4. Gaia – Zirkuituetarako sarrera

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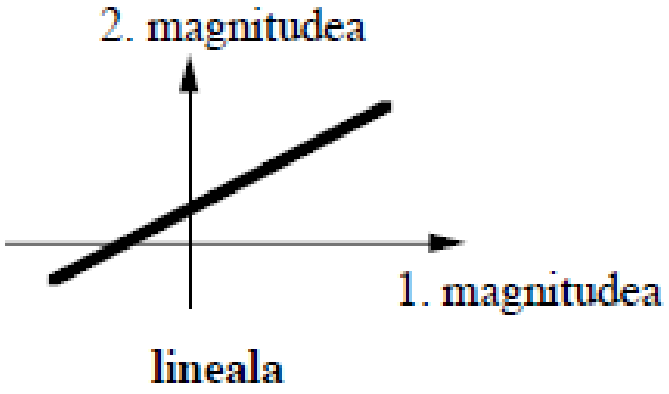
Gaiaren gai-zerrenda

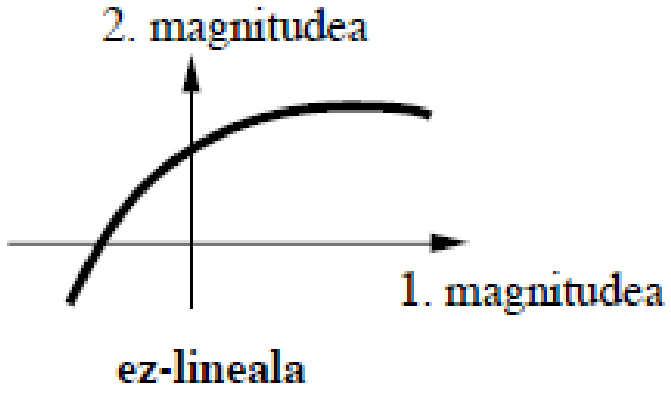
1. Elementu motak
2. Erresistentziak
3. Kondentsadoreak
4. Harilak
5. Sorgailuak
6. Beste elementu batzuk

1. Elementu motak

- Linealak edo ez linealak



lineala

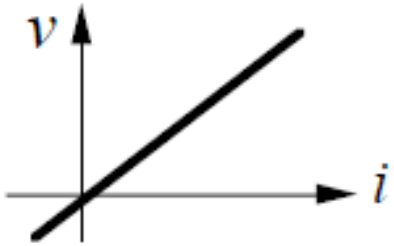


ez-lineala

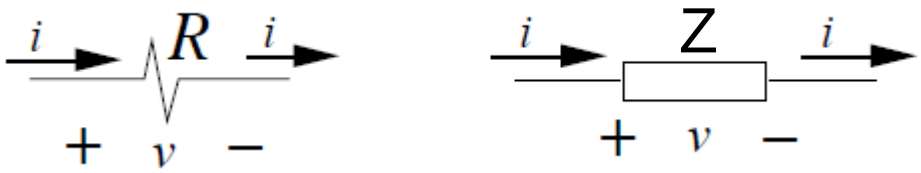
- Aktiboak edo pasiboak
  - **Aktiboak edo eraginkorrak:** Zirkuituko beste elementuei energia edo potentzia ematen dietenak, horretarako beste energia-mota bat gastatuz
  - **Elementu pasiboak edo geldoak:** energia edo potentzia hartzen dutenak, energia hori guztiz beharrezkoa dutelarik funtzionatzeko

2. Erresistentziak

- **Portaera:** $v = R \cdot i$ Ohm-en legea
- **Ezaugarri grafikoa:**



- **Ikurra:**

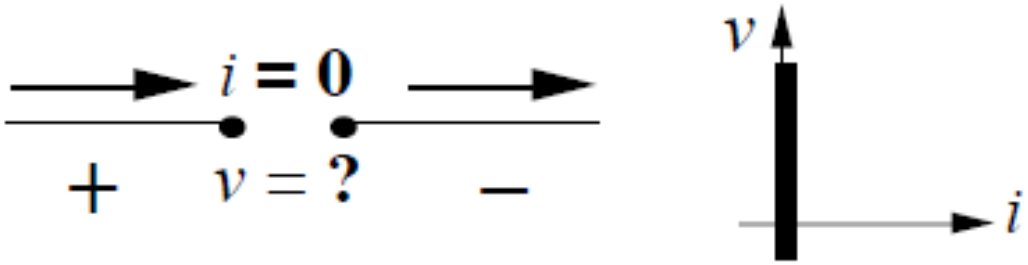


- **Unitatea:** Ohm, Ω
- **Potentzia:**

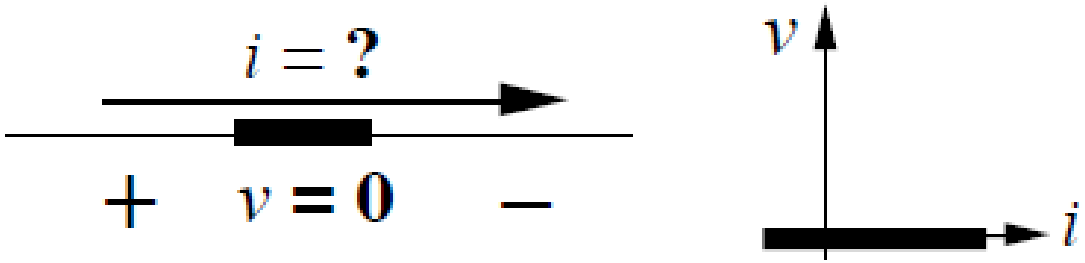
$$p = R \cdot i^2 = \frac{v^2}{R}$$ Joule efektua

2. ERRESISTENTZIAK

- **Kasu bereziak:**
  - Zirkuitu irekia: $R = \infty$

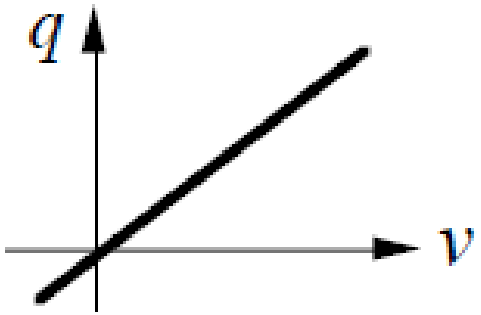


  - Zirkuitulaburra: $R = 0$

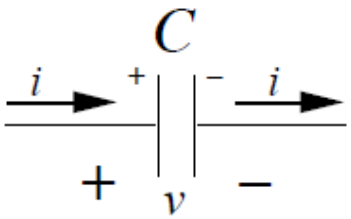


3. KONDENTSADOREAK

- **Portaera:** $q = C \cdot v$ $\qquad i(t) = C \cdot \dfrac{dv(t)}{dt}$
- **Ezaugarri grafikoa:**



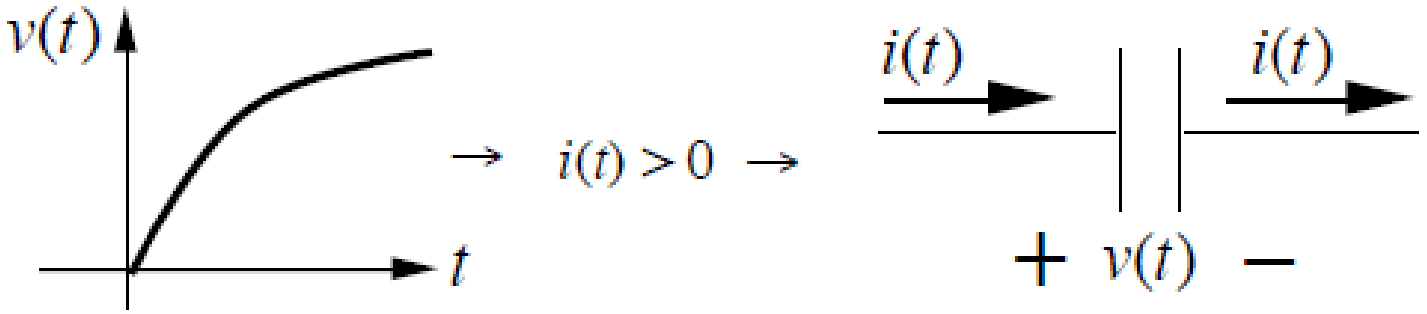
- **Ikurra:**



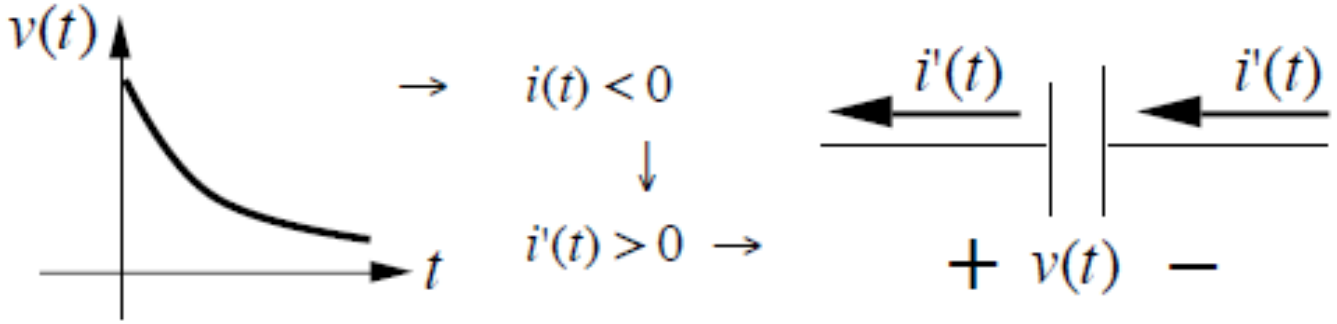
- **Unitatea:** farad, f

3. KONDENTSADOREAK

- **Bi portaera desberdin:**
  - Karga-prozesua → energia hartu

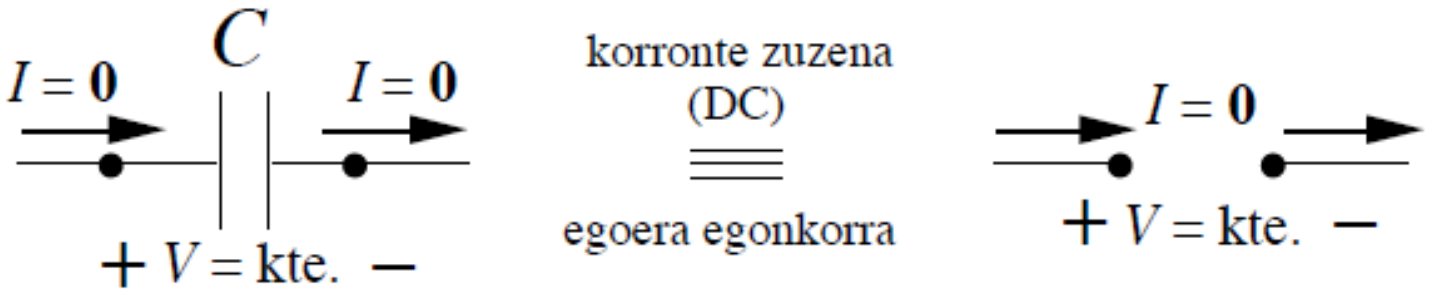


  - Deskarga-prozesua → energia eman



3. KONDENTSADOREAK

- Portaera korronte zuzena eta egoera egonkorra
  - V konstantea → I = 0



- **Potentzia:**

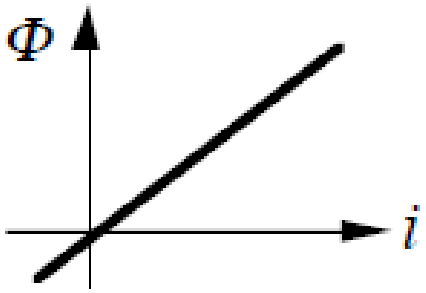
$$p(t) = v(t) \cdot i(t) = v(t) \cdot \left[C \cdot \frac{dv(t)}{dt} \right] = C \cdot v(t) \cdot \frac{dv(t)}{dt}$$

  - P=0 W

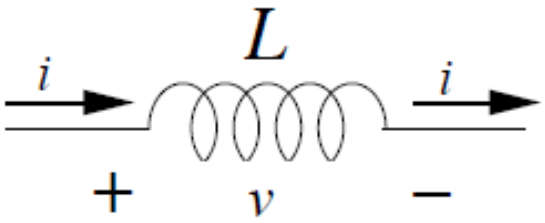
4. HARILAK

- **Portaera:** $\Phi = L \cdot i$ $\qquad v(t) = L(t) \cdot \dfrac{di(t)}{dt}$

- **Ezaugarri grafikoa:**



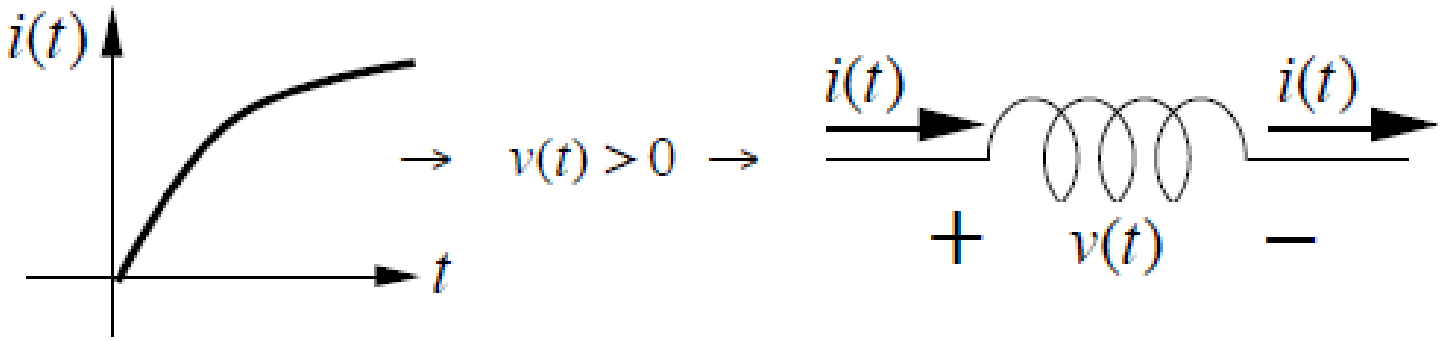
- **Ikurra:**



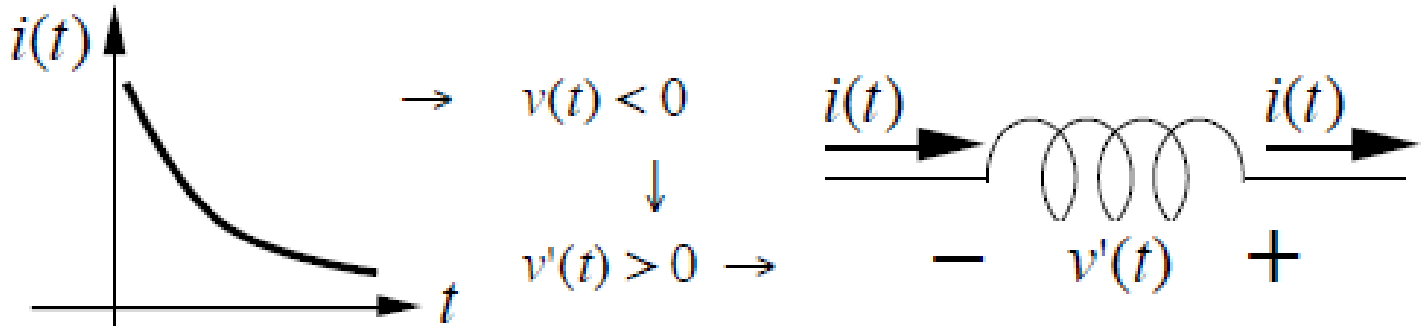
- **Unitatea:** henry, H

4. HARILAK

- **Bi portaera desberdin:**
  - Karga-prozesua → energia hartu

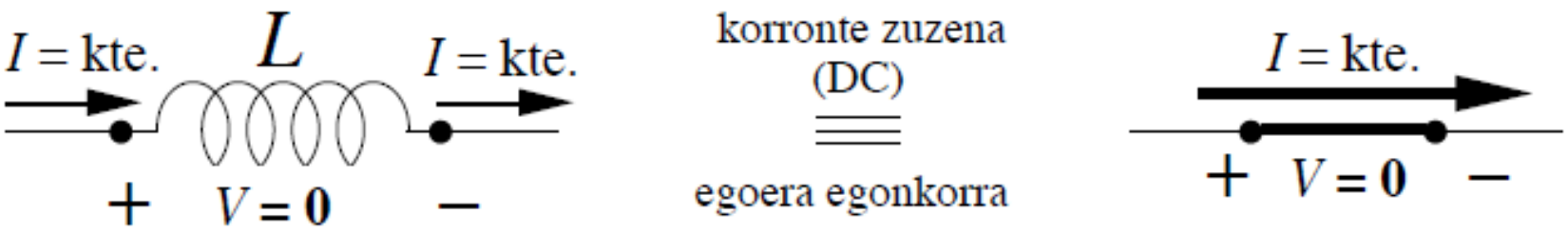


  - Deskarga-prozesua → energia eman



4. HARILAK

- Portaera korronte zuzena eta egoera egonkorra
  - V konstantea → I = 0



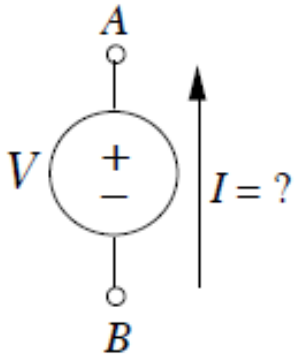
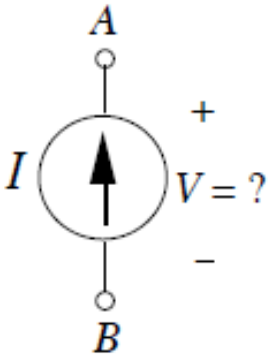
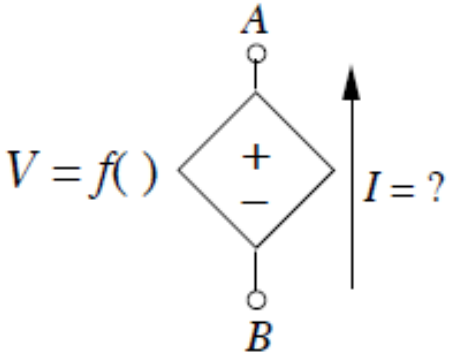
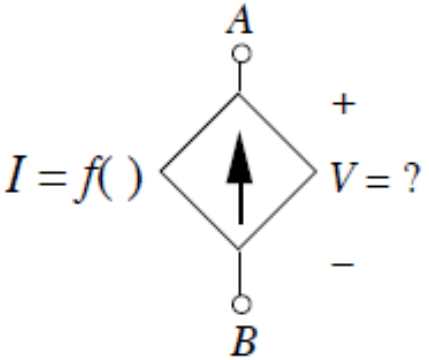
- **Potentzia:**

$$p(t) = v(t) \cdot i(t) = \left[L \cdot \frac{di(t)}{dt} \right] \cdot i(t) = i(t) \cdot \frac{di(t)}{dt}$$

  - P=0 W

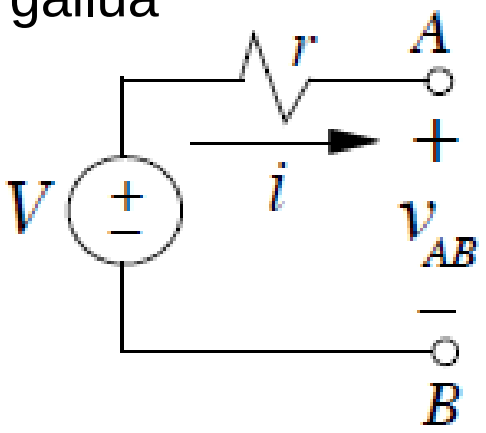
5. SORGAILUAK

- Motak:
  - Tentsio sorgailua
  - Korronte sorgailua
- Portaera sailkapena
  - Independenteak
  - Menpekoak edo kontrolatuak

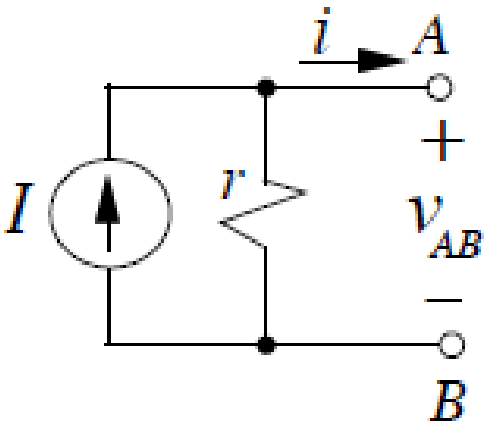
	tentsio-sorgailua	korronte-sorgailua
sorgailu independenteak:		
sorgailu menpekoak:		

5. SORGAILUAK

- Sorgailu independente errealen zirkuitu-ereduak
  - Tentsio-sorgailua

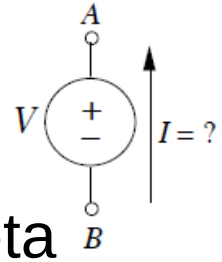


  - Korronte-sorgailua

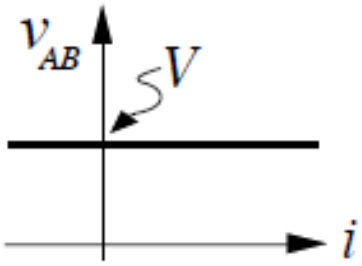


5. SORGAILUAK

- Tentsio sorgailu independenteak

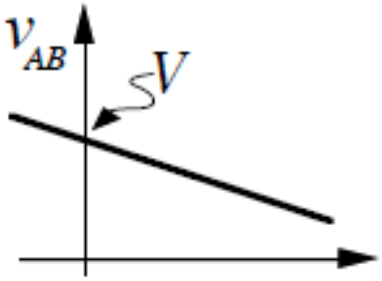


- Ezaugarri kurba eta portaera ekuazioa:
  - Ideala:



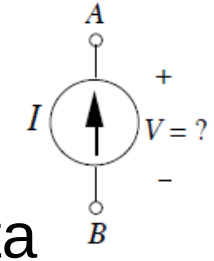
$$V_{AB} = V, \forall i$$

  - Erreala:

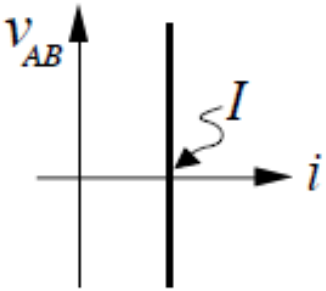


$$V_{AB} = V - r \cdot i$$

- Korronte sorgailu independenteak

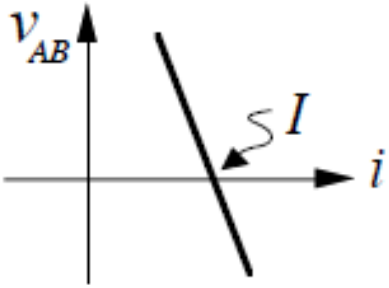


- Ezaugarri kurba eta portaera ekuazioa:
  - Ideala:



$$i = I, \forall v$$

  - Erreala:



$$i = I - \frac{v_{AB}}{r}$$

5. Sorgailuak

- Sorgailu menpekoen portaera ekuazioa
  - Tentsio-sorgailua
    - Tentsioz kontrolatuta

$$V = f(V') = k \cdot V'$$

    - Korrontez kontrolatua

$$V = f(I') = k \cdot I'$$

  - Korronte-sorgailua
    - Tentsioz kontrolatuta

$$I = f(V') = k \cdot V'$$

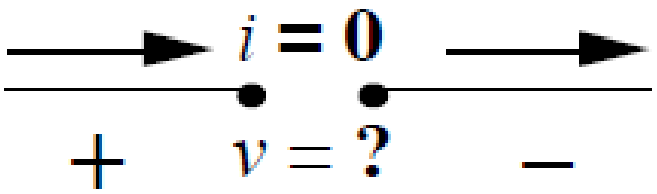
    - Korrontez kontrolatua

$$I = f(I') = k \cdot I'$$

6. Beste elementu batzuk

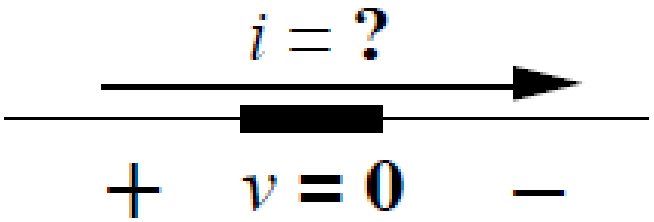
- **Etengailu ideala**
  - Ikurra:

  - Posizioak:
    - Irekita



$$I = 0, \forall v$$

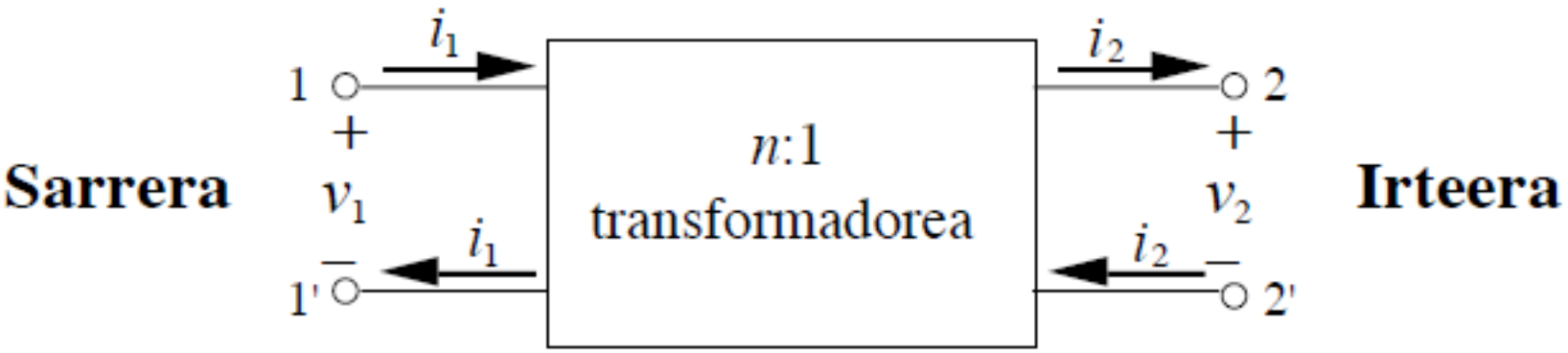
    - Itxita



$$V = 0, \forall i$$

6. Beste elementu batzuk

- **n:1 transformadorea**



$$v_1 = n \cdot v_2$$

$$i_1 = \frac{i_2}{n}$$