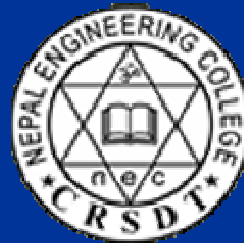


Politeness Planner for a Psychiatric Disorder Classification System

Shailesh Pandey¹ Yogesh Raj²



¹Research Engineer

²Chief Research Officer

Center for Research in Social Defense Technology

Nepal Engineering College



POLITENESS

- Politeness:- Marked by or showing consideration for others, and observance of accepted social usage
- Politeness can be used as a strategy for getting cooperation
- [Roman et. al., 2004] have shown that Politeness is one of the most likely elements to be summarized, and thus they have a high communicative function



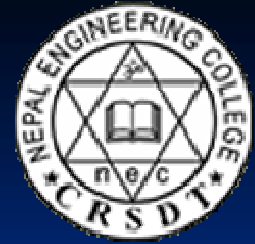
APPROACHES TO POLITENESS

- Strategic Approach
 - *Brown & Levinson*
 - Concept of Face
- Knowledge Based Approach
 - *V. Escandell-Vidal*
 - Concept of Cognitive Frame



OUR APPROACH

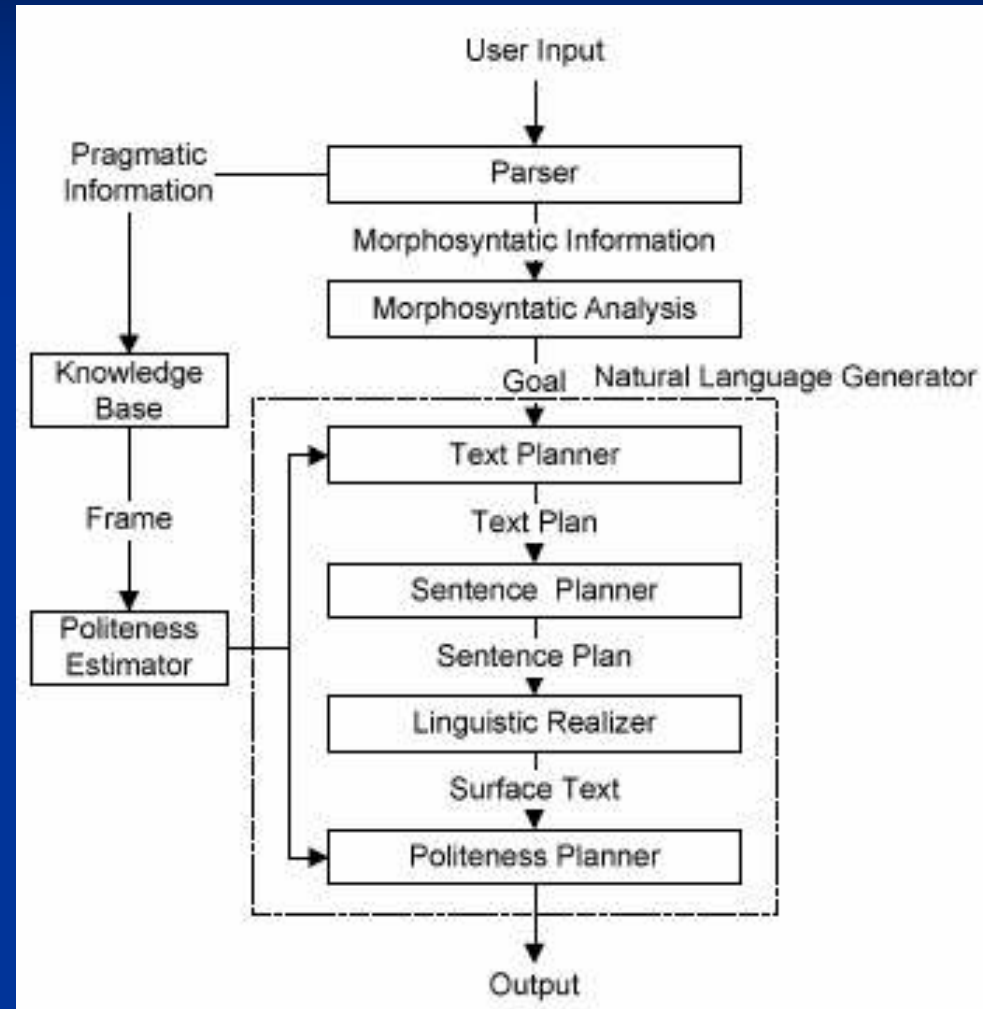
- We attempt to demonstrate that a computational model of politeness can be constructed that uses cognitive approach for utterance interpretation and at the same time, benefits from the strategic approach developed by [Brown & Levinson], among others



PSYCHIATRIC DISORDER CLASSIFICATION

- [Shishir Bashyal, 2005] had developed an ANN based Psychiatric Disorder Classification System
 - 35 Signs and Symptoms
 - Yes/No Questions and Degrees of Symptoms
 - 4 Types of Psychiatric Disorders viz.
Schizophrenia, Mania, Depression, Alcohol Dependence Syndrome (ADS)

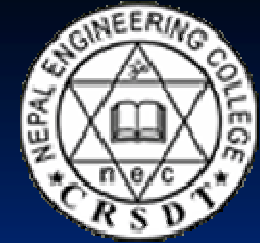
SYSTEM DESIGN





POLITENESS ESTIMATOR

- Upon Analysis for Nepali, Politeness content in an utterance can be measured from the following parameters
 - **Lexical Content**
 - कृपया (Please) and हस् (OK)
 - **Nominal Inflections**
 - The dative case marker बाट/द्वारा is more polite than the ergative case marker ले
 - **Pronouns and Honorificity**
 - the pronoun 'you' can have the representations तँ, तिमी, तपाईं and हजुर in increasing order of honorificity
 - **Verb Coding**
 - In Nepali, sentences follow the Subject-Verb agreement rule. 'you' (तैले, तिमिले, तपाईंले and हजुरले) can take different form of 'take' (खाइस्, खायौ, खानुभयो and खानुभयो or खाइबक्स्यो) respectively in increasing order of politeness



POLITENESS ESTIMATOR (Contd...)

WEIGHT VARIATIONS OF POLITENESS PARAMETERS			
S.No.	Politeness Parameter	Present	Absent
1.	Lexical Content	0.1	0
2.	Nominal Inflection	0.1	0
3.	Subject-Verb Agreement	0.2	-0.2
4.	Topic Relevance	0.2	-0.2

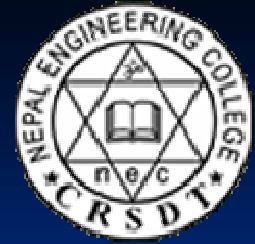
$$P_i = \sum w_j * n_j \quad (1)$$

Where,

$P_i \rightarrow$ Measure of politeness

$w_j \rightarrow$ Weight of a politeness parameter

$n_j \rightarrow$ Number of occurrences of a politeness parameter



POLITE CONVERSATION STRATEGIES

■ Dialogue Initiation

■ Meeting First Time

- Allow the user to initiate conversation
- In case the patient doesn't initiate, present a polite greeting and follow with queries

■ Known User

- Recall discourse history to show familiarity
- Still let user initiate. Do not dominate the conversation



POLITE CONVERSATION STRATEGIES

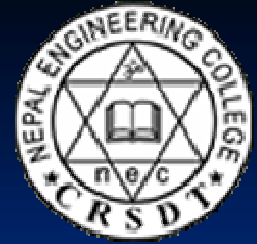
■ Dialogue Termination

■ Successful Termination

- Give prescription and advices. All of which is updated in the KB and can be the focal point for dialogue initiation in subsequent visits

■ Impolite Termination

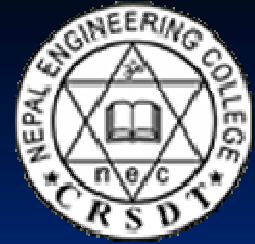
- If level of politeness drops significantly and consistently, become direct
- If this continues for a long period during a session, terminate the session. Polite strategy is to re-schedule. If this continues for sessions cancel therapy



POLITE CONVERSATION STRATEGIES

■ Out of Context Responses

- When the patient gives an irrelevant statement "Today is hot outside" in response to the query "Do you have a headache?" we try not to generate contradicting statements.
 - The first strategy is to go to sleep mode for a certain time period awaiting response of the patient.
 - If there is no response, we try rephrasing the question.
 - The system takes cue from the response and tries to bring the patients focus back to the systems interest domain.



POLITE CONVERSATION STRATEGIES

■ Expert Queries

- If the system was able to get information about the symptoms from the patient, some queries might not even be required.
- Either way, the system does not start a rapid fire question answer round.
- The system pauses between the questions and uses conversational fillers. Does not use repetition as a mode to confirm which is considered impolite.



LEARNING

- Our system begins with a **Mid-Honorific** level of politeness as is perceived to be 'Normal' by the native speakers
- Interactions with the user in the session, the system is then able to calculate their general threshold for politeness using Equation (1)
- Threshold gets updated for each session



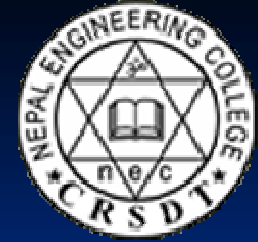
CONCLUSION

- We have presented an outline of a politeness planner to be used in an expert psychiatric disorder classification system.
- Incorporated concepts of frame and context both in evaluating the degree of politeness in the users utterances, and in planning the polite output from the system.



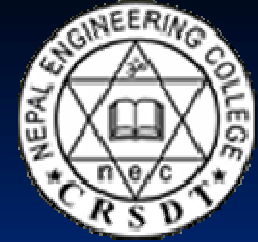
IMPLICATIONS

- An important implication of this work will be to incorporate better algorithms to learn politeness from the interaction with the human users' such that the politeness appears more embedded in the communication.



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THANK YOU