

$k = 1$ ($K = 2$) lazy ring + directed shortcut:
 Equal-probability baseline away from the shortcut source
 (stay/left/right each 1/3)
 Bimodality via Chebyshev analytic generating function + AW
 inversion (flux cross-check)

1 Model (simplest case: $k = 1$ / $K = 2$)

We consider a ring with nodes $0, 1, \dots, N-1$ and a lazy nearest-neighbor random walk:

$$P(i \rightarrow i) = 1 - q, \quad P(i \rightarrow i \pm 1) = \frac{q}{2} \pmod{N}, \quad 0 < q < 1.$$

For the *equal-probability* baseline (stay/left/right each 1/3),

$$1 - q = \frac{q}{2} = \frac{1}{3} \iff q = \frac{2}{3}.$$

We add one directed shortcut $u \rightarrow v$ using the “take probability from the self-loop” model:

$$P(u \rightarrow u) = 1 - q - p, \quad P(u \rightarrow v) = p, \quad 0 \leq p \leq 1 - q.$$

Note: the phrase “equal-probability” here refers to the *non-shortcut* nodes (stay/left/right each 1/3 when $q = 2/3$). It does *not* mean that the shortcut source u has four equal actions; the “equal4” rule (stay/left/right/shortcut each 1/4 at u) is treated separately in Section 8. The target node target is absorbing. We study the first-passage-time pmf

$$f(t) = \Pr(T = t), \quad t = 1, 2, \dots$$

from the start node n_0 to target and ask whether $f(t)$ is bimodal.

2 Analytic inversion (AW) and flux cross-check

Does laziness change the analytic formula? The lazy parameter $q \in (0, 1)$ enters the spectrum directly: the defect-free eigenvalues are $\lambda_k = 1 - q + q \cos(2\pi k/N)$. The full closed form (including the directed shortcut and the “from self-loop” construction) is given in `deriv_k2/note_k2.pdf` as a Chebyshev representation of $\tilde{Q}(d, z)$, $\tilde{S}_{n_0}(n, z)$, and $\tilde{F}_{n_0 \rightarrow n}(z)$.

AW inversion Given $\tilde{F}(z) = \sum_{t \geq 0} f(t) z^t$, we recover coefficients by discrete Cauchy inversion: sample $z_k = r e^{2\pi i k/m}$ and compute

$$f(t) \approx r^{-t} \frac{1}{m} \sum_{k=0}^{m-1} \tilde{F}(z_k) e^{-2\pi i k t/m}, \quad t = 1, 2, \dots$$

implemented via FFT. Our implementation is `lazy_ring_aw_chebyshev.py`.

Flux recursion (validation) We also compute $f(t)$ by time-domain propagation with an absorbing target and record the flux into it:

$$f(t+1) = \sum_{i \neq \text{target}} p_t(i) P(i \rightarrow \text{target}).$$

Implementation: `lazy_ring_flux_bimodality.py`.

3 Bimodality criteria (paper-style + macro separation)

For discrete-time nearest-neighbor walks, $f(t)$ can exhibit genuine small- t micro-structure. We therefore use strict local maxima with a threshold:

- **Strict local peak:** $f(t) > f(t-1)$, $f(t) > f(t+1)$, and $f(t) \geq h_{\min}$.
- **Paper bimodality:** at least two peaks, and the 2nd-highest peak height $\geq 1\%$ of the highest.
- **Macro bimodality (optional):** additionally require $t_2/t_1 \geq 10$ for the two dominant peaks.

4 Key findings

Under the $k = 1$ ($K = 2$) lazy ring with one directed shortcut, the following reproducible conclusions hold (analytic AW inversion with flux cross-check):

- **Selfloop (take p from the self-loop) can be bimodal for small p :** the minimal case $N = 10, q = 2/3, u = n_0 = 1 \rightarrow v = \text{target} = 5, p = 0.006666\dots$ has exactly two strict local peaks under $h_{\min} = 10^{-7}$ (Section 5, Figure 1); the odd- N case $N = 11$ shows the same peak pair (Figure 2).
- **Full scan indicates macro-bimodality starts at $N = 10$:** for $q = 2/3, \beta = 0.02$, and the shortcut $u = n_0 \rightarrow v = \text{target}$, a scan over all endpoints for $N = 3..60$ finds macro-bimodality mainly at large ring distances (heatmap + Appendix table).
- **Equal4 (four actions each $1/4$ at u) is unimodal for the paper-like geometry:** scanning $N = 10..200$ for the paper-like offsets $(u, v) = (n_0 + 5, \text{target} + 1)$ yields zero paper/macro bimodality cases (Section 8).
- **Large shortcut strength suppresses bimodality:** for the paper-like geometry at $N = 100$ ($u = 6 \rightarrow v = 51$), the β scan shows paper/macro flags drop to 0 once $\beta \gtrsim 0.07$ (Table 2, Figure 5).

5 Minimal clean example: $N = 10$ (selfloop model; not equal4)

Parameters:

- $N = 10, q = 2/3$ (equal-prob baseline);
- $n_0 = 1, \text{target} = 5$;
- shortcut (selfloop rule; **not** $1/4$ each at u): $u = n_0 = 1 \rightarrow v = \text{target} = 5, p = 0.006666\dots$ (e.g. $\beta = 0.02$ so $p = \beta(1 - q) = 0.02/3$);
- flux run stops at survival $< 10^{-14}$ (tail-mass upper bound).

With $h_{\min} = 10^{-7}$ this case has exactly two strict local peaks, at $t_1 = 1$ and $t_2 = 10$, and satisfies $t_2/t_1 = 10$.

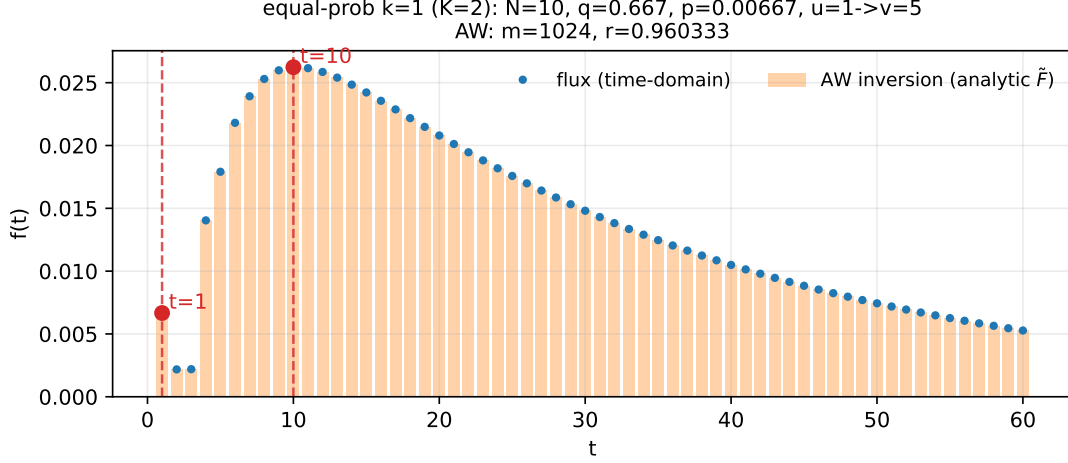


Figure 1: $N = 10, q = 2/3, p = 0.006666\dots, u = 1 \rightarrow v = 5$. AW inversion (analytic $\tilde{F}$) matches flux; two peak times are marked.

6 Odd N example: $N = 11$

Using the same baseline and shortcut setting ($u = n_0 = 1 \rightarrow v = \text{target} = 5, p = 0.006666\dots$), we also get two strict peaks at $t_1 = 1, t_2 = 10$ (with $h_{\min} = 10^{-7}$).

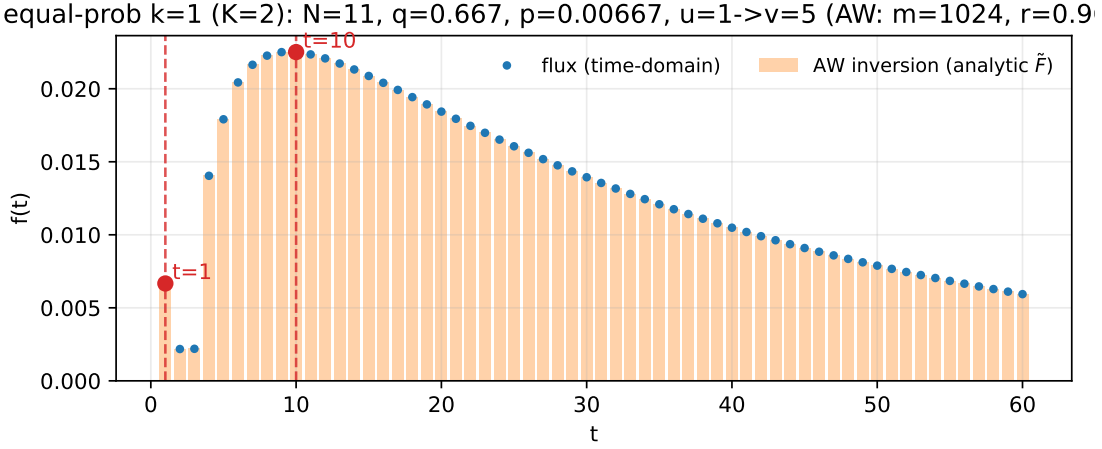


Figure 2: $N = 11$ (odd) example; AW and flux overlap to machine precision.

7 Full scan (AW analytic): N from small to larger

We fix $q = 2/3, n_0 = 1$, and the simplest shortcut $u = n_0 \rightarrow v = \text{target}$ with $\beta = 0.02$ (so $p = 0.006666\dots$), and scan all endpoints $\text{target} \neq n_0$ for $N = 3..60$.

Scan protocol For each (N, target) :

- evaluate $\tilde{F}(z)$ from the Chebyshev closed form (`lazy_ring_aw_chebyshev.py`);
- invert by AW to obtain $f(t)$ up to $t_{\max} = \lceil 4N^2 \rceil$;

- choose $m = \text{pow2}(\text{oversample} \cdot (t_{\max} + 1))$ (default `oversample=4`) and r so that $r^m = 10^{-18}$;
- detect strict local peaks ($h_{\min} = 10^{-7}$) and compute paper/macro flags and dominant peak times (t_1, t_2) .

The complete per-target table is in Appendix Table 4.

Heatmap view We visualize where *macro bimodality* holds ($t_2/t_1 \geq 10$) and color those points by the late peak time t_2 . The horizontal axis is the ring distance $d = \text{dist}(n_0, \text{target})$ and the vertical axis is N .

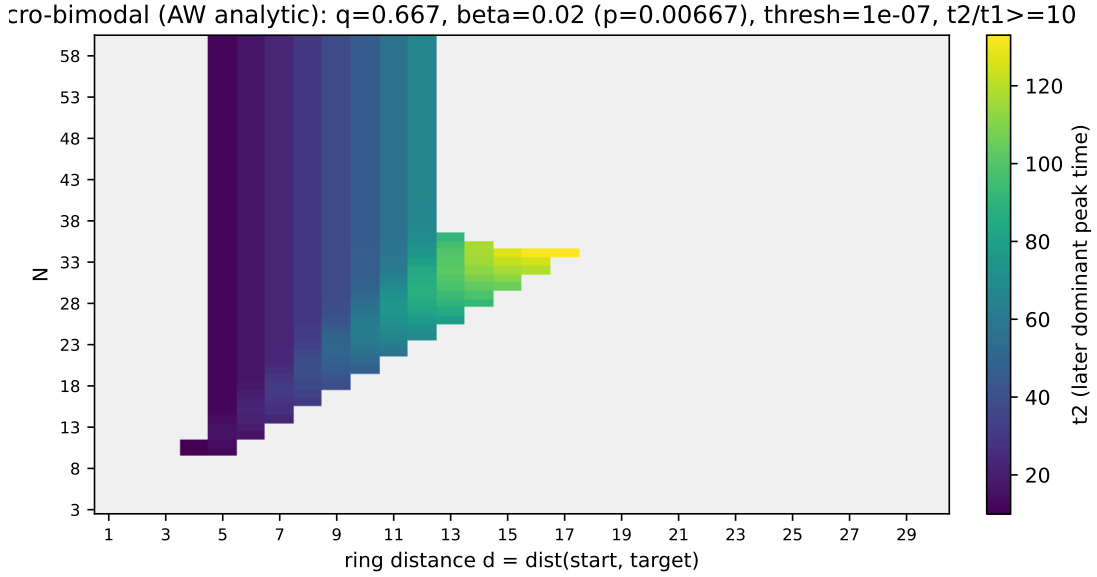


Figure 3: Full scan heatmap (AW analytic): $N = 3..60$, distance d , and macro-bimodality locations; color shows the late peak time t_2 .

8 The “equal shortcut probability” rule: equal4 (four actions each $1/4$ at u)

The Chebyshev closed form in `deriv_k2/note_k2.pdf` corresponds to the *selfloop* rule: take probability p from the self-loop at u and add it to $u \rightarrow v$, while keeping $P(u \rightarrow u \pm 1) = q/2$ unchanged.

If the shortcut is chosen with the *same probability as the other actions* at the source u , then the rule at u is

$$P(u \rightarrow u) = P(u \rightarrow u \pm 1) = P(u \rightarrow v) = \frac{1}{4},$$

which also changes the neighbor probabilities at u (so the closed form changes). This is still a **single-column defect** and can be handled analytically by a rank-1 (Sherman–Morrison) update of the defect-free propagator $\tilde{Q}(z)$; we implement this as `fpt_pmf_aw_equal4` in `lazy_ring_aw_chebyshev.py` and cross-check it by flux.

Conclusion (no bimodality for the paper-like geometry) For the repeatedly used paper-like geometry ($n_0 = 1$, $\text{target} = \lfloor N/2 \rfloor$, $u = n_0 + 5$, $v = \text{target} + 1$), a scan over $N = 10..200$ finds **zero** paper/macro-bimodality cases under the equal4 rule ($h_{\min} = 10^{-7}$, 2nd peak $\geq 1\%$,

and macro separation $t_2/t_1 \geq 10$). Representative rows are listed in Table 1. Figure 4 shows a direct comparison at $N = 100$: the selfloop small- p model exhibits two dominant peaks, while the equal4 rule yields a single peak.

N	u	v	paper	macro	t_{peak}
20	6	11	0	0	34
50	6	26	0	0	27
100	6	51	0	0	27
160	6	81	0	0	27
200	6	101	0	0	27

Table 1: Representative results under the equal-4 rule at the shortcut source (at u : stay/left/right/shortcut each 1/4), using the paper-like geometry $n_0 = 1$, target = $\lfloor N/2 \rfloor$, $u = n_0 + 5$, $v = \text{target} + 1$.

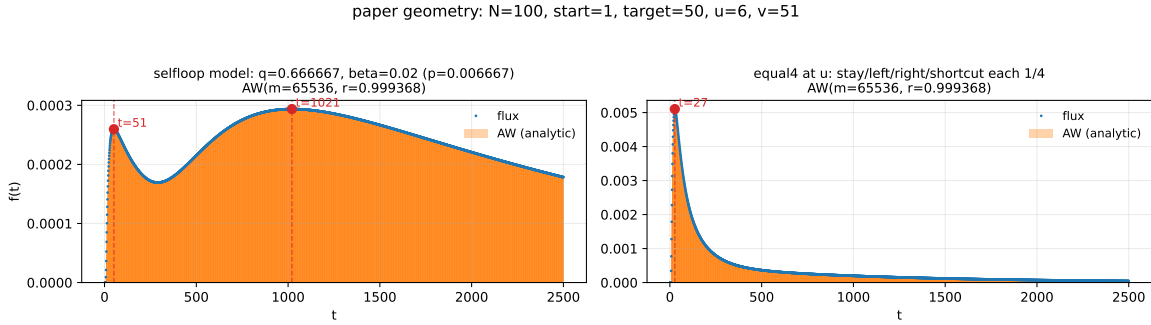


Figure 4: Paper-like geometry ($N = 100$, $u = 6 \rightarrow v = 51$): selfloop (left) is bimodal for $\beta = 0.02$; equal4 (right) is unimodal. AW inversion matches flux in both.

8.1 Why does bimodality disappear for large p ? (selfloop β scan)

Intuitively, in the selfloop construction, increasing p makes it much more likely to enter the shortcut before reaching target, concentrating mass at a faster time scale and suppressing the slower diffusive peak. For the paper-like geometry at $N = 100$ ($u = 6 \rightarrow v = 51$), a β scan ($p = \beta(1 - q)$) shows that for $\beta \gtrsim 0.07$ the paper/macro bimodality flags drop to 0 (Table 2), and the curves become unimodal (Figure 5).

9 Comparison: why does valley_report show “no bimodality” for $K = 2$?

ring_valley.tex / valley_study.py use a different construction (closer to the original paper Fig. 3 setup):

- **Non-lazy walk:** uniform jump to K neighbors (no self-loop).
- **Shortcut probability rule:** at the shortcut source node, *add* a directed edge and renormalize all outgoing probabilities to $1/(K + 1)$ (each original neighbor edge drops from $1/K$ to $1/(K + 1)$).
- **Parity fix for $K = 2$:** coarse-grain by 2 steps before applying the Fig. 3 peak rule.

β	p	paper	macro	t_1	t_2
0	0	0	0	—	—
0.0005	0.000166667	1	1	54	1241
0.001	0.000333333	1	1	54	1234
0.002	0.000666667	1	1	54	1221
0.005	0.00166667	1	1	53	1182
0.01	0.00333333	1	1	53	1123
0.02	0.00666667	1	1	51	1021
0.03	0.01	1	1	50	934
0.05	0.0166667	1	1	48	777
0.07	0.0233333	0	0	—	—
0.1	0.0333333	0	0	—	—
0.15	0.05	0	0	—	—
0.2	0.0666667	0	0	—	—
0.3	0.1	0	0	—	—
0.5	0.166667	0	0	—	—
1	0.333333	0	0	—	—

Table 2: Selfloop β scan for the paper-like geometry at $N = 100$ ($u = 6 \rightarrow v = 51$), with $p = \beta(1 - q)$.

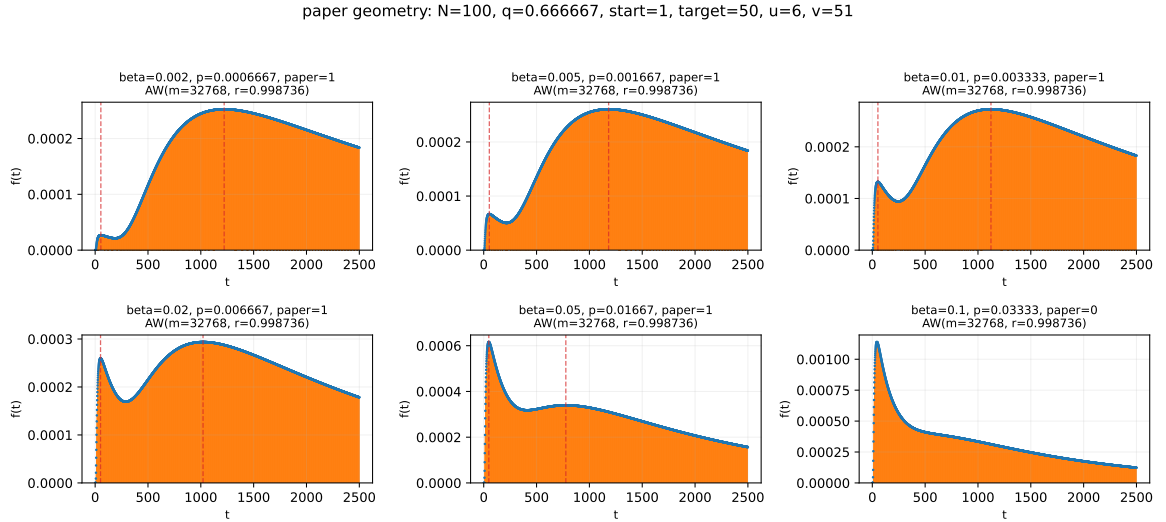


Figure 5: Selfloop β sensitivity at the paper-like geometry ($N = 100$, $u = 6 \rightarrow v = 51$), with $p = \beta(1 - q)$. Increasing p suppresses bimodality. Each panel overlays analytic AW inversion with flux.

Under this model, the $K = 2$ scan reports no bimodality over wide N ranges. We reproduce that with an exact master-equation propagation (tail mass $< 10^{-14}$); Table 3 shows that after 2-step coarse-graining there is only one dominant peak for each tested N .

N	K	peaks	t_{peak}	$A(t_{\text{peak}})$
10	2	1	4	0.0740740740741
20	2	1	12	0.0250960268977
50	2	1	10	0.0153956437253
100	2	1	10	0.0153956437253
160	2	1	10	0.0153956437253

Table 3: $K=2$ peak counts for the valley_report model (after 2-step coarse-graining): each N has only one dominant peak, hence no bimodality.

Figure 6 gives a direct visual contrast: **left** is the valley_report $K = 2$ model (one peak after coarse-graining), and **right** is the lazy selfloop probability model used in this report (two dominant peaks appear for the same shortcut geometry $u = 6 \rightarrow v = 51$).

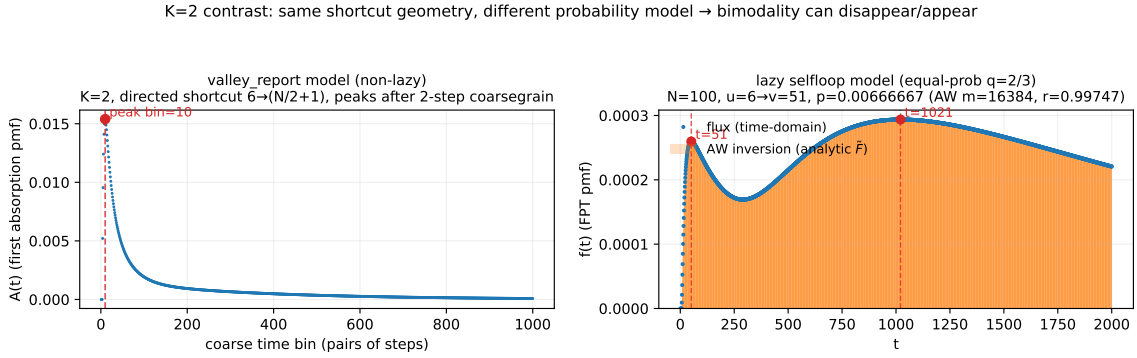


Figure 6: $K = 2$ contrast: same shortcut geometry, different probability rule $\Rightarrow$ unimodal vs. bimodal behavior.

10 Possible next steps (not executed here)

To locate the onset of bimodality more systematically, a direct approach is to scan parameter planes and record (t_1, t_2) :

- **Scan (q, p) or (q, β) :** fix a geometry (e.g. the paper-like offsets $u = n_0 + 5$, $v = \text{target} + 1$) and scan $q \in (0, 1)$ with $p \in [0, 1 - q]$ (or $p = \beta(1 - q)$). For each grid point, use AW to produce $f(1..t_{\text{max}})$, compute paper/macro flags and (t_1, t_2) , and plot heatmaps (e.g. “bimodal vs unimodal” or the late peak time t_2).
- **Scan geometry:** for fixed q, p , scan endpoints (distance d) and relative placements of (u, v) ; compare “fixed (u, v) ” vs “allow (u, v) to vary” protocols.
- **Robustness against micro-oscillations:** add a valley-depth or coarse-graining rule (cf. the 2-step coarse-grain in valley_report) and cross-check a few representative points with flux.

11 Reproducibility commands

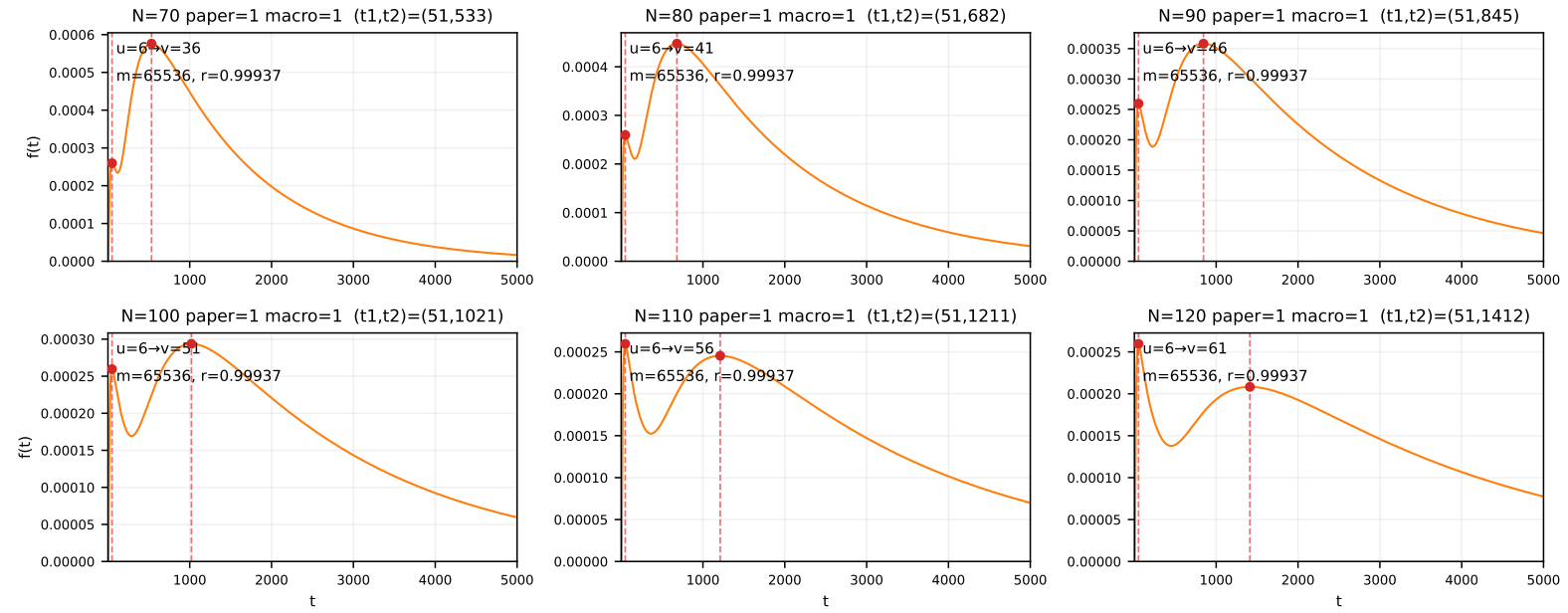
- $N=10$ overlay (AW vs flux): `python3code/plot_lazy_k2_example.py`

- N=11 overlay: `python3code/plot_lazy_k2_example.py--N11--target5--v5--tplot60`
- heatmap: `python3code/plot_lazy_k2_aw_distance_scan.py--N-min3--N-max60`
- full scan table: `python3code/scan_lazy_k2_aw_fulltable.py--N-min3--N-max60`
- multi-panel gallery (even_small): `python3code/plot_lazy_k2_aw_antipodal_panels.py--groupeven_small`
- multi-panel gallery (odd_small): `python3code/plot_lazy_k2_aw_antipodal_panels.py--groupodd_small`
- multi-panel gallery (even_medium): `python3code/plot_lazy_k2_aw_antipodal_panels.py--groupeven_medium`
- equal4 (paper-like geometry) scan: `python3code/scan_lazy_k2_equal4_paper_geometry.py--N-min10--N-max200`
- paper-like selfloop vs equal4 comparison: `python3code/plot_lazy_k2_paper_geometry_equal4_compare.py--N100`
- small- p bimodal gallery (compact multi-panel): `python3code/plot_lazy_k2_selfloop_smallp_gallery_compact.py--q0.6666666667--beta0.02--tplot5000`

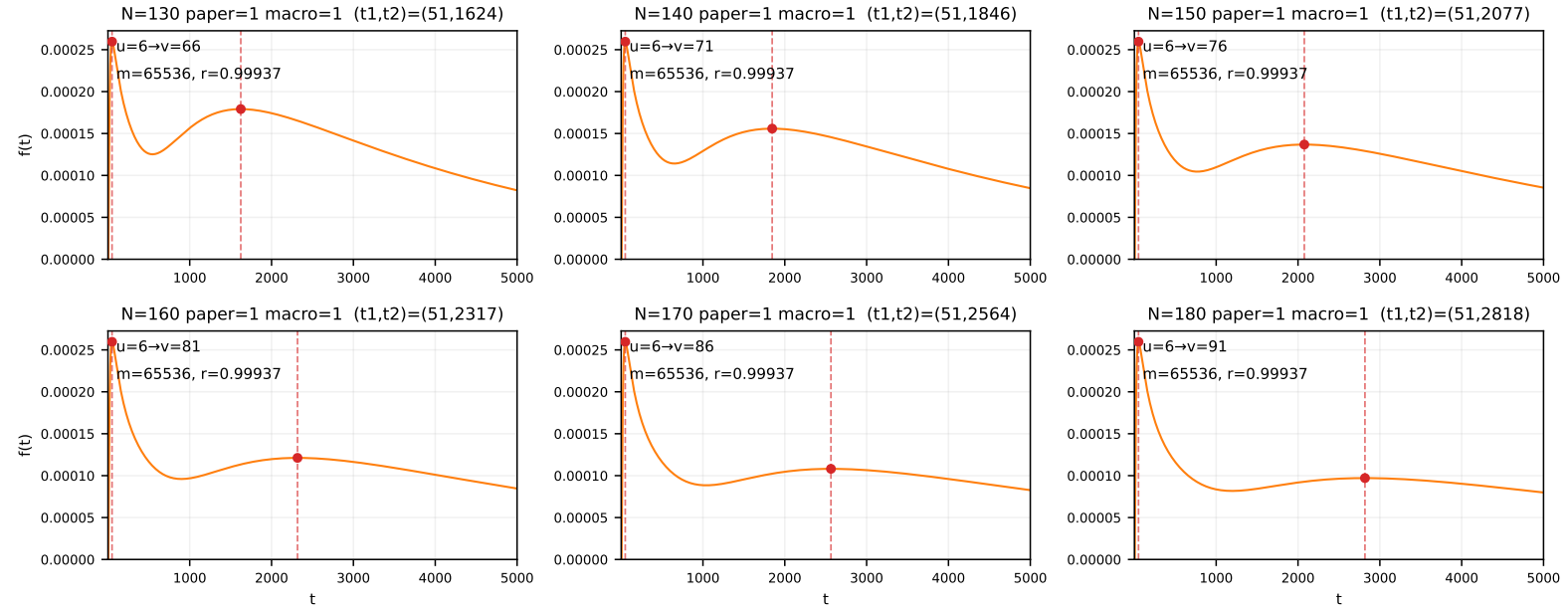
A Small- p bimodal gallery (selfloop; paper-like geometry)

This appendix collects a set of small- p selfloop bimodal curves for the paper-like geometry at $\beta = 0.02$ (so $p = 0.006666\dots$), combined into a compact multi-panel PDF (multiple N cases per page).

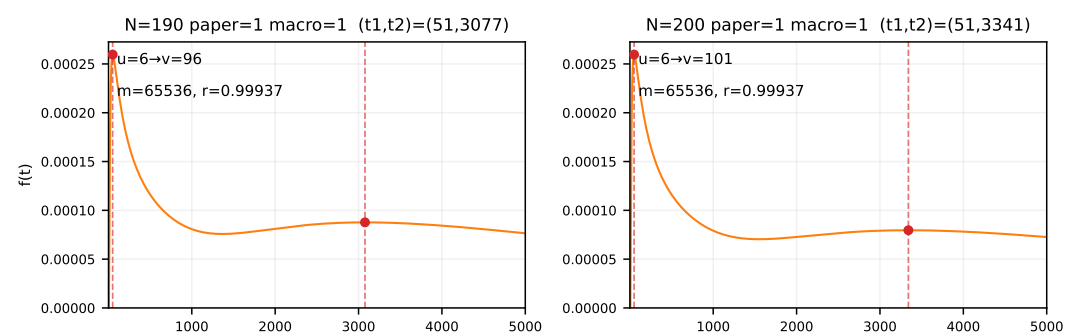
loop small-p (compact, AW analytic): $q=0.666667$, $\beta=0.02$ ($p=0.006667$), $\text{start}=1$, $u_{\text{offset}}=5$, $v_{\text{offset}}=1$, $h_{\text{min}}=1\text{e-}07$, $\text{second_frac}=0.01$, $t_2/t_1>=$



loop small-p (compact, AW analytic): $q=0.666667$, $\beta=0.02$ ($p=0.006667$), $\text{start}=1$, $u_{\text{offset}}=5$, $v_{\text{offset}}=1$, $h_{\text{min}}=1e-07$, $\text{second_frac}=0.01$, $t_2/t_1>=$



floop small-p (compact, AW analytic): $q=0.666667$, $\beta=0.02$ ($p=0.006667$), $\text{start}=1$, $u_{\text{offset}}=5$, $v_{\text{offset}}=1$, $h_{\text{min}}=1e-07$, $\text{second_frac}=0.01$, $t_2/t_1>=$



B Supplementary: antipodal AW curves (multi-figure panels)

For a visual gallery, we also plot AW-inverted pmfs for the (near-)antipodal endpoint target = $n_0 + \lfloor N/2 \rfloor$:

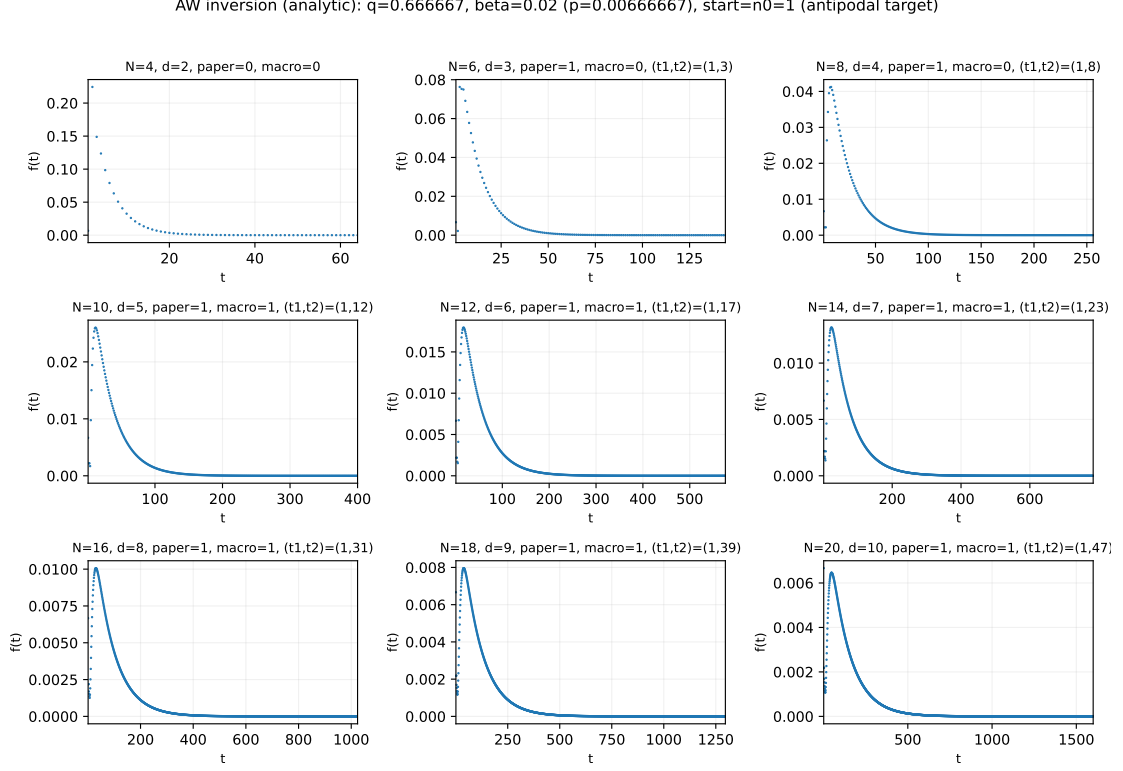


Figure 7: Antipodal examples (even small N : $N = 4, 6, \dots, 20$). Titles include paper/macro flags and (t_1, t_2) .

C Full scan table

Table 4: Full scan table (equal-prob baseline $q = 2/3$, $\beta = 0.02$ so $p = 0.006666\dots$, start $n_0 = 1$, shortcut $u = n_0 \rightarrow v = \text{target}$). paper/macro are 0/1; d is the ring distance from n_0 .

N	target	d	paper	macro	t_1	t_2
3	0	1	0	0	—	—
3	2	1	0	0	—	—
4	0	1	1	0	1	3
4	2	1	1	0	1	3
4	3	2	0	0	—	—
5	0	1	0	0	—	—
5	2	1	0	0	—	—
5	3	2	0	0	—	—
5	4	2	0	0	—	—
6	0	1	0	0	—	—
6	2	1	0	0	—	—
6	3	2	0	0	—	—
6	5	2	0	0	—	—
6	4	3	1	0	1	3
7	0	1	0	0	—	—
7	2	1	0	0	—	—
7	3	2	0	0	—	—

N	target	d	paper	macro	t_1	t_2
7	6	2	0	0	—	—
7	4	3	1	0	1	5
7	5	3	1	0	1	5
8	0	1	0	0	—	—
8	2	1	0	0	—	—
8	3	2	0	0	—	—
8	7	2	0	0	—	—
8	4	3	1	0	3	5
8	6	3	1	0	3	5
8	5	4	1	0	1	8
9	0	1	0	0	—	—
9	2	1	0	0	—	—
9	3	2	0	0	—	—
9	8	2	0	0	—	—
9	4	3	1	0	1	3
9	7	3	1	0	1	3
9	5	4	1	0	1	9
9	6	4	1	0	1	9
10	0	1	0	0	—	—
10	2	1	0	0	—	—
10	3	2	0	0	—	—
10	9	2	0	0	—	—
10	4	3	1	0	1	3
10	8	3	1	0	1	3
10	5	4	1	1	1	10
10	7	4	1	1	1	10
10	6	5	1	1	1	12
11	0	1	0	0	—	—
11	2	1	0	0	—	—
11	3	2	0	0	—	—
11	10	2	0	0	—	—
11	4	3	1	0	1	3
11	9	3	1	0	1	3
11	5	4	1	1	1	10
11	8	4	1	1	1	10
11	6	5	1	1	1	14
11	7	5	1	1	1	14
12	0	1	0	0	—	—
12	2	1	0	0	—	—
12	3	2	0	0	—	—
12	11	2	0	0	—	—
12	4	3	1	0	1	3
12	10	3	1	0	1	3
12	5	4	1	0	1	8
12	9	4	1	0	1	8
12	6	5	1	1	1	16
12	8	5	1	1	1	16
12	7	6	1	1	1	17
13	0	1	0	0	—	—
13	2	1	0	0	—	—
13	3	2	0	0	—	—
13	12	2	0	0	—	—
13	4	3	1	0	1	3
13	11	3	1	0	1	3
13	5	4	1	0	1	8
13	10	4	1	0	1	8
13	6	5	1	1	1	16
13	9	5	1	1	1	16
13	7	6	1	1	1	20
13	8	6	1	1	1	20
14	0	1	0	0	—	—
14	2	1	0	0	—	—
14	3	2	0	0	—	—
14	13	2	0	0	—	—
14	4	3	1	0	1	3
14	12	3	1	0	1	3
14	5	4	1	0	1	8
14	11	4	1	0	1	8
14	6	5	1	1	1	14
14	10	5	1	1	1	14
14	7	6	1	1	1	22

N	target	d	paper	macro	t_1	t_2
14	9	6	1	1	1	22
14	8	7	1	1	1	23
15	0	1	0	0	—	—
15	2	1	0	0	—	—
15	3	2	0	0	—	—
15	14	2	0	0	—	—
15	4	3	1	0	1	3
15	13	3	1	0	1	3
15	5	4	1	0	1	8
15	12	4	1	0	1	8
15	6	5	1	1	1	12
15	11	5	1	1	1	12
15	7	6	1	1	1	23
15	10	6	1	1	1	23
15	8	7	1	1	1	27
15	9	7	1	1	1	27
16	0	1	0	0	—	—
16	2	1	0	0	—	—
16	3	2	0	0	—	—
16	15	2	0	0	—	—
16	4	3	1	0	1	3
16	14	3	1	0	1	3
16	5	4	1	0	1	8
16	13	4	1	0	1	8
16	6	5	1	1	1	12
16	12	5	1	1	1	12
16	7	6	1	1	1	22
16	11	6	1	1	1	22
16	8	7	1	1	1	29
16	10	7	1	1	1	29
16	9	8	1	1	1	31
17	0	1	0	0	—	—
17	2	1	0	0	—	—
17	3	2	0	0	—	—
17	16	2	0	0	—	—
17	4	3	1	0	1	3
17	15	3	1	0	1	3
17	5	4	1	0	1	8
17	14	4	1	0	1	8
17	6	5	1	1	1	12
17	13	5	1	1	1	12
17	7	6	1	1	1	20
17	12	6	1	1	1	20
17	8	7	1	1	1	31
17	11	7	1	1	1	31
17	9	8	1	1	1	34
17	10	8	1	1	1	34
18	0	1	0	0	—	—
18	2	1	0	0	—	—
18	3	2	0	0	—	—
18	17	2	0	0	—	—
18	4	3	1	0	1	3
18	16	3	1	0	1	3
18	5	4	1	0	1	8
18	15	4	1	0	1	8
18	6	5	1	1	1	12
18	14	5	1	1	1	12
18	7	6	1	1	1	18
18	13	6	1	1	1	18
18	8	7	1	1	1	31
18	12	7	1	1	1	31
18	9	8	1	1	1	37
18	11	8	1	1	1	37
18	10	9	1	1	1	39
19	0	1	0	0	—	—
19	2	1	0	0	—	—
19	3	2	0	0	—	—
19	18	2	0	0	—	—
19	4	3	1	0	1	3
19	17	3	1	0	1	3
19	5	4	1	0	1	8

N	target	d	paper	macro	t_1	t_2
19	16	4	1	0	1	8
19	6	5	1	1	1	12
19	15	5	1	1	1	12
19	7	6	1	1	1	17
19	14	6	1	1	1	17
19	8	7	1	1	1	29
19	13	7	1	1	1	29
19	9	8	1	1	1	39
19	12	8	1	1	1	39
19	10	9	1	1	1	43
19	11	9	1	1	1	43
20	0	1	0	0	–	–
20	2	1	0	0	–	–
20	3	2	0	0	–	–
20	19	2	0	0	–	–
20	4	3	1	0	1	3
20	18	3	1	0	1	3
20	5	4	1	0	1	8
20	17	4	1	0	1	8
20	6	5	1	1	1	12
20	16	5	1	1	1	12
20	7	6	1	1	1	17
20	15	6	1	1	1	17
20	8	7	1	1	1	26
20	14	7	1	1	1	26
20	9	8	1	1	1	40
20	13	8	1	1	1	40
20	10	9	1	1	1	46
20	12	9	1	1	1	46
20	11	10	1	1	1	47
21	0	1	0	0	–	–
21	2	1	0	0	–	–
21	3	2	0	0	–	–
21	20	2	0	0	–	–
21	4	3	1	0	1	3
21	19	3	1	0	1	3
21	5	4	1	0	1	8
21	18	4	1	0	1	8
21	6	5	1	1	1	12
21	17	5	1	1	1	12
21	7	6	1	1	1	17
21	16	6	1	1	1	17
21	8	7	1	1	1	24
21	15	7	1	1	1	24
21	9	8	1	1	1	39
21	14	8	1	1	1	39
21	10	9	1	1	1	48
21	13	9	1	1	1	48
21	11	10	1	1	1	52
21	12	10	1	1	1	52
22	0	1	0	0	–	–
22	2	1	0	0	–	–
22	3	2	0	0	–	–
22	21	2	0	0	–	–
22	4	3	1	0	1	3
22	20	3	1	0	1	3
22	5	4	1	0	1	8
22	19	4	1	0	1	8
22	6	5	1	1	1	12
22	18	5	1	1	1	12
22	7	6	1	1	1	17
22	17	6	1	1	1	17
22	8	7	1	1	1	24
22	16	7	1	1	1	24
22	9	8	1	1	1	37
22	15	8	1	1	1	37
22	10	9	1	1	1	50
22	14	9	1	1	1	50
22	11	10	1	1	1	56
22	13	10	1	1	1	56
22	12	11	1	1	1	57

N	target	d	paper	macro	t_1	t_2
23	0	1	0	0	—	—
23	2	1	0	0	—	—
23	3	2	0	0	—	—
23	22	2	0	0	—	—
23	4	3	1	0	1	3
23	21	3	1	0	1	3
23	5	4	1	0	1	8
23	20	4	1	0	1	8
23	6	5	1	1	1	12
23	19	5	1	1	1	12
23	7	6	1	1	1	17
23	18	6	1	1	1	17
23	8	7	1	1	1	23
23	17	7	1	1	1	23
23	9	8	1	1	1	34
23	16	8	1	1	1	34
23	10	9	1	1	1	50
23	15	9	1	1	1	50
23	11	10	1	1	1	59
23	14	10	1	1	1	59
23	12	11	1	1	1	62
23	13	11	1	1	1	62
24	0	1	0	0	—	—
24	2	1	0	0	—	—
24	3	2	0	0	—	—
24	23	2	0	0	—	—
24	4	3	1	0	1	3
24	22	3	1	0	1	3
24	5	4	1	0	1	8
24	21	4	1	0	1	8
24	6	5	1	1	1	12
24	20	5	1	1	1	12
24	7	6	1	1	1	17
24	19	6	1	1	1	17
24	8	7	1	1	1	23
24	18	7	1	1	1	23
24	9	8	1	1	1	32
24	17	8	1	1	1	32
24	10	9	1	1	1	49
24	16	9	1	1	1	49
24	11	10	1	1	1	61
24	15	10	1	1	1	61
24	12	11	1	1	1	66
24	14	11	1	1	1	66
24	13	12	1	1	1	68
25	0	1	0	0	—	—
25	2	1	0	0	—	—
25	3	2	0	0	—	—
25	24	2	0	0	—	—
25	4	3	1	0	1	3
25	23	3	1	0	1	3
25	5	4	1	0	1	8
25	22	4	1	0	1	8
25	6	5	1	1	1	12
25	21	5	1	1	1	12
25	7	6	1	1	1	17
25	20	6	1	1	1	17
25	8	7	1	1	1	23
25	19	7	1	1	1	23
25	9	8	1	1	1	31
25	18	8	1	1	1	31
25	10	9	1	1	1	45
25	17	9	1	1	1	45
25	11	10	1	1	1	62
25	16	10	1	1	1	62
25	12	11	1	1	1	70
25	15	11	1	1	1	70
25	13	12	1	1	1	73
25	14	12	1	1	1	73
26	0	1	0	0	—	—
26	2	1	0	0	—	—

N	target	d	paper	macro	t_1	t_2
26	3	2	0	0	—	—
26	25	2	0	0	—	—
26	4	3	1	0	1	3
26	24	3	1	0	1	3
26	5	4	1	0	1	8
26	23	4	1	0	1	8
26	6	5	1	1	1	12
26	22	5	1	1	1	12
26	7	6	1	1	1	17
26	21	6	1	1	1	17
26	8	7	1	1	1	23
26	20	7	1	1	1	23
26	9	8	1	1	1	30
26	19	8	1	1	1	30
26	10	9	1	1	1	42
26	18	9	1	1	1	42
26	11	10	1	1	1	61
26	17	10	1	1	1	61
26	12	11	1	1	1	72
26	16	11	1	1	1	72
26	13	12	1	1	1	78
26	15	12	1	1	1	78
26	14	13	1	1	1	79
27	0	1	0	0	—	—
27	2	1	0	0	—	—
27	3	2	0	0	—	—
27	26	2	0	0	—	—
27	4	3	1	0	1	3
27	25	3	1	0	1	3
27	5	4	1	0	1	8
27	24	4	1	0	1	8
27	6	5	1	1	1	12
27	23	5	1	1	1	12
27	7	6	1	1	1	17
27	22	6	1	1	1	17
27	8	7	1	1	1	23
27	21	7	1	1	1	23
27	9	8	1	1	1	30
27	20	8	1	1	1	30
27	10	9	1	1	1	40
27	19	9	1	1	1	40
27	11	10	1	1	1	58
27	18	10	1	1	1	58
27	12	11	1	1	1	74
27	17	11	1	1	1	74
27	13	12	1	1	1	82
27	16	12	1	1	1	82
27	14	13	1	1	1	85
27	15	13	1	1	1	85
28	0	1	0	0	—	—
28	2	1	0	0	—	—
28	3	2	0	0	—	—
28	27	2	0	0	—	—
28	4	3	1	0	1	3
28	26	3	1	0	1	3
28	5	4	1	0	1	8
28	25	4	1	0	1	8
28	6	5	1	1	1	12
28	24	5	1	1	1	12
28	7	6	1	1	1	17
28	23	6	1	1	1	17
28	8	7	1	1	1	23
28	22	7	1	1	1	23
28	9	8	1	1	1	30
28	21	8	1	1	1	30
28	10	9	1	1	1	39
28	20	9	1	1	1	39
28	11	10	1	1	1	55
28	19	10	1	1	1	55
28	12	11	1	1	1	74
28	18	11	1	1	1	74

N	target	d	paper	macro	t_1	t_2
28	13	12	1	1	1	85
28	17	12	1	1	1	85
28	14	13	1	1	1	90
28	16	13	1	1	1	90
28	15	14	1	1	1	92
29	0	1	0	0	—	—
29	2	1	0	0	—	—
29	3	2	0	0	—	—
29	28	2	0	0	—	—
29	4	3	1	0	1	3
29	27	3	1	0	1	3
29	5	4	1	0	1	8
29	26	4	1	0	1	8
29	6	5	1	1	1	12
29	25	5	1	1	1	12
29	7	6	1	1	1	17
29	24	6	1	1	1	17
29	8	7	1	1	1	23
29	23	7	1	1	1	23
29	9	8	1	1	1	30
29	22	8	1	1	1	30
29	10	9	1	1	1	38
29	21	9	1	1	1	38
29	11	10	1	1	1	51
29	20	10	1	1	1	51
29	12	11	1	1	1	72
29	19	11	1	1	1	72
29	13	12	1	1	1	87
29	18	12	1	1	1	87
29	14	13	1	1	1	94
29	17	13	1	1	1	94
29	15	14	1	1	1	98
29	16	14	1	1	1	98
30	0	1	0	0	—	—
30	2	1	0	0	—	—
30	3	2	0	0	—	—
30	29	2	0	0	—	—
30	4	3	1	0	1	3
30	28	3	1	0	1	3
30	5	4	1	0	1	8
30	27	4	1	0	1	8
30	6	5	1	1	1	12
30	26	5	1	1	1	12
30	7	6	1	1	1	17
30	25	6	1	1	1	17
30	8	7	1	1	1	23
30	24	7	1	1	1	23
30	9	8	1	1	1	30
30	23	8	1	1	1	30
30	10	9	1	1	1	38
30	22	9	1	1	1	38
30	11	10	1	1	1	49
30	21	10	1	1	1	49
30	12	11	1	1	1	69
30	20	11	1	1	1	69
30	13	12	1	1	1	87
30	19	12	1	1	1	87
30	14	13	1	1	1	98
30	18	13	1	1	1	98
30	15	14	1	1	1	103
30	17	14	1	1	1	103
30	16	15	1	1	1	105
31	0	1	0	0	—	—
31	2	1	0	0	—	—
31	3	2	0	0	—	—
31	30	2	0	0	—	—
31	4	3	1	0	1	3
31	29	3	1	0	1	3
31	5	4	1	0	1	8
31	28	4	1	0	1	8
31	6	5	1	1	1	12

N	target	d	paper	macro	t_1	t_2
31	27	5	1	1	1	12
31	7	6	1	1	1	17
31	26	6	1	1	1	17
31	8	7	1	1	1	23
31	25	7	1	1	1	23
31	9	8	1	1	1	30
31	24	8	1	1	1	30
31	10	9	1	1	1	38
31	23	9	1	1	1	38
31	11	10	1	1	1	48
31	22	10	1	1	1	48
31	12	11	1	1	1	65
31	21	11	1	1	1	65
31	13	12	1	1	1	86
31	20	12	1	1	1	86
31	14	13	1	1	1	100
31	19	13	1	1	1	100
31	15	14	1	1	1	108
31	18	14	1	1	1	108
31	16	15	1	1	1	111
31	17	15	1	1	1	111
32	0	1	0	0	—	—
32	2	1	0	0	—	—
32	3	2	0	0	—	—
32	31	2	0	0	—	—
32	4	3	1	0	1	3
32	30	3	1	0	1	3
32	5	4	1	0	1	8
32	29	4	1	0	1	8
32	6	5	1	1	1	12
32	28	5	1	1	1	12
32	7	6	1	1	1	17
32	27	6	1	1	1	17
32	8	7	1	1	1	23
32	26	7	1	1	1	23
32	9	8	1	1	1	30
32	25	8	1	1	1	30
32	10	9	1	1	1	38
32	24	9	1	1	1	38
32	11	10	1	1	1	47
32	23	10	1	1	1	47
32	12	11	1	1	1	61
32	22	11	1	1	1	61
32	13	12	1	1	1	84
32	21	12	1	1	1	84
32	14	13	1	1	1	102
32	20	13	1	1	1	102
32	15	14	1	1	1	112
32	19	14	1	1	1	112
32	16	15	1	1	1	117
32	18	15	1	1	1	117
32	17	16	1	1	1	119
33	0	1	0	0	—	—
33	2	1	0	0	—	—
33	3	2	0	0	—	—
33	32	2	0	0	—	—
33	4	3	1	0	1	3
33	31	3	1	0	1	3
33	5	4	1	0	1	8
33	30	4	1	0	1	8
33	6	5	1	1	1	12
33	29	5	1	1	1	12
33	7	6	1	1	1	17
33	28	6	1	1	1	17
33	8	7	1	1	1	23
33	27	7	1	1	1	23
33	9	8	1	1	1	30
33	26	8	1	1	1	30
33	10	9	1	1	1	38
33	25	9	1	1	1	38
33	11	10	1	1	1	47

N	target	d	paper	macro	t_1	t_2
33	24	10	1	1	1	47
33	12	11	1	1	1	59
33	23	11	1	1	1	59
33	13	12	1	1	1	80
33	22	12	1	1	1	80
33	14	13	1	1	1	101
33	21	13	1	1	1	101
33	15	14	1	1	1	115
33	20	14	1	1	1	115
33	16	15	1	1	1	122
33	19	15	1	1	1	122
33	17	16	1	1	1	125
33	18	16	1	1	1	125
34	0	1	0	0	—	—
34	2	1	0	0	—	—
34	3	2	0	0	—	—
34	33	2	0	0	—	—
34	4	3	1	0	1	3
34	32	3	1	0	1	3
34	5	4	1	0	1	8
34	31	4	1	0	1	8
34	6	5	1	1	1	12
34	30	5	1	1	1	12
34	7	6	1	1	1	17
34	29	6	1	1	1	17
34	8	7	1	1	1	23
34	28	7	1	1	1	23
34	9	8	1	1	1	30
34	27	8	1	1	1	30
34	10	9	1	1	1	38
34	26	9	1	1	1	38
34	11	10	1	1	1	47
34	25	10	1	1	1	47
34	12	11	1	1	1	58
34	24	11	1	1	1	58
34	13	12	1	1	1	75
34	23	12	1	1	1	75
34	14	13	1	1	1	100
34	22	13	1	1	1	100
34	15	14	1	1	1	117
34	21	14	1	1	1	117
34	16	15	1	1	1	127
34	20	15	1	1	1	127
34	17	16	1	1	1	132
34	19	16	1	1	1	132
34	18	17	1	1	1	133
35	0	1	0	0	—	—
35	2	1	0	0	—	—
35	3	2	0	0	—	—
35	34	2	0	0	—	—
35	4	3	1	0	1	3
35	33	3	1	0	1	3
35	5	4	1	0	1	8
35	32	4	1	0	1	8
35	6	5	1	1	1	12
35	31	5	1	1	1	12
35	7	6	1	1	1	17
35	30	6	1	1	1	17
35	8	7	1	1	1	23
35	29	7	1	1	1	23
35	9	8	1	1	1	30
35	28	8	1	1	1	30
35	10	9	1	1	1	38
35	27	9	1	1	1	38
35	11	10	1	1	1	46
35	26	10	1	1	1	46
35	12	11	1	1	1	57
35	25	11	1	1	1	57
35	13	12	1	1	1	72
35	24	12	1	1	1	72
35	14	13	1	1	1	96

N	target	d	paper	macro	t_1	t_2
35	23	13	1	1	1	96
35	15	14	1	1	1	117
35	22	14	1	1	1	117
35	16	15	1	0	1	3
35	21	15	1	0	1	3
35	17	16	1	0	1	3
35	20	16	1	0	1	3
35	18	17	1	0	1	3
35	19	17	1	0	1	3
36	0	1	0	0	—	—
36	2	1	0	0	—	—
36	3	2	0	0	—	—
36	35	2	0	0	—	—
36	4	3	1	0	1	3
36	34	3	1	0	1	3
36	5	4	1	0	1	8
36	33	4	1	0	1	8
36	6	5	1	1	1	12
36	32	5	1	1	1	12
36	7	6	1	1	1	17
36	31	6	1	1	1	17
36	8	7	1	1	1	23
36	30	7	1	1	1	23
36	9	8	1	1	1	30
36	29	8	1	1	1	30
36	10	9	1	1	1	38
36	28	9	1	1	1	38
36	11	10	1	1	1	46
36	27	10	1	1	1	46
36	12	11	1	1	1	56
36	26	11	1	1	1	56
36	13	12	1	1	1	70
36	25	12	1	1	1	70
36	14	13	1	1	1	91
36	24	13	1	1	1	91
36	15	14	1	0	1	3
36	23	14	1	0	1	3
36	16	15	1	0	1	3
36	22	15	1	0	1	3
36	17	16	1	0	1	3
36	21	16	1	0	1	3
36	18	17	1	0	1	3
36	20	17	1	0	1	3
36	19	18	1	0	1	3
37	0	1	0	0	—	—
37	2	1	0	0	—	—
37	3	2	0	0	—	—
37	36	2	0	0	—	—
37	4	3	1	0	1	3
37	35	3	1	0	1	3
37	5	4	1	0	1	8
37	34	4	1	0	1	8
37	6	5	1	1	1	12
37	33	5	1	1	1	12
37	7	6	1	1	1	17
37	32	6	1	1	1	17
37	8	7	1	1	1	23
37	31	7	1	1	1	23
37	9	8	1	1	1	30
37	30	8	1	1	1	30
37	10	9	1	1	1	38
37	29	9	1	1	1	38
37	11	10	1	1	1	46
37	28	10	1	1	1	46
37	12	11	1	1	1	56
37	27	11	1	1	1	56
37	13	12	1	1	1	68
37	26	12	1	1	1	68
37	14	13	1	0	1	3
37	25	13	1	0	1	3
37	15	14	1	0	1	3

N	target	d	paper	macro	t_1	t_2
37	24	14	1	0	1	3
37	16	15	1	0	1	3
37	23	15	1	0	1	3
37	17	16	1	0	1	3
37	22	16	1	0	1	3
37	18	17	1	0	1	3
37	21	17	1	0	1	3
37	19	18	1	0	1	3
37	20	18	1	0	1	3
38	0	1	0	0	—	—
38	2	1	0	0	—	—
38	3	2	0	0	—	—
38	37	2	0	0	—	—
38	4	3	1	0	1	3
38	36	3	1	0	1	3
38	5	4	1	0	1	8
38	35	4	1	0	1	8
38	6	5	1	1	1	12
38	34	5	1	1	1	12
38	7	6	1	1	1	17
38	33	6	1	1	1	17
38	8	7	1	1	1	23
38	32	7	1	1	1	23
38	9	8	1	1	1	30
38	31	8	1	1	1	30
38	10	9	1	1	1	38
38	30	9	1	1	1	38
38	11	10	1	1	1	46
38	29	10	1	1	1	46
38	12	11	1	1	1	56
38	28	11	1	1	1	56
38	13	12	1	1	1	67
38	27	12	1	1	1	67
38	14	13	1	0	1	3
38	26	13	1	0	1	3
38	15	14	1	0	1	3
38	25	14	1	0	1	3
38	16	15	1	0	1	3
38	24	15	1	0	1	3
38	17	16	1	0	1	3
38	23	16	1	0	1	3
38	18	17	1	0	1	3
38	22	17	1	0	1	3
38	19	18	1	0	1	3
38	21	18	1	0	1	3
38	20	19	1	0	1	3
39	0	1	0	0	—	—
39	2	1	0	0	—	—
39	3	2	0	0	—	—
39	38	2	0	0	—	—
39	4	3	1	0	1	3
39	37	3	1	0	1	3
39	5	4	1	0	1	8
39	36	4	1	0	1	8
39	6	5	1	1	1	12
39	35	5	1	1	1	12
39	7	6	1	1	1	17
39	34	6	1	1	1	17
39	8	7	1	1	1	23
39	33	7	1	1	1	23
39	9	8	1	1	1	30
39	32	8	1	1	1	30
39	10	9	1	1	1	38
39	31	9	1	1	1	38
39	11	10	1	1	1	46
39	30	10	1	1	1	46
39	12	11	1	1	1	56
39	29	11	1	1	1	56
39	13	12	1	1	1	67
39	28	12	1	1	1	67
39	14	13	1	0	1	3

N	target	d	paper	macro	t_1	t_2
39	27	13	1	0	1	3
39	15	14	1	0	1	3
39	26	14	1	0	1	3
39	16	15	1	0	1	3
39	25	15	1	0	1	3
39	17	16	1	0	1	3
39	24	16	1	0	1	3
39	18	17	1	0	1	3
39	23	17	1	0	1	3
39	19	18	1	0	1	3
39	22	18	1	0	1	3
39	20	19	1	0	1	3
39	21	19	1	0	1	3
40	0	1	0	0	—	—
40	2	1	0	0	—	—
40	3	2	0	0	—	—
40	39	2	0	0	—	—
40	4	3	1	0	1	3
40	38	3	1	0	1	3
40	5	4	1	0	1	8
40	37	4	1	0	1	8
40	6	5	1	1	1	12
40	36	5	1	1	1	12
40	7	6	1	1	1	17
40	35	6	1	1	1	17
40	8	7	1	1	1	23
40	34	7	1	1	1	23
40	9	8	1	1	1	30
40	33	8	1	1	1	30
40	10	9	1	1	1	38
40	32	9	1	1	1	38
40	11	10	1	1	1	46
40	31	10	1	1	1	46
40	12	11	1	1	1	56
40	30	11	1	1	1	56
40	13	12	1	1	1	66
40	29	12	1	1	1	66
40	14	13	1	0	1	3
40	28	13	1	0	1	3
40	15	14	1	0	1	3
40	27	14	1	0	1	3
40	16	15	1	0	1	3
40	26	15	1	0	1	3
40	17	16	1	0	1	3
40	25	16	1	0	1	3
40	18	17	1	0	1	3
40	24	17	1	0	1	3
40	19	18	1	0	1	3
40	23	18	1	0	1	3
40	20	19	1	0	1	3
40	22	19	1	0	1	3
40	21	20	1	0	1	3
41	0	1	0	0	—	—
41	2	1	0	0	—	—
41	3	2	0	0	—	—
41	40	2	0	0	—	—
41	4	3	1	0	1	3
41	39	3	1	0	1	3
41	5	4	1	0	1	8
41	38	4	1	0	1	8
41	6	5	1	1	1	12
41	37	5	1	1	1	12
41	7	6	1	1	1	17
41	36	6	1	1	1	17
41	8	7	1	1	1	23
41	35	7	1	1	1	23
41	9	8	1	1	1	30
41	34	8	1	1	1	30
41	10	9	1	1	1	38
41	33	9	1	1	1	38
41	11	10	1	1	1	46

N	target	d	paper	macro	t_1	t_2
41	32	10	1	1	1	46
41	12	11	1	1	1	56
41	31	11	1	1	1	56
41	13	12	1	1	1	66
41	30	12	1	1	1	66
41	14	13	1	0	1	3
41	29	13	1	0	1	3
41	15	14	1	0	1	3
41	28	14	1	0	1	3
41	16	15	1	0	1	3
41	27	15	1	0	1	3
41	17	16	1	0	1	3
41	26	16	1	0	1	3
41	18	17	1	0	1	3
41	25	17	1	0	1	3
41	19	18	1	0	1	3
41	24	18	1	0	1	3
41	20	19	1	0	1	3
41	23	19	1	0	1	3
41	21	20	1	0	1	3
41	22	20	1	0	1	3
42	0	1	0	0	—	—
42	2	1	0	0	—	—
42	3	2	0	0	—	—
42	41	2	0	0	—	—
42	4	3	1	0	1	3
42	40	3	1	0	1	3
42	5	4	1	0	1	8
42	39	4	1	0	1	8
42	6	5	1	1	1	12
42	38	5	1	1	1	12
42	7	6	1	1	1	17
42	37	6	1	1	1	17
42	8	7	1	1	1	23
42	36	7	1	1	1	23
42	9	8	1	1	1	30
42	35	8	1	1	1	30
42	10	9	1	1	1	38
42	34	9	1	1	1	38
42	11	10	1	1	1	46
42	33	10	1	1	1	46
42	12	11	1	1	1	56
42	32	11	1	1	1	56
42	13	12	1	1	1	66
42	31	12	1	1	1	66
42	14	13	1	0	1	3
42	30	13	1	0	1	3
42	15	14	1	0	1	3
42	29	14	1	0	1	3
42	16	15	1	0	1	3
42	28	15	1	0	1	3
42	17	16	1	0	1	3
42	27	16	1	0	1	3
42	18	17	1	0	1	3
42	26	17	1	0	1	3
42	19	18	1	0	1	3
42	25	18	1	0	1	3
42	20	19	1	0	1	3
42	24	19	1	0	1	3
42	21	20	1	0	1	3
42	23	20	1	0	1	3
42	22	21	1	0	1	3
43	0	1	0	0	—	—
43	2	1	0	0	—	—
43	3	2	0	0	—	—
43	42	2	0	0	—	—
43	4	3	1	0	1	3
43	41	3	1	0	1	3
43	5	4	1	0	1	8
43	40	4	1	0	1	8
43	6	5	1	1	1	12

N	target	d	paper	macro	t_1	t_2
43	39	5	1	1	1	12
43	7	6	1	1	1	17
43	38	6	1	1	1	17
43	8	7	1	1	1	23
43	37	7	1	1	1	23
43	9	8	1	1	1	30
43	36	8	1	1	1	30
43	10	9	1	1	1	38
43	35	9	1	1	1	38
43	11	10	1	1	1	46
43	34	10	1	1	1	46
43	12	11	1	1	1	56
43	33	11	1	1	1	56
43	13	12	1	1	1	66
43	32	12	1	1	1	66
43	14	13	1	0	1	3
43	31	13	1	0	1	3
43	15	14	1	0	1	3
43	30	14	1	0	1	3
43	16	15	1	0	1	3
43	29	15	1	0	1	3
43	17	16	1	0	1	3
43	28	16	1	0	1	3
43	18	17	1	0	1	3
43	27	17	1	0	1	3
43	19	18	1	0	1	3
43	26	18	1	0	1	3
43	20	19	1	0	1	3
43	25	19	1	0	1	3
43	21	20	1	0	1	3
43	24	20	1	0	1	3
43	22	21	1	0	1	3
43	23	21	1	0	1	3
44	0	1	0	0	—	—
44	2	1	0	0	—	—
44	3	2	0	0	—	—
44	43	2	0	0	—	—
44	4	3	1	0	1	3
44	42	3	1	0	1	3
44	5	4	1	0	1	8
44	41	4	1	0	1	8
44	6	5	1	1	1	12
44	40	5	1	1	1	12
44	7	6	1	1	1	17
44	39	6	1	1	1	17
44	8	7	1	1	1	23
44	38	7	1	1	1	23
44	9	8	1	1	1	30
44	37	8	1	1	1	30
44	10	9	1	1	1	38
44	36	9	1	1	1	38
44	11	10	1	1	1	46
44	35	10	1	1	1	46
44	12	11	1	1	1	56
44	34	11	1	1	1	56
44	13	12	1	1	1	66
44	33	12	1	1	1	66
44	14	13	1	0	1	3
44	32	13	1	0	1	3
44	15	14	1	0	1	3
44	31	14	1	0	1	3
44	16	15	1	0	1	3
44	30	15	1	0	1	3
44	17	16	1	0	1	3
44	29	16	1	0	1	3
44	18	17	1	0	1	3
44	28	17	1	0	1	3
44	19	18	1	0	1	3
44	27	18	1	0	1	3
44	20	19	1	0	1	3
44	26	19	1	0	1	3

N	target	d	paper	macro	t_1	t_2
44	21	20	1	0	1	3
44	25	20	1	0	1	3
44	22	21	1	0	1	3
44	24	21	1	0	1	3
44	23	22	1	0	1	3
45	0	1	0	0	—	—
45	2	1	0	0	—	—
45	3	2	0	0	—	—
45	44	2	0	0	—	—
45	4	3	1	0	1	3
45	43	3	1	0	1	3
45	5	4	1	0	1	8
45	42	4	1	0	1	8
45	6	5	1	1	1	12
45	41	5	1	1	1	12
45	7	6	1	1	1	17
45	40	6	1	1	1	17
45	8	7	1	1	1	23
45	39	7	1	1	1	23
45	9	8	1	1	1	30
45	38	8	1	1	1	30
45	10	9	1	1	1	38
45	37	9	1	1	1	38
45	11	10	1	1	1	46
45	36	10	1	1	1	46
45	12	11	1	1	1	56
45	35	11	1	1	1	56
45	13	12	1	1	1	66
45	34	12	1	1	1	66
45	14	13	1	0	1	3
45	33	13	1	0	1	3
45	15	14	1	0	1	3
45	32	14	1	0	1	3
45	16	15	1	0	1	3
45	31	15	1	0	1	3
45	17	16	1	0	1	3
45	30	16	1	0	1	3
45	18	17	1	0	1	3
45	29	17	1	0	1	3
45	19	18	1	0	1	3
45	28	18	1	0	1	3
45	20	19	1	0	1	3
45	27	19	1	0	1	3
45	21	20	1	0	1	3
45	26	20	1	0	1	3
45	22	21	1	0	1	3
45	25	21	1	0	1	3
45	23	22	1	0	1	3
45	24	22	1	0	1	3
46	0	1	0	0	—	—
46	2	1	0	0	—	—
46	3	2	0	0	—	—
46	45	2	0	0	—	—
46	4	3	1	0	1	3
46	44	3	1	0	1	3
46	5	4	1	0	1	8
46	43	4	1	0	1	8
46	6	5	1	1	1	12
46	42	5	1	1	1	12
46	7	6	1	1	1	17
46	41	6	1	1	1	17
46	8	7	1	1	1	23
46	40	7	1	1	1	23
46	9	8	1	1	1	30
46	39	8	1	1	1	30
46	10	9	1	1	1	38
46	38	9	1	1	1	38
46	11	10	1	1	1	46
46	37	10	1	1	1	46
46	12	11	1	1	1	56
46	36	11	1	1	1	56

N	target	d	paper	macro	t_1	t_2
46	13	12	1	1	1	66
46	35	12	1	1	1	66
46	14	13	1	0	1	3
46	34	13	1	0	1	3
46	15	14	1	0	1	3
46	33	14	1	0	1	3
46	16	15	1	0	1	3
46	32	15	1	0	1	3
46	17	16	1	0	1	3
46	31	16	1	0	1	3
46	18	17	1	0	1	3
46	30	17	1	0	1	3
46	19	18	1	0	1	3
46	29	18	1	0	1	3
46	20	19	1	0	1	3
46	28	19	1	0	1	3
46	21	20	1	0	1	3
46	27	20	1	0	1	3
46	22	21	1	0	1	3
46	26	21	1	0	1	3
46	23	22	1	0	1	3
46	25	22	1	0	1	3
46	24	23	1	0	1	3
47	0	1	0	0	—	—
47	2	1	0	0	—	—
47	3	2	0	0	—	—
47	46	2	0	0	—	—
47	4	3	1	0	1	3
47	45	3	1	0	1	3
47	5	4	1	0	1	8
47	44	4	1	0	1	8
47	6	5	1	1	1	12
47	43	5	1	1	1	12
47	7	6	1	1	1	17
47	42	6	1	1	1	17
47	8	7	1	1	1	23
47	41	7	1	1	1	23
47	9	8	1	1	1	30
47	40	8	1	1	1	30
47	10	9	1	1	1	38
47	39	9	1	1	1	38
47	11	10	1	1	1	46
47	38	10	1	1	1	46
47	12	11	1	1	1	56
47	37	11	1	1	1	56
47	13	12	1	1	1	66
47	36	12	1	1	1	66
47	14	13	1	0	1	3
47	35	13	1	0	1	3
47	15	14	1	0	1	3
47	34	14	1	0	1	3
47	16	15	1	0	1	3
47	33	15	1	0	1	3
47	17	16	1	0	1	3
47	32	16	1	0	1	3
47	18	17	1	0	1	3
47	31	17	1	0	1	3
47	19	18	1	0	1	3
47	30	18	1	0	1	3
47	20	19	1	0	1	3
47	29	19	1	0	1	3
47	21	20	1	0	1	3
47	28	20	1	0	1	3
47	22	21	1	0	1	3
47	27	21	1	0	1	3
47	23	22	1	0	1	3
47	26	22	1	0	1	3
47	24	23	1	0	1	3
47	25	23	1	0	1	3
48	0	1	0	0	—	—
48	2	1	0	0	—	—

N	target	d	paper	macro	t_1	t_2
48	3	2	0	0	—	—
48	47	2	0	0	—	—
48	4	3	1	0	1	3
48	46	3	1	0	1	3
48	5	4	1	0	1	8
48	45	4	1	0	1	8
48	6	5	1	1	1	12
48	44	5	1	1	1	12
48	7	6	1	1	1	17
48	43	6	1	1	1	17
48	8	7	1	1	1	23
48	42	7	1	1	1	23
48	9	8	1	1	1	30
48	41	8	1	1	1	30
48	10	9	1	1	1	38
48	40	9	1	1	1	38
48	11	10	1	1	1	46
48	39	10	1	1	1	46
48	12	11	1	1	1	56
48	38	11	1	1	1	56
48	13	12	1	1	1	66
48	37	12	1	1	1	66
48	14	13	1	0	1	3
48	36	13	1	0	1	3
48	15	14	1	0	1	3
48	35	14	1	0	1	3
48	16	15	1	0	1	3
48	34	15	1	0	1	3
48	17	16	1	0	1	3
48	33	16	1	0	1	3
48	18	17	1	0	1	3
48	32	17	1	0	1	3
48	19	18	1	0	1	3
48	31	18	1	0	1	3
48	20	19	1	0	1	3
48	30	19	1	0	1	3
48	21	20	1	0	1	3
48	29	20	1	0	1	3
48	22	21	1	0	1	3
48	28	21	1	0	1	3
48	23	22	1	0	1	3
48	27	22	1	0	1	3
48	24	23	1	0	1	3
48	26	23	1	0	1	3
48	25	24	1	0	1	3
49	0	1	0	0	—	—
49	2	1	0	0	—	—
49	3	2	0	0	—	—
49	48	2	0	0	—	—
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49	47	3	1	0	1	3
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49	46	4	1	0	1	8
49	6	5	1	1	1	12
49	45	5	1	1	1	12
49	7	6	1	1	1	17
49	44	6	1	1	1	17
49	8	7	1	1	1	23
49	43	7	1	1	1	23
49	9	8	1	1	1	30
49	42	8	1	1	1	30
49	10	9	1	1	1	38
49	41	9	1	1	1	38
49	11	10	1	1	1	46
49	40	10	1	1	1	46
49	12	11	1	1	1	56
49	39	11	1	1	1	56
49	13	12	1	1	1	66
49	38	12	1	1	1	66
49	14	13	1	0	1	3
49	37	13	1	0	1	3

N	target	d	paper	macro	t_1	t_2
49	15	14	1	0	1	3
49	36	14	1	0	1	3
49	16	15	1	0	1	3
49	35	15	1	0	1	3
49	17	16	1	0	1	3
49	34	16	1	0	1	3
49	18	17	1	0	1	3
49	33	17	1	0	1	3
49	19	18	1	0	1	3
49	32	18	1	0	1	3
49	20	19	1	0	1	3
49	31	19	1	0	1	3
49	21	20	1	0	1	3
49	30	20	1	0	1	3
49	22	21	1	0	1	3
49	29	21	1	0	1	3
49	23	22	1	0	1	3
49	28	22	1	0	1	3
49	24	23	1	0	1	3
49	27	23	1	0	1	3
49	25	24	1	0	1	3
49	26	24	1	0	1	3
50	0	1	0	0	—	—
50	2	1	0	0	—	—
50	3	2	0	0	—	—
50	49	2	0	0	—	—
50	4	3	1	0	1	3
50	48	3	1	0	1	3
50	5	4	1	0	1	8
50	47	4	1	0	1	8
50	6	5	1	1	1	12
50	46	5	1	1	1	12
50	7	6	1	1	1	17
50	45	6	1	1	1	17
50	8	7	1	1	1	23
50	44	7	1	1	1	23
50	9	8	1	1	1	30
50	43	8	1	1	1	30
50	10	9	1	1	1	38
50	42	9	1	1	1	38
50	11	10	1	1	1	46
50	41	10	1	1	1	46
50	12	11	1	1	1	56
50	40	11	1	1	1	56
50	13	12	1	1	1	66
50	39	12	1	1	1	66
50	14	13	1	0	1	3
50	38	13	1	0	1	3
50	15	14	1	0	1	3
50	37	14	1	0	1	3
50	16	15	1	0	1	3
50	36	15	1	0	1	3
50	17	16	1	0	1	3
50	35	16	1	0	1	3
50	18	17	1	0	1	3
50	34	17	1	0	1	3
50	19	18	1	0	1	3
50	33	18	1	0	1	3
50	20	19	1	0	1	3
50	32	19	1	0	1	3
50	21	20	1	0	1	3
50	31	20	1	0	1	3
50	22	21	1	0	1	3
50	30	21	1	0	1	3
50	23	22	1	0	1	3
50	29	22	1	0	1	3
50	24	23	1	0	1	3
50	28	23	1	0	1	3
50	25	24	1	0	1	3
50	27	24	1	0	1	3
50	26	25	1	0	1	3

N	target	d	paper	macro	t_1	t_2
51	0	1	0	0	—	—
51	2	1	0	0	—	—
51	3	2	0	0	—	—
51	50	2	0	0	—	—
51	4	3	1	0	1	3
51	49	3	1	0	1	3
51	5	4	1	0	1	8
51	48	4	1	0	1	8
51	6	5	1	1	1	12
51	47	5	1	1	1	12
51	7	6	1	1	1	17
51	46	6	1	1	1	17
51	8	7	1	1	1	23
51	45	7	1	1	1	23
51	9	8	1	1	1	30
51	44	8	1	1	1	30
51	10	9	1	1	1	38
51	43	9	1	1	1	38
51	11	10	1	1	1	46
51	42	10	1	1	1	46
51	12	11	1	1	1	56
51	41	11	1	1	1	56
51	13	12	1	1	1	66
51	40	12	1	1	1	66
51	14	13	1	0	1	3
51	39	13	1	0	1	3
51	15	14	1	0	1	3
51	38	14	1	0	1	3
51	16	15	1	0	1	3
51	37	15	1	0	1	3
51	17	16	1	0	1	3
51	36	16	1	0	1	3
51	18	17	1	0	1	3
51	35	17	1	0	1	3
51	19	18	1	0	1	3
51	34	18	1	0	1	3
51	20	19	1	0	1	3
51	33	19	1	0	1	3
51	21	20	1	0	1	3
51	32	20	1	0	1	3
51	22	21	1	0	1	3
51	31	21	1	0	1	3
51	23	22	1	0	1	3
51	30	22	1	0	1	3
51	24	23	1	0	1	3
51	29	23	1	0	1	3
51	25	24	1	0	1	3
51	28	24	1	0	1	3
51	26	25	1	0	1	3
51	27	25	1	0	1	3
52	0	1	0	0	—	—
52	2	1	0	0	—	—
52	3	2	0	0	—	—
52	51	2	0	0	—	—
52	4	3	1	0	1	3
52	50	3	1	0	1	3
52	5	4	1	0	1	8
52	49	4	1	0	1	8
52	6	5	1	1	1	12
52	48	5	1	1	1	12
52	7	6	1	1	1	17
52	47	6	1	1	1	17
52	8	7	1	1	1	23
52	46	7	1	1	1	23
52	9	8	1	1	1	30
52	45	8	1	1	1	30
52	10	9	1	1	1	38
52	44	9	1	1	1	38
52	11	10	1	1	1	46
52	43	10	1	1	1	46
52	12	11	1	1	1	56

N	target	d	paper	macro	t_1	t_2
52	42	11	1	1	1	56
52	13	12	1	1	1	66
52	41	12	1	1	1	66
52	14	13	1	0	1	3
52	40	13	1	0	1	3
52	15	14	1	0	1	3
52	39	14	1	0	1	3
52	16	15	1	0	1	3
52	38	15	1	0	1	3
52	17	16	1	0	1	3
52	37	16	1	0	1	3
52	18	17	1	0	1	3
52	36	17	1	0	1	3
52	19	18	1	0	1	3
52	35	18	1	0	1	3
52	20	19	1	0	1	3
52	34	19	1	0	1	3
52	21	20	1	0	1	3
52	33	20	1	0	1	3
52	22	21	1	0	1	3
52	32	21	1	0	1	3
52	23	22	1	0	1	3
52	31	22	1	0	1	3
52	24	23	1	0	1	3
52	30	23	1	0	1	3
52	25	24	1	0	1	3
52	29	24	1	0	1	3
52	26	25	1	0	1	3
52	28	25	1	0	1	3
52	27	26	1	0	1	3
53	0	1	0	0	—	—
53	2	1	0	0	—	—
53	3	2	0	0	—	—
53	52	2	0	0	—	—
53	4	3	1	0	1	3
53	51	3	1	0	1	3
53	5	4	1	0	1	8
53	50	4	1	0	1	8
53	6	5	1	1	1	12
53	49	5	1	1	1	12
53	7	6	1	1	1	17
53	48	6	1	1	1	17
53	8	7	1	1	1	23
53	47	7	1	1	1	23
53	9	8	1	1	1	30
53	46	8	1	1	1	30
53	10	9	1	1	1	38
53	45	9	1	1	1	38
53	11	10	1	1	1	46
53	44	10	1	1	1	46
53	12	11	1	1	1	56
53	43	11	1	1	1	56
53	13	12	1	1	1	66
53	42	12	1	1	1	66
53	14	13	1	0	1	3
53	41	13	1	0	1	3
53	15	14	1	0	1	3
53	40	14	1	0	1	3
53	16	15	1	0	1	3
53	39	15	1	0	1	3
53	17	16	1	0	1	3
53	38	16	1	0	1	3
53	18	17	1	0	1	3
53	37	17	1	0	1	3
53	19	18	1	0	1	3
53	36	18	1	0	1	3
53	20	19	1	0	1	3
53	35	19	1	0	1	3
53	21	20	1	0	1	3
53	34	20	1	0	1	3
53	22	21	1	0	1	3

N	target	d	paper	macro	t_1	t_2
53	33	21	1	0	1	3
53	23	22	1	0	1	3
53	32	22	1	0	1	3
53	24	23	1	0	1	3
53	31	23	1	0	1	3
53	25	24	1	0	1	3
53	30	24	1	0	1	3
53	26	25	1	0	1	3
53	29	25	1	0	1	3
53	27	26	1	0	1	3
53	28	26	1	0	1	3
54	0	1	0	0	—	—
54	2	1	0	0	—	—
54	3	2	0	0	—	—
54	53	2	0	0	—	—
54	4	3	1	0	1	3
54	52	3	1	0	1	3
54	5	4	1	0	1	8
54	51	4	1	0	1	8
54	6	5	1	1	1	12
54	50	5	1	1	1	12
54	7	6	1	1	1	17
54	49	6	1	1	1	17
54	8	7	1	1	1	23
54	48	7	1	1	1	23
54	9	8	1	1	1	30
54	47	8	1	1	1	30
54	10	9	1	1	1	38
54	46	9	1	1	1	38
54	11	10	1	1	1	46
54	45	10	1	1	1	46
54	12	11	1	1	1	56
54	44	11	1	1	1	56
54	13	12	1	1	1	66
54	43	12	1	1	1	66
54	14	13	1	0	1	3
54	42	13	1	0	1	3
54	15	14	1	0	1	3
54	41	14	1	0	1	3
54	16	15	1	0	1	3
54	40	15	1	0	1	3
54	17	16	1	0	1	3
54	39	16	1	0	1	3
54	18	17	1	0	1	3
54	38	17	1	0	1	3
54	19	18	1	0	1	3
54	37	18	1	0	1	3
54	20	19	1	0	1	3
54	36	19	1	0	1	3
54	21	20	1	0	1	3
54	35	20	1	0	1	3
54	22	21	1	0	1	3
54	34	21	1	0	1	3
54	23	22	1	0	1	3
54	33	22	1	0	1	3
54	24	23	1	0	1	3
54	32	23	1	0	1	3
54	25	24	1	0	1	3
54	31	24	1	0	1	3
54	26	25	1	0	1	3
54	30	25	1	0	1	3
54	27	26	1	0	1	3
54	29	26	1	0	1	3
54	28	27	1	0	1	3
55	0	1	0	0	—	—
55	2	1	0	0	—	—
55	3	2	0	0	—	—
55	54	2	0	0	—	—
55	4	3	1	0	1	3
55	53	3	1	0	1	3
55	5	4	1	0	1	8

N	target	d	paper	macro	t_1	t_2
55	52	4	1	0	1	8
55	6	5	1	1	1	12
55	51	5	1	1	1	12
55	7	6	1	1	1	17
55	50	6	1	1	1	17
55	8	7	1	1	1	23
55	49	7	1	1	1	23
55	9	8	1	1	1	30
55	48	8	1	1	1	30
55	10	9	1	1	1	38
55	47	9	1	1	1	38
55	11	10	1	1	1	46
55	46	10	1	1	1	46
55	12	11	1	1	1	56
55	45	11	1	1	1	56
55	13	12	1	1	1	66
55	44	12	1	1	1	66
55	14	13	1	0	1	3
55	43	13	1	0	1	3
55	15	14	1	0	1	3
55	42	14	1	0	1	3
55	16	15	1	0	1	3
55	41	15	1	0	1	3
55	17	16	1	0	1	3
55	40	16	1	0	1	3
55	18	17	1	0	1	3
55	39	17	1	0	1	3
55	19	18	1	0	1	3
55	38	18	1	0	1	3
55	20	19	1	0	1	3
55	37	19	1	0	1	3
55	21	20	1	0	1	3
55	36	20	1	0	1	3
55	22	21	1	0	1	3
55	35	21	1	0	1	3
55	23	22	1	0	1	3
55	34	22	1	0	1	3
55	24	23	1	0	1	3
55	33	23	1	0	1	3
55	25	24	1	0	1	3
55	32	24	1	0	1	3
55	26	25	1	0	1	3
55	31	25	1	0	1	3
55	27	26	1	0	1	3
55	30	26	1	0	1	3
55	28	27	1	0	1	3
55	29	27	1	0	1	3
56	0	1	0	0	—	—
56	2	1	0	0	—	—
56	3	2	0	0	—	—
56	55	2	0	0	—	—
56	4	3	1	0	1	3
56	54	3	1	0	1	3
56	5	4	1	0	1	8
56	53	4	1	0	1	8
56	6	5	1	1	1	12
56	52	5	1	1	1	12
56	7	6	1	1	1	17
56	51	6	1	1	1	17
56	8	7	1	1	1	23
56	50	7	1	1	1	23
56	9	8	1	1	1	30
56	49	8	1	1	1	30
56	10	9	1	1	1	38
56	48	9	1	1	1	38
56	11	10	1	1	1	46
56	47	10	1	1	1	46
56	12	11	1	1	1	56
56	46	11	1	1	1	56
56	13	12	1	1	1	66
56	45	12	1	1	1	66

N	target	d	paper	macro	t_1	t_2
56	14	13	1	0	1	3
56	44	13	1	0	1	3
56	15	14	1	0	1	3
56	43	14	1	0	1	3
56	16	15	1	0	1	3
56	42	15	1	0	1	3
56	17	16	1	0	1	3
56	41	16	1	0	1	3
56	18	17	1	0	1	3
56	40	17	1	0	1	3
56	19	18	1	0	1	3
56	39	18	1	0	1	3
56	20	19	1	0	1	3
56	38	19	1	0	1	3
56	21	20	1	0	1	3
56	37	20	1	0	1	3
56	22	21	1	0	1	3
56	36	21	1	0	1	3
56	23	22	1	0	1	3
56	35	22	1	0	1	3
56	24	23	1	0	1	3
56	34	23	1	0	1	3
56	25	24	1	0	1	3
56	33	24	1	0	1	3
56	26	25	1	0	1	3
56	32	25	1	0	1	3
56	27	26	1	0	1	3
56	31	26	1	0	1	3
56	28	27	1	0	1	3
56	30	27	1	0	1	3
56	29	28	1	0	1	3
57	0	1	0	0	—	—
57	2	1	0	0	—	—
57	3	2	0	0	—	—
57	56	2	0	0	—	—
57	4	3	1	0	1	3
57	55	3	1	0	1	3
57	5	4	1	0	1	8
57	54	4	1	0	1	8
57	6	5	1	1	1	12
57	53	5	1	1	1	12
57	7	6	1	1	1	17
57	52	6	1	1	1	17
57	8	7	1	1	1	23
57	51	7	1	1	1	23
57	9	8	1	1	1	30
57	50	8	1	1	1	30
57	10	9	1	1	1	38
57	49	9	1	1	1	38
57	11	10	1	1	1	46
57	48	10	1	1	1	46
57	12	11	1	1	1	56
57	47	11	1	1	1	56
57	13	12	1	1	1	66
57	46	12	1	1	1	66
57	14	13	1	0	1	3
57	45	13	1	0	1	3
57	15	14	1	0	1	3
57	44	14	1	0	1	3
57	16	15	1	0	1	3
57	43	15	1	0	1	3
57	17	16	1	0	1	3
57	42	16	1	0	1	3
57	18	17	1	0	1	3
57	41	17	1	0	1	3
57	19	18	1	0	1	3
57	40	18	1	0	1	3
57	20	19	1	0	1	3
57	39	19	1	0	1	3
57	21	20	1	0	1	3
57	38	20	1	0	1	3

N	target	d	paper	macro	t_1	t_2
57	22	21	1	0	1	3
57	37	21	1	0	1	3
57	23	22	1	0	1	3
57	36	22	1	0	1	3
57	24	23	1	0	1	3
57	35	23	1	0	1	3
57	25	24	1	0	1	3
57	34	24	1	0	1	3
57	26	25	1	0	1	3
57	33	25	1	0	1	3
57	27	26	1	0	1	3
57	32	26	1	0	1	3
57	28	27	1	0	1	3
57	31	27	1	0	1	3
57	29	28	1	0	1	3
57	30	28	1	0	1	3
58	0	1	0	0	—	—
58	2	1	0	0	—	—
58	3	2	0	0	—	—
58	57	2	0	0	—	—
58	4	3	1	0	1	3
58	56	3	1	0	1	3
58	5	4	1	0	1	8
58	55	4	1	0	1	8
58	6	5	1	1	1	12
58	54	5	1	1	1	12
58	7	6	1	1	1	17
58	53	6	1	1	1	17
58	8	7	1	1	1	23
58	52	7	1	1	1	23
58	9	8	1	1	1	30
58	51	8	1	1	1	30
58	10	9	1	1	1	38
58	50	9	1	1	1	38
58	11	10	1	1	1	46
58	49	10	1	1	1	46
58	12	11	1	1	1	56
58	48	11	1	1	1	56
58	13	12	1	1	1	66
58	47	12	1	1	1	66
58	14	13	1	0	1	3
58	46	13	1	0	1	3
58	15	14	1	0	1	3
58	45	14	1	0	1	3
58	16	15	1	0	1	3
58	44	15	1	0	1	3
58	17	16	1	0	1	3
58	43	16	1	0	1	3
58	18	17	1	0	1	3
58	42	17	1	0	1	3
58	19	18	1	0	1	3
58	41	18	1	0	1	3
58	20	19	1	0	1	3
58	40	19	1	0	1	3
58	21	20	1	0	1	3
58	39	20	1	0	1	3
58	22	21	1	0	1	3
58	38	21	1	0	1	3
58	23	22	1	0	1	3
58	37	22	1	0	1	3
58	24	23	1	0	1	3
58	36	23	1	0	1	3
58	25	24	1	0	1	3
58	35	24	1	0	1	3
58	26	25	1	0	1	3
58	34	25	1	0	1	3
58	27	26	1	0	1	3
58	33	26	1	0	1	3
58	28	27	1	0	1	3
58	32	27	1	0	1	3
58	29	28	1	0	1	3

N	target	d	paper	macro	t_1	t_2
58	31	28	1	0	1	3
58	30	29	1	0	1	3
59	0	1	0	0	—	—
59	2	1	0	0	—	—
59	3	2	0	0	—	—
59	58	2	0	0	—	—
59	4	3	1	0	1	3
59	57	3	1	0	1	3
59	5	4	1	0	1	8
59	56	4	1	0	1	8
59	6	5	1	1	1	12
59	55	5	1	1	1	12
59	7	6	1	1	1	17
59	54	6	1	1	1	17
59	8	7	1	1	1	23
59	53	7	1	1	1	23
59	9	8	1	1	1	30
59	52	8	1	1	1	30
59	10	9	1	1	1	38
59	51	9	1	1	1	38
59	11	10	1	1	1	46
59	50	10	1	1	1	46
59	12	11	1	1	1	56
59	49	11	1	1	1	56
59	13	12	1	1	1	66
59	48	12	1	1	1	66
59	14	13	1	0	1	3
59	47	13	1	0	1	3
59	15	14	1	0	1	3
59	46	14	1	0	1	3
59	16	15	1	0	1	3
59	45	15	1	0	1	3
59	17	16	1	0	1	3
59	44	16	1	0	1	3
59	18	17	1	0	1	3
59	43	17	1	0	1	3
59	19	18	1	0	1	3
59	42	18	1	0	1	3
59	20	19	1	0	1	3
59	41	19	1	0	1	3
59	21	20	1	0	1	3
59	40	20	1	0	1	3
59	22	21	1	0	1	3
59	39	21	1	0	1	3
59	23	22	1	0	1	3
59	38	22	1	0	1	3
59	24	23	1	0	1	3
59	37	23	1	0	1	3
59	25	24	1	0	1	3
59	36	24	1	0	1	3
59	26	25	1	0	1	3
59	35	25	1	0	1	3
59	27	26	1	0	1	3
59	34	26	1	0	1	3
59	28	27	1	0	1	3
59	33	27	1	0	1	3
59	29	28	1	0	1	3
59	32	28	1	0	1	3
59	30	29	1	0	1	3
59	31	29	1	0	1	3
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60	2	1	0	0	—	—
60	3	2	0	0	—	—
60	59	2	0	0	—	—
60	4	3	1	0	1	3
60	58	3	1	0	1	3
60	5	4	1	0	1	8
60	57	4	1	0	1	8
60	6	5	1	1	1	12
60	56	5	1	1	1	12
60	7	6	1	1	1	17

N	target	d	paper	macro	t_1	t_2
60	55	6	1	1	1	17
60	8	7	1	1	1	23
60	54	7	1	1	1	23
60	9	8	1	1	1	30
60	53	8	1	1	1	30
60	10	9	1	1	1	38
60	52	9	1	1	1	38
60	11	10	1	1	1	46
60	51	10	1	1	1	46
60	12	11	1	1	1	56
60	50	11	1	1	1	56
60	13	12	1	1	1	66
60	49	12	1	1	1	66
60	14	13	1	0	1	3
60	48	13	1	0	1	3
60	15	14	1	0	1	3
60	47	14	1	0	1	3
60	16	15	1	0	1	3
60	46	15	1	0	1	3
60	17	16	1	0	1	3
60	45	16	1	0	1	3
60	18	17	1	0	1	3
60	44	17	1	0	1	3
60	19	18	1	0	1	3
60	43	18	1	0	1	3
60	20	19	1	0	1	3
60	42	19	1	0	1	3
60	21	20	1	0	1	3
60	41	20	1	0	1	3
60	22	21	1	0	1	3
60	40	21	1	0	1	3
60	23	22	1	0	1	3
60	39	22	1	0	1	3
60	24	23	1	0	1	3
60	38	23	1	0	1	3
60	25	24	1	0	1	3
60	37	24	1	0	1	3
60	26	25	1	0	1	3
60	36	25	1	0	1	3
60	27	26	1	0	1	3
60	35	26	1	0	1	3
60	28	27	1	0	1	3
60	34	27	1	0	1	3
60	29	28	1	0	1	3
60	33	28	1	0	1	3
60	30	29	1	0	1	3
60	32	29	1	0	1	3
60	31	30	1	0	1	3

AW inversion (analytic): $q=0.666667$, $\beta=0.02$ ($p=0.00666667$), $\text{start}=n_0=1$ (antipodal target)

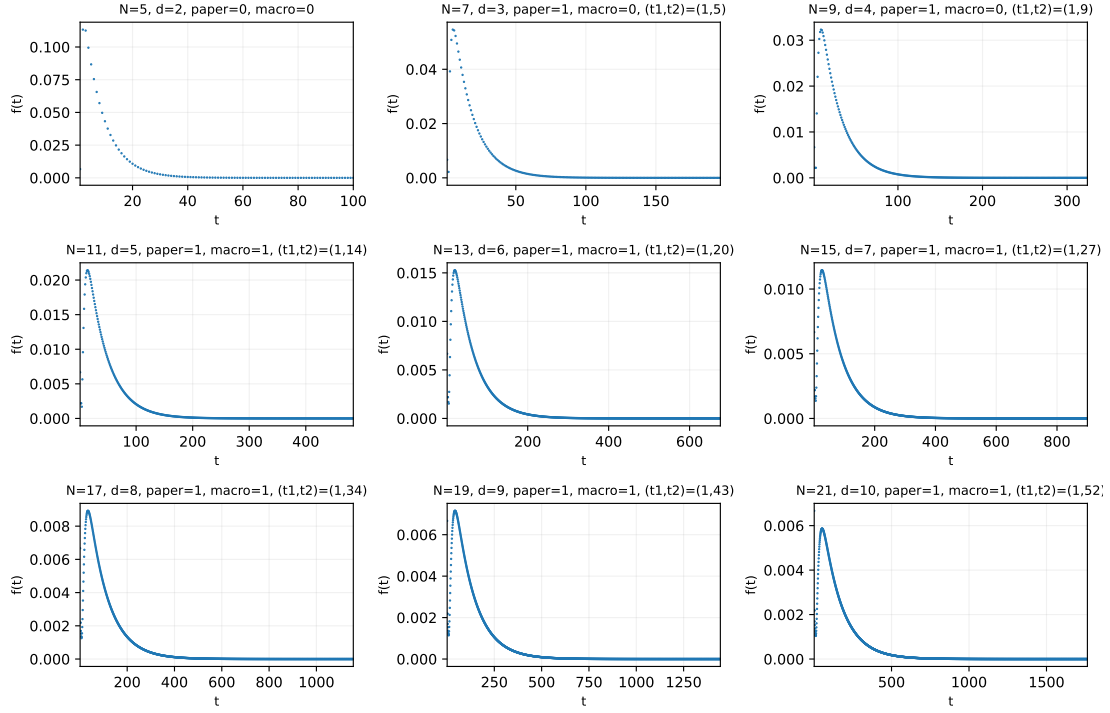


Figure 8: Antipodal examples (odd small N : $N = 5, 7, \dots, 21$).

AW inversion (analytic): $q=0.666667$, $\beta=0.02$ ($p=0.00666667$), $\text{start}=n_0=1$ (antipodal target)

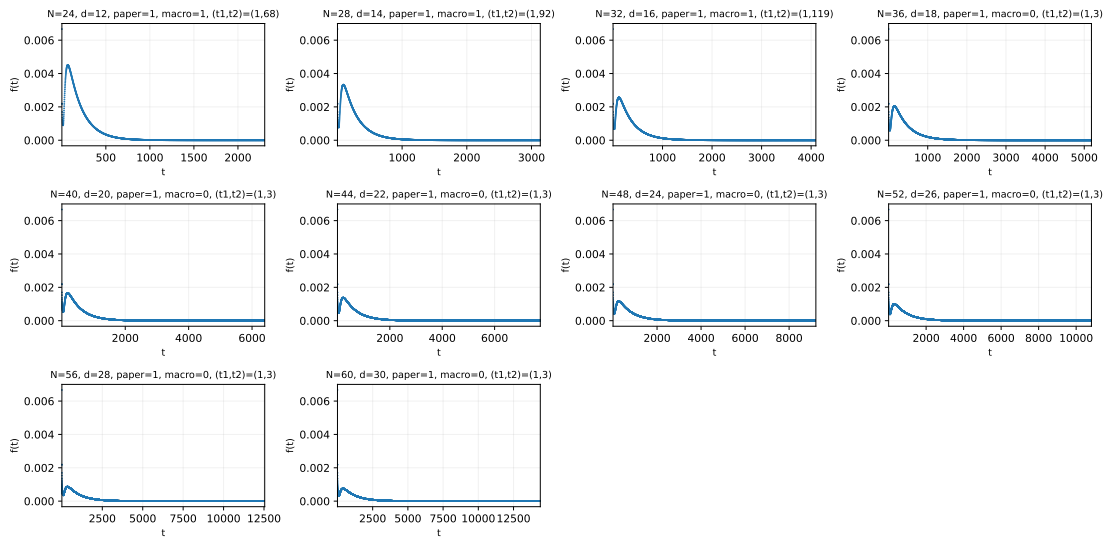


Figure 9: Antipodal examples (even larger N : $N = 24, 28, \dots, 60$).