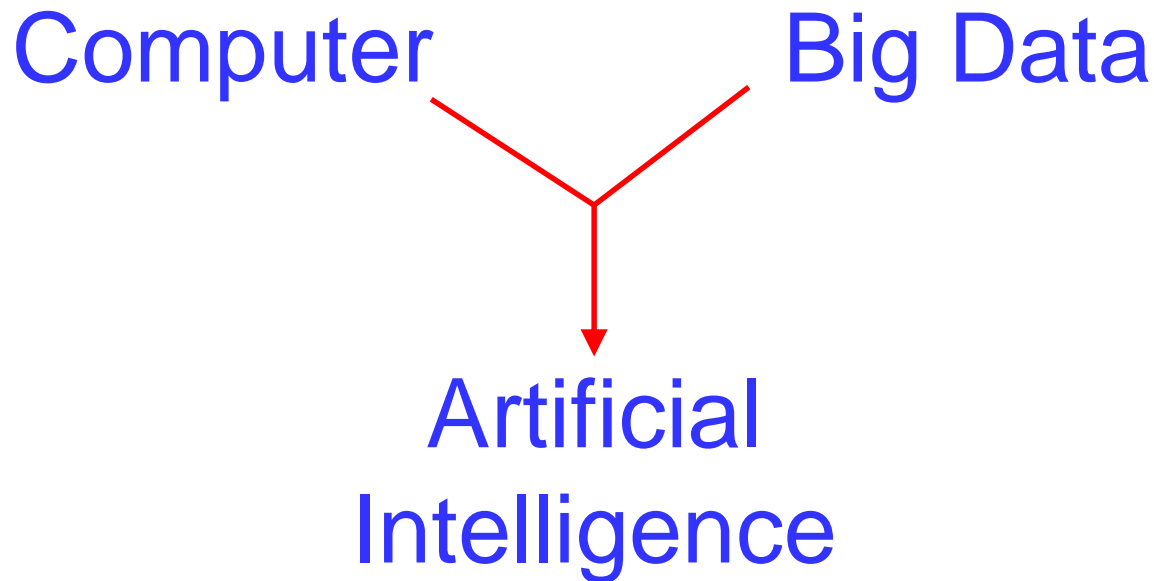
Copyright Protection for AI Works and Copyright in AI Age

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What is AI? What can AI do?



Analyzing big data, AI (computer) can find to what, how and when human beings feel, and therefore, AI can make works that may attract human beings just like human made works.

Are AI Works Copyrightable?

■ Japan

The critical requirement “creativity”: court cases say the personality of an author is construed to be revealed in expression in any way.

■ Germany

§ 2(2):“Works in this Law are only individuals’ intellectual creations.”

■ U.K.

“In the case of a literary, dramatic, musical or artistic work which is computer-generated, the author shall be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken.”

■ U.S.

“the Congress shall have power ... To promote the progress of science and useful arts by securing for limited times to authors ... the exclusive right to their respective writings ...” (Article 1, Section 8, Clause 8).

Should AI Works be Copyrightable?

■ Labor Theory

As labor creates value, the man who has given birth to a thing should also enjoy it. However, this theory considers that only labor of human beings can make property.

■ Personality Theory

Putting a man's will into a thing makes it property

■ Incentive Theory

The purpose of copyright is to promote creation of works for the benefits of the public and copyright is means to motivate the creative activity of authors.

■ Vehicle Theory

Copyright is a vehicle to make enjoyment of works into goods merchantable in the markets in order to avoid Market Failure.

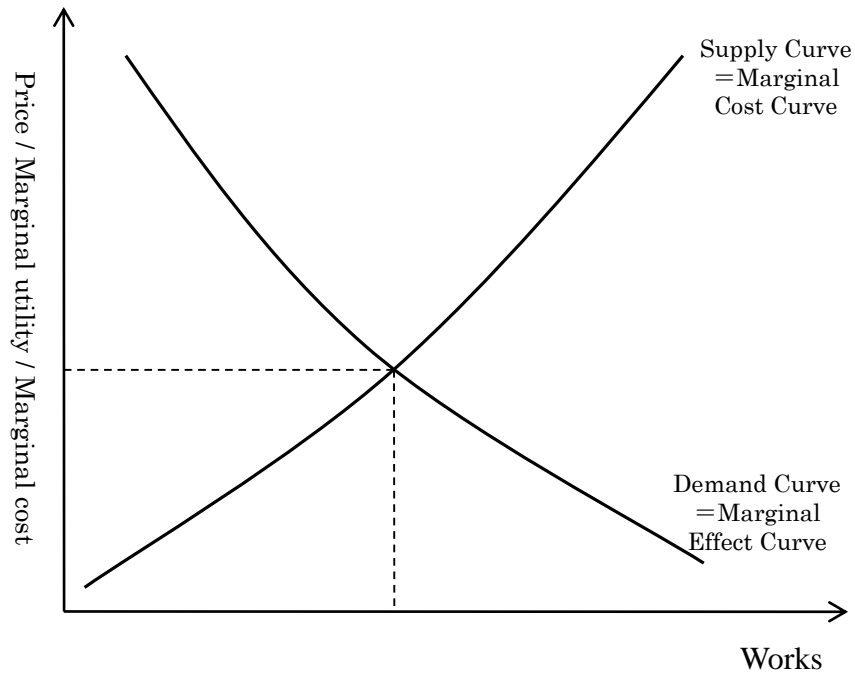
→Any works that human beings would pay for enjoyment should be copyrighted.

What is the Vehicle Theory?

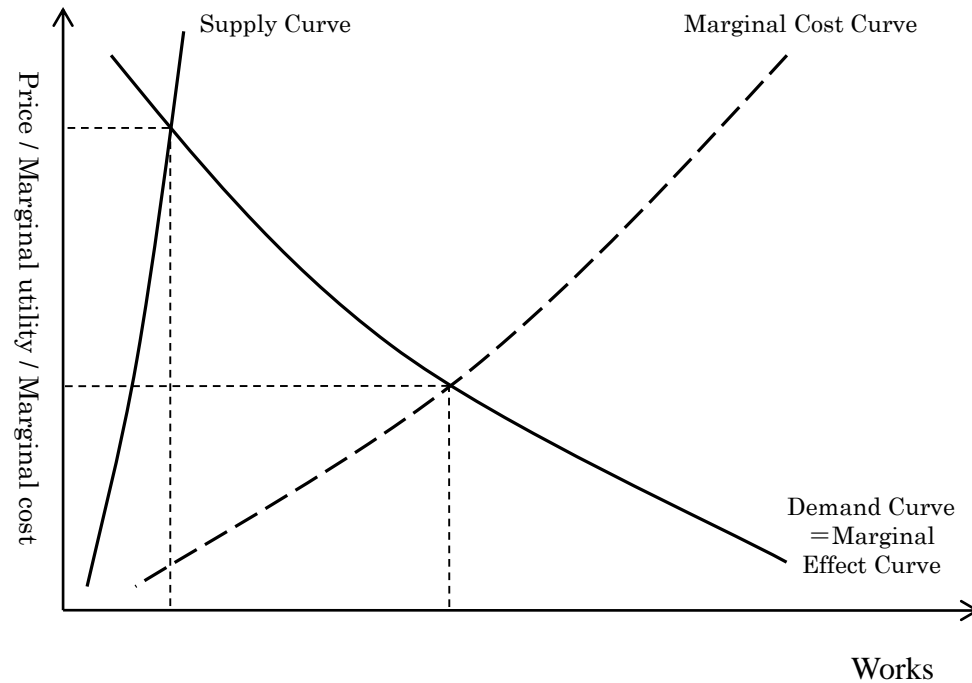
- Without copyright, nobody would pay price for enjoyment of a work
→ Supply of works < Demand for works
= “Market Failure”
- With copyright, anybody needs to pay price for enjoyment of a work
→ Supply of works = Demand for works
= Market succeeds

Market Failure

With Copyright
→ Supply meets Demand



Without Copyright
→ Supply is short for Demand
→ Market Failure





Copyright in the Age of AI

(1) Copyrightable Works

Any works that human beings would pay for enjoyment should be copyrighted, as long as copyright to works increases supply of the works.

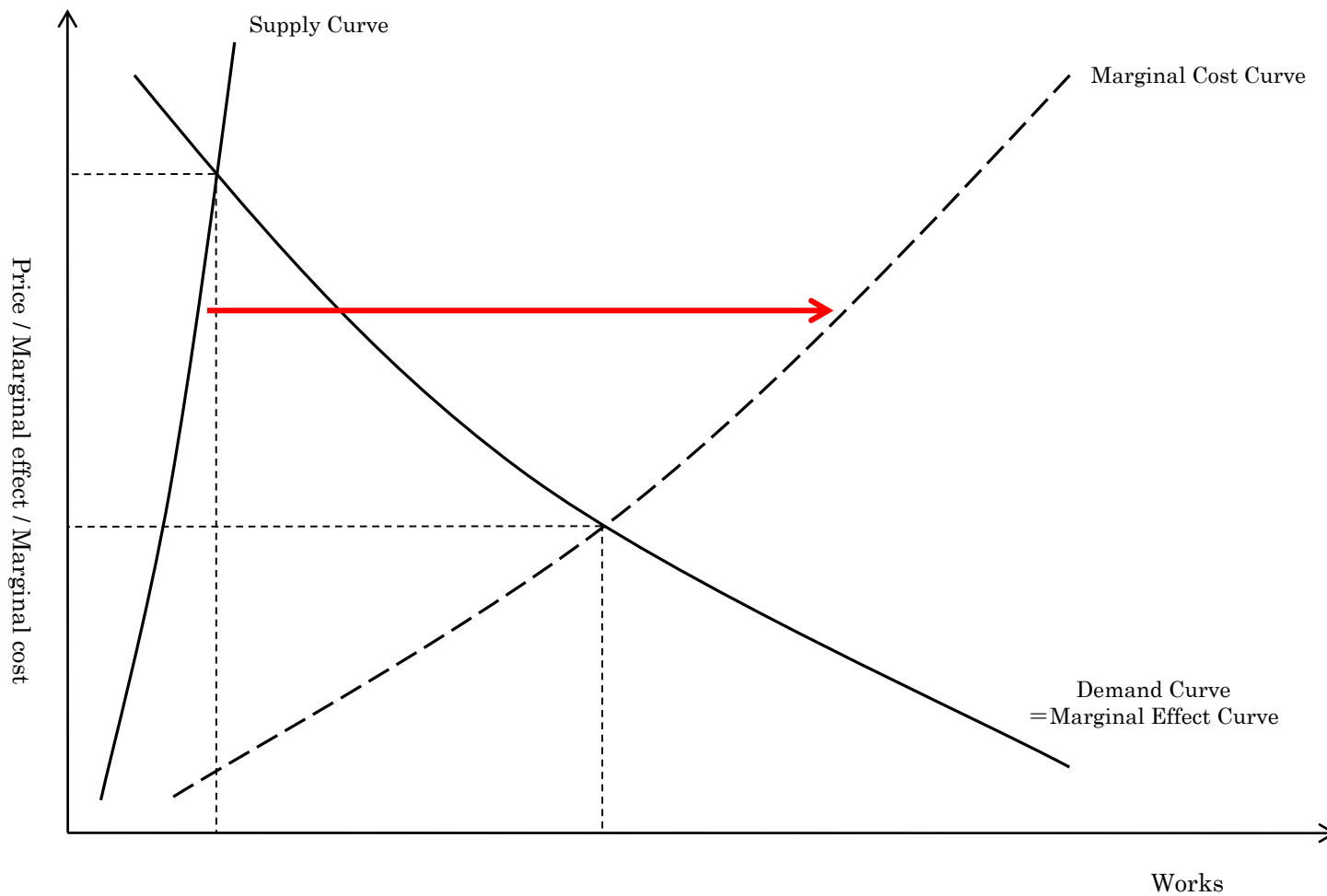
(2) Copyright Holders

→ Those who are vested with copyright should be those who can increase supply of the works.

(3) Scope of Exclusive Rights

→ copyright should be extended to every kind of ways to enjoy a work.

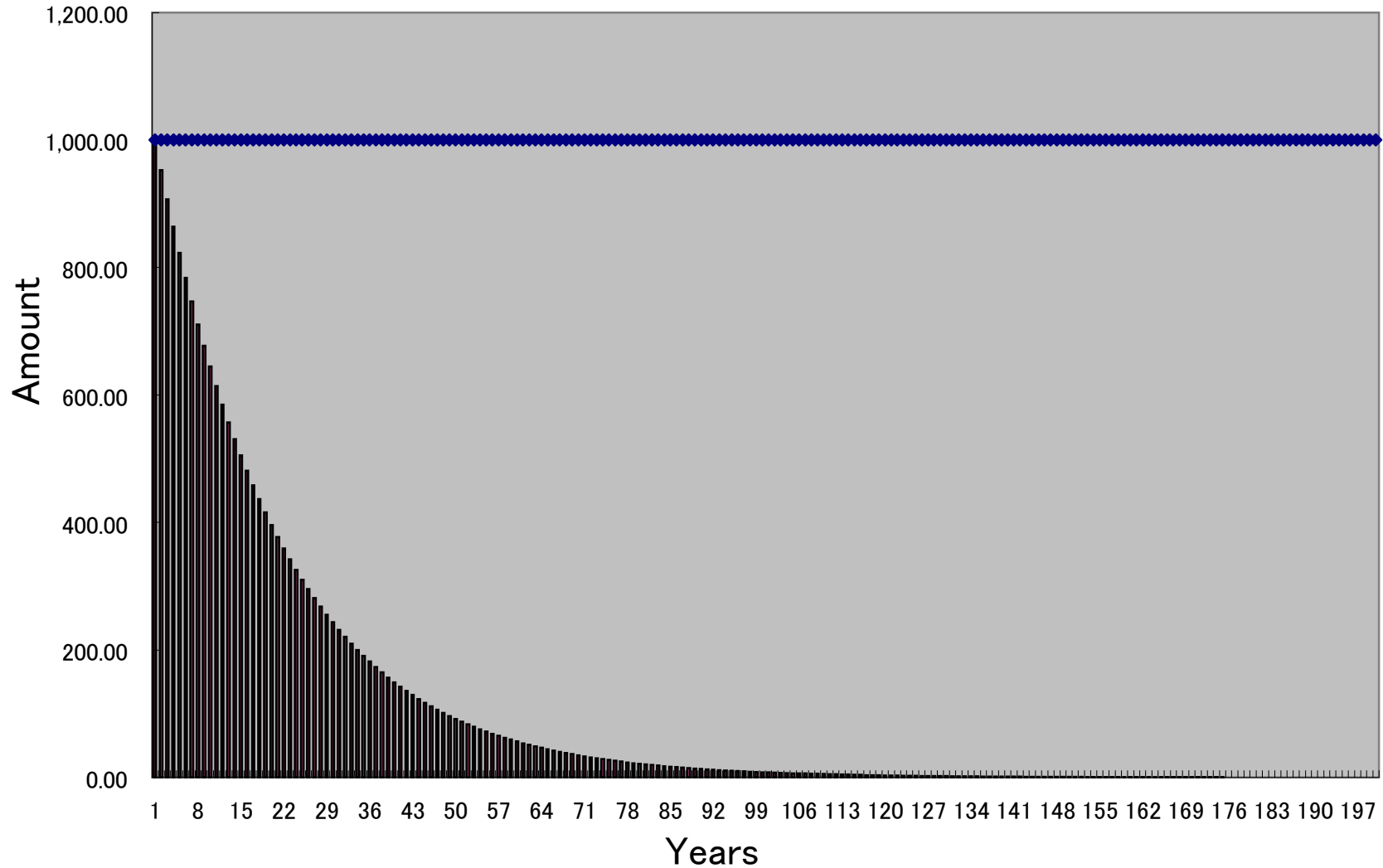
An Exclusive Right of Copyright Internalizes Externality.



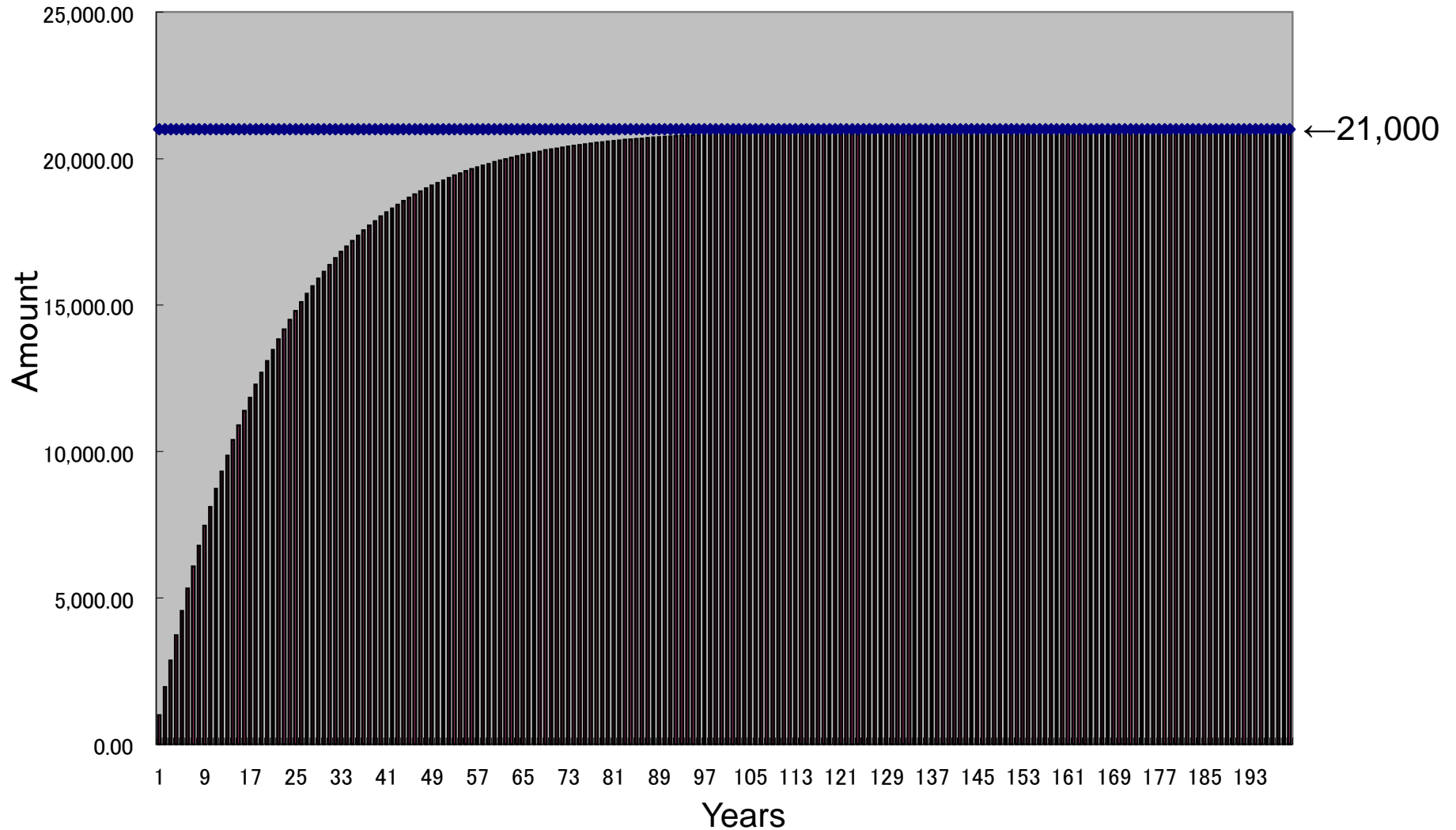
(4) Duration of Copyright

- Authors who do not create for money
→ Even without copyright, they would create works. Copyright may neglect them.
- Authors who create for money
→ Copyright should be designed on their economical behavior.
→ DCF: calculate the future revenue into current value.

Current Value of Future Revenue (discount rate: 5% per year)

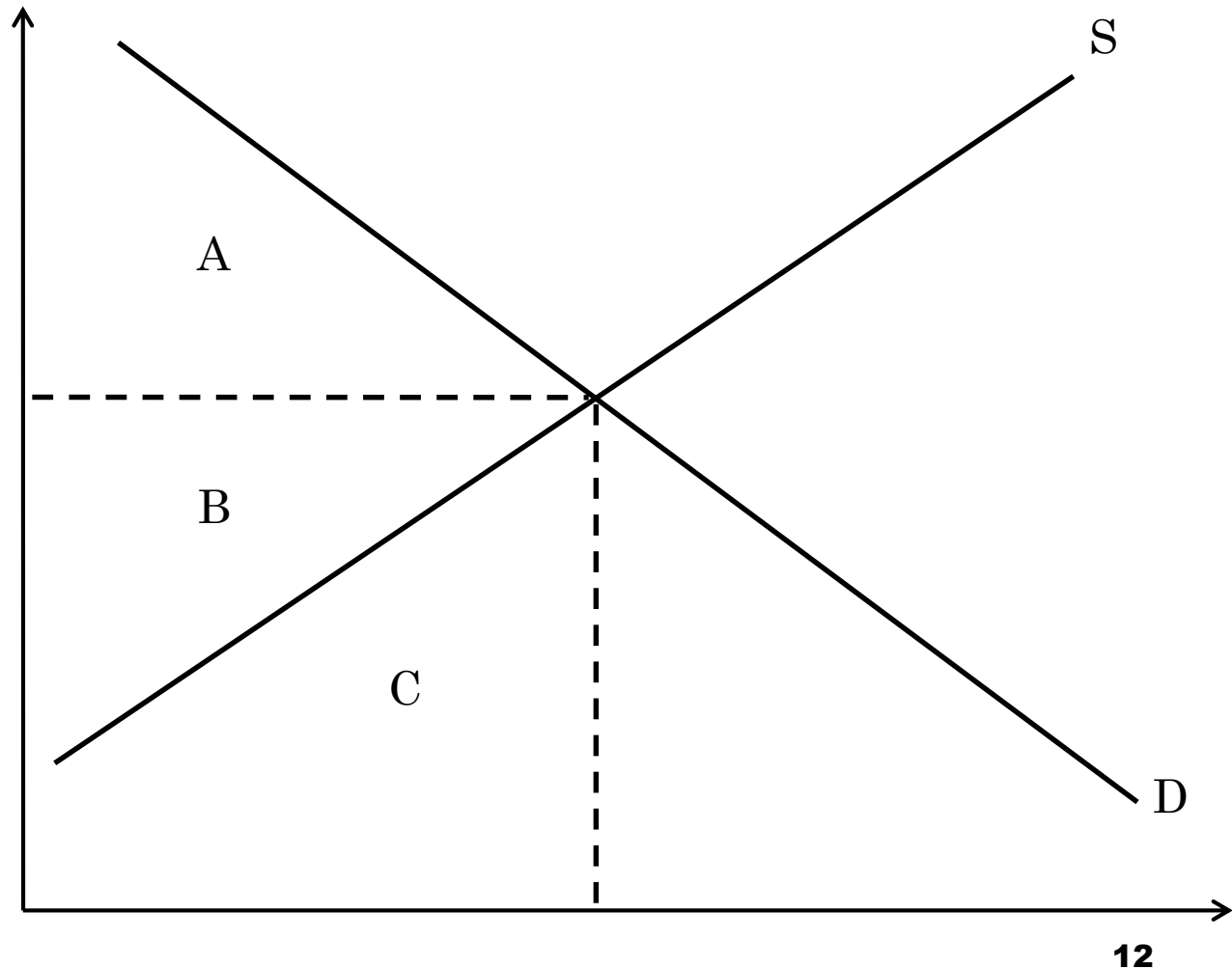


Aggregate Amount of Current Value (discount rate: 5% per year)



Surplus in Market Balance

- A: Consumer Surplus
- B: Producer Surplus
- C: Production Cost**



Unlimited Term v. Limited Term

- Unlimited Term

→ Surplus: $A+B$... TW^∞

- Limited Term

→ Surplus during Term: $A+B$
Surplus after Term: $A+B+C$ } ... TW^χ

- Is it possible?: $TW^\infty < TW^\chi$

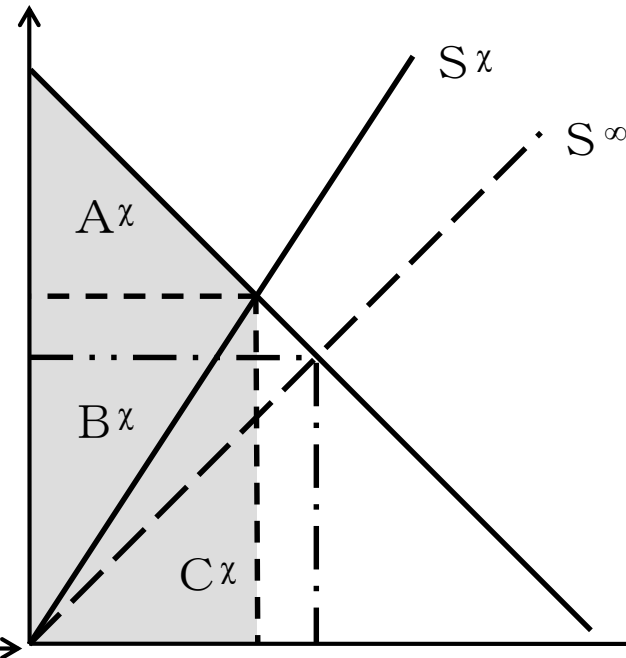
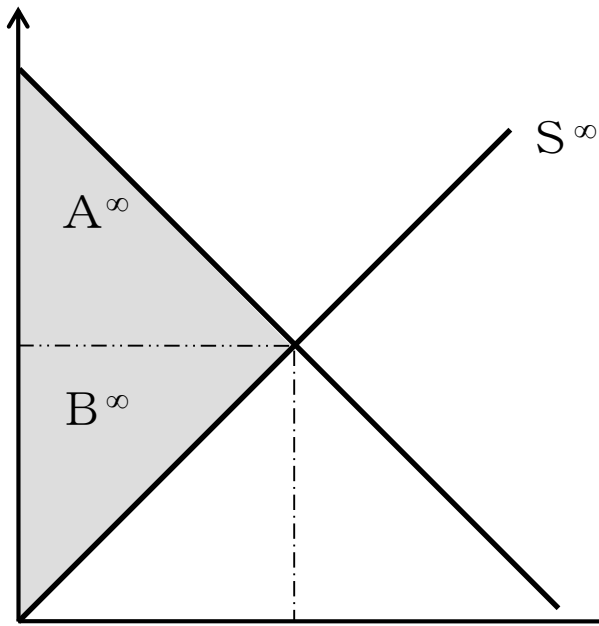
When does $TW^\infty < TW^\chi$ happen?

$$TW^\infty = (A^\infty + B^\infty) \times n$$

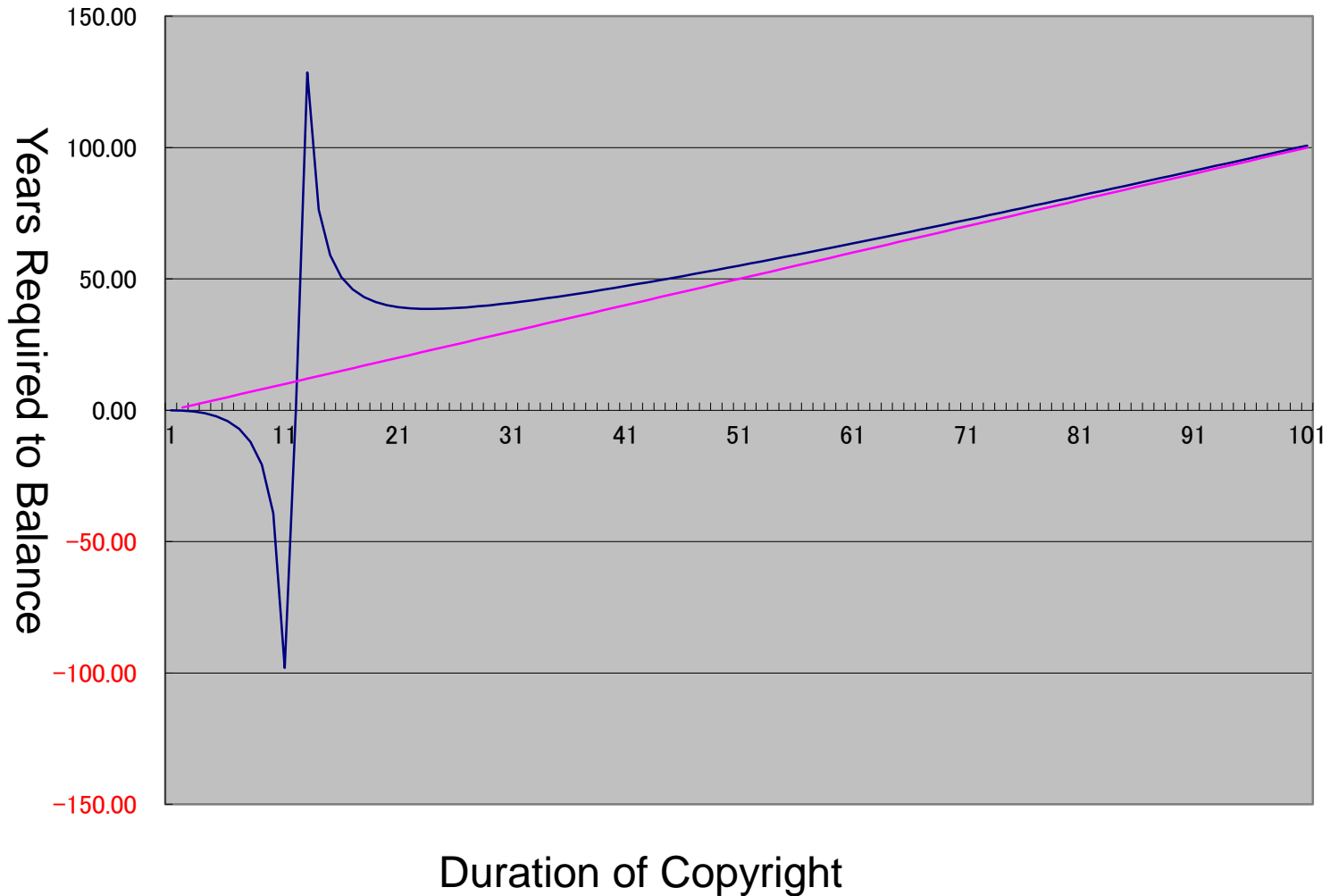
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$$TW^\chi = (A^\chi + B^\chi) \times \chi +$$

$$(A^\chi + B^\chi + C^\chi) \times (n - \chi)$$



When the Duration is 12 years, $TW^\infty < TW^\chi$





Thank you for your attention.