# Logic Checking

1. Check if topic is clear or not. Does every paragraph have a clear topic sentence?
2. When using many supportive examples, it is necessary to check if examples can support the topic sentence or not. Make sure all examples are supportive.
3. Put all section titles into one paragraph to see if all titles can form a reasonable structure.

To see if the titles can make a smooth reasoning like a curve, see Step 5 for details and examples.

1. For each section, put all topic sentences of each paragraph into one paragraph to see if they can make a reasonable structure.

To see if the sentences can make a smooth reasoning like a curve, see Step 5 for details and examples.

1. For each paragraph,
   1. Write down all key words (usually, the verbs) of each sentence to check all of them talk the same topic in one consistent context.

For instance, “protect”, “prevent”, and “preserve” might be in one context; however, “protect”, “discuss”, and “check” are not very consistent in one context.

An example of inconsistent contexts: “Existing research indicates that IP leakage could occur in different situations~\cite{Lee2000b,Anand2009,Hoecht2006b}. The issue of IP leakage is important because IP is often the source of the core competence of an enterprise, thus how to model the process of IP leakage should in fact concern any enterprise who cares about IP protection. The discussion of the effect of IP leakage on the material and information flow of supply chain can be found in~\cite{Lee2000b, Li2002, Zhang2002, Hoecht2006b, Anand2009}.”.

In this paragraph, the key word of last sentence is “discussion”, which is not consistent with other key words, such as “model”, “protection” etc.

* 1. check if all sentences can form a smooth reasoning. The whole flow should be smooth like a non-self-intersected curve , such as “Premise 1->conclusion 1”->”Premise 2->conclusion 2”->…->”Premise n->conclusion n”. If all causal relations of all sentences are clear and smooth, the reasoning chain is like:

An example:

“….. IP is one of most important competences for manufacturers. However, confidential IP might be revealed or leaked unintentionally to an unauthorized party in different situations in collaborative processes, which will damage manufacturers' competence and cause losses to them. As a result, how to protect IP in a collaborative product development environment is of critical significance for manufacturers' success.”

We can see that:

Sentence 1:” IP is one of most important competences for manufacturers”

Sentence 2: “confidential IP might be revealed or leaked unintentionally to an unauthorized party in different situations in collaborative processes…”

Sentence 3:”.. how to protect IP in a collaborative product development environment is of critical significance for manufacturers' success.”

In this context, Sentence 1 plus Sentence 2 can result in Sentence 3. This is like:

Another example of bad reasoning:

“… In collaborative product development processes, some confidential IP might be revealed unintentionally to an unauthorized party. IP leakage is drawing more and more attention in collaborative development environments. Existing research indicates that IP leakage could occur in different situations. …”

Here,

Sentence 1: “… some confidential IP might be revealed unintentionally to an unauthorized party …”

Sentence 2: “IP leakage is drawing more and more attention in collaborative development environments”

Sentence 3: “Existing research indicates that IP leakage could occur in different situations.”

We can see that they cannot form a strong reasoning chain. They are not strongly connected by causal relations.