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The dimension of oppositeness: Universal and typological aspects

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1. Introduction*

Oppositeness, i.e. the relation between opposites or contraries or contradictories, has a fundamental role in human cognition. In the various domains of intellectual and psychological activity we find ordering schemas that are based, in one way or another, on the cognitive figure of oppositeness. It is therefore not surprising that the figure and its corresponding ordering schemas show their reflexes in the languages of the world.

Linguistic reflexes of the relation between opposites are presented in the literature, especially in treatises on semantics, for which J. Lyons may be cited as a prominent representative (Lyons 1977: 270 ff.). In the center of interest we find the so-called antonyms, i.e., from the point of view of Western European languages, evaluative and dimensional adjectives grouped in pairs of opposites and exhibiting gradation: 'good/bad', 'big/small', 'long/short', 'old/young', etc. Also present in these catalogues are non-gradable adjectives such as 'male/female', 'alive/dead', as well as members of other word classes in pairs such as

'rise/fall', 'come/go', 'give/take', 'with/without', 'speaker/addressee', etc. In Lyons' treatment the list is further extended to include opposite kin terms: 'father/son', 'parents/children', 'grandparents/grandchildren', etc.; furthermore local-temporal opposites: 'up/down', 'front/back', 'left/right', 'earlier/later', etc. (op.cit. 280 f.). In one way or another it is also acknowledged that negation has a role in oppositeness, as manifested in such sense relations as 'big' ~ 'not small', and 'small' ~ 'not big', etc.

All in all it seems fair to say that we are presented with lists of more or less unconnected pairs of opposites and that their interrelation awaits clarification. Moreover, the cognitive concept of oppositeness is far from clear: It is simply taken for granted - at least by linguists - as if it were self-evident. The purpose of the present study is a twofold one: First, it purports to contribute to an explicitation of conceptual-cognitive oppositeness inasmuch as it can be assumed to underlie linguistic oppositeness. Second, and on the basis of a thus explicitated conceptual-cognitive framework, it purports to bring an order into the multiplicity of variegated phenomena, to show how they are connected with one another, and to propose typological generalizations.

We shall be dealing with oppositeness in the sense

that a linguistically untrained native speaker, when asked what would be the opposite of 'long' can come up with some such answer as 'short' and likewise intuitively grasp the relation between 'man' and 'woman', 'come' and 'go', 'up' and 'down', etc. Thinking that much of the vocabulary of a language is organized in such opposite pairs we must recognize that this is an important faculty, and we are curious to know how this is done, what are the underlying conceptual-cognitive structures and processes, and how they are encoded in the languages of the world. We shall leave out of consideration such oppositions as singular vs. plural, present vs. past, voiced vs. unvoiced, i.e. oppositions that the linguist states by means of a metalanguage which is itself derived from a concept of oppositeness as manifested by the examples which I gave earlier.

Our approach will connect with earlier versions of the UNITYP framework. However, as a novel feature, and, hopefully, as an improvement, we shall apply some sort of a division of labor. We shall first try to reconstruct the conceptual-cognitive content of oppositeness and to keep it separate from the discussion of its reflexes in the individual languages. We shall find that a dimensional ordering of content in PARAMETERS and a continuum of TECHNIQUES is possible already on the conceptual-cognitive level. In order to keep it distinct from the level of linguistic encoding we

shall use a separate terminology, graphically marked by capital letters.

In a subsequent chapter we shall study the linguistic reflexes of a thus reconstructed conceptual-cognitive framework. Standard terminology will be applied there.

Interconnections between encodings within a dimension or within a subdimension were given particular attention in UNITYP research, because we feel that they were somewhat neglected by other researchers. This does not at all mean that the dimensional framework is the only way of looking at language, nor that the dimension or subdimension with its principles of indicativity, iconicity, and predicativity presents the panacea for all remaining linguistic problems. Never in the course of our work have we raised any such claims. Quite to the contrary, we realize that the study of isofunctionality of different categories within a dimension or subdimension must be supplemented by the study of plurifunctionality of one particular category, e.g. the comparative, or negation, etc. It is a gratifying thought that former members of UNITYP and now leaders of a research group in Guadalajara, Mexico, help us in complementing the dimensional with the plurifunctional approach.

2. A reconstruction of the conceptual-cognitive content of oppositeness

2.1. The cognitive concept of oppositeness

It is not unitary. One way of dealing with its composite character would be by enumerating its constituent components. This static procedure would leave us with the unsolved problem of the ways in which such components come to constitute oppositeness. Instead, we choose to try to reconstruct the cognitive process of constructing the concept: Where do we start from, and what further operations follow from there? We submit the following construction path:

1. Conceiving of a relation of opposites presupposes in the first place an operation of comparing two entities or states of affairs with one another. We shall term them, respectively, the RELATUM and the COMPARATUM - that which is compared with the RELATUM. Not every comparison results in a statement of oppositeness. Thus we need a third intervening element, and we assume that it functions as an OPERATOR. The OPERATOR and the two entities viz. RELATUM and COMPARATUM are subsumed under the term of ELEMENTS.
2. As with every comparison, the comparison of opposites must have a PROPERTY DOMAIN serving as the basis of comparison. The next step is thus to specify the PROPERTY DOMAIN.

3. If we have a PROPERTY DOMAIN as the basis of comparison, we want to know the extent or degree to which the property is specified: SCALARITY and comparison condition each other. Do we have two opposite poles and/or do we have a gradient transition between them?

4. In order to be able to measure the extent of the specification in a PROPERTY DOMAIN, we need a point of reference with a fixed POSITION. We can metaphorically visualize this as a scale with a zero position and with plus and minus values.

5. If we have a scale with plus and minus, we are faced with DIRECTIONALITY. Is it unidirectional or reversible? This is important in view of the task of retrieving the OPPOSITUM.

6. Once we have gotten this far, we want to circumscribe that portion of a state of affairs to which the above-mentioned operational parameters apply, i.e. the SCOPE involved in the opposition.

The cognitive concept of oppositeness is thus defined in terms of a constructional process. It comprises the following: (a) as a starting point the three ELEMENTS: RELATUM, COMPARATUM, OPERATOR; (b) the operational parameters 1 to 6, (c) the sequential ordering of these parameters.

2.2. The dimension of oppositeness

The cognitive concept of oppositeness manifests itself in a number of variant mental representations where the above-mentioned PARAMETERS serve as a LOCUS of variation. Linguistic reflexes of these representations were mentioned in the introduction: antonyms, complementaries, kin terms, negation. Since at present we are still in the conceptual-cognitive realm we need a different terminology. We shall use the term of TECHNIQUES for the variant ways in which the cognitive concept of oppositeness is mentally represented. The following TECHNIQUES can be distinguished (linguistic reflexes in parentheses): 1. SYMMETRICAL (kin terms); 2. COMPLEMENTARY (non-graded antonyms, also called "complenyms"); 3. GRADED (graded antonyms); 4. LOCAL-TEMPORAL (local-temporal opposites); 5. DISSOCIATED (temporal or factual contrast, contrastive stress); 6. NEGATED (constituent negation, sentence negation).

The six TECHNIQUES manifest the cognitive concept of oppositeness in various ways and to different degrees. Instead of merely listing them as in the above we shall order them in a two-dimensional display.

Fig. 1

The TECHNIQUES are plotted against the PARAMETERS. The latter appear in the vertical axis in the order from 1. to

6. as described above. The TECHNIQUES in the horizontal are ordered with regard to the gradual emergence of the OPERATOR. Two kinds of symbols appear in the cells: | (vertical stroke) means that the respective PARAMETER and/or ELEMENT is constitutive for the definition of the respective TECHNIQUE. **O** means that the respective PARAMETER and/or ELEMENT has a concomitant role in this respect. The cells of the first row exhibit three positions, numbered 1 to 3, for the three ELEMENTS: RELATUM, COMPARATUM, OPERATOR. The specially highlighted cells mark those PARAMETERS that are prototypical or focal for the respective TECHNIQUE. We consider as prototypical the PARAMETER that is most immediately relevant for the manifestation of the OPERATOR. Concomitance (symbol **O**) means that the respective PARAMETER and/or ELEMENT is contingent on the constitutive PARAMETERS (symbol |). Contingency does not mean irrelevance. In the chapter on encodings and typology we shall find that linguistic reflexes quite frequently bear on a concomitant PARAMETER.

2.3. DIMENSION, TECHNIQUES, PARAMETERS

The DIMENSION is defined by the configuration of a sequentially ordered series of TECHNIQUES as plotted against a sequentially ordered series of PARAMETERS (Fig. 1).

A TECHNIQUE is defined by the configuration of vertical

strokes and circles in the respective cells, where one cell is prototypical or focal for the respective TECHNIQUE.

The PARAMETERS are to be understood as primitives.

Let us have a look at the TECHNIQUES one by one and correlate them with reflexes in actual language data.

2.3.1. SYMMETRICAL

This TECHNIQUE has its clearest reflexes in kin terms. The constitutive PARAMETERS are: ELEMENTS, PROPERTY DOMAIN, and SCOPE. The ELEMENTS encompass the two entities of 1) a RELATUM, 2) a COMPARATUM. In the kinship situation they contract a relation between two individuals. In technical discussions of kinship always one of the two terms is called EGO. Thus, in my father EGO = 'I', in your mother EGO = 'you', and in Charlie's aunt EGO = 'Charlie'. If individual A refers to individual B with the term X, and B refers to A with the term Y, then the relation between X and Y is symmetrical. Thus, father/son, father/daughter, uncle/niece, ..., grandparents/grandchildren are symmetrical. Uncle vs. grandfather is not symmetrical; for when A calls B uncle, B does not call A grandfather. Father vs. mother is only symmetrical under the condition that father is an EGO and calls mother mother. Thus, the cardinal point in the relation between opposite kin terms is EGO. It is that authority that avails itself to representing two kin

terms as symmetrical opposites. It acts as an OPERATOR in the sense of a POSITION indicator. However, it has no independent manifestation. Instead, it is always identical with one of the two entities, i.e. the RELATUM. Therefore, the PARAMETER "ELEMENTS" bears the immediate relationship to the OPERATOR and is thus prototypical.

Also constitutive for the definition of the TECHNIQUE is the PARAMETER "PROPERTY DOMAIN": It specifies the domain of kinship relations.

The SCOPE of symmetrical oppositeness encompasses the two compared entities, where only one needs to be present in the discourse.

The remaining three PARAMETERS are concomitant. It is important to realize that kin terms as a reflex of SYMMETRICAL are being considered here only inasmuch as they manifest the relation of oppositeness. For a complete functional specification of kinship systems more and different PARAMETERS would have to be considered that are outside of the context of oppositeness. The TECHNIQUE called SYMMETRICAL as reflected by kin terms is marginal to our DIMENSION.

2.3.2. COMPLEMENTARY

RELATUM and COMPARATUM appear together, in praesentia, in the discourse - at least in principle. Again, there is no

overt, independent manifestation of an OPERATOR. An inherent trace of it can be seen in the fact that the two comparables appear in conjunction. We might call this trace a CONJUNCTOR. It is through the conjoined appearance of the two comparables that a common PROPERTY DOMAIN emerges, which, in turn, is the precondition for the two comparables to appear as complementary opposites. Thus, the common PROPERTY DOMAIN bears the closest relation to the inherent OPERATOR and is prototypical for the TECHNIQUE.

Among these domains are the following: 1) Inter-human: man/woman, teacher/pupil, speaker/addressee, etc. 2) Domestic animals with regard to reproduction: bull/cow, stallion/mare, etc. 3) Social: friend/enemy, gods/humans, etc. 4) Eco-system: heaven/earth, sun/moon, town/country, etc. 5) Movements, activities, sensations: rise/fall, live/die, give/take, open/close, asleep/awake, etc.

Also constitutive for the TECHNIQUE is DIRECTIONALITY, which is in opposite senses: The two comparables interact in opposite, complementary senses on the basis of a common PROPERTY DOMAIN.

The SCOPE comprises the two comparables in praesentia.

Two remaining PARAMETERS are concomitant.

2.3.3. GRADED

We have a RELATUM and a COMPARATUM appearing jointly,

and a third ELEMENT which we shall call the COMPARATOR. Notions such as 'measuring' and 'evaluating' are covered by this term; hence long/short, good/bad, are reflexes of COMPARATORS, even in their non-comparative, positive form. The COMPARATOR is "on the way toward" an OPERATOR; it is not yet a full-fledged OPERATOR; it carries part of the functional load of the PROPERTY DOMAIN, the other part being virtually inherent in the two comparables. It will be remembered that in the two preceding TECHNIQUES the functional load of the PROPERTY DOMAIN was entirely with the two comparables.

All six PARAMETERS are constitutive for the definition of the TECHNIQUE. In order to understand their workings and interaction two basic facts about GRADING ought to be remembered:

1. The idea of a **norm** present in the relevant linguistic reflexes. Peter is big means 'Peter is bigger than the size-norm for human beings'. As M. Bierwisch has shown in his studies on grading in German (Bierwisch 1987: 130 ff.), even a so-called positive like 'big' is a concealed comparative: X big equals 'X is above the normal size for the class to which X belongs'; the COMPARATUM being X, and the RELATUM being the norm. X little, then, equals 'X is below the normal size for the class to which X belongs'. The PROPERTY DOMAIN common to both COMPARATORS is 'size'. As the para-

phrases suggest, the COMPARATOR is syncategorematic in the sense that its interpretation depends on the properties and class membership of the COMPARATUM. This is why it was said in the above that "the other part of the functional load of representing the PROPERTY DOMAIN is virtually inherent in the two comparables" - in our special case in the COMPARATUM.

The norm also instantiates the PARAMETER of POSITION, i.e. the reference point which serves to measuring the extent of specification of the respective property, and which also enables us to indicate the DIRECTIONALITY of the measurement.

There are different classes of COMPARATORS, and their behavior with regard to norm differs, too. With evaluating COMPARATORS like good/bad, as in the water is good, the meaning is not 'above the quality-norm for drinkables', but rather 'measuring up to a quality-norm that the speaker expects'. Unlike mensuratives (big/little), evaluatives do not have a fixed norm in the sense of a middle; rather, the norm is variable and depends on the judgment of the respective speaker.

2. The second basic fact concerns the relation between the two opposites in such COMPARATOR pairs as high/low, deep/shallow, broad/narrow, old/young, etc. The SCALES and corresponding PROPERTY DOMAINS are: upward extension, downward extension, extension from side to side, extension in

age, etc. High, deep, broad, old, etc. represent the respective full-scale extensions, while low, shallow, narrow, young, etc. represent the respective decreased, curtailed, retracted extensions. The difference between full, unrestricted SCALE and retracted SCALE establishes opposite DIRECTIONALITY. It is at the heart of the relation between opposite COMPARATORS, and SCALARITY is therefore prototypical for the TECHNIQUE of GRADING. The linguistic reflexes of SCALARITY are, of course, the respective degrees of a comparative and a superlative. In their grammaticalized version these appear as different morphemes. But even languages that do not show special morphemes for comparison can reflect the technique of GRADING (see below 3.3.).

The SCOPE comprises a RELATUM, a COMPARATUM, and the latter is modified by the COMPARATOR.

2.3.4. LOCAL/TEMPORAL

Not all LOCAL or TEMPORAL relations appear as pairs of opposites: up/down, front/back, left/right, before/after, early/late, etc. are paired, while in, on, next to are not paired. It seems that only relations that involve a canonical viewpoint are paired.[1] Canonical viewpoint is a manifestation of the parameter of POSITIONING. Localized are objects or events. They are the LOCATUM, which corresponds to the COMPARATUM of the other TECHNIQUES. They are local-

ized with reference to the RELATUM. The actual operation of localizing is brought about by a local relator which we shall call LOCATOR. Linguistic reflexes of a LOCATOR are, as cited above, up/down, front/back, etc. They appear as adverbs, adpositions, relational nouns, etc. The LOCATOR is one step further on the path toward a full-fledged OPERATOR. It determines the PROPERTY DOMAIN, which is spatial or temporal orientation. DIRECTIONALITY is a further constitutive feature: The static vs. dynamic options and axial directionality: horizontal vs. vertical, etc.

Not all of the PROPERTY DOMAIN is provided by the LOCATOR: Some such components as stability, size, geometrical properties, are contingent on both the RELATUM and the LOCATUM. The PARAMETER most immediately relevant for the LOCATOR as an OPERATOR of oppositeness is POSITIONING, which is therefore prototypical for the TECHNIQUE: The canonical viewpoint commands local/temporal oppositeness.

The SCOPE of local/temporal oppositeness encompasses a relational element: the LOCATOR with its appropriate arguments.

2.3.5. DISSOCIATED

This TECHNIQUE is linguistically reflected by a number of variants (see below 3.5.). All have in common a circumscribed RELATUM plus a dissociating ELEMENT - which we shall

call a DISSOCIATOR - both pointing together to a COMPARATUM which is negative in form and in content. It is otherwise not specified, but its content is recoverable. The DISSOCIATOR is either temporal (PAST), and this naturally connects with the preceding TECHNIQUE; or it is a grammaticalized EXCLUSIVUS: 'This is **small** (not like **that**)'; or it is represented as contrastive stress: '**You** said that (**I** didn't)'.

The PROPERTY DOMAIN is delimited by that portion of the utterance which is under contrastive stress or to which the PAST or EXCLUSIVUS ELEMENTS apply. From the few reflexes cited it appears that the respective PARAMETER draws on oppositeness as represented in some preceding TECHNIQUES such as GRADED: 'small/big', or COMPLEMENTARY: 'I/you'.

The DISSOCIATOR comes very close to being a pure OPERATOR, almost devoid of any other semantic content (PAST here is to be taken as non-deictic, see below 3.5.). The PARAMETER of immediate relevance in connection with the DISSOCIATOR is DIRECTIONALITY, which is thus prototypical. It is the necessary prerequisite in the task of recovering the unspecified COMPARATUM.

The SCOPE encompasses both parts of the DISSOCIATION: the specified positive one and the unspecified negative one.

2.3.6. NEGATED

As the table in Fig. 1 shows, only half of the PARAMETERS are constitutive for the TECHNIQUE qua TECHNIQUE of mentally representing oppositeness, other PARAMETERS that might characterize negation falling outside of this context. NEGATED is therefore a TECHNIQUE marginal for the DIMENSION, and is comparable in this respect to the first TECHNIQUES viz. SYMMETRICAL. We must specify those aspects of NEGATED which do pertain to the DIMENSION of oppositeness.

In his introduction to a volume dedicated primarily to the problems of antonymy, W. Raible (Raible 1983: 18) aptly remarks that negation after Aristotle is apparently no longer reckoned among the representations of oppositeness, and he asks, why this should be so. In his table (loc.cit.) he graphically distributes the variant representations of oppositeness - comparable to our TECHNIQUES - and he indicates the corresponding passages in Aristotle's work. Among them are the antikeímena hōs tà enantía 'opposites as contradictories' with reference to negation.

The constitutive parameters of our TECHNIQUE are (see table in Fig. 1): ELEMENTS, PROPERTY DOMAIN, and SCOPE. Among the ELEMENTS there is a true OPERATOR here, which we shall call NEGATOR. There must also be a RELATUM, i.e. that portion of a thought which is under the SCOPE of the NEGATOR. The extent of that portion is determined by the

PARAMETER of SCOPE - which is most immediately relevant in connection with the NEGATOR and therefore prototypical for the TECHNIQUE.

The problem is the identification of the COMPARATUM, i.e. that portion of a thought which is true, if the RELATUM is not true. Our table in Fig. 1 says that a common PROPERTY DOMAIN is constitutive for the definition of the TECHNIQUE. The requirement is fulfilled in what is called contrary negation (see Horn 1989: 10 ff.). In an utterance like

(1) He doesn't sleep

the contrary would be

(2) He is awake

and the two utterances would be opposites under the common PROPERTY DOMAIN of "complementary physical states of a human being". There is an affinity here with the TECHNIQUE of COMPLEMENTARIES (cf. asleep/awake with live/die, etc.). In the utterance pair just mentioned DIRECTIONALITY is a concomitant PARAMETER: NEGATOR plus RELATUM (sleep) do point to an opposite COMPARATUM (awake).

These are aspects of NEGATED that certainly do pertain to the DIMENSION of oppositeness. Now about those other aspects that are at best marginal or belong to a different dimension, perhaps a separate dimension of logical predicates? (see Seiler 1979: 256). Given an utterance as in (1) without any further discourse context, if 'he sleeps' is not

true, there could be an infinity of utterances which entail that he doesn't sleep, such as in

(2') He is dead, works, eats, is inexistent, ...

This is contradictory negation in the form of predicate denial (Horn 1989: 41). The entailed utterances in (2') would no longer be opposites of (1) but disparate statements. Only reference to context - discourse or situational - could guide the hearer in choosing the appropriate opposite among them. The distinction between contextually free and contextually presupposed portions of a discourse is vital in this choice, where the contextually presupposed portions could determine a common PROPERTY DOMAIN. The NEGATOR, then, concomitantly marks the POSITION between contextually bound and contextually free portions.

Metalinguistic negation (see Horn 1989: 362 ff.) would clearly fall outside the DIMENSION of opposites. An example would be (Horn, op.cit. 382)

(3) I'm not **happy** he's gone - I'm **elated**

This marked, metalinguistic use of the ordinary descriptive operator focuses not on the truth or falsity of a proposition, but on the assertability of an utterance (Horn, op.cit. 362).

Returning to those aspects of NEGATED which do pertain to the DIMENSION of opposites, we still have to determine the role of SCALARITY: It is contingent on the occurrence of

scalar predicates, where "Not means 'less than'" (Jespersen, as cited in Horn 1989: 404):

(4) He does not read three books in a year

(i.e. less than three books)

Scalar predicates may be plain quantitative: three, some, all; or quantitative-qualitative, as in luke-warm, warm, hot; or fairly good, good, excellent. These appear as COMPARATORS in the TECHNIQUE of GRADING.

To close this section, we repeat that only certain aspects of the very variegated and complex phenomena of negation pertain to our DIMENSION and are to be considered here.

2.4. Overview

The foregoing was an attempt at reconstructing the cognitive concept of oppositeness in its various mental representations. It simulated the process of construing such a concept in a gradient, step-wise fashion. It is independent of any particular individual language data, although it claims to be fully pertinent to the facts of language.

We started from the assumption that oppositeness is not a monolithic concept but can be construed along a path of six logically consecutive parameters. The parameters themselves are considered to be primitives. They are conceived not as components, not as "things", but as parameters of variation.

Variation produces the various mental representations of oppositeness, reaching from SYMMETRICAL to NEGATED, the so-called TECHNIQUES. The DIMENSION is defined by the interplay between the two axes of PARAMETERS and TECHNIQUES, respectively. Variation in the cells encompasses three possibilities: The respective PARAMETER is (a) necessary for the definition of the TECHNIQUE, (b) concomitant, (c) prototypical, i.e. of immediate relevance in connection with the OPERATOR.

The OPERATOR is that instance which avails itself to producing - covertly or overtly - the effect of oppositeness. In fact, the TECHNIQUES are ordered according to a gradual emergence of an independent OPERATOR. It is inherent or concealed in the first two TECHNIQUES, but reconstructible as EGO and CONJUNCTOR, respectively. It appears as an independent ELEMENT in the two middle TECHNIQUES, as COMPARATOR and LOCATOR, respectively. It approaches the status of a pure OPERATOR in the last two TECHNIQUES, as DISSOCIATOR and NEGATOR.

Prototypicality of each PARAMETER with respect to the OPERATOR follows the ordering of both PARAMETERS and TECHNIQUES in a step-wise fashion.

The following PARAMETERS in their definitary status are common to all the TECHNIQUES: RELATUM as an ELEMENT, PROPERTY DOMAIN, and SCOPE. Additional support for the well-

foundedness of the two-dimensional ordering comes from the gradual increase in the SCOPE of oppositeness. It has its clear reflexes in the linguistic data, where it reaches from the single lexical item via conjoined items, modifier construction, relation-arguments constructions to discourse relationships.

Looking once more at the table in Fig. 1 we can identify three groups of adjacent TECHNIQUES that are most similar as to their specifications in the cells. The German language has three compound terms with Gegen- as their first member, which aptly characterize the similarities within each group and also the differences between the groups: Gegenstück (companion piece), Gegenteil (opposite), and Gegensatz (contrary/contradiction). Gegenstück applies to the first two TECHNIQUES, and their relation is one of unidirectional implication: All COMPLEMENTARIES are also SYMMETRICAL, but not vice versa. Gegenteil applies to GRADED and LOCALIZED. Again we have a unidirectional implication: All local opposites are opposites, but not vice versa. Gegensatz applies to the last two TECHNIQUES. Again, all contraries/contradictories are also dissociated, but not vice versa.

GRADED is the TECHNIQUE where all PARAMETERS are necessary for its definition. It is therefore the prototypical TECHNIQUE for the entire DIMENSION. This seems to match

intuitions that grammarians mostly share with regard to "antonymy" and grading. This is also the reason why oppositeness (Gegenteil), actually most suited for GRADED and LOCAL/TEMPORAL, was chosen as the cover-term for the entire DIMENSION.

Similarities and dissimilarities between the TECHNIQUES in their gradient ordering can now be calculated on the basis of our table (Fig. 1), each dissimilarity counting as one point: SYMMETRICAL vs. COMPLEMENTARY 1 point, COMPLEMENTARY vs. GRADED 3 points, GRADED vs. LOCAL/TEMPORAL 1 point, LOCAL/TEMPORAL vs. DISSOCIATED 2 points, DISSOCIATED vs. NEGATED 1 point. The point of maximal dissimilarity between COMPLEMENTARITY and GRADED might be considered as the turning point of the DIMENSION, where several things change: It marks the passage from juxtaposition of single ELEMENTS to constructional relations (modification, relation-arguments). It also marks the appearance of an independent third ELEMENT (OPERATOR). Our experience with turning points in DIMENSIONS treated earlier tells us that linguistic reflexes located near turning points tend to deploy a maximum of variation. This is what we will find in linguistic comparison (see 3.3.).

Our definition of the DIMENSION according to PARAMETERS and TECHNIQUES enables us to delimitate oppositeness from other DIMENSIONS. Color terms would be a candidate for

testing. No doubt, there are important affinities between the two DIMENSIONS, and they are clearly reflected in linguistic data (see 3.3.). The PARAMETERS that both have in common seem to be PROPERTY DOMAIN and SCALARITY. The content of the PARAMETERS is, of course, different from one DIMENSION to another. On the other hand, there seems to be no place for POSITION, DIRECTIONALITY, SCOPE, and OPERATOR in the DIMENSION of colors.

The two basic functions represented in this DIMENSION - as in every other DIMENSION - are, respectively, communication and cognition. They are copresent in each one of the TECHNIQUES, but at varying degrees of dominance. Communication in the sense of social interaction and pragmatics is clearly dominant in SYMMETRICAL, where oppositeness of kin terms as commanded by an OPERATOR (EGO) is inherent. Their relationship is paradigmatic. This is the indicative pole of the DIMENSION. On the other end, we have the appearance of an explicit OPERATOR of oppositeness, the NEGATOR, of pivotal importance in the domain of cognition. In this respect it is the predicative pole. The relationship is syntagmatic. Yet, the communicative factor has a no less important role: SCOPE as the prototypical PARAMETER is determined with regard to bounded vs. unbounded parts of discourse context. The relationship between opposites changes along the continuum of the DIMENSION from paradigma-

ticity to syntagmaticity.

3. Encodings and typology

The reconstruction of cognitive-conceptual oppositeness must stand on its own feet. However, its usefulness must be evaluated with regard to actual language data. It must be useful in at least two tasks: The ordering of language phenomena, and the proposal and testing of typological generalizations. Both have explanatory value.

In the empirical part which follows we shall apply standard terminology. We shall follow the order of the TECHNIQUES, and we shall eventually see how certain PARAMETERS are stretched or over-extended, reaching into neighboring or even more distant TECHNIQUES on the DIMENSION. In certain instances this might produce overlap or simultaneity of TECHNIQUES instead of consecutivity. But it is precisely for the purpose of being able to state such a state of affairs that we need a framework as outlined in the above.

3.1. Opposite kin terms

A reflex of the "hidden" OPERATOR EGO can be seen in those languages where POSSESSOR, mostly in the form of a pronoun, is obligatory with kin terms (see Seiler 1983: 20 ff.). One special but not infrequent case of a symmetrical relation between kin terms is self-reciprocity, i.e. when

one single term is applied for designating both partners of the relationship, English cousin would be an example, actually the only one for that language. The term is unspecific with regard to oppositeness. The interactional-pragmatic context would be instrumental in the task of reference specification.

In some Californian Uto-Aztecan languages such as North Eastern Mono, Serrano, Kitanemuk, all grandparent/grandchild terms are self-reciprocal (Gifford 1922: 49; Greenberg 1966: 75 f.) NE Mono:

(1) (i) gunu' 'father's father; man's son's child'
(ii) hudji 'father's mother; woman's son's child'
(iii) toko 'mother's father; man's daughter's child'
(iv) mu^{a} 'mother's mother; woman's daughter's child'

In some other related Californian languages two different terms are used, but in such a way that the term for the ascendent generation is unmarked and can be predicted from the term for the descendent generation which is one syllable longer and thus marked. Cahuilla (Seiler 1982: 195)

(2) (i) né-qa 'father's father'
(ii) ne-qá́la 'man's son's child'
(iii) né-su? 'mother's mother'
(iv) ne-sú́la 'woman's daughter's child'

The forms given include a 1st person singular prefix and

stress shift. Descending generation seems to be generally, if not universally, marked in such relationships (Greenberg, loc.cit.). This, then, is an overt instanciation of the PARAMETER of DIRECTIONALITY; it serves the purpose of retrieving the opposite term by starting out from a given term.

A similar purpose is served by a still more marked procedure in Cahuilla (Seiler 1982: 185 ff.). Uncle-aunt and nephew-niece terms follow a similar pattern as grandparent-grandchildren terms exemplified in (2): The word for 'niece' is -nési-, the word for 'aunt' is -nes-.

(3) ϕ -hé -nes
3sg:SUBJ 3sg:POSS aunt

'She is her aunt'

(4) pe -y -nesi -k
3sg:OBJ 3sg:SUBJ niece LOC:DIR

'She is one who is related to her, the niece', i.e.

'She is her aunt'

Expression (4) is used to refer to the 'deceased aunt', when it is inappropriate to refer to her directly, i.e. by expression (3). Expression (4) starts from the opposite kin term 'niece' and reaches the target 'aunt' by using additional machinery that involves an object prefix and a suffix -k which basically indicates local directionality. The procedure is thus "borrowed from", or, "prefigures" the TECHNIQUE LOCAL/TEMPORAL and represents a considerable over-

extension of the PARAMETER of DIRECTIONALITY. It manifests explicitly the interrelation between -nési- 'niece' and -nes- 'aunt' as being opposite kin terms and is thus highly predicative. I do not know of any comparable procedure in other languages, but its occurrence elsewhere should be a fair guess. It may further be guessed that if it occurs this would imply the presence of a more direct and less marked procedure as exemplified in (3).

We retain the importance of self-reciprocal kin terms, i.e. of non-specification of oppositeness, and, as a corollary, the importance of a social-pragmatic context for furnishing full specification. We also retain that kin terms oppose each other in absentia, as the expression in (4) demonstrates explicitly. Oppositeness in kin terms is paradigmatic rather than syntagmatic, as the two opposite terms need not be copresent, and are not normally copresent, within one and the same utterance.

3.2. Opposite complementary terms

As noted in 2.3.2., the appearance of the two compared opposites in praesentia is a precondition for bringing to the fore their common PROPERTY DOMAIN, which appears as a common function, the two terms complementing each other in that function. Various procedures underline the conjoined status of the two terms:

1. Special use of conjunctive particle and/or special word order. The two terms appear in the form of irreversible binominals. Latin:

(5) terrā mari -que
land:ABL sea:ABL and

'By land and sea'

where in German the reverse order is normal:

(6) Zu Wasser und zu Lande

These fixed word orders might be taken as reflexes of DIRECTIONALITY.

(7) Avestan daēvāiš -ča mašyāiš -ča
god:INSTRpl and man:INSTRpl and

'With gods and men'

2. Dvandva-compounds: Sanskrit (Whitney 1879:§1254)

(8) dyā́vā -pr̥thivī́
heaven:DU earth:DU

'Heaven and earth'

(9) prāṇāpānāú́
inhale:DU:exhale:DU

'Inhale and exhale'

(10) Modern Greek pijeno -érkhome
'go' 'come'

(11) French aller et venir

(12) German kommen und gehen

Again we find language-specific word-orders.

3. Elliptical dual forms where only one of the complementary terms is overtly specified; the other is recoverable on the

basis of the common function: Vedic Sanskrit

(13) dyā́vā
heaven:DU

'Heaven and Earth' (not 'the two heavens', as one might expect)

(14) pitárā
father:DU

'Father and mother' (not 'the two fathers')

(15) mātárā
mother:DU

'Mother and father'

In spite of ellipsis the recovery of the opposite term is guaranteed by the fact that there is DIRECTIONALITY in both senses in which both terms complement each other on the basis of a common function (PROPERTY DOMAIN). This may explain a further fact, viz. that one single term is used for both opposite comparables, i.e. their oppositeness is not specified. This resembles significantly the procedure of self-reciprocity in kin terms.

As Cl. Lévi-Strauss has pointed out (1967: 1163 ff.) many indigenous languages of the Americas use one and the same term for designating both the 'sun' and the 'moon'; a specifying determinant is applied when the necessity arises. Onondaga (Iroquois):

(16) (i) gaa̋ʔgwa 'soleil', 'lune'

(ii) andá-kāgagwā 'luminaire du jour'

(iii) soá-kāgagwā 'luminaire de la nuit'

This does not mean that the two stars would be confounded. Evidence from both pictorial representations and from mythology seems to show that the two are distinguished both as to their sex and with regard to zones of their respective bodies corresponding to two different functions: Upper part corresponds to illuminating, and, lower part to calorific functions. In fact, as Lévi-Strauss continues, the distinction between the functions of light-bringing and warming seems to be more important than the distinction between the stars themselves, which would explain why they are designated by the same word. For us this is a nice illustration how complementary functions within one and and the same PROPERTY DOMAIN, both unite and distinguish two opposite terms.

Other examples of non-specificity in designating two opposite terms:

1) Ancient Greek érkhomai 'I come', 'I go' with appropriate specifications where necessary. Quite a number of languages use the same term for 'coming' and 'going'.

2) Indo-European root *dō- 'to give', 'to take', as reflected in Latin, Greek, etc. dō- 'to give', but in Hittite dā- 'to take'. Similarly, root *nem- 'to distribute', 'to take', as reflected in Ancient Greek némō 'I distribute' vs. Gothic niman 'to take'; and several more of this sort (see Benveniste 1951/1966: 315 ff.).

We found that DIRECTIONALITY can manifest itself in both senses, i.e. from A to B and from B to A (examples (13)-(15)); or it can be unidirectional as exemplified with irreversible binominals (5)-(12). A particularly explicit, and therefore marked, predicative procedure consists in applying a special suffix to one of the two copresent terms, distanciating it from the other. Ancient Greek, Homer Iliad 8. 518-20:

(17) paĩdas ... te gérontas ... thēlú -ter -ai
boys and old men female-COMP-fem

dè gunaĩkes
but women

'boys and old men..., but females on the other hand...'

Greek -ter- is one of the two comparative suffixes (see 3.3.). The procedure is thus "borrowed" from GRADED. But the comparative -ter- itself is originally a local relational suffix marking local distanciation and is therefore "borrowed" from LOCAL/TEMPORAL.

We retain the copresence, in principle, of the two terms and the various reflexes of a CONJUNCTOR (special particles, dual forms, elliptic duals, irreversibility of word order). We also retain the relative frequence of using the same term for designating both opposites.

3.3. Comparison

No comprehensive treatment of the domain of comparison is intended here. The reader is referred to standard works such as M. Bierwisch's (1987) and L. Stassen's (1985). Our interest concentrates on the interrelation between comparison and antonymy. For this particular aspect G. Kleiber's study (1976) is highly relevant.

It is our purpose to understand and explain comparison and antonymy within the dimensional framework as outlined in the preceding chapter. The task, then, consists primarily in pointing out both affinities and differences between reflexes of GRADING and reflexes of neighboring TECHNIQUES.

Comparison is characterized by a high degree of variability, both within one language and cross-linguistically. We want to show that variation is determined by the same principles that determine variation between the TECHNIQUES of the overall DIMENSION. On the dimensional level oppositeness is either inherent in the compared terms (SYMMETRICAL, COMPLEMENTARY), or it is established by an OPERATOR-like ELEMENT (LOCAL/TEMPORAL, DISSOCIATED, NEGATED). In comparison oppositeness is at least partly inherent in the compared terms, or it is non-inherent and established instead by the reflexes of the COMPARATOR. Such reflexes can be adjectives with or without special comparison markers, but also verbs, adverbs, and even

clauses.

Variation in comparison is predominantly determined by the encodings of the PARAMETER SCALARITY. Two pairs of determining factors can be observed: 1.1. Adequation vs. 1.2. separation; 2.1. evaluation vs. 2.2. mensuration. Variation results from the different ways in which these four cross-classify.Examples of 1.1. adequation are:

(18) (i) These grapes are as sweet as honey

(ii) These grapes are sweeter than honey

(19) (i) The log is five feet long

(ii) The log is longer than five feet

The standard ('honey', 'five feet') is taken as a measure with regard to an inherent property ('sweetness', 'length'), and the comparee is approximated to that measure. When the standard and the comparee are equally high on the scale with regard to the relevant property, we have the situation of an equative. There are languages (Celtic, Caucasian, Lakota) that exhibit special corresponding morphemes. Examples of 1.2. separation would be:

(20) John walks faster than Peter runs

(21) More people left than stayed

There is no inherent property of the standard here. Each of the two compared terms is attributed an accidental property pertaining to a common PROPERTY DOMAIN: 'John walks' vs. 'Peter runs'; 'people left' vs. 'people stayed'. The

comparatives 'faster', 'more' bring about separation. They attribute a degree in that PROPERTY DOMAIN to the comparee and deny it the standard. Examples of 2.1. evaluation are:

(22) (i) Mary is pretty

(ii) Mary is prettier than Judy

(23) (i) Judy is ugly

(ii) Judy is a little ugly

(24) * Mary is a little pretty

The problem here is the positioning of the norm of comparison on the gradation scale. As G. Kleiber (1976: 292), following M. Bierwisch (1967: 1 ff.)) has shown for his [-objective] adjectives, and as we have mentioned above (2.3.3.), evaluatives unlike mensuratives do not have a fixed norm in the sense of a middle. The norm is variable and depends on the judgment and expectations of the speaker. Thus, Mary is pretty means 'she measures up to my expectations regarding female beauty'. Judy is ugly means that 'she does not measure up to my respective expectations'. The deviant status of *a little pretty results from the assertion of 'measuring up to my expectations' and the retractation of that assertion by a little (Kleiber, op.cit.:292). Examples of 2.2. mensuration are:

(25) (i) Peter is bigger than Paul

(ii) Paul is smaller than Peter

(iii) Paul is not as big as Peter

(ii) and (iii) are equal to (i) in truth conditions, but not in meaning. As mentioned above (2.3.3.), and as Bierwisch (loc.cit.) and Kleiber (loc.cit.) have shown, the norm here corresponds to a middle value between the two antonyms and may graphically be placed in the middle of a gradation scale leading from a (+Pole) to the opposite (-Pole).

That the four factors produce cross-classification, and not class disjunction, is shown by such examples as

(26) = (19)(i) The log is five feet long
(adequation + mensuration)

(27) Better late than never
(separation + evaluation)

In the following cross-linguistic presentation of variants of comparison we shall follow an order leading from inherent to gradually more explicit reflexes of an OPERATOR/COMPARATOR - and this is in accordance with the ordering principle adopted for the overall DIMENSION.

1. In Chinese (Mandarin) two antonymous adjectives may form nominal compounds. The compound is a noun with the meaning of a quality whose bipolar extremes are signaled by the two adjectival constituents (Li-Thompson 1981: 81):

(28) (i) hǎo -huài = 'quality'
good bad

(ii) dà -xiǎo = 'size'
big small

(iii) chang-duǎn = 'length'
long short

(iv) gāo -ǎi = 'height'
tall short

(v) lěng-rè = 'temperature'
cold hot

(vi) kuài-màn = 'speed'
fast slow

(vii) hòu -báo = 'thickness'
thick thin

(viii) zhēn-jiǎ = 'truthfulness'
true false

As Y.R. Chao (1968: 376) remarks, these pairs are rendered by English simplexes. However, in Chinese, they have properties of both a phrase and a compound. The formations underline the common PROPERTY DOMAIN of the two antonyms and resemble strikingly the reflexes of the preceding TECHNIQUE (opposite complementary terms copresent). The order of the constituents is irreversible, positive pole always preceding negative pole.

2. Conjoined comparison without morphological grading seems to be widespread among Polynesian languages. Samoan (Stassen 1985: 180):

(29) Ua loa lenei va'a, ua puupu lena
is long this boat is short that

'This boat is longer than that boat'

The antonymous quality expressions must here appear *in praesentia*. The strategy is still akin the strategies

pertaining to the preceding TECHNIQUE.

3. As R. Jakobson has pointed out (1976/1985: 68 ff.),

> "four Russian adjectives display the derivational suffix -ok- with an alternation of a stressed and correspondent pretonic vowel; these adjectives designate an optimal extension of four fundamental spatial relationships, as opposed to a reduced extension. This reduction is designated by correlate adjectives whose suffix differs from the former one by an alternation of the posttonic vowel in the word end with a zero vowel in all other positions."

The following series respectively show the attributive forms masc., the predicative forms masc., ntr., and fem.:

(30) (i) vysókij, vysók, vysókó, vysoká
'high'

(ii) nízkij, nízok, nízko, nizká
'low'

i.e. a full-scale upward extension and a decreased one;

(31) (i) glubókij, glubók, glubókó, gluboká
'deep'

(ii) mélkij, mélok, mélko, melká
'shallow'

i.e. the two likewise opposite levels of a downward extension;

(32) (i) *širókij, širók, širókó, široká*

'broad, wide'

(ii) *úzkij, úzok, úzko, uzká*

'narrow'

i.e. an extension from side to side in its large-scale and curtailed varieties;

(33) (i) *daljókij, daljók, daljókó/dalekó, daleká*

'far, distant'

(ii) *blízkij, blízok, blízko, blizká*

'near, close'

i.e. a complete and a diminished moving off. As Jakobson specifies (*loc.cit.*) the pattern goes back to a common Slavic configuration, where adjectives in *-u-* which carried a connotation of 'somewhat little' or 'undersized' attracted a secondary diminutive suffix *-ko-*, which was extended to the *-o-* stems as well, while the difference between the two grades of spatial linear extension was signaled by the thematic suffixes *-o-* and *-u-*. Testimonies from humorous discourse and oral tradition show that there is a palpable and tenacious relationship between the two members of each pair and between the four pairs themselves. The adjectives designating a reduced extent are the marked members opposed to their unmarked counterparts devoid of diminutive value.

We have a clear reflex here of cognitive DIRECTIONALITY discussed above (2.3.3.), where it was said that the

difference between unmarked unrestricted SCALE and marked retracted SCALE is at the heart of the relation between opposite COMPARATORS. The difference between unmarked 'more' and marked 'less' is implemented in the Slavic adjectives by vowel alternations and stress pattern, which might be said to represent the trace of an OPERATOR. It is furthermore an iconic representation, the difference between full scale and retracted scale being portrayed by a difference between full vowel and zero vowel.

4. Ancient Indo-European languages, especially Greek and Sanskrit, exhibit reflexes of two sharply distinct series of comparative and superlative suffixes: the one in *-yes-/ -yos- and *-isto-, respectively, is called primary, as it is formed directly from the root; the other in *-tero- and *-tato-, respectively, is secondary, i.e. derivational (Benveniste 1948: 113 ff.; Seiler 1950).

As Benveniste has shown with particular reference to the comparative, the primary suffix refers to properties that are somewhat inherent in, or harmonize with the standard. It adequates the comparee and indicates his being characterized by that property in a very special (comparative) or maximal degree (superlative). An example from Greek (Homer, Iliad, 1.249)

(34) mélit -os gluk -íōn rhéen audḗ
honey GEN sweet PRIM.COMP flew speech

'His speech flew sweeter than honey'

The evaluative and adequative factors seem to predominate. No precise metrical scale is involved in primary comparison. Rather, it admits of a certain band-width of the relevant property, the sole delimitation being provided by the opposite, which, in our case, would be pikrós 'bitter'. The primary systems in Greek and Sanskrit are characterized by strong suppletivism. Often primary comparatives and superlatives lack a corresponding "positive" or are secondarily associated with more than one "positive" (Seiler 1950: 20 ff.).

The secondary suffixes in *-tero- (comparative), *-tato- (superlative) further characterize a given property "from outside" as it were. As mentioned above (3.2.), the original meaning of the suffixes was local-relational, positioning, and distanciating. The opposition was formulated as "A is x-teros, B is z" (Benveniste 1948: 119), i.e. by two propositions. In the later stages of Greek the secondary suffixes became the productive and even the only means of comparison before they were supplanted by periphrastic devices with pió 'more' and o pió 'most'. -teros/-tatos are regularly associated with a positive (Seiler, loc.cit.), show little, if any, suppletivism, and are much closer to reflecting an OPERATOR than -íon/-istos.

The morphological distinction between primary and secondary suffixes is reinforced by a syntactic one, i.e.

the difference between a construction with a particular case (ablative or genitive) and a construction with a particle, Greek ḗ 'or, than'. Compare the example (34) above with the following construction exhibiting ḗ, again from the Iliad, 22.373:

(35) malakṓ -teros amphaphásthai Héktōr ḕ
soft SEC.COMP to handle H. or/than

hóte nẽas enéprēsen
when the ships he burned

'Hector is softer to handle than when he burned the ships'

'Softness', not a particularly inherent quality of Hector's, is attributed to him at a time and under circumstances that differ radically from a previous event, when he was denied that quality. The construction plus the original meaning of the suffix indicate separation or dissociation of two opposite states.

The variation in Greek exhibits adequation to an intrinsic quality as against separation between two non-inherent properties. Surely, not all the examples even in Homer, are as clearcut as the two given above, and, as already mentioned, the language has generalized the means that originally signaled the distinction. There can be no doubt, however, that adequation, as exemplified in (34), shows affinities with the "left side" of the dimensional continuum, and separation, as exemplified in (35), with its

"right side". We are moving toward negation.

4. Continuing in the order of increasing explicitness in the representation of a COMPARATOR/OPERATOR we find the strategy, wide-spread among languages, of utilizing local-relational means for expressing comparison. Cahuilla (Seiler 1979: 313):

(36) ne? ʔéʔiy ʔe -ta hen-ʔiñišj
I 2sg:OBJ 2sg:OBJ.CLIT on top 1sg small

lit.: 'I am small on top of you'

= 'I am smaller than you'

The strategy is "borrowed" from the subsequent TECHNIQUE by over-extension of the PARAMETER "POSITION". The example also shows that such "borrowings" by over-extension of a PARAMETER involve grammaticalization: If the localizing element were strictly local we should expect some such expression as 'I am small below you'.

The expression -ta 'on top of' governing an objective case could be said to be local-relational. In other languages we find either allative or separative directional cases. They are richly documented in L. Stassen's work (1985: 32 ff.). Example of an allative in Maasai:

(37) sapuk ol -kondi to l -kibulekeny
is big ART deer to ART waterbuck

'The deer is bigger than the waterbuck'

Example of a separative in Tibetan:

(38) rta -nas khyi chun -ba yin
horse from dog small one is

'A dog is smaller than a horse'

Although individual languages may have generalized either the allative or the separative, it seems plausible to assume that allativeness pertains to adequation, and separativeness to separation.

5. A still more predicative strategy of expressing comparison is the combination of a quality expression with a verb meaning 'to surpass', 'to excel'. Example from Yoruba (Rowlands 1969: 29):

(39) ó tóbi jù mí lọ
he big surpass me go

lit.: 'He is big, surpasses me'

= 'He is bigger than I'

As optional variants of comparison such expressions surely are possible in many languages around the globe. However, as the normal or even as the only means of expression they were highlighted by J. Greenberg (1983: 4 ff.) as one among four areal-typical characteristics of Sub-Saharan Africa.

6. Use of negation to distinguish a property from its opposite. This variant is closely connected with the truth-conditional equivalence exemplified in (25): 'X bigger than Y' ~ 'Y smaller than X' ~ 'Y not as big as X'. As affixal negation the phenomenon is widespread among languages. There are, however, certain restrictions:

(a) Only the unmarked, i.e. the positive term can be so negated: German

(40) schön/un-schön, but not *un-hässlich

gut/un-gut, but not *un-schlecht

(b) Affixal negation abolishes suppletivism among opposite terms. But their semantic relation often differs from the relation between suppletive terms: German

(41) schön/un-schön ≠ hässlich

gut/un-gut ≠ schlecht

un-schön, un-gut carrying connotations of an entire underlying clause: 'Es ist nicht schön, dass ...', 'es ist nicht gut, dass ...'.

(c) While predominantly evaluative adjectives in German can take affixal negation, its occurrence with predominantly mensurative ones is severely restricted:

(42) schwer/un-schwer

only in a metaphorical sense

(43) tief/un-tief 'shallow'

is often misunderstood as meaning the same as 'tief'

(44) *un-hoch, *un-lang, *un-breit, etc.

An explanation for this could be seen in the fact that the relation between antonymous mensuratives with their graded forms is much more regular than the relation between antonymous evaluatives. The former relation could be

visualized as one and the same scale leading from a (+Pole) through a mid norm to a (-Pole). No special grammaticalized means (negation) seem therefore to be necessary in order to underline the close association between the antonyms. In contradistinction, the latter relation (evaluatives) is less homogeneous, the norm, as mentioned above, is variable, and the degrees of the respective properties seem to pertain to a different scale for each antonym (cf. Bierwisch 1987a: 23). This is why in German not only suppletivism between antonyms persists along with the more transparent formations with affixal negation (see ex.(41)), but also suppletivism between the degrees of comparison is most tenacious with some of the most common evaluatives:

(45) gut - besser - best

(46) viel - mehr - meist

which latter I would also count among the evaluatives rather than among the mensuratives. A very similar situation is shown in many languages, Old Irish:

(47) maith 'good' - ferr - dech

Welsh:

(48) mad 'good' - gwell - goreu

French:

(49) (i) beaucoup 'much' - plus - le plus

(ii) peu 'little - moins - le moins

(50) (i) bon 'good' - meilleur - le meilleur

(ii) mauvais 'bad' - pire - le pire

These are the only antonyms exhibiting suppletive grading, all the others using transparent periphrastic constructions with plus or moins.

7. In contradistinction to German, Russian has generalized affixal negation with mensuratives, but only the unmarked, positive terms of the opposition can carry the affix (Jakobson, op.cit. 71):

(51) ne-vysokij 'not high', ne-glubokij 'not deep'

ne-širokij 'not wide', ne-daljokij 'not far'

One step further in this direction seems to be documented in Lithuanian, where affixal negation seems to be the only means for designating (-Pole) antonyms, both evaluative and mensurative:

(52) gražùs 'beautiful' vs. ne-gražùs 'ugly'

lãbas 'good' vs. ne-lãbas 'bad'

tolì (adv) 'far' vs. ne-tolì 'near'

The lack of suppletion between these antonyms seems to be paralleled by a lack of suppletion in grading. Compare the situation of the above-cited Western European languages (ex. 45-50) with the following Lithuanian climax:

(53) gẽras 'good' - gerẽsnis - geriáusias

saldùs 'sweet' - saldẽsnis - saldžáusias

8. It is certainly not by accident that Lithuanian is also

one of the languages that use a negation element to express the relation between two equals in the sense of similia (E. Fraenkel in Seiler 1952/1977: 88f.):

(54) ne véjas pučia, medelius laužo
not wind blows the trees it breaks

vai duzga bizga visur vylyčios
thus roar rattle everywhere arrows

'Like the wind blows and breaks the trees, thus roar and rattle the arrows everywhere'

(55) ne -lýginant
not equate:PTC

'not equating' = 'like' (in equations)

(56) dialectal ne -sakas
not say:REFL

varying with sakas
say:REFL

'It is said' (in equations)

This at first sight strange way of putting things becomes understandable in the dimensional context. It represents an over-extension of the OPERATOR ELEMENT "NEGATOR" that has its closest analog in the over-extension of affixal negation in the same language.

Moreover, it has an exact parallel in Vedic Sanskrit, where the negative particle ná is very commonly used in an (ad-)equative sense:

(57) gauró nâ tṛṣitáḥ piba
buffalo NEG thirsty drink

'Drink like a thirsty buffalo'

* *

*

Comparison reflects GRADING, the prototypical TECHNIQUE of the entire DIMENSION. It actively involves all the PARAMETERS and it shows a maximum of variability, as was predicted from the position of GRADING near the turning point. The ordering of the variants followed a path that is congruent with the ordering principles found to be constitutive for the overall DIMENSION. It has led us from implicit to ever more explicit marking of oppositeness by an OPERATOR-like element.

As a brief appendix, we should like to point out that comparison can be expressed by a superposition of respective means pertaining to the dimensions of color and of opposite-ness. The cognitive aspect was briefly discussed above (2.4.) with regard to the delimitation between the two dimensions.

In Classical Arabic we find the forms of the type 'afʿalu, elative form of the paradigm-verb faʿala 'to do, make' called ism attafṣīla 'name of superiority'. It serves to express qualities in an elevated degree. These qualities can be: (a) colors, (b) bodily deficiencies, (c) bodily

virtues, (d) evaluatives and mensuratives, (e) local opposites (see next section). A comparative climax would be

(58) kabīrun - 'akbaru - al-'akbaru
great greater the greatest

A comparative construction would be

(59) 'aṭwalu min naḫlatin
longer than palm tree:GEN:INDEF
'Higher than a palm tree'

(Fischer 1972: 68 f.; Fleisch 1956: 409). Color expressions formed after the same pattern are

(60) 'aḥmaru 'red', 'aḫḍaru 'green'
'asfaru 'yellow', 'asḫaru 'blue'

Bodily deficiencies or virtues

(61) 'aḫḍabu 'hunch-back'
'aʿraǰu 'paralytic'
'ahyalu 'with a long and beautiful neck'

It seems that the denominator common to all these possibilities of utilizing one and the same type of expression is a degree of intensity on the scale pertaining to a certain property. Oppositeness is clearly reflected in such examples as

(62) (i) ad -dubbu l -'akbaru
DEF bear DEF great
'the Great Bear'

(ii) ad -dubbu l -'aṣġaru
DEF bear DEF little
'the Little Bear'

The Arab encodings show overlap between two DIMENSIONS. In addition, they exhibit overlap between two TECHNIQUES: GRADING and LOCAL/TEMPORAL, as shall be documented presently.[2]

3.4. Spatio-temporal orientation

We begin with Arab encodings of local opposites (Fleisch 1956: 410):

(63) (i) al -yumnā l -'aymanu
DEF side DEF right

(ii) al -yumnā l -'aysaru
DEF side DEF left

Comparable overlaps between comparison and spatio-temporal orientation can be seen in several Ancient Indo-European languages, where the comparative suffix *-tero-, exemplified above for its reflex in Greek, had its original use in designating local-relational opposites:

(64) Greek deksi-terós 'right' vs. aris-terós 'left'; Latin dex-ter 'right' vs. sinis-ter 'left'; Greek pró-teros 'anterior, earlier' derived from pró 'ahead' (cf. Old Persian fra-tara) vs. hús-teros 'posterior, later, last' (cf. Sanskrit út-tara 'superior' from ud- 'up'); Greek hupér-teros 'higher up' from hupér 'above' vs. (e)nér-teros 'lower'

The use of *-tero- as a comparative suffix is an innovation

of Greek and Sanskrit. The examples in (64) represent three axes connected with our primary experience where spatio-temporal oppositeness is realized: 'up/down', 'front/back', 'left/right'. POSITIONING, prototypical for the respective TECHNIQUE, appears through a canonical viewpoint from which oppositeness is evaluated. This viewpoint, which is also called the deictic center, can either be directly associated with the speaker, or with the spatially compared entities, which, as it were, possess their own deictic center. The latter might be called the intrinsic view (Ebert 1990).

In an overheard conversation two ladies riding in the second-class waggon of a train tried to locate the first-class waggons with regard to the dining-car (RELATUM). They produced contrary statements:

(65) (i) Die Erstklasswagen sind hinter dem Speisewagen
the first-class waggons are behind the dining-car

(ii) Die Erstklasswagen sind vor dem Speisewagen
the first-class waggons are in front of the dining-car

In (i) the LOCATUM (first-class waggons) and the RELATUM (dining-car) are assumed to be facing the speaker, the deictic center. In (ii) the LOCATUM and the RELATUM are assumed to be facing in the same direction the speaker is facing, the intrinsic view. The oscillation between the two

views demonstrates the close association between the two spatial opposites 'behind' vs. 'in front of'.

As Ebert (loc.cit.) following C.A. Hill has shown (1975: 196), some such speech communities as Hausa and Djerma have a definite preference for the intrinsic view. This is particularly favored by reflexes of a LOCATOR derived from body part designations, e.g. 'back' for 'behind'.

In a way comparable to graded opposites, spatial opposites are not equipollent. Thus, upward direction and location seems to be more differentiated than downward direction and location. Ebert (loc.cit.) has provided evidence from Chamling (Kiranti, Nepal) and has proposed the tentative generalization that all languages have designations for 'up', 'above' but not for 'down', 'below'. From this we would conclude that reflexes of upward LOCATORS are unmarked, while reflexes of downward LOCATORS are marked. This is also what we learn from psycho-linguistic observations (H. Clark 1970).

Utterances containing spatial opposites such as 'in front' vs. 'behind' or 'in back' are not symmetrical and not reversible under all circumstances. We have

(66) (i) The town-hall is behind the church

(ii) The church is in front of the town-hall

which may be said to be truth-conditionally equivalent. But

compare

(67) (i) The bike is behind the church

(ii)(?) The church is in front of the bike

(cf. Talmy 1983: 231). The deviant status of (67)(ii) has to do with properties inherent in the RELATUM and the LOCATUM, respectively (see above 2.3.4.): By virtue of its size and stability, a church functions naturally as a RELATUM by which to characterize a bike's (LOCATUM) location, the bike being smaller in size and with no fixed position. Inherence of properties in the two comparables (RELATUM and LOCATUM) has diminished from kin terms over complementary opposites and comparison to spatio-temporal opposites, but is still not altogether absent.

In movements as represented by appropriate verbs ('come', 'go', etc.) plus an adposition or an adverb there is a specific sense relation between a transition out of a state and a transition into an opposite state, or, as G. Leach (1969: 194 f.) has formulated it for English:

> "... every utterance containing go or a similar verb involves, in a way, a 'positive destination' and a 'negative destination'."

His example (op.cit. 195)

(68) John cycled from London to Edinburgh

> "might be paraphrased awkwardly but with relevance to the semantic structure: John by cycling came to

be not at London, but at Edinburgh".

This points to the excluding character of spatial directionality and spatial relations in general. It demonstrates affinities between LOCAL/TEMPORAL and the two subsequent TECHNIQUES: DISSOCIATED and NEGATED.

Affinities with the preceding TECHNIQUE have been pointed out in the preceding section. To this we may add the widespread association between opposite terms of spatial orientation and evaluative notions such as 'good' and 'evil', where 'left' and 'right' is an example readily at hand. As Shuji Yoshida (1980: 20) reports, there is an orientation based on the sea vs. land opposition, e.g. realized in Bali as kelod and kaja, respectively. Kelod is an evil direction, and kaja is a good one. Furthermore, the notions of kelod and kaja, respectively, are associated with dichotomies such as 'earth' vs. 'heaven', 'woman' vs. 'man', 'death' vs. 'life', etc. (cf. COMPLEMENTARY, 2.3.2. and 3.2.).

3.5. Contrast implying negation

The following strategies connect in a natural way with strategies discussed at the end of the preceding section (cf. ex. 68):

1. A temporal contrast with PAST denoting ceased existence. Cahuilla (Seiler 1979: 238 f.):

(69) hen-ʔámuwet ʔáčay -ʔa
I hunter good PAST

'I was - and no longer am - a good hunter'

The suffix -ʔa 'PAST' is appended to nouns or noun phrases as in the above.

(70) kíš -ʔa
house PAST

'It used to be a house - not anymore - now ruins'

The informants' translations regularly featured the negative supplement. Similarly in Tübatulabal (Uto-Aztecan, Sierra Nevada) (Voegelin 1935: 164):

(71) haní· -pí·l
house PAST

'The house which used to be, now in ruins'

Parallel phenomena are found in Kwakiutl (Boas 1911: 485), in Hupa (Goddard 1911: 105), and in Quileute (Andrade 1933: 264), where a suffix -ʔe or -ʔyi appended to nouns or verbs denotes that a certain relation or condition existed previous to the time of the communication, and is now nonexistent. As the grammarian emphasizes, the formative does not necessarily imply a relation to the speech act.

In a less grammaticalized version we find comparable phenomena also in Western European languages. Swiss German

(72) iets händ er s ghaa
now have:pl 2pl OBJ:3sg have:PT

'You have had - and no longer have it - now'

Latin (Vergil, Aen. II.325):

(73) Fuimus Troes, fuit Ilium
we have been Trojans has been Troy

'We have been - and no longer are - Trojans, there has been - and no longer exists - Troy'

2. "Exclusive" is the term used by E. Sapir (1922/1969: 246) for a Takelma construction of noun or adjective plus suffix -t$^{\varsigma}$a:

> "The implication is always that a particular person, object, or quality mentioned is selected out of a number of alternative and mutually exclusive possibilities" (loc.cit.).

With adjectives the suffix apparently forms some sort of a comparative or superlative:

(74) aga tɬos·ō'ᵘ -t$^{\varsigma}$a
this small EXCL

'This is smaller'

But the grammarian hastens to add that

> "such an interpretation hardly hits the truth of the matter. The sentence just quoted really signifies THIS IS SMALL (NOT LIKE THAT). As a matter of fact, -t$^{\varsigma}$a is rather idiomatic in its use, and not susceptible of adequate translation in English, the closest rendering being generally a dwelling of the voice on the corresponding English word."

Further examples are found in the Takelma texts (Sapir 1909/1990: 15, 14):

(75) wa -iwɬi -tˁa gaᵋal yewéᵋ
the woman EXCL to he turned

'He turned to the **woman** (not to the **man**)'

This naturally connects with the phenomena called 3. Contrastive stress. A native speaker's intuition is a prerequisite for correct interpretation. German:

(76) (i) In österreich ist alles erlaubt
'In Austria everything is permitted'
(normal stress placement)

(ii) In **österreich** ist alles erlaubt (nicht in **Deutschland**)

(iii) In österreich ist **alles** erlaubt (nicht nur **einiges** oder: nicht **nichts**)

(iv) In österreich ist alles **erlaubt** (nicht **verboten**)

Contrastive stress directs the hearer's attention toward a negative alternative. DIRECTIONALITY in this sense is the denominator common to all three strategies discussed. It is certainly not by accident that the implied negated alternatives are recruited from pairs of opposites established by TECHNIQUES "to the left": 'small' vs. 'big', 'woman' vs. 'man' 'younger brother' vs. 'elder brother,' (in a further example from Takelma).

3.6. Negation

In the cognitive chapter (2.3.6.) it was said that

SCOPE is the PARAMETER most immediately relevant in connection with the NEGATOR, and therefore prototypical for the TECHNIQUE. Scope is fundamental, indeed, for an understanding of all the multifarious phenomena pertaining to negation, and among them for oppositeness. It is the structure over which the negative element has its effect. Scope varies according to the origin of the negative element in the sentence: over the whole, over subordinated complementary structures alone, or only over the word containing the negative element. There is thus a great latitude of variation.

We begin with those reflexes of the TECHNIQUE that most clearly manifest the relation of oppositeness and gradually move onto reflexes that are rather marginal to the TECHNIQUE and the DIMENSION of oppositeness altogether. The mirror image of contrastive stress as exemplified above (76) is contrastive stress combined with the negative element, with or without special negative placement. German:

(77) (i) Er ist nicht gekommen

'He didn't come'

Normal stress placement

(ii)(a) Er ist nicht gekommen – sondern **ein anderer**

(b) Nicht **er** ist gekommen – sondern **ein anderer**

(iii)(a) Er ist nicht **gekommen** – sondern **weggegangen**

(b) Er ist nicht gekommen - sondern dort geblieben

In contradistinction to contrastive stress without negation, where the negative alternative is solely implied, the positive alternative here normally has to be spelled out. As especially (iii)(a) and (b) demonstrate, several possible alternatives may represent the opposite. The scope in all the variants under (ii) and (iii) is a lexical element, not the entire sentence. This is constituent negation.

A further variety of constituent negation is affixal negation, as in English un-, iN-. It yields contrary rather than contradictory interpretation, while ordinary particle negation yields both contradictory and contrary interpretations.

Consider such examples as un-wise, which means more than 'not wise' and approaches 'foolish'; or Ancient Greek an-ōphelḗs, literally 'unprofitable' which means 'hurtful'; Latin in-sanus, literally 'not healthy' meaning 'crazy'. An example of contrary particle negation in Greek:

(78) ou sumbouleúōn Xérxēi stratēúesthai
not advising Xerxes to go to the front

epì tὲn Helláda
against ART Greece

'... not advising Xerxes to go to the front against Greece'

where 'not advising' is to be interpreted as 'dissuading

from' or 'warning against' (further examples in Seiler 1952/1977: 15 ff.).

The primary use of particle negation is to contradict, to correct or to cancel a suggestion, to convey that it is false. However, it has been pointed out (Hegel in Horn 1989: 64) that

> "a pure negative judgment like the rose is not red suggests that a different predication from the same semantic class applies to the subject: 'To say that the rose is not red implies that it is still coloured'."

And, as Horn (loc.cit.) continues:

> "Such a 'simply negative' judgment does not constitute total negation; the judgment - that is, the relation of subject and predicate - is still 'essentially positive', and the subject is untouched by negation."

In simpler words this would mean that in such "pure negative judgments" not-p is to be unpacked into "some proposition is true which is the contrary of p" (Horn, op.cit. 67), and that both are opposites under a common PROPERTY DOMAIN.

There are languages that combine the negation element with inverse marking. This has been shown by K. Ebert for several Kiranti languages (Chamling, Belhara) (Ebert forthcoming). She assumes that "the common semantic denominator of inverse and negation seems to be that both are in some sense a reversal of the direct affirmed state of affairs".

In this context it is appropriate to mention that particle negation can be used to underline the positive partner in the opposition (Seiler 1952/1977). This happens especially in negative questions. Gospel of St. John, 18.26 Greek - Latin - English:

(79) Ouk egṓ se eĩdon en tõi kḗpõi met' autoũ;
Not I thee saw in the garden with him

Non-ne ego te vidi in horto cum illo?
NEG QUEST I thee saw in the garden with him

Didn't I see you in the garden with him?

A definitely positive answer, representing p, is expected. In Latin sentential interrogation the predicate is obligatorily suffixed by -ne. No doubt this is originally the negative element, but it is grammaticalized and semantically bleeched. Therefore, the Latin translator of the above passage had to apply a second negative element non- in order to achieve the desired focussing effect on the positive alternative. In Greek the combination of an interrogative intonation contour plus particle negation ouk produces the same effect.

The negation element itself is subject to variation, both intra- and cross-linguistically. "Borrowings" from TECHNIQUES "to the left" of the DIMENSION resulting from over-extensions of certain PARAMETERS bear testimony to inter-dimensional connections and thus to the linguistic reality of the DIMENSION itself.

Comparatives are used as substitutes for the negative element (Wackernagel 1928: 255):

(80) Latin minus 'less' in si minus 'if not', alternating with si non, also in quominus 'that not', varying with quin (< qui ne, with the inherited negative element -ne); English lest from Old English þy laes þe, a fair parallel to the Latin quominus. Greek lexicographers explicitly note the use of the comparative hētton 'less' in the sense of oudamōs 'not at all'.

Reinforced negation belongs into this context. The reinforcing elements are often "borrowed" from quantification and measurement and show an extension of SCALARITY:

(81) Romance cognates from Latin gutta 'drop', mica 'crumb', passum 'step', punctum 'a minimal something', etc.

How are we to understand this apparently constant and reiterated need for additional strengthening of the negative element in many languages? When reviewing the various uses of negation and negative constructions - an undertaking that could only be hinted at here in outline - it seems that the phenomena can be ordered according to a gradual increase of the role of NEGATOR as a full-fledged OPERATOR. This role is least in constituent and affixal negation, where, in return, oppositeness is still clearly discernible. It grows in

sentence negation in the extent that it is contradictory rather than contrary; and it reaches its peak in meta-linguistic negation (see 2.3.6.), where oppositeness is least certain and where we would have reached the boundaries of the DIMENSION of oppositeness.

4. Overview and conclusion

The foregoing may be looked at as an example of UNITYP functionalism. Function in our sense, rather than being synonymous or coterminous with meaning, is the persistent quest for the processual aspects of language as a problem-solving device. The problems in the first instance consist in the representation of conceptual-cognitive content by the means of language. However, conceptual-cognitive content, although generally presupposed by linguists of different persuasions, is not God-given; it is in itself the result of a problem-solving process. We have endeavoured to make the conceptual-cognitive content of oppositeness as explicit as possible. This was done by proposing a simulation of the step-wise fashion in which such content might be construed. We have tried to keep such a simulation independent of any particular individual language data, but at the same time to persistently pay attention to these very data.

The path of delineating the process of construction of the conceptual-cognitive content of oppositeness has led us to identify six PARAMETERS that are not specific for

oppositeness but will be used in the construction of other conceptual-cognitive concepts as well. We assumed that their status is universal. It was furthermore assumed that the conceptual-cognitive content of oppositeness manifests itself in a number of variants, called TECHNIQUES. The PARAMETERS were instrumental in defining and delimitating each TECHNIQUE according to their role as being constitutive or concomitant. A two-dimensional schema of oppositeness was the result. The ordering relations within the schema enabled us to identify prototypical vs. marginal TECHNIQUES, and likewise to determine the focal or prototypical PARAMETER within each TECHNIQUE.

The dimensional ordering leads us from very concrete relations (SYMMETRICAL, COMPLEMENTARY) to increasingly abstract relations (DISSOCIATED, NEGATED). It also leads us from inherent oppositeness to increasingly established oppositeness with the gradual emergence of an opposition OPERATOR.

Thus equipped with a framework that portrays conceptual-cognitive oppositeness, we studied, in a separate chapter, the encodings in the various languages. It turned out that the framework stands the test of being useful (a) in bringing an order into the bewildering variety of relevant phenomena, and (b) in making typological generalizations. We could show that reflexes of TECHNIQUES that are

adjacent in the DIMENSION are most similar to one another, and that there are gradient transitions from one TECHNIQUE to the next. We could also show that the most natural ordering of the reflexes within one and the same TECHNIQUE obeys the same principles that govern the ordering of the TECHNIQUES within the DIMENSION, leading in both cases from inherent to increasingly established oppositeness.

It is precisely on the background of a conceptual-cognitive framework as we have proposed it that we can demonstrate how individual language encodings deviate from it and how such deviations are typologically relevant. Often to the detriment of the prototypical, most natural PARAMETER within a TECHNIQUE, a different, perhaps a concomitant PARAMETER can be over-extended in certain languages or language groups. This happens mostly by way of grammaticalization. It produces overlaps between TECHNIQUES or multiple-choice situations. It may even produce overlaps between different DIMENSIONS, as was exemplified by the Arab 'af^{c}alu constructions.

Functionalism in the UNITYP sense also includes recognition of plurifunctionality. Most, if not all, reflexes of TECHNIQUES within our DIMENSION are also reflexes of TECHNIQUES within other DIMENSIONS. This is most evident in our marginal TECHNIQUES, but it holds even for the central ones. Antonymous adjectives e.g., also have function within

the DIMENSION of DETERMINATION (Seiler 1978: 311).

The dimensional ordering not only brings order into a multitude of variegated phenomena but it also helps to understand concomitant phenomena by showing their motivation. We have observed that in the reflexes of the first two techniques with inherent oppositeness one single term could be used for both opposite comparables, i.e. that their oppositeness was not specified. This occurs frequently with kin terms, less frequently with opposite complementary terms. Even in the reflexes of the subsequent TECHNIQUES examples can be found, although with decreasing probability. The demonstration would need more extensive linguistic and philological discussion and will be furnished in a separate study. It seems plausible that an increase in established oppositeness (by the gradual emergence of an OPERATOR-like element) correlates with a decrease in non-specificity of oppositeness, and vice versa.

Thus, the dimensional framework helps to uncover linguistic reality. It also helps to understand psychological reality. One case shall be briefly mentioned here, although the full demonstration must be reserved for a separate publication. In her study on the metalinguistic reconstruction of negation by children, I. Berthoud-Papandropoulou (1990: 67 ff.) describes and evaluates tests with children between 4 and 9-10 years of age. In a number of experiments

the children were each time presented with two objects showing opposite properties: two dolls, one dirty, the other clean; two boxes, one closed, the other open; two dogs, one inside a fence, the other outside, etc. The children were asked to describe these opposite properties: "This one is clean, that one is dirty", etc. They were then shown one of the objects, say the dirty doll, and asked if they could describe the relevant property by using the antonym ('clean'), i.e. by negating it. Here, it turned out that the children had problems and that the youngest ones could not do it - although they would use negation in other contexts (e.g. rejection) and would even have produced the utterance "this one is not clean", but outside of its metalinguistic use. It was the metalinguistic use of antonym-negation that presented difficulties. With increasing age the children would resort to alternative strategies. First to local ones: "That which surrounds (back and side parts of the open box) is closed". Then temporal ones: "This (dirty) doll was clean before, now it is dirty". It was only around age 9 that children were able to deny the assertability of the opposite term, i.e. to master metalinguistic negation. In their intellectual evolution the children, followed the steps of our DIMENSION: from GRADED to LOCAL to DISSOCIATION to NEGATED.

NOTES

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[1] Regarding the distinction between topological relations (inessive, adessive) and dimensional relations (superior/inferior, anterior/posterior, left/right) I profited from discussions with Th. Müller-Bardey. The idea of a continuum leading from less complex to more complex local expressions was suggested to me by W. Drossard.

[2] Thanks are due to Waldfried Premper for valuable assistance in the collection and evaluation of the Arab examples.

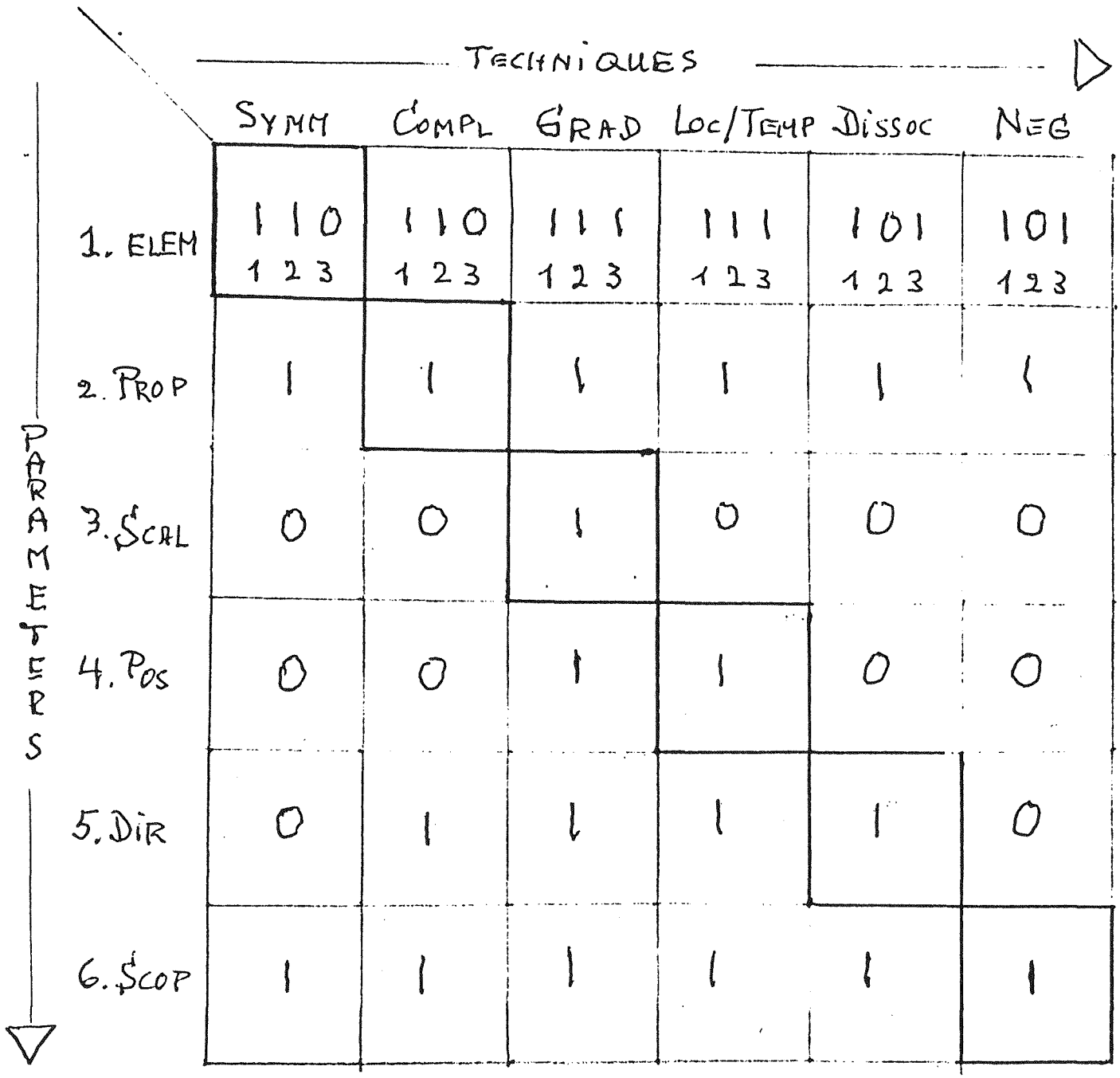
TECHNIQUES
SYMM
COMPL
GRAD
LOC/TEMP
DISSOC
NEG
PARAMETERS
1. ELEM
2. PROP
3. SCAL
4. POS
5. DIR
6. SCOP
1 1 0
1 2 3
1 1 0
1 2 3
1 1 1
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Fig. 1

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