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Word- and Picture Semantic Impairments

Worksheets for Aphasia Therapy

Drawings by Michaela Bautz

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Part 1

Word Semantic Impairments

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Notes to the Translation

Word and Picture Semantic Impairments is a translation into English of two volumes of a German series for aphasia therapy. For the first time, both volumes are offered together in one folder in the English version. *Word and Picture Semantic Impairments* is available in both British and American English.

The worksheets were translated in accordance with the linguistic system on which the German edition is based. Word-for-word translations were avoided wherever they were not compatible with the underlying linguistic purpose.

The two versions of the material each contain their own series of worksheets, entitled 'GB version' and 'US version'. They differ both in terms of the word and the picture material as a result of orthographic and lexical factors, differences in frequency of use, and cultural aspects.

There is one common accompanying booklet for the two versions. Differences between the British and the American version are indicated in the form 'English variation/American variation' (e.g. *motorway/highway*).

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THERAPEUTIC INDICATION

Part 1 of *Word- and Picture Semantic Impairments* presented here is directed towards the treatment of lexico-semantic disorders of various degrees of severity, which can occur in the form of word-memory or word-finding disorders within the various clinical syndromes. Our therapy material is, therefore, not primarily syndrome-oriented, but rather disorder-specific. The material can be used for all patients in whom impairments of the semantic structure of spontaneous speech, semantic paraphasias or word-finding disorders in the naming or describing of situational images, or receptive semantic disorders in auditory or written language comprehension have been established.

The material is as equally suited for the treatment of global aphasias in which severe receptive and productive disorders are present, as it is for all forms and degrees of severity of Wernicke aphasias, for Broca aphasia with word-memory or word-finding deficits, and also for naming impairments or 'mild' semantic disorders which can not be classified. Important is that the selection, combination and application of the material provided here is appropriate for the treatment of the syndrome and the individual disorder profile.

For many patients there will be indications of further disorders which require the application of additional material, be it parallel, prior, or subsequent to treatment with the work sheets presented here.

THEORETICAL BACKGROUND

A neuro-linguistic oriented therapy for aphasic impairment has as its fundamental premise, that the noticeable deficits and imperfections in the patient's speech behaviour are directly attributable to lesions or functional impairments in either the neural structure, or processes in the brain. This highly complex relationship between brain structure and speech behaviour also forms the framework for the analysis of lexical-semantic deficits in aphasic speech production or perception which can be established under clinical observation, e.g. with the aid of an aphasia test.

There are certain structures and processes in the brain which are special-

ised in the representation of semantic knowledge or in the calculation of semantic relations. Impairments within this neural system lead directly to the loss or defective processing of this semantic information, which in turn manifests itself as aphasic speech behaviour e.g. as semantic paraphasia.

In modern linguistic lexicon theories there is general agreement concerning the psychological existence of a semantic lexicon, or the existence of semantic properties in the lexicon entry of so-called open class items, however, little is known about the structural organisation of internal semantic systems and the current state of research is correspondingly heterogeneous.

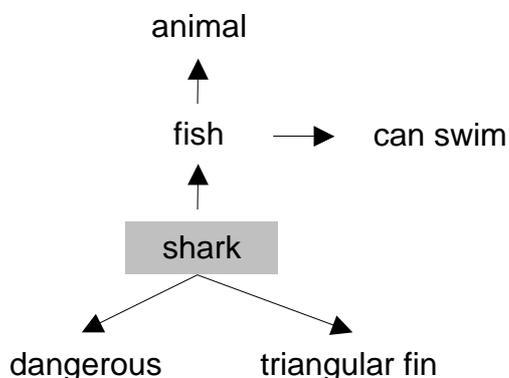
With regard to the causes of semantic impairment in aphasia, it is still possible to differentiate between two theoretical positions, which are the subject of controversial discussion: the first views the causes of the semantic deficit as impaired access to an intact system of semantic information (cf. first and foremost Priming Studies by Blumstein et al. 1982; Milberg and Blumstein, 1981; Milberg et al. 1987), the other hypothesis explains the impairment by means of defective/incomplete semantic representations or a structural disintegration of the semantic lexicon (e.g. Goodglass and Baker, 1976; Stachowiak, 1979).

A second controversy concerns the method of representing semantic knowledge and, correspondingly, the question of the structural and operative parsing routines by means of which this information is made available and processed. Representatives of the *feature model* (see Smith et al., 1974) proceed from the assumption that the meaning of a word is composed of semantic features, each of which expresses a component of word meaning. These information units are, however, not all equally relevant for any particular concept, some are central and others are peripheral. Those which are central are those features which have a definitional value for the word meaning; peripheral are those of a more coincidental nature (cf. Smith et al., p 216). The value or ranking of these features can be viewed as a continuum, i.e. there is no principle or formal difference between them, even where concepts are closely related and share several features, the same feature can in one case be more central than in the other. The ranking of a particular feature is determined by its degree of relevance to the concept in

to the concept in question. This has the advantage, and paradigmatic experiments have since borne out this supposition, that our concepts are not only organised hierarchically, but within a semantic category some concepts are more prototypical than others (cf. Rosch et al., 1976; Leuninger et al., 1987). It has been shown, for example, that a *ball* is an especially typical example of the semantic category *toy*; *shark*, on the other hand, is a much less prototypical representative of the category *fish* than, for example, *carp* or *trout*. Within the feature model, the term *fish* would have the following feature structure: (LIVING), (CAN SWIM), (HAS SCALES). These features are also presumed to be central for concepts such as *trout* or *carp*, whereas for the meaning of *shark*, features such as (DANGEROUS), (TRIANGULAR FIN) or (TEETH) are more likely to be definitive.

If such a model of the semantic representation of knowledge is adopted, then in language processing the meanings of words are calculated using semantic features. Meaning relationships or semantic similarities between words follow from the comparison of their semantic features. The hierarchical structure of the superordinate and subordinate concept relationship, as between *fish* and *trout* is defined via the number of intersecting features: the abstract superordinate concept quite simply relies on fewer defining features than the subordinate concept. The *feature model* implies that in the processing of a word, all of its semantic features are (must be) processed, and therefore requires more complex and comprehensive but at the same time deeper semantic processing than its rival, the *network model*.

This model (see Collins & Quillian, 1972; Collins & Loftus, 1975) views the terms and their features as a form of semantic network; the information on the phonological features of the words is contained in a separate network. The formal design of the semantic network is so constructed that concepts and semantic features are represented as knots. These knots are connected by means of directional arrows which represent the associative relations which exist between the concepts and the features. The more connections there are between two concepts, the greater their semantic similarity. The configuration of the directional arrows, which is stored with a word, represents its meaning. The previously employed example would be represented as follows in the network model (see Leuninger, 1989, p 86):



The feature *can swim*, which is associated with the concept *fish*, applies also to all subordinate concepts such as *shark*, *trout*, *carp* etc. The information can be read directly from the superordinate/subordinate concept relation, and therefore it is not necessary that it be stored separately in every subordinate concept. In contrast to the feature model, the hierarchical organisation of the semantic network makes it possible to access information on the

superordinate term and hyponymy of a concept directly. With regard to the processing of concepts, the advocates of the network model assume that the semantic activation expands to include associated concepts. The more strongly a term is linked with the activated concept or the more closely they are located within the network, the stronger will the term be affected by semantic activation. "From the aphasiological point of view, the similarities of semantic paraphasias and above all observations from speech therapy indicate that the activation processes include a larger range of concepts. Word-finding difficulties can be eliminated or reduced by, among other things, providing the patients repeatedly with information from varying sources concerning the composition of semantic fields and the relationships between the words." (Stachowiak, 1979, p 178)

Nevertheless, whichever of these competing models one favours at present, it remains an empirical question, whether language concepts are to be understood as a number of semantic features or as internally unstructured units, and whether they must be calculated or simply activated in a semantic network. Without wishing to subscribe to either one of these approaches, and they may even be compatible, it is sufficient for our purposes to assume that the semantic lexicon is organised internally in such a way that various kinds meaning relationships exist between individual concepts. Terms which are particularly closely related form a semantic field. Within such a sub-system there exist particularly strong and numerous semantic connections between the concepts, some of which are especially typical elements for the field.

In the semantic relationships themselves it is possible to differentiate between classificational (super and subordinate concept, hyponymy, Part-of Relation) and non-classificational relationships (situational-referential, associative, pragmatic etc.), whereby the former are hierarchical and form the organisational framework of the semantic lexicon. With respect to the individual concept, we differentiate between central and peripheral semantic features or properties. The centre or core of a concept is formed from all the classificational information (*animal-dog-poodle; dog-cat; poodle-dachshund; dog-muzzle*) as well as the non-classificational information with the highest level of intersubjective agreement within the speech community (*lemon-yellow; broom-to sweep*). On the other hand, the concept periphery consists of idiosyncratic or coincidental properties which are connected with the term in question (*bachelor-untidy; neighbour-dog*). The transition from the centre to the periphery of a concept is continuous, and the intersubjective variance of semantic information increases as one moves away from the centre towards the outside.

As shown by Rosch et al. (1976), there certainly seem to be concepts within the semantic lexicon, so-called basic concepts, which are accorded a special status. This comprehensive experimental study concludes that there is a basic conceptual level of abstraction in which meaning categories contain most information, and which therefore differ most clearly from other categories. The basic concepts occupy a middle position in classifications such as *animal-fish-shark* or *toy-ball-football*. The experiments show, among other things, that most attributes are connected with these concepts and that they were

used noticeably often by the volunteers to describe both the superordinate and subordinate categories (for information on the relationship between basic concepts and aphasia in German, see Leuninger et al., 1987).

These briefly outlined considerations, which offer only a very limited view of the extremely exciting and varied state of current research, provide the basis for the development of this materials package for lexico-semantic impairment therapy which is designed to contribute to the effective, systematic treatment of these aphasic deficits. The general factors governing the susceptibility to impairment or defective processing of semantic information in the lexicon can, in our opinion, be grouped systematically as follows (cf. Stachowiak, 1979, p 195):

- In principle, aphasia can produce conditions in which both the individual concepts and the interconceptual relationships and connections may be impaired.
- Similarly, impairments are not only confined within the semantic system, but they also occur in the processing of the information contained therein.
- It is also conceivable that such defective processing could be linked to hyper or hypo-activation of the semantic network (which itself may only be temporary), while the representations and the processing systems themselves are intact. Which of these impairments, observed as lexico-semantic deficits in speech behaviour, correlates with which syndrome, or indeed, whether such clearly definable relationships exist remains a neuro-linguistic secret and hence the subject of further investigation.

STRUCTURE AND APPLICATION OF THE MATERIAL

FORMAL STRUCTURE AND NOTATION PRINCIPLES

This collection of work sheets is divided into 12 chapters. Each of these chapters contains tasks of various degrees of difficulty and of varying processing modalities on both the word and the sentence level. The chapters have been developed according to linguistic criteria, and each focuses on an important lexical or semantic relation. We have begun, however, with the central issue of classificatorial relations, and after focusing on other lexicon-internal relations we deal with sentence relevant relations. Any part of the material can be used as the starting point - the chapters are not arranged in a logical series which must be covered one after the other, rather, it is a loose collection of modular units. Equally unimportant for the optimal sequence of exercises is the order of the individual worksheets within the chapters. For pragmatic reasons e.g. in order to facilitate the search process for the user, the worksheets are always arranged according to the following principle: the 'word' worksheets are at the beginning of the chapter, followed by the 'sentence' worksheets. Within these groupings, the exercises are ordered according to the processing modalities. First come the 'differentiation' (DIF) tasks which can be solved in a purely receptive manner, followed by the 'select' (SEL) tasks which include a productive component, and finally the 'construct' (CON) worksheets which focus solely on productive reactions. In addition to containing information pertaining to the three characteristics, 'lexico-semantic relation' (corresponds to the chapter names and numbers), 'word or sen-

tence level' (W/.. or S/..), and 'processing modality' (../DIF, ../CON, ../SEL), each worksheet has also been labelled according to which of the syntactic word categories (S for sentence, N for noun, V for verb, and A for adjective) are involved in the lexico-semantic relation in the exercise in question. Of these labels (N/V or V/N ... etc.), the first element refers to the category of the given word in the exercise, and the second to the required word which the patient is expected to find.

THERAPEUTIC SETTING

The material is particularly suited for use in individual therapy; it can be employed by the therapist as a collection of auditory exercises or it can be used by the patient in written form with appropriate assistance from the therapist. The material can also be employed independently by patients after prior successful use in individual therapy - irrespective of whether subsequent use is in an individual or a group setting. In some cases, the material is suitable for patients who have completed in-patient rehabilitation and who intend to work on their own.

WORD/SENTENCE LEVEL AND PROCESSING MODALITIES

In contrast to single words, sentences do not only make particular demands on processing, but within the context of word-memory and word-finding impairments they also create a framework which can both facilitate and de-block at the same time. Care has been taken, where sentences are employed, to keep the syntactic requirements con-

stant and at a generally low level (where this is not the case, this is made clear in the material description), in order to ensure that the exercises in the sentence context are also accessible to patients with severe disorders. It is generally true of the so-called sentence worksheets, that an unimpaired ability to process sentences is not required in order to be able to complete the task successfully. A second reason why the sentence context is indispensable as a framework for many word-memory and word-finding processes is that the semantic relations which are primarily located on the periphery are often only created within the sentence context itself.

The processing modality is not an unimportant factor when judging whether a worksheet is appropriate for use with a certain target group. For this reason, the three differing processing modalities (DIF, SEL, CON) used in this material are described below in light of the demands which they make on the skills and abilities of the patient. Questions pertaining to the level of difficulty of the various modalities are dealt with elsewhere.

Differentiation: The worksheets of this type all have in common that they do not require productive skills on the part of the patient:

W/DIF	N/N	Superordinate/subordinate concept	1.1
Which words fit?		Example: furniture beard cupboard meadow chair	

W/DIF	N/N	Superordinate/subordinate concept	1.3
Which word is the collective name for the list of articles?		Example: church building house castle villa	

The patient is required to make decisions in accordance with a given explicit (e.g. 1.1) or implicit (e.g. 1.3) lexico-semantic relation. This decision may entail making a positive match to a

given term, or deciding between items as in the examples given here. It may, however, involve exclusion, i.e. a negative identification is required:

W/DIF	N/N	Hyponymy	2.1
Which word does not fit?		Example:	eye nose mouth table ear

In a third variation on these tasks, the patient must make both a positive and a negative identification:

W/DIF	N/N,V,A	Concept	5.1
Which words fit and which words do not fit?			
Please tick:			
Suitcase		fits	does not fit
suitcase / luggage		X	
suitcase / gloomy			X
...			

S/DIF	N/V	Predicative Relations	7.13
Please mark/tick whether the sentences are correct [c] or false [f]:			
The socks slip down.		[c]	[f]
The chimney drips.		[c]	[f]
...			

The worksheets often begin with examples. We have dispensed with this practice whenever it is part of the exercise to decide how many items either fit or do not fit, in order that the patient is not given information which is either binding or which aids orientation.

Select: Worksheets of this type not only require receptive differentiation skills, but also the active insertion of given items in a set framework. Various types of SEL worksheets are presented here:

W/SEL	N/N	Superordinate/subordinate concept	1.4
-------	-----	-----------------------------------	-----

Please put the words into the correct group:

pear/skirt/cat/apple/trousers(pants)/bed/pig/sofa/hare(rabbit)

Animal	Clothing
_____	_____
_____	_____
...	...

S/SEL	N/N	Superordinate/subordinate concept	1.13
-------	-----	-----------------------------------	------

Please complete the sentences using the words given:

piece of furniture, vegetable, island, drinks, animals, vehicle

Dolphins are said to be very intelligent _____

Scarlet fever used to be a dangerous _____

A motorway is a particularly wide _____

...

Whereas in these examples, target items must be selected from a long list and inserted into a given framework, in

the following examples items are to be sorted into matching pairs.

W/SEL	N/N	Diverse relations	1.6
-------	-----	-------------------	-----

Match the words:

glass, porcelain, tin
plastic, cast iron

frying pan _____

bottle _____

can _____

tea pot _____

bucket _____

...

S/SEL	V/N	Object Relations	8.18
-------	-----	------------------	------

Please match the words:

the dishes **the kitchen**

The woman mops _____

The woman rinses _____

...

The actual task of the patient in the SEL exercises when processed orally consists of pointing/reading, when the exercises are processed in written form the patient is required to write down the appropriate item.

Construct: In worksheets of this type there are some exercises in which the structure of the prompt leads to an almost automatic selection of certain items,....

S/CON	S/A	Question-Answer	11.4
-------	-----	-----------------	------

What are these things like?

What is a circle like? _____ *round* _____

What is blood like? _____

What is milk like? _____

...

... there are, however, others in which the internal search process for a suit-

able item is not controlled, but only triggered.

W/CON	N/N,V,A	Associative Relations	6.4
-------	---------	-----------------------	-----

What do you associate with the following expressions?

stable: _____ *horses, warm, straw, feed, smell, manure...* _____

hotel: _____

forest: _____

petrol station: _____

...

A common aspect of worksheets of this type is that they all require productive reactions from the patient - either

the writing or naming of items - and that apart from a few exceptions the input consists only of single words.

EVALUATION OF THE LEVEL OF DIFFICULTY

Beyond the factors influencing individual impairment, it is only possible to make unspecific recommendations concerning the effective implementation of this material: a worksheet, for example, should be so selected that the patient is able to complete the exercise, i.e. the number of errors should be considerably less than 50% if the exercise has been 'properly' selected. Often, the processing time does not only depend on the level of difficulty of the task for the patient, but also on syndrome-specific and other factors (e.g. additional neuropsychological disorders). For patients who are subject to reduced monitoring, it is often advisable to increase the processing time of an exercise, e.g. by introducing additional processing steps. Several modalities can be employed for the same exercise, or the exercise may be cut into smaller parts. It is often beneficial to complete the exercise first in individual therapy with the support of the therapist, and subsequently to process the task alone. Particularly for patients with limited access to monitoring, the written orientation of the material provides good opportunities for activating feed-back and control mechanisms which can then often be supported by intervention from the therapist as described.

Although the order of the word / sentence or receptive / productive modalities in the various chapters corresponds, to a certain extent, to an increasing linguistic complexity, there are so many other factors involved in the assessment of the level of difficulty of a task for a particular patient - which may or may not be linguistic - that we

wish to warn against interpreting the order of material in this book as a reflection of the level of difficulty of the individual worksheets. As any such evaluation is of little relevance without consideration of the syndrome-specific and individual disorder profile, we have omitted any such reference in the worksheet designation. Corresponding directions concerning the suitability of certain exercises for certain target groups are, however, contained in the comprehensive description of the material in the last section of this handbook, where an attempt has been made to characterise the tasks linguistically and pragmatically.

Two points should be made concerning the level of difficulty of the 'WORD' and/or 'SENTENCE' worksheets: the solution to many of the so-called 'WORD' worksheets can also be successfully arrived at using a key-word strategy, in other words, there is no need for syntactic processing. The material description contains appropriate directions. Furthermore, due to the influence of other factors on the level of difficulty, many 'SENTENCE' worksheets are, 'easier' to process than certain 'WORD' worksheets - examples of such factors are, the category of word required, the complexity and frequency of the lexical material, how central the lexico-semantic relation in question is, as well as many extra-linguistic factors. Therefore, having taken into account the individual disorder profile, there is little point in characterising the level of difficulty with specific reference to the 'WORD'-'SENTENCE' worksheets.

We would also advise against making general judgements regarding the complexity of the various processing modalities. It would be an error to as-

sume, for example, that the worksheets of type SEL should be regarded as being easier than those which require a higher level of language production (type CON): experience shows that some patients (especially Wernicke aphasics with severe receptive disorders) have more difficulty with the mapping of internal decision-making processes on SEL-tasks than in free naming tasks or writing down the solutions found. In addition, there are task-specific difficulties with the actual processing of the SEL worksheets which entail jumping back and forth between various lines. This should be taken into account when treating patients with apraxia, or those with visuo-cognitive impairments. It is possible and sometimes advisable to change worksheets of type SEL into CON worksheets by blocking out or separating the prompts.

On the other hand, when using worksheets of type CON, as well as taking into account the nature of the word-finding exercise, it is important for the evaluation of the level of difficulty of an

exercise for a certain patient, to consider the phonematic/graphematic complexity of the target words. We have attempted to include these aspects in the material descriptions.

PRINCIPLES AND POSSIBILITIES OF COMBINATION

Of course, no limits should be set concerning the manner in which the materials can be combined! Nevertheless, a few variation and combination principles have been systematically incorporated into the material and these should be exploited during therapy:

1) Many of the worksheets appear in several versions (in most cases consecutively) and although the task to be performed is common to all, they differ with respect to complexity and the combination of the items employed e.g. in the following examples in which the proximity of the distractor is varied:

W/DIF	N/N	Hyponymy		2.1/2.2
Which word does not fit?		chair table party cupboard sofa	vs.	cupboard bed table oven chair
...				

In contrast, in the following examples, which have a common task, we used in one case concrete nouns and in the

other abstract nouns as stimulus material:

The same principle has been employed in the corresponding sentence worksheets:

S/SEL	V/N vs. N/V	Object Relations	8.18/8.22
		the cows / the chickens	
The farmer milks	_____		
The farmer plucks	_____		
vs.			
		fertilise(fertilize) / feed	
The farmer must	_____		the cows.
The farmer must	_____		the fields.

3) If we consider the last two examples under a different aspect, it is evident that within the same semantic relation it is possible to select combinations of word and sentence tasks as required, or to prepare the step from word to sentence processing using the same

task/method and with only slight variations in the lexical material. These variations can also be employed effectively for diagnostic control. Another example of variation on the word/sentence axis is given below:

W/DIF vs. S/DIF	N/N,V,A	Concept	5.3/5.7
Armchair	fits	does not fit	
armchair/comfortable	X		
armchair/backrest	X		
armchair/bitter		X	
vs.			
In an armchair you can	bathe	crawl	sit
A good armchair has	doors	cushions	leaves
An armchair is	an animal	a piece of furniture	a shoe
...			

4) A gradually increasing level of competence in a lexico-semantic relation or word category can often be achieved effectively by means of a selected 'consecutive application' of the various

processing modalities, as demonstrated in the manner in which we have organised the internal structure of the individual chapters. Such a row could, for example, consist of the following

worksheets from the chapter on predicative relations:

W/DIF	N/A	Predicative Relations	7.1
Which words fit?			
violet	wilted	beautiful	delicate tired
...			

W/SEL	N/A	Predicative Relations	7.5
Match the pairs of words:			
efficient, kind, elegant,...			
lady _____			
priest _____			
businessman _____			
...			

S/SEL	N/A	Predicative Relations	7.19
funny, accurate, windy, keen/eager, deep, strong,			
The weightlifter is very _____			
The clear mountain lake is very _____			
The children thought the clown was very _____			
...			

S/CON	N/A	Predicative Relations	7.20
The schoolchildren are hard-working and _____ <i>attentive</i> _____			
The weekend was warm and _____			
The Indians were brave and _____			

5) It is sometimes effective to build chains of worksheets which are selected from different sections of the therapy material, e.g. using word cate-

gories as a basis. If, for example, the therapeutic objective is to stabilise the use of adjectives, then worksheets from completely different chapters must

be combined. In addition to those shown in the preceding section and others from the chapter on predicative relations, worksheets from the chapters on similarity of meaning, associative relations and question-answer could also be included.

All these material combination possibilities should aid the therapist to tailor the therapy to the individual requirements of the patient and also to monitor the therapeutic success (e.g. transfer effects between various modalities) and so, with the help of the therapy material, to enable him/her to make a diagnostic evaluation of the status of the patient.

THE CORRECTION OF MISTAKES

As we do not impose any concept of learning theory on the therapeutic process, we do not adhere to a 'pedagogically-oriented' treatment of the patient. In order to be able to help a patient by means of 'correction' or directions concerning 'mistakes', considerable therapeutic experience is required. If the patient makes very many mistakes or if he/she wrestles too long with the task in hand, then this task should be exchanged for another: the therapist has made a mistake. Requests from the patient for 'easier' material should

certainly be taken seriously by the therapist.

Depending on the syndrome, impairment awareness, accompanying neuropsychological disorders and psychic stability, it may be considered beneficial to accept all erroneous solutions from the patient without comment. It is often advisable to point out the existence of mistakes without specifying them in order that the patient reviews the exercise and if possible corrects him/herself; however, the ability of the patients in question to self-correct is also frequently severely impaired due to severe receptive disorders. On the other hand, some patients benefit when the therapist individually names, explains and corrects all mistakes.

In principle, we are of the opinion that healthy speakers also do not have introspective access to the unconscious and automatic processes involved in language processing. They do, however, possess internal control systems, with whose help they are able to ascertain whether the output of these processes exhibits deficits and requires correction. It is exactly this monitoring ability which is missing in most patients and especially in Wernicke aphasics, and as a result the conditions for successful self-correction are also not in evidence. For this reason, we maintain that too much explicit correction by the therapist harms rather than helps these patients.

EVALUATION OF THE MATERIAL

Within the context of clinical practice and over a period of several years the team of authors developed, employed, revised, rejected and improved the ma-

terial presented here. From a very much more extensive range of worksheets, the ones which have proved most indispensable were selected and

systematically re-worked under various aspects: the linguistic relevance of the tasks, the degree of linguistic control in the items, the uniformity of the instructions - these are only a few of the points which were borne in mind. In order to achieve more balance, for instance in relation to the levels of difficulty, a number of new worksheets were developed to augment the present collection of materials, naturally using the time-proven format of the existing materials as our basis.

The German version of *Word- and Picture Semantic Impairments* has been used in Germany and in Austria/Switzerland since 1992 and 1995 respectively, to treat German-speaking aphasic patients. It can be found as standard inventory in every clinical-therapeutic institution that deals with these patients and therefore can be considered successfully evaluated.

DESCRIPTION OF THE MATERIAL

CLASSIFICATORIAL RELATIONS

Classificatorial relations between linguistic concepts are, it is supposed, the central organisational principle according to which our semantic lexicon - or the semantic subsystem of our mental word memory - is structured. These hierarchical relations define the basic connections between the individual concepts and participate in the determination of the degree of semantic similarity which exists between words. Accordingly, many semantic defects in aphasic patients can be explained as the results of a disintegration of this hierarchical structure or of the corresponding activation processes in actual speech processing, irrespective of syndrome, severity and modality. Deficits within the system as well as impairments in the retrieval of semantic concepts lead to a condition of meaning processing in which precise semantic differentiation is no longer possible. Experimental data appear to suggest that a large part of semantic paraphasias which can be observed in the

speech behaviour of aphasic patients arises in this manner, however, with respect to the classificatorial relations involved certain regularities must be considered: the most frequent involve the confusion of hyponymic terms, i.e. words which have a common superordinate concept and which perhaps also share numerous pieces of semantic information. Moreover, it has also been observed that the superordinate concept may be used instead of the intended subordinate concept, and vice versa. A third category of classificatorial paraphasias is that in which a word is employed which exhibits a Part-of Relation to the intended word, or vice versa. In general, it is true of all forms of semantic paraphasias that a) the prototypical elements of a semantic field tend to be better preserved or more easily accessible than those which are less typical, b) in the case of untypical elements, basic concepts are frequently substituted for concepts, and

c) the frequency of use of a word influences its availability.

If so many semantic paraphasias can be understood as impairment of the hierarchical structure of semantic concepts, then a therapy for lexico-semantic disorders must have as its objective systematically to rebuild, stabilise or de-block the classificatorial relations which define these hierar-

chies. The material presented here focuses on the basic hierarchical relations between nouns, viz. the relations superordinate/subordinate, hyponymy and Part-of Relation. The variables frequency of use and prototypicality were taken into account in the selection of the lexical material (which does not imply that only frequent and prototypical nouns were employed).

1 SUPERORDINATE/SUBORDINATE CONCEPT

The chapter contains 13 WS, of which 11 relate to the word level and 2 to the sentence level. 10 WS deal exclusively with superordinate/subordinate concepts, 3 place them in the context of other semantic relations (1.6, 1.7, 1.12). In terms of processing modality, 4 deal with the type DIF, 5 with SEL, and 4 with CON; the spectrum of difficulty ranges from very easy to difficult, i.e. there are exercises for patients with

the most severe word memory disorders, but also for those with less severe word-finding impairments. The lexical material employed consists of (in most cases simple) concrete terms which are used relatively frequently and which are prototypical; only in the CON WS 1.11 and 1.12 are less frequently used and less typical terms employed - this is due to the nature of the exercises.

W/DIF	N/N	Superordinate/Subordinate Concept	1.1
-------	-----	-----------------------------------	-----

FURNITURE

beard
cupboard
 meadow
chair

For each superordinate concept given, the two suitable subordinate concepts must be selected from a group of 4 words; the terms which do not fit have no semantic connection to the target words.

This work sheet is suitable as an introduction to the therapy of severe lexico-semantic disorders.

W/DIF	N/N	Superordinate/Subordinate Concept	1.2
-------	-----	-----------------------------------	-----

TOY

ball
fringe
ruler
doll

This task is similar to 1.1 except that the terms which do not fit to the superordinate concept have a semantic connection to the target words: in each group, one of the distractors is a subordinate concept of a related su-

perordinate concept (ruler), the other is also linked via classificatorial relation to at least one of the appropriate subordinate concepts, viz. Part-of Relation (fringe).

W/DIF	N/N	Superordinate/Subordinate Concept	1.3
-------	-----	-----------------------------------	-----

church
building
house
castle
villa

The superordinate concept should be identified from a group of 5 terms. The exercise is especially directed towards the de-blocking or the rebuilding of the

hierarchical organisation of semantic knowledge which is particularly affected in severe lexico-semantic disorders.

W/SEL	N/N	Superordinate/Subordinate Concept	1.4
-------	-----	-----------------------------------	-----

pear / skirt / **cat** / apple / trousers(pants) / bed / **pig** ...

ANIMAL

...

CLOTHING

Frequently used nouns which represent basic concepts should be allocated to the suitable superordinate concept. In

principle, this exercise is also designed to be of benefit to patients with severe impairments.

W/SEL	N/N	Superordinate/Subordinate Concept	1.5
-------	-----	-----------------------------------	-----

plum / butcher / leek / hammer / plate / drill ...

FRUIT

 ...

VEGETABLES

 ...

As 1.4 but more difficult, as in each group two of the total of six superordi-

nate concepts exhibit semantic similarity.

W/SEL	N/N	Diverse Relations	1.6 / 1.7
-------	-----	-------------------	-----------

furniture, clothing, crockery(tableware)...

desk:

soap:

suit:

...

...

Here, the matching task must be accomplished according to diverse semantic criteria, including the matching

of superordinate concepts to a suitable subordinate concept.

W/CON	N/N	Superordinate/Subordinate Concept	1.8
-------	-----	-----------------------------------	-----

TREES

oak

pine

birch

sycamore

beech

Superordinate concepts are given together with three subordinate concepts, to which a further two hyponymic terms

should be added. This exercise was designed as an easy word-finding exercise.

W/CON	N/N	Superordinate/Subordinate Concept	1.9 / 1.10
-------	-----	-----------------------------------	------------

cupboard, bed, table

furniture

In this exercise, the patient should find the suitable superordinate concept for the three hyponymic terms given. In our experience, this exercise is not ideally suited for patients with severe word-

finding disorders, however, each case should be decided individually, especially as the linguistic competence of the patient before his/her illness could be a significant factor.

W/CON	N/N	Superordinate/Subordinate Concept	1.11
-------	-----	-----------------------------------	------

poodle _____ **dog** _____
birch _____ **tree** _____

A subordinate concept should be assigned to each of the terms given; the stimuli have been so chosen that the superordinate term defines a basic

concept. This work sheet is suited for therapy in cases of word-finding disorders of moderate severity.

S/DIF	N/N	Diverse Relations	1.12
-------	-----	-------------------	------

A window pane is made of granite.
A tractor is a vehicle.

correct / **false**.
correct / false

Here, sentences which express various N/N relations are to be evaluated under the criteria c/f, this also includes sen-

tences in which there is an explicit hyponymic relation.

S/SEL	N/N	Superordinate/Subordinate Concept	1.13
-------	-----	-----------------------------------	------

piece of furniture, vegetable, ..., **animals**, ..., ...

Dolphins are said to be very intelligent _____

In this sentence completion task, the superordinate concepts (or general terms) provided are to be inserted at the end of a simple declarative sentence to form a meaningful addition. This exercise is oriented towards the

treatment of lexico-semantic disorders of moderate severity. As the stimulus material can also be used for free sentence extension, patients with milder disorders might also benefit from this exercise.

2 HYPONYMY

Experience has shown that hyponymic relations, i.e. the grouping of nouns which have a common superordinate concept, offer a good introduction to the therapy of severe lexico-semantic disorders. For the reactivation or restoration of this lexicon-internal relation a total of 7 WS have been created all of which focus on the word level. 5 of them are of the processing type DIF, 2 are CON; the degree of severity of the exercises ranges from very easy to moderate, so that they are generally suitable for patients who suffer from

global or Wernicke's aphasia. The concrete terms used as stimuli are for the most part frequently used simple nouns. In the choice of hyponymic relations which the patient is required to process care was taken to ensure that the terms in question occupied a central position in the semantic field and that they were semantically not too similar to each other (2nd degree hyponymy; Stachowiak, 134ff.) in order not to disturb the boundaries between the concepts unnecessarily.

W/DIF	N/N	Hyponymy	2.1
-------	-----	----------	-----

eye
nose
mouth
table
ear

From a group of five nouns, of which four are hyponyms, the odd term should be identified. The odd term is semantically distant from the other four

terms, so that this work sheet is particularly suitable for patients with (very) severe word memory disorders.

W/DIF	N/N	Hyponymy	2.2
-------	-----	----------	-----

church
tent
house
post office
villa

As 2.1, except that the noun which does not belong is a subordinate con-

cept of a closely related superordinate concept.

W/DIF	N/N	Hyponymy	2.3
-------	-----	----------	-----

arm
stomach
foot
coat
shoulder

As 2.1 and 2.2; the word which does not belong has an associative semantic relation to the other words.

W/DIF	N/N	Hyponymy	2.4
-------	-----	----------	-----

chair, bed, ... garden **cupboard** tea

For each hyponymic pair, an additional hyponym should be identified from a group of three nouns.

W/DIF	N/N	Hyponymy	2.5
-------	-----	----------	-----

chair, bed, ... lamp **cupboard** leg

As 2.4; however the nouns which do not fit are distractors (part-of relation or associative relation)

W/ DIF	N/N	Hyponymy	2.6 / 2.7
--------	-----	----------	-----------

bag
pouch
suitcase
sack
basket

The patient should add two hyponyms to the three given, although the number of nouns to be found can be varied. This exercise, in our opinion, is particu-

larly suited to the therapy of word-finding disorders of moderate to mild degrees of severity.

3 PART-OF RELATION

The Part-of Relation is a further hierarchical principle of lexical organisation in which the whole is accorded superiority over its parts (e.g. body-head-face-mouth). Among the expressions which can be regarded as part of a whole are some which have a definitional value for a certain nominal concept (such as *steps* for *staircase* or *trunk* for *tree*), that is to say they are concept inherent, whereas others do not belong to the concept of the superordinate term or 'whole' but are optional or even marginal (such as *lid* for *pan*). In the case of nouns which denote parts of something, there are a large number of expressions which are of such a general or abstract character that they can be allocated to many objects in a Part-of Relation (examples are words like *arm*, *button*, *clip*), on the other hand there are terms which refer only to a particular part of a particular whole (e.g. *ant-*

lers, *eaves*, *brim*). These Part-of Relation characteristics were taken into account in the development of the material so that each of the relations which has to be processed can be allocated to one of the following categories: a) concept inherent, definitional b) optional, marginal. The frequency of use of the expressions in these exercises was accorded less importance than in the two preceding chapters.

There are in total 9 WS, of which 3 focus on the word level and 6 on the sentence level. The distribution of processing modalities is as follows: 1 DIF, 6 SEL, 2 CON. As to the degrees of difficulty, the chapter contains both exercises which are suitable for the therapy of severe or moderately severe word-memory disorders as well as tasks for the targeted stimulation of word-finding skills in milder forms of aphasia.

W/DIF	N/N	Part-of Relation	3.1
-------	-----	------------------	-----

CAR	HORSE
motor	mane
wheels	antlers
wings	tail
horn	hoof

Twelve simple nouns (car, horse,) are each followed by 4 further terms, 3 are either functional or natural components of the corresponding noun (*motor*, *wheels*, *horn/ mane*, *tail*, *hoof*), and one is a distractor which is not included in a Part-of Relation to the

stimulus noun but rather to a hyponym of the stimulus noun (*wings/(aeroplane)* or *antlers/(stag)*). The item which does not belong should be identified and marked by the patient.

This exercise is suitable for patients with severe word-finding disorders.

W/CON	N/N	Part-of Relation	3.2
-------	-----	------------------	-----

fins, scales, gills

fish

The patient is shown 3 words (*fins, scales, gills*) which precisely express the central components of an object (*fish*) and from which it is possible to identify the corresponding object. The patient should find and write down or name the target word. The basic concept is almost always obvious, sometimes several solutions may be equally probable (SHIRT or BLOUSE for *button, collar, cuffs*). If the patients names

suitable subordinate concepts instead of a basic concept (e.g. *pike* instead of FISH), then this deviation is an indication of the existing word-finding problems or of a still incomplete hierarchical structure.

As a result of the considerable de-blocking effect of the given triplets, this task is also suitable for patients with severe word-finding disorders.

W/CON	N/N	Part-of Relation	3.3
-------	-----	------------------	-----

handle

door

drawer

stalk

A noun is given which is either a natural or functional component of one or more objects (*brim* (hat)/ *handle* (cup, door, broom)). Many of these words are comparatively 'abstract' in as much as it is only possible to visualise them in connection with the objects of which they are 'part' (*frame, key*). The task of the patient is to find a word pair which demonstrates a Part-of Relation. The target words in most cases stand for simple concrete objects.

The objective of this work sheet can be to facilitate, in a linguistic-associative manner, access to simple words which it is possible to visualise. If the patient

finds words which are not in a Part-of Relation but exhibit some other semantic relation to the target word, the therapist may elect under certain circumstances to accept this solution. It may be instructive if deviations from the Part-of Relation are particularly systematic and indicate substitution strategies, e.g. frequent completion of the words given to form composita (*key....ring, sail.....boat, collar....bone* etc.). If this is the case, the exercise is not appropriate and another or an easier exercise must be substituted.

This WS is suitable for patients with mild to moderately severe word-finding disorders.

S/SEL	N/N	Part-of Relation	3.4 - 3.7
-------	-----	------------------	-----------

a hem / **a brim**

A **hat** has _____

A skirt has _____

These work sheets consist of contrasting Part-of Relations between simple objects which are similar (often synonyms) and either natural or functional components of these objects.

The patient must match the pairs of terms. As syntactic sentence process-

ing is not necessary in order to find the solution, this WS is also suitable for patients who only process at the word level.

This exercise is of use for all patients with moderately severe word-finding disorders.

S/SEL	N/N	Part-of Relation	3.8
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..., trailer, ..., **zip(zipper)**, ..., ...

The skirt has a _____

The sentence completion task presented here consists of simple sentences in which the subject provided and the object to be found are linked as a Part-of Relation. In general, the sentences are of a descriptive rather than a definitional character (hornets have a long sting). The patient's task is to select the object nouns from the randomised list and to insert them into the ap-

propriate sentences. Nouns should not be used more than once.

These sentences may be completed without the use of the randomised word list.

This exercise is suitable for patients with moderately severe word-memory and word-finding disorders, also for those with impaired sentence processing.

S/SEL	N/N	Part-of Relation	3.9
-------	-----	------------------	-----

countryside, months, **clauses**,,

The contract contains many controversial _____

This WS is a variation on the previous one (3.8), however, abstract nouns are used here instead of concrete nouns. Seldom used and orthographically difficult words are included (clause, aria,

scene).

For most patients, this WS is more difficult than the previous one, however, for patients with impaired word-finding

abilities for concrete terms this exercise may be easier than the preceding one.

NON-CLASSIFICATORIAL RELATIONS

Non-classificatorial semantic relations between words are those meaning relationships which are not organised hierarchically. This can include central, quasi-definitional relations such as those in the semantic lexicon which must be assumed between the noun *lemon* and the adjectives *yellow* and

sour, but also similarities of meaning as characterised by synonymy (*pinch/steal*) and complementary relations (*hot/cold*) etc. This category also includes terms with intersecting/overlapping meanings (*to cry/sad*) as well as pragmatically linked relations (*to burn/to extinguish*).

4 SIMILARITY OF MEANING

This chapter is concerned with the various meaning relations which are possible between verbs and adjectives. The 9 WS deal exclusively with the word level processing and are divided equally into 3 processing modalities.

The target group for these exercises are chiefly patients with mild and moderate lexico-semantic disorders in the recognition or production of verbs and/or adjectives.

W/ DIF	V/V	Similarity of Meaning	4.1 / 4.2
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~~to comb / to peel~~

to flower
to ripen
to grow

The patient is required to identify one verb which does not fit from a group of four. The similarity of the verb-triplets is given on the one hand via the shared syntactic features and on the other hand via a strong semantic similarity. The selected items in the two WS are identical, except for the distractors: in 4-1 they are markedly different to the three words which are similar with reference to the two criteria, whereas in 4-

2, the distractors were selected from neighbouring semantic fields with the same syntactic features. This WS is therefore considerably more difficult. In general, in both exercises it is often necessary, in order to find the solution, to run through semantic and syntactic restrictions for the selection of possible subject or object nouns in internal linking processes. An approximate understanding of the word meanings is not

sufficient, at least in 4-2, to be able to complete the exercise successfully. This exercise is suitable for patients who have already improved word-

memory skills but who have particular difficulties with the correct use of verbs.

W/SEL	V/V	Similarity of Meaning	4.3
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to rot, to trot, **to report**, ...

to tell:

to go mouldy:

to crouch:

...

In two groups of words each containing five verbs, the verbs of similar meanings should be paired up. The verbs pairs are from differing semantic fields. The similarity between the two elements of a verb pair consists of an overlap of their semantic fea-

tures which is as complete as possible, but which is not totally complete.

This exercise is suitable for patients with mild word-memory disorders and paraphasias or word-finding difficulties with verbs.

W/CON	V/V	Similarity of Meaning	4.4 / 4.5
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to cook, to bake

to fry, to steam

The patient is required to add suitable verbs to the two verbs which are provided. This very difficult word-finding exercise should only be given to patients who have already acquired a sufficiently ordered word memory and who suffer from mild word-finding disorders. It can be interesting from the diagnostic point of view to observe which syntactic

and semantic limits/categories are relevant for the patient: whether he/she places transitive verbs with intransitive, whether he/she observes narrower semantic categories or only takes account of rough situational-referential aspects. Only those associations which exhibit wide semantic deviance should be corrected.

W/DIF	A/A	Similarity of Meaning	4.6
-------	-----	-----------------------	-----

red
yellow
blue
tough

In this exercise, from a group of four adjectives the patient should select the adjective which does not belong. The similarity between the three adjectives is a result of the fact that they either express various qualities of sensory impressions belonging to one particular channel of perception, as in the example above, or that they are defined via a common nominal context.

A precondition for the implementation of this exercise is an improved word-memory; an approximate understanding of the adjectives is not sufficient for finding the correct solution. In particular, patients who are unsure in the use of this category of words can profit from this WS.

W/SEL	A/A	Similarity of Meaning	4.7 / 4.8
-------	-----	-----------------------	-----------

black, clever, murky,...

white:

clear:

dumb:

...

bitter, steep, misty

tart:

juicy:

foggy:

...

In this WS, two groups of five adjectives are provided as stimuli. The patient is required to match pairs of adjectives whose meanings are similar, however, in 4.7 the pairs consist of antonyms and in 4.8 they exhibit different similarity relations which the patient must find for him/herself. For this reason exercise 4.8 is considerably more

difficult than 4.7, especially as the words in the latter WS consists exclusively of simple adjectives of high frequency. As a result, these two exercises have different target groups: in contrast to 4.8, exercise 4.7 is suitable for moderately severe word-memory disorders.

W/CON	A/A	Similarity of Meaning	4.9
-------	-----	-----------------------	-----

sweet, bitter, ...

salty, tart, ...

In this word-finding exercise the patient is given two adjectives with similar meanings to which he/she should add one or several more. This extremely difficult WS should only be presented to patients who have shown that they can cope with exercises 4.6 to 4.8

without problems. A further condition for the efficient processing of this task, is the ability of the patient to remain within the adjective category during the word-association activity. This requires a high degree of internal stability within the word category.

5 CONCEPT

The WS in this section should contribute towards either activating/reactivating the central semantic features of nominal concepts, or, to stimulate the concept in question via the provision of central semantic aspects. There are a total of 10 WS in this chapter, 9 of which are concerned with the DIF mo-

dality; the tenth is a word-finding exercise of the CON type. 7 WS deal with the word level and 3 with the sentence level. The exercises are designed for use in severe to moderately severe impairments in the processing of nominal concepts.

W/DIF	N/N,V,A	Concept	5.1 - 5.6
SUITCASE		fits	
suitcase / luggage		X	
suitcase / gloomy			X
suitcase / to pack		X	
...			
...			

For this series of work sheets we have selected 12 simple nouns which represent basic concepts (suitcase, dog, rose etc.). Eight words have been allocated to each noun, 5 which match and 3 which do not. As these matching words comprise 3 nouns (superordinate concept, Part-of Relation, situational-referential similarity), one verb (typical function, transitive or intransitive) and an adjective (characteristic attribute), the central aspects of the target word concept should be covered. The 3 non-matching terms, from differing word categories, have no semantic connection to the stimulus term.

The patient is required to decide whether or not there is a positive semantic relation for each word pair and to mark as appropriate.

The aim of the work sheets is to activate the hierarchical structure, the most important cornerstones in central semantic relations and the approximate boundaries of central nominal terms, i.e. the 'concept' as a whole, for patients with severe impairments. In addition to their therapeutic value, these worksheets often fulfil a diagnostic function by revealing deficits in particular word categories as well as special weaknesses in individual semantic relations or in individual concepts.

These exercises are suitable for patients with severe word-memory disorders (patients with severe apraxia may, however, have difficulties completing these tasks).

S/ DIF	N/N,V,A	Concept	5.7 - 5.9
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Many suitcases are made of
A suitcase must be

...
...

paper **leather** milk
plucked bound **packed**

The objective of this sentence completion exercise is similar to that in the preceding series 5.1 to 5.6, and it employs the same items. Five mainly definitional sentences are given which relate to a basic concept term. The words which fit to the stimulus words must be selected from a group of 3 given words. The distractors have been so selected that one of them fulfils the function in question but for a neighbouring concept. The second distractor is in no way similar to the target term.

This WS promotes the deeper understanding of basic concepts; the exercises are appreciably more difficult than the preceding ones.

These exercises are suitable for patients with word-memory disorders who managed to complete exercises 5.1 to 5.6 without undue difficulty and who are able to deal with sentences (although precise sentence processing is in most cases not required).

W/CON	N,V,A/N	Concept	5.10
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fruit, yellow, sour **lemon**

Here, word-finding ability for simple, frequently-used nouns can be de-blocked by providing three central aspects related to the concept in question which together form a strong stimulus for the association of the target word. A decisive factor in the selection of the words given was their central role in the ability to identify the target word: the

words are therefore taken from different word categories and some have a close semantic relation to the target word and some have a close situational-referential relation.

This exercise is suitable for patients with moderately severe to severe word-finding disorders.

6 ASSOCIATIVE RELATIONS

Meaning relations of this type are first and foremost pragmatically defined and are mainly concerned with the periphery of the word meaning, rather than the core. Two of the eight WS in this chapter focus on the intersecting/over-

lapping meanings between a verb and an adjective; a third deals with the diverse relations between nouns. All three WS deal with the word level; one is of type DIF, and the other two of type SEL. These exercises are suitable

above all for patients with severe to moderately severe disorders.

The remaining five WS are all of type CON. They deal with word-finding ex-

ercises which are designed to activate/reactivate the above-mentioned associative semantic relations.

W/DIF	V/A	Associative Relations	6.1
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TO CRY

happy

sad

high

The patient is required to identify one adjective from a group of three whose meaning overlaps with the meaning of the stimulus verb. This relation between the two words, sometimes an implication-similar relation, is decidedly close. One of the two distractors is usually an antonym of the target word, the other is an adjective which is only

remotely connected to any of the other words.

The objective of this exercise is to make the prominent sensory quality expressed in the intransitive verbs provided accessible to the patient.

This exercise is suitable for patients with moderately severe to severe word-memory disorders.

W/SEL	V/A	Associative Relations	6.2
-------	-----	-----------------------	-----

sad, bright, sharp, ..., ...

to prick:

to cry:

to glow:

...

...

As in exercise 6.1, adjectives should be matched with verbs, and some of the stimulus material provided here is identical with that in the previous exercise. There are, however, some transitive verbs in this exercise. The criterion for the correct matching in each case is a

characteristic feature or quality which is central to the process or activity expressed by the verb. The exercise should only be given to those patients with moderately severe disorders who already have stable word comprehension skills.

W/SEL	N/N	Associative Relations	6.3
-------	-----	-----------------------	-----

refrigerator, shelf, drawer, ..., ...

book:

car:

butter:

...

...

In this exercise the patient's task is to find matching word pairs from two groups each containing five nouns. The items given are sometimes simple, however, there are some words which are orthographically more demanding (scythe, restaurant, secretary) as well as infrequently-used words (discotheque, harvest festival).

In this WS there are situational-referential relations of different kinds between nouns.

Due to the item-complexity, this exercise is for the most part not suitable for patients with severe disorders, but rather for those with moderately severe impairments.

W/CON	N/N,V,A	Associative Relations	6.4 / 6.5
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STABLE: ***horses, warm, straw, feed, smell, manure....***

VISIT: ***to invite, coffee and cake, to chat, relaxing atmosphere,...***

In these two WS the patient is required to add (by association) as many terms as possible from different word categories. The stimuli have been selected so as to ensure that there are as many semantic associations as possible. Exercise 6.4 consists exclusively of con-

crete nouns and 6.5 contains only abstract nouns.

These exercises were conceived for patients with mild word-finding disorders, who are already able to employ their own imagination and mental pictures to form associations.

W/CON	N/N	Associative Relations	6.6 - 6.8
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What's in the washing/laundry basket? ***shirts, trousers, table-cloths, bed-linen, underclothes, blouses, dress, ...***

The question prompt defines an everyday spatial concept to which the patient - with moderately severe to mild word-finding disorders, should add as many

nouns as possible by association. The therapist may, however, modify the task such that the patient is only required to provide one or two additional

terms, in which case the question prompt functions as a stimulus which demands reactive naming skills.

PROPOSITIONAL RELATIONS

The term propositional relation refers to all those semantic relations which (can) exist between a noun and a predicative term of the verb or adjective category. The spectrum of such meaning relationships ranges from central, i.e. the semantic core of a nominal concept, to peripheral, where the pragmatically motivated and the idiosyncratically founded semantic information is located, and this is naturally where the greatest intersubjective variance is exhibited.

The fact that such non-hierarchically organised information is psychologi-

cally real too, i.e. it plays a role within the lexico-semantic representation and/or processing systems, is shown on the one hand by the large group of so-called situational-referential paraphasias with their various degrees of semantic proximity and their different but nevertheless non-classificatorial semantic relationship to the target word, and on the other hand it is evident from the systematic nature of the circumlocutions with which aphasics typically characterise the meaning of a word which is not available to them at that moment.

7 PREDICATIVE RELATIONS

In this chapter we have included all those semantic relations in which the noun, implicitly or explicitly, is understood as the logical subject. This comprises the following three relations: noun/intransitive verb, noun/adjective, and those noun/noun relations which linguistically reflect the relationship between an object and its material composition (e.g. barrel/wood).

There are a total of 21 WS which deal with the processing modalities as follows: 8 DIF, 8 SEL, 5 CON. The ratio

between word and sentence level exercises is 9 : 11. This rather extensive chapter contains exercises for patients with severe to moderately severe lexico-semantic impairments in language comprehension, as well as WS which can be used for the therapy of word-finding disorders for patients who suffer from moderately-severe to mild aphasias. As a consequence, the lexical material employed varies with reference to the frequency, length and complexity of the processing units.

W/DIF	N/A	Predicative Relations	7.1
-------	-----	-----------------------	-----

VIOLET

wilted

beautiful

delicate

loud

From a row containing four adjectives, those three should be identified which describe a characteristic or a possible quality of the noun given. As the requirement for the processing of this WS

is, above all, the understanding of (simple) nouns, this exercise is aimed at the treatment of severe word-memory disorders.

W/DIF	N/A	Predicative Relations	7.2
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FRUIT SALAD

fruity

refreshing

bitter

sweet

As 7.1, however, compound nouns are used here in place of simple nouns, and some of the adjectives which have been selected are structurally more complex. In addition, the adjective which does not fit is similar in meaning

to one of the three matching adjectives, which increases the level of difficulty of this exercise compared with 7.1. This exercise is suitable for patients with moderate to mild disorders.

W/DIF	N/V	Predicative Relations	7.3
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WATER

to flow

to laugh

to drip

to roar

From a row of four intransitive verbs, the three which exhibit a relatively close predicative semantic relation to the corresponding simple, concrete noun should be selected. The exercise requires the comprehension of the noun given, however, this task is suit-

able for patients with severe lexicosemantic disorders. By leaving open the selection of the solutions to each of these 3 worksheets, the therapist can vary the degree of difficulty of the exercises.

W/SEL	N/A	Predicative Relations	7.4
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hot, **spicy**, friendly, ...

paprika:

girl:

fire:

...

Groups of five adjectives and five semantically distinct nouns are given. The task is to match each adjective to that

noun for which it expresses a characteristic quality.

Primarily, this exercise is suitable for patients with moderately severe im-

pairments, however, in some cases this exercise can certainly be of benefit

to patients with severe disorders.

W/SEL	N/A	Predicative Relations	7.5
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efficient, kind, **elegant**, ...

lady:

businessman:

priest:

...

...

As 7.4, however, in this exercise the adjectives and the nouns exhibit a similarity of meaning within their respective groups, making this task clearly more difficult than the previous one. In order to be able to process this exercise effi-

ciently the patient should therefore exhibit a less severe level of impairment. This exercise focuses on the ability to make fine distinctions between semantically similar adjectives.

W/SEL	N/V	Predicative Relations	7.6
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to snarl, **to drone**, to glimmer/blaze, ...

organ:

after-shave lotion:

fire:

...

...

From sets of five intransitive verbs and five nouns matching pairs should be found. As the meanings are very spe-

cific the exercise is not suitable for patients with severe lexico-semantic impairments.

W/CON	N/V	Predicative Relations	7.7
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HORSE

to neigh, to graze, to trot, to gallop, ...

By means of association, intransitive verbs should be found which describe characteristic actions of the object in question. As the number of verbs to be

found can be determined by the therapist, this exercise is also beneficial for patients with severe word-finding disorders.

W/CON	N/A	Predicative Relations	7.8
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DOG

faithful, large, hairy/shaggy, playful, ...

Here, suitable adjectives should be found which describe possible and the most typical qualities of the object in question i.e. simple, concrete nouns. This exercise can also be used for the

treatment of severe word-finding disorders, as the therapist can determine how many adjectives are to be found and how characteristic they must be.

W/CON	N/A	Predicative Relations	7.9
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JOKE

funny, tasteless, bad, ...

As 7.8, however, abstract nouns are used in this exercise, which increases

the degree of difficulty and correspondingly modifies the target group.

S/DIF	N/A	Predicative Relations	7.10/7.11
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Thunder is

bright
loud
quiet

The task is to select the suitable extension from the three adjectives given. The target word describes an invariant (i.e. concept inherent) quality of the

noun. As this exercise does not require sentence processing it can be used for the therapy of severe semantic disorders.

S/DIF	N/V	Predicative Relations	7.12
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The bird melts.
The bird sings.
The bird barks.

From a group of three sentences with an identical subject, the semantically correct sentence should be identified. The selection is made via the meanings of the three (intransitive) verbs; the verb in the target sentence is similar in

meaning to one of the other verbs. In our experience, this exercise can be given to patients with moderately severe disorders, as long as their word comprehension for the nouns employed is sufficiently stable.

S/DIF	N/V	Predicative Relations	7.13
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The socks slip down.
The chimney drips.

correct / false
correct / **false**

Short sentences, which comprise a noun and an intransitive verb, should be evaluated with respect to their se-

mantic plausibility. This task will almost certainly be beyond the abilities of patients with very severe disorders.

S/DIF	N/V	Predicative Relations	7.14
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The travel report impressed the publisher.
The earthquake made the town more attractive.

correct / false
correct / **false**

Sentences with inanimate subjects should be evaluated with respect to their semantic plausibility. Due to the lexico-semantic complexity of the linguistic material employed, this exercise

is certainly not suitable for patients with severe disorders and only to a limited extent suited to those with moderately severe disorders.

S/SEL	N/N	Predicative Relations	7.15
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wood / tin

The **barrel** is made of _____
The bucket is made of _____

Pairs of sentences in which the subject nouns are semantically similar (hyponyms), are to be completed using the extensions provided. The relation which is expressed in these sentences is the relation between an object and the material of which it is made. As the exercise format involves pairs of sentences, the correct solution is attained even if

only one of the sentences is correctly completed (as the second answer is then automatically given), and for this reason this exercise can be given to patients with severe disorders. In addition, an understanding of the nouns is sufficient to enable the solution to be found.

S/DIF	N/N	Predicative Relations	7.16
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silver / rubber / wax / ... / ... / **wood** / ...

Shelves are made of _____

Buckets are made of _____

...

...

A central characteristic of many objects is the material from which they are made. Using this criterion only, the nouns provided should be inserted into short sentences. An unimpaired ability to process sentences is not necessary

in this case. For this reason, and also because the exercise is not very demanding in terms of orthography, this WS is also suitable for patients with severe word-memory disorders.

S/SEL	N/A	Predicative Relations	7.17
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white / black

Snow is _____

Coal is _____

Here, each of a pair of adjectives (antonyms) has to be inserted into a sentence; in each case the adjective describes an inherent semantic quality of

the subject noun. The same considerations are valid here as in 7.15, certainly with respect to the error probability in contrasting word-pairs.

S/SEL	N/V	Predicative Relations	7.18
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rolls / flutters

The **teardrop** _____

The flag _____

Pairs of semantically very similar (mostly intransitive) verbs should be inserted into gaps in sentences. The verbs describe a characteristic action of the subjects which have been selected. As the stimuli are presented in pairs, the correct answer to one of the sen-

tences leads automatically to the correct answer for the other. Nevertheless, this exercise is not suitable for patients with very severe impairments due to the semantic similarity of the noun-pairs and verb-pairs.

S/SEL	N/A	Predicative Relations	7.19
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funny / accurate / ..., / **strong** / ...

The weightlifter is very_____

...

In this exercise, sentences (in most cases copula structures) have to be completed using one of the adjectives listed. Adjectives may be used more than once. The relation between the subject noun and the adjective is generally not concept inherent, and in addition to the obvious solution there may

be other sensible extensions. In terms of difficulty, this WS is suitable for those patients suffering from moderately severe lexico-semantic disorders who are able, from the syntactic point of view, to process sentences of this complexity correctly in most cases.

S/CON	N/A	Predicative Relations	7.20
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The schoolchildren are hard-working and **attentive.**

In this exercise the patient is required to find a second adjective which completes the copula structure. Although relatively high demands are placed on word-finding competence - not least as a result of the word type, in many cases the adjective provided in the sentence helps in search for a second adjective. This adjective can be similar in meaning to the first or be related by

association; often there is a quality which is so closely linked to the first adjective, that the first induces the second. We have found that this exercise can be of benefit to patients who have moderate to mild word-finding disorders, as long as they are sufficiently able to deal with the sentences, lexically and structurally, which have to be processed.

S/CON	N/V	Predicative Relations	7.21
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Their mother would like to **go on holiday/vacation.**

In this WS the patient can freely select the extension to the sentence. The whole VP should be inserted, however, the patient is given no instructions regarding the structural and lexico-semantic complexity of these constituents. The lexical material contained in

the first part of the sentence has been constructed so that the semantic context is chiefly neutral.

In our experience, only those patients who suffer from mild word-finding disorders are able to complete this exercise 100% correctly, however, with ap-

propriate support from the therapist, aphasic patients with more severe dis-

orders may be able to complete some of the sentences.

8 OBJECT RELATIONS

This chapter deals with all those noun-verbs relations in which the noun is interpreted as a logical object of the activity expressed by the verb. The 31 WS contain therapy material with stimuli of appropriate complexity for all

grades and types of impairment. In terms of processing modalities, there are 13 WS of type DIF, 8 of type SEL, and 10 which belong to the category CON; the ratio between word and sentence level is 9 : 22.

W/DIF	N/V	Object Relations	8.1
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HAIR to sing **to cut** **to wash** **to comb**

From a row of 4 verbs, the three which are semantically related to the preceding simple, concrete noun should be identified. The noun is in each case a term which is a possible object of each of the three correct verbs. The verb

which does not fit has no semantic relation either to the other three verbs or to the noun in question. This exercise can be given to all those patients whose comprehension of simple concrete nouns is intact.

W/DIF	N/V	Object Relations	8.2
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HAIR to clean **to cut** **to wash** **to comb**

In terms of lexical material, this exercise is identical to 8.1, except that here the word which does not fit is semantically related to at least one of the other three verbs. This exercise is therefore

more difficult than 8.1 and should make the patient aware that a semantic similarity between the verbs does not necessarily lead to the same plausible verb-object relation.

W/DIF	V/N	Object Relations	8.3
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to water **plants** **flowers** **rubber tree** bus

This WS is the inverse of 8.1 and 8.2, in this case three objects must be matched to a verb. Three of the nouns

fit, the fourth has no semantic relation with the other words.

W/DIF	V/N	Object Relations	8.4
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to water **plants** animals **flowers** **rubber tree**

This exercise is identical to 8.3 except that the noun which does not fit is a distractor which belongs to a neigh-

bouring semantic field, but which is not a possible object of the verb in question.

W/DIF	V/N	Object Relations	8.5
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to close | **book** **door** word
 | **deal** potato **eyes**

From a group of six semantically distinct nouns, four should be selected which are related to the verb given. The verbs have a relatively wide range of meanings. Each of the verb-object relations results from a different aspect or

reading of the verb meaning, some have a quasi-idiomatic character. This exercise is therefore suitable for patients with moderate to mild language comprehension disorders.

W/DIF	V/N	Object Relations	8.6
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Daisies, hamster, pot, ...

to build:

to pick:

to rinse:

...

A group of 5 semantically dissimilar verbs and a group of 5 equally distinct nouns are given. The task is to find that noun which is a possible object to the verb in question. In light of certain as-

pects of the stimulus material used here (e.g. complexity, frequency) the exercise is especially suited for patients with disorders of moderate severity.

W/CON	V/N	Object Relations	8.7
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eat **soup, bread, apples, fish, ...**

Nouns should be found, by association, which serve as possible objects for the (frequently used) verbs given; due to

the nature of the verb meanings, the nouns share certain semantic qualities. This exercise was developed for pa-

tients with severe to moderate word finding disorders.

W/CON	V/N	Object Relations	8.8
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order **food, beer, newspaper, furniture, ...**

This exercise is analogous to 8.7 except that the verbs given have both a more complex internal structure and a wider and often more unspecific range

of meaning than the verbs in 8.7. These factors increase the general level of difficulty.

W/CON	V/N	Object Relations	8.9
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to report **accident, thief, crime, colleague, ...**

This worksheet, which is of the same type as the preceding exercise, is more difficult in that it requires that abstract nouns be found to fit the complex

verbs. This exercise should therefore only be used with patients who have mild word finding disorders.

S/DIF	V/N	Object Relations	8.10
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The man waters...

the roses
the animals
the flowers

Simple SVO sentences are given, for which suitable objects must be selected. For each sentence three objects are provided, of which two can be used to complete the sentences meaningfully and the third is semantically related to the other two nouns but is not a possible object for the verb in question. Of the ten transitive verbs in this exer-

cise, five can also be used intransitively. As this exercise can only be completed by analysing correctly the verb meanings, and as the therapist can determine whether one or two of the nouns must be found, this exercise can also be given to patients with severe disorders.

S/DIF	V/N	Object Relations	8.11/8.12
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The mother serves the ...

knitting
customer
children
goblet

As in the previous exercise, simple SVO sentences should be completed. The object NPs to be selected are constructed according to the following principle: one is semantically and pragmatically proximate, one is semantically possible but pragmatically less plausible, one NP has an associative relation to the subject noun and one has no meaning relation at all with any other word in the sentence. The verbs used all require the addition of a direct object (= accusative NP) and can not be used intransitively.

The therapist is also able in this exercise to vary the nature of the process-

ing. According to the individual nature and severity of impairment, the therapist can decide whether both NPs should be found or if one is sufficient. The target group is therefore the same as in 8-10, however, there is here an additional source of error due to the distractor which is related to the subject but which is not a possible object. If these nouns are systematically selected then the patient ignores the structural and/or semantic function of the verb in the sentence context, i.e. this exercise is still too difficult for the patient.

S/DIF	V/N	Object Relations	8.13
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The pope blesses the pilgrims.
The boss smokes a salami.

correct / false
correct / **false**

In this exercise SVO sentences with animate subjects and inanimate objects should be evaluated with regard to their semantic plausibility, and identified as either correct or false. The correct sentences have a high degree of semantic-pragmatic plausibility; the incorrect sentences are so constructed that (at least in on-line processing) the subject-verb sequence implies that a noun from a certain semantic field be used as object. Instead, a noun with quite different

semantic properties appears in this position and the processing-induced assumptions concerning the meaning of the object are systematically disturbed. Thus, this exercise is designed primarily to promote the correct and complete semantic analysis of sentences according to the conditions of linear processing and this analysis is not necessarily linked to a particular degree of severity of lexico-semantic impairment.

S/DIF	V/N	Object Relations	8.14
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The brass band played a march.
The violinist plays a verse.

correct / false
correct / **false**

This exercise also concerns itself with the evaluation of semantic plausibility of sentences. In contrast to 8.13, the object-nouns in the incorrect sentences have been chosen so that they are a possible object of a semantically related verb and also that they have an associative relation to the subject, which may, however, be vague. The

evaluation of the incorrect sentences in particular is therefore the result of a semantically differentiated analysis of the verb and requires, under certain circumstances, a semantic re-evaluation. This exercise is therefore not suitable for patients with severe disorders.

S/DIF	V/N	Object Relations	8.15
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The fire destroyed the harvest.
The orchestra accompanies the stage.

correct / false
correct / **false**

This exercise also requires an evaluation of SVO sentences according to semantic-pragmatic criteria. In principle, this exercise corresponds to 8.14,

however, some inanimate subjects have been selected and the words used are decidedly more complex structurally and lexically.

S/DIF	V/N	Object Relations	8.16 / 8.17
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The holidaymakers/vacationers sit comfortably under the sunshade and enjoy the summer weather.

correct / false

The bus stopped at the doorstep and waited for more passengers.

correct / **false**

This exercise, which also concerns sentence evaluation, deals with the plausibility of complex declarative sentences. The sentences which are semantically incorrect can be identified only by accurately analysing the compound nouns in the object position; only one part of the compound expres-

sion deviates (minimally) from that which is expected or required from a semantic analysis of the sentence context.

As well as the complexity of the lexical terms employed in this exercise there are additional sources of difficulty in the structural complexity of the constituents

- their length and the overall length of the sentences - which require a detailed and comprehensive analysis on the part of the patient. This exercise is

therefore only suitable for patients with mild language comprehension disorders.

S/SEL	V/N	Object Relations	8.18 - 8.21
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the dishes **the kitchen**

The woman **mops** _____

The woman rinses _____

In this series of worksheets pairs of simple SVO sentences are given for which suitable object NPs should be found. The subjects are in each case identical and the verbs semantically close, and the object nouns are semantically related, although not always closely. Due to the nature of this pairing exercise, the correct processing of one

sentence automatically produces the correct solution for the other sentence. In addition, this exercise can also be solved using a canonical processing strategy, i.e. a syntactic analysis of the sentences is not necessary. Therefore this exercise is also suitable for patients with severe lexico-semantic disorders.

S/SEL	N/V	Object Relations	8.22 / 8.23
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fertilise/fertilize **feed**

The farmer must _____ **the cows.**

The farmer must _____ the fields.

In principle, these two exercises are the inverse of the preceding ones; here, semantically similar verbs should be matched to suitable objects. The verbs must be inserted in front of the objects. In terms of difficulty and corresponding

therapeutic context for which this material can be employed, these two WS mirror the preceding series, although impairment-specific variations are conceivable.

S/DIF	N/V	Object Relations	8.24
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peel, **pour**, beat, grind,

He wants to _____ her a cup of tea.

Verbs from particular semantic fields should be inserted into sentences. The

patient must therefore differentiate between semantically related verbs and

also determine the characteristic meaning context for each verb in order to arrive at the correct solution. The chief

target group for this exercise are patients with moderately severe word-memory disorders.

S/CON	V/N	Object Relations	8.25
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The baker bakes **a bread.**

Simple SVO sentences should be completed by the addition of a direct object. The subjects and verbs provided for the start of each sentence have been selected so that they are closely related

closely related to a particular noun (or nouns) from a particular semantic field. In terms of difficulty, this WS can be designated as a simple word-finding exercise.

S/CON	N/V	Object Relations	8.26
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All the guests had to **laugh** at the very funny joke.

In this exercise verbs must be inserted into sentences, which are longer and structurally more complex than the simple SVO sentences with animate subjects in the preceding exercise and which are therefore more difficult to process. The lexical material in these sentences and, in particular, the VP have been selected so that a certain

verb will suggest itself as a possible solution from the semantic context. Although the word-finding tasks in this WS are not so difficult, in light of the processing complexity of the stimulus sentences the exercise should only be given to patients who do not have undue difficulty with linear sentence processing.

S/CON	N/V	Object Relations	8.27
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Tulips and narcissi/narcissuses bloom in **spring.**

This exercise also concerns itself with the completion of sentences, however, here abstract nouns must be inserted. The suitable noun, or the field of meaning to which the noun belongs, can be easily inferred from the lexical material

in the sentences, which are of more variable construction in terms of their syntactic structure. This WS is especially suited to patients with moderately severe word-finding disorders.

S/CON	N/V	Object Relations	8.28
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The housewife should **cut** the bread.

This word-finding exercise focuses on transitive verbs. The semantic context has been kept as neutral as possible, i.e. there are several possible options

for the correct completion of the sentences. As experience shows, this increases the level of difficulty of word-finding exercises.

S/CON	V/N	Object Relations	8.29
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The boy resembles **the/his father.**

When completing these sentences, complementary terms of varying structure should be inserted in order to accord with the verb. An additional term must be inserted in all cases, as none of the verbs, strictly viewed, can be used intransitively. The selection (of the

lexical material) of the complementary term is influenced to a greater or lesser extent by the individual sentence context. This exercise is especially suited to patients with moderately-severe to mild word-finding impairments.

S/CON	V/N	Object Relations	8.30
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At the market, the farmer sells potatoes and **eggs** .

These sentences contain a complex NP which require the insertion of a second noun by the patient. Depending on how the structures of stimulus sen-

tences are analysed, it is possible in many cases to construct VP as an alternative.

S/CON	N/V	Object Relations	8.31
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The chef wants to tenderise/tenderize and **season** the steak.

In this exercise the patient should add a second verb. The semantic content of the stimulus sentences have been constructed so that the verb provided and the verb to be inserted exhibit a close semantic relation, or they represent

actions which are situationally and/or chronologically connected with each other. As in 8.30, it is also possible to insert a complete VP instead of one verb.

9 INSTRUMENTAL RELATIONS

An instrumental relation, as the term is used here, is the relation between an object and its use or function. The corresponding meaning relation between a noun and a verb can be semantically very close, in other words it belongs to the centre of the nominal concept (e.g. knife/cut), however, it can also be the result of pragmatic knowledge and belong to the periphery of the nominal

concept (e.g. tweezers/to remove splinters). Six WS have been developed of which 4 focus on the relevant meaning relations at the word level and 2 at the sentence level. With regard to the processing modality, two are of type SEL, four are of type CON. The primary target group for these exercises is patients with severe to moderately - severe word-finding disorders.

W/SEL	N/V	Instrumental Relations	9.1
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to cut, **to ring**, to twinkle, ..., ...

pen:

bell:

gun:

The task involves pairing 5 given verbs with 5 nouns using an instrumental relation between the words concerned. The objective of this WS is the reciprocal pairing of verb and noun concepts

by means of their central semantic relation.

The exercise is suitable primarily for patients with severe word memory disorders and those who have problems processing propositional relations.

W/CON	N/V	Instrumental Relations	9.2
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What can you do with the ...

knife

brush

...

cut

paint

In this word-finding exercise the patient is required, using instrumental relations, to find suitable verbs for the nouns given. As the objects (knife, spear, broom,...) are centrally defined

by the corresponding activity the exercise is relatively simple and therefore also suitable for patients with severe word-finding disorders.

W/ CON	V/N	Instrumental Relations	9.3
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What can you use to ...

lock the door **a key**

In this exercise, the patient is required to find nouns which represent the instrument in each relation. A task of this type requires a reactive naming capa-

bility and is suitable for patients with moderately severe word-finding disorders.

W/ CON	N/V	Instrumental Relations	9.4
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What can you do with the following things?

dishwasher		wash (<i>the dishes</i>)
lawnmower		mow (<i>the lawn</i>)

In contrast to the preceding WS, in this exercise composite nouns are given. The ease of retrieval of the verbs required is not facilitated by an almost automatic connection to the noun (as in 9.2), but it is aided by the fact that the target word is a component of the composite noun.

This exercise is primarily suitable for patients with mild to moderately severe

word-finding disorders, however, it is conceivable that certain patients with severe impairments could benefit provided they were able to make use of the internal structure of the composite noun given in the word-finding process, i.e. to derive the verbs from the nouns systematically.

S/ SEL	V/N	Instrumental Relations	9.5
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drill, safety-pin, ..., **tweezers**, ...

The mother removes the splinter with the _____

A prepositional phrase at the end of each sentence should be completed by inserting a noun which expresses an instrumental relation and which is selected from a given list. The correct selection often presupposes the application of pragmatic knowledge (e.g.

Guy ropes are attached to tent pegs). Many contexts from which the stimulus sentences are taken are relatively remote (e.g. 'customs in China') and the nouns which should be inserted are in some cases only infrequently used (*harpoon*); in addition, many of the

nouns employed are internally complex (*safety-pin*) and/or orthographically challenging.

The objective of this WS is to stimulate the availability of rarely used nouns by activating the central functional relation for the word concepts. The target group

for this exercise is patients with moderately severe word-finding disorders. If the prompts are omitted the accent of the exercise changes to some extent in that, on the one hand the demands on the word-finding skills are increased whereas on the other hand more terms become eligible for insertion.

S/ CON	V/N	Instrumental Relations	9.6
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The butcher cuts the meat with a *knife*

The target words in this sentence completion exercise represent simple, everyday objects which are strongly defined by their instrumental application (knife, needle, scythe, ...). With the verb and the direct object the sentence context contains at least two key words

which are of a strongly de-blocking character (sometimes tautological sentences occur). For these reasons, this WS is suitable for patients with severe to moderately severe word-finding disorders.

10 QUALITATIVE RELATIONS

This section focuses on that relation between a verb and an adjective/adverb in which the adjective qualifies the verb. Such relations can be very close (e.g. to bark/loud), but also remote (e.g. to grind/carefully). The present chapter contains one WS for

each processing modality, although all three exercises deal with the relevant relation at the sentence level in the form of a verb-adverb sequence. This material was principally conceived for the therapy of moderately severe lexico-semantic disorders.

S/ DIF	V/A	Qualitative Relations	10.1
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The optician grinds the glass very carefully.
The caretaker locks the door saltily.

correct / false
correct / **false**

This WS is a sentence evaluation task of the c/f type. The relation which should be evaluated, is that between the verb and the adverb. The structure of the sentences has been kept constant; they are simple declarative sen-

tences of the form SVOAdv. The stimulus sentences contain statements which refer to common everyday situations and up to the critical point, viz. the adverb position, they are all semantically correct and to a greater extent

serve to show whether, and to what extent, impairments are present in the processing of simple Wh-questions, while not forgetting that they also have a therapeutic value. The 6 WS of type CON serve to prepare and facilitate

reactive naming skills, and we have confined ourselves here to the categories noun and adjective.

This chapter contains exercises for lexico-semantic disorders of all degrees of severity.

S/ DIF	S/S	Question-Answer	11.1 / 11.2
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What do you drink coffee from?

from beans
from a glass
from a cup

For each simple Wh-question the patient is presented with three answers from which the correct one should be selected. The answers have an identical syntactic construction - each consists of a prepositional phrase which commences with the same preposition. The two unsuitable answers function systematically as semantic distractors: in one case there is a semantic relation (hyponymy) between the noun in the correct answer and the noun in the false answer (sports park/car park), otherwise the correct understanding of

the verbs in the question (to park vs. to drive) is the prerequisite for selecting the correct answer.

The nature of this exercise dictates that unsuitable answers can often be disqualified for pragmatic reasons and not for genuine semantic reasons - this should be borne in mind especially when treating Wernicke aphasics.

These two WS are suitable for patients with moderately severe to mild semantic disorders.

S/ CON	S/N	Question - Answer	11.3
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Who sells meat and sausages? **The butcher**

This question and answer exercise focuses on word-finding skills involving simple concrete nouns. The lexical material in the questions contains clear semantic clues for the identification of

the target word, i.e. the answers require reactive naming skills; suitable for patients with severe word-finding disorders.

S/CON	S/A	Question - Answer	11.4
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What is a circle like? **round**

This exercise is designed specifically for the therapeutic treatment of word-finding disorders which relate to adjectives. The questions given require as an answer an adjective which expresses a characteristic or an inherent quality of the noun. The answers can therefore be regarded as promoting

predicative or reactive word-finding skills. The therapist is able here to vary the form of the exercise considerably by defining the type and the number of adjectives required in each individual case. For this reason, the WS is not designed for any particular degree of severity of word-finding disorder.

S/CON	S/A	Question - Answer	11.5
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What is pepper like? hot
 What can a dog be like? faithful, aggressive, ...

As the relation between the nouns given and the adjectives required in 11.5 is generally not so strongly defined as compared with exercise 11.4, the word-finding task presented here

involves predicative word-finding skills to a greater extent than reactive word-finding skills. Despite the superficial similarities with 11.4, this exercise is considerably more demanding.

S/CON	S/N	Question - Answer	11.6 / 11.8
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What is the room called that you sleep in? bedroom

The word-finding process for inaccessible compound nouns is often facilitated by giving a (functional) description of the object in question. In the present WS compound nouns have been selected which are easy to define by means of their function. The target words have not been vetted, however, with reference to the criteria descrip-

tiveness or internal composition. Due to their reactive character, the question-answer format in these WS reduces the level of difficulty of the word-finding process.

These WS are suitable for patients with mild to moderately severe word-finding disorders.

12 IDIOMATIC PHRASES

It often becomes apparent, particularly in mild semantic disorders, just what difficulty the patients have with non-literal meanings and how easy it is, as a result, for misunderstandings to arise

in seemingly simple communication activities. This worksheet is firstly of diagnostic value; it enables a check to be made as to whether these kinds of difficulties are present.

S/DIF	S/S	Idiomatic Phrases	12.1 / 12.2
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She saw the light.

The new bulb worked.

Now, something is clear to her.

She does'nt understand anything.

Each sheet contains a number of idiomatic expressions, each of which is followed by three sentences. From these three sentences, the patient should select the one which paraphrases the meaning of the idiom. The other two sentences have been systematically designed to mislead: one of them expresses the opposite meaning, the other gives a literal interpretation of

the idiomatic expression. From the distribution of mistakes it is possible to determine whether the patient only has difficulty understanding the non-literal meaning precisely or whether a non-literal meaning is not taken into account at all.

This exercise can be employed for patients with mild to moderately-severe semantic disorders.

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