A Framework for Integrating Cognition, Speech Acts and Communication for Content Analysis

Rembrandt Klopper

> How do you prepare yourself mentally? Each man must do that himself, each man must prepare himself mentally ... to make that jump. In the back of your mind, you wonder what's gonna happen. You know you've been trained and trained ... and what your job is and what you're supposed to do. That's what you gotta think about. We lost a lot of people that night, but you try to put it all out of your mind (US Army 101st Airborne Division, WWII Survivor).

Abstract

Content analysis is a qualitative research method that analyses the content of conversations and other types of text according to principles of categorisation. During content analysis researchers usually pragmatically derive categories from the topic that forms the focus of their research. Similarly, thinkers and communicators choose categories pragmatically, based on the context provided by the scenario that is being thought about or described. Due to the pragmatic basis of content analysis as well as communication, such categories are often context-specific and transient. Categories therefore remain the black box of content analysis and the analysis of ongoing communication interactions. In order to clarify the role of categories during research, including in content analysis, I briefly explain what the term 'categorisation' means. Thereafter I propose an interdisciplinary model in which speech acts form a robust framework to analyse the contents of different types of communication – nonverbal

communication, interpersonal verbal and written communication, and intrapersonal communication – used by humans during cooperative, competitive and confrontational forms of communication.

Keywords: Basic level categories, categorisation, categorise, cline, cognition, cooperative communication, competitive communication, confrontational communication, content analysis, continuum, intercultural communication, intrapersonal communication, interpersonal communication, metacognition, prototypes, subordinate level categories, superordinate level categories.

Problematic Trends that Prompted the Writing of this Paper

While serving as external examiner for South African postgraduate theses, and as a peer reviewer for several scholarly journals that report *quantitative research* results, based on statistical analysis, I have over time come to the uneasy conclusion that many local novice researchers do not relate the real-world phenomena that they are studying to the statistics that they are reporting, that the under-interpretation of results and failure to explain why particular statistical results are reported, prevent descriptive and inferential statistics to function as lenses that bring into clearer focus underlying trends in the communities studied.

For *qualitative research* the situation is even more worrisome. Searches of the NRF's *Nexus* database, using the search term 'qualitative research' on its own, as well as a combination of the search terms 'qualitative research', 'dissertations' and 'theses', reveal that seemingly no qualitative research theses and dissertations have recently been registered with the NRF, South Africa's primary research promotion agency, by local university research offices on behalf of postgraduate students.

A search of the *Science Direct* global research database shows that seasoned South African researchers are publishing *qualitative research* results in diverse disciplines like Public Relations Management (Steyn *et al.* 2004), Ethnopharmacology (Semenya & Maroyi 2012), Pharmacology (Penn *et al.* 2011) and Marine Biology (Moseley *et al.* 2012). Unless the *Nexus* database is out of date, seasoned researchers in qualitative research are not

helping to develop a new generation of competent qualitative researchers, and proper qualitative research is not undertaken in the social sciences and in the management sciences.

Categorisation

The Cognitive Basis of Categorisation

In this section, I make the case that cognition is the true basis for categorisation, because categorisation is grounded in how humans actually perceive the world around us. The digital dictionary of Apple Inc. defines 'categorize'[1] as 'put somebody or something into a category.' In similar vein, Dictionary.com defines the word 'categorize' as '1. to arrange in categories or classes; classify. 2. to describe by labelling or giving a name to ...'. Freedictionary.com defines 'categorize' as 'To put into a category or categories'.

What not one of the three definitions shows, is the hierarchic structure involved in how humans cognitively categorise entities, namely in terms of their perceived *shared attributes* that cause entities to belong to the same category, or *unshared attributes* that differentiate entities enough from one another so that we consider them to belong to different categories, as shown in Figure 1 below.

The classification tree below shows that the attributes that entities share, or that differentiate entities from another, form the basis of how we *perceive* and think about the world, and therefore of the vocabularies that we use to *communicate* with one another about the world. Both orders of animal (fish and birds) have in common that they have bodies consisting of organs and flesh, that they are conscious of their environments, that they breathe oxygen, that they eat, that they have offspring that hatch from eggs and that sooner or later they die. The classification tree also shows, what differentiates birds from fish as different types of animals, is that birds have wings with which they fly and legs as limbs to move about on the ground, while fish have oblong body shapes and dorsal fins and a tailfin for moving about in water. It also shows that birds breathe through lungs while fish do so through

[1] Whenever I write, 'categorize' rather than 'categorise', I am referring to a source that uses American English spelling rules.

gills, that birds' bodies are covered by feathers while fish are covered by scales, and so on.

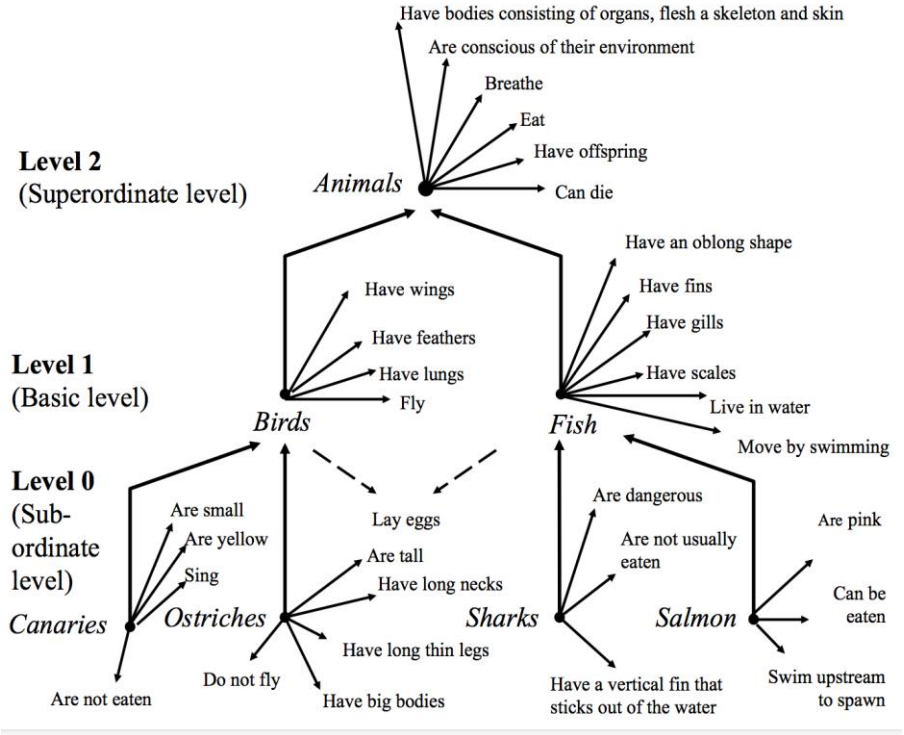

Figure 1: Lexical categorisation by entity attributes, adapted from Collins and Quillian (1969)

Basic level categories have a privileged position in human thinking because we mostly have graphical representations associated with them. This ability begins with infants' learning to recognise the shape of human faces, particularly maternal faces, at a very early age (Ramsey *et al.* 2005), and soon thereafter infants' ability to conceptualise basic level categories (Behl-Chadha 1996; and Oakes 2008), and to be subsequently used by toddlers during communication. Also, while it is impossible to draw the shape of an animal, a *superordinate* level noun, only artists can skilfully draw *subordinate* level nouns that refer to entities like canaries, ostriches, sharks

and salmon. By contrast, all humans can doodle basic level entities like a bird in flight or a fish:

Figure 2: Doodles of basic level objects like 'bird' and 'fish'

According to Research and Development Institute Inc. (2006), one of the earliest concepts developed in babies is that of classification: 'Classification involves discrimination, matching, and grouping or categorizing according to attributes and attribute values. A sampling of these attributes and attribute values at the quality level follows:

- Shape (square, circle, triangle, rectangle)
- Size (large, small, big, little)
- Weight (heavy, light)
- Length (short, long)
- Width (wide, narrow, thick, thin)
- Height (tall, short)'.

Roberts and Cuff (1989) present evidence that babies in the age group 9-15 months are able to perform categorisation of objects, not only at basic level, but also at the superordinate level: they know that *apples* and *pears* are types of *fruit*.

As the classification tree in Figure 1 shows, humans *subconsciously* categorise the complete vocabularies of language into the previously demonstrated three hierarchical category levels, namely the basic level, the superordinate level and the subordinate level. Thinking about the world around us involves categorisation at these three hierarchical levels, so it is worth focusing on the categorical basis of thinking, communication and systematic research: birds and fish both are considered to be animals because they have bodies consisting of organs, flesh and skins (nouns), because they are conscious (adjective) of their environment (noun), because they breathe and eat (verb), have (verb) offspring (noun) and can die (verb).

Another function of attributes, derived from how we see the world, is that during research they can be used by respondents or interviewees to impressionistically assess how entities are (small – mid-sized – large – gigantic), or how they behave, e.g., whereabouts in relation to other objects in space, (at rest – slowly – fast).

In quantitative research categorical distinctions and the attributes of entities that belong to such categories are mostly extracted from the specific populations that one studies. They therefore by nature are relativistic and transient categories – each scenario that is studied provides the specific categories and attributes that one uses to give an account of the scenario, so that different sets of categories and attributes arise for different scenarios studied.

Categorisation, Cognition and Metacognition

As demonstrated, categorisation is no simple matter:

- Categorisation is cognition.
- Cognition is categorisation.
- Thinking about cognition is known as metacognition.

Thinking about categorisation and cognition is known as *metacognition*. Like cognition, metacognition is no simple matter either. Livingston (1997) characterises metacognition as follows:

> 'Metacognition' is often simply defined as 'thinking about thinking'. In actuality, defining metacognition is not that simple. Although the term has been part of the vocabulary of educational psychologists for the last couple of decades, and the concept for as long as humans have been able to reflect on their cognitive experiences, there is much debate over exactly what metacognition is. One reason for this confusion is the fact that there are several terms currently used to describe the same basic phenomenon (e.g. self-regulation, executive control), or an aspect of that phenomenon (e.g. meta-memory), and these terms are often used interchangeably in the literature.

Livingston (1997) further says metacognition entails a type of thinking that involves activities such as planning, monitoring comprehension,

and evaluating progress toward the completion of a task, and that people with greater metacognitive abilities tend to be more successful thinkers.

Humans fare badly at metacognition – thinking about thinking, and categorisation as thinking – because we subconsciously categorise things, and subconsciously understand how things interact with one another during events.

Metacognitive reasoning however, has to be employed consciously to identify the appropriate categories latent in research scenarios, because whether one conducts quantitative or qualitative research, categorisation is the heartbeat of the research process, since categorisation forms the basis of science's fundamental theory of knowledge, *Epistemology* (studying the origin, nature, methods, and limits of human knowledge creation).

Fuzzy Boundaries between Categories

Labov (1973) reports a perception-based categorisation experiment in which observers were presented with drawings of objects that gradually varied in shape:

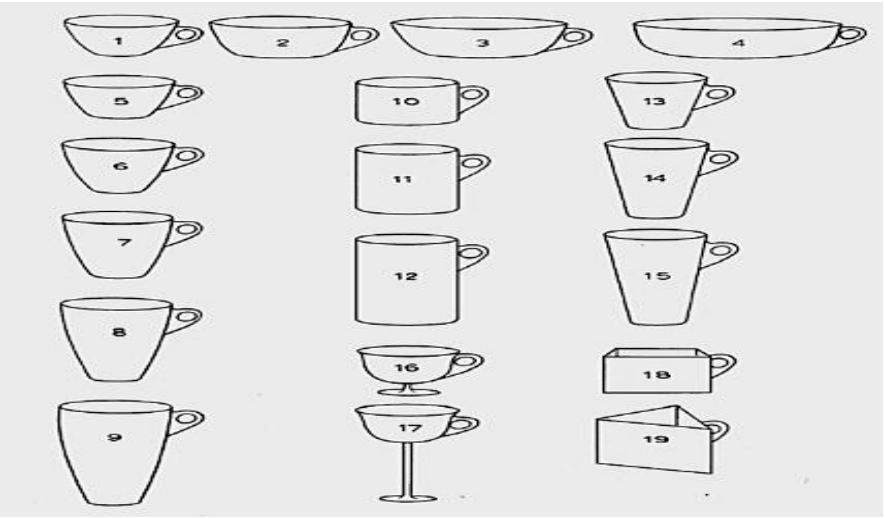

Figure 3: The non-discrete nature of objects, based on inherent variations in categorical shapes (Labov 1973; Alexander 2012)

Labov's ingenious experiment in perception-based classification shows that not all observers classify objects in exactly the same way, and that observers use context to help establish the boundaries between objects like cups and bowls:

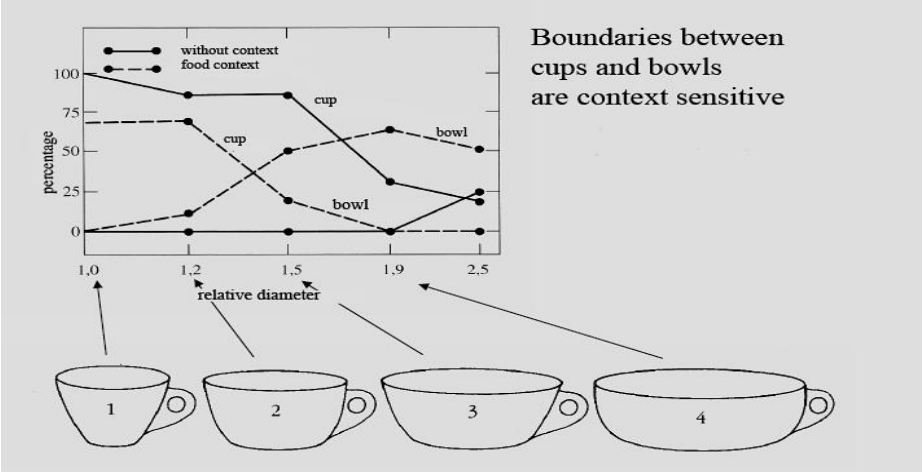

Figure 4: Categorical boundaries between objects differ from observer to observer, but are guided by context (Labov 1973; Alexander 2012)

Alexander (2012) observes about the Labov (1973) experiment:

> The interesting part of the experiment came when he [Labov] put the situation into a context of either drink or food. In the context of food the category shifted significantly. Now more of the vessels were seen as bowls than before.

The food-and-drink contexts to which Alexander refers, affect how observers that participated in Labov's test classified food utensils. Another example of how visual context affects classification is the Ebbinghaus Illusion, shown in figure 5 and discussed in Plodowski and Jackson (2012):

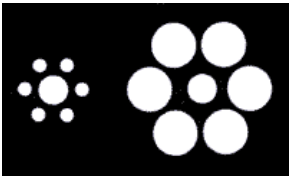

Figure 5: The Ebbinghaus illusion that demonstrates the role of context on perceptual interpretation of the attributes of category elements (Original source of this rendering unknown)

The above image consists of two sets of six outer circles concentrically arranged around an inner circle. The inner circle in the left-hand image appears to be larger than the inner circle of the right-hand image. When measured, both inner circles turn out to have the identical diameter. It is the context of the relative size of the outer circles that misleads one to think that the left-hand inner circle is larger than the right-hand one.

Prototypical and Atypical Members of Categories

In categorisation, and semantics, which is the bedrock of categorisation in epistemology, prototypes serve as best examples of entities within categories because they combine the most representative attributes of entities that belong to their category. Prototypes can therefore be considered as typical instances of entities in particular categories.

For example, placental mammals (the overwhelming majority of mammals) are more easily recognised as mammals (warm-blooded, four-limbed, hair-covered, earth-bound animals with teeth that are nurtured through a placenta while they develop as embryos in a motherly womb until they are born. An exception, an atypical category member would be bats, the flying placental nocturnal mammals known mostly by reputation, and that are commonly misclassified as birds. Other examples of atypical mammals would be whales, dolphins, porpoises and narwhals, all warm-blooded marine animals that are members of the cetacean branch of placental mammals, animals that are commonly misclassified as types of fish.

Similarly, unless one lives in Australasia the two sub-species of the *monotreme* order, egg-laying primitive mammals that are thought to have independently evolved from reptiles, the *platypus* and the *echidna*, are

considered even more atypical of mammals than bats, whales, porpoises, dolphins and narwhals. By comparison, *primates* (lemurs, tarsiers, monkeys, apes, and humans), *ungulates* (herbivorous, hoofed mammals) and *carnivores* (agile four-footed meat-eating, hunting animals with keen eyesight, like lions, leopards, dogs, badgers and weasels) are more readily and consistently recognised as mammals.

Prototype theory in categorization can be traced back to Wittgenstein's insight that family resemblances link members of categories. Explaining his concept of family resemblances, Wittgenstein (1965: 187) noted that family resemblance relationships link the various referents of a word. A family resemblance relationship is represented symbolically as AB, BC, CD, DE, indicating that similarities exist in the meaning of words in different contexts. The meaning of a word in context 1 has at least one, and probably several elements of meaning in common with the use of the word in another context, but no elements, or few elements are common across all contexts.

Taking Wittgenstein's theory of family resemblances as point of departure, Rosch (1973) and Rosch and Mervis (1975) report the results of a series of timed object recognition experiments that show that observers tend to recognise prototypical members of categories sooner and more consistently than atypical members of such categories.

Rosch and Mervis (1975) reason that when describing categories analytically, most traditions of thought have treated category membership as a digital, all-or-none phenomenon, with a member either belonging to a category or not. They point out that much work in philosophy, psychology, linguistics, and anthropology assumes that categories are logically bounded entities, membership in which is defined by an item's possession of a simple set of criterion-based features, in which all instances possessing the critical attributes have a full and equal degree of membership, giving all members of the category equal semantic weight. Say Rosch and Mervis:

> In contrast to such a view, it has been recently argued (see Lakoff 1972; Rosch 1973; Zadeh 1965) that some natural categories are analog and must be represented logically in a manner which reflects their analog structure. Rosch (1973; 1975b) has further characterized some natural analog categories as internally structured into a prototype (clearest cases, best examples of the category) and

nonprototype members, with nonprototype members tending toward an order from better to poorer examples[2].

Categorisation as a Subconscious Process

In *thinking* as well as *communication*, one *subconsciously* organises such categories into lexical categories, namely nouns, verbs, adjectives, adverbs, numerals, prepositions, articles and conjunctions, enabling one to effortlessly formulate an infinite number of sentences like the one below that I have parsed to indicate the categories to which each word belongs:

The tall man sat on a rickety chair while he neatly carved up the roast turkey

{[Independent Clause] ***The*** [definite article] ***tall*** [adjective] ***man*** [proper noun] ***sat*** [intransitive verb, past tense] ***on*** [preposition] ***a*** [indefinite article] ***rickety*** [adjective] ***chair*** [proper noun]} ***while*** [conjunction] {[Dependent Clause] ***he*** [personal pronoun] ***neatly*** [adverb] ***carved up*** [transitive particle verb, past tense] ***the*** [definite article] ***roast*** [adjective] ***turkey*** [proper noun]}.

It is worth noting that verbs (hit, beat, thrash…), nouns (husband, wife, child…) and numerals (one, ten, a trillion …) are open ended or infinite categories without upper limits, while, prepositions (inside), articles (the) and conjunctions (and) are closed categories with limited membership. Adjectives (shiny), which stipulate the attributes of things that we refer to by means of nouns, and adverbs (rapidly), which stipulate the attributes of actions or processes that we refer to by means of verbs, are semi closed categories from a purely logical point of view since objects that belong to the same category

[2] Zadeh (1965) also contributed to a more nuanced understanding of categorization in his system of fuzzy logic that he intended to form the basis of the semantic component of languages. While Zadeh's approach was not adopted by linguists, it has since found a range fruitful applications in technology, ranging from differential cycle control in automatic washing machines and differential speed controls of railway carriage wheels while going through curves on railway tracks.

(bread, butter, meat, milk) share attributes, as do actions (cut, carve, slice, slash) that belong to the same category.

Categorisation in Research

As indicated before, an immediate source of categories for quantitative research would be the real-world population that one studies, whether it is the employees in an organisation, members of the public, learners at school, or university students. Categorisation that is derived from and limited to the population that one studies, is transient and can be characterised as *scenario-based, pragmatic categorisation*. Typical attributes for category members arise from differences in the age, gender and rank of workers in an organisation, or the social organisation of a group that one studies, and the different activities in which respondents or interviewees are engaged.

It is worth noting that such scenario-specific categories and the attributes of the populations studied are contextualised by the researcher's overall world knowledge, which in turn is grounded in life experience. In a subsequent section I will argue that for the purposes of content analysis of texts (transcribed interviews, written reports, letters, email messages) speech acts could serve as classification categories, provided that such speech acts are ordered in a particular way.

Speech Acts as a Present-day Inter-discipline

Green (2007) describes speech acts as 'a staple of everyday communicative life' and adds that since the middle of the 20th century, when speech acts became a topic of sustained research, knowledge about speech acts significantly influenced a range of disciplines, such as linguistics, philosophy, psychology, legal theory, artificial intelligence, literary theory. According to Green:

> Recognition of the importance of speech acts has illuminated the ability of language to do other things than describe reality. In the process the boundaries among the philosophy of language, the philosophy of action, the philosophy of mind and even ethics have become less sharp. In addition, an appreciation of speech acts has

> helped lay bare an implicit normative structure within linguistic practice, including even that part of this practice concerned with describing reality.

From Green (2007)'s assessment it is clear that the theory of speech acts has established a significant interdisciplinary footprint since its inception in the nineteen fifties. In the sections that follow I briefly outline the origin and development of speech act theory for the benefit of non-linguists, after which I propose a framework that integrates speech acts and communication for the purpose of content analysis of documents and transcribed interviews.

Speech acts are language-specific semantic subcategories. As Green (2007) points out, speech acts also share interdisciplinary links with other knowledge meta-categories, namely linguistics, philosophy, psychology, legal theory, artificial intelligence, and literary theory. This implies that *interdisciplinary* links between such macro-categories in effect link speech acts that may be prototypical members in some knowledge categories while being atypical members in other categories.

Theoretical Frameworks for Speech Acts

The term 'speech acts' refers to the area in general linguistics that focuses on the dynamic (pragmatic) spoken or written use of utterances to influence the behaviour of hearers or recipients. Present-day speech act theory takes as point of departure J. L. Austin's distinction between performative utterances and his theory of *locutionary*, *illocutionary*, and *perlocutionary* acts (Austin 1962; 1970) and TheFreeDictionary (2013):

Locutions: a particular form of expression: a word, phrase, expression, or idiom, especially as used by a particular person or group.

Illocutions*:* an act performed by a speaker by virtue of uttering certain words, as for example the acts of promising or of threatening.

Perlocutions: producing an effect upon the listener, as in persuading, frightening, amusing, or causing the listener to act.

The term 'locutions' relates to the following aspects of linguistics, some of which are set out in Klopper (1999) and (2009) and that are therefore not dealt with here again:

Words: Phonotactics – the set of permissible arrangements or sequences of speech sounds in a specific language – the list of all the permissible speech sounds used in a particular language to distinguish words from non-words, and rules for which single consonants and consonant clusters (combinations of consonants) may be used before and after vowels and diphthongs (vowel combinations).

Phrases: How words may be combined to form phrases like noun phrases, adjectival phrases, and prepositional phrases.

Sentences: How independent clauses and dependent clauses may be used to form complex clauses that combine three or four individual clauses.

(Set) expressions: How to account for combinations of words that have become fused into single meaningful language units over time so that they in combination function like single words.

Idioms: How to account for set expressions in any particular language that gain more meaning in combination than the meanings of the individual words.

Persons: How to characterise forms of language use that are characteristic of particular individuals – idiolectic characteristics.

Groups: How to characterise forms of language that are characteristic of regions (dialects) and the language use of particular social groups (sociolects).

Illocutions and Perlocutions: These terms relate to how language users actually use locutions to cause recipients (listeners and readers) to change their behaviour

Searle's Framework for Classifying Speech Acts

Searle (1975a) set up the following classification of illocutionary speech acts:

Assertives: speech acts that commit a speaker to the truth of an assertion/ statement.

Directives: speech acts like requests, commands and advice - assertions that are used with the intention to cause the hearer to respond in some particular way.

Commissives: speech acts like promises and oaths - assertions that commit a speaker to some future action.

Expressives: speech acts like congratulations, excuses and thanks – assertions that express on the speaker's attitudes and emotions towards something or someone.

Declaratives: speech acts like baptisms, christenings, pronouncing someone guilty or pronouncing people married – assertions that formally change the status of the persons that form the subject of the speech act.

Bach's Framework for Classifying Speech Acts

Bach (1973) classifies Speech Acts into four major general categories, for each of which he distinguishes between six and twenty-two subcategories per general speech act category

Constatives: Assertions/statements used for affirming, alleging, announcing, answering, attributing, claiming, classifying, concurring, confirming, conjecturing, denying, disagreeing, disclosing, disputing, identifying, informing, insisting, predicting, ranking, reporting, stating, stipulating …

Directives: advising, admonishing, asking, begging, dismissing, excusing, forbidding, instructing, ordering, permitting, requesting, requiring, suggesting, urging, warning …

Commissives: agreeing, guaranteeing, inviting, offering, promising, swearing, volunteering …

Acknowledgments: apologizing, condoling, congratulating, greeting, thanking, accepting (acknowledging an acknowledgment) ….

Examples of Some English Speech Acts

One performs a speech act when one successfully uses language to get other people to do what you want them to do. The following are randomly selected examples of every-day used speech acts:

Greeting: 'Hello, Jane. It's good to see you again'

Request: 'Pass me the salt, please?'

Complaint: 'How much longer do I have to wait? I was promised that it would take only five minutes!'

Invitation: 'I'd like you to come to my housewarming party on Saturday night. Can you make it?'

Compliment: 'I haven't seen you for years, and my goodness, you don't look a day older!'

Refusal: 'Forget it! I'm not letting you drive my car again'.

Speech Act Clustering

Speech acts are context sensitive forms of verbal and written communication, directed at recipients. Keeping in mind that communication as well as interpretation is always context sensitive, and are used in semantically congruent clusters, the following randomly chosen examples are used in the context of a cluster of speech acts, all used by the same speaker to persuade a child to eat peas as part of a meal:

Greeting: 'Hello big boy, how was school today?'

Inviting: 'Would you like some peas with your lunch?'

Promising: 'If you eat your peas, I'll give you ice cream'.

Threatening: 'If you don't eat your peas, you can't watch TV'.

Ordering: 'Eat the damn peas!'

Warning: 'Be careful, those peas are hot!'

Congratulating: 'Well done for having eaten your peas!'

Communication

Textbooks in communication and public speaking abound in generic communication models that present communication as a value-neutral process. Such models are invariably based on Shannon (1948)'s model for electronic communication, first used in telegraphic communication, and subsequently in telephonic and Internet-based electronic communication:

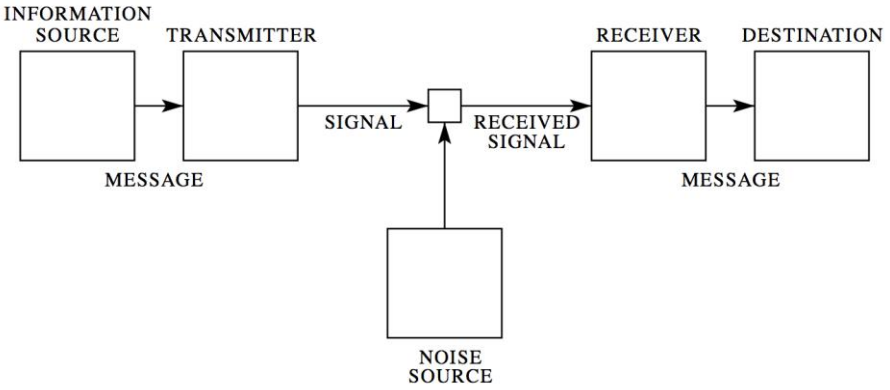

Figure 6: Shannon's general communication model from Shannon (1948)

As one can deduce from speech acts theory, human communication is not value neutral, but instead a *contested* process of interacting with others in order to get them to do what you want them to do.

Communication as Value-driven Process

Klopper (2005:107) formulates the value-driven, compliance gaining nature of human communication as follows: 'Human communication … ranges along a *cooperation* > *competition* > *confrontation* continuum'. Klopper (2005) further explains that the C⇨C⇨C continuum can be characterised by means of five axiomatic statements:

1. Humans are driven to communicate for survival's sake.

2. The survival principle of enlightened self-interest determines that one only cooperates with others if it is to one's advantage.

3. People or groups compete to gain and maintain a survival advantage.

4. Competing individuals or groups engage in confrontations to obtain or retain competitive advantage.

5. Humans also employ the C⇨C⇨C continuum in education, business and leisure.

Interpersonal and Intrapersonal Communication

Klopper (2005:109) further distinguishes between interpersonal communication and intrapersonal communication:

> Reduced to its essence, communication is a contested meeting of minds, where fellow communicators cooperate, compete or confront one another to clearly convey their intentions and contentions. To achieve such a meeting of minds one simultaneously has to engage in intrapersonal and interpersonal communication.

Characterising communication as a 'contested meeting of minds' integrates *interpersonal* aspects of communication between individuals with *intrapersonal* cognitive processes that take place in each communicator's mind while communicating – a process that according to Livingston (1997) is known as *metacognition* in Educational Psychology. Communicators focus on the words that they use to persuade others, to negotiate with them, or to confront them when persuasion or negotiation fails, but remain largely unaware of their nonverbal communication (body language), or their reasoning strategies.

The following quotation from Orloff (2002), recounts the recollections of two WWII survivors about what went through their minds while they were waiting in an aeroplane for the D-day jump in Normandy. It clearly highlights the nature of intrapersonal communication/ metacognition. Verbs that relate to intrapersonal communication during self-reflection, are underlined:

> *We came from the sky. We hit, and in any direction you went, there would be enemy. You* knew *it. And that was all part of what you* accepted *....*
> US Army 101st Airborne Division, Easy Company, Survivor 1
> *How do you* prepare yourself mentally*? Each man must do that himself, each man must prepare himself mentally ... to make that jump.* In the back of your mind, *you* wonder *what's gonna happen. You* know *you've been trained and trained ... and what your job is and what you're supposed to do. That's what you gotta* think *about. We lost a lot of people that night, but you try to put it all out of your mind* (US Army 101st Airborne Division, Easy Company, Survivor 2.)

Since it is the purpose of this article to *propose* a framework that integrates speech acts, interpersonal communication and intrapersonal communication/ metacognition, the nature of intrapersonal communication is not discussed in great detail here, except for pointing out that intrapersonal communication has an equivalent narrative device used in fiction that writers use to represent the inner thoughts of characters, known as 'monologue interieur' and 'stream of consciousness'.

Integrating Speech Acts with Value-driven Contested Communication

Figure 7 below presents a schema for the relationship between interpersonal and intrapersonal communication:

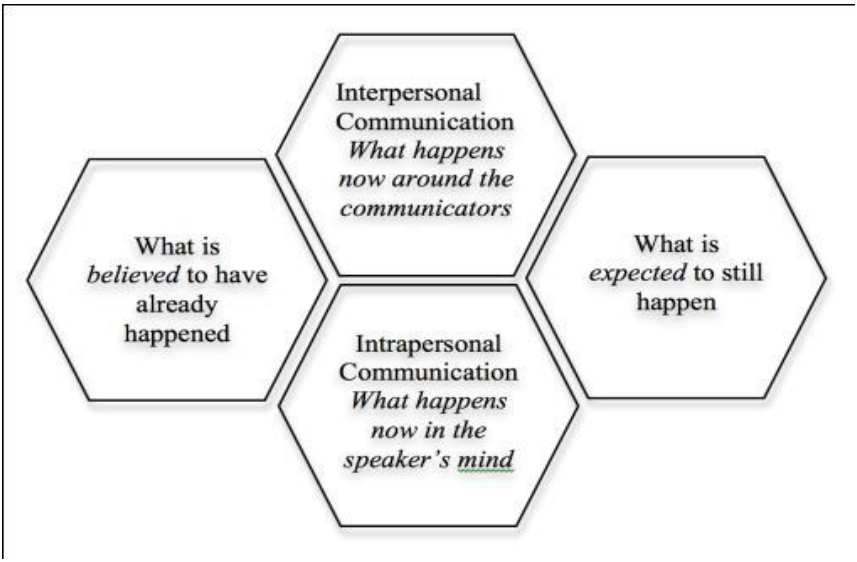

Figure 7: General honeycomb schema for the relationship between interpersonal and intrapersonal communication

Figure 8: Honeycomb communication lattice showing the relationship between illocutionary and perlocutionary speech acts during interpersonal and intrapersonal communication

Conclusions

A comparison of Figures 7 and 8 shows that the communication lattice of illocutionary and perlocutionary speech acts is based on the general schema for interpersonal-intrapersonal communication:

1. The honeycomb lattice pattern of both representations is not intended as a mere aesthetic feature, but has been chosen to help suggest Labov (1973)'s principle that *category boundaries are fuzzy* and should be interpreted context-dependently because of family resemblance relationships, symbolised as AB, BC, CD, DE relationships between categories as proposed in Wittgenstein (1965).

2. The fuzzy boundaries between speech acts categories entails that speech acts can be ordered on a dual top-to-bottom vertical axis where towards the top one has categories of illocutionary speech acts that relate to externally focussed real-world interpersonal communication interactions (arguing, debating, contradicting, pronouncing a sentence, offering, promising, making small talk to gain rapport at the start of conversations), while towards the bottom of the lattice one has mind-internal categories of intrapersonal communication speech acts that relate to the-real-world-mentally-reconstructed (reporting a vision, fantasising, predicting/ prophesying future events).

3. On the horizontal axis speech acts categories are organised on a past-present-future referencing principle. The horizontal pattern is as significant as the vertical one for an epistemic reason: the truthfulness of assertions used with a present-tense focus can be confirmed or disconfirmed immediately by participants, but assertions that relate to past or future events require of participants to believe-and-accept, or not-believe-and-reject their truthfulness.

4. These is not trivial points because they imply that intrapersonal communication takes place constantly while a person thinks, and also when s/he considers which arguments to present during contested communication, and when to deploy them.

5. The proposed framework also implies that interpersonal communication tends to be perceived as being subject to temporal constraints, while intrapersonal communication tends to be perceived as timeless.

6. Finally, I propose the lattice in Figure 9 as a viable source for categories to conduct content analysis of cooperative communication, negotiation and confrontational communication.

Conclusion

In this contribution I presented a framework for integrating cognition, speech acts and communication for the purpose of content analysis. I outlined the basis of how humans categorise things. Taking as point of departure Collins and Quillian (1969) I showed that lexical categories are hierarchically ordered into superordinate level lexemes, basic level lexemes and subordinate level lexemes. Based on Labov (1973) and Wittgenstein (1965) I presented the argument that category boundaries are fuzzy and that their members show family resemblance relationships due to partially shared attributes among category members. I argued that while categories for content analysis are usually pragmatically derived from the context of events to be studied, categories of speech acts could also be used to analyse instances of cooperative communication, negotiation and confrontational communication.

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