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Program Information:

Title: Steven Pinker: Games People Play
Location: London, UK, Institute of Philosophy
Date: Oct 15 2007

Good evening ladies and gentlemen, thank you for coming tonight the Chandaria lecture of the Institute of Philosophy. The University of London's Institute of Philosophy was founded in 2005 as a direct consequence of generous donation from Dr. Shamil Chandaria. The institute's mission is to promote and support philosophy at the highest quality in all its forms both inside and outside of the University. The institute's mission differs than both from that of research centers which specialize in particular areas of the subject and also from those organizations whose aim is solid to convey academic ideas to a general public. Nonetheless the institute does aim to promote philosophy outside the university and its events are open to everyone. The institute understands philosophy very broadly and it came to explore the links between philosophy and other related disciplines such as political science, public policy research, physics, psychology, linguistics neural science and so on.

In giving his support to the institute Shamil Chandaria has emphasized the importance both of philosophies obligation to communicate with the world outside the universities and its need to enter into a dialogue with other intellectual disciplines. A dialogue of course goes both ways, philosophers have to listen to others, just as others should listen to them. Given this background it's hard to imagine a more appropriate person to give this year's chandaria lectures, Steven pinker who is the Johnston Family Professor of Psychology at Harvard University.

In addition to his more technical work and science of language, the series of books he has produced since the language instinct in 1994 have dealt with questions and voice has been at the heart of philosophical as well as the psychological and linguistic investigations, and broadly speaking the nature of minded language. His most recent book was "Stuff of Thought" brings both these issues together in giving an account of what language tells us about the way we think. The book is as Professor Pinker says the intersection of two series of books from series of book about the mind, the blank slate and how the mind works, and the two books on language, The Language Instinct to Words and Rules

I wo'nt to begin to list, the amazing prizes that professor Pinker's books have won, nor his other academic distinctions, not because I want to embarrass him, but because you came came here tonight to hear him not me. So I will stop talking, except to say that we are delighted to welcome Steven Pinker the University of London to give 2007 chandaria lecture on Games People Play: Indirect Speech as a Window into Social Relationships. Thank you very much, and I would like to especially thank Shamil Chandaria for making this lecture possible. I am going to present some of the material in my new book the "Stuff of Thought: The Languages of Window into Human Nature". And I will begin with these woodcut of the story of the blind men and the elephant as a way of reminding us that any complex subject can be approached in multiple ways and that's certainly true for a subject as complex as human nature, anthropology can eliminate human nature by

documenting human universals, ways that people think and feel and behave in similar ways across the world cultures as well as ways in which cultures vary. Biology can document how the process of evolution selects the genes that help to wire the brain. Psychology can get people to disclose their flowables in laboratory studies, and even fiction can eliminate human nature by showing the recurring themes and thoughts that fascinate people in the world myths and stories.

In the book I tried to give the view from language. What kind of insight which you get to human psychology from words and how we use them. For example I use verbs as a window into concepts of causality and responsibility. Propositions as a window into human concepts of space, tends as a window into concepts of time, naming things and naming babies as a window into our social networks, and swearing as a window into emotion. But this evening I am going to take one of these topics and devote the rest of the lecture to it mainly indirect speech as a window into social relationships, taking advantage of the fact that these is an academic lecture in an Institute for Philosophy to use language to explore a topic that's has been of interest to philosophers and to linguists and psychologists for at least 50 years.

So here is the phenomenon its best illustrated by an episode from the film 'Fargo' which many of you I think have seen. A kidnapper has a hostage in the back seat of a car and inconveniently he is pulled over by a police officer because the car is missing its plates. He is asked to show his driver's license, he proffers his wallet with the license exposed and a $50 bill extending ever so slightly. And he says to the officer, I was thinking that may be the best thing to be take care of it here in Brainerd, which of course the audience and presumably the officer recognized to be a veiled bribe. This is an example of an indirect speech act and instance in which people don't blurred out what they mean in so many words, but veil their intentions in innuendo, count on the listener to read between the lines to figure out what they have in mind, and we do this all the time. Here are some other examples of indirect speech acts.

If you could pass the guacamole that would be awesome. Now, when you think about it that statement doesn't make a whole lot of sense, but we effortlessly interpret it as a polite request. We are counting then you to show leadership in our campaign for the future. Anyone who has sat through a fund raising dinner has a university of nonprofit its familiar with euphemistic snoring of that sort. Would you like to come up and see my etchings that have been recognized as a veiled sexual command for so long that in the 1930s James Spielberg could draw cartoons where man says to his date you wait here and I will bring the etchings down?

And there is a nice store I got there, it would be a real shame if something happened to it which of course is a veiled threat. So the general problem is why we are such hypocrites in conversation, direct speech you would think it should be more efficient and be theoretically optimal, but we still insist on various forms of indirectness and euphemism innuendo, taboo, double speech, verbal figleaves whatever you want to call them. And in fact this is been long been a plot device in fiction, we are mistaken identity plots can often reveal the way in which what we said to one person doesn't necessarily reflect our underlying intentions. And my favorite example of that comes from the movie 'Tootsie' where Dustin Hoffman plays an unemployed actor who improbably wins a role as a major soap opera actress in drag fooling everyone including his fellow actors, including the

beautiful actress Jessica Lange. And you know late night section of girl talk Julie says to Dorothy namely Michael in Drag you know I wish that a guy could be honest enough just to walk right up to me and say listen you know, I am confused about this too. I could lay a big line on you doing lot of role playing, but the simple truth is I find you very interesting and I really like to make love with you, simple as that. Would that be a relief?
Well in a plot twist worthy of a twelfth night, the undisguised Michael later meets Julie at a cocktail party, she doesn't recognize him, and so he approaches her on a balcony and says to her "hi Mike Dorsey, great view you know, I could lay a big line on you and we could do a lot of role playing but the simple truth is that I find you very interesting and I really like to make love with you", it's a sin and before he can say its simple as that she has thrown a glass of wine in his face. So we gets punished for speaking directly even though at the same time as we professed along for plain speech for people to get to the point and say what they mean simple as that. So why are the bribes, requests, seductions and solicitations and threats, so often veiled when both parties know what they mean?
Well there this topic has been studied for many decades in linguistics and philosophy.
But I think there has been limitation of many other traditional analytics, Grace HP
Grace of course broke this field open with his cooperative principle, the idea that speakers and hearers cooperate in order to move the conversation along. Penelope Brown and Stephen Levinson in their Seminal Politeness Theory suggested that speakers and hearers cooperate, not just to advance the exchange of information in the conversation but in a cooperative effort to maintain each others face, a concept of dignity or pride that comes from the idiom to save face. And Herbert Clark in his book using language captures the idea of language as a joint or co-operative activity. Language use, he says as really a form of joint action a joint action is one that is carried out by an a sample of people acting in coordination with each other, a simple examples think of two people waltzing, paddling to [0:10:26] ____ playing a piano duet or making love.
Now I think that is the the problem with theories that invoke theoretical operation, is that cooperative agents should use maximally efficient speech not indirectness and euphemism, and on the contrary a fundamental inside of evolutionary psychology, probably due to more than any one to Robert Trivets is that all social relationships involve mixtures of co-operation and conflict and indeed the the fact that relationships involve the mixture of the two and the ratio between them affects this style of communication is that some thing that we are led to conclude from studies of communication in the animal kingdom, if you have pure cooperation, you expect a maximally efficient conspire or whisper why waist breath? Why we make noise and possibly and tracked unwanted unwanted parties?
On the contrary when you have pure conflict, you get a shouting match as we see human arguments, where you have an escalation to try to force the other party to attend your words and with elements of co-operation and conflict that's were you expect the coded and complex communique that characterize human conversation as we see in these these interact ness. Did we also see a hint of this in the practical applications of indirect speech, the reason is that in direct speech are not just a topic from the linguistic philosophers and psychologists, but often make the headlines for example in the crafting and interpretation of the language of diplomacy were great premium is placed on indirectness and in a prosecution of extortion of bribery of sexual and sexual harassment

notice that all of these practical applications of indirect speech are in arenas of conflict. Perhaps a salient example in America in the last couple of weeks is the memorandum published by Supreme Court justice Clarence Thomas recalling his his infinite confirmation hearing in 1991, in which the US senate has represented had to pass the meaning of who put pubic hair on my coke. Whether this was a case of sexual harassment of his supervisee Anita Hill has a veil sexual comment or an innocent observation, and many court cases in these crimes involve just that analysis.
Now I should say a few words about Relevance Theory, Dan Sperber and Deirdre Wilson are here in the audience and this is a the third seminal analysis of indirect speech, which interestingly doesn't that seem cooperation, Sperber and Wilson assure the need for a principle of cooperation. Although I think most of what is in that theory is I think a good leading to the phenomena that all discuss today because the theory at least its in its initial presentation differed consideration of the nature of the social relationship between the speaker and hearer and as they said and follow a paper, verbal communication typically conveys much more than as linguistically encoded, not just the enrichment of linguistic meaning but also uses of the active communication itself to convey claims and attitudes about the social relationship between the interlocutors. In relevance we largely ignore these, that's an excellent on tray into the topic of this evenings lecture where as you as we will see I will put social relationships as they manifested language under a microscope.
So a brief overview, I think the puzzle of why we result to indirect speech needs at least three different ideas it's surprisingly I found surprisingly complex and settle problem.
The first is the logic of possible deniability, the second is the conflicting demands on language to convey propositions and to maintain social relationships and the third is the perception of language as a digital medium, and I will no explain what I mean by each of those. So part one plausible deniability, it is the starting point is what game theorists call the identification problem, an idea that goes back to the Nobel Prize winning economist Thomas Schelling. Namely how do you deal with another intelligent agent when you don't know the agents values, or in another way putting it as how do you figure out the rational course of action, when the out come depends on another intelligent agent and bribing a police officer is a paradigm case. You are pulled over by police officer and let's say you don't have a hostage in the back seat, you just don't want to get a ticket.
Imagine that you have only two alternatives were to offer a naked bribe in so many words or to remain silent not to bribe at all. What is the, which is better in terms of the potential costs and benefits. Well, the answer is, it depends it depends on what kind of officer you are facing. If you are facing a dishonest officer who would accept the bribe, of course you get these very high payoffs of going free without a ticket. On the other hand if you have an honest officer, he might not only rebuff the bribe could arrest you for the crime of attempting to bribe an officer. See you have the very high cost of an arrest for bribery. If you compare the high payoff and high cost for the bribe option when you don t know what kind of office you are facing with the minor cost of a traffic ticket which would get in either case if you remain silent. It is not clear which of the two alternatives is more advantageous. But now let's say you had a third option, a veiled bribe as in, so I was thinking that maybe the best thing would be to take here of it here. A dishonest officer could sniff out the bribe yeah, behind the innuendo accept it and you have the high payoff of going free. An honest officer couldn't make a bribery charge stick in court by the

standard of proof beyond the reasonable doubt because of the vague wording of the new innuendo and so the worst that he could give you is a traffic ticket. So veil bribe gives you the very high payoff bribing a dishonest officer and the very small cost failing to bribe an honest officer combined in a single option and so the failed bribe is little the rational choice. Oops! I have two copies of that, now my colleague at Harvard, the mathematical biologist Martin Novak has tried to formalize this intuition in a simple mathematical model from evolutionary game theory which we call the bribery game? And the expected cost of direct and indirect bribes can actually be calculated from the proportion of corrupt versus honest cops, the cost of the ticket, the cost of the bribe which has to be less than the cost of the ticket or else it would, I never pay to bribe the officer. The cost of an arrest for bribery which has to be greater than the cost of a ticket otherwise he would always pay to bribe an officer and the probability that a cop will treat a statement as an attempted bribe which depends on the linguistic theory above of directness. That is how much of is it veiled in innuendo versus it blow it out explicity. Now, in indirect bribe is the optimal strategy if and only if the threshold to explicitness required for an honest cop to address, arrest a driver is greater than the threshold of explicitness required for a corrupt cop to accept a bribe. Let me show that graphically. Imagine that this is the linguistic theory above of what it not bribing at all. Then increasingly unsubtle bribes such as nice day officer, I know that I have made a mistake and I know that I will have to pay for it. I wonder if there is someway to take care of it here, could I make a contribution to the policemen's benevolent fund all the way up to if you I give you 50 dollars, will you let me go without a ticket. So that is what this variable is. This is the overall expected, anticipated cost on average given that you don't know what kind of office that you are going to face. Now, the cost will depend then on whether you have an honest or corrupt cop, according to the following function the, if you imagine now that there is simply a linear tendency for a cop to interpret a bribe as a function of its directness, the more explicit a bribe, the more likely and honest cop is to arrest you and so the higher the cost. If you have a corrupt cop of course the more explicit the bribe, the more likely he is to take it and as suppose to it flying over his head and not even realizing that it is a bribe and so the cost goes down with the explicitness of the bribe. Now, in this case were the two functions are linear, the optimal course of action is either to remain silent or to give the most explicit bribe possible and there is no selection for indirectness at all. The reason is that the functions are linear with directness and the which of those two is open able depends only on the proportion of honest, dishonest cops in the population of cops. The overall function if you aggregate the cost for an honest cop or corrupt cop is basically a weight of some these two lines. If there are more honest cops then the slope will increase and the minimum will be at not offering a bribe at all. If there are more corrupt cops then you get another linear function but one that decreases were the lowest cost will be the most explicit bribe possible. In no case will it an intervene value of a veiled or bribe can take by new window be advantageous. So to explain why we do resort to new window you have to assume not unreasonably that the honest and dishonest cops have not first of all non-linear functions they can be sigmoid or for simplicity I have expressed them here as step functions and the crucial theory above is that the amount of directness that a dishonest cop needs to snip out the bribe has to less than what a honest cops needs to make a bribery, trying to stick in court and that of course is quite

reasonably given that there is some, there is a burden of proof on the prosecution, they are cause to a false arrest, there is a high standard in a criminal prosecution.
All of these make it pretty reasonable to assume that the thresholds for the two kinds of cops were different. Given that assumption that's all you need, you can then so in the case of let me just spell it out, for the honest cop, if the bribe is surpasses a threshold of directness, the honest cop will arrest the driver for bribery so the blue function is the decision function for the honest cop. The corrupt cop as I mentioned will sniff out the bribe even if it is just hinted at, so he has a lower threshold on the explicitness scale. In this region here above the threshold for a corrupt cop and below the threshold for an honest, if you to aggregate these functions it would show a minimum over this region and therefore indirect speech would be the optimal solution that is a value of directness in between not offering a bribe at all and offering a naked bribe in so many words. So in other wards, different payoffs with different heroes and different there holds for those heroes is what we mean by the logic of plausible deniability and note by the way the role of conflict in this analysis, I think it is a clear illustration of how you cant understand indirect speech in say Herbert Clarks times and like two people paddling to [0:22:52] ____ or making love or waltzing, the element of conflict for example is that indirect speech is being used not to help an honest officer to attain his goal but rather to confound that goal, in other words to frustrate an honest cop while being to able to exploit the willingness of a dishonest one.
Okay, so that that part I think is relatively clear cut and straight forward. Part two arises because of the following question, why do people use indirect speech, not just when they are facing possibility of traffic tickets and an arrested bribery which are tangible causes but also in non legal situations were there are no obvious, financial or legal payoffs and penalties in everyday life as I mentioned we use this kind of indirect speech all the time. So an example would be if you offered a bribe in everyday life, now you might immediately recall and say when would a honest law-biting, upstanding citizen such as myself ever been in a situation were we would be tempted to offer a bribe. Oh! How is this, you want to go to the hottest restaurant in town. You have no reservation; why not slip the maitre'd a 20 pound note in exchange for being seated immediately.
Well, this was the assignment given to a restaurant reviewer, Bruce Feiler by his editor at Gourmet magazine who dared him to try it and write up his experience for the magazine and I found his article. One of the most insightful sources of evidence about indirect speech that I have seen in academic and non-academic literatures, first interest in finding is that he was overcome with anxiety, as I imagine you can, as you can imagine if you put yourself in his shoes. So even though as far as I know no one has ever gone to jail for the crime of attempting to bribe the maitre'd, none or less here is the way he begins his article.
I am nervous, truly nervous. As the taxi bounces with the trendy of neighborhoods of Manhattan, I keep imagining the possible retorts of some incensed maitre'd. What kind of establishment do you think this is? How dare you insult me? Do you think you can get in with that?
The second interesting finding is that when he did screw up the current to offer the bribe he instinctively did it in indirect speech act by innuendo. He said things like hope he can fit us in? Can you speed up my weight? I was wondering if you might have a cancellation and then the third interesting finding was the out come which is that it worked every time. Something to keep in mind if you want to go to a particular restaurant on Saturday night

with out a reservation as he put at you are seated in between two and four minutes to be astonishment of my date. So here is the theory that language has to do two things has to convey the content of your proposition the bride the command the come on and so on, the same time it has to negotiate and maintain the type of relationship you have with the listener, and the solution is to use language at two levels the literal form signals the safest relationship to the listener. The implicature as linguistics call it the reading between the lines involves the speaker counting on the listener to entertain a to to inform the underlined intent at entertain the proposition that might be incompatible with that relationship, so politeness is a simple case what's going on with if could pass the guacamole that would be awesome. Its on one hand irrelevant while you plundering possible words there at the dinner table and its also an over statement it would literally be inspiring up all to have the [0:26:42] ____ sitting in front of your. But the four reasons already spell that by Graz and Sperber and Wilson, it is easy to show how the listener can make the following implicature the speaker saying that an outcome of event of an action by me is good there fore he must be requesting it.

The overall effect is that the indented content of an imperative guess through but crucially with out the presumption of dominance that is without the opposition that the requestor can expect the listeners compliance as if the listener was some kind of flunky or underling. So what are the other kinds of relationships that people negotiate when they are careful in choosing their words? Dominance is one of three major types of human relationships that according to the anthropologists Alan Fiske characterize social life in all cultures. Each prescribes a distinct way of distributing resources, each has a distinct evolutionary basis and each applies most nationally to certain people that can be extended through negotiation and manipulation to others. Well I have already mentioned dominance, whose logic is don't mess with me and which presumably we inherited from the dominance hierarchies that a wide spread among primates and indeed mammals. There is very different relationship that Fiske's communality, whose logic is what mine is thine what's thine is mine or share and share like.

And this naturally arises from the mechanism of kin selection and mutualism and hence is most naturally applied among biological kin between spouses and among close friends. And then there is reciprocity whose logic is "you scratch my back I will scratch yours" which evolved by the mechanism of a reciprocal altruism spelled out by Robert Trivets, and which characterizes the - what business like tit for tat exchanges of favors in goods and services among cooperators. Now crucially behavior that is acceptable in one relationship type can be highly enormous in the context of another for example you might go over the cocktail party go over to your girlfriend and help your self to a shrimp of her plate that wouldn't go up to your boss that help your self to shrimp off his plate, because what you can get away with in a communal relationship namely just taking and giving with out keeping track you cant get away with in a dominance relationship. If at the end of the dinner party on the way out you pulled out your wallet and offer to pay your host for the meal, that wouldn't be seen as fair that would be seen as cress because the whole point of a communal gathering like a dinner party is that one shares with out counting. So those are cases where everyone knows what you should and shouldn't do but in cases where its not so clear when the relationships are ambiguous a diversion to understanding can be emotionally costly its experience does an unpleasant state that we call

awkwardness. For example that can be awkward moments in a work place where when an employee isn't sure whether we can address his boss on a first name basis or ask him out after work for a for a drink where we see the clash between dominance and the communal relationship of friendship. It's well known that close friends shouldn't engage in a business transaction like one of then selling this car to the other that the very process of negotiating the deal can put a strain on the friendship. The conflict between dominance and sex it finds the battle ground for sexual harassment as when a supervisor solicit sex from an employee, and even they clash between friendship or sex to not so compatible relationships gives dating it is free zone and anxiety and supplies the raw material for the writers of romantic comedies. So what this gives us is a social identification problem where the social cost of awkwardness from mismatch relationship type can duplicate pay off matrix of a legal identification problem and bribing and matride is a good example where the potential clash is between the dominance or authority relationship that a maitre'd ordinarily wheels over his restaurant system where he seeks people where and when he wants, and the reciprocity relationship that is hard of a bribe and which he be obligated to seat someone in return for accepting the bribe.
So again lets imagine that there were only two options on the part of the dinner to offer a naked bribe and so many words or to remain silent what is the optimal course of action well very much depends on whether he has a corrupt maitre'd who would give him a quick quick table behind pay off, and because the maitre'd would have consummated the reciprocity relationship there is no social tension oh on the other you hand you have a scruples maitre'd who would say what kind of an establishment do you think this is how dare you insult me do you think you can get in with that where the clash between the dominance that he continues to yield on the reciprocity that you suggested by your bribe leads to that negative emotion of awkwardness, and so if you consider compare the high pay off of bribing a corrupt maitre'd with the high awkwardness bribe in the maitre'd that is the high pay off and the high cost compared to the moderate cost of not bribing it all where you accept the dominance relationship of the scruples maitre'd it is not clear which is the more advantageous option. If you can value a bribe it is an ambiguous bribe such as I wondering if you might have a cancellation then the corrupt maitre'd could sniff out the bribe concentrate the reciprocity relationship you get the high pay off of a quick table the this scruples maitre'd could choose to ignore at you could both respect the dominance relationship the worse than you have as a long weight you get the high pay off of a corrupt maitre'd with a small cost of failing to bribe a scruples one and so the ambiguous bribe is the optimal choice.
Okay that is two thirds of the theory there is one remaining problem which is why do people resort indirect speech even when uncertainty is low or absent for example when there is no identification problem because all listeners have the same values I have just told you that all maitre'ds are bribable at least so as the the least in New York were Bruce Feiler wrote that article. None or less I suspected if you still want to bribe a maitre'd you probably wouldn't do it in so many words, you would still viel the bribery a new window even knowing that it would be accepted. The analysis so far doesn't explain why that should be so, likewise if the new window so obvious that both parties know its intent exactly, that doesn't even have to be that obvious any socially astute person would not be fooled by lines do you want to come up and see my etchings or I was wondering if

you might have a cancellation or do you think you can handle the traffic ticket here and so on given that there is really isn't any genuine answer indeed on the part of the listener why do we go through the charade.
So the deniability is not really possible in a long run but why should a transparent innuendo still fell less awkward than an overdrew that is on the record, and this could be illustrated with a scene from the romantic comedy "When Harry Mets Sally" where early in the movie the couple, the eponymous who have just met they are confined to a long car trip together and Harry makes a comment that Sally interprets as a sexual over joke, she says you are coming on to me and he says he replies what do you want me to do about it, I take it back okay, I take it back. She replies you cant take it back, why not, because it is already out there, and he says oh Jesus what w are supposed to do call the cops it is already out there. Well indeed what is the status of a overture that we feel to be out there or on the record or one said can be unsaid that makes us so much worse that veiled overture this implicated indirectly.
Well I think teacher to understanding this I like to suggest it is the perception of language as a as a digital medium. That even though through the very existence of the phenomenon of indirectness belies the suggestion that language is simply a code for transmission information from speaker to hearer and this code is also a major theme of relevance theory. None the less as a folk theory of language or as a set of assumptions about how language works, people act as if it were a digital medium. The first corollary is that over propositions are perceived to be certain as supposed to just merely likely. The second corollary is that over propositions are perceived as lossless that they can be copied without degradation of information, just as you can copy an Mp3 or a JPEG in indefinite number of times and the last copy is as, has as much of fidelity to the original, as the first copy and the third corollary is that over propositions are perceived as recursive namely you can embed one inside another and I am now going to explain each of these corollaries in turn. So the first corollary of language being the visual medium is the idea that certainty can be a focal point.
Once again this is a game theoretic concept from Tommy Shelling that applies to coordination games, situations in which two agents will both be better of if they make the same choice then if they make a descriptive choice but it doesn't matter what that choice is as long as it's the same. The paradigm case is, to say a husband and wife get separated in a department store and each one and they want to find themselves. They don't have cell phones. Each has to anticipate not only were the other one would go to be found, to be are-united but indeed each one has to anticipate where the other one would anticipate that the first would anticipate that the second one would anticipate but the first would anticipate out in infinitum Now the solutions to that problem is that both parties should pick a location that is simply salient to both of them. For example, the information desk and a department store also had a salient clock or any other landmark that is known to be a major location in the department store. Note that this would be optimal even if it involved a much longer track for the two of them, then some intermediate points of the husband was on the eighth floor and the wife was on the seventh floor. They would still be better off both going to the ground floor to the information desk simply because each can anticipate that that's the point of the other one would guess because of its salience. Another example, very parallel two paratroopers are dropped into an enemy territory

without maps and they have to wander I am sorry with maps but without any way of communicating. Where would they where should - will they meet? Well, the optimal choice is to find each one of them get having to anticipate were the other one will anticipate, he anticipates etc should simply pick some salient topographical landmark, say the intersection of two rivers or the only tree in a barren landscape or the only rock in a farm-less desert. Simply because he can anticipate that it would be salient to the other party and again that would be true even if it was a long track to that landmark compared to meeting at some point in the middle, the fact that it is salient comments it as the optimal choice because of its salience. This is can that's and this is what Shelling calls a focal point. Now, this could also be true for salient symbolic landmarks. So why for example in a negotiation were both parties would be better of coming to some agreement between the lowest price that the seller would accept and the highest price that a buyer would offer. Why these negotiations often involves says splitting the difference or settling on a round number. Now there isn't anything optimal intrinsically about dividing, bargaining positions into or settling on a round number other than it that it's salient enough to both of them that each of them could accept it as something that might be acceptable to the other party. As Shelling puts it the car sales men who works out the arithmetic for his rock bottom price on the automobile, at twenty five thousand and seven dollars and sixty three cents, is fairly pleading to be relieved of seven dollars and sixty three cents. Another commonsense way of putting it is that focal points allow us to avoid slippery slopes or gray areas. So here is the hypothesis that an ambiguous socio-relationships people treat certainty as a focal point for switching relationship types that over propositions are perceived as certain whereas indirect speech is perceived as less than certain. Even 99 percent certain is given the benefit of the doubt and again this is because there is a coordination problem. Imagine a couple, out on a date were the let's say the women has to decide when the man is making a sexual overture that requires are to either accept it or rebuff it on pain of giving him the wrong impression of the nature of their relationship. Well, how close you have to sit how secluded is the area that he suggest staying a visit, how lavishly does he compliment her before she decides knowing that he will accept the decision that it's a sexual overture as supposed to innocent observation. Well quoting to this hypothesis certainty is that is - I am sorry, overt ness is a - perceived as a 100 percent certain, if the man says would you like to have sex, that leaves nothing to the imagination and that anything short of that even 99 percent is something that were she gets in the benefit of the doubt that doesn't feel like she has to over rebuff the proposition. Okay, so the another way of stating this hypothesis is the deniable doesn't have to be plausible. It just has to be possible. Okay, second variant of this hypothesis appeals to the concept of a virtual audience and this goes back to the great sociologist Irwin Goffman who argues that people always behave as if they are playing to an audience even when they are only two of them present, even for that matter when there is a single person alone. That and in this context, indirect speech can only be interpreted in context you use, your full common sense database of human behavior and your knowledge of the particulars, the lead-up to the speech act, the body language, the tone of voice, due diligence that you have done through gossip of what other people say about the that party. Whereas over propositions in contrast to any windows or indirect speech are perceived as context-free namely their intent could be interpreted by eavesdroppers and is

lossless namely the intent can be transmitted perfectly to gossipers.
Now again it is not, this is not the claim that over proposition literally is interpretable free of contacts nor than it is lossless in a chain of gossip, only that it is perceived as such. So according to this hypothesis that is deniability is plausible to the virtual audience and we also consult a virtual audience to ratify our choice of what relationship we have with the person. And the third corollary of languages in digital medium, the third hypothesis is to how it would explain why we use indirect speech in low uncertainty situations, invokes the concept that economists and legations call mutual knowledge sometimes common knowledge or common ground and I has to be distinguished from shared knowledge. In shared knowledge or an individual knowledge 'A' knows 'X' and 'B' knows 'X'. In mutual knowledge 'A' knows 'X', 'B' knows 'X', 'A' knows that 'B' knows 'X', 'B' knows that 'A' knows 'X' 'A' knows that 'B' knows that 'A' knows 'X' and infinitum.
Now, this might seem to be the implausible hypothesis for a finite human mind which metoriously has a difficulty with, he thinks that she thinks that he thinks that she thinks recursively embedded propositions. But this embedding doesn't have to be explicitly represented as set of nested propositions, it can implicit in a recursive formulae. In particular 'X' is mutual knowledge if people share the proposition 'Y' and what the proposition 'Y' is everyone knows 'X' and everyone knows 'Y'. That captures the concept of mutual knowledge and it can reveal out any necessary depth of embedding. Moreover, mutual knowledge can be ascertain perceptually from the circumstances in which 'X' is transmitted, if someone blurts out, sentence with an earshot of an audience, one can infer that that proposition is mutual knowledge without having to explicitly think he knows that he knows that he knows that he knows that he knows that he knows that 'X'. So this turns out to be a consequential difference. and logistic is point to a number of important distinctions between shared knowledge and mutual knowledge. There are some logical brain teasers that can only be solved by the concept of usual knowledge there is a problem called barbeques problem and there are number of problem isomorphs and people who studied pharmaceutics will be familiar with that all, I will skip it but it is just a brain teaser that hinges on mutual knowledge.
Perhaps a more transparent example is why democracy is trying freedom of assembly as a fundamental right and why often totalitarian dictatorships are terrified by the prospect of a crowd assembling in public as we recently seen in the in Burma. The reason is that before the assembly every may have known that they detested the overloads, but no one could be sure that every one else thought the same way. When you have a public assembly and you know why you are there and why every one else is there every one can see that every one knows that every one else knows that they know and every one knows that every one else knows that every one else knows that mutual knowledge can then give you the collective power to challenge the dominance of an authority. I think I skip super bowll ads and just go to the emperor new clothes because the emperors new clothes is possibly the clearest illustration of the concept of mutual knowledge indeed it is a story about mutual knowledge. When the little boy said the emperor is naked he wasn't telling any one any thing they didn't already know but he was conveying information none the less, he was conveying the information that now every one else do what they knew and the every one else knew that every one else knew what they knew. Once again that gave the crowd the collective power to challenge the authority of the emperor in this case

through laughter. The moral of the story is being that explicit languages and excellent way of creating mutual knowledge but exploding shared knowledge in to mutual knowledge. The hypothesis is that indirect speech merely provides shared knowledge even innuendo that is transparent enough for people to see through where as direct speech provides mutual knowledge and relationships are maintained or nullified by mutual knowledge of the relationship type. In other words if Harry were to have said would you like to come and see my etchings and Sally turns him down, then Sally may know that he is turned down on a sexual overture and Harry may know that she is turned down on sexual overture but Sally knows that Harry knows she could be wondering may be Harry thinks I am naive and does Harry knows that Sally knows that he knows he could be thinking may be Sally high intense, there is no mutual knowledge and according to this hypothesis that allows them to maintain the fiction of a friendship. In contrast if Harry were to have said he will like to come up and have sex then Harry knows that Sally knows that Sally knows that Harry knows that Sally knows and they cannot maintain the fiction of a friendship, and this is the logical basis behind intuition that what the direct proposition you cant take it back it is out there.

Well I have gone through a number of hypothesis and with James Lee a graduate student at Harvard and Jennifer Conklin a senior Harvard we submitted a number of them to empirical tests. We invented fictional scenarios involving threats bribes and sexual comments where a speaker address a proposition that varies in the level of directness, the subject puts himself or herself in the speaker or hearer issues and raise the likelihood of various interpretations and various emotional responses. For example there is a bribe scenario Kailis pull over for speeding he hands over his wallet of license and 50 dollar bill precluding we actually spell out the story in more narrative detail. But what I want to show you now is the different kinds of speech that people are asked to ponder.

I am very sorry officer I really learned my lesson from now on you can be sure that I will be more careful that is the least direct then there is, I am very sorry officer I know that I was speeding that I have to pay for my mistake, I am very sorry officer but I am actually in the middle of some thing right know sort of an emergency so may be the best thing will be to take care of this here would I going to court or doing any paper work. Then the most direct is I am very sorry officer if I give you a fifty will you just let me go. A seduction scenario Michael and Lisa are co workers and good friends after dinner Michael drives Lisa home when passing his apartment he says these direct wow I fell like I am talking so much but it is only 10.30. Next my friend just e-mailed me those pictures from our trip to Europe that I was telling you about, do you want to come over and have a look. You know I have a terrific view from my balcony you can see the whole city, the lights, the ocean, would you like to come over and have a look and finally I find you really attractive and I enjoyed being with you tonight a lot would you like to come over and have sex. Then there is a treat scenario where professor threatens a student with loss of a fellow ship if she wont work in his lab and I will skip the details but you have an idea how we manipulate now a directness.

So first test, the part one of the theory possible deniability the prediction is that with indirect speech in general there should be uncertainty about the speakers intent that is that the indirect speech shouldn't just be a social ritual like saying please or thank you but it should correspond to a variable in the listeners head corresponding to a probability, and

indeed in this collapsing across all three scenarios we ask people that the hear understand what the speaker really means and we compare the overt speech act with almost overt with indirect with very vague the four levels that I showed you. These are Box-and-Whisker plots where the median response is the thick black line, the box encompasses the first quartile and third quartiles to whiskers encompass the range. So the central tendency is illustrated by the dark line and as you can see for an overt overt speech not surprisingly the almost all the responses where that the listener is a hundred percent certain about the speakers intent and the level of certainty drops without what we judged to be the indirectness of the speech act, notice also that the variance the variability both in the inter court high range and the range it self expands greatly with indirect speech confirming that indirect speech really is introduces a great deal of information uncertainty. Prediction two of part one of the theory is that indirect speech should be perceived its less life could you get the speaker in to legal trouble that is guilty in a bribery trial or disciplinary hearing in the case of a threat by a professor. And once again the subjects were well aware that listeners were could anticipate inadequate consequences of a interpretation the question is more less if the driver went on travel for bribery how likely is it that he would be convicted and I said very likely for a direct speech act and increasingly less likely for indirect one. So the anticipation that indirectness could get you off the hook is one that are that the subjects manifested. And prediction three is that the appeal of indirect speech should depend on the pay of matrix, and in a separate study just involving one of the scenarios a bribe and they ask people to reach whether they be more tempted to use a direct speech act and make it bribe or a innuendo pairing all possible combinations of more and less direct innuendos we found that a direct bribe was more attractive relative to the indirect bribe when there are fewer honest cops ten percent versus 90 percent when the find for bribery is lower 250 dollars versus ten thousand dollars. The cost of the ticket is higher 2000 dollars versus 200 dollars and the cost of the bribe is lowered 20 dollars versus a 100 dollars.

So in each of these, mark the parameters that the mathematical model of the rational bribe or predicts are to affect the optimal level of indirectness indeed each of those variables had the predictive effect. Okay, part two of the theory is that the same logic of possible deniability that applies to overt bribes involving cash and prison senses also involve is involved when the stakes are emotional namely awkwardness and so on. So the first prediction is that indirect speech would be seen as more respectful and is better acknowledging the expected relationship with the hero which depending on the scenario could be either affection deference or collegiality. And so for example in these seduction scenario we ask people how well did Michael convey affection with his overture and we found that for when he blurt it out he want to come up and have sex, that that was perceived not conveying affection and that more indirect speech acts were seen as more compatible with the relationship of a of affection to Lisa. Similarly in the bribe scenario you ask how well did [0:54:44] ____ convey difference to the authority of the officer within overt bribe not hardly at all with more indirect speech acts more and more difference again as predicted.

And prediction two is applies to the seduction scenario. Again sticking to the second hypothesis of that indirect speech possible deniability for relationship negotiation, the prediction is that indirect speech should make it easier for the participants to resume their

normal social relationship, and the question therefore is how easily will Michael and Lisa resume their day to day relationship in the case of an overt sexual command, do you want to have sex, they say that it would be very difficult in the case of more indirect sexual comments, it makes it easier for them to resume their relationship should they often be rebuffed. Finally, we have a number of tests of part three language perceived to be a digital medium. The first prediction is that overt speeches perceived as certain and intent, indirect speech is perceived as admitting a small degree of uncertainty and I have already shown you this graph of the question how certain is the office or of what Karl really meant. The crucial comparison is between the overt proposition and one that is almost over, the most overt indirect speech that we could think of without it, without being a direct quick provoke offered. I am going to now zoom in on the difference between the overt and almost overt condition which is the relevant comparison here and blow it up. Not only were people certain that an overt proposition is leaves no uncertainty as to the speaker's intent. But there was barely any variance that is the Box-and-Whisker plot which shows you not only the median but also the range and the inter-quarter range is collapsed to a single line, meaning that almost a 100 percent of the subjects, 100 percent of them time said it was a 100 percent certain.
Whereas for the most overt of the indirect speech acts, even though the median was 99 percent, they distinguished 99 percent from a 100 percent and there was some appreciable spread around the mortal choice of 99 percent. Prediction two is that overt speeches perceived to be lossless when conveyed by gossip. So we asked first of all how certain as Lisa said that Michael was really asking her to have sex that I have already talked about those data but also Lisa tells her friend Emily what Michael said, how certain is Emily that Michael was asking Lisa to have sex and finally suppose that Michael some how learns that Lisa has told Emily what he said, what is Michael thinking about how certain Emily is that he was asking Lisa to have sex, in other wards how much did Michael worry about being gossip getting out and being interpretable as such by a third party, and I am plotting the data slightly a different way here. Now, I have plotted degree of directness from learning it out overtly to barely hinting it at all as the parameter in the graph were, this is direct, this is indirect but highly suggestive, this is a big suggestive, this is least suggestive, so not surprisingly they differ in terms of the degree of certainty attributed to the speech act. But crucially as you go from the hearer, Lisa to the third party Emily to Michael's anticipation of what Emily thinks in the case of overt speech there is barely any fall off at all. That is the latter's were as certain that Emily knew that it was a sexual command as that Lisa new that it was a sexual command and indeed attributed the same degree of certainty to Michael thinking about Emily thinking about Michael. Whereas, for the other degrees of indirectness, in fact there is a slight tendency in the other direction people actually thought that Emily should be slightly more confident than Lisa was herself. Lisa might have been caught up in the atmosphere, whereas somewhat dispassionate third party had greater confidence. But in no case does it get anywhere into this range and crucially there is no decline as you go from the person who is there to the virtual audience. Finally over speech is perceived to be recursive supporting mutual knowledge. Now, this is rather difficult to test because it's hard to convey to people - they recursively embedded propositions that they would implicitly be believing if this hypothesis were true. But none the less we figured out a way that we could gradually take the subject by

the hand and lead them to the, to several degrees of recursive embedding. So the first order hearer interpretation is put your self in Lisa's position, what does she thinking at this point and then we gave them a rating scale, that ranged one end from I am absolutely certain that Michael was not having me asking me to have sex, I am virtually certain that he was not asking me I think that he probably wasn't asking me, did he ask me to have sex or was he just asking me stay a longer. I think he probably was asking me to have sex I am virtually certain he was asking me, I am absolutely certain he was asking me. So this is the rating scale and this is the first order hearer knowledge.
Second order speakers knowledge Lisa has politely said she wants to go home put your self in Michaels position, what is he thinking. I am absolutely certain that Lisa didn't understand that I was asking for sex to I am absolutely certain that she did understand, okay with the intermediate levels of certainty laid out as I showed in the previous slide. Second order order hearer rating Lisa knows that Michael was asking her to have sex. Put your self in her position, what is she thinking? Michael thinks that I didn't understand he was asking me to have sex, I am absolutely certain about all the way to Michael knows that I understood that he is asking me to have sex, I am absolutely certain of that. Suppose that Michael does realize that Lisa knowingly turned him down his invitation to have sex. Put your self in Michael's position what is he thinking? Lisa thinks that I didn't understand that she turned me down for sex, I am absolutely certain of that down to Lisa knows that I understood that she turned me down for sex I am absolutely certain of that. Finally one more level, suppose that Lisa is is certain that Michael she turned his invitation to have sex, put your self in Lisa's position what is she thinking, Michael understands that I turned him down for sex, but he doesn't realize that I know that he understands that he also vary the verb in each case which cycle linguistic studies have shown makes incursive sense that is easier to understand down to Michael understands that I turned him down for sex and he realizes that I know he understands that. And when you think about it I am flashing it by very quickly well you sit you read the story these are not terribly difficult to understand. All here are the results once again the degree of directness is represented by the parameter that is the difference between these four lines where this is percent certainty and as you go from with overt speech, do you want to have sex each degree of success of success of embedding of he thinks that she thinks that he thinks that she thinks subject greater than as just about equally certain all the way across these five levels in embedding. With the innuendos the indirect speech acts not only was they are less certainty with increasing indirectness but for given level of indirectness further degraded with each degree of embedding in contrast to the overt speech where the most deeply embedded proposition was as certain as the the first order proposition.
So to sum up, indirect speech acts polite requests bail threats and bribes and sexual overtures are puzzle for cycle linguistic. The first hypothesis is that indirect speech console the identification problem in legal contexts and hence they satisfy the condition of possible deniability, hypothesis two is that there are cost to mismatch relationship types which make every day life similar to legal contexts. Hypothesis three is that indirect speech is used even when deniability is not so possible because language is perceived as a digital medium, I and as a consequence overt propositions are sieved to be certain so the deniability is possible even if it is impossible. Overt propositions are interpretable out of context by a virtual audience so the deniability is seen to be possible to them and find me

that over proposition generates mutual knowledge which is the basis for changing relationship type according to this deniability of mutual knowledge is possible even if deniability of the individual knowledge is not. So me take a step back from all of this I anticipated that this would be a more technically curious audience, since so I went in to detail about one of the phenomena discussed in the book knowing in a step back and says so what is this language reveal about this aspect of human nature mainly human social life. First of all suggest that humans are very very touchy about their relationships. With some of their fellows typically kin, lovers and friends, humans really share and do favor. With others they joke for dominance, there are still others they trade goods and services. People distinguish these relationship sharply and when one person reaches the logic of relationship with another they both suffer an emotional cost, none or less humans often have to risk these breaches to get on with business of - get on with the business of life and enforcing the boundary of relationship types humans think a lot about what other humans think about their relationship what the other party in the relationship thinks what over hearers and gossipers think and what the other party thinks about what they think about what the other party thinks about what they think. As a result to preserve their relationships while transacting the business of their lives humans fill their social life with innuendo, hypocrisy and taboo. And that are is just one of the ways in which language can serve as a window into human nature. Thank you very much.