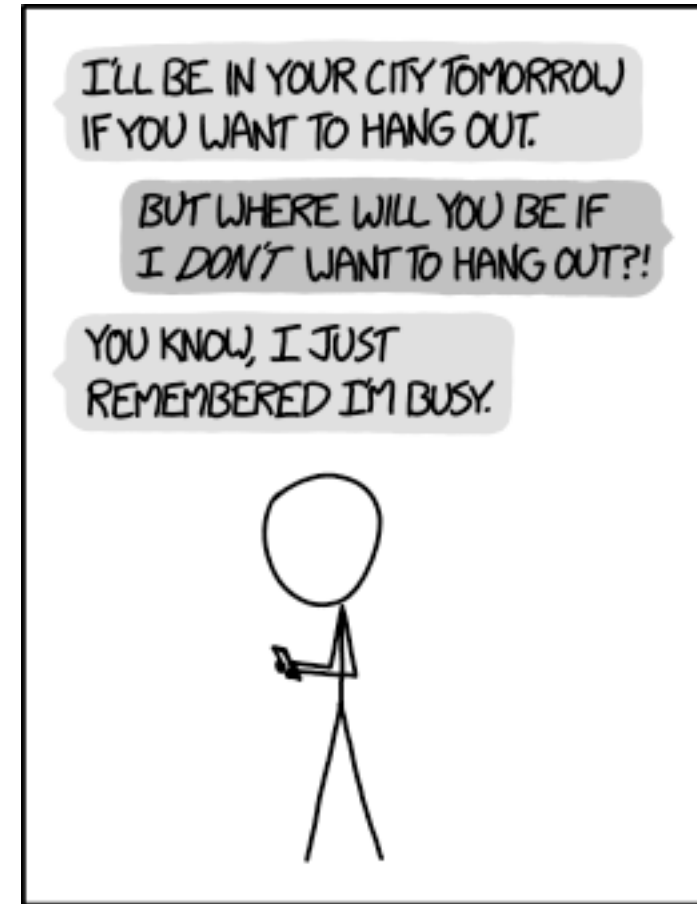# ADVANCED ANALYTIC RIGOUR

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The Hunt Laboratory for Intelligence Research
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October 2020

- **Signposting**
- **Avoiding rabbit holes**
- **Practice**

- **Email us your open source text**
- **Send us any dangling argument maps**

WHY I TRY NOT TO BE PEDANTIC ABOUT CONDITIONALS.

Recap: Evaluating reasoning with the Reasoning Stress Test

1. Review reasoning

- How is it supposed to work?
- What is its structure?
- What stratagems is it using?
- What needs to happen for it to succeed?

2. Identify flaws

- Write down the flaw
- Describe how it occurs
- Describe where it occurs

3. Assess impact

- Assess the impact of each flaw on its chain of reasoning
- Assess the impact of all flaws combined

4. Fixing flaws

- Can the reasoning can be fixed?
- Explain how it can be fixed, OR
- Make recommendations to the author

A reasoning flaw is:

Any kind of issue that reduces the support for the conclusion in the reasoning.
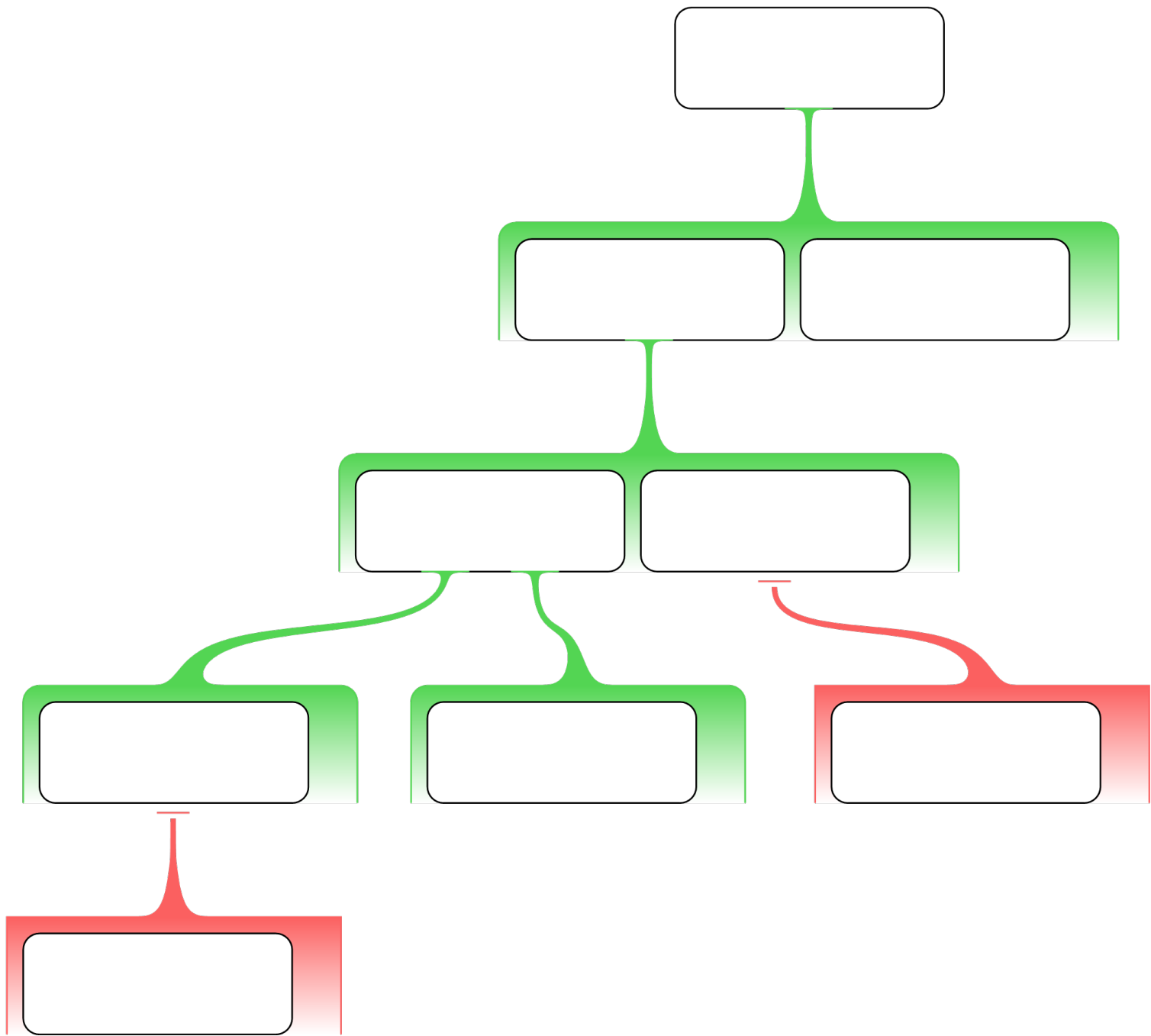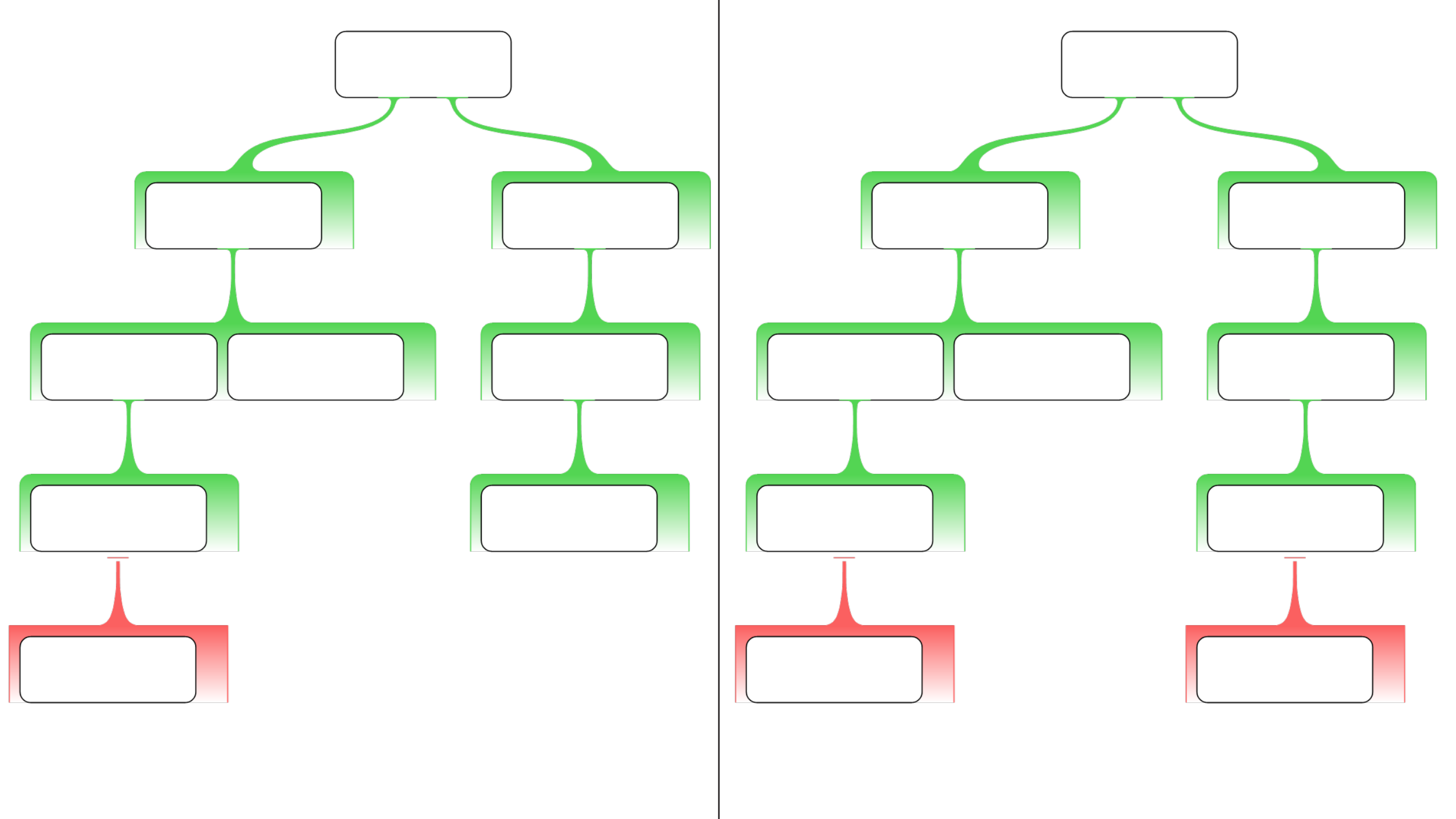
Taxonomy of reasoning flaws

✓ **1. Review reasoning**

✓ **2. Identify flaws**

3. Assess impact

- Assess the impact of each flaw on its chain of reasoning

- Assess the impact of all flaws combined on the overall support for the conclusion

- What is the impact of flaws on an argument?
- How do we assess the impact of a flaw given what the argument is trying to do?
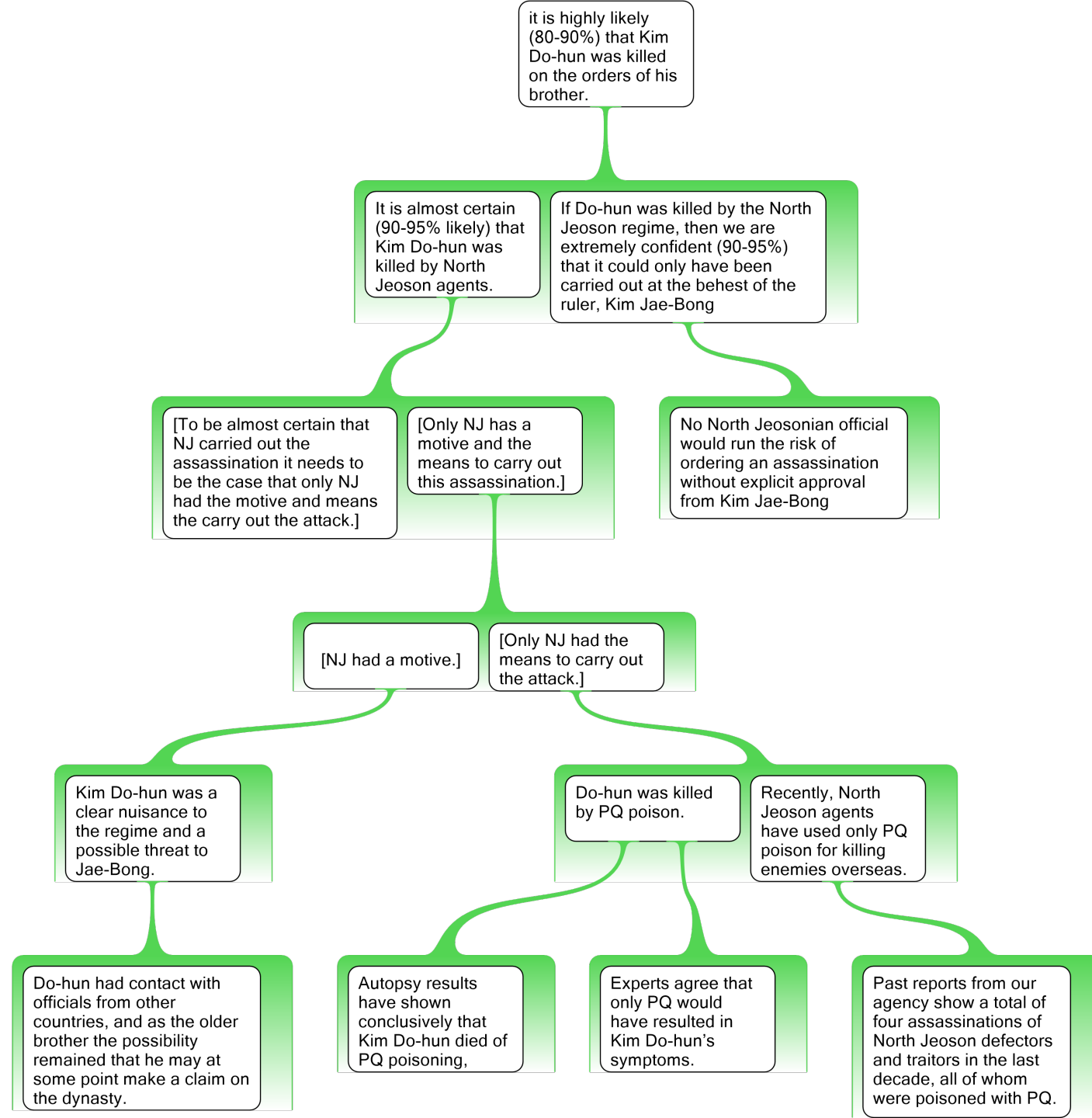
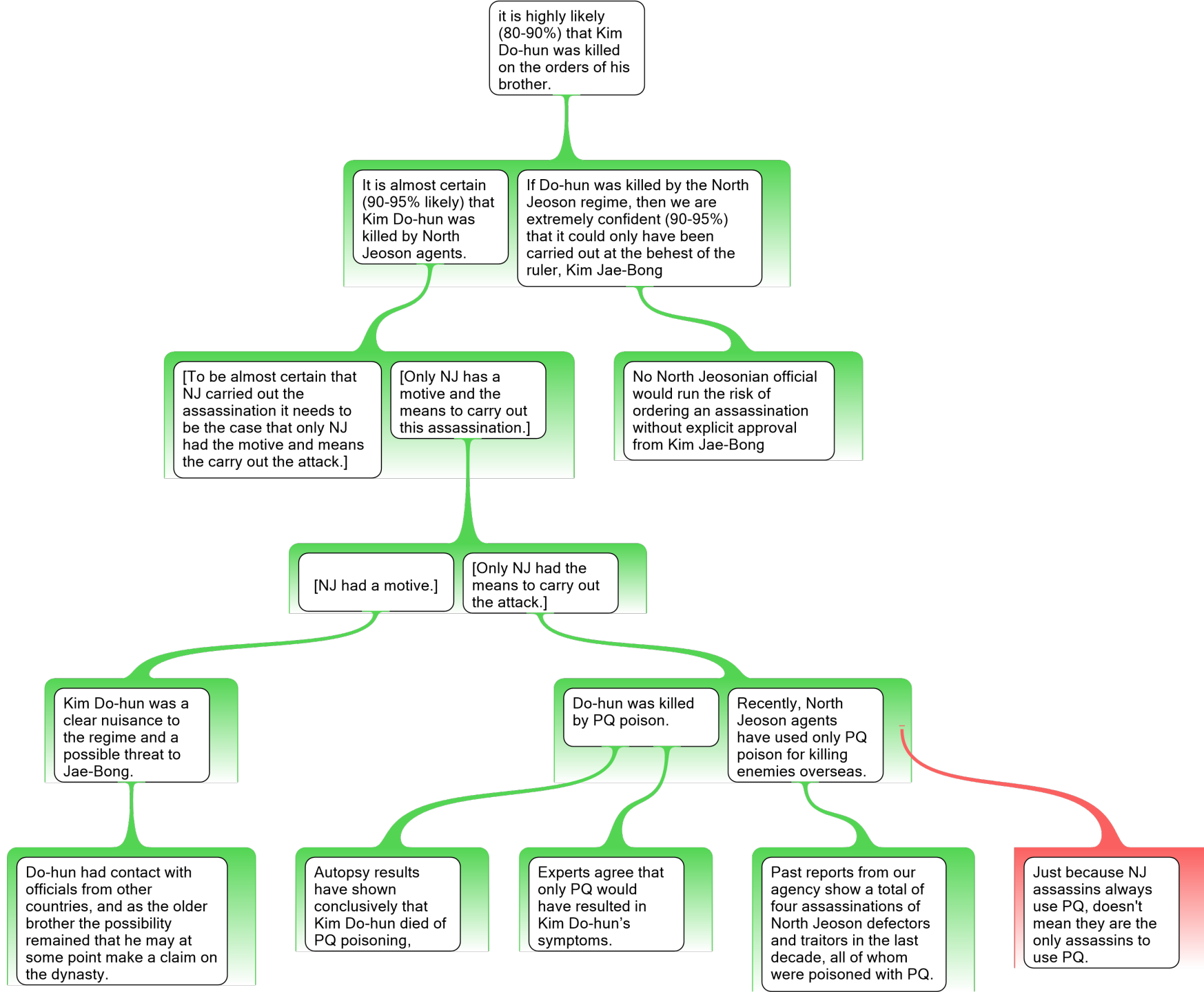Questions?

Example: Kim Do-hun

Kim Do-hun, the older brother of North Jeoson's leader, Kim Jae-Bong, was killed in his hotel room at the Casino Babylon in Macau (World Times. Kim Do Hun Found Dead in Hotel. Aug. 20, 2018). We assess that it is highly likely (80-90%) that Kim Do-hun was killed on the orders of his brother.

It is almost certain (90-95% likely) that Kim Do-hun was killed by North Jeoson agents. Kim Do-hun was a clear nuisance to the regime and a possible threat to Jae-Bong. While not overtly political, Do-hun had contact with officials from other countries, and as the older brother the possibility remained that he may at some point make a claim on the dynasty. Furthermore, autopsy results have shown conclusively that Kim Do-hun died of PQ poisoning, and experts agree that only PQ would have resulted in Kim Do-hun's symptoms. Recently, North Jeoson agents have used only PQ poison for killing enemies overseas. Past reports from our agency show a total of four assassinations of North Jeoson defectors and traitors in the last decade, all of whom were poisoned with PQ. These reports have been extensively verified, including by our international partner agencies. While it needs to be injected, PQ is highly effective: it's very transportable, relatively easy to produce, and fast-acting. Only immediate medical treatment will save a victim's life. This has made it North Jeoson agents' weapon of choice in recent years (Global Intelligence Services. North Jeoson and Kim Do-Hun Investigation, 2019. Unclassified).

If Do-hun was killed by the North Jeoson regime, then we are extremely confident (90-95%) that it could only have been carried out at the behest of the ruler, Kim Jae-Bong. All experts agree that the younger Kim has complete control over North Jeoson and runs it with a very tight fist. No North Jeosonian official would run the risk of ordering an assassination without explicit approval from Kim Jae-Bong. High-ranking defectors from North Jeoson report that Kim Jae-Bong is easily angered by unsanctioned action on any matter of importance (Global Intelligence Services. North Jeoson and Kim Do-Hun Investigation, 2019. Unclassified).

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[To be almost certain that NJ carried out the assassination it needs to be the case that only NJ had the motive and means the carry out the attack.]

[Only NJ has a motive and the means to carry out this assassination.]

No North Jeosonian official would run the risk of ordering an assassination without explicit approval from Kim Jae-Bong

[NJ had a motive.]

[Only NJ had the means to carry out the attack.]

Kim Do-hun was a clear nuisance to the regime and a possible threat to Jae-Bong.

Do-hun was killed by PQ poison.

Recently, North Jeoson agents have used only PQ poison for killing enemies overseas.

Do-hun had contact with officials from other countries, and as the older brother the possibility remained that he may at some point make a claim on the dynasty.

Autopsy results have shown conclusively that Kim Do-hun died of PQ poisoning,

Experts agree that only PQ would have resulted in Kim Do-hun's symptoms.

Past reports from our agency show a total of four assassinations of North Jeoson defectors and traitors in the last decade, all of whom were poisoned with PQ.

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Experts agree that only PQ would have resulted in Kim Do-hun's symptoms.

Past reports from our agency show a total of four assassinations of North Jeoson defectors and traitors in the last decade, all of whom were poisoned with PQ.

Just because NJ assassins always use PQ, doesn't mean they are the only assassins to use PQ.

✓ **1. Review reasoning**

✓ **2. Identify flaws**

✓ **3. Assess impact**

4. Fixing flaws

- **Proposed amendments for each flaw**
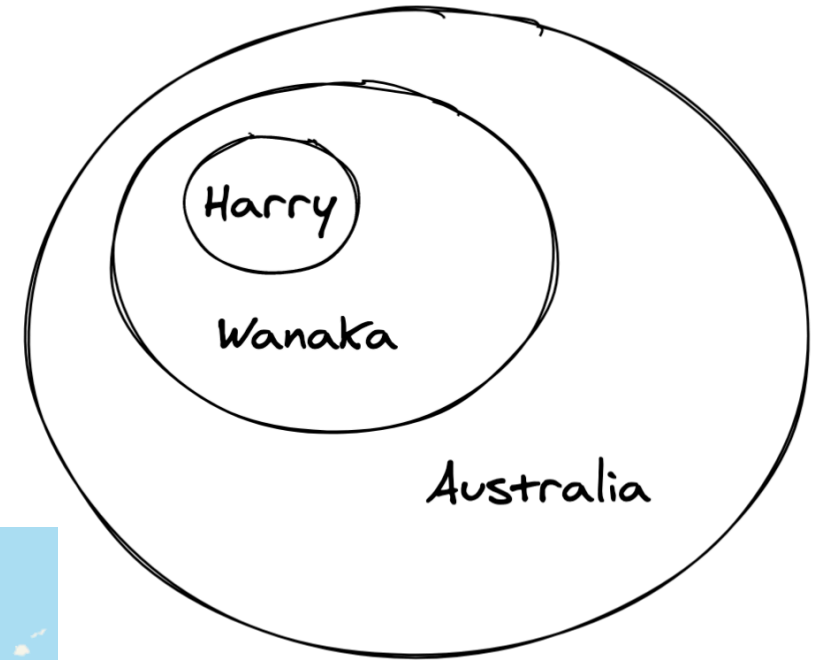 **OR**
- **Recommendations for further work**

- **Can the reasoning be fixed?**
- **What are we fixing?**
  - **Amending conclusion**
  - **Amending the argument**
  - **Amending both**
- **Can it be fixed as is?**
  - **Suggest fixes (final fix known)**
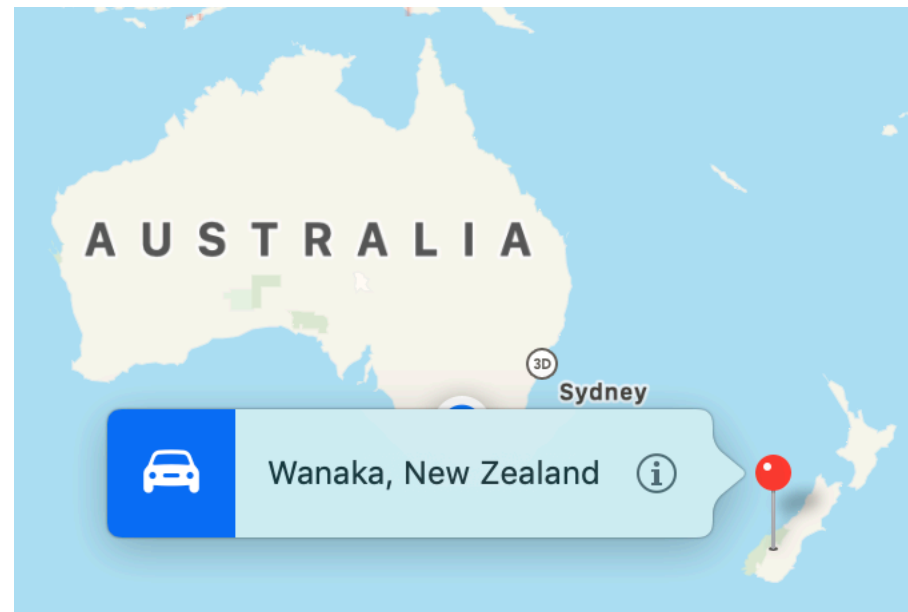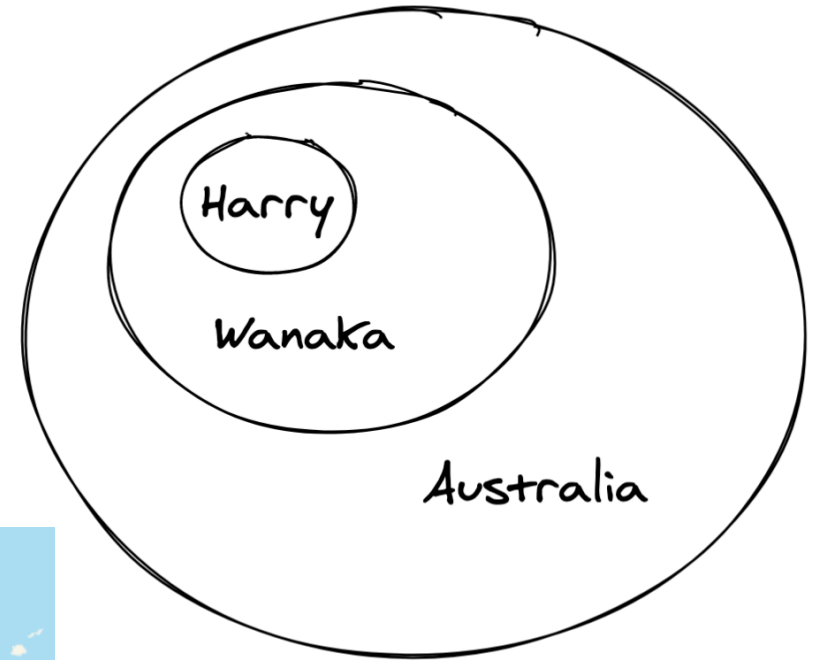 - **Make recommendations (final fix unknown)**

Culminate

Harry was born in Wanaka.
Wanaka is in Australia.
Therefore
Harry was born in Australia.

Harry was born in Wanaka.

Wanaka is in ~~Australia~~ New Zealand.

Therefore

Harry was born in ~~Australia~~ New Zealand.

Example: Lockdown measures

Adam Creighton ✓
@Adam_Creighton

After weeks of "second wave" hysteria that's put 5m people in lockdown for 6 weeks, still only 17 people in ICU in Victoria with Covid-19 (over 4000 ICU beds avail). Meanwhile 107 Victorians are dying EVERY DAY from other causes.
#getagrip #auspol

14 July 2020

Example: VX Production

We have been tasked to evaluate whether Preregistan is producing VX in its extensive new multi-purpose chemical warfare production facilities at the Bamaria chemical complex. It has previously been established that the facility is producing multiple agents. (International Weapons of Mass Destruction Agency. Bamarian MDA Production, 2016.) We have identified four key high-reliability evidence sets to inform our estimate of VX production.

One evidence set is satellite imagery of the new facilities. It shows catalytic fractionation tower designs and discharge flare patterns indicative of VX and cyclohexylsarin. Given the related nature of these compounds, we infer that either or both of VX and cyclohexylsarin are in production.

Second, an asset in the Preregistan Ministry of Industry handles supply logistics for the complex. (Office of Intelligence. Bamarian Asset Report, 2019. Classified.) He informs us that the compound Triphenoldipthanol is being delivered. Since Triphenoldipthanol is required for the production of only two agents, chloroacetophenone and VX, we infer that either or both of chloroacetophenone and VX must be in production.

Third, intercepted CCTV footage of some of the canisters exiting the new production facilities prove that the facility is producing lung toxicants, which could be chlorine and diphosgene (or both). Therefore either or both of chlorine and diphosgene are in production.

Akbi Karroubani was a senior manager at the complex. He defected six weeks ago and we have not yet completed debriefing processes. (Office of Intelligence. Bamarian Defector Report, 2019. Classified). He is extremely intelligent and clearly has strong knowledge of the entire production schedule, but is reluctant to reveal full information in order to retain leverage in negotiations for protection of his extended family in Preregistan. The information he has provided to date has in every case been subsequently verified. Karroubani asserts that only one of inferences we made from the imagery, HUMINT, and signals intelligence sets is true of the production schedule.

None of the available information is inconsistent with VX production. We therefore assess that VX production at the new facilities cannot be ruled out at this time.

Exercise 1: Escape of Agent Oxley – see exercises file here

Apply the RST method to the example:

1. Note down what the reasoning is attempting to do
2. Identify any flaws present (use the flaws taxonomy)
3. Assess the impact of any flaws present
4. Fix any flaws present by amending the text

You have background information available to refer to in amending the text

On Tuesday, 24 November 2020, Agent Oxley escaped from our custody at approximately 3am. We assess that Agent Oxley was highly likely aided in her escape by Ari Wasselthorpe, for the reasons set out below.

Agent Oxley is a spy on behalf of Lagasy, an enemy state. She was captured on 12 November in the capital city centre and was held at the Neffsworth Jail in a cell until Tuesday.

On Tuesday morning her cell was found unlocked and empty, and a subsequent search for her has yet to locate her whereabouts. CCTV footage of the area outside her cell shows that at 2:59am a person in a hood and face mask quickly walked over to her cell and unlocked it, and she swiftly left the cell. Unfortunately there is no further footage of her escape. The person unlocking her cell appears tall, at approximately 1.85cm, and broad-shouldered. Their precise appearance is not discernible in the footage.

There were five guards in the jail on duty at the time of the escape: Ari Wasselthorpe, Tim Zachary, Morgan Quimby, Luke Nguyen and Richard Zouch. Records indicate that of these five, four turned up for their shift and completed it, while the fifth, Richard Zouch, called in sick. Zouch did not enter the jail building ahead of Tuesday night. No one else had access to keys which would open the cell, or to the jail itself during the night. Therefore, the person who aided Agent Oxley is very likely to be one of the guards on shift.

Quimby is highly unlikely to be the person captured on the footage, as he is markedly shorter than the person on this footage. Likewise, Nguyen has a noticeable limp when walking, something which the culprit caught on the CCTV footage did not have. **Zachary was captured on CCTV elsewhere at the time of Agent Oxley's escape, so is very unlikely to be the person shown on the footage in question.** Finally, Zouch was reportedly not in the building on the relevant night. Therefore, the culprit is very likely to be Wasselthorpe. Wasselthorpe fits the appearance of the person on the CCTV footage. We recommend that Wasselthorpe be apprehended for questioning and investigation into this matter.

Exercise 2: Simon Smith – see exercises file here

Apply the RST method to the example:

1. Note down what the reasoning is attempting to do
2. Identify any flaws present (use the flaws taxonomy)
3. Assess the impact of any flaws present
4. Fix any flaws present by amending the text

You have background information available to refer to in amending the text

Suspected extremists investigated (ZAK members vs. not ZAK members)

Z	Z	Z	Z	Z	Z	Z	Z	Z	Z
N	N	N	N	N	N	N	N	N	N
N	N	N	N	N	N	N	N	N	N
N	N	N	N	N	N	N	N	N	N
N	N	N	N	N	N	N	N	N	N
N	N	N	N	N	N	N	N	N	N
N	N	N	N	N	N	N	N	N	N
N	N	N	N	N	N	N	N	N	N
N	N	N	N	N	N	N	N	N	N
N	N	N	N	N	N	N	N	N	N

90% of ZAK members we have investigated are members of the BF Facebook group

Z	Z	Z	Z	Z	Z	Z	Z	Z	Z
N	N	N	N	N	N	N	N	N	N
N	N	N	N	N	N	N	N	N	N
N	N	N	N	N	N	N	N	N	N
N	N	N	N	N	N	N	N	N	N
N	N	N	N	N	N	N	N	N	N
N	N	N	N	N	N	N	N	N	N
N	N	N	N	N	N	N	N	N	N
N	N	N	N	N	N	N	N	N	N
N	N	N	N	N	N	N	N	N	N

30% of those found not to be members of ZAK belong to the BF group

Z	Z	Z	Z	Z	Z	Z	Z	Z	Z
N	N	N	N	N	N	N	N	N	N
N	N	N	N	N	N	N	N	N	N
N	N	N	N	N	N	N	N	N	N
N	N	N	N	N	N	N	N	N	N
N	N	N	N	N	N	N	N	N	N
N	N	N	N	N	N	N	N	N	N
N	N	N	N	N	N	N	N	N	N
N	N	N	N	N	N	N	N	N	N
N	N	N	N	N	N	N	N	N	N

Example: Simon Smith (amended)

We have begun preliminary investigations into Simon Smith because of extremist comments he has been posting online. Based on available information, there is a 25% chance that Simon Smith is a member of the dangerous extremist group ZAK.

A key indicator is belonging to extremist groups on social media. We conducted a preliminary investigation to determine whether he belongs to extremist groups and found that Smith has joined the Brain Fight (BF) group on Facebook, an extremist group which has thousands of members dedicated to discussing highly unusual conspiracy theories and extremist views.

Of the 10,000 suspects we investigated, 1,000 (10%) were found to belong to ZAK. Of these, 90% (900) are members of the BF Facebook group. Of the remaining 9,000 (i.e., those found not to be members of ZAK), 30% (2,700) belonged to the BF group. Given we know that Smith is a member of the BF group, there is a 25% chance (900 of a total of 900 and 2,700) that Smith is a member of ZAK. In the absence of additional information, it is unlikely that Smith is a member of ZAK.

Example: LFG planning Attack on Abaddon Military Base

Assessment: It is highly probable (80-95%) that the LFG insurgency group is planning to attack the Abaddon Military Base.

The LFG are clearly planning an attack in the Quazar region in the near future. Our agents on the ground report a clear influx of men of fighting age into the LFG stronghold city of Puktragar. (Special Operations Brigade. Tactical Intelligence Report #547OP, 2019. Classified.) Furthermore, imagery from surveillance drones also shows approximately 40% more people at a nearby training camp. At this time of year there is no other explanation for this build-up, and our agents don't report any event or activity that would explain it.

Furthermore, our surveillance of the digital communication of the Dreger criminal organisation confirms that the gang has been selling weapons, including RPGs and grenades, to the LFG. Recently intercepted ZeeChat communication between the groups shows that the LFG is purchasing drastically more munitions than they have previously. This arrangement with the Dreger gang has also been verified with our informant within the gang, and to date his information has generally proved to be correct. (Signals Intelligence Bureau. Dreger Gang Intercepts. Classified 2019; Special Operations Brigade. Informant 254 Report, 2019. Classified.)

Lastly, and perhaps most importantly, our assets in the regional villages and towns report that the LFG contacts are increasing active intel collection, collecting intel on our military bases in the area and on our recent operations, and reinforcing their connections with the local people.

Thus, our assessment is that it is highly likely (90-95%) that the LFG is planning an attack in the Quazar region.

As for the actual target, there are 3 military bases in the Quazar region: Abaddon, Orlando, and Damour. There are no other targets of strategic importance. Abaddon and Orlando are the closest bases to the LFG city of Puktrager, and as such are the most heavily fortified, but also the most strategically important. Furthermore, a recently recruited informant (Special Operations Brigade. Informant 213 Report, 2019. Classified.) claims that Damour is not a top priority for the LFG, so it appears that their current strategic planning is not to attack Damour anytime soon. The open terrain surrounding Orlando would make any assault extremely costly. Additionally, attacking Orlando would require crossing territory held by the warlord Brion Ruikzer, who regards the LFG with great suspicion, and there have been minor firefights between LFG scouting parties and Ruikzer's men. Even with the influx of men, it is hard to imagine that the LFG would have the strength to mount more than one major attack, and so far the LFG has proved to be a very cautious adversary (Special Operations Brigade. Tactical Assessment 45A - Orlando, 2019. Classified.). Given these considerations, we therefore believe that if an attack is carried out, it is close to certain (90-95%) that Abaddon will be the target.

Thus, our primary finding is that it is highly probable (80-95%) that the LFG insurgency group is planning to attack the Abaddon Military Base.

As an aside, while we lack the information required to determine when the LFG will be able to carry out their plan, or if anything is likely to interfere with it, recent analysis suggests that it is extremely unlikely that the LFG will abandon any planned attack because it is abundantly clear that a quick victory is required to boost the morale of their supporters and revive their PR campaign to attract more support. (LFG Strategic Assessment, #6757, 2019, Classified).

ADVANCED ANALYTIC RIGOUR

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