Thm. (Weak Perfect Graph Theorem)
For every graph $G = (V, E)$ the following are equivalent:

(P1)	$\omega(G_A) = \chi(G_A)$	for all $A \subseteq V$
(P2)	$\alpha(G_A) = k(G_A)$	for all $A \subseteq V$
(P3)	$\omega(G_A) \cdot \alpha(G_A) \geq \lvert A \rvert$	for all $A \subseteq V$

Lemma 2.6. For $H = G \circ h$ the following holds:

(P1) for G $\Longrightarrow$ (P1) for H

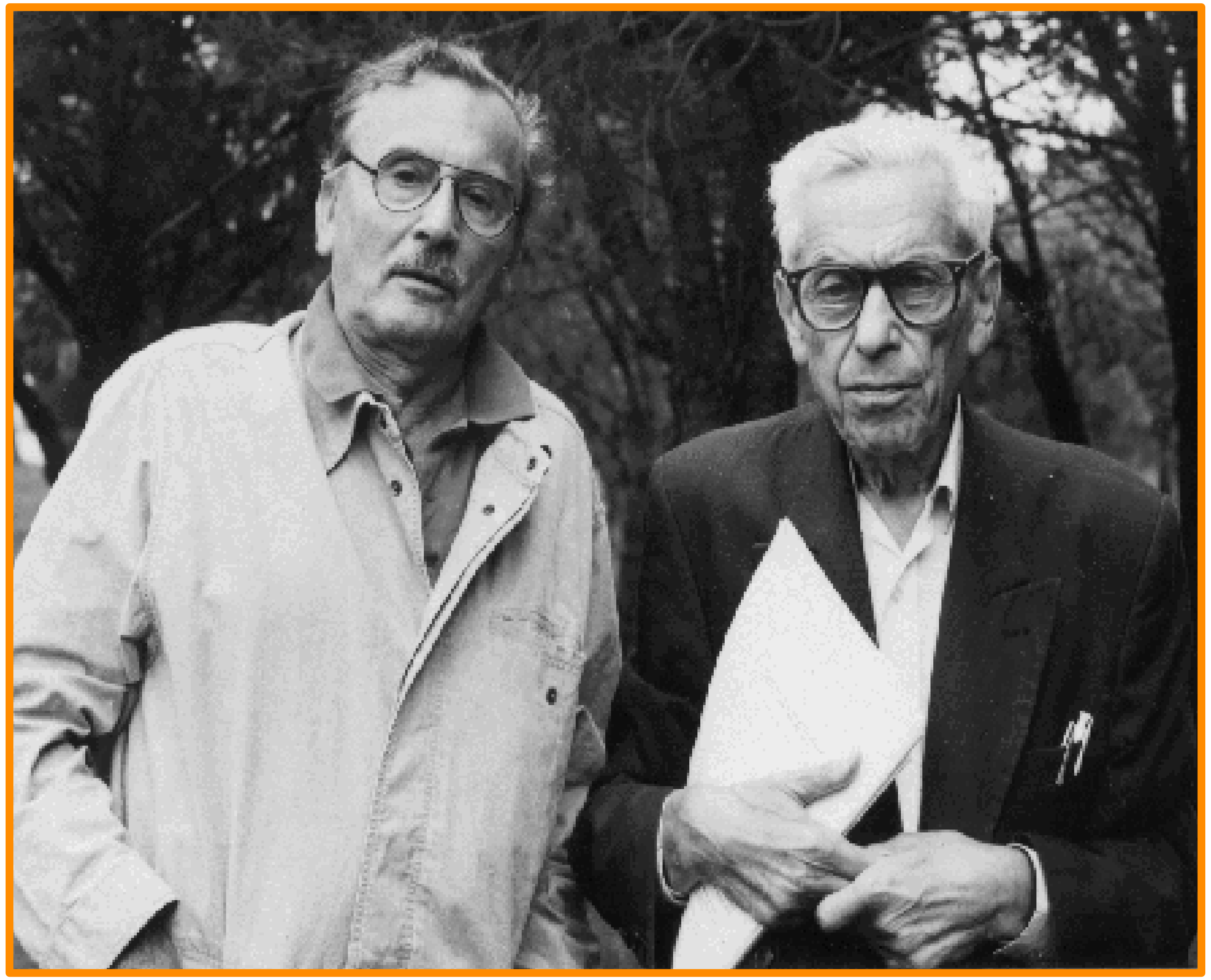
(P2) for G $\Longrightarrow$ (P2) for H

Lemma 2.7. For $H = G \circ h$ the following holds:

(P2) for G_A for all $A \subsetneq V_G$
(P3) for G
$\Big\}$ $\Longrightarrow$ (P3) for H

1961

Claude Berge
introduces perfect graphs



Claude Berge Paul Erdős

1961

Claude Berge
introduces perfect graphs

1972

László Lovász
proves Weak Perfect Graph Theorem

László Lovász

1961

Claude Berge
introduces perfect graphs

1972

László Lovász
proves Weak Perfect Graph Theorem

2006

Chudnovsky, Robertson, Seymour, Thomas
prove Strong Perfect Graph Theorem

Paul Seymour

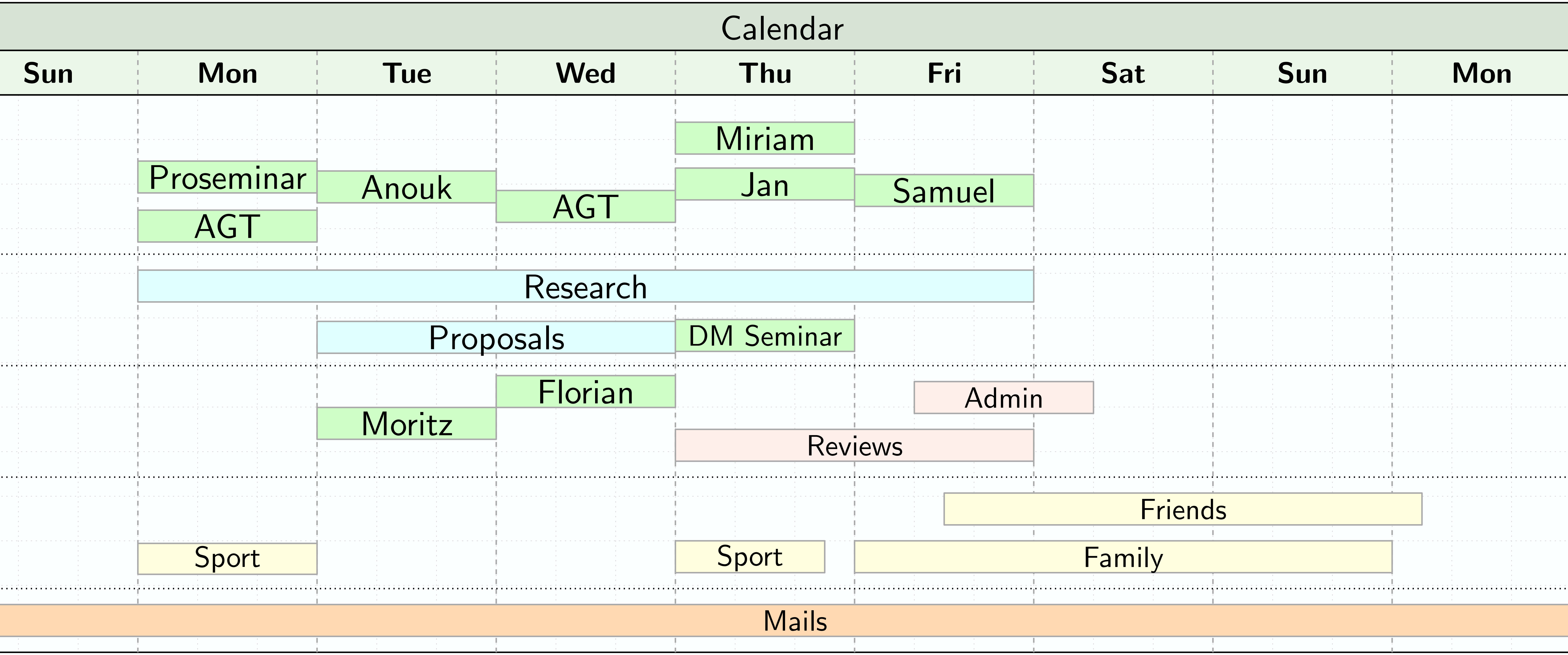
1961
Claude Berge
introduces perfect graphs

1972
László Lovász
proves Weak Perfect Graph Theorem

2006
Chudnovsky, Robertson, Seymour, Thomas
prove Strong Perfect Graph Theorem

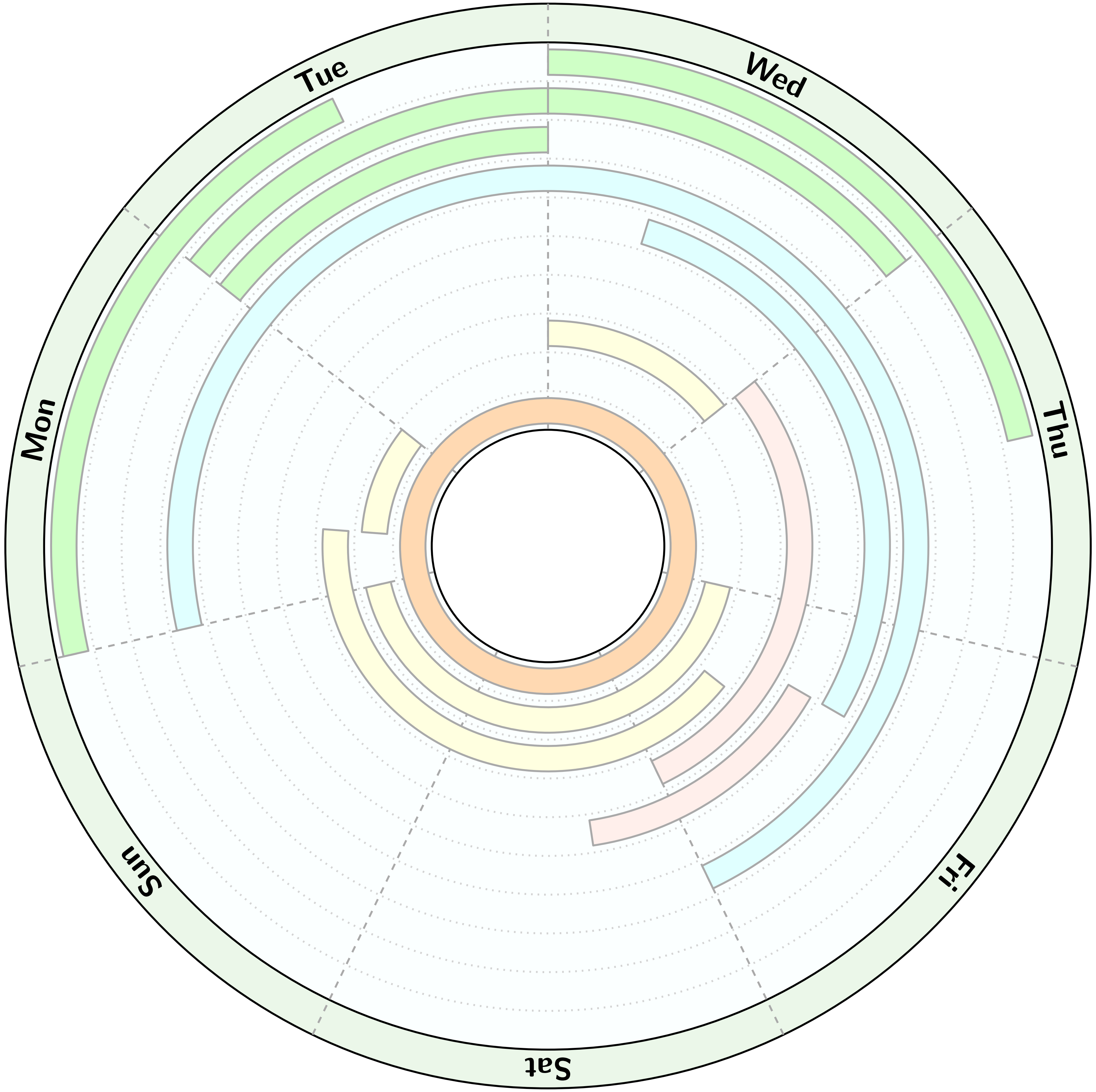
2017
Chudnovsky, Lagoutte, Seymour, Spirkl
give combinatorial algorithm to color
perfect graphs of bounded clique number ω

Maria Chudnovsky

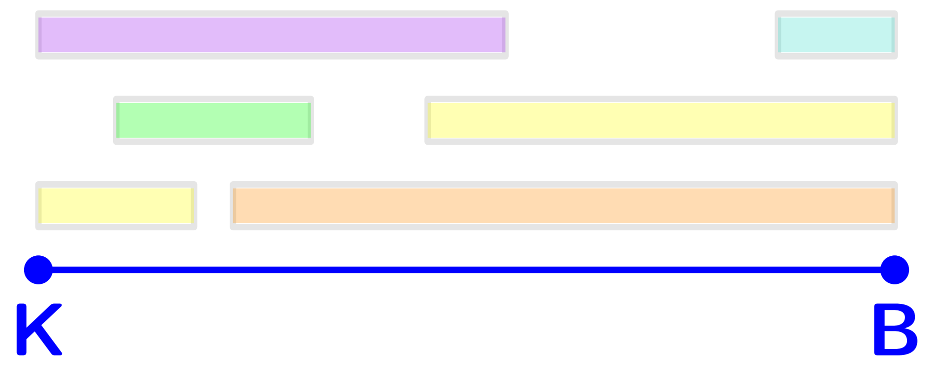


Into how many persons would I have to split to handle all this?

How much can I handle alone?

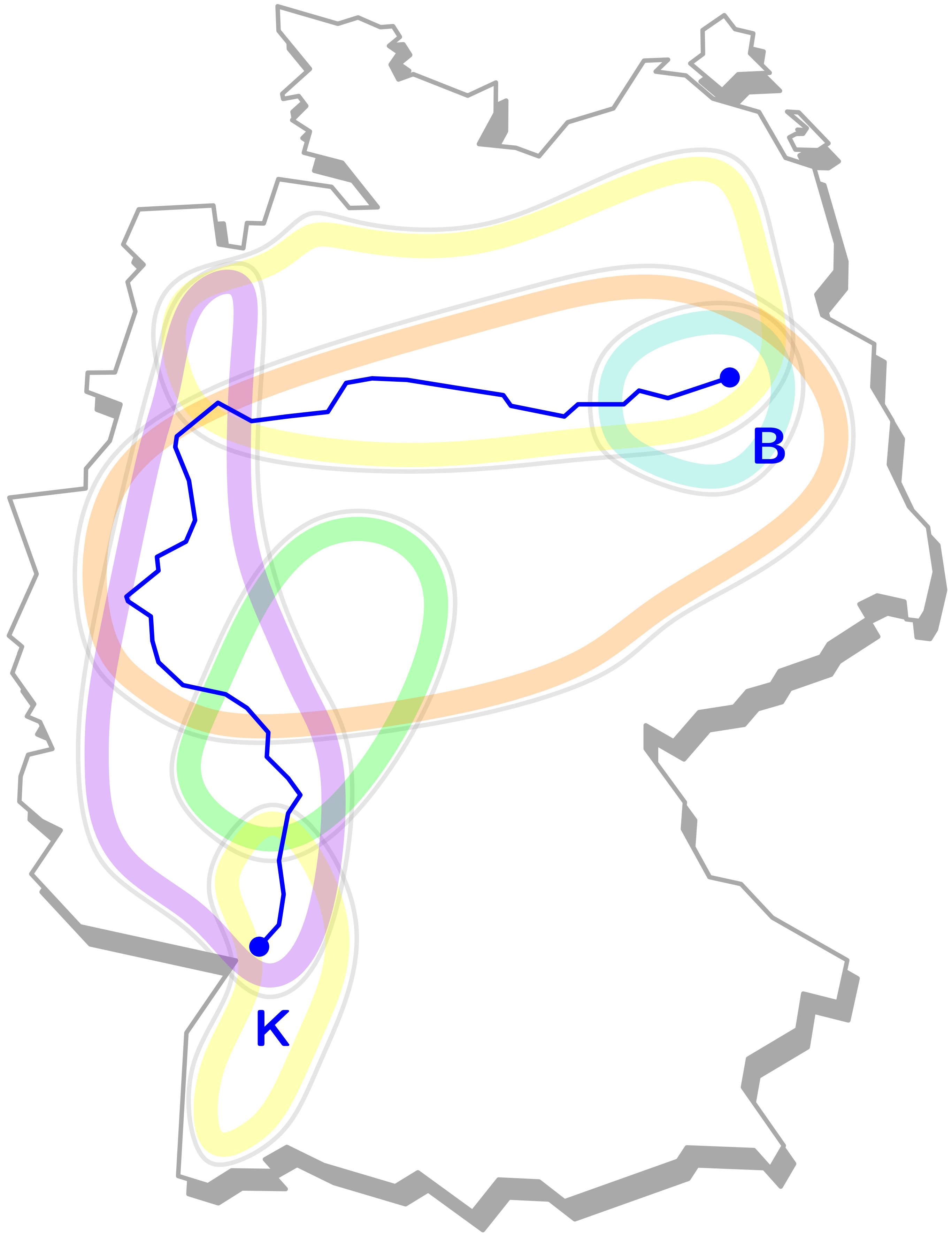

Tue
Wed
Thu
Fri
Sat
Sun
Mon

- I travel from **K** to **B** through Germany's regions

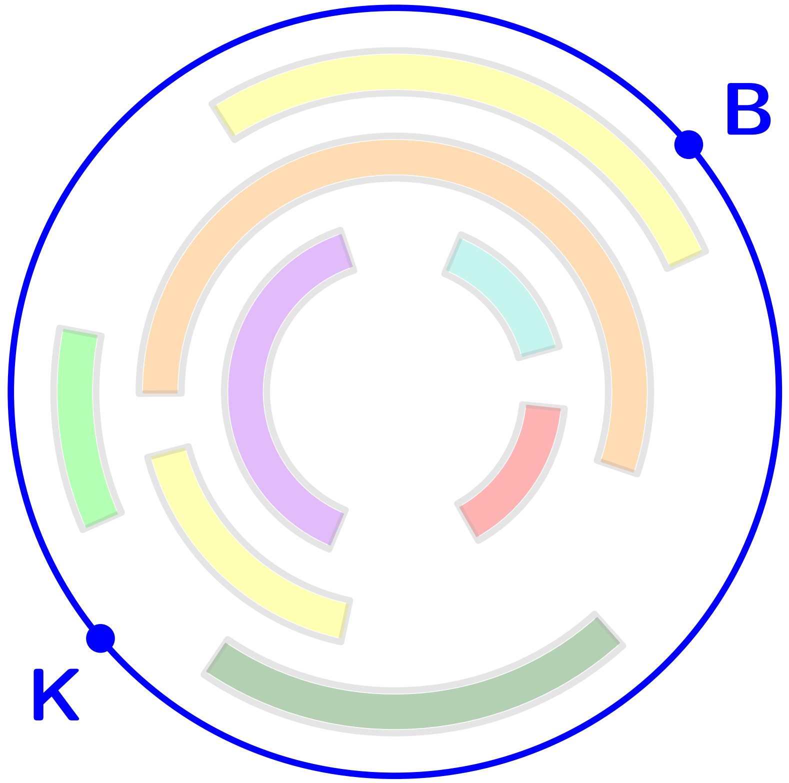


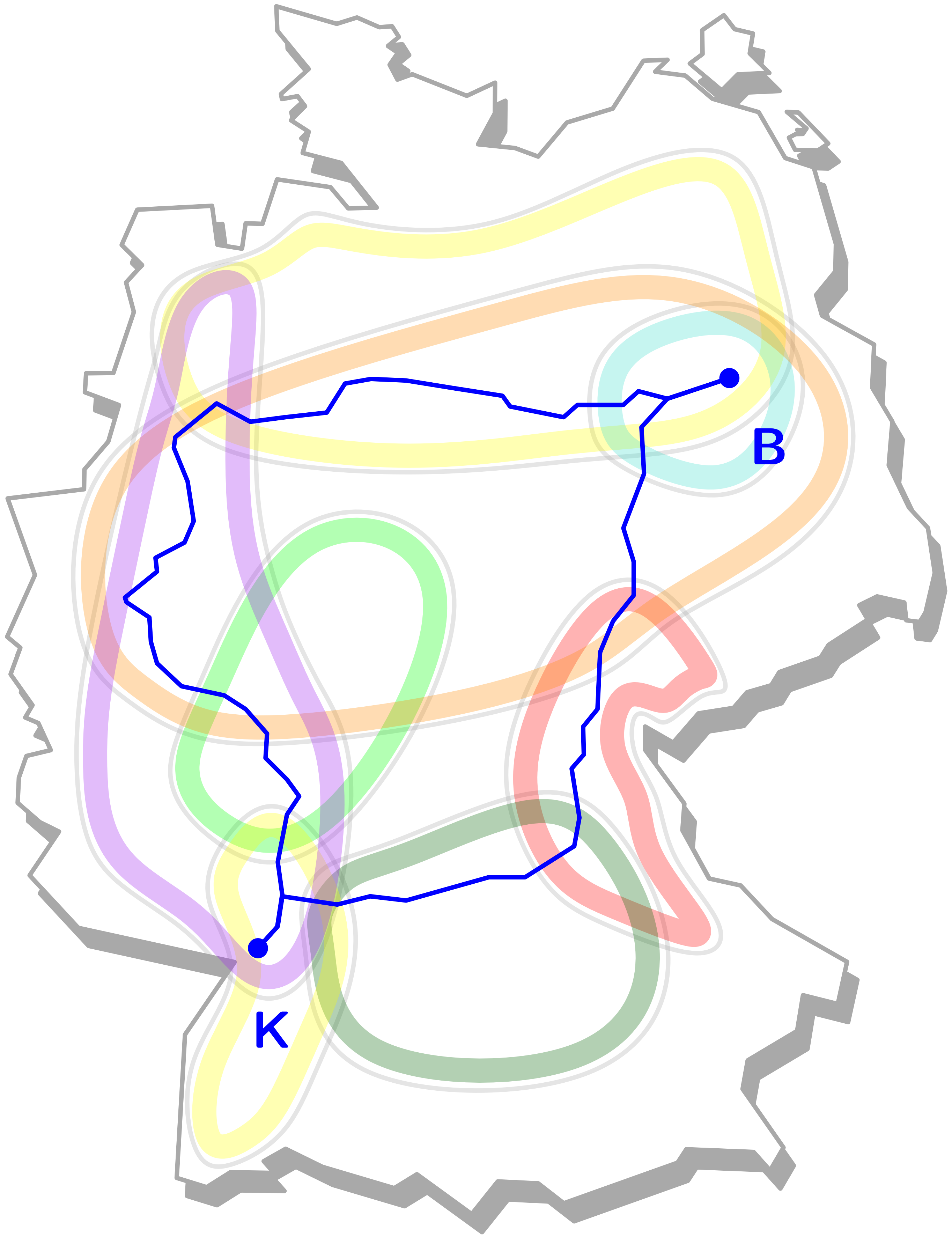
How often must I stop to see every region?

How many regions can I see with one stop?



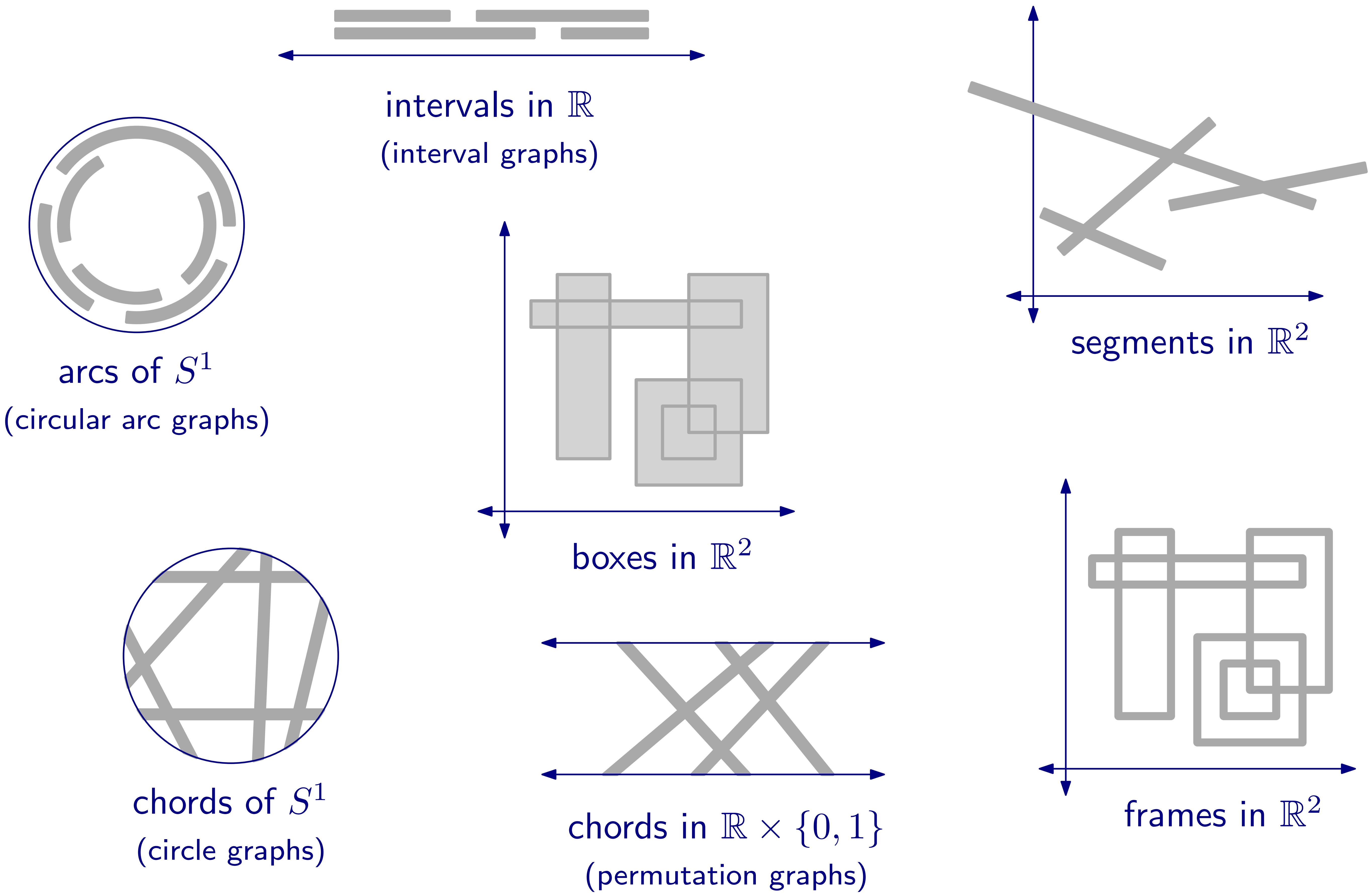
▷ I travel from **K** to **B** and back through Germany's regions





How often must I stop to see every region?

How many regions can I see with one stop?


intervals in $\mathbb{R}$
(interval graphs)
arcs of S^1
(circular arc graphs)
segments in $\mathbb{R}^2$
boxes in $\mathbb{R}^2$
chords of S^1
(circle graphs)
chords in $\mathbb{R} \times \{0, 1\}$
(permutation graphs)
frames in $\mathbb{R}^2$