Does This Make Sense?!
Global coherence and elements of academic argument (in IMRaD theses)

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Coherence

“...is an experience we create for ourselves as we make our own sense of what we read” (Williams 2007).

Reader’s have:

- **Genre expectations** (e.g., IMRaD, argument, references)
- **Department expectations** (e.g., expanded introductions, specific ref. style)
- **Explicit expectations** the text sets up (e.g., aim & hypotheses)
- **Implicit expectations** about how texts work (e.g., how information placement shapes what readers expect from the text)
Coherence

“...is an experience we create for ourselves as we make our own sense of what we read” (Williams 2007).

**Global level**: “a sense of the whole;” understanding of what all sentences/paragraphs/sections add up to.

**Local level**: a clear sense of what an individual paragraph or an individual sentence communicates.
Global Coherence

1. There’s a point
2. Everything is relevant
3. There’s an order

See Style: Lessons in Clarity and Grace (Williams 2007)
Global Coherence

1. There’s a point
   A. Short introductory segment for sections, sub-sections, and paragraphs
   B. The end of the intro segment is *the point/topic*
   C. The end of the point/topic sentence contains words/concepts that you develop in that section

2. Everything is relevant

3. There’s an order
INTRODUCTION

• Context
• Problem
• Why we should care
• What other people have said about the problem (briefly)
• Point of this text
  (formulated as an aim & RQ or a main claim)

First body section

Introduction segment to the section including appropriate context and the “point” of the section

For middle paragraphs, most readers look for the “point” in the 1st or 2nd sentence.
Thirty sixth-grade students wrote essays that were analyzed to determine the effectiveness of eight weeks of training to distinguish fact from opinion. That ability is an important aspect of making sound arguments of any kind. In an essay written before instruction began, the writers failed almost completely to distinguish fact from opinion. In an essay written after four weeks of instruction, the students visibly attempted to distinguish fact from opinion, but did so inconsistently. In three more essays, they distinguished fact from opinion more consistently, but never achieved the predicted level of performance. In a final essay written six months after instruction ended, they did no better than they did in their pre-instruction essay. Their training had some effect on their writing during the instruction period, but it was inconsistent, and six months after instruction it had no measurable effect.

Imagine this as an expanded ”results” chapter.

Example from Style: Lessons in Clarity and Grace (Williams & Bizup 2017)
Thirty sixth-grade students wrote essays that were analyzed to determine the effectiveness of eight weeks of training to distinguish fact from opinion. That ability is an important aspect of making sound arguments of any kind. In an essay written before instruction began, the writers failed almost completely to distinguish fact from opinion. In an essay written after four weeks of instruction, the students visibly attempted to distinguish fact from opinion, but did so inconsistently. In three more essays, they distinguished fact from opinion more consistently, but never achieved the predicted level of performance. In a final essay written six months after instruction ended, they did no better than they did in their pre-instruction essay. Their training had some effect on their writing during the instruction period, but it was inconsistent, and six months after instruction it had no measurable effect.

Imagine this as an expanded ”results” chapter.
In this study, thirty sixth-grade students were taught to distinguish fact from opinion. They did so successfully during the instruction period, but the effect was inconsistent and less than predicted, and six months after instruction ended, the instruction had no measurable effect. In an essay written before instruction began, the writers failed almost completely to distinguish fact from opinion. In an essay written after four weeks of instruction, the students visibly attempted to distinguish fact from opinion, but did so inconsistently. In three more essays, they distinguished fact from opinion more consistently, but never achieved the predicted level of performance. In a final essay written six months after instruction ended, they did no better than they did in their pre-instruction essay. These results suggest that short-term training to distinguish fact from opinion has no consistent or long-term effect.

Imagine this as an expanded ”results” chapter.

Slightly modified from Style: Lessons in Clarity and Grace (Williams & Bizup 2017)
In Russia, the Siberian silk moth is an important disturbance factor and since it is migrating into new areas further west and north it may become a larger problem. Insects in the European Russia do not seem to be such of a problem as in Siberia (Shorohova et al., 2009). In North America, insects are an important disturbance factor but there are regional differences. The only province experiencing severe attack from mountain pine beetle is British Columbia, but its range is projected to expand. Spruce budworm is present over all of Canada. In Fennoscandia the European spruce bark beetle is the most important insect, but it has so far not shown the same severe damage to large regions as the outbreaks of mountain pine beetle in Canada.

What’s the point?

Note: grammar errors not fixed.
From A. Lindegren’s Bsc thesis (2011)
In the case of insects, the differences between the regions that are most evident are the **insect species present**. In Russia, the Siberian silk moth is an important disturbance factor and since it is migrating into new areas further west and north it may become a larger problem. Insects in the European Russia do not seem to be such of a problem as in Siberia (Shorohova et al., 2009). In North America, insects are an important disturbance factor but there are regional differences. The only province experiencing severe attack from mountain pine beetle is British Columbia, but its range is projected to expand. Spruce budworm is present over all of Canada. In Fennoscandia the European spruce bark beetle is the most important insect, but it has so far not shown the same severe damage to large regions as the outbreaks of mountain pine beetle in Canada.

Note: grammar errors not fixed.

From A. Lindegren’s Bsc thesis (2011)
1. In addition to providing habitats and the possibility for species to migrate in the landscape, green infrastructure has the role of providing ecosystem services.

1a. In addition to providing ecosystem services, green infrastructure provides habitats and the possibility for species to migrate in the landscape.
Global Coherence

1. There’s a point

2. Everything is relevant
   A. Anything *can* be relevant
   B. Depends on what the purpose of the section or paragraph is (to report results, illustrate, to define, to qualify, to describe a context or process, to analyze, to compare, etc.)
   C. Not everything that seems relevant to you will be relevant to your readers

3. There’s an order
We analyzed essays written by sixth-grade students to determine the effectiveness of training in distinguishing fact from opinion. In an essay written before training, the students failed almost completely to distinguish fact and opinion. These essays were also badly organized in several ways. In the first two essays after training began, the students attempted to distinguish fact from opinion, but did so inconsistently. They also produced fewer spelling and punctuation errors. In the essays four through seven, they distinguished fact from opinion more consistently, but in their final essay, written six months after completion of instruction, they did no better than they did on their first essay. Their last essay was significantly longer than their first one, however. Their training thus had some effect on their writing during the training period, but it was inconsistent and transient.
We analyzed essays written by sixth-grade students to determine the effectiveness of training in distinguishing fact from opinion. In an essay written before training, the students failed almost completely to distinguish fact and opinion. These essays were also badly organized in several ways. In the first two essays after training began, the students attempted to distinguish fact from opinion, but did so inconsistently. They also produced fewer spelling and punctuation errors. In the essays four through seven, they distinguished fact from opinion more consistently, but in their final essay, written six months after completion of instruction, they did no better than they did on their first essay. Their last essay was significantly longer than their first one, however. Their training thus had some effect on their writing during the training period, but it was inconsistent and transient.
Yes, if it provides:

• Background or context;
• Major points;
• Reasons supporting a point;
• Evidence, facts or data supporting a reason;
• An explanation of your reasoning or methods;
• Other points of view or previous work done on your topic.
Cities have long been sites of engagement for physical geographers, in some sub-disciplines more than others. However, there are opportunities for urban physical geography to be a more prominent theme within the discipline and to expand the scope of engagements with urban geographies more generally. Syntheses of the physical environment of cities and of modification of earth surface environments by urbanization reflect a long-standing interest in this theme within physical geography (e.g., Douglas 1983), as do seminal and influential papers in this realm (e.g., Wolman 1967). There is also a significant body of work on issues such as hazards in urban settings (e.g., Cooke 1984) and risk and resilience in relation to, for example, climate change (e.g., Pelling and Blackburn 2014). Furthermore, a strong thread runs through physical geography on the theme of the impact of human activity on “natural” systems of all kinds and of the anthropogenic aspects of the biophysical environment—appearing most recently under the banner of the Anthropocene (see, for example, the recent AAG Symposium on Physical Geography: Challenges of the Anthropocene). These examples point to further possibilities for physical geographers to engage with urban environments, to expand conceptualizations of cities and their varied forms, and to develop more prominence for this work. Here we propose some possible forms of engagement that collectively provide a rationale and provocation for expanding thinking by physical geographers about cities, urbanization, and understandings of the urban.
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Global Coherence

3. There’s an order
(of the whole, of sections, of paragraphs)

A. Chronological (time)
   A. As a narrative
   B. Cause and effect
   C. Earlier to later

B. Coordinate (pillars)
   A. Simple to complex
   B. More familiar to less familiar
   C. Less contestable to more contestable
   D. More important to less important (or vice versa)

C. Logical
   A. General analysis to specific applications
   B. Example to generalization
   C. Assertion to contradiction
   D. Argument-focused: claim-reasons-evidence

Remember! The finished product’s order might not be the order you encountered the information or the order you wrote the information (a narrative of your thinking isn’t always the best for the finished product).
Global Coherence

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   (of the whole, of sections, of paragraphs)
   
   A.  **Chronological (time)**
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   B.  **Coordinate (pillars)**
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       C. Less contestable to more contestable
       D. More important to less important (or vice versa)
   
   C.  **Logical**
       A. General analysis to specific applications
       B. Example to generalization
       C. Assertion to contradiction
       D. **Argument-focused: claim-reasons-evidence**

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Elements of an Argument

CLAIM

because of

REASON(S)

based on

EVIDENCE

WARRANT

But...?!
What about...?
I disagree!

Needle-exchange programs lead to increased drug use because...

when addicts think that they can avoid the risk of disease, they feel it is safe to use more drugs.

Needle-exchange programs contribute to increased drug use because...

when addicts think that they can avoid the risk of disease, they feel it is safe to use more drugs.

Whenever the costs of risky behavior are reduced, people engage in it more often. (warrant)

Needle-exchange programs contribute to increased drug use because when addicts think that they can avoid the risk of disease, they feel it is safe to use more drugs.

Based on a study of those who participated in one such program reported that 34 percent of the participants increased their drug use from 1.7 to 2.1 times a week.

Health care costs are likely to greatly increase in Europe and North America.

**because**

Global warming is moving the line of extended hard freezes steadily northward.

Need a warrant?

Evidence for this?

Health care costs are likely to greatly increase in Europe and North America. 

**because**

Global warming is moving the line of extended hard freezes steadily northward.

(Warrant: If hard freezes decrease, we will pay more to combat diseases carried by sub-tropical insects.)

**Evidence?**

To assure the continuation of our own and other species, humanity needs to begin looking for resources in space.

because

Evidence?

Modeled on BSc thesis “Asteroid Mining: A Review of Methods and Aspects,” Vide Hellgren (2016)
To assure the continuation of our own and other species, humanity needs to begin looking for resources in space.

because

1. The Earth’s resources are finite, and becoming critically depleted.

2. Pollution levels are rising.

3. Theoretical and technological developments now make it plausible to consider ways of sourcing minerals and metals from nearby asteroids and comets.

Evidence?

Modeled on BSc thesis “Asteroid Mining: A Review of Methods and Aspects,” Vide Hellgren (2016)
Evidence?

Reason 1: The Earth’s resources are becoming critically depleted.

EVIDENCE (Cohen, 2007): Critical metals and minerals for technology and food industries could be depleted within 40-50 years, based on known terrestrial reserves.
Evidence?

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EVIDENCE (Cohen, 2007): Critical metals and minerals for technology and food industries could be depleted within 40-50 years, based on known terrestrial reserves.

Reason 2: Pollution levels are rising.
EVIDENCE (Dietz and O'Neil 2013; NOAA 2016): we are currently at 404 parts per million (PPM) of carbon dioxide (CO2) in the atmosphere and 400 ocean zones are devoid of life.
Evidence?

Reason 1: The Earth’s resources are becoming critically depleted.  
**EVIDENCE** (Cohen, 2007): Critical metals and minerals for technology and food industries could be depleted within 40-50 years, based on known terrestrial reserves.

Reason 2: Pollution levels are rising.  
**EVIDENCE** (Dietz and O’Neill 2013; NOAA 2016): we are currently at 404 parts per million (PPM) of carbon dioxide (CO2) in the atmosphere and 400 ocean zones are devoid of life.

Reason 3: Theoretical and technological developments now make it plausible to consider ways of sourcing minerals and metals from nearby asteroids and comets.  
**EVIDENCE** (Sonter 2006): asteroids as the most cost- and energy-effective way to commercialise space. (Sanchez and McInnes 2012; Taylor et al., 2008): other near-Earth objects (NEO) also contain the right amount of volatile materials and high-value minerals to qualify as prospective targets.
Argument in a physical geography thesis

What is the main claim?

Other arguments:
• Claim, reasons, and evidence about why the field needs the study
• Claim, reasons, and evidence about why it is appropriate to study certain concepts or variables in relationship to each other
• Claim, reasons, and evidence about why your methods are appropriate
• ...?
What problem or question is behind your claim?

MAIN CLAIM (draft)

Argument map

Evidence 1.1
Reason 1
Evidence 1.2
Evidence 2

Evidence 3.1
Reason 3
Evidence 3.2

Evidence 4.1
Reason 4
Evidence 4.2

Adapted from The Craft of Research, p. 131

can get complicated with sub-claims, warrants, and counter-arguments
To do:
1. Read the first page of intro:
   • The claim of the first paragraph is that we need green infrastructure to facilitate species migration. Can you find reasons and evidence to support this?
   • From reading the intro, what expectations/questions arise that we expect to find answers to in the background and theory section or in other sections of the thesis?

2. Skim the background and theory excerpt (pp. 3-6). What kind of information does the author need to present before he can move on to his own experiment design?

3. Read the ‘discussion’ and ‘conclusion’. Do these sections answer the questions/ meet the expectations you listed from the introduction?

** Extra: Looking at the excerpts and table of contents, think about how the thesis is structured as a whole. It’s a chronological (IMRaD) thesis, but there are other elements involved as well (i.e. argument, moving from general to specific concerns). Do you think the structure works?
Main Claim: We need green infrastructure to facilitate species migration.

because

1. Land-use transformation over hundreds of years has created a landscape of fragmented habitats, impeding migration. Barriers and human-influenced land use can make species migration difficult/impossible.

Evidence/Source: (Smith and Smith, 2006).

2. Frequency of extreme weather events likely to increase over the next century.

Evidence/Source: (Hartmann et al., 2013; Blaustein et al., 2010)

Warrant: Disturbances (flooding, disease) are a natural part of ecosystem functionality; in order to be resilient, species need to adapt and migrate.
<table>
<thead>
<tr>
<th>Example questions/ expectations set up in introduction</th>
<th>Answers/ follow-up in background and discussion/conclusion sections</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What is green infrastructure and why is it important?</td>
<td>Sections 2.1, 2.2, 2.3. Background section explains green infrastructure, and presents the following arguments: why it is needed, why it is specifically needed given the challenge of global warming (all of this needs to be established to lay a foundation for the study.)</td>
</tr>
<tr>
<td>2. Did habitat modelling reveal areas in Lomma lacking migrational connectivity?</td>
<td>Section 5.2, p. 30 [more info in results]. Yes, the study identified a lack of connectivity and reasons for this (barriers, migration distance).</td>
</tr>
<tr>
<td>3. What are the effects of flooding on green infrastructure?</td>
<td>Sections 5.4, 5.5 outline effects of flooding on green infrastructure.</td>
</tr>
<tr>
<td>4. How could Lomma’s green infrastructure be improved?</td>
<td>Section 5.6 presents suggestions for modification to Lomma’s green infrastructure plan.</td>
</tr>
</tbody>
</table>
Revision → to re-see

Strategies to target global coherence
Revision strategy: reverse outline

1. Number your paragraphs.
2. Identify the topic of each paragraph.
   a. Is there a recognizable topic sentence?
   b. How long is the paragraph?
      i. Does the topic seem sufficiently developed?
      ii. Is there more than one topic in the paragraph?
3. Arrange these topics in an outline.
4. Analyze this outline, assessing the logic (where elements have been placed in relation to one another) and the proportion (how much space is being devoted to each element).
5. Use this analysis to create a revised outline.
6. Use this revised outline to reorganize your text.
7. Go back to your answers in 2a and 2b to help you create topic sentences and coherence in your paragraphs.

See Explorations of style
Revision strategy: focus on the introductions

to the whole text
to the major sections
to the subsections
to long paragraphs

1. Underline the point/topic
2. Circle keywords/concepts in the point sentence
3. Trace the development of those concepts
Revision strategy: see big picture

Print out your text!
Revision strategy: compare intro & conclusion

**Introduction**

Blah blah blah blah blah Blah blah blah blah blah Blah blah blah blah

Blah blah blah blah Blah blah blah blah Blah blah blah blah

Blah blah blah blah Blah blah blah blah Blah blah blah blah

**Conclusion**

Blah blah blah blah blah Blah blah blah blah blah Blah blah blah blah

Blah blah blahblah Blah blah blah blah Blah blah blah blah

Blah blah blah blah Blah blah blah blah Blah blah blah blah

Blah blah blah blah Blah blah blah blah Blah blah blah blah

Are the expectations you set up in your introduction mirrored in your conclusion?
Revision strategy: topic sentence paragraph

1. Identify every paragraph’s topic/point sentence.
2. Copy and paste these sentences into a separate document to create a “pseudo-paragraph.”
3. This paragraph won’t flow very well, and will be really long, but it should be globally coherent.
4. Often works best as a confirmation that you have a coherent text and are ready to move on to local level edits.

See Explorations of style