Cruces múltiples en diagramas de nudos

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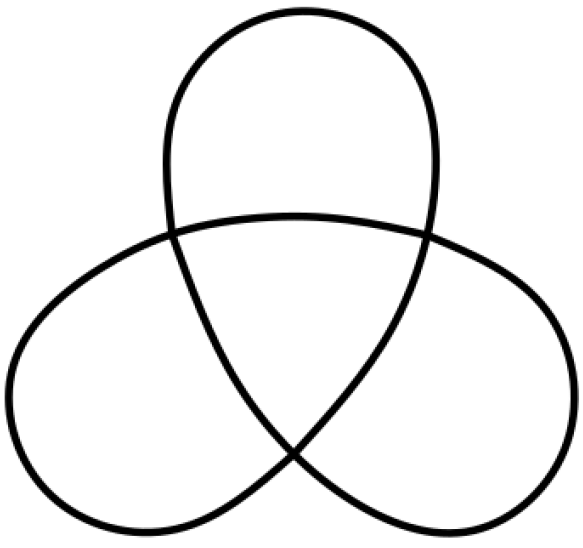
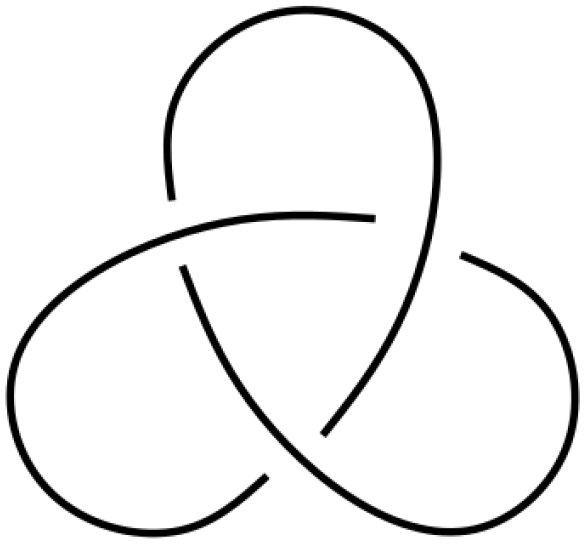
Diagramas de nudo



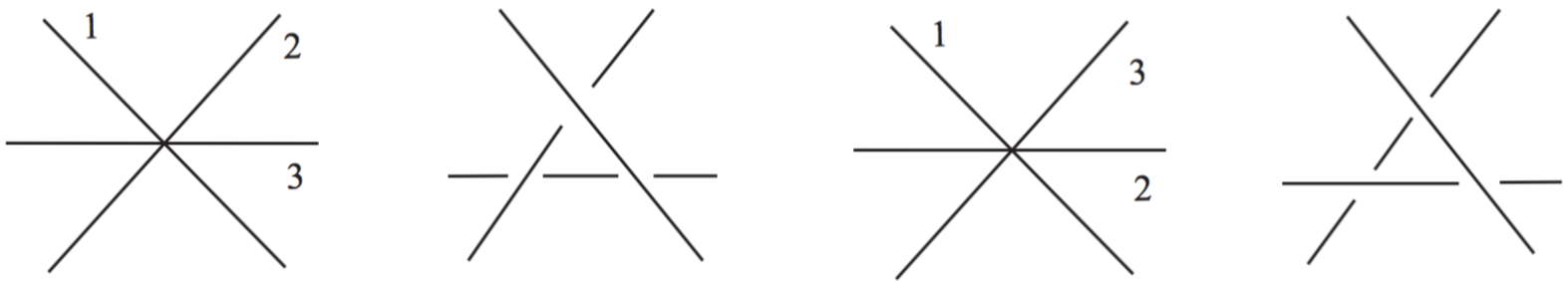
Proyección



Diagrama

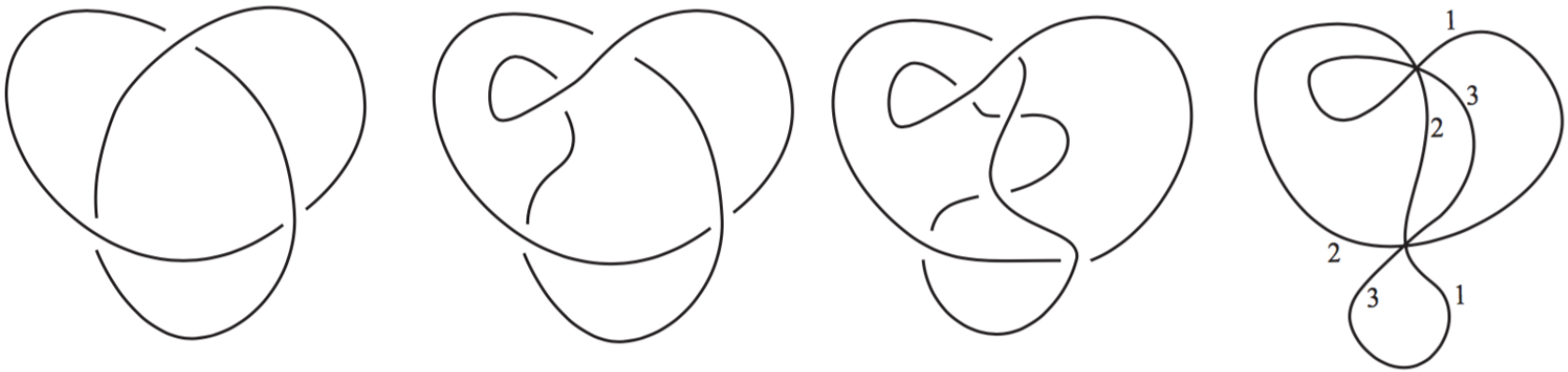
Cruce triple

Podemos usar números para denotar el orden de tramos.



Proyección de cruces triples

Trébol



Proyección de cruces triples

Trébol

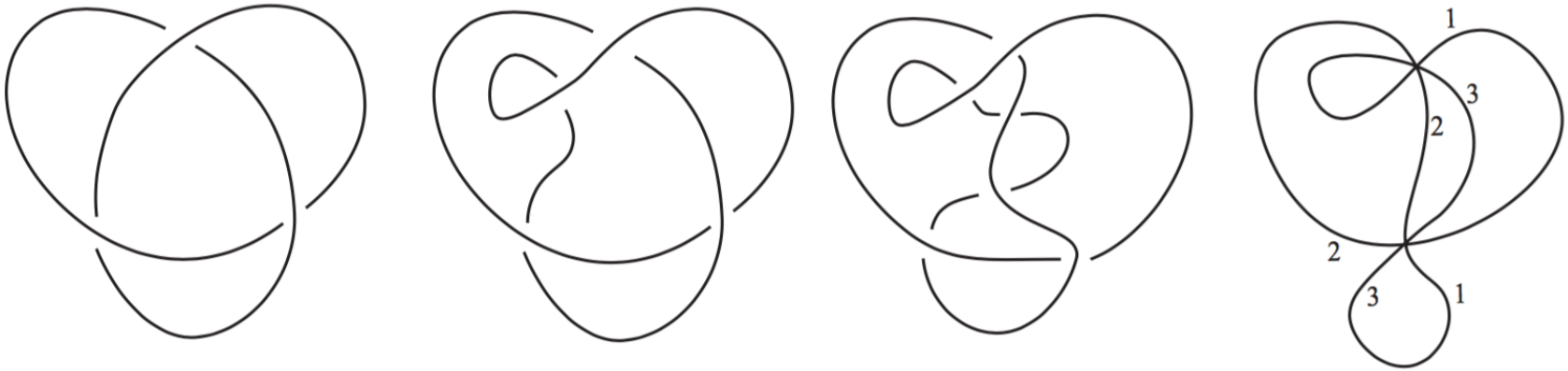
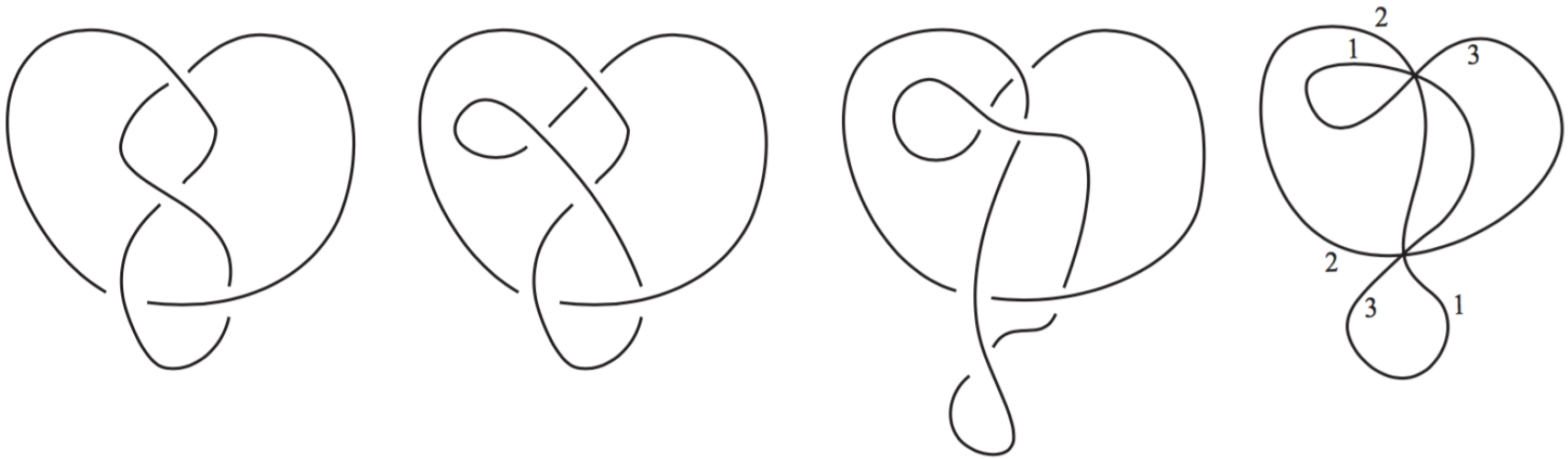
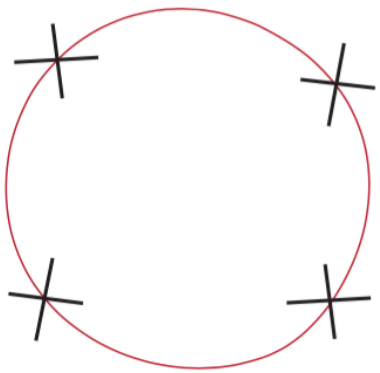


Figura de ocho



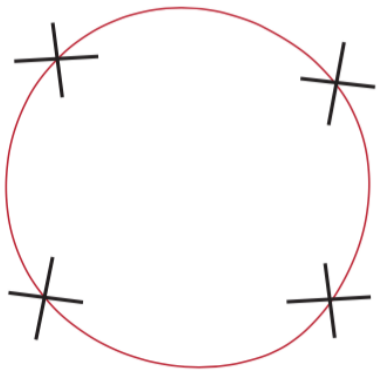
Algoritmo: doblando

Círculos cubriendo cruces

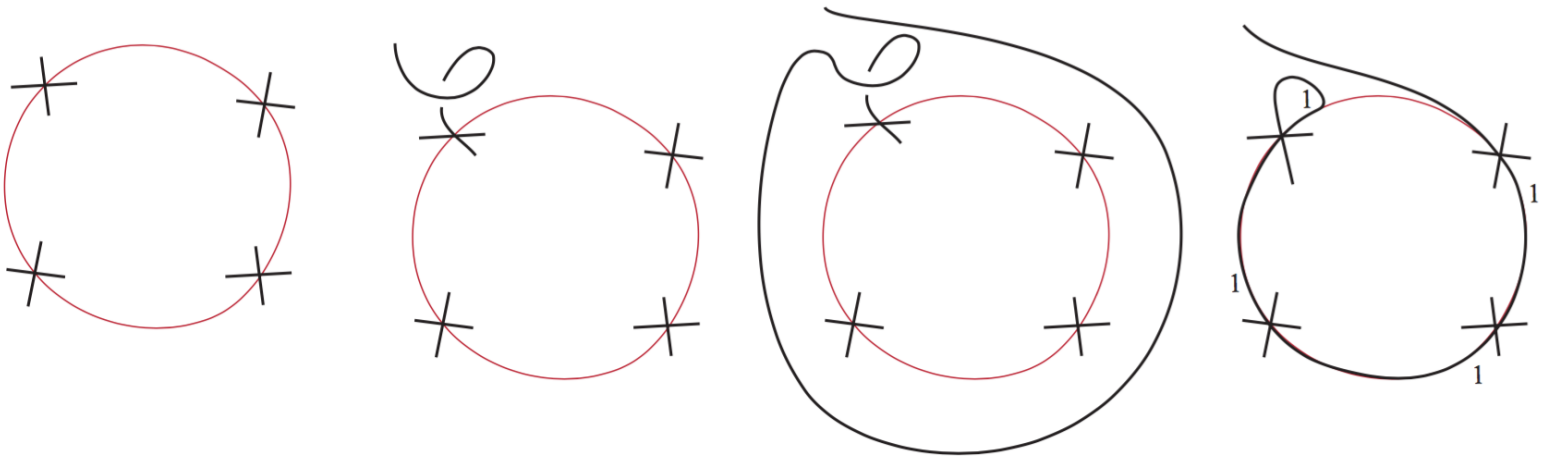


Algoritmo: doblando

Círculos cubriendo cruces

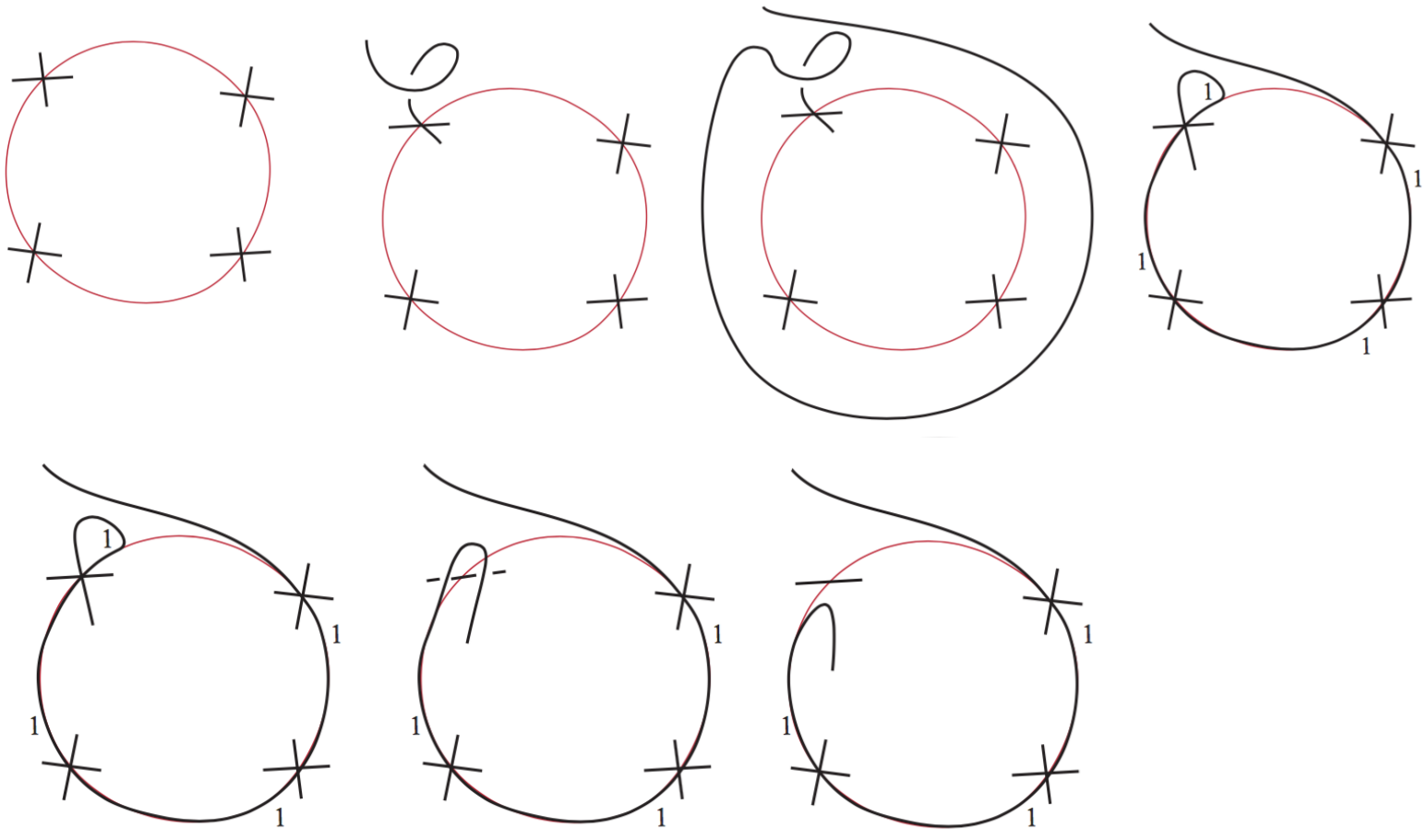


Doblando

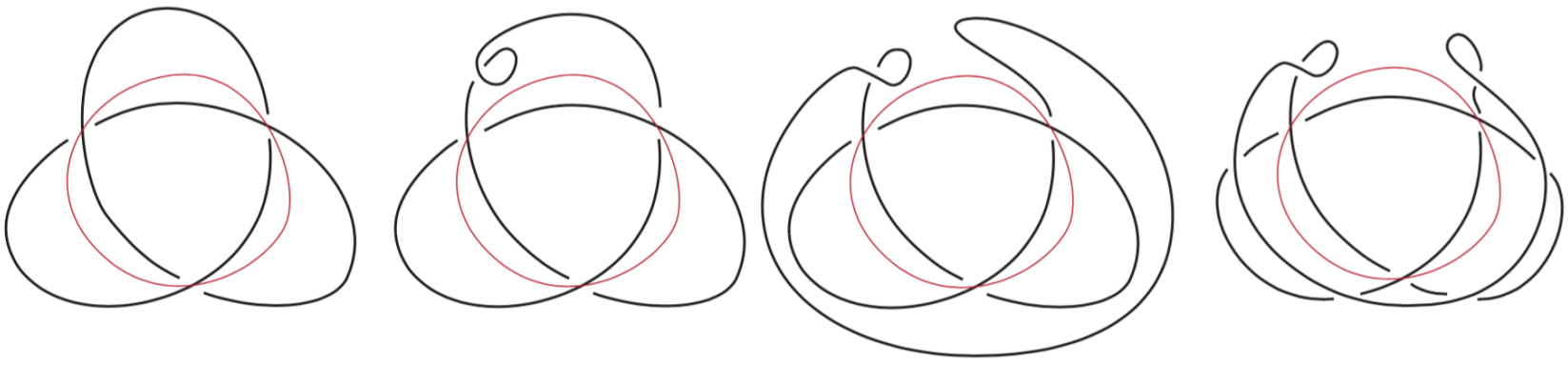


Algoritmo: doblando

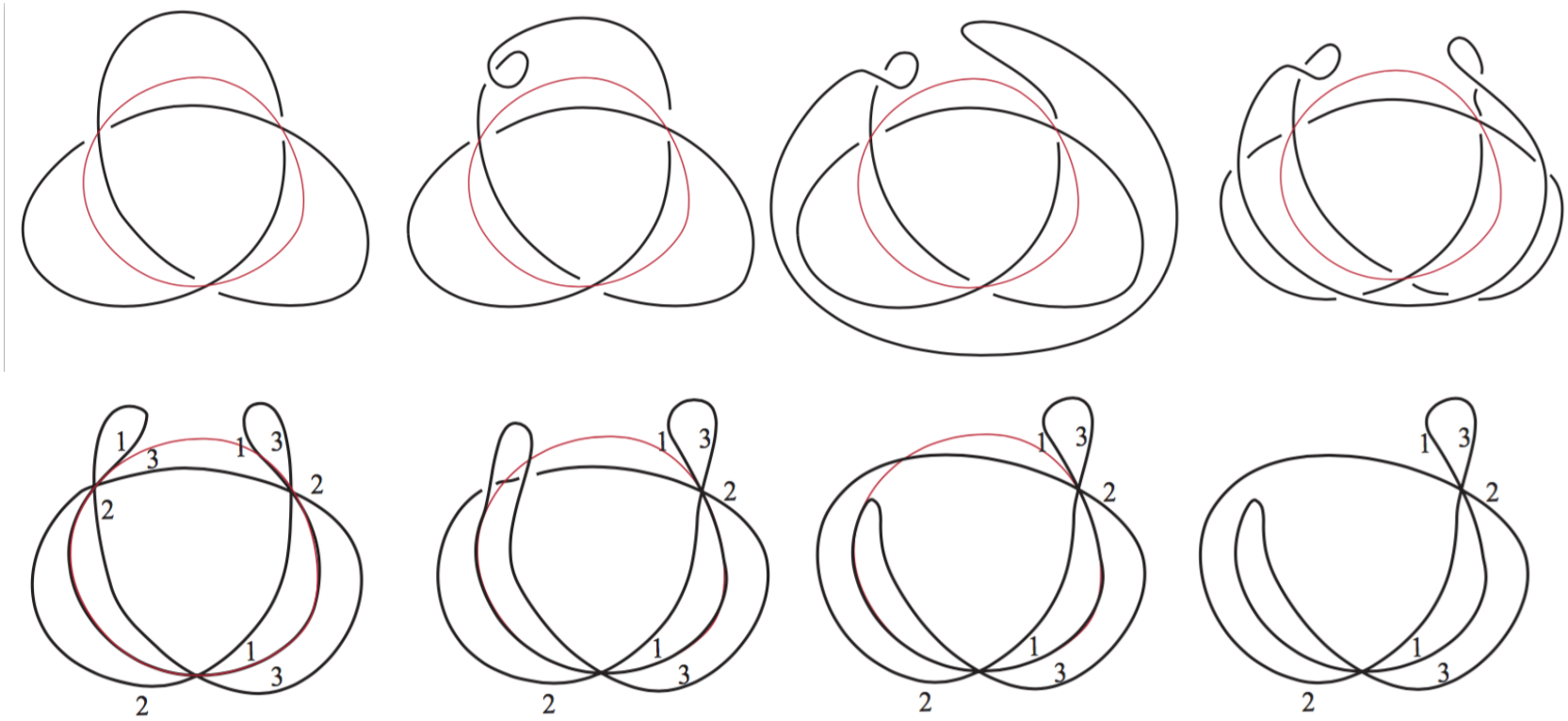
Doblando



Ejemplo de doblaje

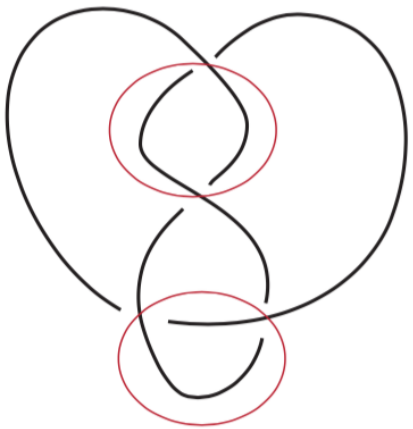


Ejemplo de doblaje



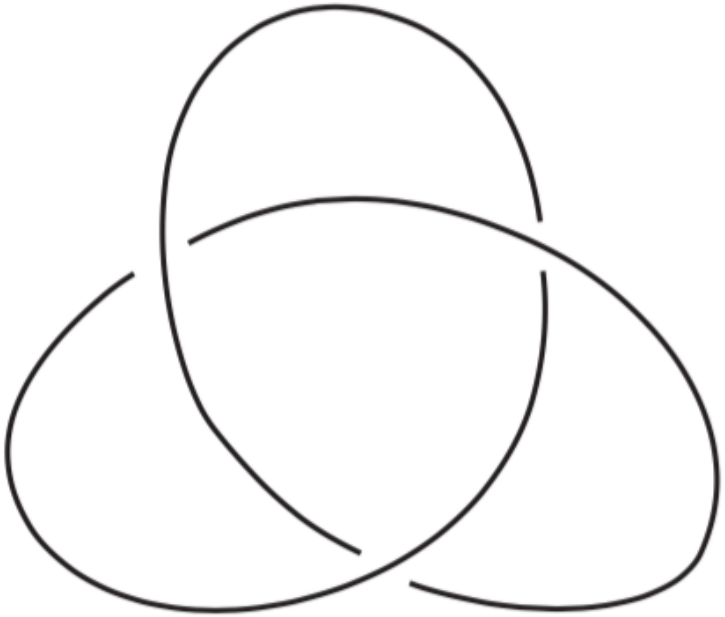
En general

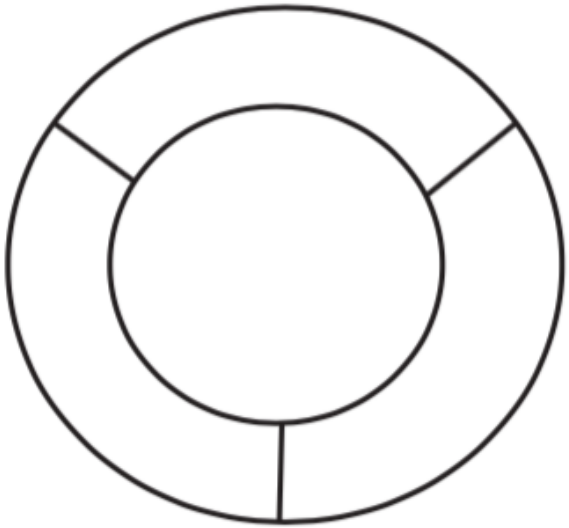
Colección de círculos cubriendo cruces



Forma de trenza

Cada nudo tiene un diagrama en forma de trenza.





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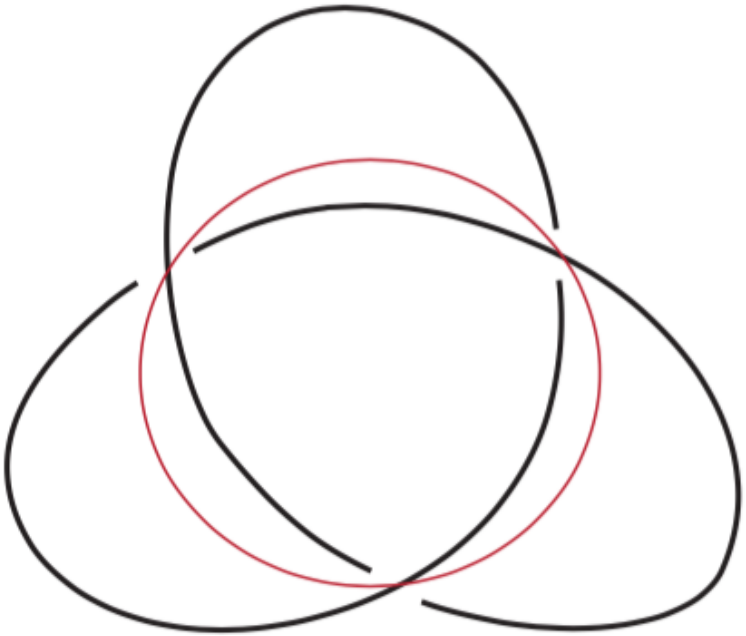
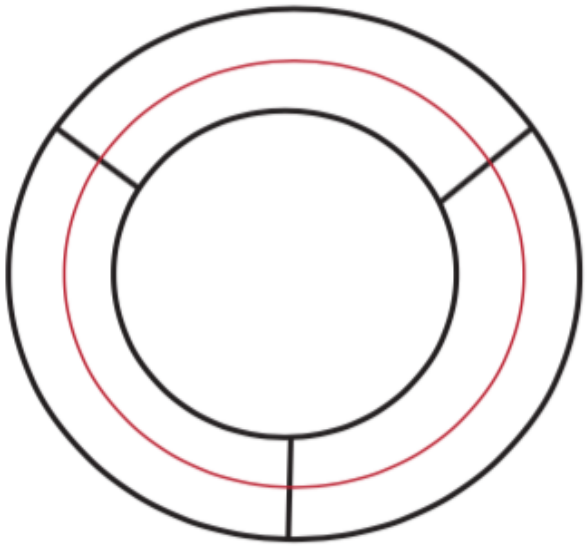
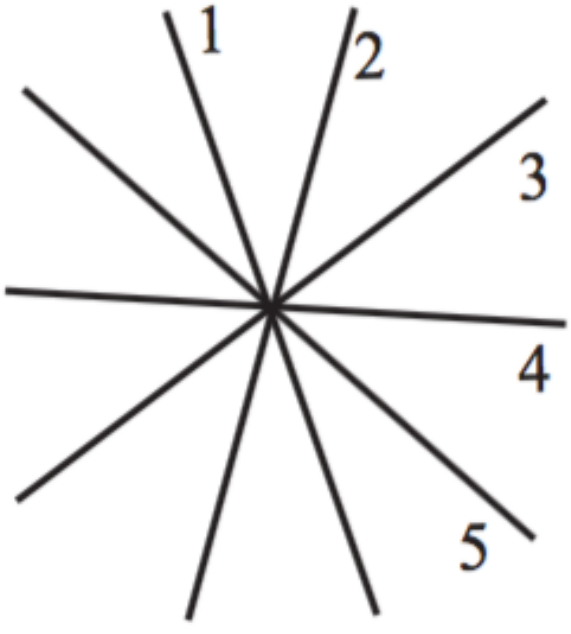
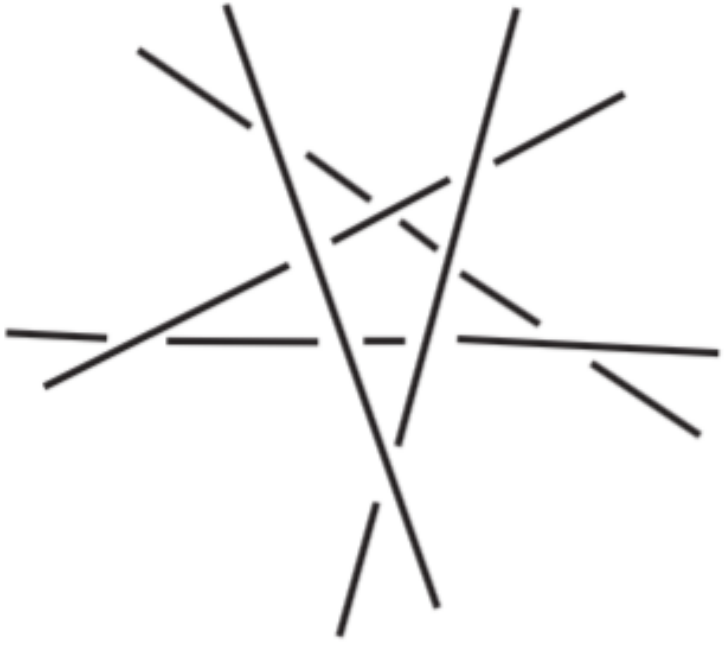
Cada nudo tiene un diagrama en forma de trenza.





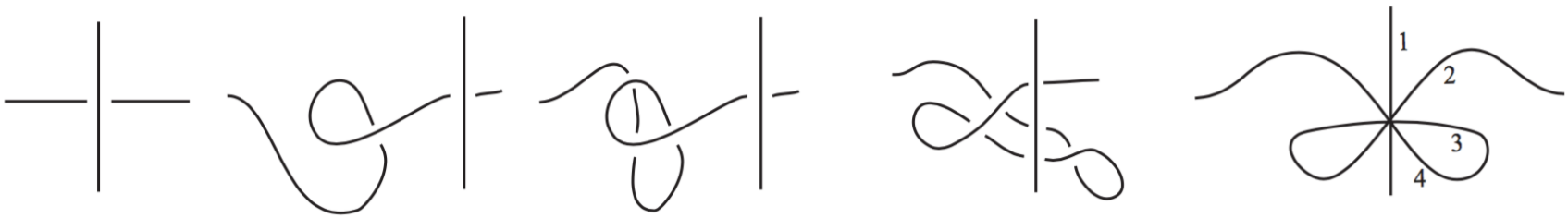
n-cruces





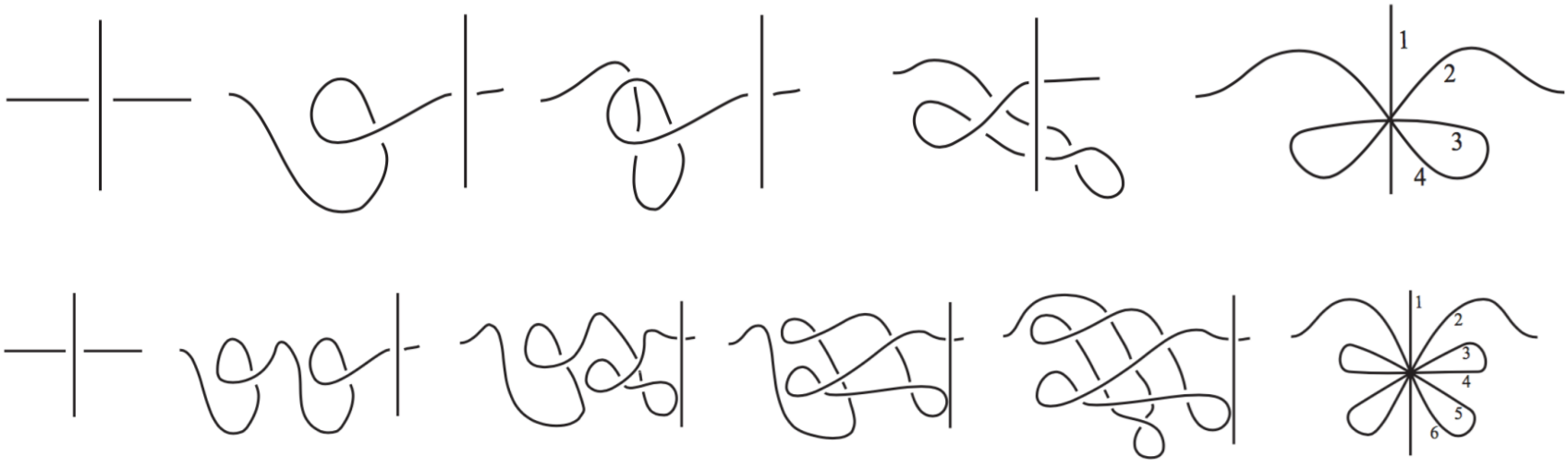
Cómo alcanzar un proyección de *n*-cruces

Caso: *n* es par



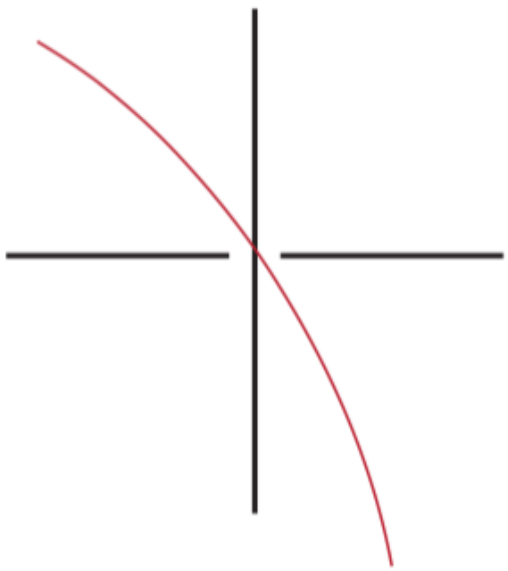
Cómo alcanzar un proyección de n-cruces

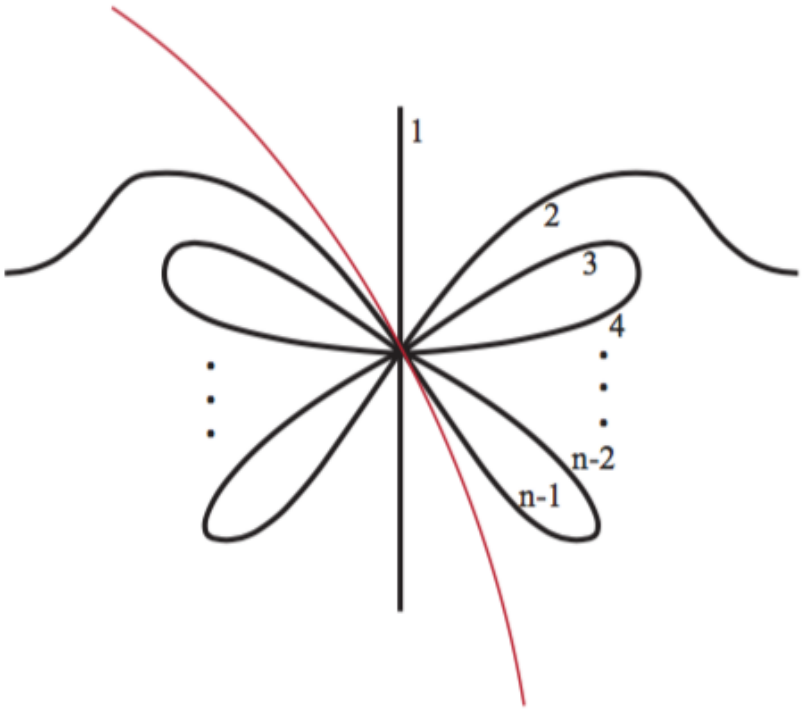
Caso: n es par



Cómo alcanzar un proyección de n-cruces

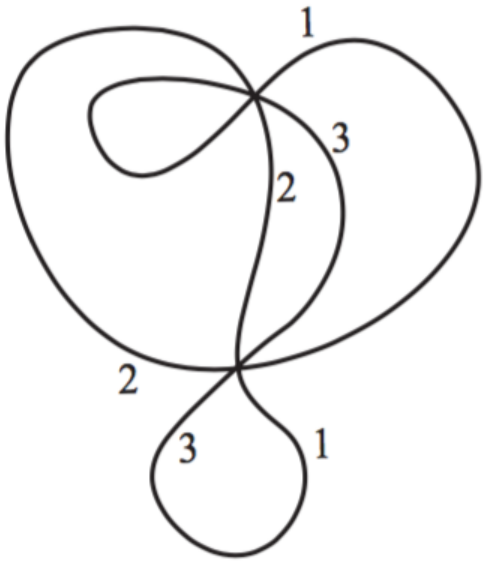
Caso: n es impar





Invariante

El n-crucimiento número:
Para un nudo K, el minimo número de cruces en un proyección de n-cruces es su n-crucimiento número $c_n(K)$.



Trébol

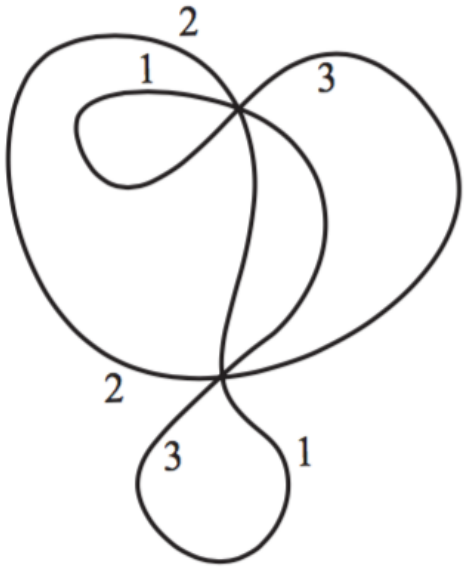
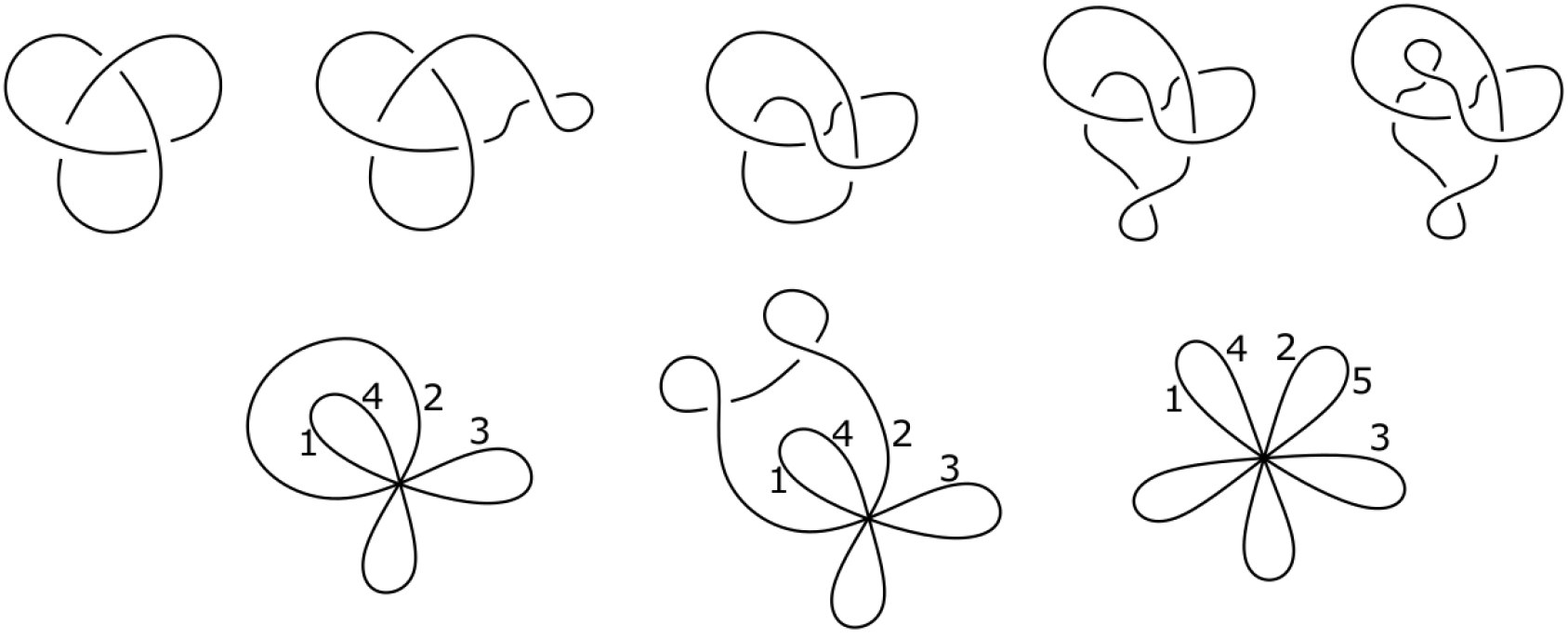


Figura de ocho

Uber-cruce

Uber-cruce

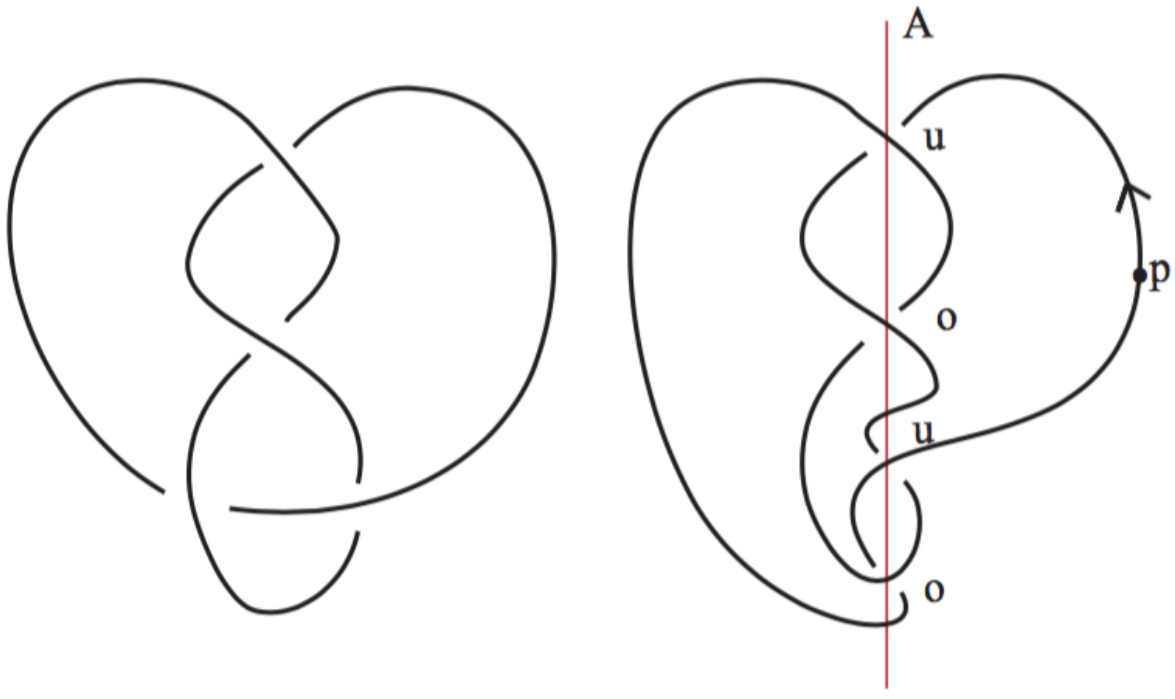


Uber-cruce

Proyección pétalo

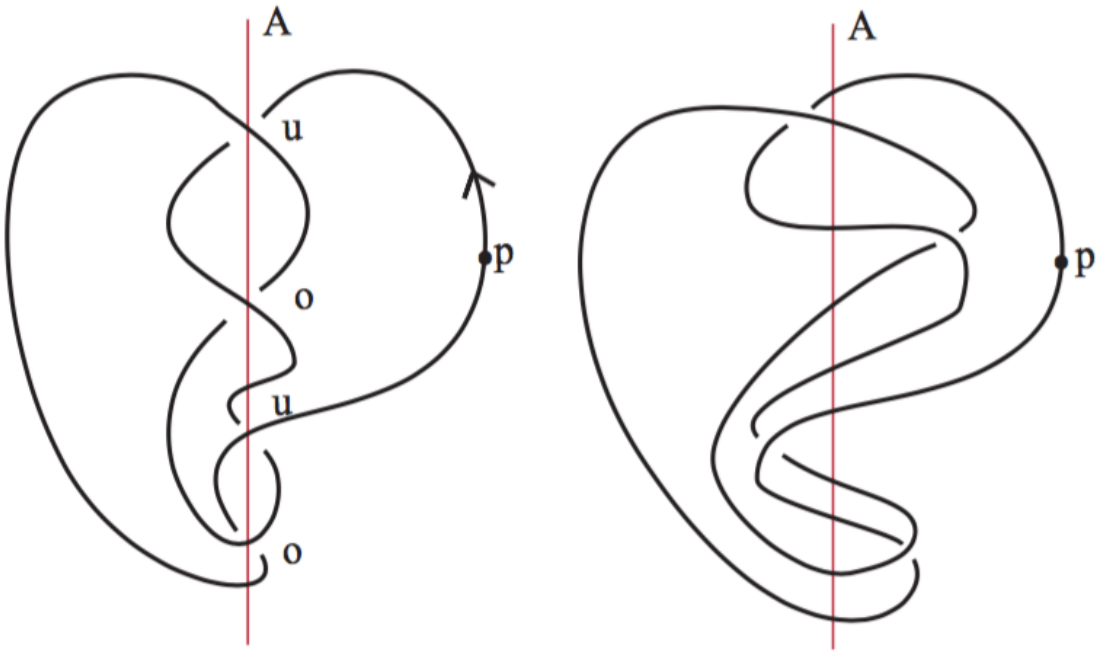
Algoritmo

Ejemplo: Figura de ocho



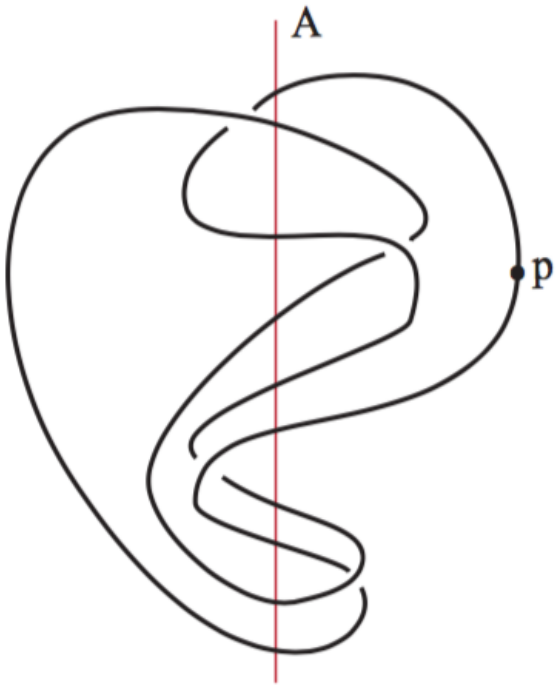
Algoritmo

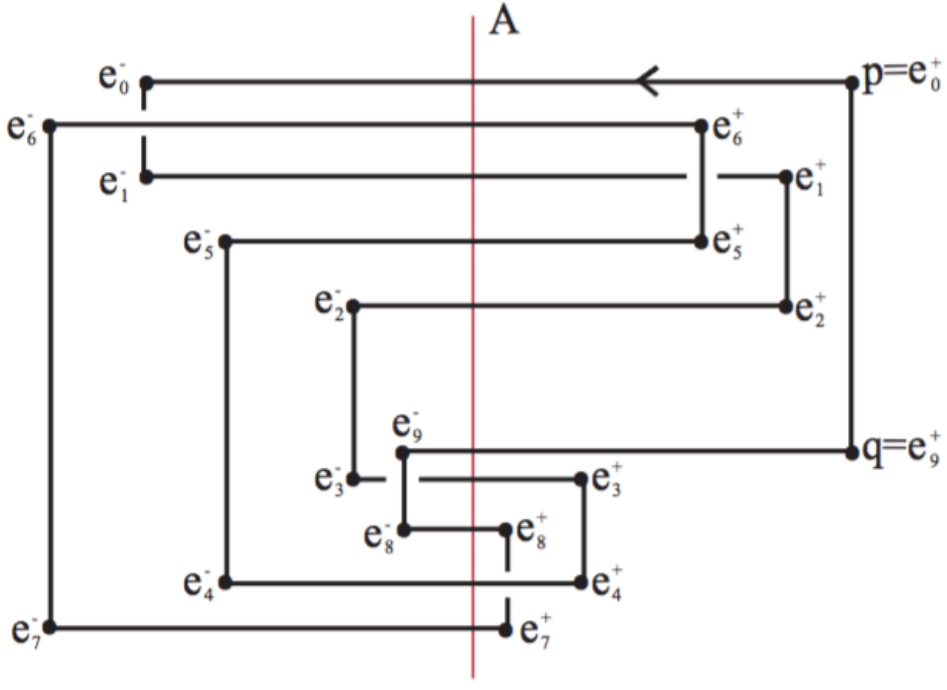
Ejemplo: Figura de ocho



Algoritmo

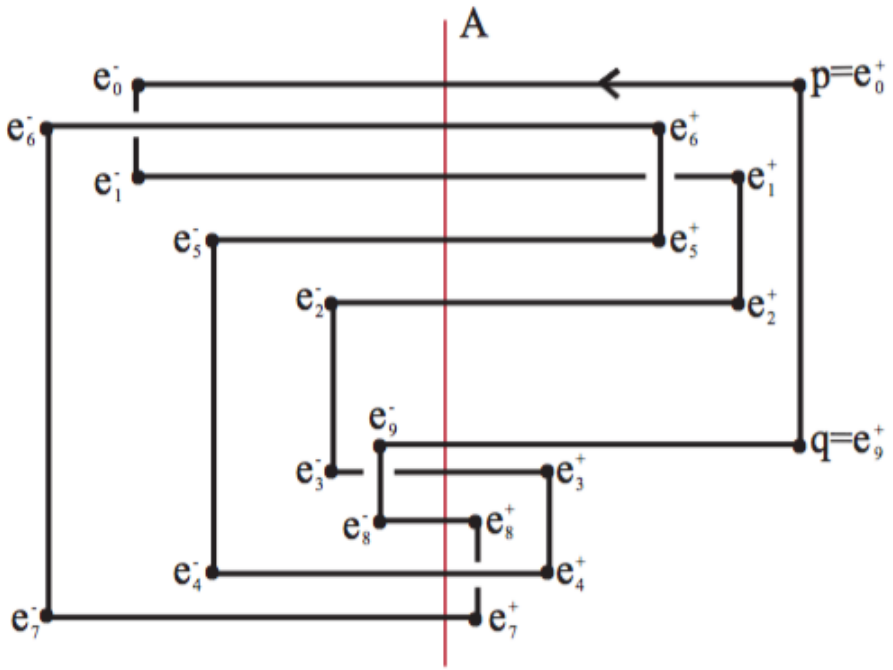
Ejemplo: Figura de ocho

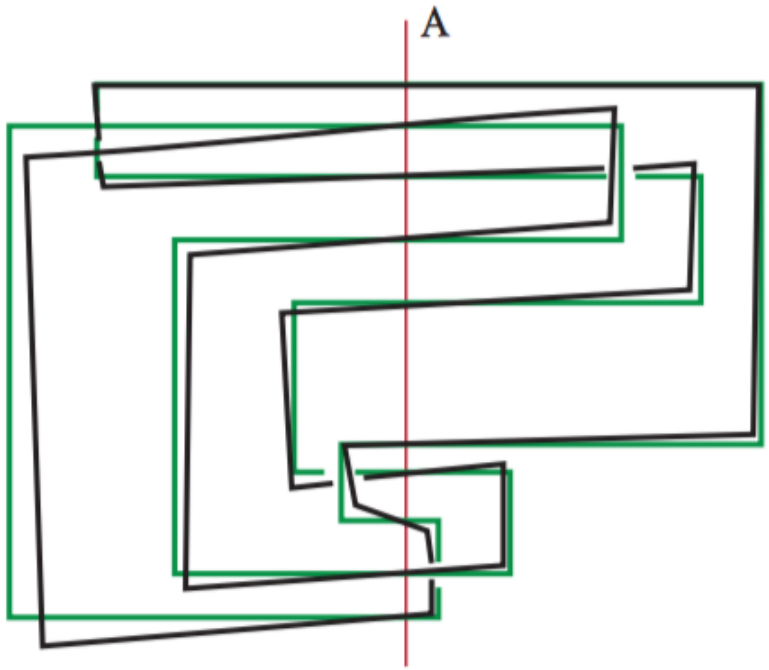




Algoritmo

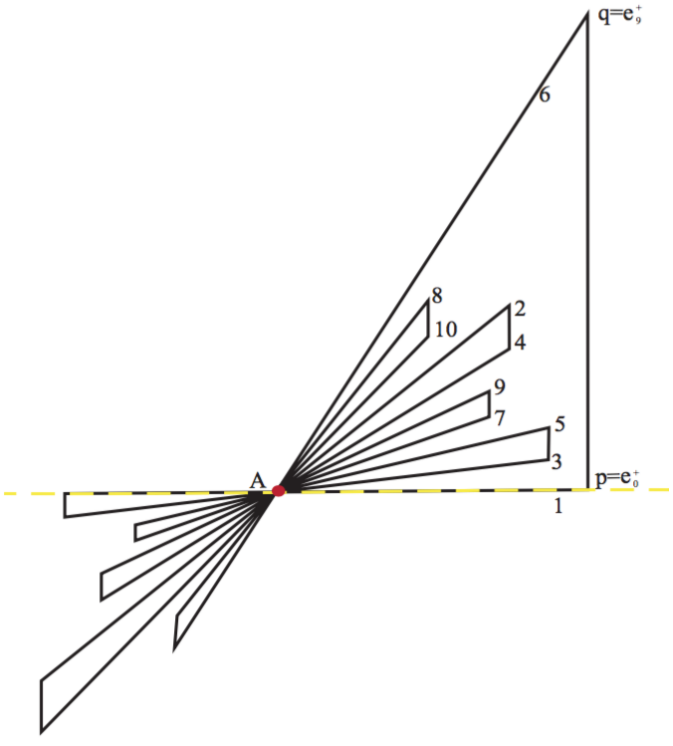
Ejemplo: Figura de ocho





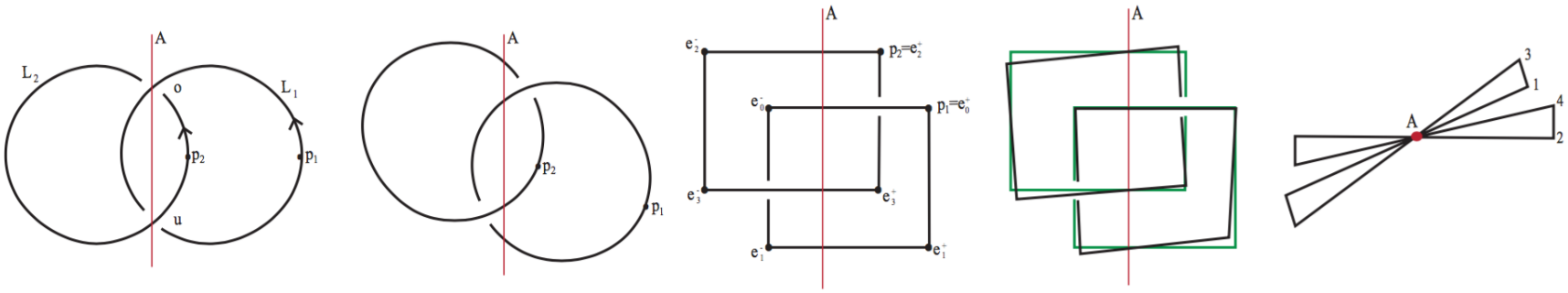
Algoritmo

Ejemplo: Figura de ocho



Algoritmo

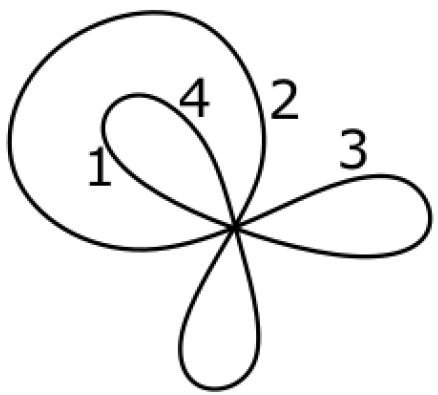
Ejemplo: Eslabón de Hopf

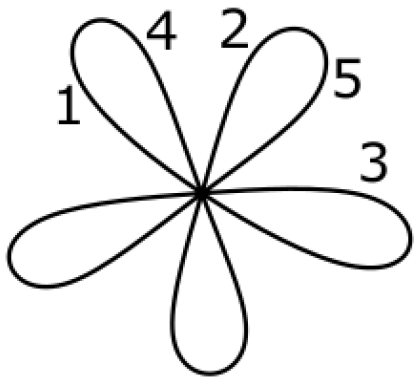


Invariantes

El uber-crucimiento número:
El n mínimo tal que $c_n = 1$

El número pétalo:
El número mínimo de pétalos en una proyección pétalo





References


Colin Adams
Triple Crossing Number of Knots and Links
(2012)


Colin Adams
Quadruple Crossing Number of Knots and Links
(2013)


Colin Adams, Thomas Crawford, Benjamin Demeo, Michael Landry, Alex Tong Lin, Murphykate Montee, Seojung Park, Saraswathi Venkatesh, and Farrah Yhee
Knot Projections with a Single Multi-crossing
(2012)