Computational Argumentation — Part III

Basics of Argumentation

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Natural Language Processing

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Learning goals

- **Concepts**
  - What is argumentation, why and how do we argue
  - Linguistic concepts argumentation builds upon
  - Main concepts related to argumentation
  - Proper use and distinction of argumentation-related terms

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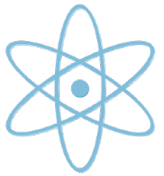
- **Associated research fields**
  - Linguistics
  - Argumentation theory
  - Rhetoric



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- **Within this course**
  - Basics needed for understanding what is analyzed and generated in computational argumentation

Outline

I. Introduction to computational argumentation

II. Basics of natural language processing

III. Basics of argumentation

IV. Argument mining

V. Argument assessment

VI. Argument generation

VII. Applications of computational argumentation

VIII. Conclusion

a) Introduction

b) Argumentative language

c) Argumentative units and arguments

d) Argumentation and debate

e) Logic, rhetoric, and dialectic

f) Conclusion

Introduction

Need for debate?

iphone vs pixel

death penalty

skolstrejk för klimatet

rescue boats

putin

silk road

maduro

energy embargo

affirmative action

nuclear energy

feminism

refugees

arm exports

equal pay

vaccine mandate

#metoo

abortion

two-state solution

håland vs mbappé

chatgpt in education

western arrogance

tiktok

democracy

Controversial issues

- **Controversy**
  - A question (problem) without a clearly correct answer (solution)
  - A potential conflict of standpoints on a given issue

> *”Controversy is an essential prerequisite of debate. Where there is no clash of ideas, proposals, interests, or expressed positions on issues, there is no debate.“*

(Freeley and Steinberg, 2009)

- **Examples**

Controversial.	Non-controversial.	Borderline case.
Feminism is needed.	*2 plus 2 equals 4.*	*The earth is a sphere.*

- **Issue**
  - A topic is a subject, matter, or theme, such as *”feminism“*.
  - An issue is a topic at discussion.
  - Issues are usually phrased as claims, such as *”Feminism is needed“*.

Argumentation: a compressed definition

> *”Argumentation is a verbal, social, and rational activity aimed at convincing a reasonable critic of the acceptability of a standpoint by putting forward a constellation of propositions justifying or refuting the proposition expressed in the standpoint.“*

(van Eemeren and Grootendoorst, 2004)

What is argumentation? based on Stede and Schneider (2018)

> *"Argumentation is a verbal, social, and rational activity aimed at convincing a reasonable critic of the acceptability of a standpoint by putting forward a constellation of propositions justifying or refuting the proposition expressed in the standpoint."*

(van Eemeren and Grootendoorst, 2004)

- **A verbal activity**
  - Argumentation is inherently linguistic, either in spoken or in written form.
    Mimics, gestures, and other forms of communicating are secondary.
- **A social activity**
  - Argumentation is an interaction with two or more opposing participants.
    Notice that you may also argue with yourself.
- **A rational activity**
  - The core of argumentation is to exchange reasonable arguments.
    Other facets of arguing such as rhetoric may still play a role, though.

Why to argue? based on Stede and Schneider (2018)

> *”Argumentation is a verbal, social, and rational activity aimed at convincing a reasonable critic of the acceptability of a standpoint by putting forward a constellation of propositions justifying or refuting the proposition expressed in the standpoint.“*

(van Eemeren and Grootendoorst, 2004)

- **A standpoint** (aka stance)
  - Arguments support (or oppose to) a pro or con view on a controversial issue.
    Without controversy, there is no disagreement and, hence, no reason to argue.
- **Convincing of acceptability**
  - Arguments aim to make others accept one‘s own view.
    Arguments are *not* about finding truth, because truth is not always not known and not always accessible.
- **A reasonable critic**
  - Arguments can be judged within a given social context.
    In many cases, the judges will be the participants themselves.

How to argue? based on Stede and Schneider (2018)

> *”Argumentation is a verbal, social, and rational activity aimed at convincing a reasonable critic of the acceptability of a standpoint by putting forward a constellation of propositions justifying or refuting the proposition expressed in the standpoint.“*

(van Eemeren and Grootendoorst, 2004)

- **A constellation of propositions**
  - Argumentation creates sequential and hierarchical relations between a set of selected propositions.
    Concrete arguments are phrased linerarizations of these relations.
- **Justifying or refuting the proposition**
  - Argumentation aims to clarify why a standpoint is right (or wrong).
    It is not just about social power relationships between the involved participants.

Argumentation at different granularity levels

Alice. *Some people say refugees threaten peace, as many of them were criminals.*
In fact, Spiegel Online just reported results from a study of the federal police about numbers of refugees and crimes:
Overall, there is no correlation at all!
Rather, the police confirmed that the main reason for committing crime is poverty.
So, if you believe the police then you shouldn't believe those people.
Syrians are even involved less in crimes than Germans according to the study.
So, the more Syrians come to Germany, the more peaceful it gets there, right?

Bob. *The question is here why I should believe the police!? Argument failed :p*

Argumentative discourse unit

Argument

Argumentation (monological)

Debate (dialogical argumentation)

Next section: Argumentative language

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Subjective language based on Stede and Schneider (2018)

- **Public and private states**
  - Public. A person‘s actions can be observed by the outside world.
  - Private. A person‘s current mental state cannot (what is thought, felt, ...).

- **Objective and subjective language**
  - Objective. Some statements of a person describe public states in the world. Listeners can judge them as true or false.

    There is a cat on the mat.

    Winston Churchill came to office in 1940.

  - Subjective. When a private state is revealed, such judgments do not apply. Only, we may like or dislike a respective statement.

    That‘s a really bad wine.

    I guess that‘s a llama over there.

- **Notice**
  - Objections to a subjective statement rather target the expressed content.
  - Without linguistic indicators, subjectivity if often not apparent.

Types of subjective statements based on Stede and Schneider (2018)

- **Sentiment**
  - Statements that express positive or negative polarity/valence
  - Opinion. An evaluation directed towards an object, idea, ...
  - Judgment. An evaluation of a *person's* behavior, character, appearance, ...
  - Emotion. An expression of happiness, fear, sadness, ...

Opinion.	Emotion.	Judgment.
That's a really bad wine.	*Awesome!*	*You don't deserve the prize.*

- **Belief in truth**
  - Statements that focus on the truth or falsity of propositions
  - Prognosis. An expectation about the future
  - Speculation. An assumption about the past, present, or future
  - Claim. An assertion that a certain *stance* on an issue is true (or false)

Claim.	Speculation.	Prognosis.
We need feminism.	*I guess that's a llama over there.*	*There will be snow later.*

Stance

- **Stance**
  - The overall position held by a person towards some target, such as an object, statement, or issue
    Near-synonyms: Viewpoint, view, standpoint, stand, position
  - To have/take a stance on a target means to be *pro* or *con* towards it.
    Stance may indicate a perspective (e.g., *liberal),* but it is not the perspective.

Con towards death penalty.
The death penalty must be abolished.

Pro towards the left claim.
It doesn't deter people from violence.

- **Stance vs. claim**
  - Some literature equates a stance with a claim.
  - In fact, a claim is a statement that conveys a stance towards a target.

- **Observations on stance**
  - Often but not necessarily conveys sentiment
  - Depends on what a speaker claims to be true
  - Can be expressed without naming the target

Con towards death penalty.
Human life is invaluable.

Reasons and evidence

- **Reasons vs. evidence**
  - Reason. Any answer to *why* a statement is supposed to be true (or false)
  - Evidence. An answer to *what* is known or *when* something happened

    Evidence is often backed up by a reference to sources.

- **Types of evidence**
  - Testimony. Reference to a proposition made by some expert, authority, ...

    D. Tutu said, to take a life when a life has been lost is revenge, it is not justice.

  - Statistics. A report of results from quantitative research, studies, ...

    A survey by the UN from 1998 gave no support for the deterrent hypothesis.

  - Anecdote. Personal experience, a concrete example, a specific event, ...

    I heard about a guy who was proven innocent one day after his execution.

  - Other. Other types of evidence include analogies or causalities.

Causality and communicative effects

- **Causality (”A because B“)**
  - Using causality in language may have different communicative effects.
  - In argumentation, it may be used for persuasion or justification.

- **Communicative effects of causality**
  - Persuasion. A claim *A* is supported by a reason *B*.

    Using airplanes is bad because they are among the worst air polluters we have.

  - Justification. *A* is a possibly controversial attitude or action, *B* the reason for it.

    I need to use airplanes a lot because my job requires me to be in different parts of the country every week.

  - Explanation. *A* is an ”undisputed“ fact, and *B* is the reason why *A* holds.

    An airplane is able to take off because the shape of the wings produces an upward force when the air flows across them.

Goals of argumentation and debate based on Tindale (2007)

- **Persuasion**
  - Changing or reinforcing the stance of an audience towards an issue
- **Agreement**
  - Resolving a dispute between multiple parties or achieving a settlement in a negotiation
- **Justification**
  - Giving reasons or explanations for an attitude or action that might be controversial
- **Recommendation**
  - Suggesting a decision to make, an action to take, a product to buy, or similar
- **Deliberation**
  - Deepening one‘s own understanding of an issue


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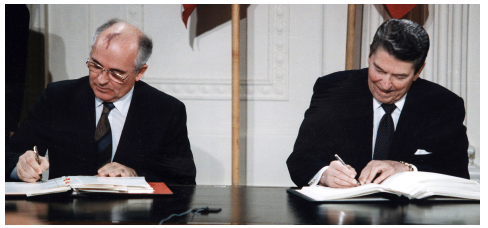
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Argumentative (discourse) units

- **Argumentative function**
  - Argumentative language supports or attacks stances on controversial issues.
  - Any claim, or reason for a claim, has an argumentative function.

- **Argument(ative) unit** (aka argument component)
  - A contiguous text span with a specific argumentative function, demarcated by neighboring spans with a different function

- **Argumentative discourse unit (ADU)**
  - An argumentative unit, or a non-argumentative text span that has a rhetorical or dialectical function, gives background information, ...
    Some literature sees only argumentative units as ADUs.

non-argumentative — **argumentative**

" If you wanna hear my view, I think that the EU should allow rescue boats in the Mediterranean Sea. Many innocent refugees will die if there are no such boats. Nothing justifies to endanger the life of innocent people. "

argumentative **argumentative**

Arguments

- **Argument**
  - A composition of a set of argumentative units, where one takes the role of a *conclusion* and every other the role of a *premise*
  - Conclusion. A claim that conveys a stance on a controversial issue, implicitly or explicitly
  - Premise. A reason given to support (or object to) the truth of the claim

Conclusion
Premises

Conclusion	*The EU should allow rescue boats in the Mediterranean Sea.*
Premise 1	*Many innocent refugees will die if there are no such boats.*
Premise 2	*Nothing justifies to endanger the life of innocent people.*

Observations (detailed below)

- Often, some argument units are left implicit.
- Arguments are inherently relational: Reasons are given for claims.
- The inference from premises to conclusion follows some *scheme*.

Argument conclusions

- **Three types of conclusions** (Eggs, 2002)
  - Epistemic. A proposition is true or false.
  - Ethical (or esthetical). Something is good or bad (or: beautiful or ugly, …).
  - Deontic. An action should be performed or not.

- **Examples**

> Epistemic. *Climate change exists. The temperature increase can be felt in our everyday lives.*

> Ethical. *Using airplanes is problematic because they are among the worst air polluters we have.*

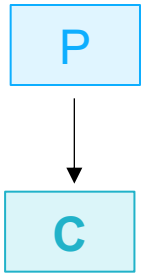
> Deontic. *We should tear this building down. It is full of asbestos.*

Argument premises

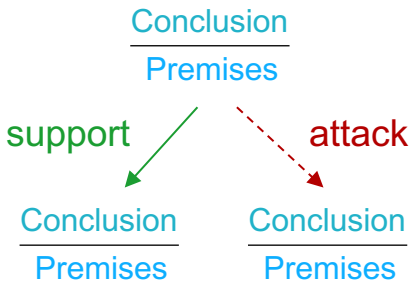
- **Premises**
  - A reason that supports (or attacks) an argument's conclusion
  - Different but partly overlapping distinctions of premise types exist.
- **Minor vs. major premises** (Walton et al., 2008)
  - Minor. A premise stating specific information related to an issue
  - Major. A generalization or rule, linking the other premises to the conclusion
- **Facts, warrants, and backings** (Toulmin, 1958)
  - Facts (aka data/grounds). Information specific to a given context
  - Warrant. A rule clarifying that the conclusion holds in case the facts hold
  - Backing. A justification for the warrant
- **Enthymeme**
  - An unstated (i.e., implicit) premise
    The major premise (or: the warrant and backing) often remains implicit.
  - Sometimes also: an *argument* in which a premise is left unstated
    Also conclusions are often implicit, but usually not called enthymemes then.

Argumentative relations

- **Relations within arguments**
  - An argument defines a relation where premises support a conclusion.
  - A premise may also serve as a counterconsideration to a conclusion; it is then usually *undercut* in the same argument.



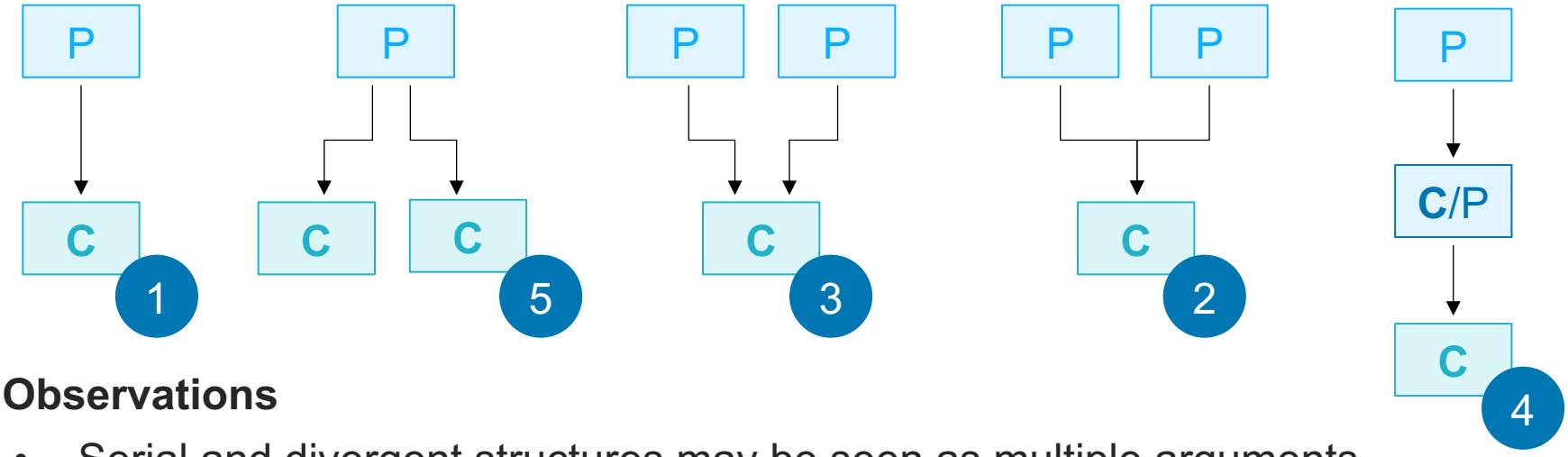
- **Relations between arguments**
  - Different arguments may support or attack each other.
  - A counterargument may attack an argument's premise or its conclusion — or the inference between them.



- **Types of support**
  - Simple. A premise individually supports a conclusion (analog for arguments).
  - Linked. Multiple premises (arguments) collectively provide support.
- **Types of attacks**
  - Rebuttal. A support of the opposite conclusion to an argument's conclusion
  - Undercutter. An attack of the relevance of a premise to a conclusion

Argument structures

- **Five types of argument structures** (Freeman, 2011)
  1. Single. One premise supports a conclusion.
  2. Linked. All premises, taken together, support a conclusion.
  3. Convergent. Each premise, in isolation, supports a conclusion.
  4. Serial. The conclusion of one argument is a premise of another conclusion.
  5. Divergent. A premise supports multiple different conclusions.



- **Observations**
  - Serial and divergent structures may be seen as multiple arguments.
  - The essential distinction is whether premises are linked or convergent.

Argument models

- **Argument model**
  - Formalized definition of the concepts distinguished for an argument
  - Concepts usually reflect structural and/or semantic aspects.
  - Used to operationalize argument processing
  - What model to use depends on the given genre and intended application.

    The concepts define the types of meta-information created by mining (and partly assessment) methods.

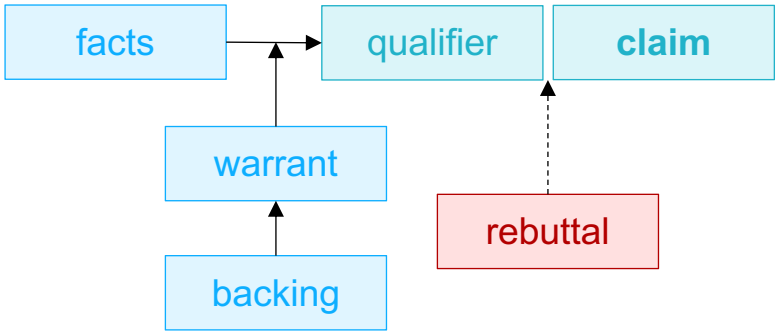
Conclusion
Premises

- **Selected models from argumentation theory**
  - Toulmin model. Fine-grained unit roles (Toulmin, 1958)
  - Freeman model. Dialectical exchange of views (Freeman, 2011)
  - Argumentation schemes. Form of inference within an argument (Walton et al., 2008)

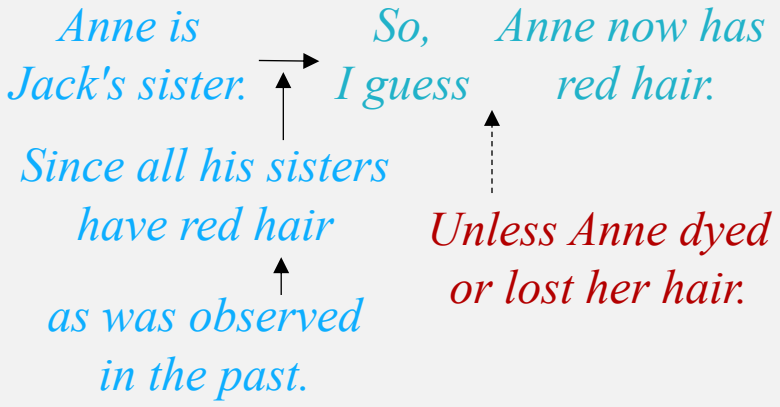
- **Selected models from AI/NLP research**
  - Essay-specific. Hierarchical relations of claims and premises (Stab, 2017)
  - Evaluability-oriented. Support roles of fine-grained unit types (Park et al., 2018)
  - Abstract argumentation framework. Attacks between arguments (Dung, 2015)

Toulmin‘s argument model

- **Toulmin model** (Toulmin, 1958)
  - Captures an argument‘s internal structure with fine-grained unit roles
    The relation between the roles is clear by definition.



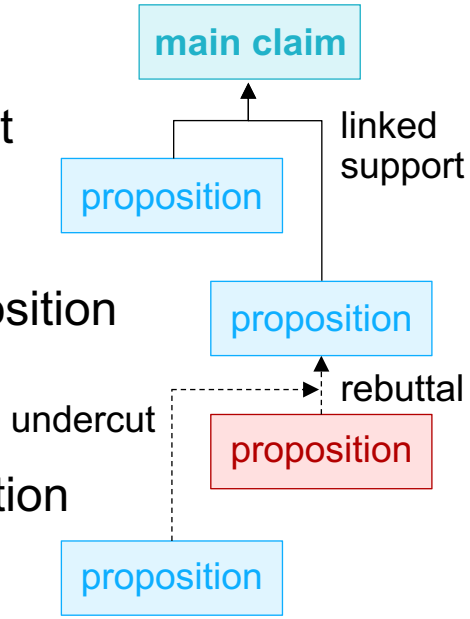
- **Unit types**
  - Claim. A conclusion conveying a stance on the given issue
  - Facts (aka data/grounds). Evidence given to support the claim
  - Warrant. Defeasible rule for why the claim can be inferred from the facts
  - Rebuttal. Circumstances under which the claim does not hold
  - Qualifier. Constraint or uncertainty
  - Backing. Justification of the warrant
    Qualifier, rebuttal, and backing are optional.



- **Discussion**
  - Clarifies how arguments work, but few real-life arguments match model
    E.g.: Warrants are often implicit. Units may mix roles, …

Freeman‘s argument model based on Peldszus and Stede (2013)

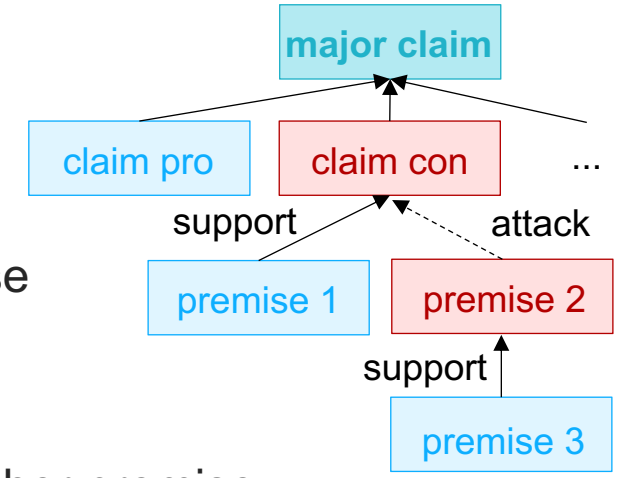
- **Freeman model** (Freeman, 2011)
  - Captures the (hypothetical) dialectic exchange in an argument between a proponent defending a claim and an opponent attacking it
- **Unit types**
  - (Main) Claim. The proposition the proponent argues for
  - Proposition. Any other unit of the proponent or opponent
- **Relation types**
  - (Linked) Support. Inference from proposition(s) to proposition
    Peldszus and Stede (2013) consider *example* as a special type of support.
  - Rebuttal. Attack of the acceptability of a proposition
  - Undercutter. Attack of the inference based on a proposition
- **Discussion**
  - Freeman aimed to integrate Toulmin‘s ideas with informal logic.
  - In practice, a robust model at least for “clean“ arguments (Peldszus and Stede, 2015)



Essay-specific argument model

- **Essay-specific model** (Stab, 2017)
  - Captures the hierarchical structure of monological argumentative text
- **Unit types**
  - Major claim. The thesis of the text
  - Claim. The conclusion of an argument; has a stance towards the thesis
  - Premise. The premise of a claim or other premise

  Maximum one claim per paragraph



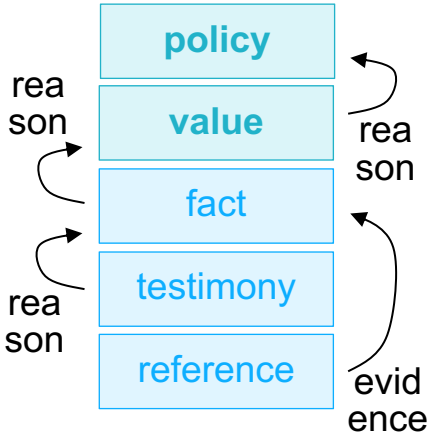
- **Relation types**
  - Support. The support of a claim/premise by another premise
  - Attack. Analog for attacks

  Relations do not cross paragraph boundaries.
- **Discussion**
  - Tuned towards the characteristics and conventions of persuasive essays
  - The assumptions behind may not generalize to many genres

Evaluability-oriented argument model

- **Evaluability-oriented argument model** (Park et al., 2018)
  - Captures whether all argument units are supported by an explicit premise of an appropriate unit type

- **Unit types**
  - Policy. Proposal of a specific course of action
  - Value. Value judgment without policy suggestions
  - Fact. Verifiable independent of views or interpretations
  - Testimony. Depending on private state or experience
  - Reference. Reference to a source of evidence



- **Relations**
  - Reason. *P* gives rationale for *C*
  - Evicence. *P* proves or disproves *C*

needs	Policy	Value	Fact	Test.
Reason	x	x	x	(x)
Evidence			x	(x)

- **Discussion**
  - Enables powerful analyses in settings where arguments are explicit enough

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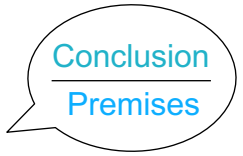
Argumentation

- **Argumentation**
  - The usage of arguments to achieve persuasion or similar with respect to a stance on a controversial issue
  - Refers to the *process* of arguing, sometimes also to its *product,* say, a text



- **Elements of argumentation**
  - 1+ arguments (given by argumentative units and their relations)
  - 0+ statements that serve rhetorical and dialectical functions, or give context and background information

- **Thesis** (aka main/central/major claim)
  - Explicit or implicit conclusion of an entire argumentative text or speech
  - All other arguments (ideally) directly or indirectly support/attack the thesis.

- **Monological vs. dialogical argumentation**
  - Monological. A composition of arguments on a given issue
  - Dialogical (debate). A series of argumentative turns on the same issue

Monological vs. dialogical argumentation

Monological argumentation

Italy, Malta, Germany, and France agreed a plan at the end of September to share responsibility for hosting asylum seekers and migrants rescued in the central Meditarranean. [...]

However, the plan does not address the underlying issues with EU migration policy that have led to the increased death rate – namely the Europe-wide criminalisation of humanitarian support for asylum seekers and refugees and the EU's policy of border externalisation. [...]

Dialogical argumentation

Alice. *The EU should allow rescue boats in the Mediterranean Sea, to save the innocent refugees.*

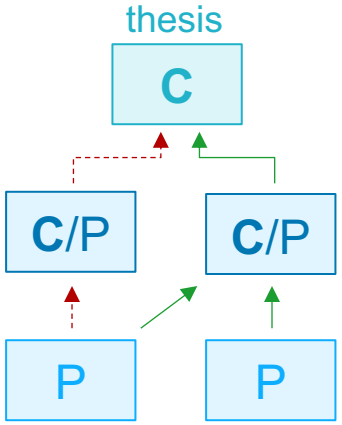
Bob. *So naïve… having such boats makes even more people die trying. I'm against.*

Alice. *Well, I actually read that rescue boats haven't led to any increase yet.*

Overall structure of monological argumentation

- **Monological overall structure** (aka discourse-level structure)
  - An entire argumentative text or speech simultaneously has a *hierarchical* and a *sequential* overall structure.

- **Hierarchical structure**
  - The logical structure induced by all argumentative relations
  - A thesis is supported or attacked by conclusions whose premises may be conclusions of other arguments, etc.
  - Can be modeled as a directed acyclic graph where nodes are ADUs and edges are relations

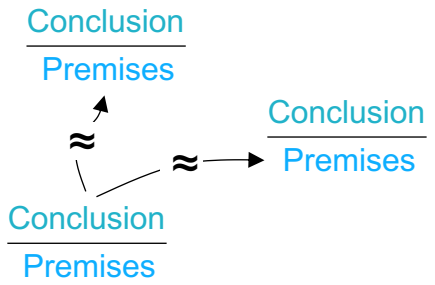


- **Sequential structure**
  - The structure induced by the ordering of units in a text or speech
  - Can be modeled as a sequential flow of *rhetorical moves*, such as the stance of each ADU towards the thesis
  - Often has a rhetorical function primarily

Overall structure of dialogical argumentation

- **Dialogical overall structure**
  - The arguments by the participants induce a *hierarchical* structure.
  - The series of turns defines a *sequential* structure, possibly with clear stages.
  - Fragmented. Arguments may be split into disconnected turns.
  - Not plannable. Participants need to react on the opponents‘ turns.

- **Hierarchical structure**
  - The structure given by the relations between arguments, by the reuse of ADUs, or similar
  - Can be modeled as a graph where nodes are arguments



- **Selected types of debates** (Walton, 2010)

Type	Initial situation	Participant‘s goal	Dialogue goal
Persuasion	Conflict of opinions	Persuade other party	Resolve or clarify issue
Negotiation	Conflict of interests	Get what you most want	What both can live with
Deliberation	Dilemma or choice	Coordinate goals/actions	Decide course of action

Participants in argumentation (recap)

- **Author (or speaker)**
  - Argumentation is connected to the person who argues.
  - The same argument is perceived differently depending on the author.
- **Reader (or audience)**
  - Argumentation often targets a particular audience.
  - Different arguments and ways of arguing work for different readers.

” The EU should allow rescue boats. Many innocent refugees will die if there are no such boats.“

” According to a study in Nature from 2023, rescue boats do not increase the number of refugees who try.“

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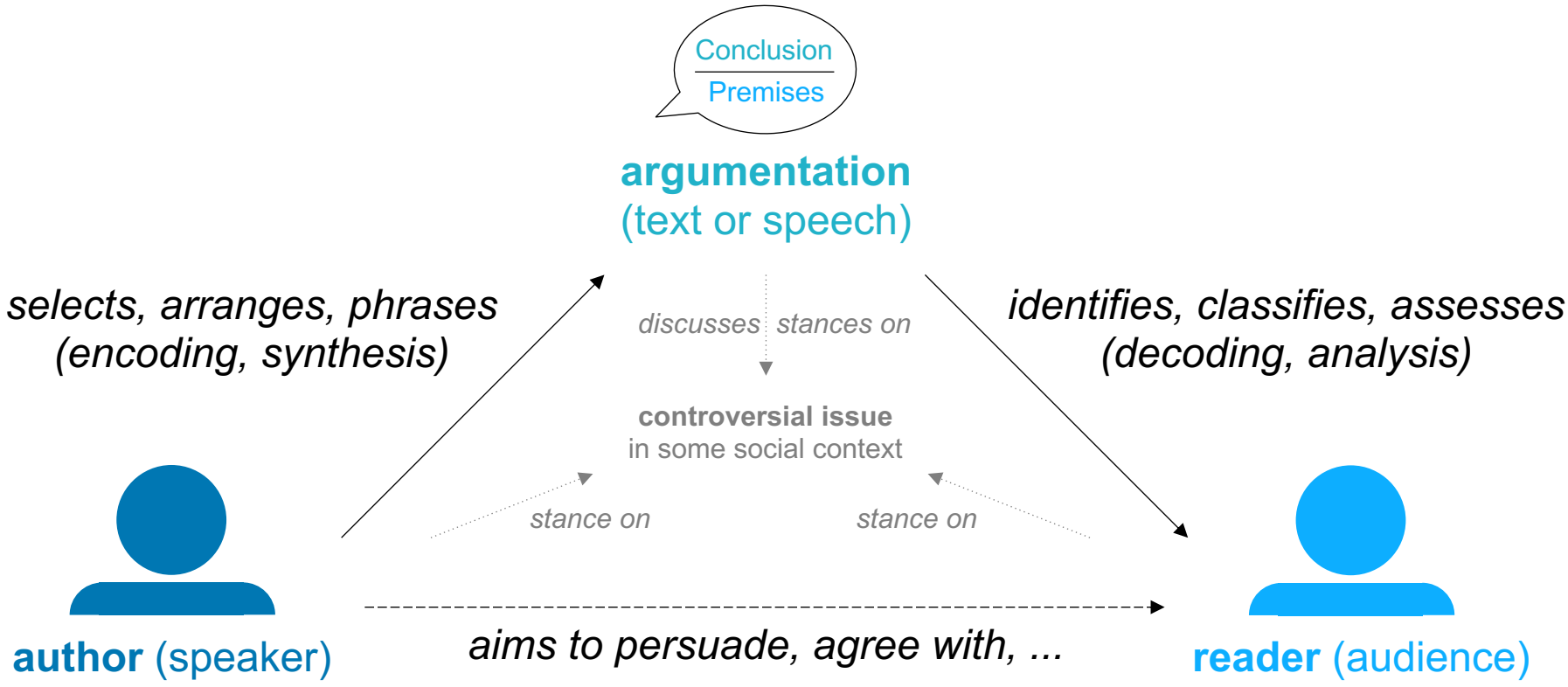
General argumentation setting



- **Notice**
  - In dialogical argumentation, the roles of participants alternate.
  - In some cases, the audience is a third, not actively involved party.

    Example: In classical debates, the goal is to change the view of an audience that listens to both sides.

Next section: Logic, rhetoric, and dialectic

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Logic

- **Formal argumentation** (Blair, 2012)
  - Formal logic studies the *soundness* of arguments, requiring true premises and a deductively valid inference of the conclusion.

$$\frac{A \qquad A \rightarrow B}{B}$$

- **Natural language argumentation**
  - In the real world, truth is often unclear or unknown to the audience.
  - While valid natural language arguments exist, most are *defeasible*.
  - Logically good arguments are supposed to be *cogent*.

- **Cogency** (Blair, 2012)
  - A cogent argument has individually *acceptable* premises that are *relevant* to its conclusion and, together, *sufficient* to draw the conclusion.

Conclusion. *The EU should allow rescue boats in the Mediterranean Sea.*

Premise 1. *Many innocent refugees will die if there are no such boats.*

Premise 2. *Nothing justifies to endanger the life of innocent people.*

Acceptable? Relevant? **Sufficient?** **Acceptable? Relevant?**

Types of argumentative reasoning

- **Defeasibility** (Stede and Schneider, 2018)
  - Argumentation follows a non-monotonic logic, including tentative conclusions, which may have to be revised when new information is given.
  - Defeasible arguments are usually *abductive.*
    Also called *defeasible reasoning* or *presumptive reasoning*

- **Three types of reasoning**
  - Deductive. A conclusion is logically inferred from the given premises.
  - Inductive. A conclusion is generalized from multiple concrete instances.
  - Abductive. A conclusion is seen as plausible given a set of premises.

Inductive.

My grandpa died. My grandma died. Elvis died. It seems that everyone dies.

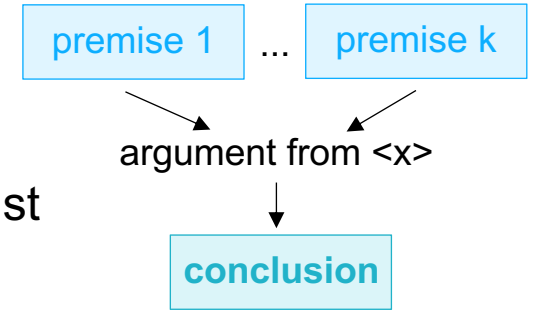
Deductive.

All humans are mortal. Elvis is a human. Therefore, Elvis must be mortal.

Abductive.

Elvis can only be dead. It just seems impossible that none of his fans ever saw him again.

Argumentation schemes based on Walton et al. (2008)



- **Argumentation scheme**
  - Form of inference from premises to conclusion
  - 60+ deductive, inductive, and abductive schemes exist
  - Each scheme comes with a set of *critical questions*.

- **Selected schemes**
  - Argument from example
  - Argument from consequence
  - Argument from position to know

Conclusion *A is true.*

Major pr. *Source E should know about proposition A in a domain S.*

Minor pr. *E asserts that A is true (in S).*

- **Example**

1. *Should E know about A?* **yes**
2. *Did E assert A to be true?* **yes**
3. *Is E a reliable source?* **no!**

Conc *Cigarettes are not addictive.*

Major *James W. Johnston (CEO of RJ Reynolds Tobacco Company) is a tobacco expert.*

Minor *Johnston testified before Congress that tobacco is not an addictive substance.*

Fallacies

- **Fallacy** (Tindale, 2007)
  - An argument with some (often hidden) flaw in its reasoning, i.e., it has a failed or deceptive scheme.

"The Secret of Monkey Island" (Lucasarts, 1991)

- **Example types of fallacies** (see: https://en.wikipedia.org/wiki/List_of_fallacies)
  - Ad-hominem. Attacking the opponent instead of attacking her arguments
  - Red herring. Introducing an unrelated issue in the reasoning
  - Appeal to ignorance. Taking lack of evidence as proof for the opposite

My girlfriend won't give me a gift for my birthday. I have received no indication to the contrary from her.

- **Fallacies are hard to detect**
  - Structure identical to other arguments
  - Understanding and context needed

My flight tomorrow won't be delayed. I have received no indication to the contrary from the airline.

(thanks to Mario Treiber for this example)

Rhetoric

- **Rhetoric**
  - The study of the merits of strategies for communicating a stance (Stede and Schneider, 2018)
  - The ability to know how to persuade (Aristotle, 2007)

> *” Is a strong argument an effective argument which gains the adherence of the audience, or is it a valid argument, which ought to gain it?“*

(Perelman and Olbrechts-Tyteca, 1969)

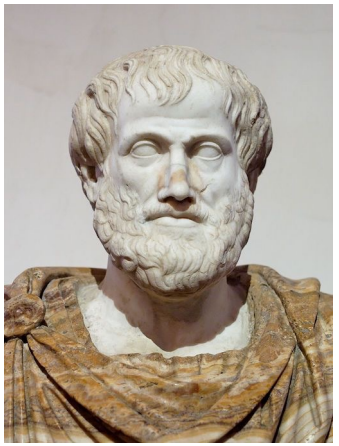
- **Persuasion**
  - The influence of someone‘s beliefs, attitudes, intentions, or similar
  - The use of techniques to make an audience think or behave in a desired way
  - Persuasive argumentation aims to be *effective.*

- **(Persuasive) Effectiveness**
  - Argumentation is effective if it persuades the audience of (or corroborates their agreement with) the stance of the author.

Means of persuasion, style, and arrangement

> *”In making a speech, one must study three points: the means of producing persuasion, the style or language to be used, and the proper arrangement of the various parts.“*

(Aristotle, ca. 350 B.C.E./ translated 2007)



en.wikipedia.org/wiki/Aristotle

- **Three means of persuasion**
  - Logos. The use of logically good arguments
  - Ethos. The demonstration of a good character, authority, and credibility
  - Pathos. The appeal to certain emotions in the listener/reader

    … there is also *kairos:* Stating something at the right place and time

- **Style and arrangement**
  - Clarity. The use of correct, unambiguous language without unnecessary complexity and deviation from the issue
  - Appropriateness. A choice of words that fits to the issue and audience
  - Arrangement. The sequential structure of the presentation of arguments

Rhetorical argumentation strategies

- **Rhetorical strategy**
  - A guiding principle used in argumentation to achieve persuasion
  - Encodes logos, pathos, and ethos in language tuned towards the audience
  - Decides about the selection, arrangement, and phrasing of content

- **Example: ”America first“** https://www.youtube.com/watch?v=dIaoZqMrbCo
  - Practically only pathos (with a bit of ”ethos“)
  - Simple messages, loaded language, many repetitions
  - Tuned towards the core voters

https://commons.wikimedia.org

- **Encoding a strategy in an argumentative text** (Wachsmuth et al., 2018)
  1. Select content that *frames* the issue in a way that supports one‘s stance.
  2. Arrange the structure of the content considering ordering preferences.
  3. Phrase the style of the content to match the audience and encoded means.

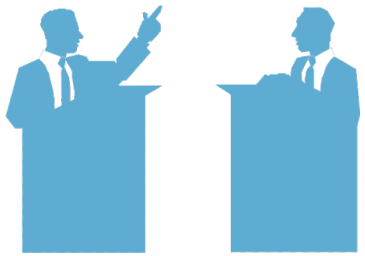
Frames and framing

- **Frame** (Entman, 1993)
  - A frame highlights an aspect under which an issue may be considered.
  - Both topic-specific and generic sets of frames have been proposed.

- **Framing**
  - The selection of specific aspects of an issue to make them more *salient*, i.e., more noticeable, meaningful, and/or memorable.
  - The same issue framed in a different way may be perceived entirely different.
  - Selecting the right frames is decisive to achieve persuasion.

Dialectic

- **Dialectic**
  - Dialectic considers debates between two parties that aim at agreement.
  - In a dialectical debate, parties should argue *reasonably*.

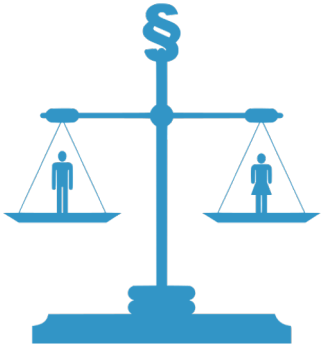


- **Reasonableness**
  - All arguments and the way they are stated are acceptable for all participants.
  - Arguments aim to contribute to resolution, helping to arrive at a conclusion.

- **Pragma-dialectics** (van Eemeren and Grootendoorst, 2004)
  - A theory to evaluate dialectical debates in an idealized process covering the following three main concepts:
  - Idealized discussion process. Four fixed stages, from confrontation to closing
  - Rules of a critical discussion. 10 rules to obtain reasonableness in the debate
    Variants with different numbers of rules are also found in the literature.
  - Strategic maneuvering. Parties follow both dialectical and rhetorical goals.

Discussion rules & strategic maneuvering (van Eemeren et al., 2002)

- **Selected rules of a critical discussion**



1. Freedom. Parties must not prevent each other from advancing stances or from casting doubt on stances.
2. Burden of proof. A party that advances a stance is obliged to defend it if asked by the other party to do so.

10. Usage. A party must not use insufficiently clear or confusing formulations, and must interpret the other party's formulations as accurately as possible.

- **Strategic maneuvering**
  - Even when agreement is the goal, participants want to effectively persuade others of their stance.
  - They need to *maneuver* between dialectic and rhetoric.

- **Aspects of strategic maneuvering**

Topic potential.	Audience demand.	Presentational devices.
Select the most effective available content	Adapt to the audience's frame of reference	Exploit effective and reasonable style

Argumentation quality

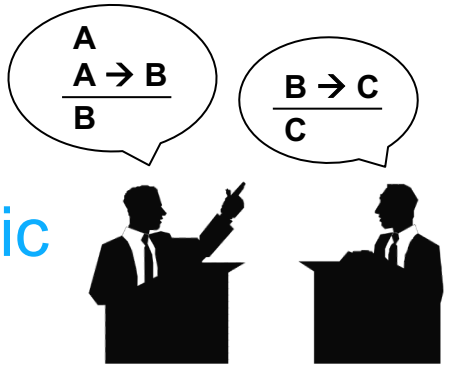
$$\frac{A \quad A \rightarrow B}{B}$$

Logic

*”A dialectical discussion derives its **reasonableness** from a dual criterion: problem validity and intersubjective validity.“*

van Eemeren (2015)

Dialectic



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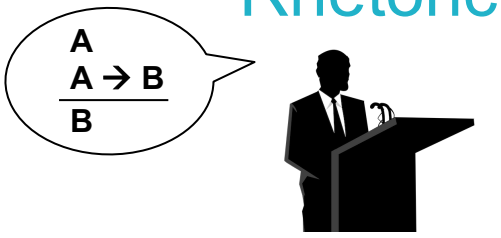
Argumentation quality

*”An argument is **cogent** if its premises are relevant to its conclusion, individually acceptable, and together sufficient to draw the conclusion.“*

Blair (2012)

Rhetoric



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*”In making a speech, one must study three points: the means of producing **persuasion**, the style or language to be used, and the proper arrangement of the various parts.“*

Aristotle (2007)

Next section: Conclusion

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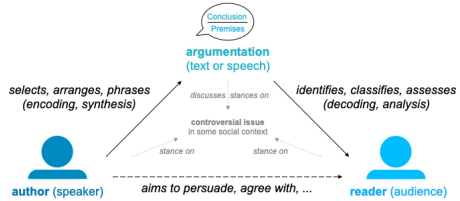
Conclusion

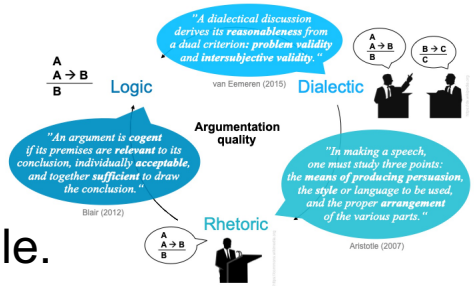
- **Argumentative language**
  - Claims and reasons related to sentiment and truth
  - Deals with stance on controversial issues
  - Targets persuasion, agreement, deliberation, or similar

https://www.tagesschau.de

- **Argumentation and debate**
  - Compose premises and conclusions in arguments
  - Comprise a sequential and a hierarchical structure
  - Always affected by the specific participants



- **Logic, rhetoric, and dialectic**
  - Most arguments follow defeasible inference schemes.
  - Strategies are based on the means of persuasion.
  - Good arguments are cogent, effective, and/or reasonable.



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