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FÜR DEMOGRAFISCHE
FORSCHUNG

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FOR DEMOGRAPHIC
RESEARCH





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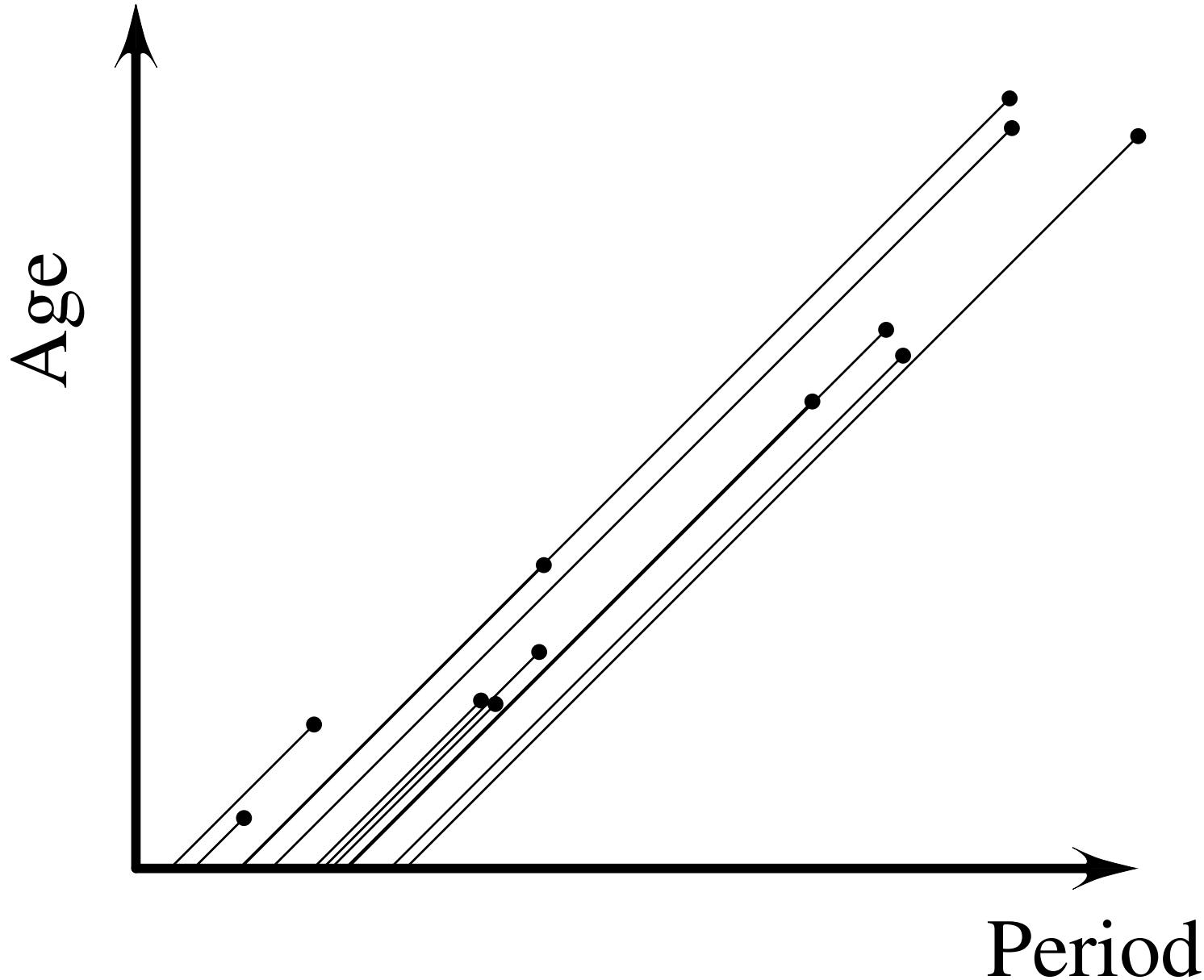
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RESEARCH

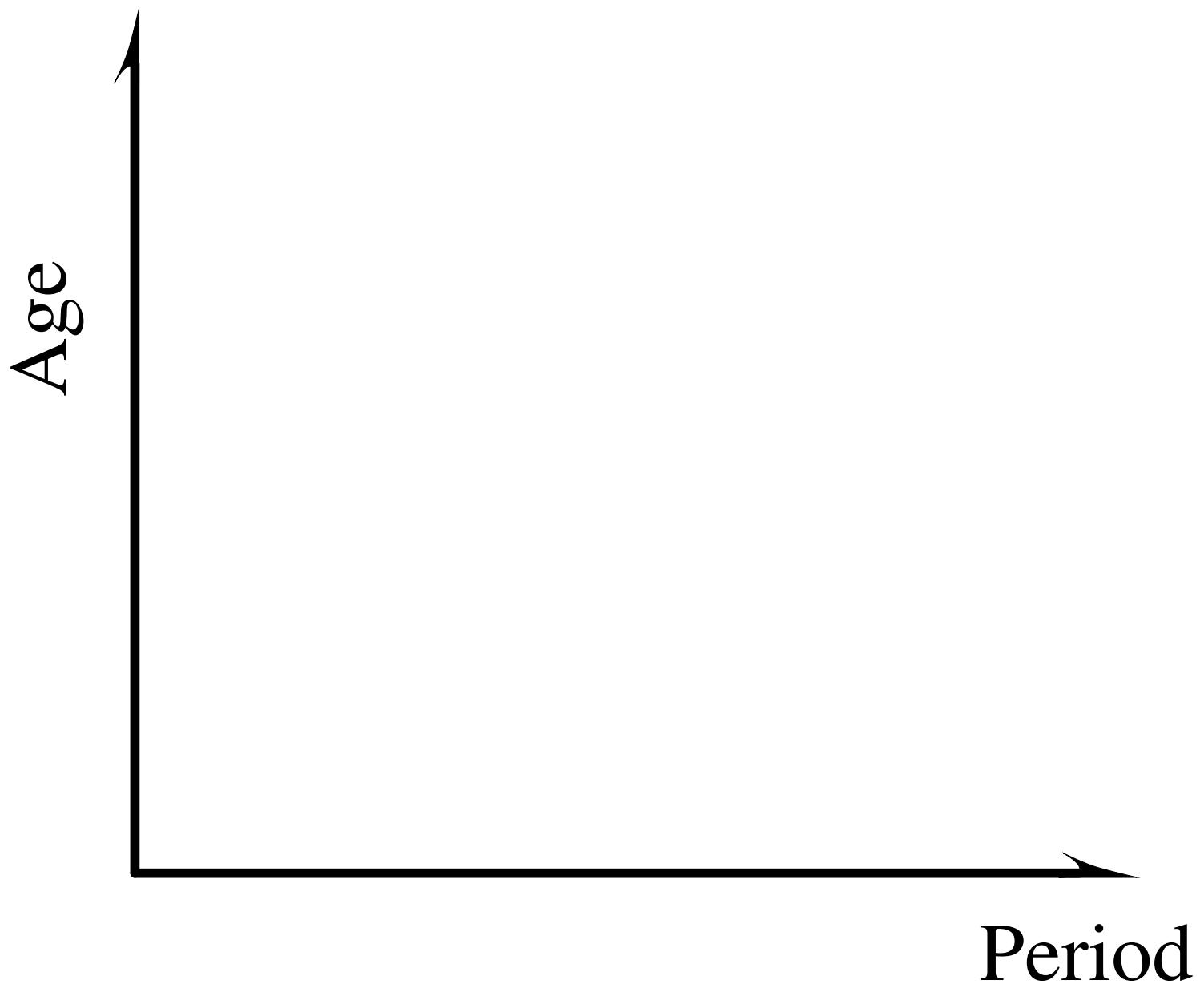
Properties of generalized Lexis identities

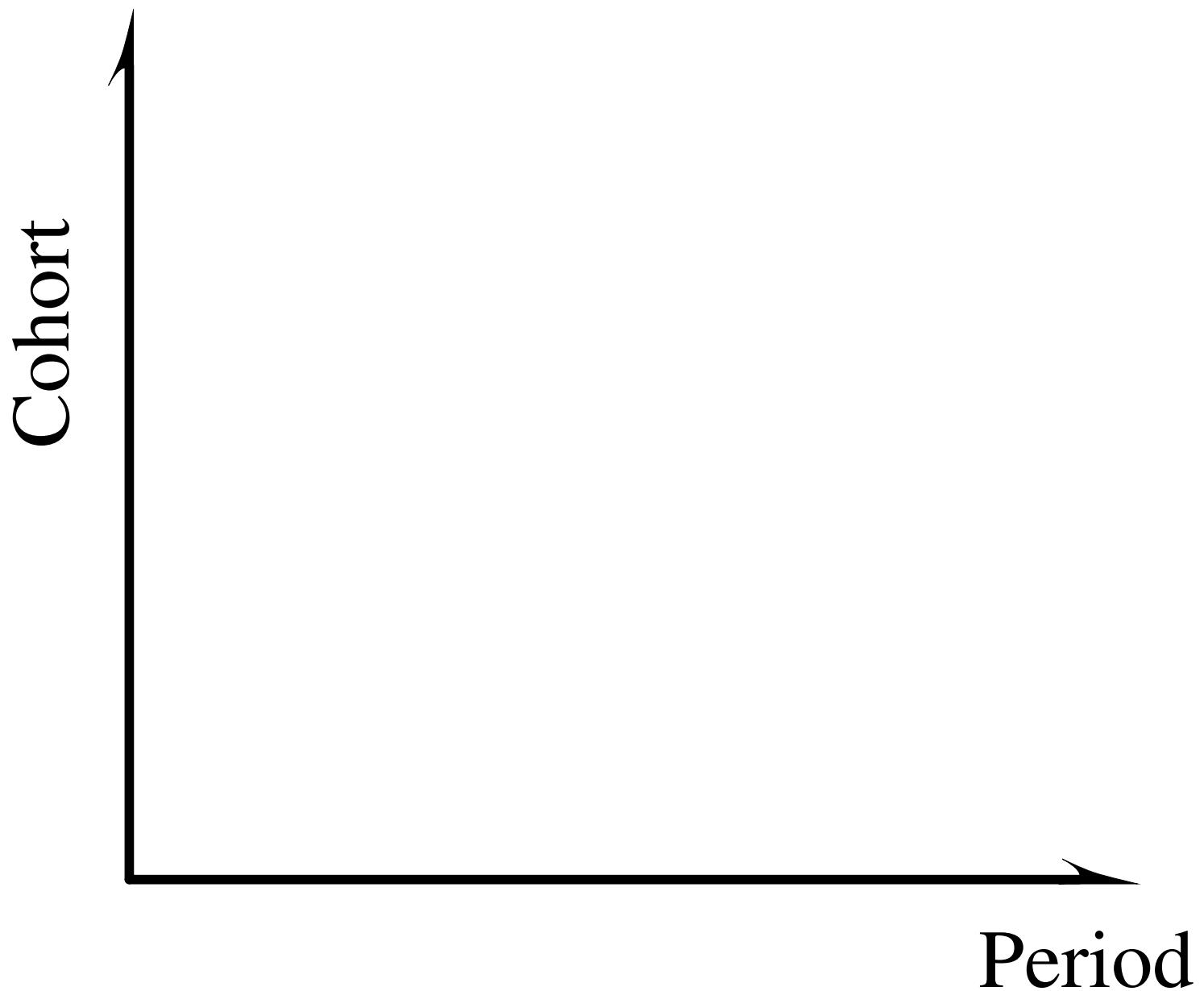
**Tim Riffe
Jonas Schöley**

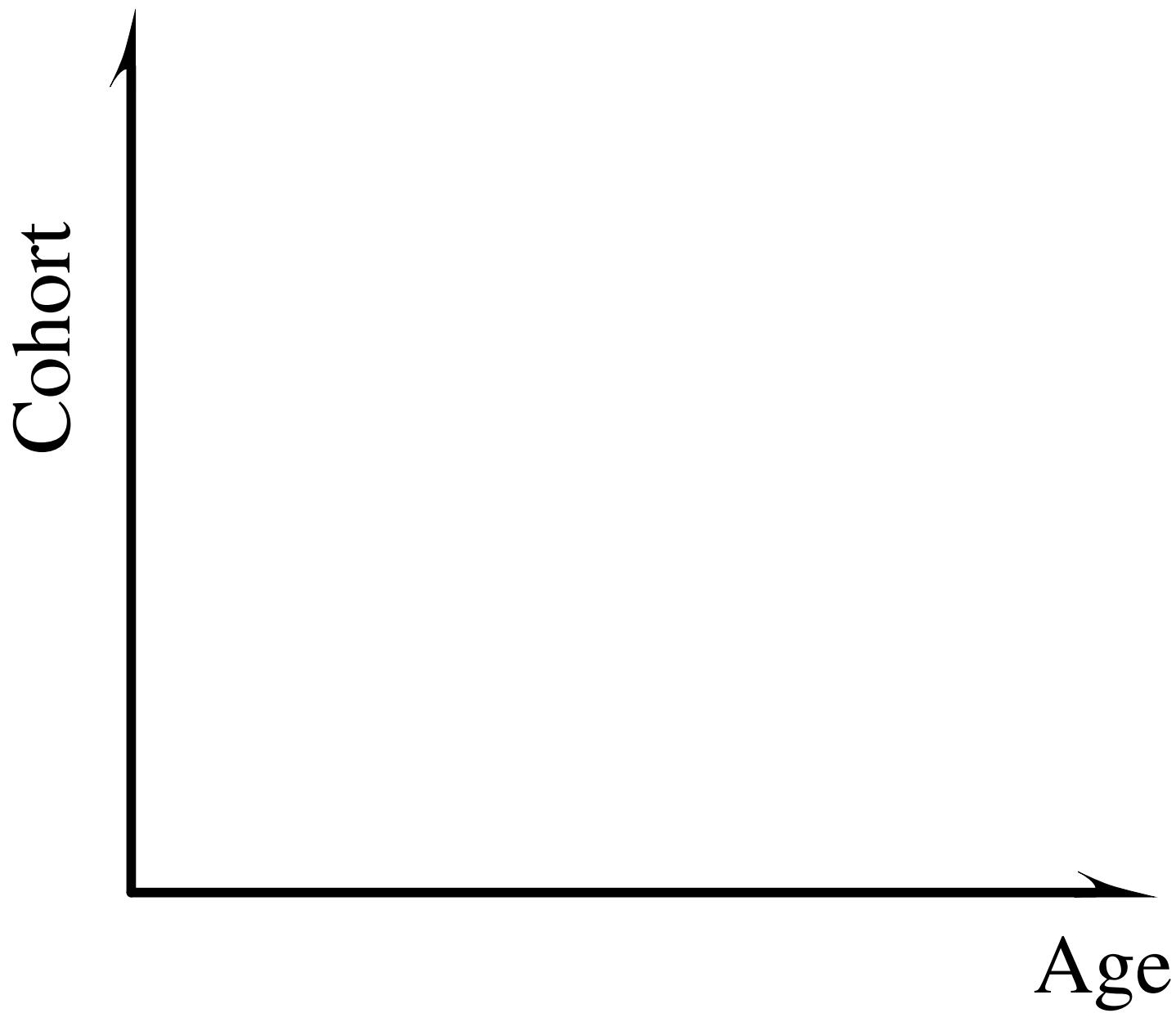
Objective

We describe the construction of and reflect on the composition of and identification in higher order temporal identities.



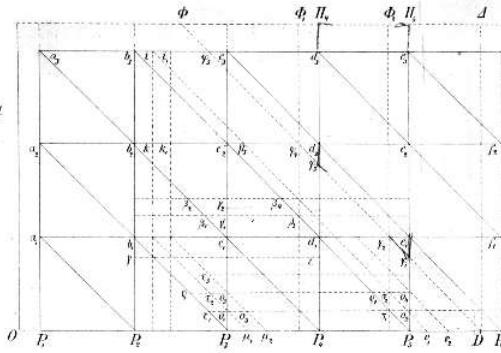






Lexis' 3d marriage identity

Fig 4



Taf II.

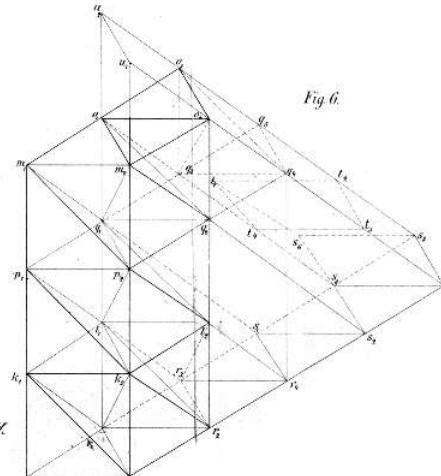
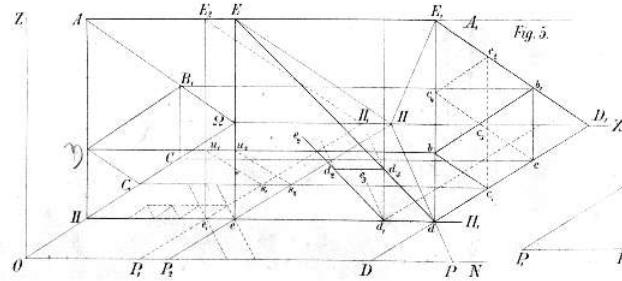


Fig. 6.

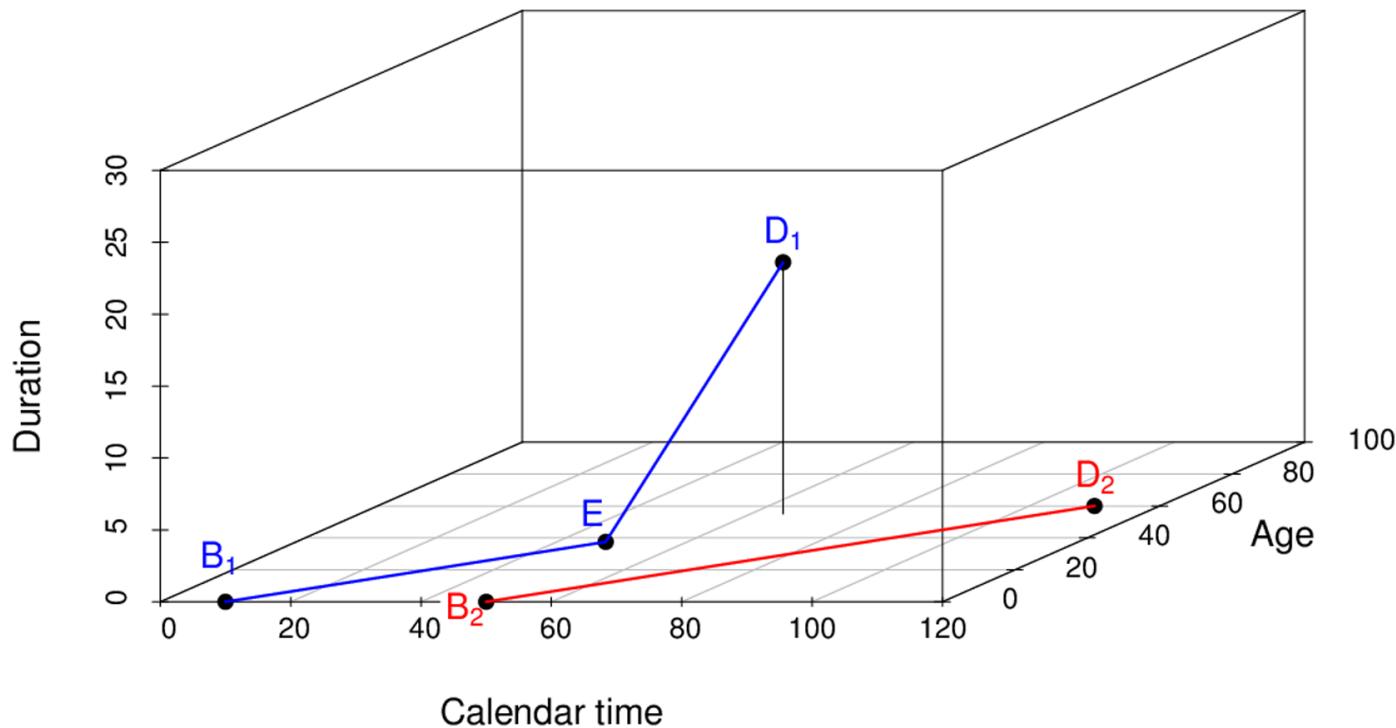


Lexis (1875)

Lexis' 3d marriage identity

- Birth cohort
- Marriage cohort
- Separation cohort
- Age at marriage
- Age at separation
- Length of marriage

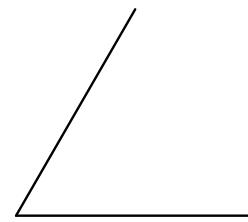
Brinks' (2014) 4d identity



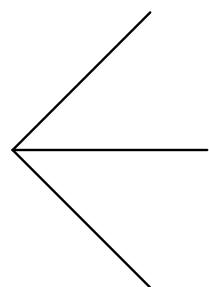
dim

vec space

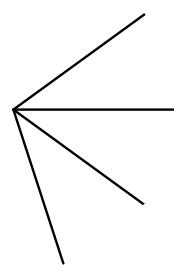
2



3



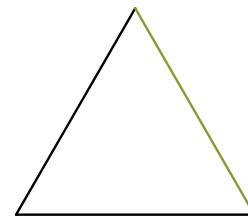
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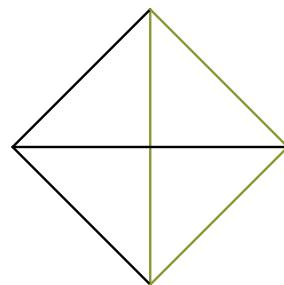
dim

graph

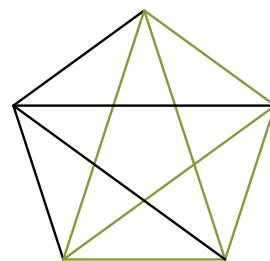
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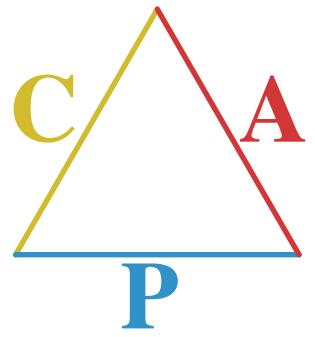
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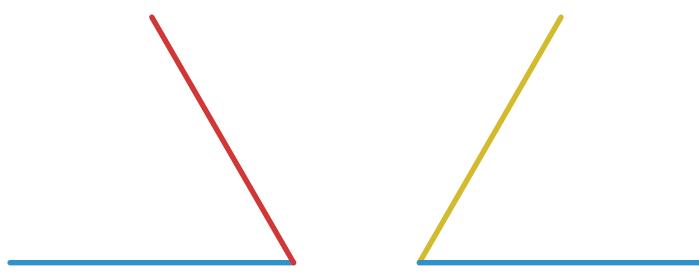
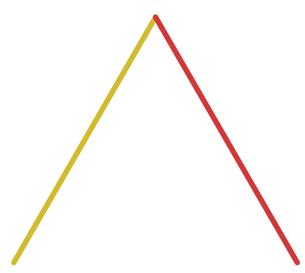
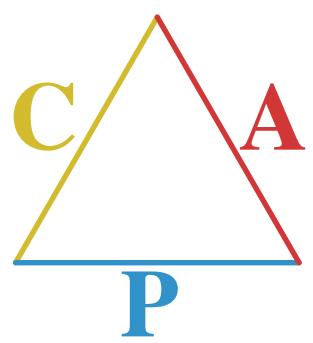


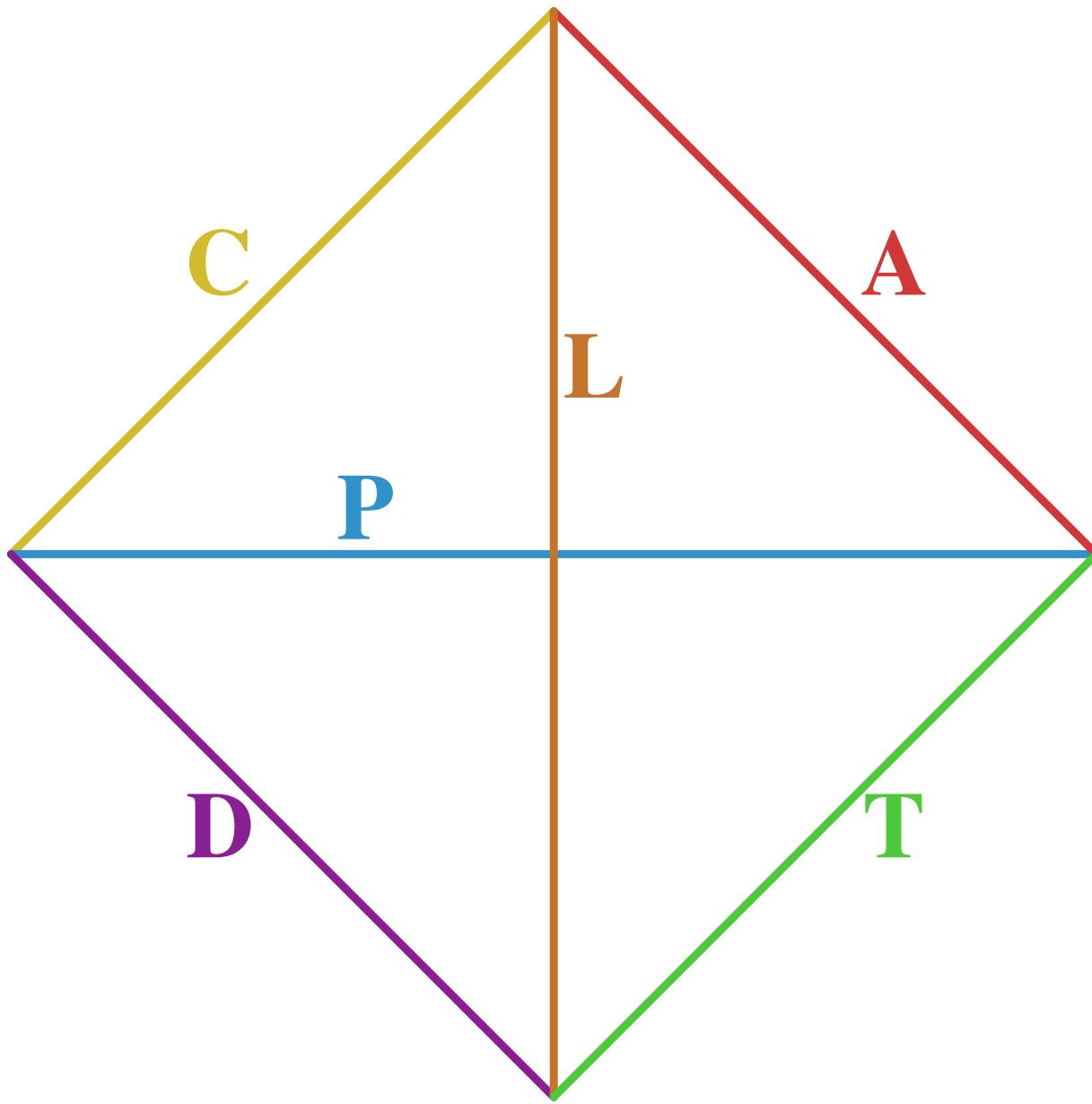
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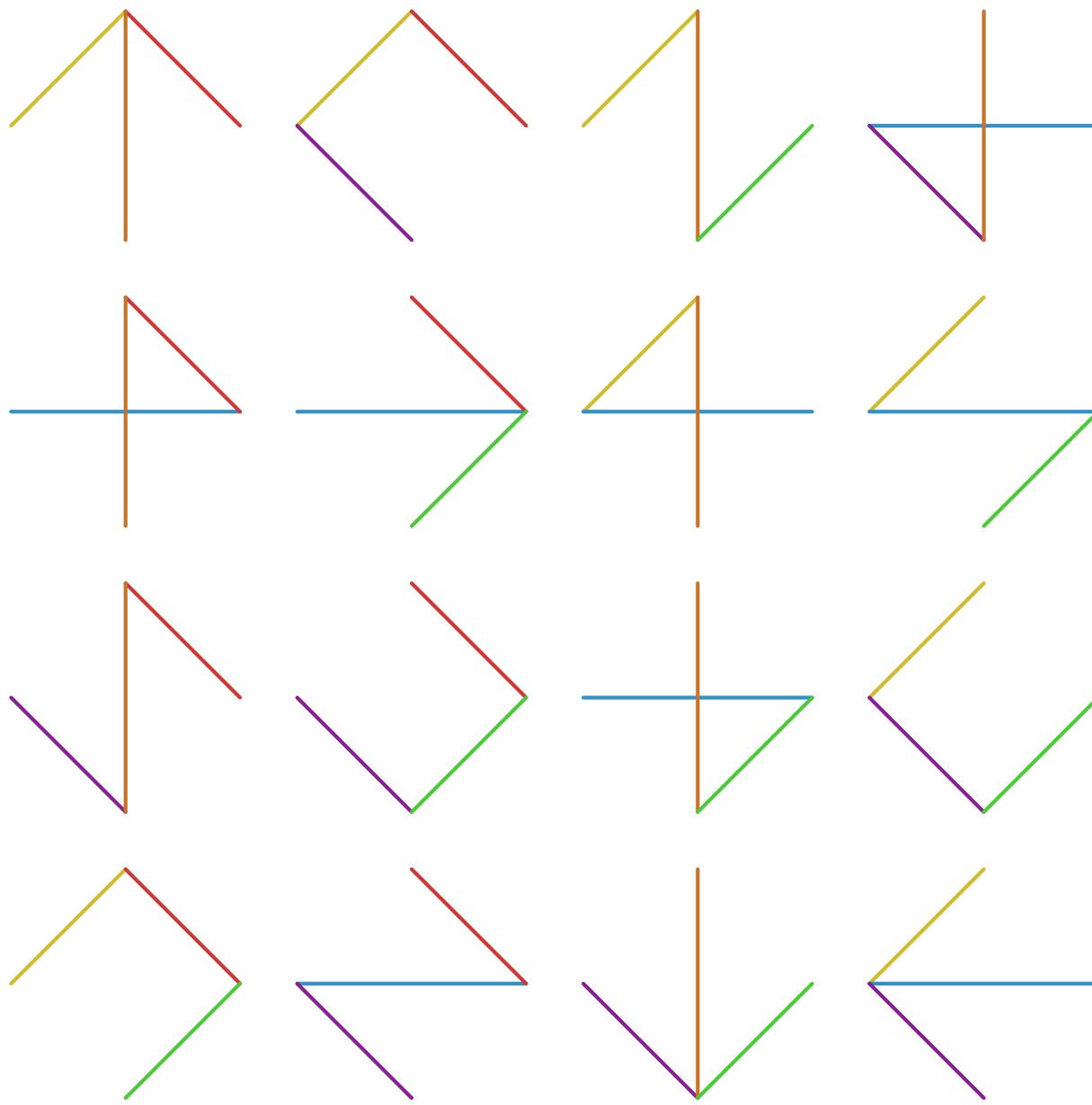


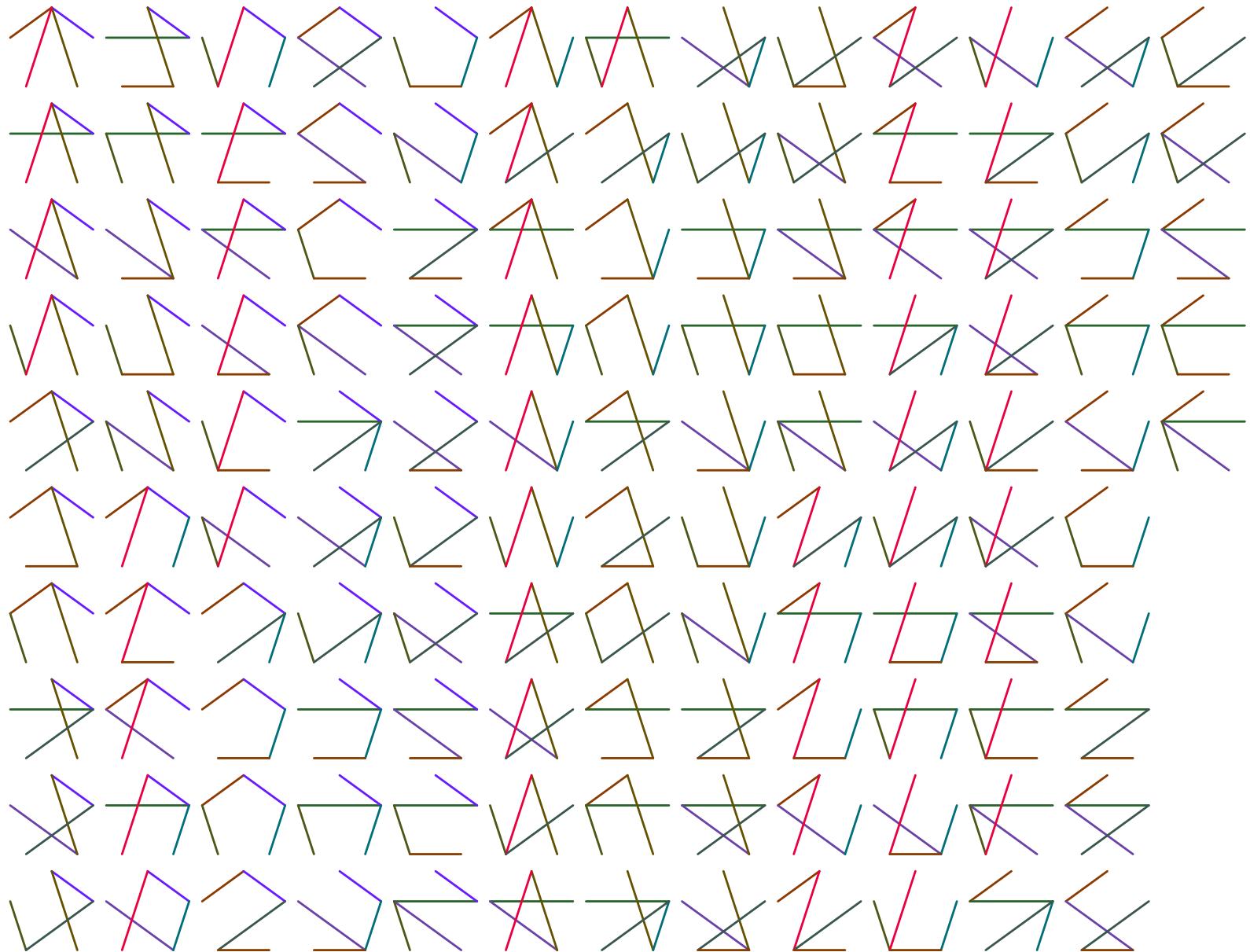
Some thoughts on identification



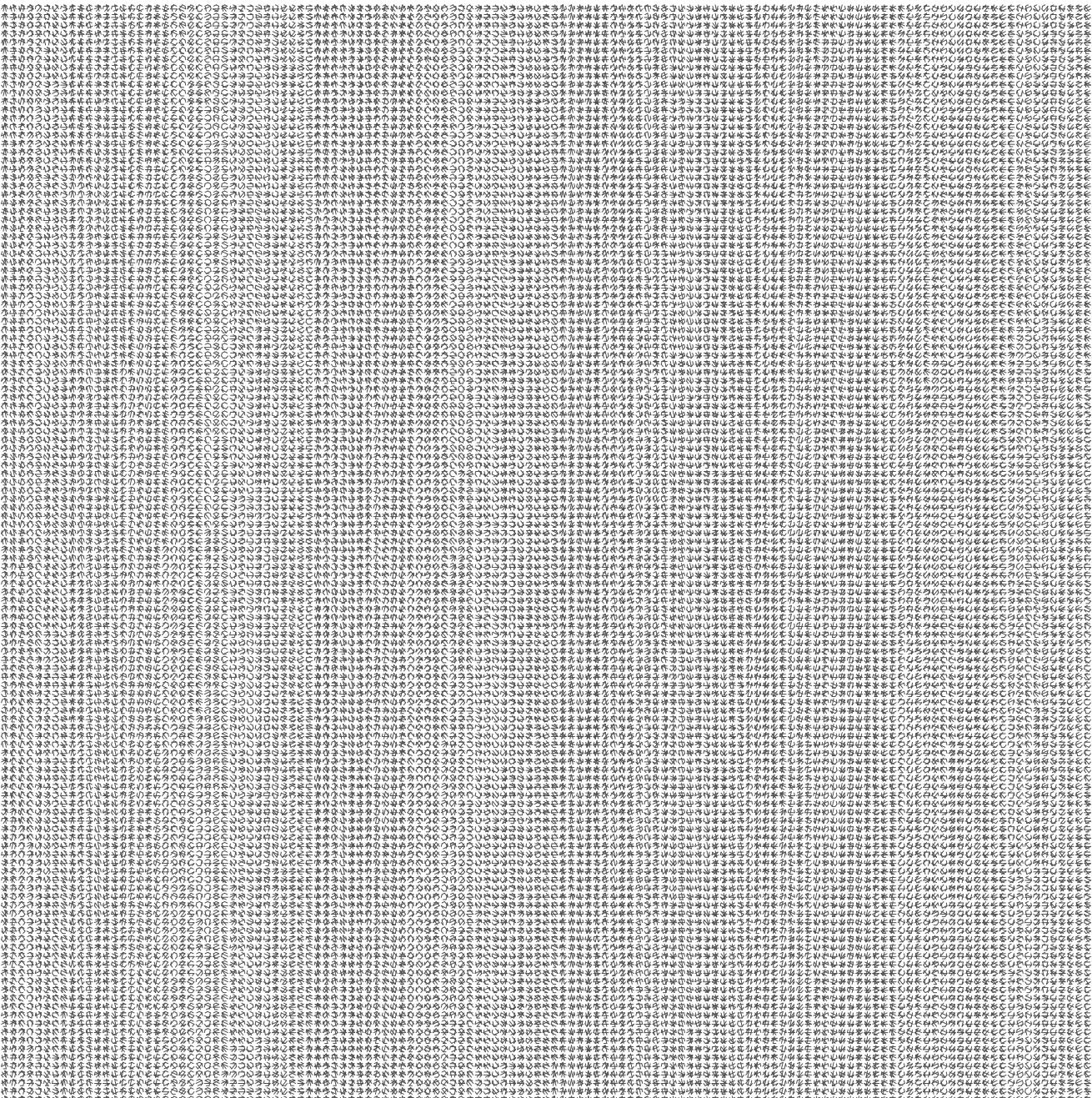








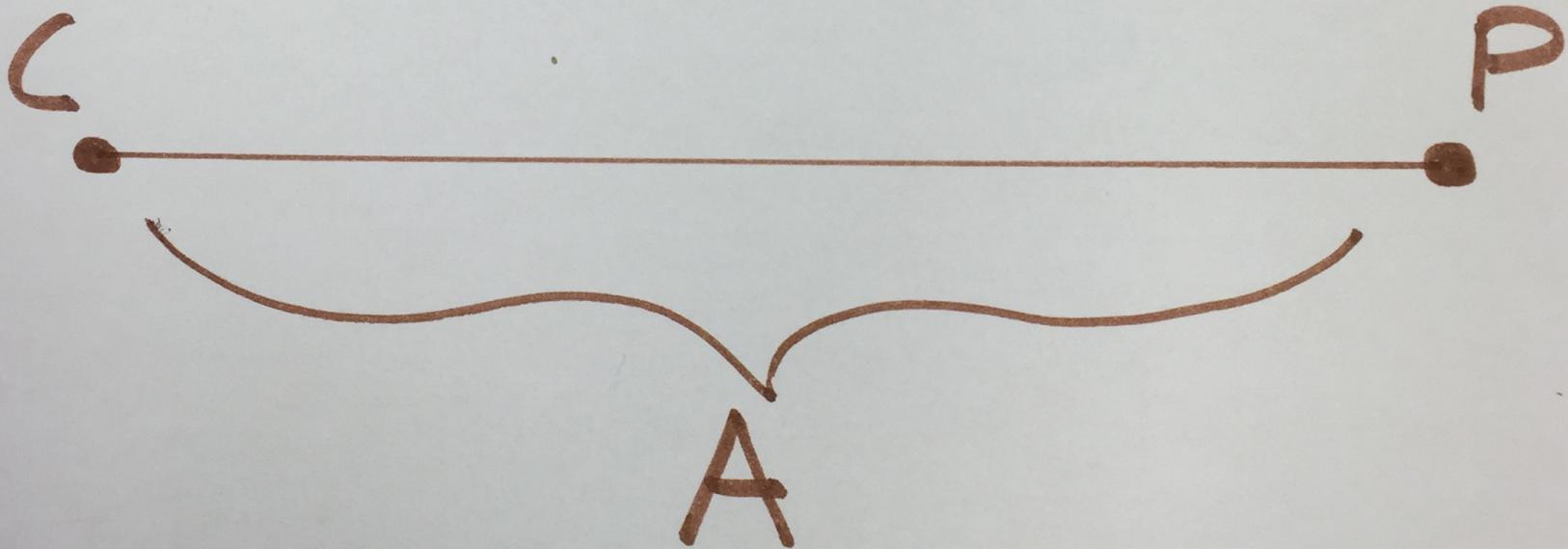
上行
中行
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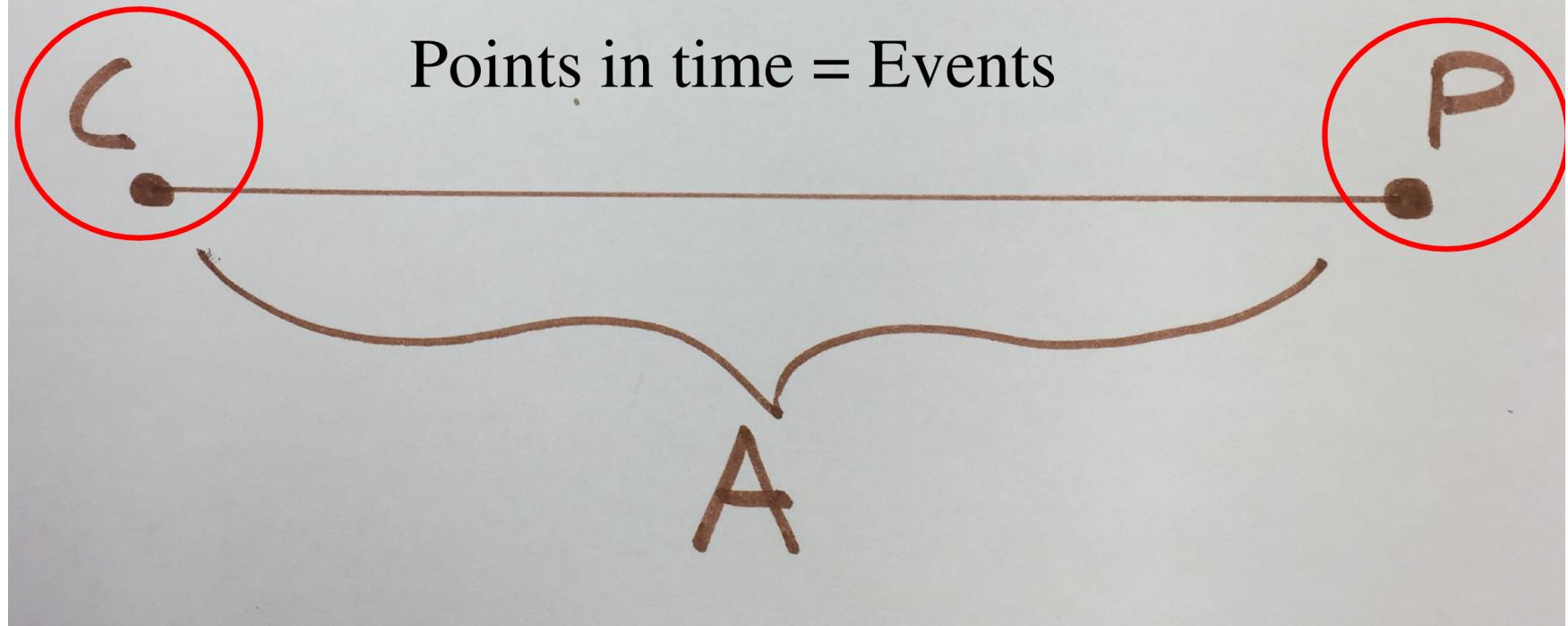
So there's a lot you *can* identify without nuance.

Exactly $(n + 1)^{(n-1)}$ MSTs on n events.

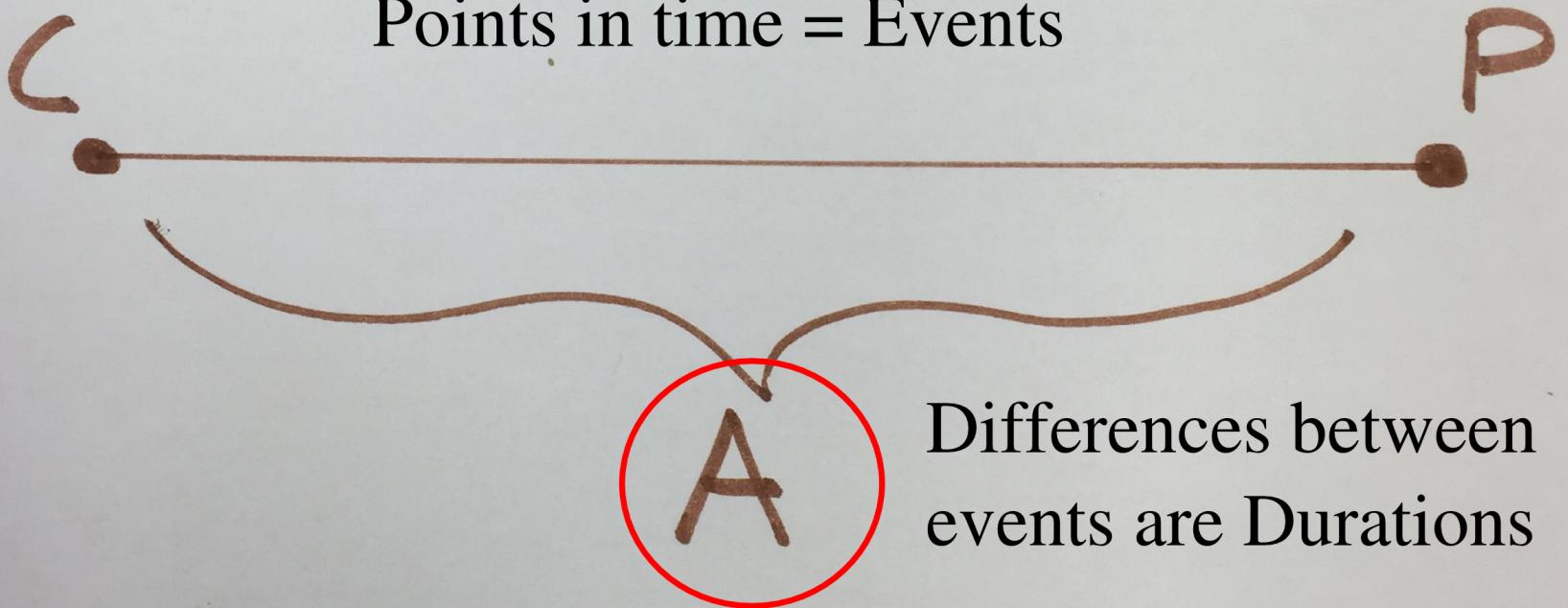
And $\binom{n+1}{3}$ 2d simplices in an n -dimensional temporal identity.



Points in time = Events



Points in time = Events



Differences between
events are Durations

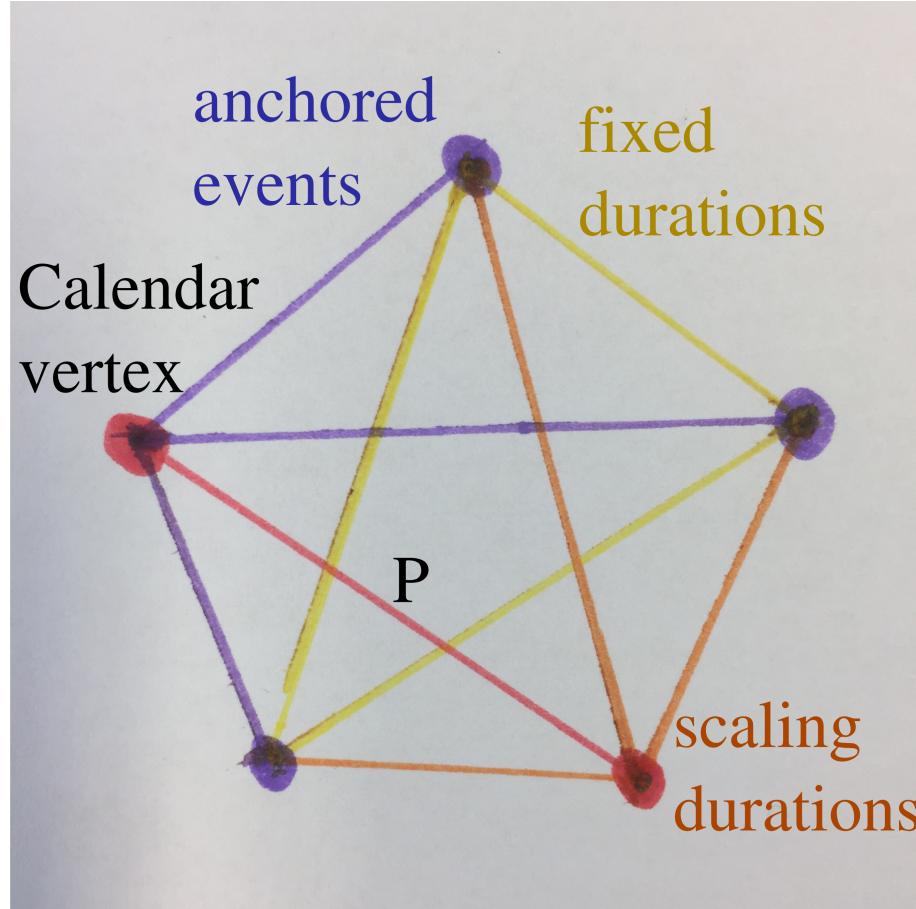
Events and durations are key.

Events determine dimensionality.

Events are either *anchored* in time or calendar
breadcrumbs: *period*.

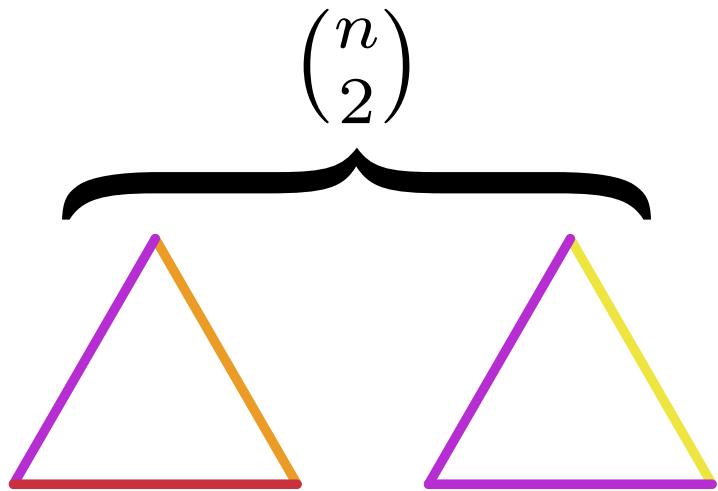
Event types determine duration types: *fixed* or *scaling*.

The combination of these four types of time measures imply four different kinds of 2d identities.

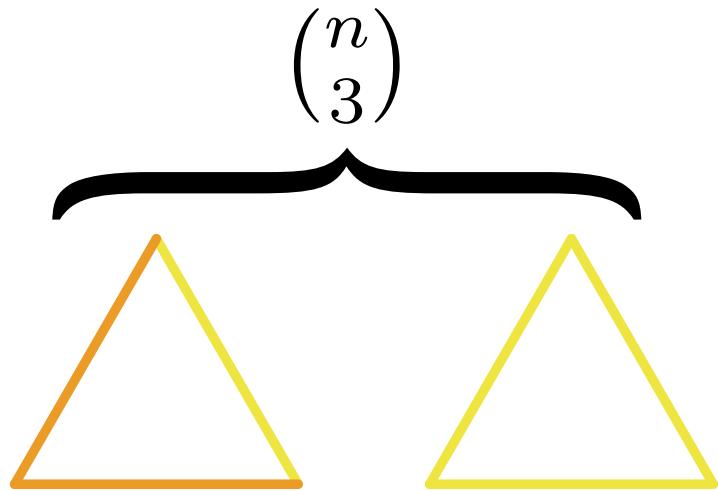


A 4-event identity

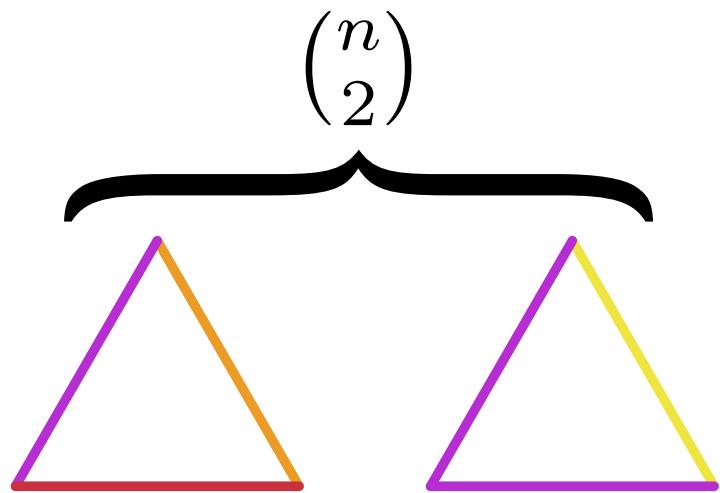
2 events + 1 duration



3 durations



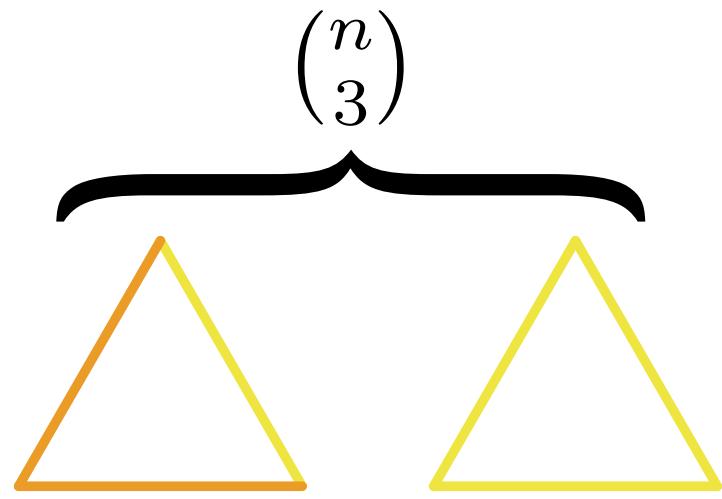
2 events + 1 duration



$$n - 1$$

$$\binom{n-1}{2}$$

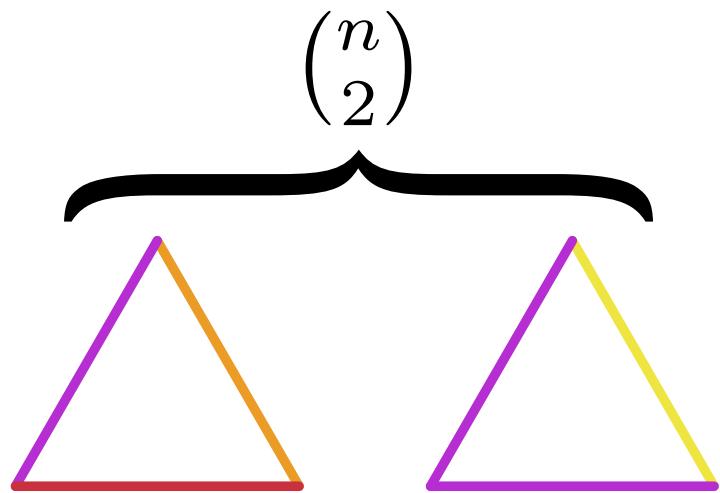
3 durations



$$\binom{n-1}{2}$$

$$\binom{n-1}{3}$$

2 events + 1 duration



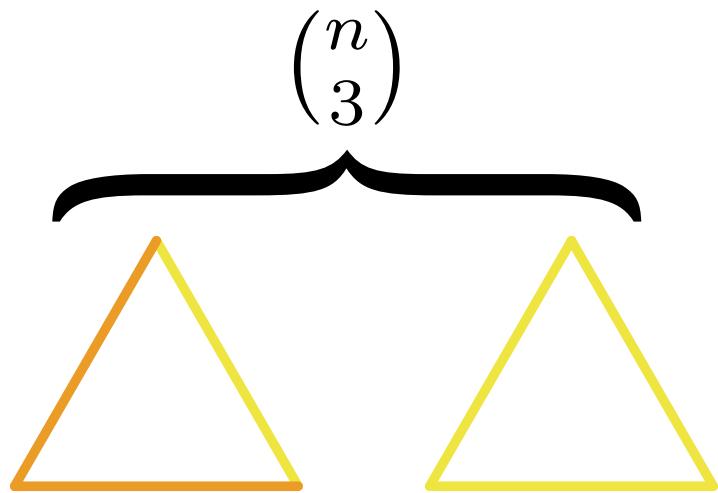
$$n - 1$$

$$n \geq 2$$

$$\binom{n-1}{2}$$

$$n \geq 3$$

3 durations



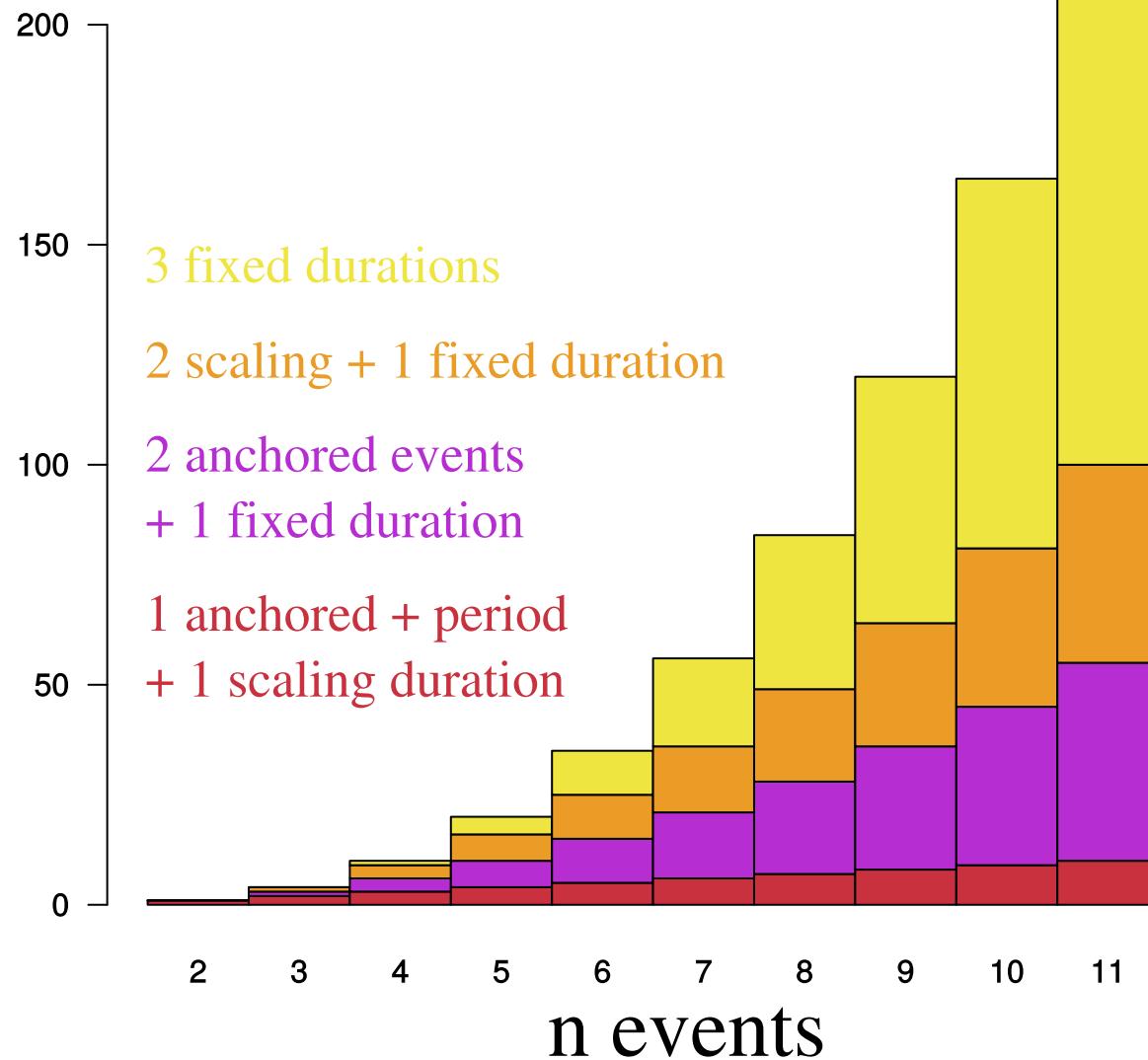
$$\binom{n-1}{2}$$

$$n \geq 3$$

$$\binom{n-1}{3}$$

$$n \geq 4$$

Nr triads





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