

# Analogies in Spontaneous Discourse<sup>1</sup>

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## Abstract

This paper presents an analysis of analogies based on observations of natural conversations. People's spontaneous use of analogies provides insight into their implicit evaluation procedures for analogies. The treatment here, therefore, reveals aspects of analogical processing that is somewhat more difficult to see in an experimental context. The work involves explicit treatment of the discourse context in which analogy occurs. A major focus here is the formalization of the effects of analogy on discourse development. There is much rule-like behavior in this process, both in underlying thematic development of the discourse and in the surface linguistic forms used in this development. Both these forms of regular behavior are discussed in terms of a hierarchical structuring of a discourse into distinct, but related and linked, context spaces.

## 1 Introduction

People's use of analogies in conversation reveals a rich set of processing strategies. Consider the following example.

### Excerpt 1

- A: 1. I think if you're going to marry someone in the  
2. Hindu tradition, you have to - Well, you - They  
3. say you give money to the family, to the girl,  
4. but in essence, you actually buy her.
- B: 5. It's the same in the Western tradition. You  
6. know, you see these greasy fat millionaires going  
7. around with film stars, right? They've  
8. essentially bought them by their status (?money).
- C: 9. No, but, there, the woman is selling herself.  
10. In these societies, the woman isn't selling  
11. herself, her parents are selling her.

There are several interesting things happening in this exchange. For example, notice that the analogy is argued and discussed by the conversants, and that in the argumentation C uses the close discourse deictic "these" to refer to the initiating subject of the analogy, and that she uses the far discourse deictic "there" to refer to the linearly closer analogous utterances. In addition, notice that C bases her rejection on a non-correspondence of relations effecting the relation claimed constant between the two domains (women being sold). She does not simply pick any arbitrary non-correspondence between the two domains. In the body of this paper, I address and develop these types of phenomena accompanying analogies in naturally ongoing discourse.

The body of the paper is divided into four sections. First a theoretic framework for discourse is presented. This is followed by some theoretic work on analogies, an integration of this work with the general theory of discourse proposed here, and an illustration of how the

<sup>1</sup>I would like to thank Dedre Gentner for many useful comments and discussions.

integration of the different approaches explicates the issues under discussion. In the last section of the paper, I concentrate on some surface linguistic phenomena accompanying a conversant's use of analogy in spontaneous discourse.

## 2 The Context Space Theory of Discourse

A close analysis of spontaneous dialogues reveals that discourse processing is focused and enabled by a conversant's ability to locate a single frame of reference [19, 15, 16] for the discussion. In effective communication, listeners are able to identify such a frame of reference by partitioning discourse utterances into a hierarchical organization of distinct but related and linked context spaces. At any given point, only some of these context spaces are in the foreground of discourse. Foregrounded context spaces provide the needed reference frame for subsequent discussion.

An abstract process model of discourse generation/interpretation incorporating a hierarchical view of discourse has been designed using the formalism of an Augmented Transition Network (ATN) [29]<sup>2</sup>. The grammar encoding the context space theory [20, 22] views a conversation as a sequence of conversational moves. Conversational moves correspond to a speaker's communicative goal vis-a-vis a particular preceding section of discourse. Among the types of conversational moves - speaker communicative goals - formalized in the grammar are: Challenge, Support, Future-Generalization, and Further-Development.

The correlation between a speaker's utterances and a speaker's communicative goal in the context space grammar is somewhat similar to a theory of speech acts à la Austin, Searle, and Grice [1, 24, 9]. As in the speech act theory, a speaker's conversational move is recognized as a functional communicative act [4] with an associated set of preconditions, effects, and mode of fulfillment. However, in the context space approach, the acts recognized are specific to maxim-abiding thematic conversational development, and their preconditions and effects stem from the discourse structure (rather than from/on arbitrary states in the external world).

All utterances that serve the fulfillment of a single communicative goal are partitioned into a single discourse unit - called a context space. A context space characterizes the role that its various parts play in the overall discourse structure and it explicates features relevant to "well-formedness" and "maxim-abiding" discourse development. Nine types of context spaces have been formalized in the grammar representing the different constituent types of a discourse. The spaces are characterized in much the same way as elements of a "Systemic Grammar" à la Halliday [10] via attributes represented as "slots" per Minsky [14]. All context spaces have slots for the following elements:

<sup>2</sup>The rules incorporated in the grammar by themselves do not form a complete system of discourse generation/interpretation. Rather, they enable specification of a set of high level semantic/logical constraints that a surface linguistic form has to meet in order to fill a certain maxim-abiding conversational role at a given point in the discourse.

- o a propositional representation of the set of functionally related utterances said to lie in the space;
- o the communicative goal served by the space;
- o a marker reflecting the influential status of the space at any given point in the discourse;
- o links to preceding context spaces in relation to which this context space was developed;
- o specification of the relations involved.

An equally important feature of a context space are its slots that hold the inferred components needed to recognize the communicative goal that the space serves in the discourse context. There are various ways to fulfill a given communicative goal, and usually, dependent on the mode of fulfillment and the goal in question, one can characterize a set of standardized implicit components that need to be inferred. For example, as noted by investigators of argumentation (e.g., [26, 23, 5, 22]), in interpreting a proposition as supporting another, we often need to infer some set of mappings between an inferred generic principle of support, the stated proposition of support, and the claim being supported. We must also infer some general rule of inference that allows for conclusion a claim given the explicit statements of support and these inferred components.

Reflecting this standardization of inferential elaborations, I have categorized different types of context spaces based on communicative goal and method fulfillment characterizations (i.e., specification of specific slots needed to hold the standardized inferential elaborations particular to a given goal and mode of fulfillment). Delineation of context spaces, then, is functionally based, and in the context space grammar, implicit components of a move are treated as much a part of the discourse as those components verbally expressed.

### 3 The Analogy Conversational Move

Interpreting/understanding an analogy obviously involves some inferring on the part of a listener. An analogous context space, therefore, has some slots particular to it. The grammar's characterization of an analogous context space is derivative from its formal analysis of an analogy conversational move.

#### 3.1 The Structure-Mapping Approach

Identification of those aspects of knowledge considered important in analogy seems to be of major concern in current investigation of this cognitive task (e.g., [2, 3, 6, 7, 8, 11, 12, 13, 18, 25, 28]). Gentner's Structure-Mapping theory [6, 7, 8] seems most compatible with the findings of the context space approach. Gentner argues that analogies are based on an implicit understanding that "identical operations and relationships hold among non identical things. The relational structure is preserved, but not the objects" [8, p.4].

Gentner's analysis can be used to explain B's analogy between the Hindu and Western traditions in Excerpt 1. The relation MEN BUYING WOMAN FOR SOME COMPANION FUNCTION is held constant between the two domains, and the appropriateness of the analogy is not affected, for instance, by the noncorresponding political views and/or religions of the two societies.

While Gentner cuts down on the number of correspondences that must exist between two domains for an analogy to be considered good, she still leaves open a rather wide set of relations that must seemingly be matched between a base and target domain. We need some way to further characterize just those relations that must be mapped. For example, the relation TRADING WITH CHINA is totally irrelevant to the Hindu-Western analogy in this discourse context. As noted by Lakoff & Johnson [12], metaphors simultaneously "highlight" and "hide" aspects of the two domains being mapped onto each other. The context space theory supplements both Lakoff & Johnson's analysis and the structure-mapping approach in its ability to provide relevant relation characterization.

#### 3.2 The Context Space Approach

In the context space theory, three elements are considered vital to analogy evaluation:

- o the structure mapping theory
- o relevant context identification
- o communicative goal identification

The context space grammar's analysis of analogies can be characterized by the following:

Explicating the connection between an utterance purporting to make a claim analogous to another rests on recognizing that for two propositions to be analogous, it must be the case that they can both be seen as instances of some more general claim, such that the predicates of all three propositions are identical (i.e., relation identity), and the correspondent objects of the two domains involved are both subsets of some larger set specified in this more general claim.

Rejecting an analogy is based on specifying some relation, RI, of one domain, that one implies (or claims) is not true in the other; or is based on specifying some non-identical attribute-value pair from which such a relation, RI, can be inferred. In both cases, RI must itself stand in a 'CAUSE' relation (or some other such relation<sup>3</sup>) with one of the relations explicitly mentioned in the creation of the analogy (i.e., one being held constant between the two domains, that we can call RC). Furthermore, it must be the case that the communicative goal of the analogy hinges on RI(RC) being true (or not true) in both of the domains.

#### 3.3 Analogous Context Spaces

Reflecting this analysis of analogies, all analogous context spaces have the following slot definitions (among others).

**Abstract:** This slot contains the generic proposition, P, of which the initiating and analogous claims are instances. Reflecting the fact that the same predication must be true of both claims,

<sup>3</sup>Since according to this analysis the prime focal point of the analogy is always the relations (i.e., "actions") being held constant, and a major aspect of an "action" is its cause (reason, intent, or effect of occurrence), a noncorrespondence in one of these relations will usually invalidate the point of the analogy.

the predicate in the abstract slot is fixed; other elements of the abstract are variables corresponding to the abstracted classes of which the specific elements mentioned in the analogous and initiating claims are members. The structure of this slot, reflecting this importance of relation identity, consists of two subslots:

**Relations:** This slot contains a list of the relations that are constant and true in the two domains.

**Proposition:** This slot contains the generic proposition defined in terms of the constant predicates and their variable role fillers.

**Mappings:** This slot contains a list of lists, where each list corresponds to a variable of the generic proposition, P, and the mappings of the objects of the domain specified in the initiating context space onto the objects specified in the analogous context space.

### 3.4 Communicative Goals Served by Analogies

An analogy conversational move can serve in fulfillment of a number of different communicative goals. Major roles currently identified are:

1. Means of Explanation
2. Means of Support
3. Means of Implicit Judgement (i.e., conveying an evaluative opinion on a given state-of-affairs by comparing it to a situation for which opinion, either positive or negative, is assumed generally shared)
4. Topic Shift by Contrast
5. Means for Future-Generalization

In maxim-abiding discourse, only elements felt to be directly analogous or contrastive to elements contained in the initiating context space are discussed in the analogous space<sup>4</sup>. Analogy construction entails a local shift in topic, and, therefore, in general, after discussion of the analogous space (including its component parts, such as "supports-of," "challenges-of," etc.), we have immediate resumption of the initiating context space. (When analogies are used for goals 4 & 5 noted above, if the analogy is accepted, then there need not be a return to the initiating space.)

<sup>4</sup>Of course, this does not preclude explicitly noted digressions.

### 3.5 Illustration

In this section, I present an analysis of an excerpt in which conversants spontaneously generate and argue about analogies. The analysis highlights the efficacy of integrating the structure mapping approach with the communicative goal directed approach of the context space theory. The excerpt also illustrates the rule-like behavior governing continued thematic development of a discourse after an analogy is given.

Excerpt 2 is taken from a taped conversation between two friends, M and N, wherein M, a British citizen, is trying to explain to N, an American, the history of the current turmoil in Ireland. The conversational moves involved in the excerpt (A & D being of the same category) are the following:

- A: Analogy
- B: Challenge of Analogy
- C: Defense of Analogy
- D: Alternate Analogy
- E: Return to the initiating context space of the analogy; with the return being in the form of a "Further-Development" (as signalled by the clue word "now").

#### Excerpt 2

- M: 1. And, of course, what's made it worse this time  
2. is the British army moving in. And, moving in,  
3. in the first place, as a police force. It's  
4. almost a Vietnam, in a way.
- N: 5. But, all within Northern Ireland?
- M: 6. All within Northern Ireland. Moving in as a  
7. police force, being seen by everybody as a  
8. police force that was going to favor the  
9. Protestants.
- N: 10. It'd rather be like Syria being in Lebanon,  
11. right?
- M: 12. I don't know enough about it to know, maybe.
- N: 13. There's - Where, there's a foreign police force  
14. in one country. I mean, when you say it's like  
15. Vietnam, I can't take Vietnam. Vietnam is North  
16. Vietnam and South Vietnam.
- M: 17. No, I meant war. You know, moving in and saying  
18. we're a police action and actually fighting a war  
19. when you got there.
- N: 20. Oh, well, that's Syria, that's obviously Syria,  
21. right? Who are implicitly supporting - not  
22. supporting - 'cause actually it's very similar  
23. in Lebanon, right? You have the Catholics and  
24. the Moslem. That's right, that's Lebanon.
- M: 25. I suppose, yes.
- N: 26. You have the Catholics and the Moslem, and then  
27. Syria's coming in and implicitly supporting the  
28. Moslem, because Syria itself is Moslem.  
29. Now, England is Protestant?

### 3.5.1 Analysis

We can begin the analysis with a more formal characterization of M's analogy conversational move.

The generic proposition underlying M's analogy:

\$Country1 R1 \$Country2  
\$Country1 R2 \$EthnicGroup2

Where, the constant relations are:

R1: MOVE-IN-AS-POLICE-FORCE  
R2: TAKE-SIDE-OF

The objects mapped onto each other:

Mappings1: England, America  
Mappings2: Ireland, Vietnam  
Mappings3: Protestants, South Vietnamese

The communicative goal served by the analogy:

Negative Evaluation on England

In rejection of the analogy, N claims that in the Vietnam case alone the following three relations occur:

R3: FOREIGN INVASION  
R4: AID AGAINST FOREIGN INVASION  
R5: CAUSE

Where, R5 is a relation between relations, i.e., R3 CAUSE R4<sup>5</sup>.

The purpose of M's analogy is to highlight her negative assessment of England in the Ireland situation (as identified by her utterance, "And, what's made it worse this time ..."). M attempts to accomplish this by mapping the presumed acknowledged negative assessment of America in Vietnam onto England. Such a negative evaluative mapping, however, can only occur of course if one condemns America's involvement in Vietnam. N denies such a presumed negativity by arguing that it is possible to view America's involvement in Vietnam as coming to the aid of a country under foreign attack<sup>6</sup> (i.e., as a positive rather than a negative act).

Thus, argues N, the "cause" relations of the acts being held constant between the two domains (i.e., entrance as a police force but being partisan) are quite different in the two cases. And, in the Vietnam case, the cause of the act obviates any common negativity associated with such "unfair police force treatment." There is no negativity of America to map onto England, and the whole purpose of the analogy has failed. Hence, according to

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<sup>5</sup>R4 can be thought of as another way of looking at R1 and R2. Alternatively, it could be thought of as replacing R1 and R2, since when one country invades another, we do not usually consider third party intervention as mere "coming in as a police force and taking the side of," but rather as an entrance into an ongoing war. However, I think in one light one can view the relations of R1 and R2 holding in either an internal or external war.

<sup>6</sup>Most criticisms of America's involvement in Vietnam rest on viewing it as an act of intervention in the internal affairs of a country against the will of half of its people.

N, the analogy in this discourse context is vacuous and warrants rejection<sup>7</sup>.

After N's rejection of M's analogy, and N's offering of an alternative analogy<sup>8</sup>, which is somewhat accepted by M<sup>9</sup> as predicted by the grammar's analysis of an analogy conversational move used for purposes of evaluation/justification, it is time to have the initiating subject of the analogy returned-to (i.e., it is time to return to the subject of Britain's moving into Ireland)

The return, on Line 28, in the form of "Further-Development," constitutes a subordinating shift from discussion of the event of the British army entering Ireland onto discussion of England's underlying motivations and reasons for engaging in this event.

The form of return illustrates Lakoff & Johnson's notion of a metaphor creating new meanings for us, and its ability to "induce new similarities" [12]. That is, it exemplifies a conversant's attempt to map new knowledge onto pre-existing knowledge of a domain based upon, and induced by, an analogy made to this domain. An appropriate extended paraphrase of N's question on Line 28 is: "Okay, so we accept Syria's presence in Lebanon as a better analogy for England's presence in Ireland. Now, we know, or have just shown that Syria's bias to the Moslems can be explained by the fact that Syria herself is Moslem. It has been stated that England, in a similar situation, is favoring Protestants. Can we then carry motives<sup>10</sup> over as well in the analogy? That is, can we then infer that England is favoring the Protestants because she is Protestant?"

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<sup>7</sup>In a different context, perhaps, i.e., had the analogy been cited for a different purpose, N may have accepted it. In addition, it is important to recognize that though there are numerous other non-correspondences between the American-Vietnam and England-Ireland situations (e.g., the respective geographic distances involved), N's random selection of any one of these other noncorresponding relations (irrespective of their complexity) would not have necessarily led to effective communication or a reason to reject the analogy.

<sup>8</sup>N's citing of this alternative analogy is supportive of the grammar's analysis that the purpose of an analogy is vital to its acceptance, since, it happens that N views Syria's intervention in Lebanon quite negatively: thus, her choice of this domain where (in her view) there is plenty of negativity to map.

<sup>9</sup>Notice, by the way, that in terms of "attribute identity," America is a much closer match to England than Syria is. This example supports the theory that "attribute identity" plays a minimal role in analogy mappings.

<sup>10</sup>The fact that N attempts to map a "cause" relation between the two domains, further supports the theory that it is correspondence of schematization of relations between domains, rather than object identity, that is a governing criteria in analogy construction and evaluation.

#### 4 Surface Linguistic Phenomena

The rules of reference encoded in the context space grammar do not complement traditional pronominalization theories which are based on criteria of recency and resulting potential semantic ambiguities. Rather, the rules are more in line with the theory proposed by Olson who states that "words designate, signal, or specify an intended referent relative to the set of alternatives from which it must be differentiated" [17, p.264]. The context space grammar is able to delineate this set of alternatives governing a speaker's choice (and listener's resolution) of a referring expression<sup>11</sup> by continually updating its model of the discourse based on its knowledge of the effects associated with different types of conversational moves.

Its rule of reference, relevant to current discussion, is:

- o Only elements in a currently active and controlling context space pair are in the set of alternatives vying for pronominal and close deictic referring expressions.

The context space grammar continually updates its model of the discourse so that at any given point it knows which preceding utterances are currently in the active and controlling context spaces. Discourse model updating is governed by the effects of a conversational move. Major effects of most conversational moves are:

- o changes to the influential statuses of preceding context spaces;
- o changes to focus level assignments of constituents of the utterances contained in these spaces;
- o establishment of new context spaces;
- o the creation of outstanding discourse expectations corresponding to likely subsequent conversational moves.

The effects of initiating an analogy conversational move are to:

- o put the initiating context space in a Controlling state (denoting its foreground role during the processing of the analogous space);
- o create a new Active context space to contain the forthcoming analogous utterances;
- o create the discourse expectation that upon completion of the analogy, discussion of the initiating context space will be resumed (except in cases of communicative goals 4 and 5 noted above).

Ending an analogy conversational move, makes available to the grammar the "Resume-Initiating" discourse expectation, created when the analogy was first generated. The effects of choosing this discourse expectation are to:

- o Close the analogous context space (denoting that the space no longer plays a foreground discourse role);
- o reinstantiate the initiating context space as Active.

Excerpt 3 illustrates how the grammar's rule of reference and its updating actions for analogies explain some seeming surprising surface linguistic forms used after an analogy in the discourse. The excerpt is taken from an informal conversation between two friends. In the discussion, G is explaining to J the workings of a particle accelerator. Under current discussion is the cavity of the accelerator through which protons are sent and accelerated. Particular attention should be given to G's referring expressions on Line 8 of the excerpt.

#### Excerpt 3

- G: 1. It's just a pure electrostatic field, which,  
2. between two points, and the proton accelerates  
3. through the electrostatic potential.
- J: 4. Okay.
- G: 5. Same physical law as if you drop a ball. It  
6. accelerates through a gravitational potential.
- J: 7. Okay.
- G: 8. And the only important point here is that  
9. the potential is maintained with this  
10. Cockcroft-Walton unit.

Lines 1 - 3: Context Space C1, The Initiating Space.  
Lines 5 - 6: Context Space C2, The Analogous Space.  
Lines 8 - 10: Context Space C1, The Resumption.

On Line 9, G refers to the "electrostatic potential" last mentioned on Line 3, with the unmodified, close deictic referring expression<sup>12</sup> "the potential," despite the fact that interveningly on Line 5 he had referenced "gravitational potential," a potential semantic contender for the unmodified noun phrase. In addition, G uses the close deictic "here" to refer to context space C1, though in terms of linear order, context space C2, the analogous context space, is the closer context space.

Both these surface linguistic phenomena are explainable and predictable by the context space theory. Line 8 fulfills the discourse expectation of resuming discussion of the initiating context space of the analogy. As noted, the effects of such a move are to close the analogous context space (here, C2) and to reassign the initiating space (here, C1) an active status. As noted, only elements of an active or controlling context space are viable contenders for pronominal and close deictic references; elements of closed context spaces are not. Hence, despite criteria of recency and resulting potentials of semantic ambiguity, G's references unambiguously refer to elements of C1, the active foregrounded context space in the discourse model.

As a second example of speakers using close deictics to refer to elements of the initiating context space of an analogy, and corresponding use of far deictics for elements of the analogous space, lets re-consider Excerpt 1, repeated below.

<sup>11</sup>Lacking from this theory, however, but hopefully to be included at a later date, is Webber's notion of evoked entities [27] (i.e., entities not previously mentioned in the discourse but which are derivative from it - especially, quantified sets).

<sup>12</sup>The grammar considers "The X" a close deictic reference as it is often used as a complement to "That X," a clear far deictic expression [21]

### Excerpt 1

- A: 1. I think if you're going to marry someone in the  
2. Hindu tradition, you have to - Well, you - They  
3. say you give money to the family, to the girl,  
4. but in essence, you actually buy her.
- B: 5. It's the same in the Western tradition. You  
6. know, you see these greasy fat millionaires going  
7. around with film stars, right? They've  
8. essentially bought them by their status (?money).
- C: 9. No, but, there, the woman is selling herself.  
10. In these societies, the woman isn't selling  
11. herself, her parents are selling her.

Lines 1 - 5: Context Space C1, The Initiating Space.  
Lines 5 - 8: Context Space C3, The Analogous Space.  
Lines 9 - 11: Context Space C3, The Challenge Space.

On Line 9, C rejects B's analogy (as signalled by her use of the clue words, "No, but") by citing a noncorrespondence of relations between the two domains. Notice that in the rejection, C uses the far deictic "there" to refer to an element of the linearly close analogous context space, C2,<sup>13</sup> and that she uses the close deictic "these" to refer to an element of the linearly far initiating context space, C1<sup>14</sup>.

The grammar models C's move on Line 9 by processing the "Challenge-Analogy-Mappings" (CAM) conversational move defined in its discourse network. This move is a subcategory of the grammar's Challenge move category. Since this type of analogy challenge entails contrasting constituents of both the initiating and analogous context spaces<sup>15</sup>, the grammar must decide which of the two spaces should be in a controlling status, i.e., which space should serve as the frame of reference for subsequent processing. Reflecting the higher influential status of the initiating context space, the grammar chooses it as its reference frame<sup>16</sup>.

As such, on its transition path for the CAM move, move, the grammar:

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<sup>13</sup>This conversation was recorded in Switzerland, and in terms of a locative use of deictics, Western society is the closer rather than Hindu society. Thus, the choice of deictic cannot be explained by appeal to external reference criteria.

<sup>14</sup>Notice, however, that C does not use the close deictic "here," though it is a better contrastive term with "there" than is "these." The rule of using close deictics seems to be slightly constrained in that if the referent of "here" is a location, and the speaker is not in the location being referenced, then, s/he cannot use "here."

<sup>15</sup>In a different type of analogy challenge, for example, one could simply deny the truth of the analogous utterances.

<sup>16</sup>In the cases of Pre-Generalization and Topic-Contrast-Shift analogies, it is only after the analogy has been accepted that the analogous space is allowed to usurp the foreground role of the initiating context space.

- o puts the currently active context space (i.e., the analogous context space) in a Generating state (reflecting its new background role);
- o leaves the initiating space in its Controlling state (i.e., it has been serving as the reference frame for the analogy);
- o creates a new Active context space in which to put the challenge about to be put forward.

Performing such updating actions, and using its rule that only elements in a controlling or active space are viable contenders for close deictic and pronominal references, enables the grammar to correctly model, explain, and predict C's reference forms on Lines 9 - 11 of the excerpt.

### 5 Conclusion

In this paper I have offered a treatment of analogies within spontaneous dialogues. In order to do this I first proposed a context space model of discourse. In the model discourse utterances are partitioned into discrete discourse units based on the communicative goal that they serve in the discussion. All communicative acts effect the preceding discourse context and I have shown that by tracking these effects the grammar can specify a frame of reference for subsequent discussion. Then, a structure-mapping approach to analogies was discussed. In this approach it is claimed that the focus of an analogy is on systems of relationships between objects, rather than on attributes of objects. Analysis of naturally occurring analogies supported this claim. I then showed that the context space theory's communicative goal analysis of discourse enabled the theory to go beyond the structure-mapping approach by providing a further specification of which kinds of relationships are most likely to be included in description of an analogy. Lastly, I presented a number of excerpts taken from naturally ongoing discourse and showed how the context space analysis provided a cogent explanation for the types of analogies found in discourse, the types of rejections given to them, the rule-like thematic development of a discourse after an analogy, and the surface linguistic forms used in these development.

In conclusion, analyzing speakers spontaneous generation of analogies and other conversants' reactions to them, provides us an usually direct form by which access individuals' implicit criteria for analogies. These exchanges reveal what conversants believe analogies are responsible for and thereby what information they need to convey.

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