Assessing the legitimacy of arguments embedded in ordinary language is rather like diagnosing whether a living human being has any broken bones. Only the internal structure matters, but it is difficult to see through the layers of flesh that cover it. Soon we'll begin to develop methods, like the tools of radiology, that enable us to see the skeletal form of an argument beneath the language that expresses it. But compound fractures are usually evident to the most casual observer, and some logical defects are equally apparent.

The informal fallacies considered here are patterns of reasoning that are obviously incorrect. The fallacies of relevance, for example, clearly fail to provide adequate reason for believing the truth of their conclusions. Although they are often used in attempts to persuade people by non-logical means, only the unwary, the predisposed, and the gullible are apt to be fooled by their illegitimate appeals. Many of them were identified by medieval and renaissance logicians, whose Latin names for them have passed into common use. It's worthwhile to consider the structure, offer an example, and point out the invalidity of each of them in turn.

**Home Appeal to Force (argumentum ad baculum)**

In the appeal to force, someone in a position of power threatens to bring down unfortunate consequences upon anyone who dares to disagree with a proffered proposition. Although it is rarely developed so explicitly, a fallacy of this type might propose:
• If you do not agree with my political opinions, you will receive a grade of F for this course.
• I believe that Herbert Hoover was the greatest President of the United States.

• Therefore, Herbert Hoover was the greatest President of the United States.

It should be clear that even if all of the premises were true, the conclusion could nevertheless be false. Since that is possible, arguments of this form are plainly invalid. While this might be an effective way to get you to agree (or at least to pretend to agree) with my position, it offers no grounds for believing it to be true.

**Home Appeal to Pity (argumentum ad misericordiam)**

Turning this on its head, an appeal to pity tries to win acceptance by pointing out the unfortunate consequences that will otherwise fall upon the speaker and others, for whom we would then feel sorry.

• I am a single parent, solely responsible for the financial support of my children.
• If you give me this traffic ticket, I will lose my license and be unable to drive to work.
• If I cannot work, my children and I will become homeless and may starve to death.

• Therefore, you should not give me this traffic ticket.

Again, the conclusion may be false (that is, perhaps I should be given the ticket) even if the premises are all true, so the argument is fallacious.

**Home Appeal to Emotion (argumentum ad populum)**

In a more general fashion, the appeal to emotion relies upon emotively charged language to arouse strong feelings that may lead an audience to accept its conclusion:

• As all clear-thinking residents of our fine state have already realized, the Governor’s plan for financing public education is nothing but the bloody-fanged wolf of socialism cleverly disguised in the harmless sheep’s clothing of concern for children.

• Therefore, the Governor’s plan is bad public policy.

The problem here is that although the flowery language of the premise might arouse strong feelings in many members of its intended audience, the widespread occurrence of those feelings has nothing to do with the truth of the conclusion.
Appeal to Authority (argumentum ad verecundiam)

Each of the next three fallacies involve the mistaken supposition that there is some connection between the truth of a proposition and some feature of the person who asserts or denies it. In an appeal to authority, the opinion of someone famous or accomplished in another area of expertise is supposed to guarantee the truth of a conclusion. Thus, for example:

- Federal Reserve Chair Alan Greenspan believes that spiders are insects.
- Therefore, spiders are insects.

As a pattern of reasoning, this is clearly mistaken: no proposition must be true because some individual (however talented or successful) happens to believe it. Even in areas where they have some special knowledge or skill, expert authorities could be mistaken; we may accept their testimony as inductive evidence but never as deductive proof of the truth of a conclusion. Personality is irrelevant to truth.

Ad Hominem Argument

The mirror-image of the appeal to authority is the ad hominem argument, in which we are encouraged to reject a proposition because it is the stated opinion of someone regarded as disreputable in some way. This can happen in several different ways, but all involve the claim that the proposition must be false because of who believes it to be true:

- Harold maintains that the legal age for drinking beer should be 18 instead of 21.
- But we all know that Harold . . .
  - . . . dresses funny and smells bad. or
  - . . . is 19 years old and would like to drink legally or
  - . . . believes that the legal age for voting should be 21, not 18 or
  - . . . doesn’t understand the law any better than the rest of us.
- Therefore, the legal age for drinking beer should be 21 instead of 18.

In any of its varieties, the ad hominem fallacy asks us to adopt a position on the truth of a conclusion for no better reason than that someone believes its opposite. But the proposition that person believes can be true (and the intended conclusion false) even if the person is unsavory or has a stake in the issue or holds inconsistent beliefs or shares a common flaw with us. Again, personality is irrelevant to truth.

Appeal to Ignorance (argumentum ad ignorantiam)

An appeal to ignorance proposes that we accept the truth of a proposition unless an opponent can prove otherwise.
Thus, for example:

- No one has conclusively proven that there is no intelligent life on the moons of Jupiter.

- Therefore, there is intelligent life on the moons of Jupiter.

But, of course, the absence of evidence against a proposition is not enough to secure its truth. What we don’t know could nevertheless be so.

**Home** Irrelevant Conclusion (ignoratio elenchi)

Finally, the fallacy of the irrelevant conclusion tries to establish the truth of a proposition by offering an argument that actually provides support for an entirely different conclusion.

- All children should have ample attention from their parents.
- Parents who work full-time cannot give ample attention to their children.

- Therefore, mothers should not work full-time.

Here the premises might support some conclusion about working parents generally, but do not secure the truth of a conclusion focussed on women alone and not on men. Although clearly fallacious, this procedure may succeed in distracting its audience from the point that is really at issue.

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