

An Expert System to identify Classes of bragging in social media according to their characteristics

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November 26, 2022

1 Introduction

Sharing information is widely used in everyday communication and is especially well enough on social media, where individuals attempt to establish a positive opinion of themselves either directly or indirectly. Online social networks have developed into a popular platform for communication and interaction among millions of members. It is not just a novel platform, but also novel practices. Bragging is one of the most common techniques of communication which involves highlighting good quality about the speaker through positive statements for creating a favorable self-image, self-disclosing, self-promotion and self representation in social circles. It also can be interpreted negatively and lead to further violence sometimes. Identification and classification of bragging assists the people to be updated about the situation as well as beneficial for public safety personnel for decision making. That's why to classify the unknown text according to its types we propose an expert system which can reduce time of detecting bragging classes in social media. As an expert is a person who can solve a problem with the domain knowledge in hands it should be able to solve problems at the level of a human expert. The source of knowledge may come from a human expert and/or from books, magazines and internet. As knowledge play a key role in the functioning of expert systems they are also known as knowledge-based systems and knowledge-based expert systems. The expert's knowledge about solving the given specific problems is called knowledge domain of the expert.

2 Aims and Objectives

Our main goal is to identification and classification of Bragging in Social Media. Bragging classification aims to predict the bragging type for a social media text. Sharing information helps individuals to self disclosing, self-promotion. Discussions online often host toxic posts, meaning posts that are rude, self disclosing, disrespectful, or unreasonable and which can make users want to leave the conversation. Identification and classification helps us to classify the posts as bragging or not bragging. Bragging can be different types such as self-disclosing, self-representation, show up achievement, action etc. Being confidence is a positive trait. Being confident makes it simpler to participate in conversations and meet new friends. However, they must be aware about how they choose to show their confidence because if they do it incorrectly, they can end up frightening people rather than attracting them. Bragging about individuals achievements, personal qualities, experiences and possessions can have a negative impact on their relationships. They'll probably end up with more enemies than friends if you treat your friendships as rivalries or exploit your achievements to put down other people. It's acceptable to be glad when everything seem to be going well for you and to be proud of their achievements. However, if they create the habit of bragging, they face the danger of losing friends and making people hesitant of approaching you. So, identification and classification of text (bragging or not bragging) is important so that we can express our feelings action, achievements according to the situation to maintain social circle peacefully. This will help us to remove conflict in our online and offline life by maintaining a boundary. We can take decision which information can be share and which are not to maintain balance between friends, relatives and in our social circle. It has been widely used in academic and business, supporting social scientists in their study of the relationship between bragging and other traits (such as gender, age, economic status, and occupation), enhancing online users' strategies for self-presentation, and many practical NLP applications 2 in business, economics, and education.

3 Core Components

An expert system is a computer program that is designed to solve complex problems and to provide decision-making ability like a human expert. It performs this by extracting knowledge from its knowledge base using the reasoning and inference rules according to the user queries. An expert system mainly consists of three components. Below is the block diagram that represents the working of an expert system 4:

1. User Interface
2. Inference Engine
3. Knowledge Base

User Interface The user interface is the most crucial part of the Expert System Software. This component takes the user's query in a readable form and passes it to the inference engine. After that, it displays the results to the user. In other words, it's an interface that helps the user communicate with the expert system.

Inference Engine The inference engine is the brain of the expert system. Inference engine contains rules to solve a specific problem. It refers the knowledge from the Knowledge Base. It selects facts and rules to apply when trying to answer the user's query. It provides reasoning about the information in the knowledge base. It also helps in deducting the problem to find the solution.

Knowledge Base The knowledge base is a repository of facts. It stores all the knowledge about the problem domain. It is like a large container of knowledge which is obtained from different experts of a specific field. Thus we can say that the success of the Expert System Software mainly depends on the highly accurate and precise knowledge.

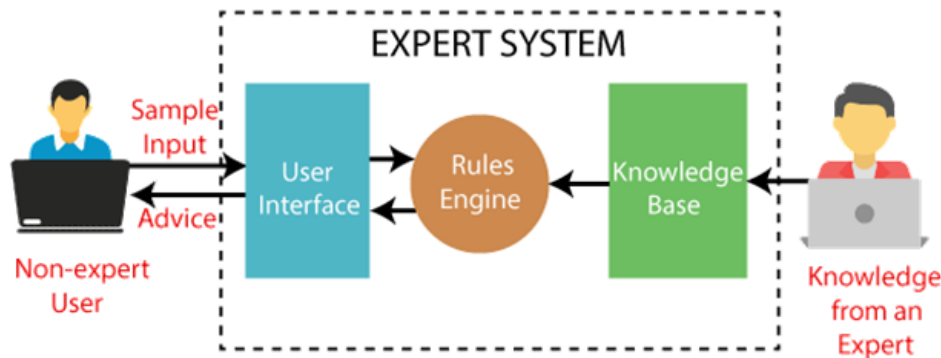


Figure 1: Block diagram of an expert system

4 Methodology

An expert system is a computer program that is designed to solve complex problems and to provide decision-making ability like a human expert. It performs this by extracting knowledge from its knowledge base using the reasoning and inference rules according to the user queries. The goal of this expert system is to identify (classify) an a statement based on their types. The knowledge of the system We use two classification techniques in the case. They are binary classification, multiclass classification. In binary classification we will divide the text into bragging and not bragging. In seven way classification we divide the text into achievement,action,feeling,trait,possession,affiliation and not bragging. Below given a Figure 4 of binary and multiclass classification.

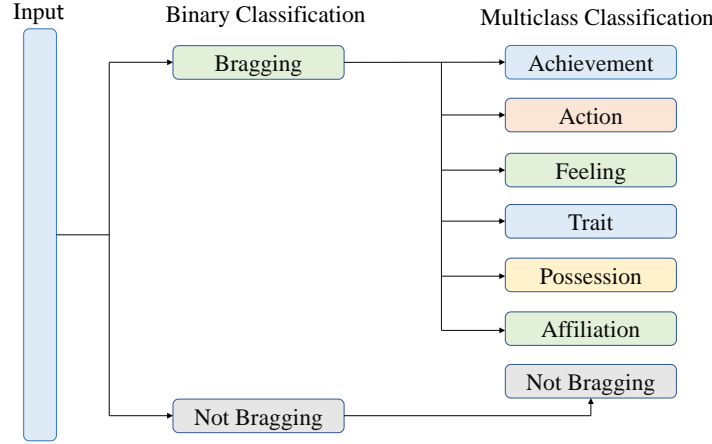


Figure 2: Binary and multiclass classification

Expert system will use a search procedure. The rules of the knowledge base is based on IF \bullet . THEN ... rules which were implemented in almost the same format using prolog.

5 Design

Design describe how the expert system react according to commands given to prolog environment for identifying the probable statement type. The list of bragging types that the expert system can work with are-

1. Achievement
2. Action
3. Feeling
4. Trait
5. Possession
6. Affilaitation
7. Not Bragging

In binary classification the input text is automatically detect and classify into bragging or not bragging. We will assume that a tweet is not about bragging if there is insufficient information to determine if it is, if bragging remarks belong to someone other than the tweet's author, or if the author's connection to the people or things it references is unknown. In multiclass classification the input text is detect and classify into achievement,action,feeling,trait, possession, affiliation and not bragging. Where achievement, action, feeling, trait, possession, affiliation are different example of different types of bragging. All possible bragging types that can occur in social media and system production rules given below in Table 1 in alphabetical order.

Rules No	Statement	Classification
Rule 01	i. Statement is clear what the author indicate, ii. Statements belong to self representation.	Bragging
Rule 02	iii. Successful completion or accomplishment, iv. Concrete outcome of individual action, v. Accomplished goals, awards and positive vi. Change, accomplished by hard work, ability or heroism.	Achievement
Rule 03	vii. Doing something to achieve an aim or deal with situation, viii. Physical or mental activity.	Action
Rule 04	ix. Emotional state or reaction, x. Function or power of perceiving by touch, xi. Mental or physical response by pleasure or pain or attraction or repulsion.	Feeling
Rule 05	xii. Experience or capability, skill or ability of user, xiii. Characteristic or quality of person.	Trait
Rule 06	xiv. Having or owning or controlling something, xv. Tangible object belonging to user.	Possession
Rule 07	xvi. Connection to something, xvi. Connected to individual family, group, party or business.	Affiliation
Rule 08	xvii. None of above	Not Bragging

Table 1: System Production Rules

When someone achieves anything, especially after much effort, it is referred to as an accomplishment or achievement. Action referred to as an intentional, aware act that involves either physical or mental activity. Feeling is an emotional state or reaction. Trait is a distinctive attribute or characteristic, particularly one's own. Affiliation means a relationship, such as with a group, club, or organization. We'll infer that a tweet isn't about bragging if it contains bragging remarks, they belong to someone other than the tweet's author, or it's unclear what the author's connection is to the people or things it mentions. design of expert system is shown in below Figure 4.

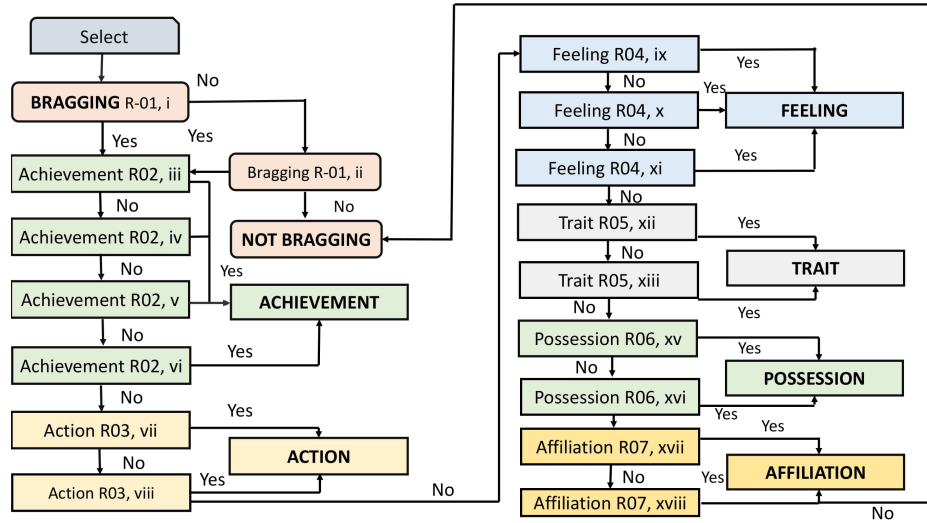


Figure 3: Design of expert system

6 Implementation and Result

The implementation of the project has been done in prolog. Here is the code and snapshot of the result 4 generated by the program 2 using a sample example below:

```
go :- hypothesize(Bragging),
write('I guess that the Bragging types is: '),
write(Bragging), nl, undo.
hypothesize(achievement) :- achievement, !.

hypothesize(action) :- action, !.
hypothesize(feeling) :- feeling, !.
hypothesize(trait) :- trait, !.
hypothesize(possession) :- possession, !.
hypothesize(affiliation) :- affiliation, !.
hypothesize(not_bragging). /* no diagnosis */
achievement :- bragging,
verify(successful_completion_or_accomplishment);
verify(concrete_outcome_of_individual_actions);
verify(accomplished_goals_awards_and_positive_change);
verify(accomplished_by_hard_work_ability_or_heroism)).
action :- bragging,
(verify(doing_something_to_achieve_an_aim_or_deal_with_situation);
verify(physical_or_mental_activity)).

feeling:- bragging,
(verify(emotional_state_or_reaction);
verify(function_or_power_of_perceiving_by_touch);
verify(mental_or_physical_responded_by_pleasure_pain_attraction_repulsion)).
trait :- bragging,
(verify(experience_or_capability);
verify(skill_or_ability_of_user);
verify(characteristic_or_quality_of_person)).
possession :- bragging,
(verify(having_or_owning_or_controlling_something);
verify(tangible_object_belonging_to_user)).
affiliation :- bragging,
(verify(connection_to_something );
verify(connected_to_individual_family_group_party_or_business)).
bragging :- verify(statement_clear_what_the_author_indicate);
verify(statements_belong_to_the_author_of_the_tweet).
ask(Question) :-
write('Mention '),
write(Question), write('? '),
read(Response), nl,
( (Response == yes ; Response == y)
->assert(yes(Question)) ;
assert(no(Question)), fail).
:- dynamic yes/1,no/1.
/* How to verify something */
verify(S) :- (yes(S) ->true ; (no(S) ->fail ; ask(S))).
/* undo all yes/no assertions */
undo :- retract(yes(_)),fail.
undo :- retract(no(_)),fail.
undo.
```

Table 2: Implementation using Prolog

```

% c:/users/hp/downloads/braggingtest (1) compiled 0.00 sec, -3 clauses
?- go.
Mention statement_is_clear_what_the_author_indicate? no.
Mention statement_belong_to_selg-representation? |: no.
I guess that the Bragging types is: not_bragging
true.
?- go.
Mention statement_is_clear_what_the_author_indicate? yes.
Mention successful_completion_or_accomplishment? |: no.
Mention concrete_outcome_of_individual_actions? |: no.
Mention accomplished_goals_awards_and_positive_change? |: no.
Mention accomplished_by_hard_work_ability_or_heroism? |: yes.
I guess that the Bragging types is: achievement
true.
?- go.
Mention statement_is_clear_what_the_author_indicate? no.
Mention statement_belong_to_selg-representation? |: yes.
Mention successful_completion_or_accomplishment? |: no.
Mention concrete_outcome_of_individual_actions? |: no.
Mention accomplished_goals_awards_and_positive_change? |: no.
Mention accomplished_by_hard_work_ability_or_heroism? |: no.
Mention doing_something_to_achieve_an_aim_or_deal_with_situation? |: yes.
I guess that the Bragging types is: action
true.
?- ■

```

Figure 4: Snapshot of output

7 Conclusion

An expert system has been made successfully. It helps to know about the types of bragging in in social media. The prolog program that I built is very simple to use and efficient. It's pretty accurate too. This system can fulfill the need of classify bragging and make awareness among the general masses. This expert system has been typically designed to provide capabilities similar to those of a human expert when performing a task. The program asks a few yes/no questions to the user to note down which rules it belong to. Then after knowing all the that the user is facing the expert system searches up on its knowledge base and then generates the most probable answer. It is to be noted that the knowledge base is also accompanied with an interference base. Thus the expert system is more enriched and learns from experience bit by bit.