

# Content Analysis: Notes on Visual Patterns in Papers

The goal is to use the visual patterns to start/guide our deeper investigation into the papers, specifically in \*how\* researchers formalize hypotheses, not just \*what\* they do. We will use these patterns, observations, notes, to ground and guide our conversations.

# Paper\_ID: TITLE

\*\*Mark any patterns in screenshot above \*\*

**Pattern 0:** "Rainbow": Abstract contains one of each major group.

**Pattern 1:** "Waterfall": Study structure follows a downward stepping from Research Goals/Green --> Sample Info/Orange yellow --> Statistical Analysis/Pink --> Results/Blue

**Pattern 2:** "Green wave": Research Goals/Green go back and forth between more general (Question of Unknown/Predicted Outcomes) to more specific (Specific Objectives/Examining for Associations)

**Pattern 3:** Single shot Green wave: One wave from General to Specific or Specific to General. Specify which direction.

**Pattern 4:** Orange + Pink clusters: Data sourcing, filtering discussed when discussing proxies and statistical specifications

**Pattern 5:** "Orange T": Study Design and Protocol is primary discussion and one/two paragraphs talk more deeply about Initial Data Sourcing and Data Filtering

**Pattern 6:** Orange and Software: When discussing Sample Information, researchers also mention software/computation. If Software mentioned but not in relation to Orange, note that.

**Pattern 7:** Pink + Blue clusters: Statistical Specifications co-occur with Results, esp. statistical and interpreted results

**Pattern 8:** "Pink stair": Proxies are defined/discussed before Statistical Specifications

**Pattern 9:** Methods and Materials: Methods and Materials (at the end of the paper) contain majority of info about Sample Information, Statistical Analysis, and Computation. Likely only to occur in PNAS and Nature.

**Follow-up analyses/examples to look into:** Any patterns where specific examples would explain more about what's going on.

*Feel free to add more slides after a Paper's overview slide in case notes take up more than one slide or you want to add follow-up notes, etc.*

# CHI\_0: Detecting Visuo-Haptic Mismatches in Virtual Reality Using the Prediction Error Negativity of Event-Related Brain Potentials

Paragraph starts with...	[AB] [1] II The To i Inst [2] T To i To i 3 F [As: As: The In c [Th] For Mor Mor [4] L We [Pa] [Ap] (1) \ (2) \ (3) \ (4) I [Tra [Tas] [Intt] We [Intt] Alsc Fint [Ex] We For [EE] To [On [Ext Furl [5] F /ER First Sec To Pos [Qu Sec [6] C We [Imp [Lin] [7] C Thu As [Last
General Predicted Outcomes	x
Specific Statistical Expectations	x
Examining for associations	x
Study Design and Protocol	x
Initial Data Sourcing	
Data Filtering Decisions	x
Details about data used for analysis	
Proxies	x
Equation	
Statistical Specification	
Statistical results	
Interpreted results	x
Causal Model	
Results from other methods	
Other outcomes	
Limitations	
Software	
Computational Details	
Notes	

**Pattern 0:** All but Statistical Analysis (Pink) is present in abstract.

**Pattern 1:** One instance of it labeled, starts around section 4.

**Pattern 2:** A little bit of Specific -> General (two instances) - labeled.

**Pattern 3:** Maybe – need to look into Pattern 2

**Pattern 4:** One cluster of pink and orange – in Computation box.

**Pattern 5:** No T.

**Pattern 6:** Computation seems to be mentioned towards end, before section 5. One yellow with pink. Two instances, labeled.

**Pattern 7:** One Pink + Blue cluster. Another interesting discussion of Proxies and Interpreted results at the beginning of the paper though. Both are labeled.

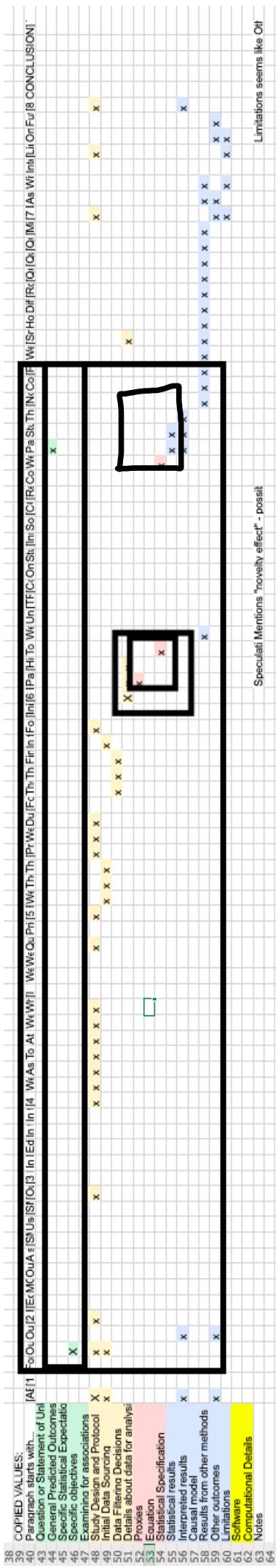
**Pattern 8:** Looks like Proxy is described in one paragraph before Statistical Specification. Labeled.

**Pattern 9:** N/A.

**Other notes:** Proxy paragraph in Limitations section of paper.

**Follow-up analyses/examples to look into:** Pattern 2, 3 for Research Goals; Pattern 7, 8 for Proxies.

# CHI\_1: Engaging High School Students in Cameroon with Exam Practice Quizzes via SMS and WhatsApp



**Pattern 0:** Has only yellow and blue. Only half rainbow pattern.

**Pattern 1:** Waterfall. Starts off weak because the intro contains green, yellow, and blue. Starts from intro to parental control section ( $\frac{3}{4}$  into paper)

**Pattern 2:** N/A. Only has two research goals.

**Pattern 3:** One single shot wave. Goes from specific to general. Stretched across the whole paper, may be weak.

**Pattern 4:** One cluster of orange and pink in the middle of the paper.

**Pattern 5:** N/A

**Pattern 6:** N/A. No software.

**Pattern 7:** One cluster when talking about statistical results.

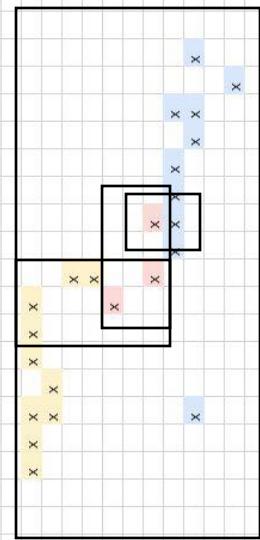
**Pattern 8:** One pink stair

**Pattern 9:** N/A. No methods and materials.

**Follow-up analyses/examples to look into:** Does the abstract not talk about its goals? What is the whole middle of the paper about?  
Look into the Specific Objectives and General Predicted Outcomes and how they fit into the paper – also why is green so sparse?

## CHI\_2: Springlets: Expressive, Flexible and Silent On-Skin Tactile Interfaces

Paragraph starts with ..	[AB][1][In ttiWe In s][2 E Skil Pric Pne Inh Shie The Ove [3 S [Ac [Ph Skii Enc [Bia Enc Act [An Ke], [Fa] Lay Lay [Co [lm] in o The The [Sp Act Act Act in s [Sp We [4 E The [Pr[Pa [Me The Ove [An Re [Dis [Co [Re [Dis [Ca [Ca [Ho [5 A [Init Nor Bre Na Vitt Bey,[6 L Thi So [7 CONCLUSION] We h]
General Predicted Outcomes	x
Specific Statistical Expectations	x
Specific objectives	
Examining for associations	x
Study Design and Protocol	
Initial Data Sourcing	
Data Filtering Decisions	
Details about data used for analysis	
Proxies	
Equation	
Statistical Specification	
Statistical results	
Interpreted results	x
Causal model	
Results from other methods	
Other outcomes	
Limitations	x
Software	
Computational Details	
Notes	



Paragraph starts with ..

Interesting use of RQs as "subh

Limitations are about system design ..

**Pattern 0:** No rainbow – only blue.

**Pattern 1:** Waterfall does not clearly start from research goals, but does follow orange --> pink --> blue. Labeled.

**Pattern 2:** No green wave. Research goals are sparse.

**Pattern 3:** Research goals are sparse – specific in the first paragraph, general in the middle. Worth looking into.

**Pattern 4:** One orange/pink cluster, labeled.

**Pattern 5:** No clear orange T. Data sourcing is separated from data filtering.

**Pattern 6:** N/A - no software.

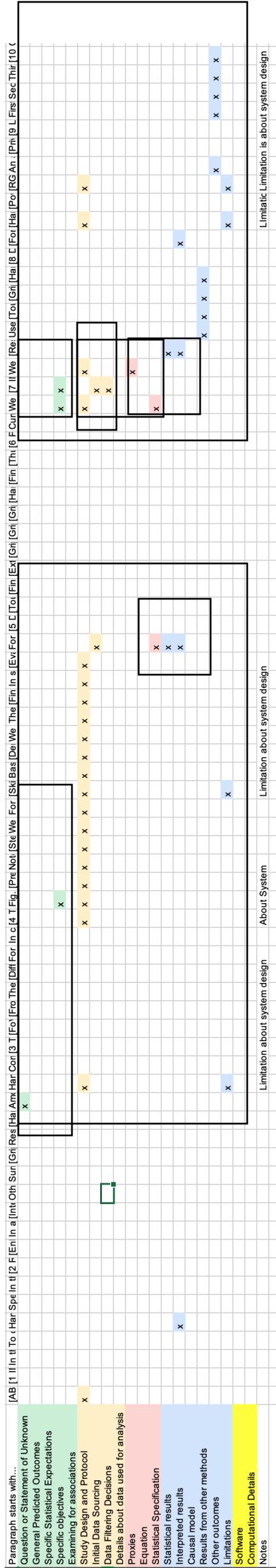
**Pattern 7:** One co-occurrence of SS and statistical results. Labeled

**Pattern 8:** Pink is sparse, but proxy does come before SS. Labeled.

**Pattern 9:** N/A.

**Follow-up analyses/examples to look into:** Research goals in the first paragraph vs. middle of paper.

# CHI\_3: HandSee: Enabling Full Hand Interaction on Smartphones with Front Camera-based Stereo Vision



**Pattern 0:** Only Study Design is included in Abstract. Remember this abstract stood out from all the others. *Worth looking into.*

**Pattern 1:** Very weak waterfall, maybe two. Interesting that there are Results throughout and two Specific Objectives around Section 7, where the Informal (user) study is. Labeled both possible waterfalls. *Worth looking into.*

**Pattern 2:** Looks like Single Green shot, not Green wave. Specific Objectives appear in Sections 4 and 6 – may be separate.

**Pattern 3:** One single shot. Looks like only one Questions or Statement of Unknown and then all others after that are Specific Objectives. Also, seems like two different clusters of Green. Both are labeled.

**Pattern 4:** No clusters, but some co-occurrence around Section 7 Informal user study. Informal user study seems to be the bulk of the empirical study/analysis. Labeled.

**Pattern 5:** Single Orange T in Informal Study. In Box for Pattern 4. Labeled.

**Pattern 6:** No software/computation mentioned.

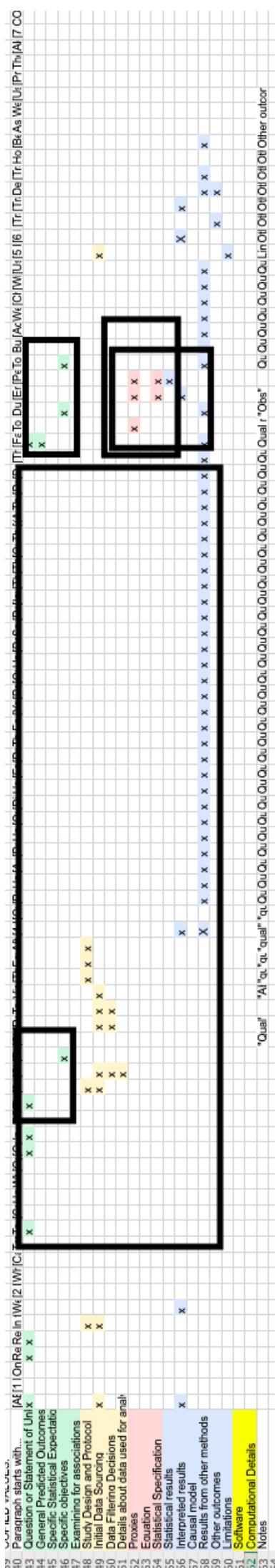
**Pattern 7:** Two Pink + Blue clusters, including one around Section 7. One in Section 7 could be part of longer Results "tail." Both clusters labeled.

**Pattern 8:** No pink stair.

**Pattern 9:** N/A

**Follow-up analyses/examples to look into:** Pattern 0 for what the Abstract contains/why only Study Design (could be related to System contribution); Pattern 1 as to why there may be one long waterfall vs. 2 shorter ones; Pattern 3 to see what the Research Goals are specifically and why we only see Specific Objectives in Section 7/Informal Study; Pattern 4,5 for Orange T and how Sample Information and Statistical Analysis interplay

# CHI\_4: User Attitudes towards Algorithmic Opacity and Transparency in Online Reviewing Platforms



**Pattern 0:** All colors but pink in abstract.

**Pattern 1:** One waterfall without pink through the whole middle of the paper. A weak waterfall at the second research question near the end. It's vertical and missing yellow.

**Pattern 2:** One wave is the first green box to the second green box. It starts off general to specific then back to general.

**Pattern 3:** Two single shot waves? Or it could just be one wave. Goes from general to specific.

**Pattern 4:** N/A

**Pattern 5:** No orange T but may something going on with Data Sourcing/Filtering.

**Pattern 6:** N/A. No software.

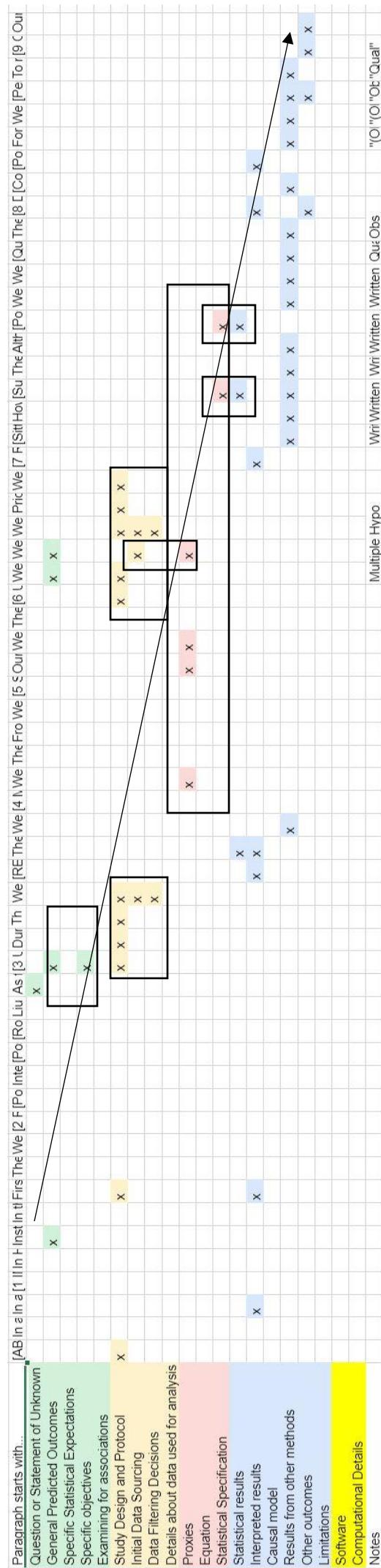
**Pattern 7:** One cluster near the second question the authors were testing.

**Pattern 8:** One pink stair when the authors were going through their second research question.

**Pattern 9:** N/A

**Follow-up analyses/examples to look into:** -

## CHI\_5: Slow Robots for Unobtrusive Posture Correction



**Pattern 0:** No rainbow. Only orange.

**Pattern 1:** Waterfall is present – a lot of overlap in color sequences. General downward trend labeled.

**Pattern 2:** Green wave is weak. General --> specific --> general but this weave is spread out.

**Pattern 3:** One single shot of general --> specific. Spans two paragraphs, labeled.

**Pattern 4:** No clusters, only one co-occurrence of data sourcing and proxies. Labeled.

**Pattern 5:** Two orange T's labeled. First occurrence is half T shape with data sourcing/filtering at the end of discussion about SD.

**Pattern 6:** N/A - no software.

**Pattern 7:** Two small pink + blue co-occurrences, labeled.

**Pattern 8:** All Proxies come before SS. Labeled.

**Pattern 9:** N/A

**Follow-up analyses/examples to look into:** Seems to be two blue clusters of results that follow orange T's – but pink stair only precedes the second set of results. Could be worth looking into.

## CHI\_6: May AI? Design Ideation with Cooperative Contextual Bandits

Paragraph starts with...	[AB [1] Schlachter Thru We [2] F Brain A The Cor [3] Vline [A]   Syr [Sui The The [St [Ez] 14 C [Coi The Thic [Ow Belt [Co We [Ag] [De] [Ext] [Ext] [Us] [Re] To i Ad] [Co] in a [5 E Pa] Eat [Ta] Pre] [Ou] [Or] [Se] [6 F We [Intc [Att] Loo [CS] [Ou] In a [Qu] [Pe] [Ag] Six] [Ch] [No A fe] Son] [Ex] Hov] [7 D Uns Inte In] [Ap] [In c] n [8 CON
General Predicted Outcomes	x
Specific Statistical Expectations	x
Examining for associations	
Study Design and Protocol	x
Initial Data Sourcing	
Data Filtering Decisions	
Details about data used for analysis	
Proxies	
Equation	
Statistical Specification	
Statistical results	x
Interpreted results	
Causal model	
Results from other methods	
Other outcomes	
Limitations	
Software	
Computational Details	
Notes	

**Pattern 0:** No rainbow. Only Initial Data Sourcing and Interpreted Results in Abstract.

**Pattern 1:** Looks like one "flattened" waterfall. Labeled.

**Pattern 2:** No wave, see Pattern 3.

**Pattern 3:** One shot up from Specific Objectives to Question/Statement of Unknown. Labeled. *Will look into*.

**Pattern 4:** Maybe one small cluster of Details about data used for analysis & Proxies. And then more co-occurrence before that. Both labeled.

**Pattern 5:** No Orange T.

**Pattern 6:** No mention of software.

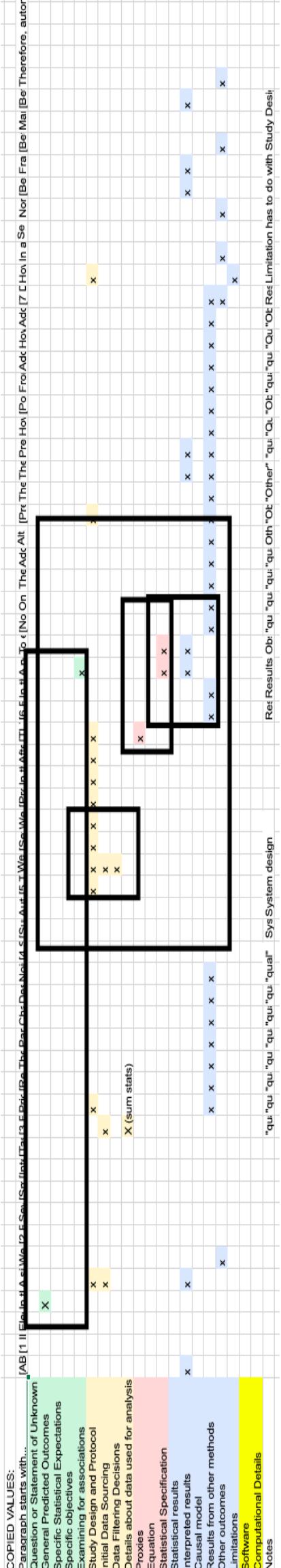
**Pattern 7:** No Pink + Blue clusters. Maybe Statistical Analysis details and Results are kept separate in this paper? Also, looks like Statistical results are discussed immediately after Statistical Specification and then Results from other methods are the focus. *Will look into Results some more.*

**Pattern 8:** One possible Pink stair. Proxies discussed before single paragraph discussing Statistical Specification. Labeled. *Will look into*.

**Pattern 9:** N/A

**Follow-up analyses/examples to look into:** Pattern 3 for how/why go from Specific-> General Research Goal; Pattern 4,7 (overlap),8 for how Sample Information, Proxies, and Statistical Specification are discussed; Pattern 7 for how Results are discussed (maybe there's an order to the way Results are discussed in this paper?)

# CHI\_7: The Effects of Interruption Timings on Autonomous Height-Adjustable Desks that Respond to Task Changes



**Pattern 0:** N/A. Only results

**Pattern 1:** Sparse waterfall although green is light. One green in the middle of the paper.

**Pattern 2:** N/A. Only two green.

**Pattern 3:** One single shot of green. General to specific. Goes from intro to results.

**Pattern 4:** N/A

**Pattern 5:** One Orange T in the middle of the paper.

**Pattern 6:** N/A. No software.

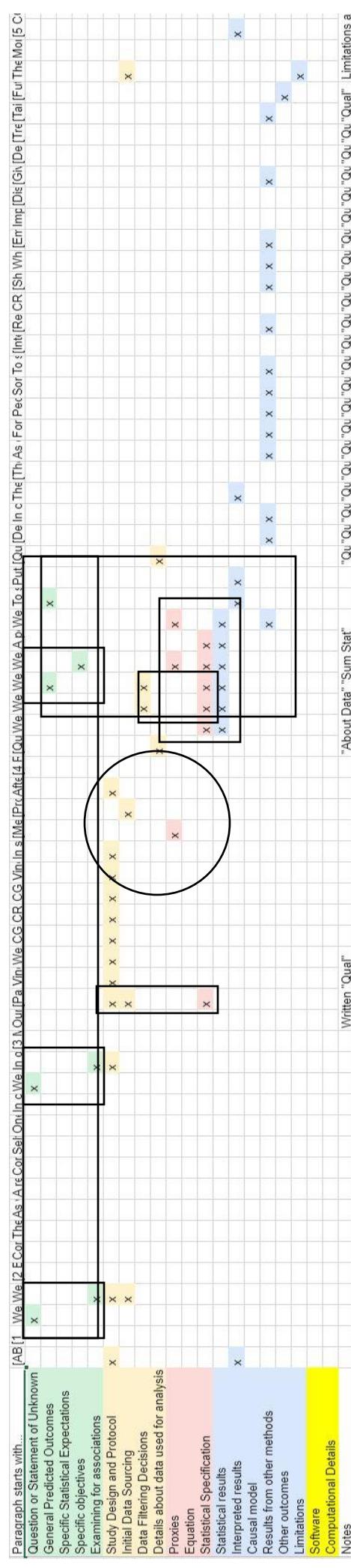
**Pattern 7:** One cluster of blue and pink at the results.

**Pattern 8:** One pink stair at the results.

**Pattern 9:** N/A. No yellow codes.

**Follow-up analyses/examples to look into:** Look into the abstract. Why is there a green in the middle?; Why is there one green in the middle?

# CHI\_8: Caring for Vincent: A Chatbot for Self-compassion



**Pattern 0:** Half rainbow – only blue and orange.

**Pattern 1:** Waterfall is present with rainbow section in the middle where all the colors overlap (labeled).

**Pattern 2:** Green wave present.

**Pattern 3:** Three single shots going from General to Specific. Labeled.

**Pattern 4:** Two clusters of data sourcing/filtering with SS - labeled. Proxies has its own paragraph but is situated in a heavily orange section (circled).

**Pattern 5:** No clear "Orange T" pattern.

**Pattern 6:** N/A - no software.

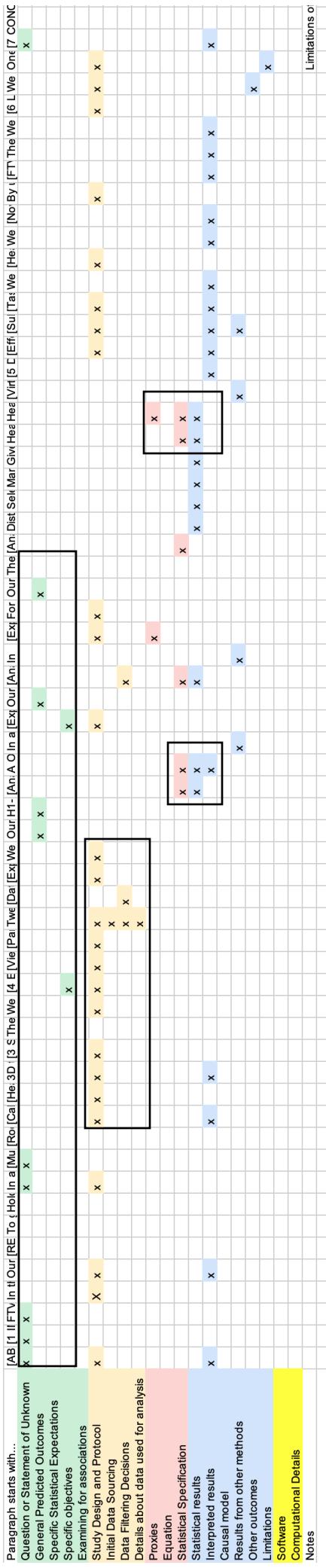
**Pattern 7:** One long cluster of pink + blue. Labeled.

**Pattern 8:** No pink stair – proxies are interwoven with SS.

**Pattern 9:** N/A.

**Follow-up analyses/examples to look into:** The way proxies are defined/discussed (3 instances).

# CHI\_9: FTVR in VR: Evaluating 3D Performance With a Simulated Volumetric Fish-Tank Virtual Reality Display



**Pattern 0:** All but Statistical Analysis in Abstract.

**Pattern 1:** Not quite. There may be some overlapping waterfalls, but Research Goals, Sample Information, Statistical Analysis, and Results appear "scattered" throughout.

**Pattern 2:** Some going back and forth. Question seems to be more prevalent at the beginning of the paper and Conclusion and then the wave/oscillation occurs between Specific Objectives and Predicted Outcomes in the middle of the paper. Labeled. *Will look into*

**Pattern 3:** Maybe for each Hypothesis tested. See Pattern 2 note. *Will look into*.

**Pattern 4:** No clusters. In fact, looks more like EITHER Sample Info OR Statistical Analysis. *Will look into*.

**Pattern 5:** One Orange T. Labeled.

**Pattern 6:** No mention of software.

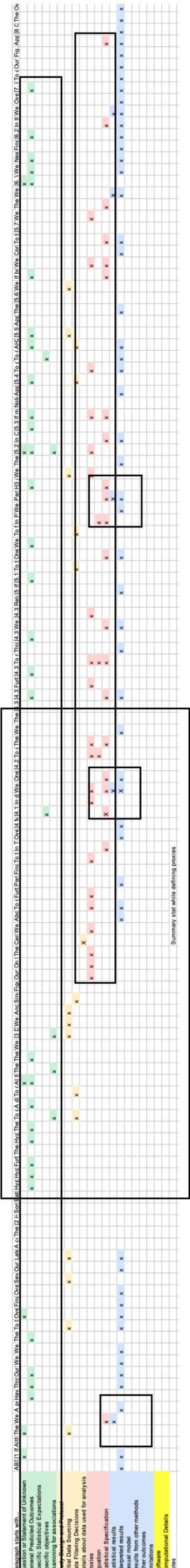
**Pattern 7:** Two Pink + Blue clusters. Labeled.

**Pattern 8:** No pink stair. Looks like Proxy discussed \*after\* Statistical Specification paragraphs. *Will look into*.

**Pattern 9:** N/A

**Follow-up analyses/examples to look into:** Pattern 2,3 for how Research Goals articulated/relate to one another; Pattern 4-7 for why Sample Info doesn't seem to be discussed at the same time as Statistical Analysis/Results; Pattern 8 for how Proxies and Statistical Specification discussed in relation to Results.

# JFE\_O: The relevance of broker networks for information diffusion in the stock market



**Pattern 0:** Abstract contains only results

**Pattern 1:** Seems to be one major waterfall at the beginning of the paper (starting around Section 2. Hypothesis is Development), then more back and forth between Research Goals, Sampling Information, Statistical Analysis, and Results in the second half of the paper.

**Pattern 2:** There appears to be a back and forth between Question/Predicted Outcome and Specific Objectives/Examining Associations across the paper. *Will look into more.*

**Pattern 3:** There may be single shots, but it's not clear if they are part of the waterfall vs. Independent.

**Pattern 4:** No orange/pink clusters. Looks like Sample Information happens more up front and then again towards the end of the paper.

**Pattern 5:** No T. See note about Pattern 4 above.

**Pattern 6:** No Computation discussed here.

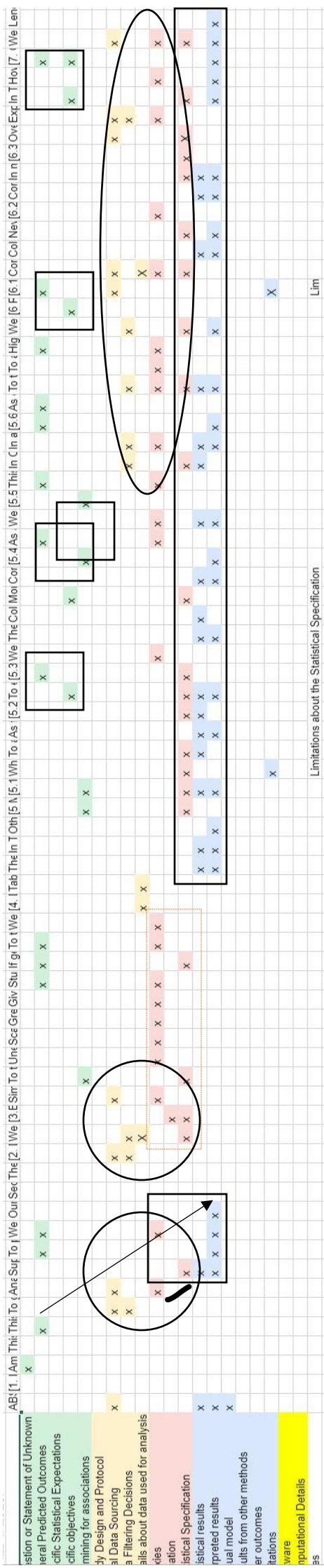
**Pattern 7:** Two labeled clusters. Maybe even one at the beg of the paper. *Will look into more.*

**Pattern 8:** Looks like Proxies are discussed before Statistical Specification and then two are discussed together in tandem. *Will look into more.*

**Pattern 9:** N/A since Methods is included in main part of the paper.

**Follow-up analyses/examples to look into:** Pattern 2, Pattern 7, Pattern 8

# JFE\_1: Do firms hedge with foreign currency derivatives?



**Pattern 0:** Half rainbow – blue and orange.

**Pattern 1:** No waterfall – all colors are fairly evenly distributed throughout the paper. One potential downward trend labeled.

**Pattern 2:** Green wave visible throughout.

**Pattern 3:** Single shots from specific to general in adjacent paragraphs - labeled.

**Pattern 4:** Three orange + pink clusters, circled.

**Pattern 5:** No noticeable "Orange T" patterns.

**Pattern 6:** N/A - no software.

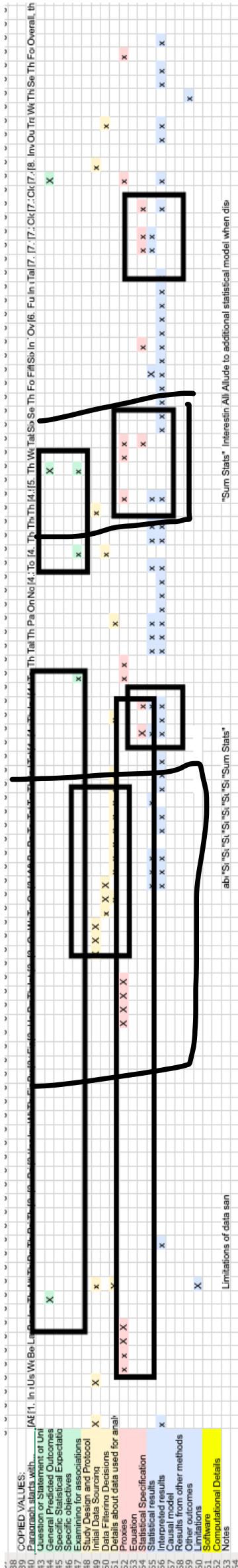
**Pattern 7:** Pink + blue co-occur throughout most of the paper except for one stretch of only pink (labeled in orange). Worth looking into.

**Pattern 8:** A pink stair seems to be more prominent than a pink wave – proxies are woven with SS. One pink stair labeled near the beginning.

**Pattern 9:** N/A.

**Follow-up analyses/examples to look into:** Green wave single shots (specific --> general) – look how/if they span sections and if any general --> specific patterns are worth looking into. Also the section where pink does NOT co-occur with blue.

## JFE\_2: The liquidity cost of private equity investments: Evidence from secondary market transactions



**Pattern 0:** No rainbow. Only blue and yellow.

**Pattern 1:** No clear waterfall patterns. There are two almost waterfalls but they're messy and unclear. (marked with pen)

**Pattern 2:** Doesn't have a clear wave.

**Pattern 3:** One long green single shot. General to specific. Then, a shorter green single shot. From specific to general.

**Pattern 4:** Orange and pink don't cluster.

**Pattern 5:** Not a T shape, but something similar. But went from study design to initial data sourcing to data filtering decisions.

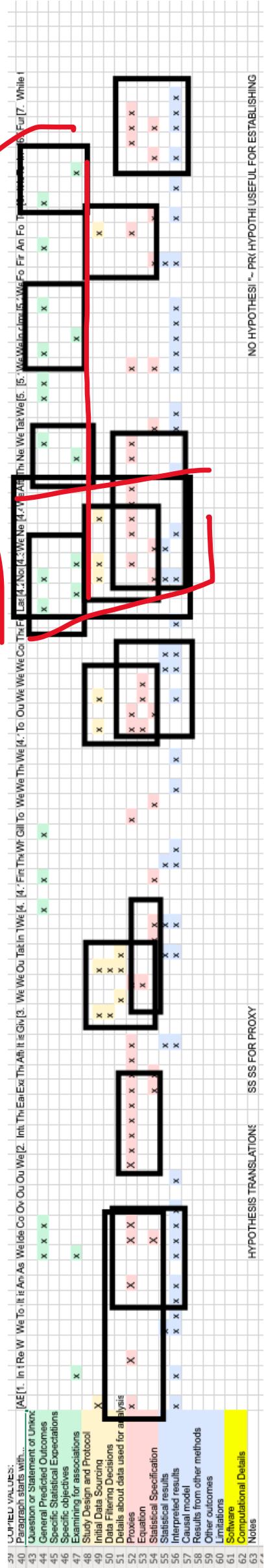
**Pattern 6:** N/A. No software.

**Pattern 7:** Three blue and pink clusters when talking about results, specifically statistical results.

**Pattern 8:** Pink stair is seen. Proxies are stated multiple times in the beginning of the paper and then statistical specification is stated.

**Pattern 9:** N/A.  
Follow-up analyses/examples to look into: -

## JFE\_3: Institutional investor cliques and governance



Pattern 0: All but green.

Pattern 1: One waterfall at the middle-end of the paper. Pink and blue over each other so not perfectly clean.

Pattern 2: One long wave. First green box. Goes from general to specific then back again. Goes to the end of the paper.

Pattern 3: N/A. Most of green in wave.

Pattern 4: Four clear orange and pink clusters.

Pattern 5: N/A

Pattern 6: N/A. No software.

Pattern 7: Four pink and blue clusters throughout the whole paper.

Pattern 8: One pink stair in the beginning. Then, it happens two more times.

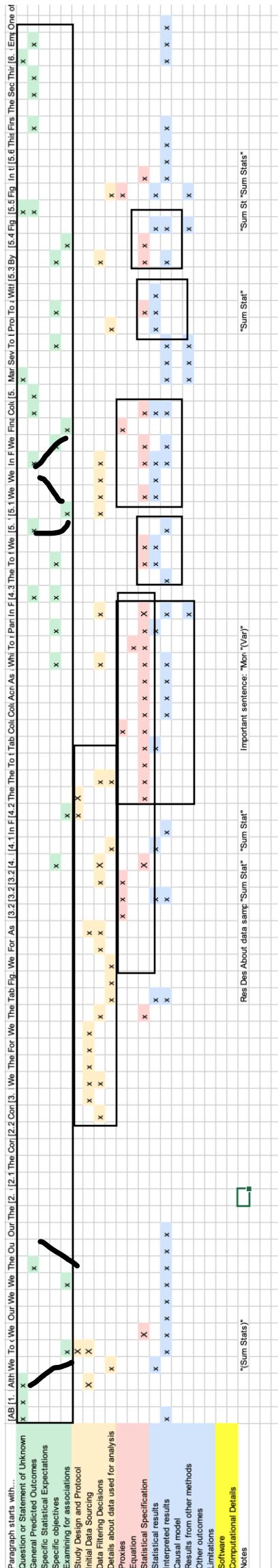
Pattern 9: No materials or methods.

**Follow-up analyses/examples to look into:** Any patterns where specific examples would explain more about what's going on.

Can there be multiple pink stairs? Is there one proxy in this paper that keeps getting brought up before talking about statistical specification?



## JFE\_5: Do labor markets discipline? Evidence from RMBS bankers



**Pattern 0:** No rainbow. Only Research Goal and Results.

**Pattern 1:** No clear waterfall. A lot of overlap in Research Goals/Green, Sample Information/Orange, Statistical Analysis/Pink, and Results/Blue.

**Pattern 2:** Definitely a lot of up and down. Would be curious to know more about specifically the ups and downs correspond to. Labeled. *Will look into*.

**Pattern 3:** Unclear. See note in Pattern 2.

**Pattern 4:** No clusters. Looks like there is some overlap and some EITHER/OR, too. *Will look into*.

**Pattern 5:** Maybe one ↑, but there seems to be some kind of back and forth between Study Design and Protocol and Sourcing/Filtering/Details about Data. Labeled. *Will look into*.

**Pattern 6:** No mention of software.

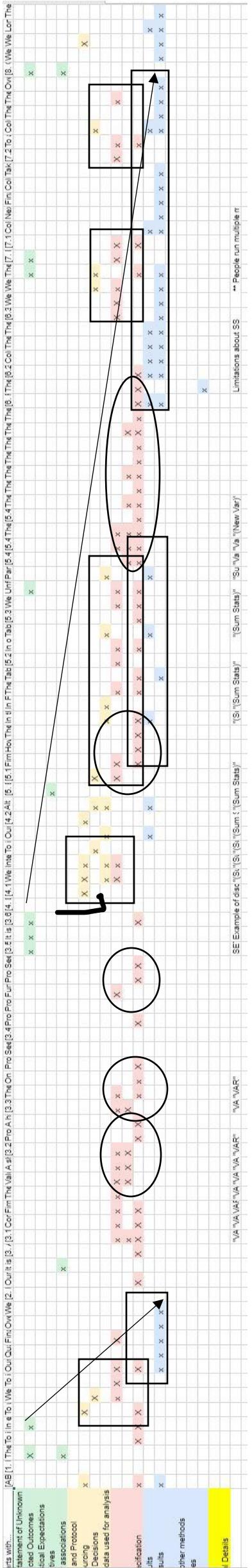
**Pattern 7:** A lot of clusters. Labeled.

**Pattern 8:** One clear instance of Pink stair. Labeled. Interesting to know what role of Equations are! *Will look into*.

**Pattern 9:** N/A

**Follow-up analyses/examples to look into:** Pattern 2 for Research Goals and when and how they go back and forth; Pattern 4,5 about how Sample Info and Statistical Analysis discussed together/apart; Pattern 8 for how Proxies and Statistical Specification discussed; Pattern 7 about what does back and forth between statistical and interpreted results look like/do.

## JFE\_6: Firing the wrong workers: Financing constraints and labor misallocation



**Pattern 0:** Almost rainbow – missing green.

**Pattern 1:** Two visible waterfalls – labeled. Worth looking into the second one, as it may actually be more accurate to break it into smaller waterfalls.

**Pattern 2:** Green wave present, may be weak.

**Pattern 3:** No clear single shots. If there isn't a Green wave, there might be three single shots.

**Pattern 4:** A few orange + pink clusters – labeled.

**Pattern 5:** No clear "Orange T" patterns. (One possible one is marked in pen)

**Pattern 6:** N/A - no software.

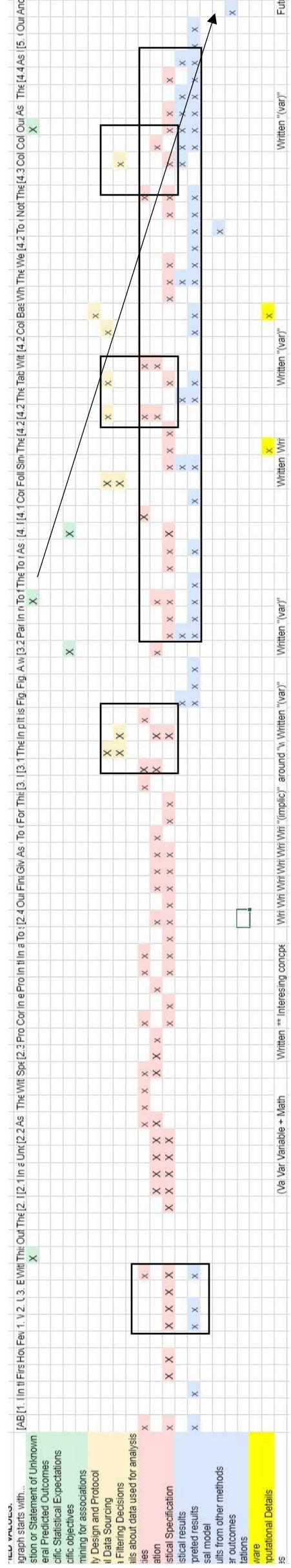
**Pattern 7:** Frequent SS + results co-occurrence. Clusters labeled.

**Pattern 8:** Generally a pink wave rather than downward stair pattern. A few pink stairs circled.

**Pattern 9:** N/A.

**Follow-up analyses/examples to look into:** Second longer waterfall. Interplay of orange, pink, and blue.

## JFE\_7: Time-varying ambiguity, credit spreads, and the levered equity premium



**Pattern 0:** Half rainbow – blue and pink.

**Pattern 1:** One waterfall labeled, in the last half of the paper.

**Pattern 2:** Green wave is visible but sparse and spread out.

**Pattern 3:** No specific single shot green waves stood out to me.

**Pattern 4:** Several orange + pink clusters labeled.

**Pattern 5:** No clear "Orange T" patterns.

**Pattern 6:** N/A - no software.

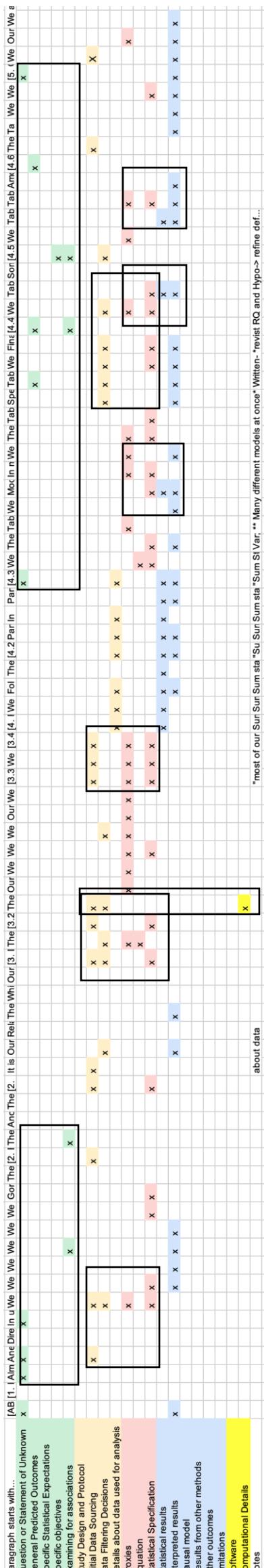
**Pattern 7:** Several pink + blue clusters labeled, including one long stretch of co-occurrence toward the end.

**Pattern 8:** No clear "Pink stair" patterns.

**Pattern 9:** N/A.

**Follow-up analyses/examples to look into:** Long stretch of pink at the beginning, with a heavily overlapping waterfall towards the end. Maybe has to do with the methodological contribution of a statistical model? Paper contribution type seems worth looking into.

## JFE\_8: The power of shareholder votes: Evidence from uncontested director elections



Pattern 0: No rainbow. Only Research Goal and Results in Abstract.

Pattern 1: No waterfall is visible. Sample Information and Statistical analysis appear intertwined.

Pattern 2: Couple instances: one at the beg of the paper, second in later half of the paper. Both labeled.

Pattern 3: Perhaps, see note in Pattern 2.

Pattern 4: Possible four Orange + Pink clusters. Labeled. Will look into.

Pattern 5: No Orange T.

Pattern 6: Only one instance in Computation. Seems to co-occur with Sample Information. Labeled. Will look into.

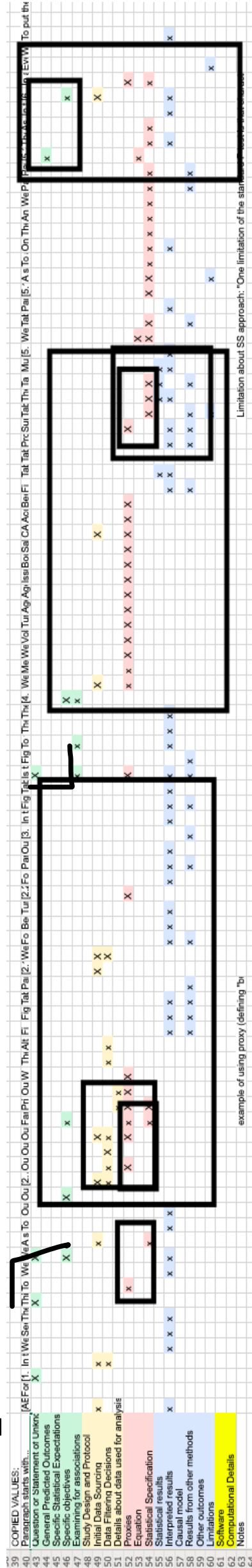
Pattern 7: Possibly three Pink + Blue clusters.

Pattern 8: No clear stair. Proxy and Statistical Specification co-occur. Will look into.

Pattern 9: N/A

Follow-up analyses/examples to look into: Pattern 1,2 about how Research Goals specified (when/how); Pattern 4 for how Sample Information and Statistical Analysis interplay; Pattern 7 how Proxies and Statistical Specification discussed, even if not pink stair.

## JFE\_9: Bubbles for Fama



**Pattern 0:** N/A. Half rainbow, only blue and yellow.

**Pattern 1:** One good waterfall in the middle. Then, two unclear waterfalls.

**Pattern 2:** N/A.

**Pattern 3:** Three green single shot going from general to specific. Marked in pen.

**Pattern 4:** One big obvious cluster of orange and pink.

**Pattern 5:** No clear "T" shape.

**Pattern 6:** No software.

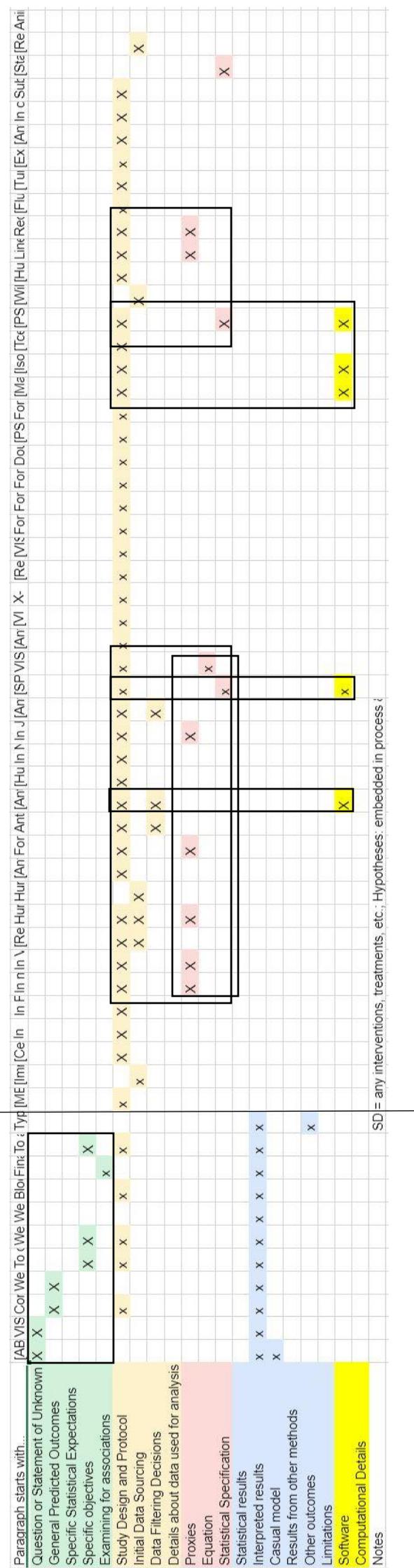
**Pattern 7:** One big obvious cluster of pink and blue. Then, one smaller one at the end.

**Pattern 8:** Three instances of pink stair.

**Pattern 9:** N/A

**Follow-up analyses/examples to look into:** I have seen a "L" pattern in the research goals. This study seems to be split up in 3 main parts and I want to look into that

# N\_O: VISTA is an acidic pH-selective ligand for PSGL-1



**Pattern 0:** Half rainbow – blue and green.

**Pattern 1:** Waterfall pattern green --> orange --> pink, spanning across paper and Methods section. BUT results are all in the main paper, none in Methods.

**Pattern 2:** Green wave is present at the beginning of the paper, but mostly a downward single shot.

**Pattern 3:** Single shot green wave from general to specific. Labeled.

**Pattern 4:** Orange + Pink clusters labeled.

**Pattern 5:** No clear "Orange T" patterns – data sourcing/filtering are spread out within discussion of SD.

**Pattern 6:** Software mentioned with SD – labeled.

**Pattern 7:** NO pink + blue clusters – blue comes entirely before pink.

**Pattern 8:** One "Pink stair" - labeled. The later instance of proxies is more separated from SS.  
**Pattern 9:** Methods section contains majority of info about Sample Information, Statistical Analysis, and Computation. Begins at vertical line.

**Follow-up analyses/examples to look into:**

# N\_1: A new species of Homo from the Late Pleistocene of the Philippines

Paragraph starts with...	[AB Cor Ety] [Hok Pa]	[Ref] [Loc Dia]	[DE The H. It In t] [CC] [CC] [CC]	[The I] [ME The] [Ph] [M]	[For S] [For Sha] [For For Ger] [Com]
General Predicted Outcomes					
Specific Statistical Expectations					
Examining for associations					
Study Design and Protocol	x	x	x x	x	
Initial Data Sourcing					
Data Filtering Decisions					
Details about data used for analysis					
Proxies			x x	x x x x x x	x
Equation			x x	x x x x x x	"(m.) (more) ("Var"
Statistical Specification			x x	x x x x x x	
Statistical results			x	x x x x x x	
Interpreted results			x x	x x x x x x	
Causal model					
Results from other methods					
Other outcomes					
Limitations					
Software					
Computational Details					
Notes					

**Pattern 0:** Abstract does NOT have Research Goal, Sample Information, or Statistical Analysis. Focus is Results.

**Pattern 1:** No waterfall.

**Pattern 2:** Only one Examining for Associations towards the end of the paper. Seems odd, may be due to paper's contribution type, discovering a new species, is rare, or well established so little justification is needed? *Will look into further.*

**Pattern 3:** No Green Wave. Only one Research Goal (Examining for Associations)

**Pattern 4:** No Orange and Pink clusters.

**Pattern 5:** No T. Looks like Initial Data Sourcing is discussed first then Study Design and then a mixture of Initial Data Sourcing and Filtering at the end of the paper.

**Pattern 6:** Software is mentioned once in METHODS AND MATERIALS.

**Pattern 7:** Not really a cluster, but a co-occurrence. Labeled.

**Pattern 8:** One instance in METHODS AND MATERIALS. Labeled.

**Pattern 9:** Looks like METHODS AND MATERIALS contains Orange, Red, and Bright Yellow. Unexpected, but also Green. Might be related to Pattern 2 note. Labeled, vertical bar shows where METHODS AND MATERIALS starts.

**Follow-up analyses/examples to look into:** Interesting that the only research goal, Examining for Associations, is in the METHODS section.

## N\_2: H<sup>+</sup> transport is an integral function of the mitochondrial ADP/ATP carrier

COPIED VALUES:	
Paragraph starts with...	[AB AA] Unc The [INE It ha We [PH We In t Mit Th] [AA Th] [FA The UC Th] [AD Ne] Not Th] [NU Not In c [AA We Inta Tag [Dts It ha Wit] [ME Isso Mitc [Pa All i Bot Pp Wh All e [Mit [C2 AA] Irmn [C2] [Ex] [An] [Im] [Ch [Statistical analysis]. Data are pr
Question or Statement of Unknown	x
General Predicted Outcomes	x
Specific Statistical Expectations	
Specific objectives	
Examining for associations	
Study Design and Protocol	x
Initial Data Sourcing	
Data Filtering Decisions	
Details about data for analysis	
Proxies	
Equation	
Statistical Specification	
Statistical results	
Interpreted results	x
Causal model	
Results from other methods	
Other outcomes	
Limitations	
Software	
Computational Details	x
Notes	

\*\*Mark any patterns in screenshot above \*\*

Pattern 0: All but pink.

Pattern 1: Not a clear waterfall. No pink.

Pattern 2: N/A

Pattern 3: N/A

Pattern 4: Not really. One overlap.

Pattern 5: First boxes I think fits the description of an orange T.

Pattern 6: One overlap of yellow with orange. And another overlap of pink with yellow.

Pattern 7: Pink and blue are very separate.

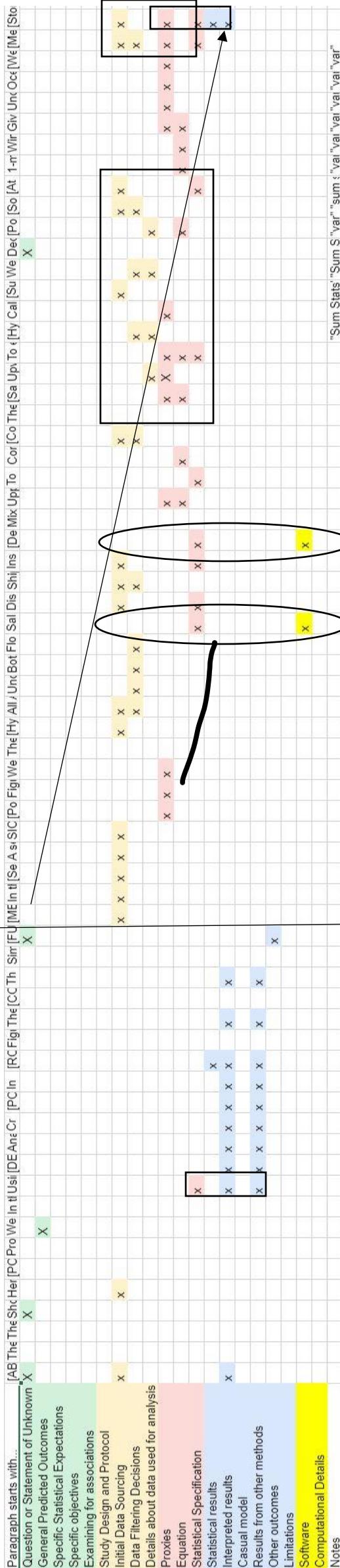
Pattern 8: A good example of pink stair is at the methods and materials of the paper.

Pattern 9: Yes, this is seen.

**Follow-up analyses/examples to look into:** I wonder why a results is in the methods and materials. That happens rarely.

The paper has a waterfall pattern expect without pink, because it is a nature paper and did include statistical analysis.

## N\_3: Antarctic offshore polynyas linked to Southern Hemisphere climate anomalies



**Pattern 0:** Almost "Rainbow", missing pink.

**Pattern 1:** Weak waterfall labeled.

**Pattern 2:** Research goals are all general – no green wave.

**Pattern 3:** N/A - no specific research goals.

**Pattern 4:** Some clustering of orange + pink, labeled. They are more distinct at the beginning of the Methods section.

**Pattern 5:** No "Orange T" patterns – No SD paragraphs.

**Pattern 6:** Software is mentioned but does NOT co-occur with orange. Labeled.

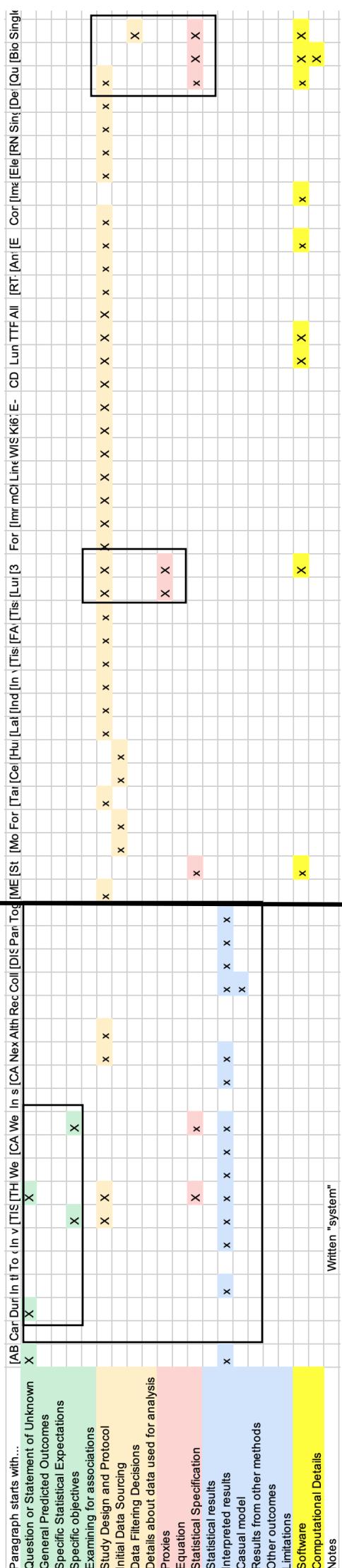
**Pattern 7:** Some pink + Blue clusters-co-occurrences but generally they are split up between the main paper and the Methods section. Labeled.

**Pattern 8:** No clear "Pink stair" patterns. Proxies are woven with SS.

**Pattern 9:** Methods section contains majority of info about Sample Information, Statistical Analysis, and Computation. Begins at vertical line.

**Follow-up analyses/examples to look into:** Why no specific research goals? Why no SD? Does it have to do with the fact that this paper focuses on observing a natural phenomenon rather than setting up experimental conditions? Pattern 8 - if the proxy is used in the following SS, and how the the Data Sourcing/Filtering fits in between them.

## N\_4: Metastatic-niche labelling reveals parenchymal cells with stem features



**Pattern 0:** No rainbow. Research goals and Results in Abstract.

**Pattern 1:** Maybe some waterfall, but Results are discussed all throughout main paper text. Labeled.

**Pattern 2:** Green wave in main paper text. Labeled.

**Pattern 3:** See Pattern 2 note.

**Pattern 4:** No obvious Orange + Red clusters but co-occurrence between Sample Information and Statistical Analysis, especially in METHODS. Couple possible clusters labeled.

**Pattern 5:** No Orange T.

**Pattern 6:** Lots of Computation Bright Yellow, often co-occurs with Sample Info Orange. All Computation in METHODS section. Will look into.

**Pattern 7:** No Pink + Blue clusters, likely because main text focuses on Results but METHODS focuses on Statistical Analysis.

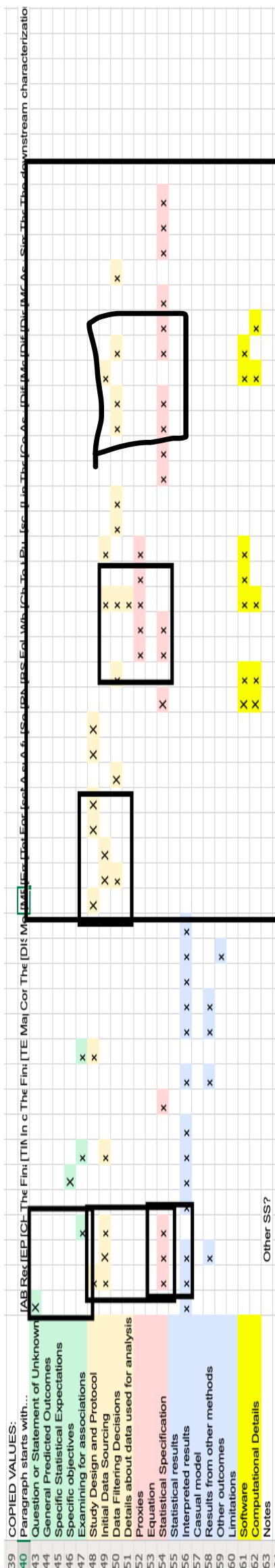
**Pattern 8:** No pink stair. Likely because of paper structure. Statistical Specification in main text but Proxies and Eq in METHODS.

**Pattern 9:** Yep, mostly Orange, Pink, Bright Yellow in METHODS. Vertical line shows where METHODS begins.

**Follow-up analyses/examples to look into:** Pattern 2 for how Research Goals change in specificity; Pattern 6 to see where/how software discussed.

Interesting that the contribution type is System but no orange in abstract.

## N\_5: Multi-omics profiling of mouse gastrulation at single-cell resolution



Pattern 0: Half rainbow, green and blue.

Pattern 1: Not a clear waterfall.

Pattern 2: N/A

Pattern 3: One in the beginning. General to specific.

Pattern 4: Three big obvious orange and pink clusters.

Pattern 5: One orange T in the middle of the paper.

Pattern 6: Most of yellow goes with orange. In the few instances it doesn't, it either doesn't have another code or it's with pink.

Pattern 7: One clear cluster of pink and blue in the beginning.

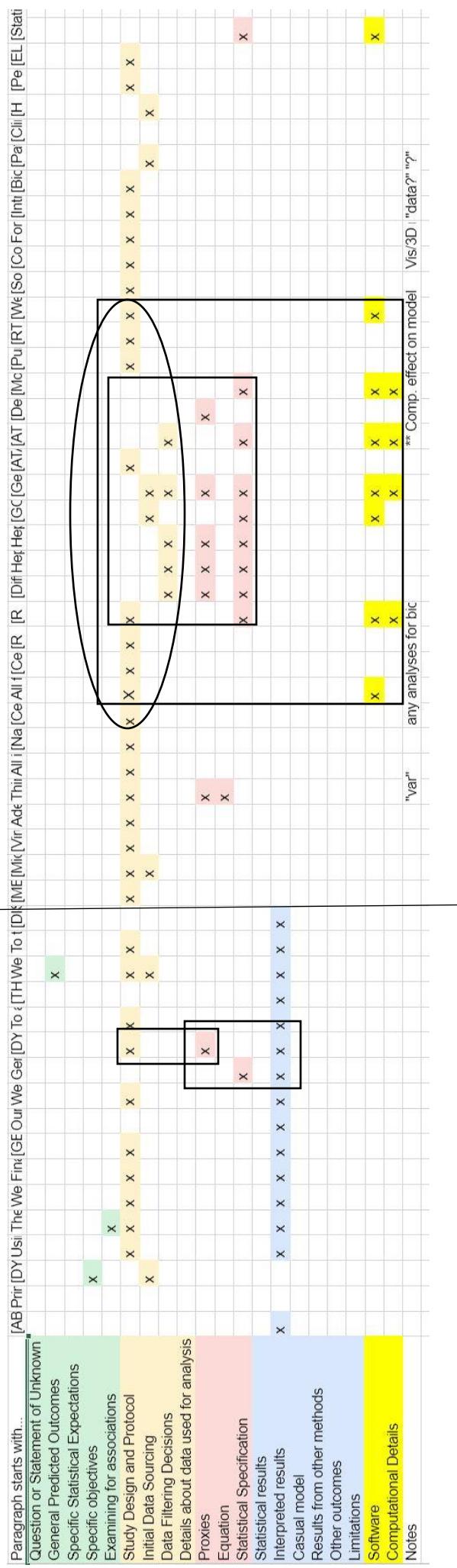
Pattern 8: No. Unless statistical specification gets talked about then proxies and the statistical specification again.

Pattern 9: A very good example of materials and methods containing yellow, pink, and orange.

**Follow-up analyses/examples to look into:** Any patterns where specific examples would explain more about what's going on.

Is there a relationship between stating specific research goals and then putting the results of their goal in the same paragraph?

## N\_6: Dynamics and genomic landscape of CD8+ T cells undergoing hepatic priming



**Pattern 0:** No rainbow, only blue.

**Pattern 1:** No clear "Waterfall" pattern.

**Pattern 2:** No real "Green wave".

**Pattern 3:** One single shot green wave from specific to general, but it's spread out -- weak.

**Pattern 4:** Orange + Pink clusters labeled.

**Pattern 5:** No clear "Orange T" patterns. A more drawn-out T in the middle of the Methods section (circled).

**Pattern 6:** Software mentioned mostly in co-occurrence with orange. Labeled.

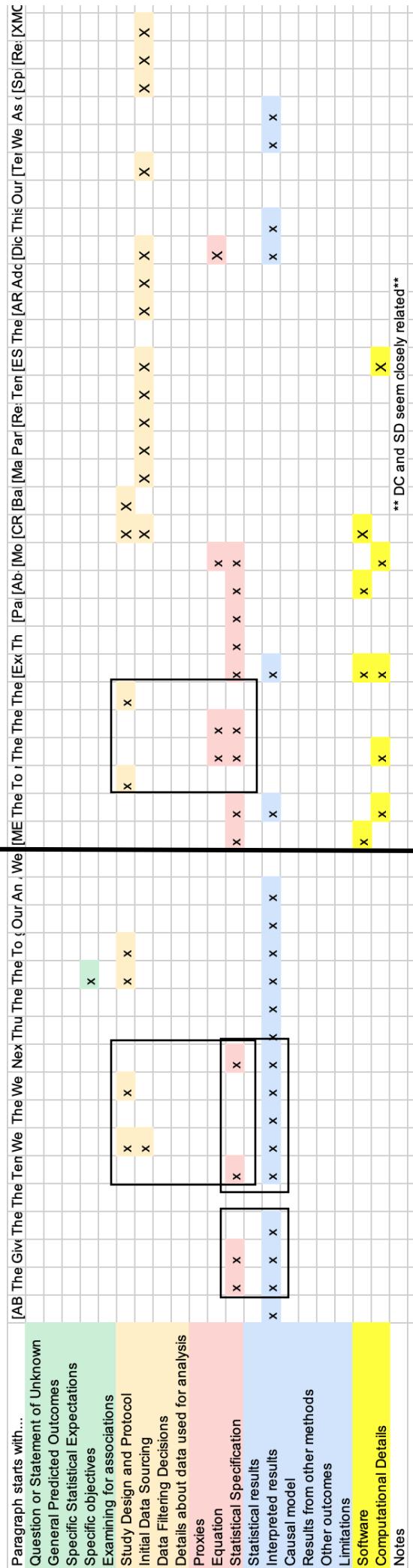
**Pattern 7:** Only one pink + blue cluster – separated because of Methods sections. Labeled.

**Pattern 8:** No "Pink stair" patterns – proxies co-occur with SS.

**Pattern 9:** Methods section contains majority of info about Sample Information, Statistical Analysis, and Computation. Begins at vertical line.

**Follow-up analyses/examples to look into:** Look into the orange T, and how the software interplays with sample info and stats analysis.

## N\_7: Prediction and observation of an antiferromagnetic topological insulator



**Pattern 0:** No rainbow. Only Results in Abstract.

**Pattern 1:** No waterfall.

**Pattern 2:** No Green wave. Only one instance of Specific Objectives.

**Pattern 3:** No Single shot, Green wave.

**Pattern 4:** No Orange + Pink clusters, but two co-occurrences. Labeled.

**Pattern 5:** No Orange T.

**Pattern 6:** Lots of Computation in METHODS. Not all co-occur with Sample Info. Many co-occur with SS – look into.

**Pattern 7:** Possibly two Pink + Blue clusters. Labeled.

**Pattern 8:** No Proxies. Equation and Statistical Specification clusters. Will look into.

**Pattern 9:** METHODS contain most of Sample Info, Statistical Analysis, and Computation, but also some Results. Vertical line shows where METHODS begins.

**Follow-up analyses/examples to look into:** Pattern 8 for how Equation and Statistical Specification are discussed in relation to one another. Co-occurrence of Computation with SS.

## N\_8: Insect egg size and shape evolve with ecology but not developmental rate

COPIED VALUES:
Paragraph starts with... Question or Statement of Unknown
General Predicted Outcomes
Specific Objectives
Examining for associations
Study Design and Protocol
Initial Data Sourcing
Data Filtering Decisions
Details about data used for analysis
Proxies
Equation
Statistical Specification
Statistical Results
Interpreted results
Causal model
Results from other methods
Other outcomes
Limitations
Software
Computational Details
Notes

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Pattern 0: No. Only yellow and blue.

Pattern 1: No.

Pattern 2: Great green wave example. Goes from general to specific then general again.

Pattern 3: All the green is part of the wave.

Pattern 4: Two big clusters of orange and pink.

Pattern 5: N/A. Only contains study design from yellow.

Pattern 6: Software and orange overlap once. Most of software is overlapping is pink.

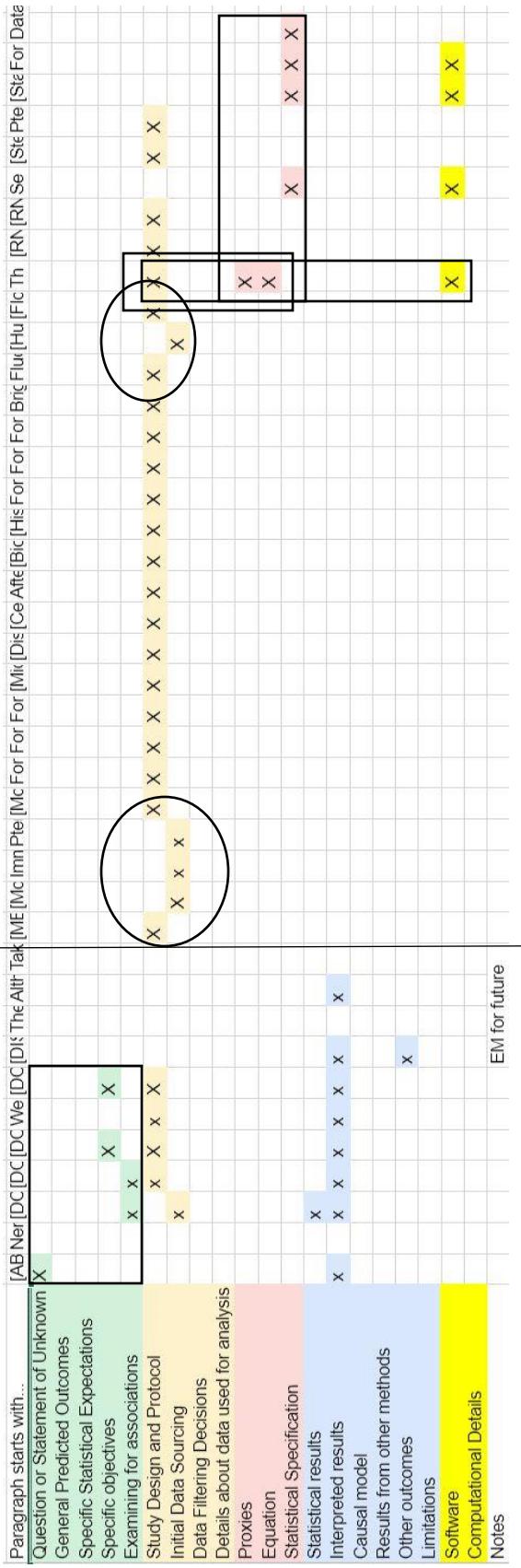
Pattern 7: One big obvious pink and blue clusters.

Pattern 8: Not seen in the beginning, but it occurs in the methods and materials section.

Pattern 9: The methods and materials only contain large amounts of orange, yellow, and pink

**Follow-up analyses/examples to look into:** Why are there many research goals throughout the whole paper?

# N\_9: Progenitors from the central nervous system drive neurogenesis in cancer



**Pattern 0:** Half rainbow – green and blue.

**Pattern 1:** No waterfall – green, orange, blue co-occur in main paper, with no pink at all.

**Pattern 2:** Small green wave, mostly a downward single shot.

**Pattern 3:** Single shot green wave from general to specific, labeled.

**Pattern 4:** Only one Orange + Pink cluster, labeled.

**Pattern 5:** No clear "Orange T" pattern because no data filtering, but there is a pattern of SD being the primary discussion with a few paragraphs about data sourcing sprinkled in. Labeled.

**Pattern 6:** Software co-occurs ONCE with SD (labeled), but all other times is mentioned in its own paragraph (although surrounded by orange). Worth looking into.

**Pattern 7:** NO Pink + Blue clusters – separated in main paper vs. Methods section.

**Pattern 8:** "Pink stair" labeled.

**Pattern 9:** Methods section contains majority of info about Sample Information, Statistical Analysis, and Computation. Begins at vertical line.

**Follow-up analyses/examples to look into:** Interplay of Software and SD, especially the paragraph where pink and orange co-occur. Software seems to co-occur more with pink than with orange in this paper.

# PNAS\_0: GUN1 interacts with MORF2 to regulate plastid RNA editing during retrograde signaling

	IAB	Plan	In	N	Her	I	RE	[GU	We	IMC	Who	Cor	IMC	We	IMC	Pa	We	ID	SI	RN	Y	e	Bi	For	[Pla	[Co	The	[gu	[RN	[Mut
Paragraph starts with...	x	x																												
Question or Statement of Unknown																			x	x										
General Predicted Outcomes																														
Specific Statistical Expectations																														
Specific objectives																														
Examining for associations																														
Study Design and Protocol																														
Initial Data Sourcing																														
Data Filtering Decisions																														
Details about data used for analysis																														
Proxies																														
Equation																														
Statistical Specification																														
Statistical results																														
Interpreted results	x																													
Causal model																			x											
Results from other methods																			x											
Other outcomes																				x										
Limitations																					x									
Software																						x								
Computational Details																							x							
Notes																														

**Pattern 0:** No rainbow here. Just Results in Abstract.

**Pattern 1:** No waterfall.

**Pattern 2:** Green wave from General -> Specific (for middle of paper) -> General (towards end). Labeled.

**Pattern 3:** See note in Pattern 2.

**Pattern 4:** No Orange + Pink clusters in main text, but clusters in METHODS AND MATERIALS. Labeled. Might even be part of an Orange T.

**Pattern 5:** Orange T in METHODS AND MATERIALS. Labeled.

**Pattern 6:** Software mentioned in METHODS AND MATERIALS. In same paragraphs as Orange + Pink cluster. Included in Orange + Pink cluster box for Pattern 4.

**Pattern 7:** No Pink + Blue clusters. Results are included in the main paper. Statistical Analysis is included in METHODS AND MATERIALS.

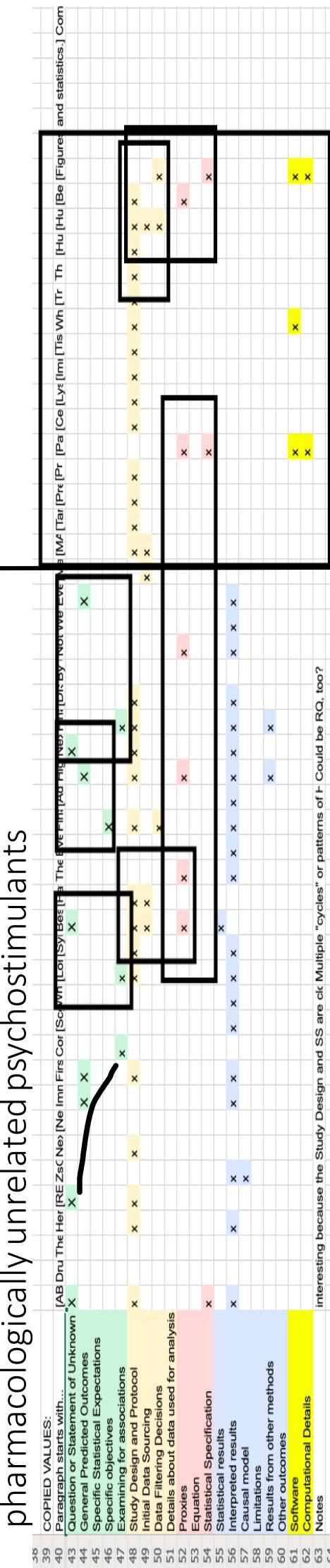
**Pattern 8:** No stair. Proxy and Statistical Specification co-occur in METHODS AND MATERIALS. Included in box for Pattern 4.

**Pattern 9:** Orange, Pink, Bright Yellow in METHODS AND MATERIALS. Vertical line shows where METHODS AND MATERIALS starts.

**Other notes:** Results seem to primarily be Interpreted results.

**Follow-up analyses/examples to look into:** Pattern 2 for Green Wave throughout paper; Pattern 4, 6, 8 (How Sample Information, Statistical Analysis, and Computation discussed); Focus on Interpreted Results

# PNAS\_1: Brain-wide genetic mapping identifies the indium griseum as a prenatal target of pharmacologically unrelated psychostimulants



Pattern 0: Yes!

Pattern 1: No clear waterfall.

Pattern 2: A wave is formed in the middle of the paper. Goes from specific to general and then back to specific.

Pattern 3: Most are contained in the wave. There is one single shot in the beginning that goes from general to specific

Pattern 4: Two major orange and pink clusters.

Pattern 5: Orange T is seen at the end of the materials and methods. Good example.

Pattern 6: Orange and software co-occur three times. Software also does with pink.

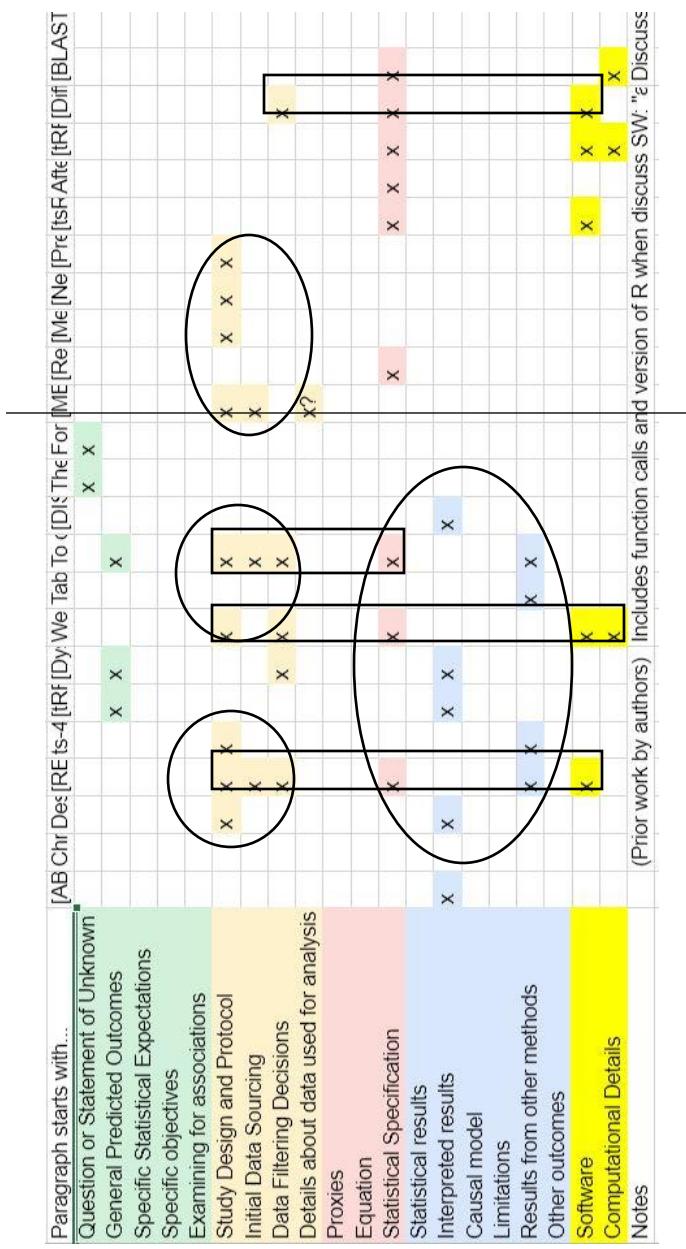
Pattern 7: No obvious clusters of pink and blue.

Pattern 8: Two are seen. One in the middle and the other at the end. First one spans main body text and MATERIALS. (may not count)

Pattern 9: Methods and materials contain only yellow, orange, pink. - Vertical line.

**Follow-up analyses/examples to look into:** Look into the green wave and how the research goals go back and forth from general to specific. One of the pink stairs spans the MATERIALS AND METHODS section.

## PNAS\_2: Dysregulation of different classes of tRNA fragments in chronic lymphocytic leukemia



**Pattern 0:** No rainbow – only blue.

**Pattern 1:** No waterfall, but a little downward slope from orange --> pink in Methods.

**Pattern 2:** Research goals are all general – no wave.

**Pattern 3:** Slight upward single shot from specific to general, but no very specific research goals.

**Pattern 4:** Orange + Pink co-occurrences labeled – most of them included with the software/orange co-occurrences.

**Pattern 5:** Some "Orange T" patterns, circled. Some are more obvious than others.

**Pattern 6:** Software occurs with and without orange. Co-occurrences labeled.

**Pattern 7:** SS is sprinkled throughout results. Circled.

**Pattern 8:** N/A - no proxies.

**Pattern 9:** Sample Info, Statistical Analysis, and Computation are pretty evenly spread out between the main paper and the Methods section.

**Follow-up analyses/examples to look into:-**

# PNAS\_3: A critical role for microglia in maintaining vascular integrity in the hypoxic spinal cord

	[AB]	Cer	Whi	RE	Mic	Nex	[Un]	Mic	[Dis]	Sev	In	t[Im]	[MA]	C	[Elir]	i.p.	[Im]	[Im]
Paragraph starts with...	x	x																
Question or Statement of Unknown General Predicted Outcomes					x	x												
Specific Statistical Expectations	x	x																
Examining for associations		x	x			x	x	x	x									
Study Design and Protocol			x	x	x	x		x	x	x								
Initial Data Sourcing			x	x	x	x		x	x	x	x							
Data Filtering Decisions				x				x	x	x	x							
Details about data used for analysis					x				x	x	x							
Proxies	x								x	x	x							
Equation										x	x							
Statistical Specification										x	x							
Statistical results			x					x	x	x	x	x	x	x	x			
Interpreted results								x	x	x	x	x	x	x	x			
Causal model							x											
Results from other methods								x										
Other outcomes																		
Limitations																		
Software										x								
Computational Details																		
Notes																		

**Pattern 0:** All but Sample Information in Abstract.

**Pattern 1:** No clear waterfall. Results seem to span the entire main text of the paper.

**Pattern 2:** Green wave in main text of paper. Labeled. Also, interesting that abstract starts with Specific Objective. *Will look into.*

**Pattern 3:** See Pattern 2.

**Pattern 4:** No Orange + Pink clusters.

**Pattern 5:** No Orange T.

**Pattern 6:** Software is only mentioned in the last paragraph of the MATERIALS AND METHODS section. Co-occurs in same paragraph as Study Design, Proxy, and Statistical Specification.

**Pattern 7:** No Pink + Blue clusters.

**Pattern 8:** No Pink stair, but Proxies are discussed in main paper text. In MATERIALS AND METHODS, same paragraph discusses Proxy and Statistical Specification (and Software).

**Pattern 9:** MATERIALS is focused on Sample Information mostly. Vertical line shows where MATERIALS AND METHODS starts.

**Follow-up analyses/examples to look into:** Pattern 1 to see how and what Research Goals are specified/generalized (might be related to problem solving); Pattern 8 Proxy and Statistical Specification for how they are discussed.

## PNAS\_4: SDS22 selectively recognizes and traps metal-deficient inactive PP1

COPIED VALUES:	
39	Paragraph starts with...
40	[AB P[D] SD: Her [RE (SD (SD (SD (SD (SD [Ne] We [Dit Our As] [Fin] Tra W
43	x
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61	x
62	x
63	x
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COPIED VALUES:	
40	Paragraph starts with...
43	[AB P[D] SD: Her [RE (SD (SD (SD (SD (SD [Ne] We [Dit Our As] [Fin] Tra W
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40	Paragraph starts with...
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56	x
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59	x
60	x
61	x
62	x
63	x
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Pattern 0: No. Only contains green and blue.

Pattern 1: Waterfall missing pink and is results heavy. Not a good one.

Pattern 2: More of a single shot than a wave.

Pattern 3: Two green single shots. One from general to specific. The other from specific to general. Could be a wave?

Pattern 4: Two orange and pink clusters.

Pattern 5: Four instances of almost orange T. Missing data filtering decisions.

Pattern 6: Orange and software overlap multiple/all times.

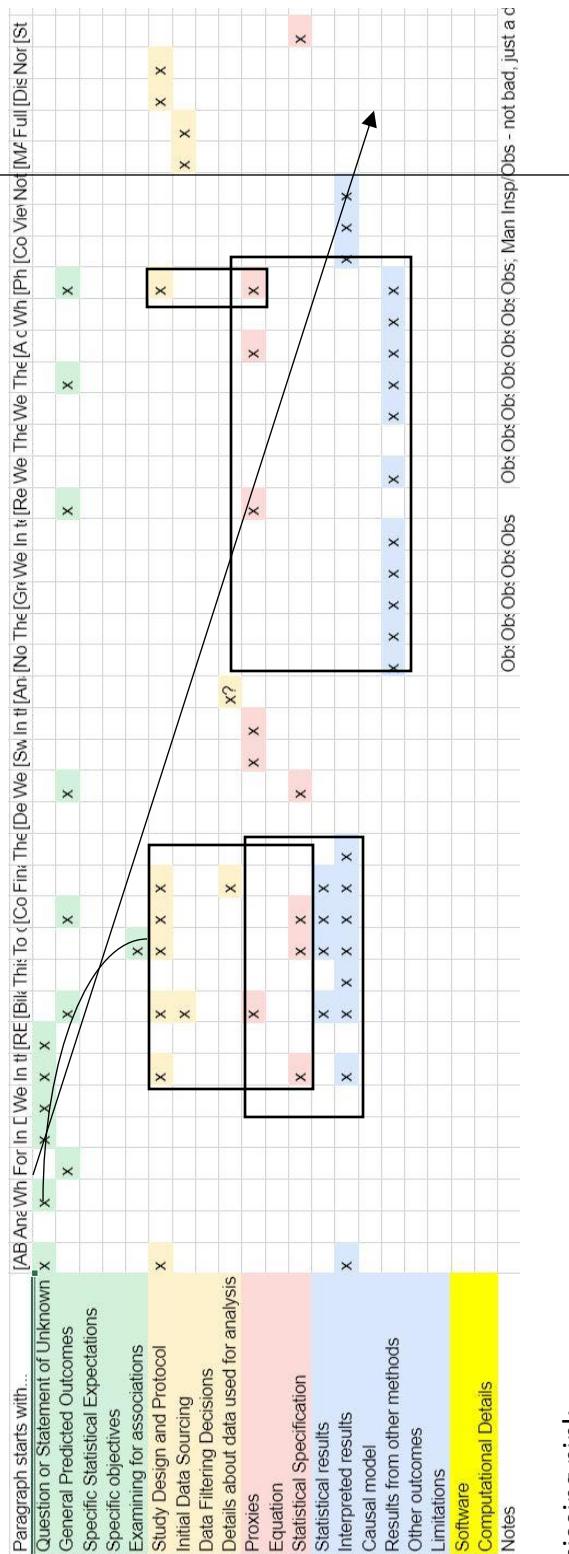
Pattern 7: N/A

Pattern 8: N/A

Pattern 9: Methods and materials contain only orange, pink and yellow.

**Follow-up analyses/examples to look into:** -

# PNAS\_5: Monitoring of switches in heterochromatin-induced silencing shows incomplete establishment and developmental instabilities



**Pattern 0:** Almost rainbow – missing pink.

**Pattern 1:** General waterfall slope, labeled.

**Pattern 2:** Not much of a green wave.

**Pattern 3:** A single shot green wave from general to specific, labeled.

**Pattern 4:** Some Orange + Pink clusters, labeled.

**Pattern 5:** No clear "Orange T".

**Pattern 6:** N/A - no software.

**Pattern 7:** SS co-occurs with statistical + interpreted results. Proxies co-occur with results from other methods. Both examples labeled. *Worth looking into.*

**Pattern 8:** More of a pink wave than a "Pink stair".

**Pattern 9:** Materials & Methods section is shorter, beginning at vertical line. Majority of sample info and statistical analysis info do not occur in this section.

**Follow-up analyses/examples to look into:** interplay of proxies and results from other methods.

# PNAS\_6: Extracellular RNA in a single droplet of human serum reflects physiologic and disease states

Paragraph starts with...	[AB] [Liq] A vi [RE] [SIL] [oil] [Sel] [Co] [We]	Nex [An] [IPr] [No] [Text] [Nex]	[Me] [SIn] [Dif] [Th] [We]	[Cta] To [idif] [To] [Ne]	Whd [DIS] [Eve] [We]	[Ffa] [Sel] [Th] [Lm]	MA [An] [Co] [Al] [As] [Ca] [Ge]	[Cta] Class
General Predicted Outcomes	x	x			x	x		
Specific Statistical Expectations					x	x		
Examining for associations	x	x	x	x	x	x	x	
Study Design and Protocol	x	x	x	x	x	x	x	
Initial Data Sourcing	x	x	x	x	x	x	x	
Data Filtering Decisions								
Details about data used for analysis	x	x	x	x	x	x	x	
Proxies	x	x	x	x	x	x	x	
Equation								
Statistical Specification	x	x	x	x	x	x	x	
Statistical results								
Interpreted results	x	x	x	x	x	x	x	
Causal model								
Results from other methods								
Other outcomes						x	x	
Limitations					x	x	x	
Software					x	x	x	
Computational Details					x	x	x	
Notes						x	x	

**Pattern 0:** Abstract contains Sample Information and Results only.

**Pattern 1:** No waterfall.

**Pattern 2:** Green wave throughout main paper text. Labeled.

**Pattern 3:** - See Pattern 2.

**Pattern 4:** No Orange + Pink clusters. A few places where they co-occur but no clusters.

**Pattern 5:** One Orange T where Initial Data Sourcing is discussed in context of Study Design? Labeled.

**Pattern 6:** Computation discussed in main text and MATERIALS AND METHODS section at the end. Occurs with Sample Information twice, three times with Statistical Specification. Will/look into when occur with Statistical Specification.

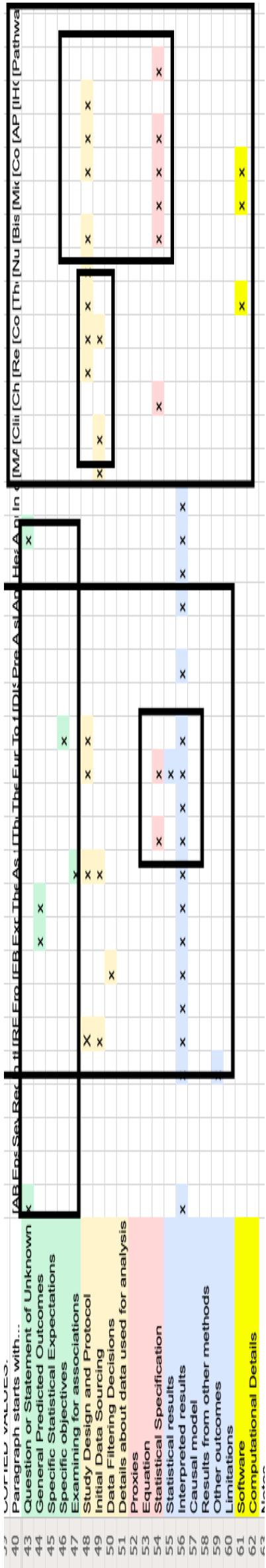
**Pattern 7:** Maybe three Pink + Blue clusters. There may be some sub-clusters. Labeled.

**Pattern 8:** No Pink stair, but Statistical Specification seems to be main Statistical Analysis focus and Proxies are discussed "intermittently." Will/look into.

**Pattern 9:** MATERIALS AND METHODS has Sample Info, Statistical Analysis, and Computation. All Research Goals and Results are in main paper text. Vertical line shows where MATERIALS AND METHODS starts.

**Follow-up analyses/examples to look into:** Pattern 1 for how and what kinds of Research Goals get specified/generalized; Pattern 8 for how Proxies are described "in between" Statistical Specifications and why

# PNAS\_7: Targeting pericyte-endothelial cell crossstalk by circular RNA-cPWWP2A inhibition aggravates diabetes-induced microvascular dysfunction



**Pattern 0:** No. Only blue and green.

**Pattern 1:** Not a clean waterfall. Results heavy and green throughout.

**Pattern 2:** Green wave throughout the paper. From general to specific.

**Pattern 3:** Wave contained all the green.

**Pattern 4:** One cluster of pink and orange.

**Pattern 5:** Orange T in the beginning of methods and materials. Not the cleanest.

**Pattern 6:** Two software overlap with orange. One overlaps with pink.

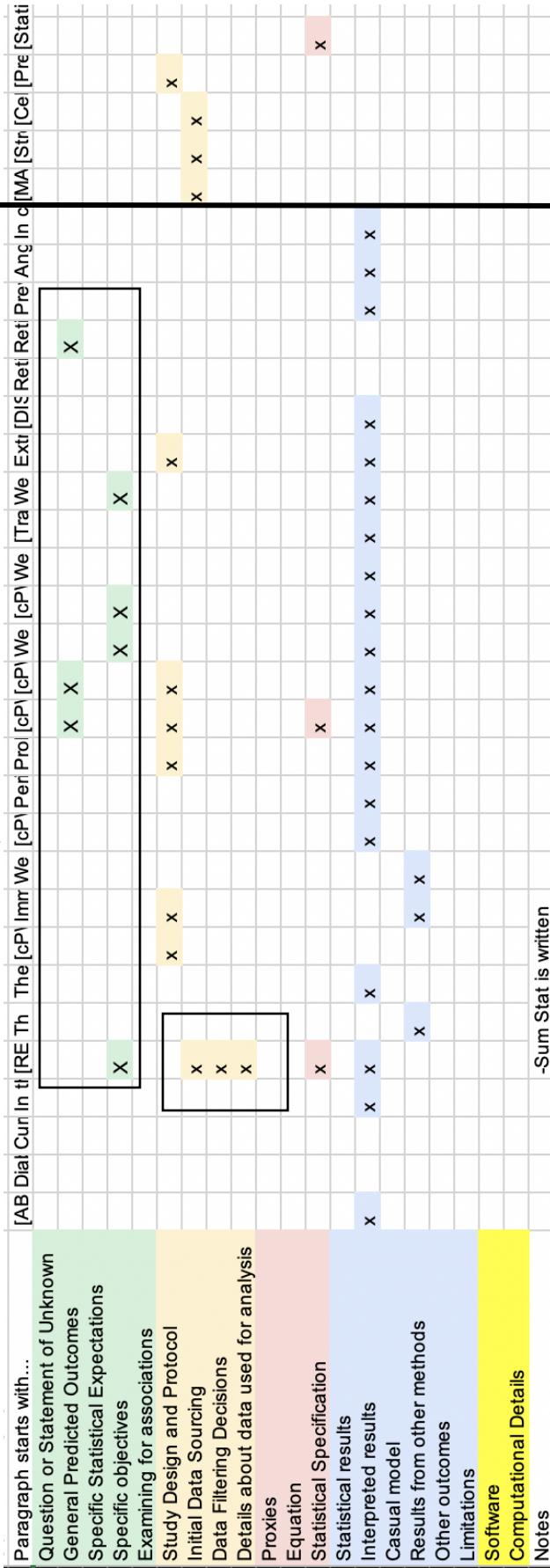
**Pattern 7:** One pink and blue cluster.

**Pattern 8:** N/A

**Pattern 9:** Methods and materials contain yellow, pink, orange. Good example.

**Follow-up analyses/examples to look into:** No proxies – look into!

# PNAS\_8: Targeting pericyte-endothelial cell crosstalk by circular RNA-cPWWP2A inhibition aggravates diabetes-induced microvascular dysfunction



**Pattern 0:** No Rainbow. Only Results discussed in Abstract.

**Pattern 1:** No waterfall – all colors distributed throughout the paper.

**Pattern 2:** Specific Objective -> Predicted Outcome – interesting that it starts as Specific Objective and that these are the only two Research Goals involved. Labeled. *Will look into.*

**Pattern 3:** - See Pattern 2

**Pattern 4:** No Orange + Pink clusters. A few co-occurrences.

**Pattern 5:** No Orange T, but interesting that there is one paragraph towards the front of the paper that has all Data Sourcing, Filtering, and Details about data info. Labeled.

**Pattern 6:** No Software/Computation.

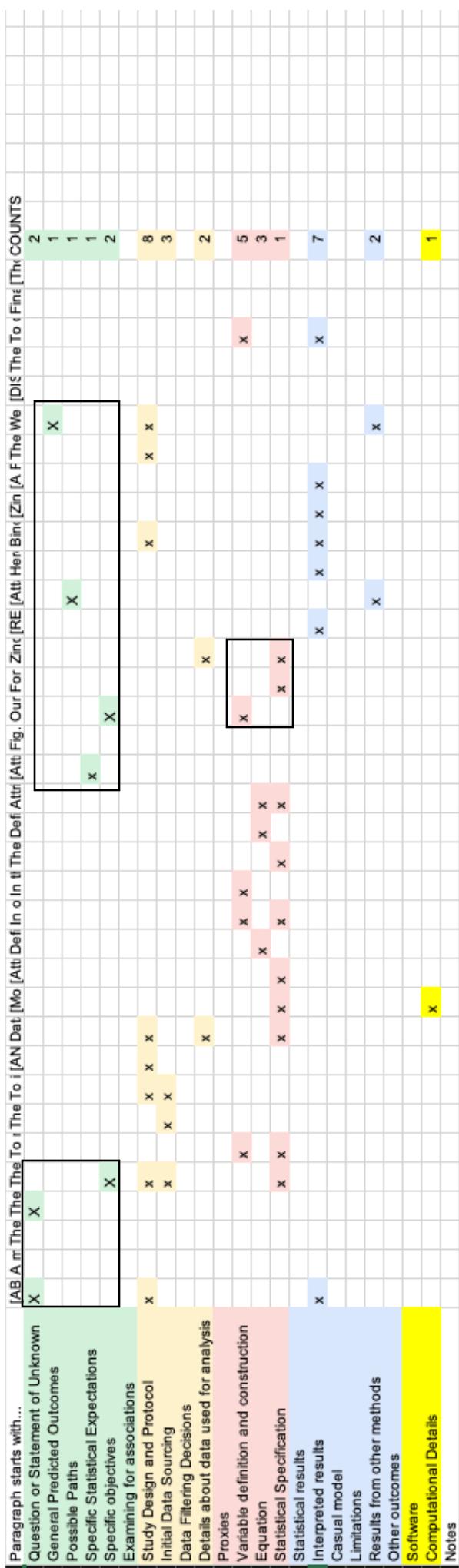
**Pattern 7:** No Pink + Blue cluster. Couple paragraphs where Statistical Specification and Interpreted Results discussed.

**Pattern 8:** No Proxy, only Statistical Specification. Interesting. *Will look into.*

**Pattern 9:** MATERIALS AND METHODS has only Sample Information and Statistical Specification. Vertical line indicates where MATERIALS AND METHODS start.

**Follow-up analyses/examples to look into:** Pattern 1 for how the Specific Objectives & Predicted Outcomes are related; Pattern 8 because no proxies are discussed. Why not?

# PNAS\_9: Using attribution to decode binding mechanism in neural network models for chemistry



## Pattern 0: Rainbow missing Statistical Analysis.

Pattern 1: No clear waterfall – all code groups are distributed throughout the paper except for Results, which appear in the abstract and the last part of the paper (Results and Discussion).

Pattern 2: Green wave present, goes general --> specific. See Pattern 3.

Pattern 3: Two main single shots. First goes general to specific, second goes specific to general. Both labeled.

Pattern 4: No orange + pink clusters - they dovetail a little with some co-occurrences but generally do not overlap.

Pattern 5: Not much of an "Orange T"; data sourcing/filtering are spread out.

Pattern 6: N/A - no software.

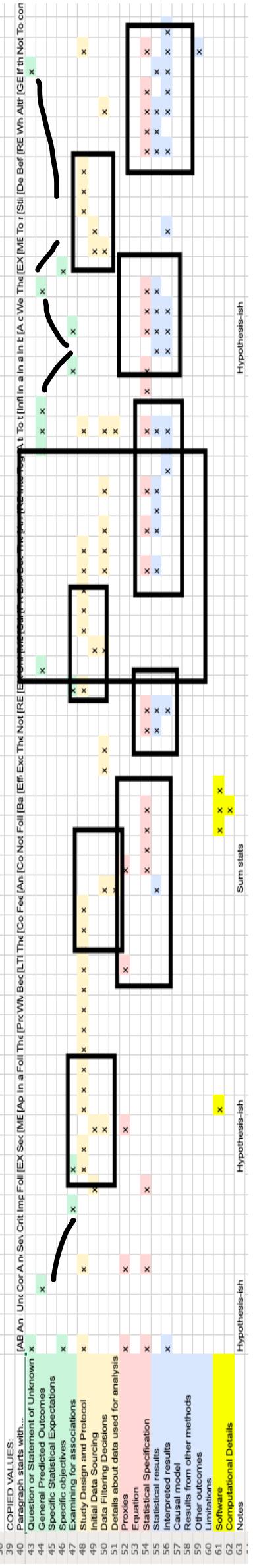
Pattern 7: No pink + blue clusters – interesting that these are separated even though there is no METHODS/MATERIALS section.

Pattern 8: One "Pink stair", labeled. Proxies often discussed in tandem with SS.

Pattern 9: N/A - no Methods and Materials.

**Follow-up analyses/examples to look into:** PNAS\_9 contrasts with other PNAS papers that separate METHODS/MATERIALS because PNAS\_9 does not have such a section. Pattern 4 with orange and pink dovetailing might be interesting.

# PS\_0: Working Memory Has Better Fidelity Than Long-Term Memory: The Fidelity Constraint Is Not a General Property of Memory After All



Pattern 0: Yes! A great example of a rainbow.

Pattern 1: One clear waterfall. Has pink and blue overlap

Pattern 2: One green wave. Goes from general to specific to general.

Pattern 3: One green single shots. From general to specific.

Pattern 4: One cluster of pink and orange.

Pattern 5: Four orange "T". Spread across the whole paper.

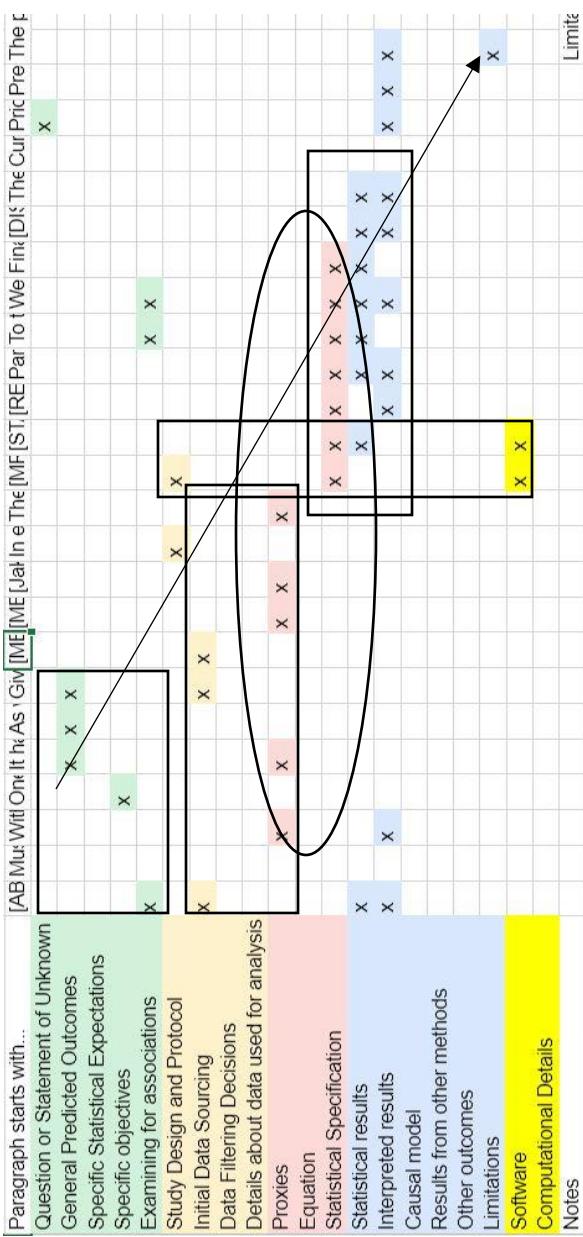
Pattern 6: Software and orange occur together once. The other software codes are with pink or no other codes.

Pattern 7: Four obvious pink and blue clusters.

Pattern 8: One pink stair. In the beginning of the paper proxy and statistical specification are in the same paragraph twice.  
Pattern 9: No methods and materials.

Follow-up analyses/examples to look into:-

# PS\_1: Separate Contribution of Striatum Volume and Pitch Discrimination to Individual Differences in Music Reward



**Pattern 0:** Almost rainbow – missing pink.

**Pattern 1:** Clear waterfall trend, labeled.

**Pattern 2:** Green wave present.

**Pattern 3:** Single shot green wave from specific to general, labeled. *Worth looking into.*

**Pattern 4:** No close clusters of orange and pink, but data sourcing is interwoven with proxies. Labeled.

**Pattern 5:** No clear "Orange T" pattern.

**Pattern 6:** Software occurs with orange but might be weak – could be a stronger co-occurrence with SS. *Worth looking into.*

**Pattern 7:** Pink + blue cluster labeled.

**Pattern 8:** A clear "Pink stair" with proxies preceding SS, circled.

**Pattern 9:** N/A

**Follow-up analyses/examples to look into:** Co-occurrence of software with info about sample/data -- it might be more closely clustered with SS.

## PS\_2: Information Processing Under Reward Versus Under Punishment

Paragraph starts with...	AB One Alth We	The Adc A & The Fine In t!ME The At t! The RE Wh As cWith QU With The DE As cDIs Pur The On Anc A n The r
Question or Statement of Unknown	x	x
General Predicted Outcomes	x	x x x x
Specific Statistical Expectations		x
Specific objectives		x
Examining for associations		x
Study Design and Protocol		x
Initial Data Sourcing		x
Data Filtering Decisions	x	x
Details about data used for analysis		x
Proxies	x	x
Equation	x	x
Statistical Specification	x	x
Statistical results		x
Interpreted results		x
Causal model		x
Results from other methods		x
Other outcomes		x
Limitations		x
Software		
Computational Details		
Notes		**Several possible hypothesis!!**

**Pattern 0:** All but Sample Information.

**Pattern 1:** One waterfall across entire paper. Labeled.

**Pattern 2:** No Green wave. All research goals are general.

**Pattern 3:** No Green wave.

**Pattern 4:** No Orange + Pink cluster, but co-occurrence in general region. Labeled.

**Pattern 5:** Not quite an Orange T, but looks like Study Design is spread across paragraphs and then a couple paragraphs go deeper on Initial Data Sourcing and Filtering. Labeled. Overlaps with Orange + Pink cluster box.

**Pattern 6:** No Computation mentioned.

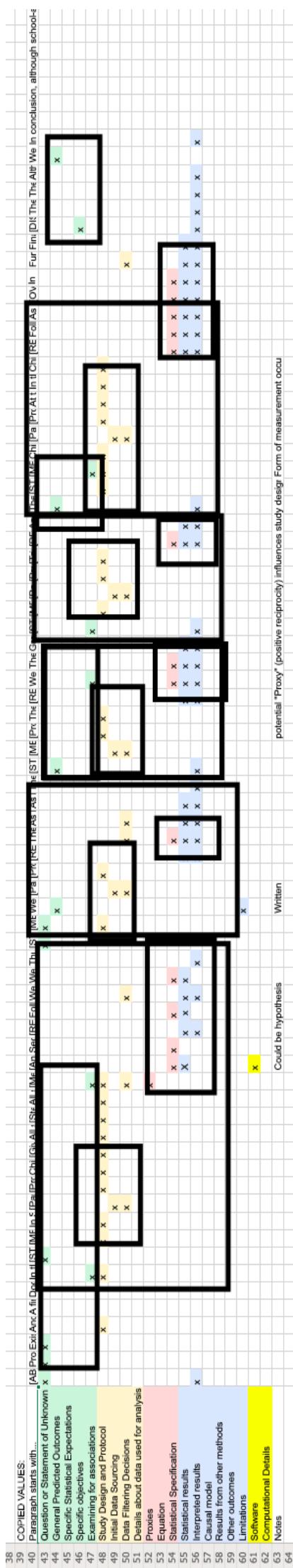
**Pattern 7:** Two Pink + Blue clusters towards end, which could actually be the same cluster. Some co-occurrence in one possible cluster at the beginning of paper. All three labeled. *Worth looking into.*

**Pattern 8:** No clear Pink stair. But Proxy and Statistical Specification go back and forth. *Worth looking into.*

**Pattern 9:** N/A

**Follow-up analyses/examples to look into:** Pattern 2 for more details on why all research goals general; Pattern 8 for Proxy-Statistical Specification back and forth; Pattern 5 for how Sample Information and Statistical Analysis "interact"; maybe also Pattern 7 for how Statistical Analysis and Results interact

# PS\_3: Paying Back People Who Helped Us but Not People Who Harmed Us: Direct Negative Reciprocity Precedes Direct Positive Reciprocity in Early Development



**Pattern 0:** No. Only green and blue.

**Pattern 1:** Five waterfalls. All throughout the paper. Has pink and blue overlap.

**Pattern 2:** One green wave. Goes from general to specific to general.

**Pattern 3:** Three green single shots. Two general to specific. One specific to general.

**Pattern 4:** N/A

**Pattern 5:** Five orange "T". Spread across the whole paper.

**Pattern 6:** Software and orange don't occur together. The software code is with pink and blue.

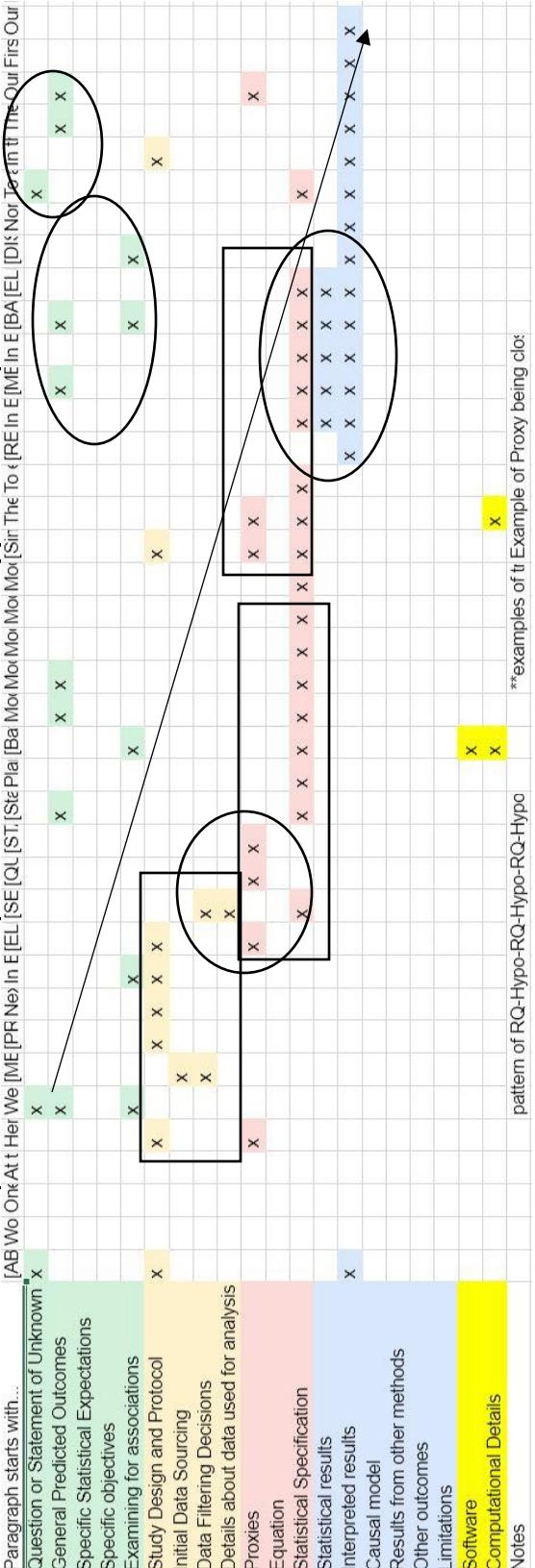
**Pattern 7:** Five obvious pink and blue clusters.

**Pattern 8:** One pink stair. In the beginning of the paper.

**Pattern 9:** No methods and materials.

**Follow-up analyses/examples to look into:** Is there more pink and blue overlap in waterfalls in PS? If so, why?

## PS\_4: Selection of Visual Objects in Perception and Working Memory One at a Time



**Pattern 0:** Almost rainbow – missing pink.

**Pattern 1:** Green is fairly evenly distributed, but waterfall is visible with the other colors. Labeled.

**Pattern 2:** Green wave is not super obvious.

**Pattern 3:** Some single shot green waves from general to specific are circled.

**Pattern 4:** Orange + pink cluster circled.

**Pattern 5:** Some "Orange T" patterns with data sourcing/filtering concentrated in specific paragraphs, within a discussion of SD. Labeled.

**Pattern 6:** Software does NOT co-occur with orange or even near any orange paragraphs. Worth looking into.

**Pattern 7:** Pink + blue cluster circled.

**Pattern 8:** Proxies are spread out with SS, but some stair-like patterns labeled.

**Pattern 9:** N/A.

**Follow-up analyses/examples to look into:** Single shot green waves. Context of software – probably in relation to SS? Also look into pink stairs.

# PS\_5: Variation in the Opioid Receptor Gene (OPRM1) Does Not Moderate Social-Rejection Sensitivity in Humans

Paragraph starts with...	IAB	Wa	Sin	ME	We	Our	IGE	We	ICY	Our	IDIS	IDE	The All t	Fin	Ate	IPR	DA	In t	RE	dist	EX	In t	RE	dist	EX	In t	BA	An	IDIS	The A	lir	Ref	Social rejection
Question or Statement of Unknown General Predicted Outcomes Specific Statistical Expectations Examining for associations	x																	x	x														
Study Design and Protocol Initial Data Sourcing Data Filtering Decisions Details about data used for analysis Proxies		x																x	x	x	x	x	x	x	x	x	x	x	x	x	x		
Equation Statistical Specification Statistical results Interpreted results Causal model Results from other methods Other outcomes Limitations Software Computational Details Notes			x															x	x	x	x	x	x	x	x	x	x	x	x	x			

"main dependent var" → should be S; implied hypothesis = "controls"  
should check/cross-re limitation about proxy

**Pattern 0: Rainbow!**

**Pattern 1:** No waterfall. Research Goals are spread throughout paper, back heavy.

**Pattern 2:** Green wave. Between Predicted Outcomes and Examining for Associations. Labeled.

**Pattern 3:** - See Pattern 2.

**Pattern 4:** No Orange + Pink clusters, but Proxies seem to be discussed in relation to Data Sourcing and Study Design. Will look into.

**Pattern 5:** Maybe two small Orange Ts? Labeled.

**Pattern 6:** Software + Computational Details co-occur in same paragraphs. Not necessarily with Sample Information. Will look into

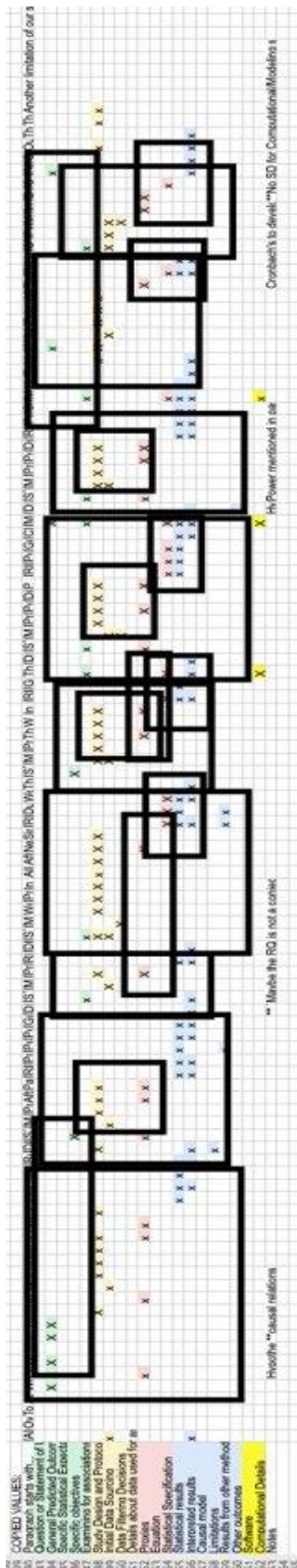
**Pattern 7:** One major cluster, maybe some sub-clusters. Labeled major cluster.

**Pattern 8:** Wide Pink stair. Proxies discussed more in first half of paper (looks like more with Sample Info) and Statistical Specification more in second half. Will look into.

**Pattern 9:** N/A

**Follow-up analyses/examples to look into:** Pattern 4,8 for how Proxies are discussed in relation to Sample Information; Pattern 6 for what Computational Details are discussed with software.

## PS\_6: The Ethical Perils of Personal, Communal Relations: A Language Perspective



**Pattern 0:** No. Only contains yellow and blue.

**Pattern 1:** Nine waterfalls. Some are not as clean as others. Goes throughout the whole paper.

**Pattern 2:** One green wave at the end of the paper. Goes from specific to general then back to specific.

**Pattern 3:** Single shot Green wave: One wave from General to Specific or Specific to General. Specify which direction.

**Pattern 4:** Orange + Pink clusters: Data sourcing, filtering discussed when discussing proxies and statistical specifications

**Pattern 5:** "Orange T": Study Design and Protocol is primary discussion and one/two paragraphs talk more deeply about Initial Data Sourcing and Data Filtering

**Pattern 6:** Orange and Software: When discussing Sample Information, researchers also mention software/computation. If Software mentioned but not in relation to Orange, note that.

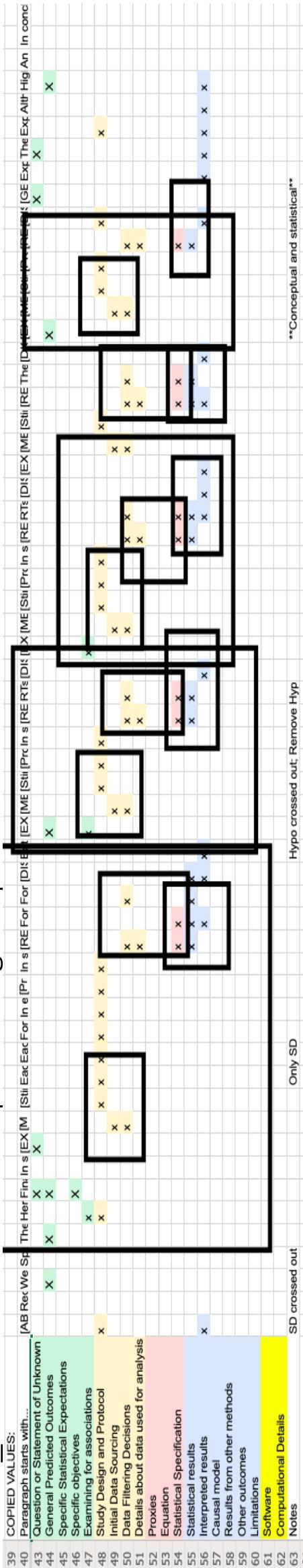
**Pattern 7:** Pink + Blue clusters: Statistical Specifications co-occur with Results, esp. statistical and interpreted results

**Pattern 8:** "Pink stair": Proxies are defined/discussed before Statistical Specifications

**Pattern 9:** No methods and materials.

**Follow-up analyses/examples to look into:** Overall structure of the paper since there are so many patterns!

# PS\_7: Visual Search for People Among People



**Pattern 0:** No. Only contains yellow and blue.

**Pattern 1:** Four waterfalls. Pink and blue overlaps but other than that they are clean.

**Pattern 2:** N/A

**Pattern 3:** N/A

**Pattern 4:** Four orange and pink clusters.

**Pattern 5:** Four orange "T". One in each waterfall.

**Pattern 6:** N/A. No software.

**Pattern 7:** Five clusters of pink and blue.

**Pattern 8:** N/A. No proxies.

**Pattern 9:** No methods and materials.

**Follow-up analyses/examples to look into:** Why does the orange T occur every time a waterfall does? Is that the authors' writing style? Or does every study include the same type of information?  
Look into clusters of green codes.

# PS\_8: National Gross Domestic Product, Science Interest, and Science Achievement: A Direct Replication and Extension of the Tucker-Drob, Cheung, and Briley (2014) Study

Paragraph starts with...	[AB Det-Tu ]ME [PA The Part ME [Fa] Na [Po] [Sci The Pl As [IDA We To ]IRE ]RE In o ]DIF The Diff In _INA [NA We Fine [DIS In d Firs Sec [LN This Fol] Futi ]CONC]
Question or Statement of Unknown	x
General Predictions	x
Specific Statistical Expectations	x
Specific objectives	x
Examining for associations	x
Study Design and Protocol	x
Initial Data Sourcing	x
Data Filtering Decisions	x
Details about data used for analysis	x
Proxies	x
Equation	x
Statistical Specification	x
Statistical results	x
Interpreted results	x
Causal model	x
Results from other methods	x
Other outcomes	x
Limitations	x
Software	x
Computational Details	x
Notes	x

"(about data)" "focused on effect-size estimates" "Correlational analyses – SS o Lim "Future"

**Pattern 0:** All but Statistical Analysis in Abstract.

**Pattern 1:** Sparse waterfall. Not many Research Goals. Labeled.

**Pattern 2:** Specific Objective -> General Predicted Outcome -> Specific Objective. Looks closer to a single wave. Labeled. Also interesting – one Question at the end of the paper (maybe as a conclusion)

**Pattern 3:** See Pattern 2.

**Pattern 4:** No Orange T. They are actually kind of staggered – Sample Info with Proxies and then Statistical Specification. *Will look into*.

**Pattern 5:** No Orange T.

**Pattern 6:** Software is mentioned twice, neither with Sample Information.

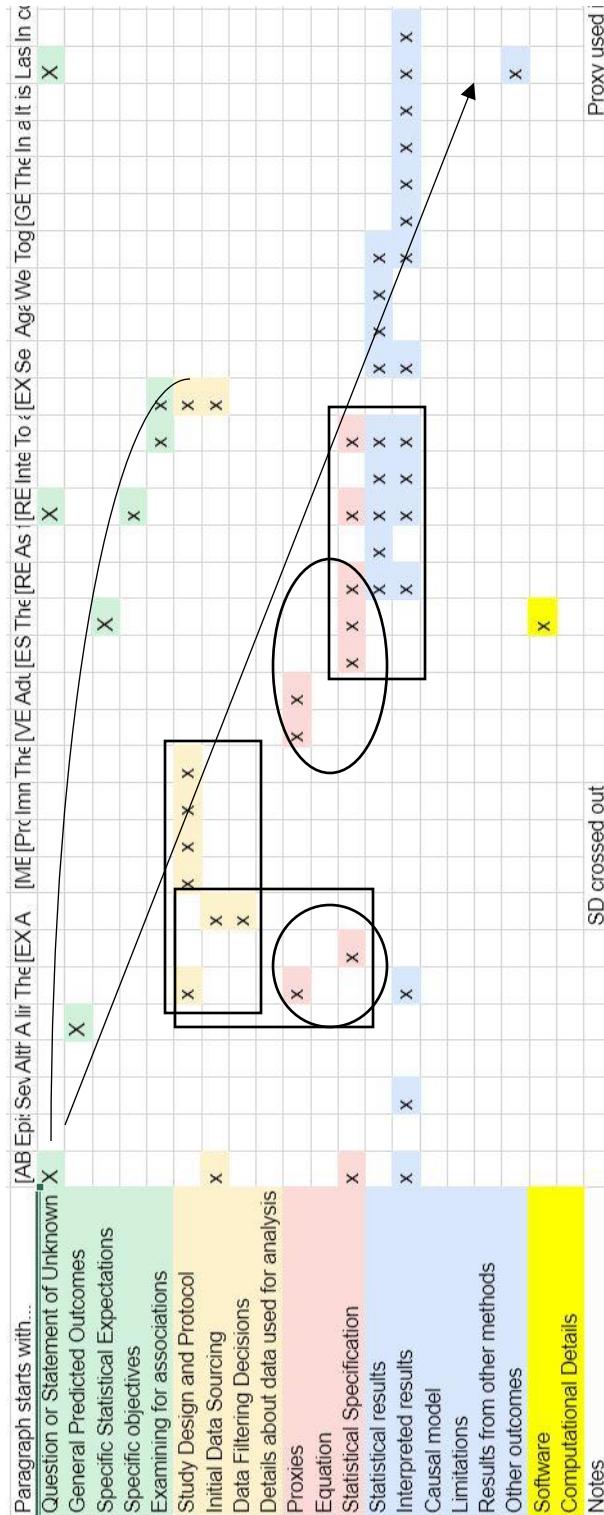
**Pattern 7:** Maybe one Pink + Blue cluster. More staggered than clustered. Labeled.

**Pattern 8:** Pink stair! Proxies first (with Sample Info) then Statistical Specification. Proxy then mentioned again at the end of the paper.

**Pattern 9:** N/A

**Follow-up analyses/examples to look into:** Pattern 4, 8 for how Sample Info, Proxies, and Statistical Specification are "connected" or not; Pattern 1 for what the Specific Objectives are.

# PS\_9: Development of Holistic Episodic Recollection



**Pattern 0:** Full rainbow!

**Pattern 1:** Waterfall labeled.

**Pattern 2:** A green wave is weakly present. General Question/Statement of Unknown appears throughout, with other codes going from general to more specific.

**Pattern 3:** Single shot green wave from general to specific, labeled.

**Pattern 4:** Orange + Pink cluster labeled, but it might not be very strong. *Worth looking into.*

**Pattern 5:** "Orange T" labeled.

**Pattern 6:** Software is mentioned but NOT in relation to orange. *Worth looking into.*

**Pattern 7:** Pink + Blue cluster labeled.

**Pattern 8:** Some "Pink stair" patterns - circled.

**Pattern 9:** N/A.

**Follow-up analyses/examples to look into:** Look into green wave / single shot. Look into pink/orange cluster. Look into occurrence of software – related to SS?