Goal: Review the early game of the 9 games referenced in Kakashi's post
-   (He said the replays come from the set of example *3 Discharges* posted by me back in March 2021, so those are the 9 games I set out to analyze today.)
          [Retro-Note: it turns out this wasn't quite the case - but the majority still overlap]
Before looking at any of these, here will be my methodology:

- I'll type out the first 10 turns of analysis per game, noting when the first deviation occurs
    - I'm choosing t10 to encompass 5p Dawn, but to go a bit further in 3p & 4p where I think it's valuable to glimpse the results of the first two rounds' decisions.
        - Admittedly, this feels a bit arbitrary - but I need a cutoff at some point!
    - If multiple lines seem debatable, I'll defer to the in-game decision.
    - *Retro-Note: btw, I tried as best I could to "Steel Man" both sides - finding the optimal lines, and presenting alternatives when decisions were maybe debatable]*
- I'll assess the post-Dawn boardstate in 3 ways, to try and paint a broad picture of general health:
    - Raw *Good Touch* Efficiency (dupes will be discounted but noted)
    - Note the remaining cards in moderate danger (potentially unsavables next- or second-next to be discarded)
    - An impression of future prospects. I'll avoid looking at future draws, since that's arbitrary.
- Finally I'll compare the two, trying my best to clearly explain the differences as I see them.
- Since this is somewhat of a response to Kakashi's initial analysis, I'll be curious to compare my findings with his in each of these cases - hopefully this will aid in any future dialog.
- A **SUMMARY** can be found on the last page, for those who aren't complete masochists.

Game 1: Black 5 Suit - 5 Player (3/14/21)
https://hanab.live/replay/468003
t1-4   game choices look good

Dawn
t5-6   3D looks strong
t7   looks good (considering demonstrating b3 is debatable, but fine in this variant)
t8-10   look good (B5CME clarifies yellow distribution)
Turn 11 Status: 2.60 Efficiency   /   Danger = 0 on chop, 1 one-off (r4)
Future Prospects: About as okay as you can hope for in a 5p Black 5 with no sign of k1.

Non-Dawn [piano's suggestion]
t5   black to piper
t6   yellow to kimbi
t7-9   plays (I'll assume the same judgment call about blues is made)
t10   good touch bluff on 3s to stephen
Turn 11 Status: 2.60 Efficiency   /   Danger = 0 on chop, 1 one-off (r4)
Future Prospects: A number of potential 1-for-1s needs to follow; g1, r2, and two 5-saves.

Comparison: I'll call it **EQUAL**, w/ preference to Dawn if using only official conventions
Efficiency at t11 was equal, although as mentioned the non-Dawn team still needs to save r5 and g5. t14
ADrone can *Dreamcatcher Charm* g1 + save g5, so I'll call this also *"as okay as you can hope for"*.

This game seems to be completely missing from his analysis, so let's just move on.

Game 2: Special Mix 6 Suit - 5 Player (3/13/21)
https://hanab.live/replay/466827

t1-3   looks good (t3 is debatable, but I like the decision to prioritize tempo on pink to help unload piper)

Dawn
t4-5   3D is maybe unintuitive compared to the *5-Pull*, but it preserves the 5 for a future *5CM*.
t6   play i2 (in-game clue was a blunder)
t7   5-pull to Floriman
t8   black to piano (finesse + triple-prompt)
t9-10   blind-plays
Turn 11 Status: 2.20 Efficiency   /   Danger = 3 on chop (u3,u4,w4)
Future Prospects: there's a very strong + concrete continuation (piano clues w2 as a 3-for-1, kimbi 5cm's w4, and ADrone can UTD n2 (hilariously piano can even double-GD for n2+u2, but w/e)

Non-Dawn [piano's suggestion]
t4-5   5-Pull to ADrone
< Same continuation: i2 plays, 5-pull m1, finesse+prompt on m4 >
Turn 11 Status: 2.20 Efficiency   /   Danger = 3 on chop (u3,u4,w4)
Future Prospects: Identical, except the i5 has now been clued instead of the w3. This will mean w3 will need to get clued before being able to extract the w4

Comparison: I'll say **DAWN FAVORED**, because the tempo on w3 + added protection on w4 may end up being fairly significant.

Response to Kakashi's Analysis:
This game also seems to be completely missing from his analysis, so let's just move on.

Game 3: No Variant - 5 Player (3/09/21)
https://hanab.live/replay/463221

Dawn
t1-9   start with 3D, everything looks good.
          (b4 almost looks sketchy, but piper can always gd if no better opportunities arise)
t10   blue instead of 2 to get the finesse (since 2 is just a save)
Turn 11 Status: 2.00 Efficiency   /   Danger = effectively 0 (tcm b4, r4 has 3+ rounds)
Future Prospects: lol gg

Non-Dawn   [legal alternative of Kakashi's suggestion]
t1-2   start with UDD on p4 (lots of options, but this seems useful to set up TOCM on b4)
t3-6   red to stephen, 2 to piano, y to piper, r1 plays
t7   purple reclue to piper (p3 finesse)

t8-9 y12 play
t10 blue to ADrone (y to piper may be better to keep bluffs, but let's demonstrate the value upfront)
Turn 11 Status: 2.00 Efficiency / Danger = effectively 0 (tocm for b4, r3 has 3+ rounds)
Future Prospects: lol gg

Comparison: I'll say **NO DIFFERENCE**. This deal becomes completely trivialized in both lines. It is interesting to compare the merits of the two different t1 purple discharges though!

Response to Kakashi's Analysis:
1) It looks like Kakashi's line has [4 to piper] on t1 as a UDD, which is invalid - see condition v. of UDD *("When the efficiency of getting a Double Finesse or Triple Finesse outweighs the disadvantage of potentially having to give a Fix Clue later.")* Therefore, piano will play slot 1.
2) I'm unsure how he is calculating Efficiency; he has it marked 2.4 and 2.8 respectively. How?
  a) I notice he's counting both p4s in the "cards touched" calculations. Why?

Game 4: Brown 6 Suit - 3 Player (3/11/21)
https://hanab.live/replay/465201#2
t1 good

Dawn
t2-4 3D on n3, r1 clue
t5-7 4 Charm, y2 clue
t8-10 5CE, *Baton* discard
Turn 11 Status: 1.67 Efficiency / Danger = nothing for 2 rounds, although n4+b4 then loom
Future Prospects: The positively ID'd n3 is quite nice, especially with n2+4 being visible. Also note how kimbi has orchestrated trash on pi&pi's chops, while preserving her *Double Loaded* status.
The team will therefore have 2 rounds to find a way to protect n4 & b4, and otherwise are in great shape (obviously the p3 & 4 are in no danger - the 4 will become directly saveable, and the 3 will be tcm'd.)

Non-Dawn [Kakashi's suggestion]
t2-3 4C on p4
t4-5 b UDD   [note - Blazing Baton would be cute]
t6   TOCM on r5
[piano's best guess at preferred continuation, based on K's comments:]
t7-9 p to piper, g1 plays, p1 GD
t10 y to piper
Turn 11 Status: 2.00 Efficiency (plus r5 CM) / Danger = n3,n4 on chop, + b4 next
Future Prospects: piano and kimbi's chops are getting claustrophobic, and it looks certain that at least one of the brown cards will be lost.

Non-Dawn 2.0 [piano's suggestion]
t2-3 y4 Charm to piano (reasoning: no reason to clue the dupe p4, and p3 is 5cmable)
t4   y to piper   (no reason to extinguish so many juicy targets)
t5-6 n3 bluff to piano (as I mentioned, p3 will be saveable while n3 currently is not)
t7-8 Junk 1's Discharge (solid 2-for-1 + good tempo)
t9   *Shout* on p4   (unfortunately piper doesn't see the other p4)
t10 TCM n2,p4   (alternative: y4 Baton? Probably not great to risk locking kimbi)

Turn 11 Status: 1.50 Efficiency (plus n2 & both p4s CM'd) / Danger = n4,b4 next round
Future Prospects: Although lagging a bit at the moment, more cards will quickly be saved; kimbi can 5cm, piper can *overflow SDCM* n4, and piano can Batons - i.e. there's lots of flexibility.

Comparison: **Strong Personal Preference for DAWN**, despite the clear loss in raw Efficiency (-0.33) compared to Kakashi's suggested line. The ensuing discard quality will be like night and day (pun intended) - having n3 positively ID'd, plus two full rounds of safe actions from all players is a perfect demonstration of what I see as our ideal playstyle.

Response to Kakashi's Analysis:
1) I'm quite puzzled by his non-Dawn line. I have no idea why kimbi would choose the P4 Charm: (a) p3+4 are at no risk; and (b) it drastically speeds up n3 moving to chop.
   a) There are lots of options, but I suggested one alternative that slows things down while preserving the raw Efficiency, if so desired.
2) Again there's confusion about how he's counting Efficiency - he counts purple to piper as a 2-for-1, when in fact the picked up p4 is a known dupe.
3) Overall, I'm noticing that this analysis is very single-minded: to boil down the differences in these lines to simply caring about raw efficiency is bewildering. Valuable 3s and 4s are piling up on the team's chop in some lines, but those are of no concern to his assessments.
4) Overall I think **this difference in mentality is actually a perfect representation of what we're arguing in favor of when we speak about Dawn**: the difference in this Dawn line and Kakashi's stated "better" line is a perfect example of the difference in convention priorities.

Game 5: Brown 6 Suit - 3 Player (3/11/21)
https://hanab.live/replay/465293

I agree with Kakashi that the t1 Self 3-Bluff is optimal, so I'll also ignore this game.
        (While it would be funny to think that this was intentional - as a way to invite kimbi to 4C & leave the 3s open for potential 3Ds - there's no way that's actually correct)

Game 6: Clue Starved & Null 5 Suit - 5 Player (3/09/21)
https://hanab.live/replay/463177

Dawn [piano's suggested line, drastically improved from in-game line]
t1-2   3D
t3-5   *Deviation:* red double bluff   [reasoning: similarly to Kakashi's line, this 4-for-1 is incredible]
t6-7   5NE to piano   [note: without precision 5-tech, this would just be a yellow 5ce]
t8   blue to piano (layered finesse)
t9-10   5CM, red to kimbi
Turn 11 Status: 2.67 Efficiency, plus u5 CM'd /   Danger = nothing
Future Prospects: This line just destroys the seed. 17 of the cards are cleanly gotten, with 2 clues and Pace +10.

Non-Dawn [Kakashi's Suggestion]
t1-2   3 bluff to piano [note: 5ND on piano would be a strong 3-for-1 start if they're on]

t3-5   red double bluff
t6-7   UTD for u1   [note: a 5ND to ADrone would be better, unless 5-Pulls are off]
t8-10   3s finesse to piper, 2s to stephen
Turn 11 Status: 2.40 Efficiency   /   Danger = nothing with proper play
Future Prospects: This also seems like a pretty clean way to win. u2 is still easily gettable, and it will be easy enough to get blue & red to play out smoothly.

Comparison: Despite the elegance of my suggested Dawn line, these both easily win. I'll say **DAWN SLIGHTLY FAVORED** because of how smoothly it could deal with ADrone and piano's tricky hands.
          The biggest winner here, though, is *5 Pulls* and *Precision 5 Tech* in particular.

Response to Kakashi's Analysis:
-   Without the r4 double bluff improvement on t3 compared to the in-game line, I actually would consider these tied. Either way, it's close.
-   Obviously it's hard to correctly assess these when the human element is involved. I actually still remember that moment on t9 of feeling the need to discard, since I didn't feel like I could 100% trust that ADrone wouldn't discard if I took another clue. These days - 8 months later - I think we'd all have played closer to these theoretically proposed lines.

Game 7: Dark Pink & Dark Null - 3 Player (2/26//21)
https://hanab.live/replay/450520
t1-2   4 Charm

Dawn
 t3-7   3 Discharge, w/ g finesse intermezzo
t8-10   4 Double Bluff
Turn 11 Status: 3.00 Efficiency   /   Danger = r4
Future Prospects: The team should pretty easily be able to convert this extra efficiency into the *Null 5CMs* that they need. Minus the risk of getting locked by criticals, this is pretty ideal for DD games.

Non-Dawn [Kakashi's Suggestion - **NOTE** this appears to be using H-Group Null conventions]
t3-4   3 Positional for u1   [note: piano may have interrupted with the g2 finesse, but w/e]
t5-6   blue 5ce
[piano's best guess at preferred continuation:]
t7-9   green finesse & play
t10   1 Trash Finesse (Unnecessary = CM)
Turn 11 Status: 2.20 Efficiency, plus b4 CM'd   /   Danger = r4
Future Prospects: *Null 5CMs* will work wonders here. r4 is probably a lost cause, but there's definitely hope.

Comparison: This is so far the clearest **DAWN FAVORED** determination in my opinion. If the draws are particularly rough then some of the extra Efficiency may dissipate somewhat to needing to do multiple *5 Reclue Null-CMs,* but it will be much more comfortable going forward.

Response to Kakashi's Analysis: Not much to say here.

Game 8: Dark Pink & Dark Null - 3 Player (2/27//21)

Dawn
t1-2   3 Discharge
t3-6   blue play, Reverse 5CE
t7-8   2 save + play
t9-10   Bubblegum Taffy Bluff   [note: these days I suspect 1s would be the clearer clue, as a *Turnabout*]
Turn 11 Status: 2.40 Efficiency / Danger = r4, soon
Future Prospects: Except for the issue of r4, this looks great - but r4 is indeed a problem.

Non-Dawn [Kakashi's Suggestion]
Note: This line may be broken(?), since 5 Pulls appear to be off in H-Group Null. By my understanding, a 5 clue is supposed to either trigger a slot 5 *Null* blind-play or a *Null CM*, based on the doc entry on *Null Positional Clues*.

That said, here it is assuming I'm wrong and everything works as intended:
t1-2   5 Pull finesse
t3-4   Bubblegum Bluff
t5-6   5CE
[piano's best guess at preferred continuation:]
t7-8   Self 3-Bluff
t9-10   4s to piper, b4 plays
Turn 11 Status: 2.80 Efficiency / Danger = none
Future Prospects: Should be quite straightforward & comfortable to play from here.

Comparison: **NON-DAWN FAVORED** pretty clearly, if 5 Pulls are indeed allowed in Dark Null. Both openers look incredibly powerful; all of kimbi's and piper's opening cards will end up touched very efficiently, and piano's hand will always be quite safe.

Response to Kakashi's Analysis:
-    First of all, I'm just curious if/how 5 Pulls work in the H-Group Null convention set? I noticed a couple declined 5NDs in previous analyses, so I'm surprised to see a 5 Pull work here.
-    I want to add that, as is often the case in these comparisons, the players **could** have opted for the non-Dawn line (with the exceptions being some 3-bluffs and most UDDs)
-    That said, I *think* it was still theoretically optimal to choose the 3D over the pull finesse here, given what piano sees on turn 1. I actually suggest everyone ponder this - it's interesting!

Game 9: Dark Pink & Dark Null - 3 Player (2/26//21)
https://hanab.live/replay/450497

Dawn (piano's suggestion after blue *Fix*)
t1-3   3D, w/ Double Pull intermezzo
t4-5   Blue Fix + discard
t6-7   5 Pull, g1 plays
t8-9   5s to kimbi, 1s to piano
t10   TCM y4

Turn 11 Status: 1.83 Efficiency, plus y4 CM'd / Danger = b4 eventually (g3 can be TCM'd)
Future Prospects: Sketchy start, but stabilized. Unpleasant efficiency margin for Dark Null, though.

Non-Dawn [Kakashi's Suggestion]
NOTE: again this is assuming 5 Pulls work in H-Group Null(?)
t1-3   5 Pull, w/ Double Pull intermezzo
t4-5   1s "fix", 5s to kimbi
t6   red to piano
[piano's best guess at preferred continuation:]
t7-8   blind-play, b1 *SDCM* on y4
t9-10   red to piper, 3 to kimbi
Turn 11 Status: 2.00, plus y4 CM'd / Danger = b4 soon, plus distant g3
Future Prospects: Again, decent - this time there are two valuable cards sitting on chop with 2 clues remaining, so the team may not be able to save both without favorable draws.

Comparison: **Non-Dawn Slightly Favored**, but only specifically because this is Dark Null + DD, and therefore excess efficiency can often be quite necessary. I think in both cases the team won't have the luxury to try and play a fully 0-BDR game, so the extra clue basically balances out the extra potential BDR.

Response to Kakashi's Analysis: Nothing new to add, except I agree with the Fix improvement.

Summary + Discussion

1. Halting Here
- First off, I'm deciding to stop now after looking at the original 9 that I set out to. It turns out that 2 of these games were **NOT** actually included in Kakashi's analysis, while 2 others not on the list **WERE**.
- Since this has taken a lot of time & energy already, and since I analyzed precisely the games I set out to, I don't think it's valuable *or* proper for me to continue on with more game analyses… for now at least!

2. My Results!
Dawn Favored   =   2
Dawn Favored Slightly =   1
*Probably Controversial =   1   (TL;DR: much higher discard quality, for a 16.5% Efficiency deficit)
Non-Dawn Favored*   =   1
N-D Favored Slightly   =   1
Relatively Equal   =   2
(Plus 1 game excluded entirely, from both our assessments)
        (*Future-Note: check point (5) in the *Personal Reflection* below)
        **NOTE: Remember that each of our analyses exclude 2 of the others', apparently. Of the two extra games he had posted, it looks like he judged them to be a 1 - 1 split.

3. Issues with Kakashi's Posted Analysis
- Overall, looking through all these replays in depth has led me to be very confused by Kakashi's evaluation metrics. To the best of my abilities to parse them, at least, they appear to be shallow,

misleading, and often factually incorrect (when it comes to raw efficiency calculations). Below are the biggest issues/confusions I have with his methodology:

1. Stated Efficiencies not lining up with perceived reality - most of his listed Efficiencies are significantly different than mine; hopefully this points to some larger misunderstanding about how he's calculating these numbers
2. Counting Dupes (and sometimes trash? unclear) in Efficiency calculations. There seemed to be a couple instances of him counting things in weird ways, such as a "2-for-1s" that actually involved bad-touch.
   a. To be perfectly honest, I gave up trying to deeply interpret the exact calculations after reading the first couple games and seeing the vast disparity in stated Efficiencies
3. Having pure *Efficiency* as the only determinant in deciding which line is favorable is, I hope we can all agree, is incredibly problematic. The goal of Hanabi is to ensure a maximum score, not to boost your Current Efficiency number through the roof.
   a. Game 4 is probably the best example of this difference in philosophy. The in-game Dawn line ended with 1.66 Current Eff with 10 cards gotten; that's already a complete blow-out in terms of *Required Efficiency* for securing a win. **To simply dismiss that line as "worse" purely because a different line has higher Efficiency is frankly troubling to see by someone of Kakashi's caliber.** (please see the game 4 section for analysis)
4. A couple of the lines he gave seemed to contradict official conventions; one was just an illegal attempted UDD. The others were more murky (how 5 pulls may or may not work in Null games), in which cases I made a note of it but assumed that they do indeed work legally for reasons I don't understand (I haven't played positional Null for 18+ months, I think).

4. Personal Reflections

Despite this being an arduous task, I do feel like I walked away with a new appreciation for some of the subtleties here. Below are some rambling thoughts:

1. I believe all but one of the proposed non-Dawn lines **could have been chosen** by the players if desired. In other words, **the Dawn lines chosen were for the most part OPTIONAL**.
   - This means that Dawn seems to be succeeding in its goal of **increasing *FLEXIBILITY***.

2. Now, there are some specific exceptions that can arise while Dawn is enabled:
   a. Some forms of 3 bluffs on 2-away 3s
   b. Certain double bluffs on 2-away 4s, and/or true *Triple Finesses* on 3-away 4s.
   c. (with *Precision 5 Tech* enabled - essentially "Dawn expansion content" - certain 5NDs.

3. Those downsides, so far in my experience, have been vastly outweighed by the positives. E.g.'s:
   a. 3 Discharges in general (duh)
   b. Expanded 4 Charms, and even expanded 4 double bluffs (e.g. r4 even w/ a r1 on finesse)
   c. 3 Double Finesses (and, experimentally, *Promise Bluffs*)
   d. Precision 5 Tech opens all sorts of opportunities

4. My most important note: Since these discussions are mainly focused on whether or not to include Dawn in official H-Group conventions, **we REALLY should be focusing more on analysing *Easy & Simple variants*!**
- The games in this dataset are *RIDICULOUSLY DIFFICULT* and not reflective of the main H-Group convention goals. Of the 8 games I looked at here:
   - Three were Dark Pink & Dark Null   (*1.43 Required Efficiency, Pace 8*)
   - One was 5p Special Mix 6 Suit   (*1.36 R.E, Pace 10*)
   - One was 5p Clue Starved & Null   (*1.79 R.E., Pace 10*)

- One was 5p Black 5 Suits   *(1.56 R.E., Pace 5)*
- The other two were 'easy" (No Variant 5p, and Brown 6 Suit 3p)

5. (posted next day)

By the way, forgot I wanted to mention this in the summary section:

Re: Game 8, the only game I gave a clear *Non-Dawn Favored* label. As I wrote in its Response section, it's funny that a Dawn-enabled team could still have chosen the non-Dawn line if they wanted, and it's really hard to determine which line is objectively better given all possible deck configurations.

But despite partially feeling like I should call it "No Difference / It's Complicated", I stuck with the stated evaluation metrics and called it in Non-Dawn favor due to the in-game results. But please, if you're curious, I'd really recommend going to check the replay + reading the thoughts I had in the Comparison & Review section!