

Detecting Meaning with Sherlock Holmes* †

Idioms and Metaphors

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Lecture 5

Location: LT4

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Overview

- Revision of Quantification, Truth and Sentiment
- Word Meaning Revisited
- Beyond Words: Constructions
- Idioms
- Metaphors

Revision: Sentence Relations and Truth

Logic

- Classical logic is an attempt to find valid principles of argument and inference.

<i>a</i>	If something is human then it is mortal	premise
<i>b</i>	Socrates is human	premise
<hr/>		
<i>c</i>	Socrates is mortal	conclusion

- Can we go from *a* and *b* to *c*? Yes
- Truth is **empirical**: The premises need to correspond with the facts of the world
 - Sentences have **truth values** (true, false or unknown)
 - The state of the world that makes a sentence true or false are its **truth conditions**

Methods of Argument

➤ Modus Ponens

a If something is human then it is mortal

b Socrates is human

c Socrates is mortal

$p \rightarrow q, p \vdash q$

➤ Modus tollens

a If something is human then it is mortal

b Zeus is not mortal

c Zeus is not human

$p \rightarrow q, \neg q \vdash \neg p$

➤ **Hypothetical syllogism**

a If something is human then it is mortal

b If something is mortal then it dies

c If something is human then it dies

$p \rightarrow q, q \rightarrow r \vdash p \rightarrow r$

➤ **Disjunctive syllogism**

(modus tollendo ponens: affirm by denying)

p Either a human is mortal or a human is immortal

q A human is not immortal

r A human is mortal

$p \oplus q, \neg q \vdash p$

Truth Tables

p	q	$p \rightarrow q$	$p \wedge q$	$p \vee q$	$p \oplus q$	$p \equiv q$	$\neg p$
		if	and	or	XOR	iff	not
T	T	T	T	T	F	T	F
T	F	F	F	T	T	F	F
F	T	T	F	T	T	F	T
F	F	T	F	F	F	T	T

- Words themselves often carry more implications
I did A and B often implies *I did A first*
- There are many ways of saying the operations

Quantification and Negation

- We can restrict the scope of statements with quantifiers
- We can change the polarity of statements using negation
- These interact with each other in interesting ways
- These interact with language in interesting ways
- We use quantifiers for explicit representation of scope ambiguity

(1) *Everyone doesn't love semantics*

a. *It is not the case that all people love semantics:*

$$\neg \forall x (L(x,s))$$

b. *All people have the property of not loving semantics:*

$$\forall x (\neg L(x,s))$$

- Negative Polarity Items

(2) *Few people have eaten dessert yet vs I still have not eaten desert*

(3) *Rarely does Kim ever eat dessert vs Kim often eats dessert*

Connotation

➤ Many words carry more meaning than just identifying their referent.

- (4) a. *Kim is slender*
- b. *Kim is thin*
- c. *Kim is haggard*

➤ Sentiment can be built up.

- (5) *good*
- (6) *very good*
- (7) *less than very good*
- (8) *I have never found it to be less than very good*

Word Meaning Revisited

Defining Meaning

- When we use a word, we don't have to know everything about the referent
 - A *dog-cart* is a kind of CART
 - ⇒ you can ride it
 - ⇒ it has wheels
- We infer that it has many of the same properties as its hypernym, even though this is not always true
 - A *hover-car* is a kind of CAR
 - ⇒ you can ride it
 - ⇏ it has wheels
- Many of the properties may be irrelevant to the story at hand, and irrelevant to the syntax of the language

How do we learn?

You shall know a word by the company it keeps

(Firth, 1957, p11)

➤ You see a new word **in context**

buttoning up his pea-jacket,

? it is a kind of jacket

(*yellow jacket?*)

? with buttons

? it is thick material (they are going to a stake out)

? it has something to do with peas

not true (from the West Frisian word *pijjakker*, in which *pij* referred to the type of cloth used, a coarse kind of twilled blue cloth)

➤ And you deduce information from the context

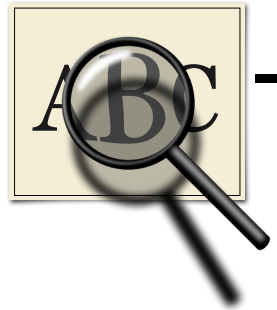
➤ We are getting better at doing this with computers

➤ but people don't just use words

➤ they have eyes and noses and other senses

How else do we learn?

- From word internal cues
 - *Television* “far vision”
 - *iphone* “internet phone” (also individual, instruct, inform, inspire)
 - 鯖 *saba* “mackerel” = 魚 fish; 青 blue
- From the sound
 - *bouba/kiki* ☆ or ♣
 - *banged, beaten, battered, bruised, blistered, bashed*
 - mouth shape for *teeny weeny* vs *large*



- From images:

Magnifying Glass

Words are related in many other ways

- Domains: *ball, racket, net, love, ace*
- Origin: *chew, eat, drink* vs *masticate, consume, imbibe*
 - ? come up with some words with different origins
English or another language!
- Dialect: *ripper, bonza, sickie, no worries*
- Part-of-speech: *die, live* vs *death, life*
- When you learned them!
- and many more



All of these relations affect how you use and understand language.

Constructions and Idioms

Beyond words and phrases

➤ Some uses of language seem to come from beyond just the words

➤ *They laughed the poor guy out of the room.*

➤ *Mary urged Bill into the house.*

➤ **Caused Motion Construction**

CAUSE-MOVE <agent, theme, goal/path> → S V NP PP

➤ compatible verbs can fuse with the construction

➤ **The Xer the Yer**

➤ *the more you think about it, the less you understand*

➤ At one end, phrases can be modeled as very general constructions

➤ At the other end, idioms can be modeled as very specific constructions

Idioms

- Some expressions clearly involve more than one orthographic word
 - compound noun
 - * *grass snake; grass and tree snakes*
 - verb-particle
 - * *I looked it up vs I looked up the very long word*
 - idiom
 - * *going great guns, give the Devil his due*
 - * *jog someone's memory*
 - * *blow one's top*
 - And more
 - San Francisco, ad hoc, by and large, Where Eagles Dare, kick the bucket, part of speech, in step, the Oakland Raiders, trip the light fantastic, telephone box, take a walk , do a number on (someone), take (unfair) advantage (of), pull strings, kindle excitement, fresh air, ...*
- Knowing the individual words is not enough to know the meaning (or usage)

Multiword Expressions (MWE)

There are many different kinds of irregularity.

MWE	Weirdness				
	Lex	Syn	Sem	Prag	Stat
<i>ad hominem</i>	+	?	?	?	+
<i>at first</i>		+			?
<i>first aid</i>			+		?
<i>salt and pepper</i>					+
<i>good morning</i>				+	+
<i>cat's cradle</i>	+		+		?

- Most of the time, we don't even notice
- Unless it is your second language
- In Project 4 you will try to find examples of interesting multi-word expressions from a new story

How common are MWEs?

- They are very common in the lexicon
 - In wordnet, 41% of the entries are multiword (mainly compound nouns)
- But less common in the actual text (SPEC 4.5%: 296/6,641)
24 are new (not in Wordnet 3.0); 55 are named entities
 - *take into one's confidence*
 - *take in*
 - *Sherlock Holmes*
 - *practical joke(r)*
 - *in love*
 - *get the better of*
 - *Panama hat*
 - *as good as one's word*
- It still seems as though we are missing many MWEs

Why are they important?

- If you think you know the individual words, then you might be confused
- *whoever crossed his path* “whoever he met” SPEC
私道を渡ろうとする人 “whoever tried to cross his private road”
- Knowledge of MWEs is one of the things that separates a good speaker from a poor one
- From a linguist’s point of view, they also reveal something about how language is organized in our brains

Metaphors

Metaphors and Mechanisms of Interpretation

A metaphor is an extension of the use of a word beyond its primary meaning to describe referents that bear similarities to the word's primary referent.

➤ **eye** “body part used for vision”

(9) *dull end of a needle (with a hole for the thread)*

(10) *the bud on a potato*

(11) *the centre of a storm*

➤ The similarities between these referents and the primary referent of the word **eye** are their roundish shape and their more or less central location on a larger shape.

Grammaticalization

- Once a metaphor becomes accepted, speakers tend to view the metaphorical meaning as separated from its primary meaning

(12) *booking a flight*

(13) *tabling a motion*

(14) *seeing the point*

(15) *stealing the headlines*

(16) *buying time*

- These are **dead metaphors**: we don't need to specially process them

Metaphors as non-prototypical use

- In a way, metaphors are non-prototypical uses of a word.
 - Humans understand words by referring to a prototypical usage, and they match a new example against the characteristics of the prototype.
 - Use of words with broken typicality conditions happens all the time.

- (17) *The price of brussel sprouts went up.*
- (18) *Marigold is coming out of a coma.*
- (19) *Felix is under age.*
- (20) *I killed his argument.*
- (21) *Their love affair is blossoming.*
- (22) *She has a fertile imagination.*

- However, depending on how you count frozen metaphors, we use metaphors more than literal uses

Metaphors as central to understanding

Our conceptual system is fundamentally metaphorical in nature

George Lakoff

- Cognitive semantics:
There is no separation between cognition and linguistic knowledge
- Features of Metaphor
 - **Conventional**: some metaphors are very well established (but remain metaphorical)
 - **Systematic**: understood as part of larger domains
 - **Asymmetrical**: normally understand the **abstract** in terms of the **concrete**

Metaphors we live by

- Metaphor is pervasive in everyday life, not just in language but in thought and action.
- Our ordinary conceptual system, in terms of which we both think and act, is fundamentally metaphorical in nature.
- If we are right in suggesting that our conceptual system is largely metaphorical, then the way we think, what we experience, and what we do every day is very much a matter of metaphor.

George Lakoff and Mark Johnson 1980 *Metaphors we live by* University of Chicago Press.

Prototypical metaphors

Some metaphors are not as good as others because not all broken typicality conditions result in prototypical metaphors. What is a prototypical metaphor?

- Similarity and dissimilarity have both been stressed.
- Items must not be too similar:

(23) # *Wine is whisky*

(24) # *Cars are trucks*

(25) # *Jam is honey*

➤ They should not be too dissimilar:

(26) *His feet were stars*

(27) *Her cheeks were typewriters*

(28) *Her knees were penguins*

➤ In a prototypical metaphor then, items compared are likely to come from different lexical fields but they are also similar in that they do share some minor characteristic. Dissimilarity signals the listener to do some active semantic matching.

(29) *Life is a subway train*

(30) *Men are thistles*

(31) *He posted the toast down to his stomach*

Target and Source Domains

Metaphors enable us to understand one domain of experience in terms of another.
Lakoff and Turner (1989)

- We map from a **source domain** to a **target domain**
often written: **TARGET** is **SOURCE**

DESIRE is HUNGER

- (32) *He was drooling over her.*
- (33) *He is sex-starved.*
- (34) *She thirsts for recognition.*
- (35) *Her sexual appetite is enormous.*
- (36) *He hungers for her touch.*

- Target domain: SEX (DESIRE, LUST)

- Source domain: FOOD (HUNGER, EATING)

ARGUMENT is WAR

- (37) *Your claims are indefensible.*
- (38) *He attacked every weak point in my argument.*
- (39) *His criticisms were right on target.*
- (40) *I demolished his argument.*
- (41) *I've never won an argument with him.*
- (42) *You disagree? Okay shoot!*
- (43) *If you use that strategy, he'll wipe you out.*
- (44) *He shot down all my arguments.*
- (45) *He was defeated by the argument.*

-
- We don't just talk about argument in terms of war. We can actually win or lose arguments.
 - Many of the things we do in arguing are partially structured by the concept of war. Though there is no physical battle, there is a verbal battle.
 - We see the person we are arguing with as an opponent.
 - We attack their positions and defend our own.
 - We gain and lose ground.
 - We plan and use strategies.
 - The metaphor is not only in the words we use — it is in our very concept of argument. We talk about arguments that way because we conceive of them that way — and we act according to the way we conceive of things
 - But we could think of an argument as a search for truth, ...

Argument: When losing is winning

- Leo Kent (2013) argues that the argument as war metaphor is counterproductive
 - Suppose you and I have an argument. You believe a proposition, P, and I don't. I've objected, I've questioned, I've raised all sorts of counter-considerations, and in every case you've responded to my satisfaction. At the end of the day, I say, 'You know what? I guess you're right.'
 - So I have a new belief. And it's not just any belief, but it's a well-articulated, examined and battle-tested belief.
 - So who won that argument? Well, the war metaphor seems to force us into saying you won, even though I'm the only one who made any cognitive gain.
 - The war metaphor forces us into thinking that you're the winner and I lost, even though I gained and there's something wrong with that picture.

Spatial Metaphors

- **Spatial metaphors** have to do with spatial orientation: *up-down, in-out, front-back, on-off, deep-shallow, central-peripheral*.
- Spatial metaphors give a concept a spatial orientation eg. HAPPY is UP: *I'm feeling up today*
- Though polar oppositions *up-down, in-out* are physical in nature, the spatial metaphors based on them can vary from culture to culture. (e.g. in most cultures FUTURE is FRONT but in at least one FUTURE is BACK)
 - Aymara, who live in the Andes highlands of Bolivia, Peru and Chile, have future behind them

HAPPY is UP

- (46) *I'm feeling up.*
- (47) *That boosted my spirits.*
- (48) *My spirits rose.*
- (49) *You're in high spirits.*
- (50) *Thinking about logic gives me a lift.*
- (51) *I'm feeling down.*
- (52) *I'm depressed.*
- (53) *He is really low these days.*
- (54) *I fell into a depression.*
- (55) *My spirits sank.*

HEALTHY is UP

- (56) *He's at the peak of health.*
- (57) *Lazarus rose from the dead.*
- (58) *He's in top shape.*
- (59) *He fell ill.*
- (60) *He is sinking fast.*
- (61) *He came down with the flu.*
- (62) *His health is declining.*
- (63) *He dropped dead.*

CONTROL is UP

- (64) *I have control over her.*
- (65) *I am on top of the situation.*
- (66) *He's at the height of this power.*
- (67) *He's in high command.*
- (68) *He's in the upper echelon.*
- (69) *His power rose.*
- (70) *He ranks above me in strength.*
- (71) *He is under my control.*
- (72) *He fell from power.*
- (73) *His power is on the decline.*

AWAKE is UP

- (74) *Get up.*
- (75) *Wake up.*
- (76) *I'm up already.*
- (77) *He rises early in the morning.*
- (78) *He fell asleep.*
- (79) *He dropped off to sleep.*
- (80) *He's under hypnosis.*
- (81) *He sank into a coma.*

VIRTUE is UP

- (82) *He is high-minded.*
- (83) *She is upright.*
- (84) *She is a upstanding citizen.*
- (85) *He is underhanded.*
- (86) *I wouldn't stoop to that.*
- (87) *That is beneath me.*
- (88) *That was a low trick.*

MORE is UP

- (89) *The number of books printed keeps going up.*
- (90) *The number of errors he made is incredibly low.*
- (91) *What is the upper bound?*

- Our experience of physical objects and substances provides a further basis for understanding.
- UP is positive
 - if we pile things up, more reach higher
 - healthy people stand upright
 - when we are awake, we stand up
- Understanding our experiences in terms of objects and substances allows us to pick out parts of our experience and treat them as discrete entities.

MENTAL HEALTH is a (FRAGILE) OBJECT

- (92) *Her mental health is very fragile.*
- (93) *We have to handle him with care since his wife's death.*
- (94) *He broke under cross-examination.*
- (95) *She is easily crushed.*
- (96) *The experience shattered him.*
- (97) *I'm going to pieces.*
- (98) *His mind snapped.*
- (99) *He cracked up.*

MIND is a MACHINE

- (100) *We're still trying to grind out the solution to this equation.*
- (101) *My mind just isn't operating today.*
- (102) *Boy, the wheels are turning now!*
- (103) *I'm a little rusty today.*
- (104) *We've been working on this problem all day and now we're running out of steam.*
- (105) *He broke down.*

LIFE is a JOURNEY

- The person leading a life is a traveler
- Their purposes are destinations
- The means for achieving purposes are routes
- Difficulties in life are impediments to travel
- Counsellors are guides
- Progress is the distance traveled
- Things you gauge your progress by are landmarks
- Material resources and talents are provisions.

ANGER

- Emotions are often considered to be feelings alone, and as such they are viewed as being devoid of conceptual content.
- In fact emotions have a fairly complex conceptual structure which can be studied through metaphors.
- Lakoff and Johnson's cultural model of anger
Physiological effects of anger:
 - Increased body heat
 - Increased internal pressure
 - Agitation
 - Interference with accurate perception
 - As anger increases, the physiological effect increases
 - There is a limit beyond which the physiological effects of anger impair normal functioning.
- Body heat:

-
- (106) *Don't get hot under the collar.*
 - (107) *Billy's a hothead.*
 - (108) *They were having a heated argument.*
 - (109) *She got all hot and bothered.*

➤ Internal pressure:

- (110) *When I found out, I almost burst a blood vessel.*
- (111) *He almost had a hemorrhage.*
- (112) *I exploded at them.*

➤ Redness in the face and neck area:

(113) *She was scarlet with rage.*

(114) *He got red with anger.*

(115) *He was flushed with anger.*

➤ Agitation

(116) *She was shaking with anger.*

(117) *I was hopping mad.*

(118) *He was quivering with rage.*

(119) *He's all worked up.*

(120) *She's all wrought up.*

➤ Interference with accurate perception

(121) *She was blind with rage.*

(122) *I was beginning to see red.*

(123) *I was so mad I couldn't see straight.*

ANGER is HEAT

- ANGER is HEAT forms the basis of the most general metaphor for anger
- There are two versions to this metaphor, one where the heat is applied to fluid and the other where the heat is applied to solids.
- The fluid version is more elaborated
- The body is a container for the emotions
 - (124) *He was filled with anger.*
 - (125) *She couldn't contain her joy.*
 - (126) *She was brimming with rage.*
 - (127) *Try to get the anger out of your system.*
- The ANGER is HEAT metaphor when applied to fluids combines with the metaphor the body is a container for the emotions to yield the central metaphor of the system:

➤ ANGER is HEAT OF A FLUID in a container.

(128) *You make my blood boil.*

(129) *Simmer down!*

(130) *I had reached the boiling point.*

(131) *Let him stew.*

(132) *She was seething with rage.*

➤ Similarly ***pissed off*** is used only to refer to anger — “hot liquid under pressure”

➤ Cool and calm corresponds to the lack of anger.

(133) *Keep cool.*

(134) *Stay calm.*

➤ When The Intensity Of Anger Increases The Fluid Rises

(135) *His pent-up anger welled up inside him.*

-
- (136) *She could feel her gorge rising.*
- (137) *We got a rise out of him.*
- (138) *My anger kept building up inside me.*
- (139) *Pretty soon I was in a towering rage.*

➤ We also know that intense heat produces steam and creates pressure on the container. This yields the metaphorical entailments:

➤ Intense Anger Produces Pressure On The Container

(140) *He was bursting with anger.*

(141) *I could barely contain my rage.*

(142) *I could barely keep it in any more.*

(143) *He suppressed his anger.*

(144) *He turned his anger inward.*

(145) *He managed to keep his anger bottled up inside him.*

(146) *He was blue in the face.*

➤ When the pressure on the container becomes too high, the container explodes.

➤ When Anger Becomes Too Intense The Person Explodes

(147) *When I told him, he just exploded.*

(148) *She blew up at me.*

(149) *We don't like your outbursts.*

(150) *She blew a fuse.*

(151) *He blew a gasket.*

(152) *He erupted.*

➤ When A Person Explodes, Parts Of Them Go Up In The Air.

(153) *I blew my stack.*

(154) *I blew my top.*

(155) *She flipped her lid.*

(156) *He hit the ceiling.*

(157) *I went through the roof.*

-
- The central metaphor of Anger as heated fluid in a container indicate that the anger scale is not open-ended, it has a limit. Just as hot fluid in a closed container can only take so much heat before it explodes, so we conceptualise the anger scale as having a limit point. We can only bear so much anger before we explode.
 - The conceptual metaphors are motivated by our own physiology.
 - There may be cross-cultural differences
 - And there are many possible metaphors
 - ANGER is FIRE
 - ANGER is INSANITY
 - ANGER is an OPPONENT
 - ANGER is a DANGEROUS ANIMAL

Influence of Metaphors

- Verbs of perception
 - seeing → understanding
 - hearing → obeying
 - tasting → choosing
 - feeling → emoting
 - smelling → disliking

? Can you give an example in English or another language?

- Literal meanings extend into metaphorical meanings
- These become conventionalized
- And then we have polysemy



Metonymy as Metaphor

- PART for WHOLE (synecdoche)

(158) *Can you lend a hand?*

- WHOLE for PART (synecdoche)

(159) *NTU won the soccer.*

- CONTAINER for CONTENT

(160) *The lunch menu had five dishes.*

- MATERIAL for OBJECT

(161) *I won gold.*

- PRODUCER for PRODUCT

(162) *I'll get an IBM*

➤ PLACE for INSTITUTION (toponym)

(163) *Downing Street has made no comment*

➤ INSTITUTION for PEOPLE RESPONSIBLE

(164) *Fairprice raised its prices.*

➤ PLACE for EVENT

(165) *Hiroshima changed our view of war.*

➤ CONTROLLER for CONTROLLED

(166) *A truck rear ended me.*

➤ OBJECT for USER

(167) *They are a hired gun.*

Everything's a metaphor

- Embodied Construction Grammar
 - **embodied** ECG structures parameterize active simulations based on motor and perceptual schemas
 - **construction-based** the basic linguistic unit is a construction, or form-meaning pairing
 - **constraint-based** constraints of all kinds (phonological, syntactic, semantic, etc.) are expressed using a unification-based grammar;
 - **formal(ized)** both formally defined and computationally implemented.
- We understand *grasp* because we can physically control our bodies to grasp things.
- We grasp *understand* because it is like *grasp* but with ideas not things.

Metaphor and Politics

- **Lakoff (1995)** states that different political groups base their understanding of the world on different metaphors
 - **nurturant parent** (liberal) family is one that revolves around every family member caring for and being cared for by every other family member, with open communication between all parties, and with each family member pursuing their own vision of happiness.
 - **strict father** (conservative) family revolves around the idea that parents teach their children how to be self-reliant and self-disciplined through "tough love".

Nurturant Parent

- **Morality:** The basis of morality is in understanding, respecting, and helping other people, and in seeking the happiness of one's self and of others. The primary vices are selfishness and anti-social behavior.
- **Child development:** Children develop morality primarily through interacting with and observing good people, especially good parents. Punishment is necessary in some cases, but also has the potential to backfire, causing children to adopt more violent or more anti-social ways. Though children should, in general, obey their parents, they will develop best if allowed to question their parents' decisions. Moral development is a life-long process, and almost no one is so perfect as not to need improvement.
- **Justice:** The world is not without justice, but it is far from the ideal of justice. Many people, for example, do not seem properly rewarded for their hard work and dedication. We must work hard to improve everyone's condition.

Strict Father

- **Morality:** Evil is all around us, constantly tempting us. Thus, the basis of morality is strong moral character, which requires self-reliance and self-discipline. The primary vices are those that dissolve self-discipline, such as laziness, gluttony, and indulgent sexuality.
- **Child development:** Children develop self-discipline, self-reliance, and other virtues primarily through rewards and punishment, a system of "tough love". Since parents know the difference between right and wrong and children still do not, obedience to the parents is very important. Moral development basically lasts only as long as childhood; it's important to get it right the first time, because there is no "second chance".
- **Justice:** The world may be a difficult place to live, but it is basically just; people usually get what they deserve. The difficulties in one's life serve as a test to sort the deserving from the undeserving.

Metaphors in Sherlock Holmes

- (168) *"Oh, sir, do you not think that you could help me, too, and and at least throw a little light through the dense darkness which surrounds me"*
- (169) *"You may advise me how to walk amid the dangers which encompass me."*
- (170) *" 'Tell me, Helen,' said she, 'have you ever heard anyone whistle in the dead of the night?'"*
- (171) *"my sister was quite alone when she met her end"*
- (172) *"My companion sat in the front of the trap, his arms folded, his hat pulled down over his eyes, and his chin sunk upon his breast, buried in the deepest thought"*
- (173) *"As we passed out he exchanged a few words with the landlord, explaining that we were going on a late visit to an acquaintance, and that it was possible that we might spend the night there."*
- (174) *"The presence of the gypsies, and the use of the word 'band,' which was used by the poor girl, no doubt to explain the appearance which she had caught a hurried glimpse of by the light of her match, were sufficient to put me upon an entirely wrong scent."*

Truly Unique Things

- the music of Beethoven
- the intuition of a woman
- the obstinacy of an ass
- the crowing of a cock
- the song of a tit
- the waywardness of the wind

Alas Smith and Jones (1986)

Mistakenly attributed to Oscar Wilde (1854 – 1900), who actually said:

“Intuition: the strange instinct that tells a woman she is right, whether she is or not.”



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