

# Believe Me — We Can Do This!

Annotating Persuasive Acts in Blog Text

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- ❖ Produced a raft of classification / recognition problems:
  - ❖ question answering, textual entailment
  - ❖ emotionality, sentiment
  - ❖ agreement, disagreement, stance towards issues
- ❖ These approaches view language as *information*, and attempt to extract the *content* of language

# Language as *Affecter*

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  - ❖ requires knowledge of the success of a persuasion attempt
- ❖ Proximate goal: build a corpus of persuasion attempts and resources we suspect will be useful for classification
  - ❖ persuasion is like argumentation, but may include non-argumentative techniques of inducing acceptance

# Results in brief

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    - ❖ **attitude revision**: to believe a proposition is T/F or hold a category of judgment toward some entity
    - ❖ **compliance gaining**: commitment toward / against a course of action
  - ❖ 16 tactics, drawn from social science literature on influence (Cialdini 2000) and compliance gaining (Marwell & Schmitt 1967)

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  - ❖ 1205 posts contained 1310 persuasive tactics
  - ❖ high intercoder agreement for persuasion attempt and many tactics

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    - ❖ Arguments based on: Causation, Examples, Source, and Rules
    - ❖ Abductive arguments
- ❖ Further work should focus on such argumentation schemes

# Outline

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- ❖ What is persuasion?

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- ❖ Tactic Utilities

# What is persuasion?

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  - ❖ intentional
  - ❖ goal-directed
  - ❖ organized around obtaining a particular response from the persuadee

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- ❖ Persuasive goal may be to (Miller 1980):
  - ❖ *shape* an initial response
  - ❖ *reinforce* a pre-existing response
  - ❖ *change* a response to a more desired category

# Persuasive responses

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- ❖ Persuasive response may be:
  - ❖ an *attitude* (Hovland et al. 1949): a set of beliefs and / or opinions on a topic
  - ❖ *compliance gaining* (Marwell & Schmitt 1967): commitment toward / against a course of action

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So much for Texas. I almost made it to Dallas tonight, but unfortunately weather and air traffic conspired against my trip. I read most of a novel (Nobody's Fool by Richard Russo if you're keeping tabs) and ate the worst food ever. The lettuce on my club sandwich from TGIFridays was so rotten I had to WIPE it off my nasty meats. I couldn't pick it off. It was that far gone.

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Altruism is an illusion. We are all consumers, operating in our own self-interests and the interests of those like us. Without the constructs of "good" and "evil" we will have a better perspective to interpret the media's representation of our world. I am not willing to give up the luxuries and conveniences that we Americans consider unalienable rights more than anyone else.

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Altruism is an illusion. We are all consumers, operating in our own self-interests and the interests of those like us. Without **attitude revision** "good" and "evil" we will have a better perspective to interpret the of our world. I am not willing to give up the luxuries and conveniences that we Americans consider unalienable rights more than anyone else.

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ranting narrative

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Ok, some quick suggestions and observations... Go see Avenue Q. If you like Turkish food and you're in the city, try Sip Sak, but don't order the Lamb & Okra. Get a salad or something grilled. What was I thinking? Okra? Gap clothes fit better than Banana Rep and Express this fall, for all you metros out there.

Altruism is an illusion. We are all consumers, operating in our own self-interests and the interests of those like us. Without **attitude revision** "good" and "evil" we will have a better perspective to interpret the of our world. I am not willing to give up the luxuries and conveniences that we Americans consider unalienable rights more than anyone else.

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Altruism is an illusion. We are all consumers, operating in our own self-interests and the interests of those like us. Without **attitude revision** "good" and "evil" we will have a better perspective to interpret the **attitude revision** of our world. I am not willing to give up the luxuries and conveniences that we Americans consider unalienable rights more than anyone else.

# Data source

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# Blogs: advantages

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- ❖ Empirical focus: blog posts from the Blog Authorship Corpus (Koppel et al. 2006)
- ❖ Advantages
  - ❖ widespread, easily accessible genre of online communication
  - ❖ clear authorship (unlike speeches or sermons)
  - ❖ wide range of topics, registers

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  - ❖ [...and it did]

# Tactic ontologies

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# The importance of tactics

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- ❖ Pilot annotation:
  - ❖ 30 blog posts, selected to be half persuasion attempts, half not
  - ❖ 5 annotators, given relatively limited guidelines

# Pilot annotation screenshot

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- 1  

Sometimes, I'm not sure what's wrong with me. For the past 2 or 3 weeks I have been wholly unable to fall asleep at a normal time. Despite trying myself to wake up at a normal early (by my standards) time, I have not been able to get on a regular sleep schedule. It's quite frustrating. I'm tired. I want to go to sleep, but I can't. I've tried reducing my caffeine, tried doing a PM stretch routine, tried all sorts of stuff and nothing seems to work. Perhaps I am stressed. I don't feel particularly stressed. I mean I do have a master's thesis that I am supposed to finish by August. And I am working on 4 other projects for my research assistantship. I'm not quite sure what my summer deal is yet or how much money I will make. I have class presentations due this week. I am single and I hate it. I'm going to buy a new car. I want to lose 5 pounds but I can't seem to get myself motivated enough to diet. My current cat sucks and I am afraid will break soon. But seriously, I'm not stressed. Maybe I am. I don't know. Tonight I was convinced that I was going to fall asleep. I was almost there and then I thought about how Jennifer Hudson **FURSELY** should not have been voted off American Idol since she clearly was the best singer in the whole competition and then I was bothered and couldn't sleep. If stupid American Idol is all I have to keep me awake at night then I should be doing alright. But I'm not.

Does this post contain an attempt to persuade?  Yes  No  Unsure
- 2  

If I were going to start a website that website would be amazon.com. I think its the most amazing website ever created. I know that as a general rule people like amazon.com. Recently, Time placed amazon's book inside the book forum as one of the top inventions of the year (after Apple Computer's iTunes music store). But I don't think these other people have such a strong affection to amazon.com the way I do. I wish all websites could be amazon.com. They are the smartest marketers out there. I don't know how they do it, but every time I visit they say "Hello Sarah, we have recommendations for you." and what do you know? Their recommendations are almost always right. Amazon.com introduced me to some very wonderful bands. I discovered Normal Milk Band, Iron and Wine, The Decemberists, and Soulda Lanche through Amazon.com's recommendations. I almost always buy my CDs from amazon.com even if I can find them cheaper elsewhere, just because I love the company so much I WANT to give them my money. In addition to making shopping a pleasure, amazon.com is great for procrastination. I love wish lists. I think your amazon.com wish list really says a lot about you as a person. Mine says I like to have stuff. Currently there are 125 items on my wish list. I sort of have a shopping problem, and a lack of money problem. Being able to add things to my wish lists without causing undue financial harm, to make wish lists even better, amazon.com has the comments function.

Does this post contain an attempt to persuade?  Yes  No  Unsure
- 3  

Oh, the biggest thing that pisses me off about Gaster. The fact that you say you're all over him and so is he. And that fact that he says so and is being so fake - well, I just can't make fakeness an assurance which he has in abundance. I like to lie when he called him

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  - ❖ Low IAA ( $\kappa = 0.40$ )
    - ❖ unclarity for expressions of opinion
    - ❖ “weak” persuasion possibility

# Annotation scheme design

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  - ❖ need an ontology of persuasion tactics to build from

# Annotation scheme design

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- ❖ Hope: can improve agreement by making the notion of resistance more precise
  - ❖ need an ontology of persuasion tactics to build from
- ❖ Combined the 6 Influential Tactics from Cialdini (2000) with the 16 compliance-gaining tactics of Marwell & Schmitt (1967)
  - ❖ resulted in 14 tactics after combining, simplifying, extending
  - ❖ added two more to cover additional logical argumentation schemes

# Persuasion in social science: a precis

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- ❖ Attitude change / Influence (Social Psychology)
  - ❖ grew out of Carl Hovland's investigation of effective propaganda techniques in 1930s
  - ❖ *persuadee focused*: focus on how various variables of persuader, audience, channel, and message encoding influence success

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  - ❖ pioneered by Marwell & Schmitt's (1967) interest in sociological power structures
  - ❖ *persuader focused*: studies how persuasive agents choose among their ways of controlling others' behavior

# Marwell & Schmitt (1967)

- ❖ Collected likelihoods across 4 scenarios for each of 16 tactics, fell into 5 groups by factor analysis

Tactic	Group	Definition
Promise	Rewarding Activity	If you comply, I will reward you.
Threat	Punishing Activity	If you do not comply, I will punish you.
Expertise (positive)	Expertise	If you comply, you will be rewarded because of the "nature of things."
Expertise (negative)	Expertise	If you do not comply, you will be punished because of the "nature of things."
Liking	Rewarding Activity	Act friendly and helpful to get the person in a "good frame of mind"
Pregiving	Rewarding Activity	Reward the person before requesting his or her compliance.
Aversive Stimulation	Punishing Activity	Continuously punish the person, making cessation contingent on compliance.
Debt	Personal Commitments	You owe me compliance because of past favors.
Moral Appeal	Impersonal Commitments	You are immoral if you do not comply.
Self-Feeling (positive)	Personal Commitments	You will feel better about yourself if you comply.
Self-Feeling (negative)	Personal Commitments	You will feel worse about yourself if you do not comply.
Altercasting (positive)	Impersonal Commitments	A person with "good" qualities would comply.
Altercasting (negative)	Impersonal Commitments	Only a person with "bad" qualities would not comply.
Altruism	Personal Commitments	I need your compliance very badly, so do it for me.
Esteem (positive)	Impersonal Commitments	People you value will think the better of you if you comply.
Esteem (negative)	Personal Commitments	People you value will think the worse of you if you do not comply.

# Marwell & Schmitt, collapsed

Tactic	Definition
Threat / Promise	If you comply, I will reward / punish you.
Expertise	If you comply, you will be rewarded / punished because of the “nature of things.”
Liking	Act friendly and helpful to get the person in a “good frame of mind”
Pregiving / Aversive Stim.	Reward / punish the person before requesting / demanding his or her compliance.
Debt	You owe me compliance because of past favors.
Moral Appeal	You are immoral if you do not comply.
Self-Feeling	You will feel better / worse about yourself if / unless you comply.
Altercasting	A person with “good” / “bad” qualities would / would not comply.
Altruism	I need your compliance very badly, so do it for me.
Esteem	People you value will think the better / worse of you if you do / don't comply.

# Marwell & Schmitt, renamed

Tactic	Definition
Threat/Promise	If you comply, I will reward/punish you.
Outcome	If you comply, you will be rewarded/punished because of the “nature of things.”
Butter Up	Act friendly and helpful to get the person in a “good frame of mind”
Favor/Injure	Reward/punish the person before requesting/demanding his or her compliance.
Debt	You owe me compliance because of past favors.
Moral Appeal	You are immoral if you do not comply.
Self-Feeling	You will feel better/worse about yourself if/unless you comply.
Good/Bad Traits	A person with “good”/“bad” qualities would/would not comply.
Distress	I need your compliance very badly, so do it for me.
Social Esteem	People you value will think the better/worse of you if you do/don't comply.

# Cialdini (2000)

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- ❖ Constructed empirically by observing negotiations in a wide variety of settings

Tactic	Definition
Authority	People are influenced by thoughts, words and actions of authority figures.
Commitment and Consistency	A person is obligated to fulfill their commitments to perform an act or support an idea.
Liking	People are influenced by similar people or items / people that bring satisfaction.
Reciprocity	One party becomes indebted to another, and that debt must be repaid.
Social Proof	Societal norms impact expectations of outcome from situations and influence how a person should act in a given situation.
Scarcity	The persuadee believes that an opportunity has a small lifespan.

# Cialdini, renamed

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Tactic	Definition
Important Person	People are influenced by thoughts, words and actions of authority figures.
Consistency	A person is obligated to fulfill their commitments to perform an act or support an idea.
Liking	People are influenced by similar people or items / people that bring satisfaction.
Favors / Debts	One party becomes indebted to another, and that debt must be repaid.
Social Proof	Societal norms impact expectations of outcome from situations and influence how a person should act in a given situation.
Scarcity	The persuadee believes that an opportunity has a small lifespan.

# Collapsing categories

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- ❖ Removed ones unlikely in blogs
  - ❖ Marwell & Schmitt: Buttering Up, Distress, Favor / Injure

# Collapsing categories

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- ❖ Removed ones unlikely in blogs
  - ❖ Marwell & Schmitt: Buttering Up, Distress, Favor / Injure
- ❖ Split up Social Proof
  - ❖ Popularity: Invokes popular opinion.
  - ❖ Social Generalization: Makes generalizations about how a particular class of people behaves.

# Generalizing categories

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  - ❖ Deontic Appeal (from Moral Appeal): Mentions duties and obligations.

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- ❖ Generalized others

- ❖ Deontic Appeal (from Moral Appeal): Mentions duties and obligations.

- ❖ Empathy (from Cialdini's Liking): Attempts to make the persuadee connect with someone else's emotional perspective.

# Adding categories

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# Adding categories

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- ❖ Missing: many “logical” patterns
- ❖ Created two new categories (via inspection of the data)
  - ❖ Redefinition: Reframes an issue by analogy or metaphor
  - ❖ Reason: Provides a justification for an argumentative point based upon logical reasoning (e.g., causal reasoning, arguments from absurdity, arguments from example, etc.)

# Examples of additional categories

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Like the south and slavery, religion is a way of life.

Pandering to Islamic terrorism has only ever resulted in more of it. **Case in point:** The Phillipines, where a long-dormant Islamic terrorist outfit, revitalised by the Phillipines' government's cowing to to terrorist demands and pulling troops out of Iraq to free a single hostage, has probably doomed hundreds, if not thousands, to death.

soo, by that logic, 'only 500' would be quite acceptable as an argument too.  
**Ridiculous.**

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## Redefinition

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Like the south and slavery, religion is a way of life.

## Reason

Pandering to Islamic terrorism has only ever resulted in more of it. **Case in point:** The Phillipines, where a long-dormant Islamic terrorist outfit, revitalised by the Phillipines' government's cowing to to terrorist demands and pulling troops out of Iraq to free a single hostage, has probably doomed hundreds, if not thousands, to death.

soo, by that logic, 'only 500' would be quite acceptable as an argument too.  
**Ridiculous.**

# Annotation scheme

Class	Tactic	Definition
Outcomes	Threat/Promise	Poses a direct threat or promise to the persuadee.
	Social Esteem	States that people the persuadee values will think more highly of them.
	Self-Feeling	States that uptake will result in a better self-valuation by the persuadee.
	Outcome	Mentions some particular consequences from uptake or failure to uptake
Generalizations	Deontic Appeal	Mentions duties or obligations.
	Moral Appeal	Mentions moral goodness, badness, etc.
	Social Generalization	Makes generalizations about how some particular class of people tendentially behaves.
	Good/Bad Traits	Associates the intended mental state with a “good” or “bad” person's traits.
External	Popularity	Invokes popular opinion as support for uptake.
	Important Person	Appeals to authority (bosses, experts, trend-setters).
Interpersonal	Favors/Debts	Mentions returning a favor or injury.
	Consistency	Mentions keeping promises or commitments.
	Empathy	Attempts to make the persuadee connect with someone else's emotional perspective
	Scarcity	Mentions rarity, urgency, or opportunity of some outcome.
Other	Redefinition	Reframes an issue by analogy or metaphor.
	Reason	Provides justification for an argumentative point based upon logical reasoning.

# Argumentation schemes

Class	Tactic	Definition	Argumentation scheme
Outcomes	Threat/Promise	Poses a direct threat or promise to the persuadee.	Arg. from Threat
	Social Esteem	States that people the persuadee values will think more highly	Rhetoric of Belonging <i>Ad Populum</i>
	Self-Feeling	States that uptake will result in a better self-valuation by the	Arg. from Consequences
	Outcome	Mentions some particular consequences from uptake or failure	Arg. from Consequences
Generalizations	Deontic Appeal	Mentions duties or obligations.	Arg. from Rules
	Moral Appeal	Mentions moral goodness, badness, etc.	Arg. from Rules
	Social Generalization	Makes generalizations about how some particular class of	Arg. from Pop. Practice/Illustr.
	Good/Bad Traits	Associates the intended mental state with a "good" or "bad"	Appeal to Vanity <i>Ad Populum</i>
External	Popularity	Invokes popular opinion as support for uptake.	Arg. from Pop. Acceptance
	Important Person	Appeals to authority (bosses, experts, trend-setters).	Arg. from Expert Op./Model
Interpersonal	Favors/Debts	Mentions returning a favor or injury.	?
	Consistency	Mentions keeping promises or commitments.	Arg. from Commitment
	Empathy	Attempts to make the persuadee connect with someone else's	?
	Scarcity	Mentions rarity, urgency, or opportunity of some outcome.	Arg. from Neg. Conseq.
Other	Redefinition	Reframes an issue by analogy or metaphor.	Arg. from Analogy
	Reason	Provides justification for an argumentative point based upon	tbd

# Annotation

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# Basic Procedure

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  - ❖ annotators asked to focus on *blatant* persuasion attempts (no reading into the text)
- ❖ Annotation:
  - ❖ 40 blogs > 200 posts selected randomly (25,048 blog posts total)
  - ❖ each annotator annotated 7 blogs, 20% overlap between annotators
  - ❖ 3 annotators per overlapping blog

# Persuasion attempt results

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	+persuasion	-persuasion
+tactic	368 284 attitude 62 compliance 22 both	837
-tactic	89 45 attitude 15 compliance 29 both	23.754

# Persuasive tactic results

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Tactic	Frequency	$\alpha$	% persuasion
Reason	408	0,76	50,3%
Deontic Appeal	154	0,85	56,5%
Popularity	114	0,80	20,0%
Redefinition	109	0,60	39,6%
Empathy	94	0,71	24,4%
Outcome	76	0,70	65,2%
Social	79	0,75	31,6%
Impt. Person	57	0,63	49,0%
Favors/Debts	55	0,72	48,7%
Consistency	53	0,74	33,3%
Threat/Promise	37	0,81	35,1%
Good/Bad Traits	31	0,89	38,1%
Moral Appeal	24	0,71	37,5%
Scarcity	11	0,40	90%
Social Esteem	7	NA	100%
Self-feeling	1	NA	0%

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- \* Consistency 92% and Favors/ Debts 85% & w/ c.g.
- \* Reason, Deontic, and Outcome most predictive of persuasion

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# Tactic Utilities

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# Exploring via machine learning

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  - ❖ tactic labels

# Tactics carry valuable information

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- ❖ Examined tactic utility via machine learning

Precision	Recall	F-score
0,742	0,174	0,282
0,079	0,174	0,282
0,114	0,271	0,161
0,505	0,677	0,579

- ❖ baseline system: stemmed unigrams

- ❖ word class features (MPQA and LIWC)

- ❖ topic features (Latent Dirichet Allocation)

- ❖ tactic labels

- ❖ Tactic labels are helpful: they outperform all unsupervised features

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# Relative tactic utility

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  - ❖ Reason is the primary contributor to accuracy
  - ❖ Deontic and Outcome distant second

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  - ❖ *negatively correlated* with Persuasion with Reason
  - ❖ 65% of such cases are ones where Reason marks a narrative discourse relation (*I did this because she wouldn't talk to me.*)
- ❖ Upshot: discriminative tactics are not necessarily signs of Persuasion!

# Decomposing Reason

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- ❖ examining its distribution further
  - ❖ 224 instances of Reason examined by authors
  - ❖ 86 were instances of argumentation schemes
    - ❖ 84% of these were in persuasion attempts (64% attitude revision, 20% compliance gaining)

# Decomposing Reason

Argument scheme	Frequency
Arg. from Example	20
Abductive Argument	19
Arg. from Values	8
Arg. from Consequences	6
Arg. from Correlation to Cause	5
The Group and its members	4

Argument class	Frequency
Applying Rules to Cases	26
Abductive Reasoning	20
Source-based Arguments	20
Practical Reasoning	9
Causal Reasoning	7
Applying Rules to Cases [Deontic/Moral]	178
Causal Reasoning [Outcome]	76

# Decomposing Reason

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- ❖ Upshot: for persuasion in blog posts, we can perhaps focus on a subset of annotation schemes
  - ❖ Arguments based on: Causation, Examples, Source, and Rules
  - ❖ Abductive arguments

# Conclusion

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# Results

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- ❖ Persuasion attempts and compliance gaining categories can be annotated in blog posts with acceptable precision
- ❖ The tactics are useful proxies for high-level information, and give a reasonable upper-bound for more sophisticated machine learning
  - ❖ of these, Reason, Deontic, and Outcome are primary

# Moving Forward

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- ❖ Blogs are a challenging domain for persuasion attempts
  - ❖ rarity of the phenomena suggests more intelligent initial filtering of posts sent to annotators
  - ❖ see compliance gaining even more rarely
- ❖ Focus in this domain should be on exploiting knowledge from prior literature on discovering arguments (Mochales & Ieven 2009, Palau & Moens 2011)