The Principles of the Formal Construction of the Lexical-Semantic Field in Modern Chinese

A. M. Karapetyants[1], E. A. Timchishena[2]

[1] Lomonosov Moscow State University,
   1, Leninskie gory, Moscow, 119991, Russian Federation
[2] Plekhanov Russian University of Economics,
   36, Stremyanny per., Moscow, 117997, Russian Federation

The article presents an attempt to formally construct a lexical-semantic field for the Chinese language, taking into account the fact that the concept of such a field presupposes a certain classification system of the vocabulary, which is divided into large and small groups ordered in relation to each other. Due to the presence in the Chinese language of a large number of copulative complexes, paradigmatic relations of semantic proximity are expressed in syntagmatic relations of juxtaposition, which allowed the authors of the article to construct semantic fields based on the data of normative dictionaries and vocabulary lists. This article presents formal methods for constructing a semantic field for the modern Chinese language, a semantic method for fixing the language. It is based on a graphical representation of combinations of symbols (synographic images) and their explanations in dictionaries and wordlists of the modern Chinese language. As typical examples, the sphere of designations of emotions and verbs with the meanings of purchase and sale was chosen. The article defines the features of the structure of the lexical-semantic field of the verbs of sale and purchase, reveals the lexical units that are included in the core, near and far periphery. The material presented in the article indicates that in the case of the Chinese language, a similar method of constructing a lexical-semantic field can be applied both to tokens with an abstract meaning and to tokens with a specific meaning.

Keywords: lexico-semantic field, binomial unit, copulative connections, core, near, far and extreme peripheries, lexeme.

The "field" as a linguistic term was first introduced in 1924. Among the first to define this concept were G. Ipsen and J. Trier. Trier suggested that there are two types of fields: conceptual and verbal (or lexical) ones. Conceptual fields are fields that directly reflect reality, and verbal fields are a plane of expression for the conceptual field. This approach involves two procedures. The first of them is the classification of concepts, on the basis of which a group of similar concepts is determined; apparently, this is the "reflection of reality". The second is the identification of the group of words expressing these concepts, the definition of the relationship between them; this is the plane of expression for the conceptual field. An ideal example of such an approach is Roget's Thesaurus, which was

published almost a century earlier than the theory of the semantic field first appeared. In it, both a set of fields in the form of a synopsis of categories and their specific content (the fields themselves) are given in the form of the main text, in which thematic lists such as names of animals, flowers, etc. are highlighted.

We believe that since Chinese hieroglyphic writing ('synography') is a symbolic form of writing, it can be assumed that in this case such a division is not necessary. The lexical-semantic field for this language can be obtained in a formal way according to the dictionaries' data based upon the compatibility of symbols in the formation and interpretation of copulative combinations. This principle corresponds to the third characteristic of the semantic field as stated by I. M. Kobozeva: "interconnectedness and interdependence of lexemes" (the first two characteristics, "semantic relations between the elements" and "systemic type of these relations", are self-evident) [1].

Due to the presence of many copulative combinations in the modern Chinese language, paradigmatic relations of semantic proximity are expressed in syntagmatic relations of juxtaposition. This allows to construct semantic fields based on the data of normative dictionaries and vocabulary lists. In Chinese dictionaries, explanations, as a rule, are given by assigning two hieroglyphs to each hieroglyph that needs explaining (i. e., a single syllable unit is explained through a two-syllable binomial unit). In the same way, a binomial unit can be explained by a four-syllable one. Thanks to this principle, more and more hieroglyphs are getting involved into the process, and those that are introduced through the existing ones must relate to the same semantic field.
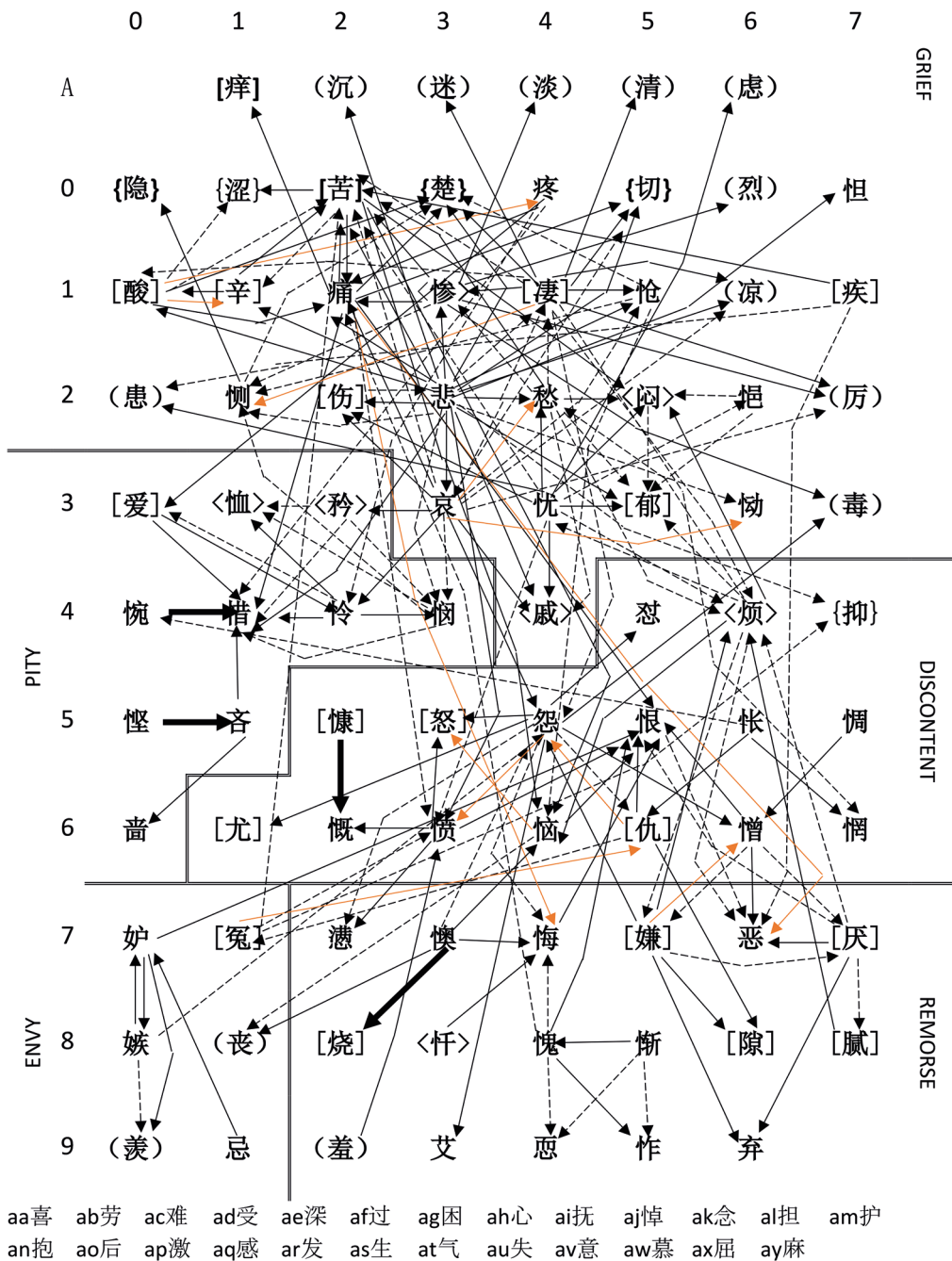
There are two difficulties here. The first of them is a possible interpretation of the copulative relationship as attributive and vice versa. The second is the possibility of assigning binomial hieroglyphs not to one field, but to two adjacent fields. The first difficulty can be overcome by the possible appearance of the indicator of an attribute 的 in the interpretation, the second — by the appearance in the interpretation of a connecting-adversive component like 而. However, these indicators do not always appear, so the boundaries of the field turn out to be somewhat blurred, which fully corresponds to the 4th and the 5th characteristics stated by I. M. Kobozeva: "conditional autonomy of the field" and "the continuity of the designation of its semantic space" [1].

Formally, the field can be represented as a graph[1] — with the hieroglyphs located in the nodes, and the arrows indicating their possible combinations. It is convenient to arrange the nodes regularly in the form of a matrix, in which the hieroglyphs, more closely related to each other, should also be located closer to each other.

Along with the aforementioned syntagmatic connections, there are paradigmatic connections that are revealed through the explanation of signs and their combinations. Such connections could also be represented through arrows to the corresponding signs and arrows, but in this case, the Graph would be illegible and difficult to read. Therefore, paradigmatic connections have to be presented separately through the indication of the nodes themselves and their coordinates.

At first glance, this method is only suitable for abstract concepts. Indeed, in the first half of the article we will discuss the field of "negative emotions", which was derived from the hieroglyph 哀 āi "mourn, grieve, suffer." The corresponding Graph (Graph 1) is on the next page.

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[1] A similar method has already been applied to the modern Chinese language by A. M. Karapet'janc [2].

	0	1	2	3	4	5	6	7
A		**[痒]**	（沉）	（迷）	（淡）	（清）	（虑）	
0	**{隐}**	{涩}	**[苦]**	**{楚}**	疼	**{切}**	（烈）	怛
1	[酸]	[辛]	痛	惨	[凄]	怆	（凉）	[疾]
2	（患）	恻	[伤]	悲	愁	〈闷〉	悒	（厉）
3	[爱]	〈恤〉	〈矜〉	哀	忧	[郁]	恸	（毒）
4	惋	惜	怜	恼	〈戚〉	怼	〈烦〉	{抑}
5	悭	吝	[慷]	[怒]	怨	恨	怅	惆
6	啬	[尤]	慨	愤	恼	[仇]	憎	惘
7	妒	[冤]	懑	懊	悔	[嫌]	恶	[厌]
8	嫉	（丧）	[烧]	〈忏〉	愧	惭	[隙]	[腻]
9	（羡）	忌	（羞）	艾	恋	怍	弃	

PITY · ENVY · DISCONTENT · REMORSE

aa喜　ab劳　ac难　ad受　ae深　af过　ag困　ah心　ai抚　aj悼　ak念　al担　am护
an抱　ao后　ap激　aq感　ar发　as生　at气　au失　av意　aw慕　ax屈　ay麻

Graph 1. The field of negative emotions

Appendix to the field of negative emotions

02 苦 2）1202痛苦；
　　　1201苦涩～1202痛苦
　　　1303苦楚=1202痛苦
　　　*0211苦辛=1102辛苦
　　　0212苦痛=1202痛苦
　　　0225苦闷=0264-4625苦恼烦闷
　　　0264苦恼=1202-4664痛苦烦恼
　　　02ac苦难=1202痛苦+

04 疼 1) 0412疼痛；2) 0430疼爱 3041
　　　爱惜
　　　0412疼痛=12痛
　　　0430疼爱～aa30喜爱
　　　*0441疼惜=0430-4241疼爱怜惜
　　　*0442疼怜=0430疼爱，0441疼惜

07 怛 3422忧伤，2302悲苦

10 酸3 2312悲痛
　　　*1001酸涩=10+01又酸又涩
　　　*1002酸苦=1110-1202辛酸痛苦
　　　#1003酸楚=1110-0203辛酸苦楚
　　　#1004酸疼
　　　1011酸辛
　　　1012酸痛=10+12又酸又痛

11辛 *2）1102辛苦 3)1202痛苦，2312
　　　悲痛
　　　1102辛苦 ～ab02劳苦
　　　1110辛酸～1202-2322痛苦悲伤
　　　11ab辛劳=1102辛苦 –

12痛 2 1204痛疼 3）2322悲伤 2312
　　　悲痛
　　　1202痛苦～acad难受
　　　1203痛楚=2312悲痛，0203苦楚
　　　1205痛切 ～2312悲痛
　　　1241痛惜=A2124041沉痛 惋惜
　　　1255痛恨=ae056655深切 憎恨
　　　*1263痛愤～6355愤恨，1255痛恨
　　　#1274痛悔
　　　#1276痛恶
　　　12 A 1痛痒～1702疾苦

13 惨 1）2313悲惨
　　　13A4惨淡～1416凄凉
　　　1302惨苦=1413-1202凄惨痛苦
1306惨烈=1416凄凉，1413凄惨
　　　1312惨痛=2313-1202悲惨痛苦
　　　*21恻=1413凄惨
　　　1327惨厉=1416凄凉，1413凄惨
　　　1337惨毒！

14凄 3) ～2322acaf悲伤难过
　　　14A3凄迷=～1416凄凉；2322悲伤，
5667怅惘
　　　14A5凄清=1416凄凉
　　　*1402凄苦=2313-1202悲惨痛苦
　　　1403凄楚=1413-1202凄惨痛苦
　　　1405凄切=1416+2333凄凉而悲哀，
～2313悲惨
　　　*1410凄酸=1416-2310凄凉悲酸
　　　1413凄惨=1416-2313凄凉悲惨
　　　1415凄怆=1413凄惨
　　　1416凄凉=1413凄凉
　　　1421凄恻
　　　1422凄伤=1416-2322凄凉悲伤
　　　1427！凄厉
　　　*1433凄哀=1416+2333凄凉而悲哀，
1405凄切
　　　*1454凄怨=2322-3354悲伤哀怨
　　　*1467凄惘～2322悲伤，5667怅惘

15 怆 2322悲伤
　　　*1512怆痛=2312悲痛
　　　*1521怆恻=2322悲伤
　　　*1564怆恼=7364懊恼

17 疾 2)1202痛苦 3)1255痛恨
　　　1702疾苦～ag02困苦
　　　#1720疾患
　　　*1776疾恶=1255痛恨

21恻 2322悲伤
　　　2100? 恻隐
　　　*2103恻楚=2312悲痛

22 伤 3)2322悲伤，2333悲哀 4)～7746
厌烦
　　*2212伤痛～1202痛苦
　　*2223伤悲=2322悲伤

23 悲 1）2322悲伤 2)4243怜悯
　　23A2悲沉=2333-A212悲哀沉痛；
2322-A225悲伤沉闷
　　2302悲苦=2333-1202悲哀痛苦
　　2303悲楚=2302悲苦
　　2305悲切=2312悲痛
　　2307悲怛=2312悲痛
　　2310悲酸=2312悲痛
　　2311悲辛=2310悲酸
　　2312悲痛=22ah伤心
　　2313悲惨～1202痛苦
　　*2314悲凄=2322-1405悲伤凄切
　　2315悲怆=2322悲伤
　　2316悲凉=1416凄凉
　　*2321悲恻=2322悲伤
　　2322悲伤=22ahacaf伤心难过
　　2324悲愁=2322-3424悲伤忧愁
　　2333悲哀=22ah伤心
　　2335悲郁=2322-3435悲伤忧郁
　　*2336悲恸～2333悲哀
　　2341悲惜=2322-4041悲伤惋惜
　　*2343悲悯=3342哀怜
　　2344悲戚=2322悲伤
　　*2347悲抑=2322-4735悲伤抑郁
　　2363悲愤=2312-6353悲痛愤怒

24 愁 3497忧虑；～13A4惨淡
　　2402愁苦=3424-0264忧愁苦恼
　　*2403愁楚=3424-1202忧愁痛苦
　　*2413愁惨=3324-1413哀愁凄惨，
2313悲惨
　　2425愁闷=3424-4625忧愁烦闷
　　*2435愁郁=3435忧郁
　　*2444愁戚=3422忧伤
　　*2446愁烦=3497-0264忧虑苦恼
　　*2497愁虑=3497忧虑

25闷 ah46心烦
　　*2535闷郁=3525郁闷

26 悒～3424忧愁

　　*2625悒闷=2425愁闷，4625烦闷
　　*2635悒郁=0225苦闷，4735抑郁

30 爱 3) 3041爱惜
　　3041？爱惜
　　3042爱怜=3041+4243爱惜而怜悯
　　30ai爱抚=0430疼爱-

31 恤 1)4243怜悯 2)3497忧虑

32 矜 1)4243怜悯，4241怜惜
　　*3231矜恤=4243怜悯；　4243-ai31
怜悯抚恤
　　*3241矜惜=4241怜惜，3042爱怜
　　*3243矜悯=4243怜悯，3342爱怜

33哀 1)2322悲伤，2312悲痛 2)ajak悼
念 3)4243怜悯
　　*3302哀苦=2333-1202悲哀痛苦
　　*3305哀切=1405凄切
　　3312哀痛=2322悲伤，2312悲痛
　　*3314哀凄=2322悲伤
　　*3315哀怆=3322哀伤
　　*3316哀凉=2313悲惨，1416凄凉
　　3322哀伤=2322悲伤
　　#3324哀愁
　　*3327哀厉=2305悲切
　　3332哀矜=4243怜悯，3342哀怜
　　#3336哀恸
　　3342哀怜=4243怜悯
　　*3343哀悯=3342哀怜
　　3344哀戚=2322悲伤，3322哀伤
　　3354哀怨～2322-5455悲伤怨恨

34忧 1) 3424忧愁 2) 3420忧患
　　*3402忧苦=3424-0264忧愁苦恼
　　3420忧患=ag02-20ac困苦患难
　　3422忧伤=3424-2322忧愁悲伤
　　3424忧愁～0225苦闷
　　3425忧闷=2425愁闷
　　#3426忧悒
　　3435忧郁=3425忧闷
　　3444忧戚=3422忧伤
　　#3446忧烦
　　#3463忧愤
　　34Ａ6忧虑=3424-a1ah忧愁担心

34ab忧劳=3497-ab02忧虑劳苦
34ak忧念=3497忧虑-

35郁～2322悲伤

40 惋：4041惋惜？
41 惜 3041爱惜，5141吝惜

42 怜1) 4243怜悯，4241怜惜 2) 30爱
　　*4230怜爱=0430疼爱
　　4231怜恤=4243怜悯
　　4241怜惜～30am爱护
　　4243？怜悯
　　42ak怜念=4230怜爱-

43悯 1) 4243怜悯 2) 3424忧愁
　　*4321悯恻=3342哀怜
　　*4331悯恤=4243怜悯
　　*4341悯惜=4241怜惜

44戚 2) 3424忧愁，2333悲哀

45怼 5455怨恨

46 烦1) 4525怼闷2）7745厌怼 4) 45ab
怼劳
　　*4624烦愁=4564-3424怼恼忧愁
　　4625烦闷=0225苦闷
　　*4634烦忧=4564-3424怼恼忧愁
　　*4635烦郁=4525怼闷
　　4664烦恼=4525-0264怼闷苦恼
　　*4676烦恶=7776厌恶
　　*4677烦厌=7745厌怼
　　46ab烦劳=2425愁闷，3445忧怼

47 抑：

50 悭：
　　5051悭吝=5160吝啬

　　51 吝 5160吝啬
　　5141吝惜～3041爱惜
　　5160吝啬～3041爱惜

52 慷：5262！慷慨

53 怒 6353愤怒

54 怨 1) 5455怨恨，6555仇恨 2) an54
抱怨
　　*5402怨苦=5466+1202怨憎而痛苦
　　5437怨毒=6566仇憎
　　5445怨怼=5466怨憎
　　5453怨怒=5466-6453怨憎恼怒
　　5461怨尤=5466怨憎
　　5463 怨愤
　　*5465怨仇=5455怨恨,656仇憎；2454
仇怨
　　5466怨憎～6566仇憎
　　*5472怨懑=5466-6372怨憎愤懑
　　*5474怨悔=5466+ao74怨憎而后悔
　　5493怨艾=5466怨憎

55 恨1)6555仇恨,5455怨恨 2)7455悔恨
　　*5576恨恶=7776厌恶

56 怅？
　　*5640怅惋=～4041惋惜
　　5665怅仇=5756-6465 惆怅恼仇
　　5667怅惘=5756-A367惆怅迷惘

57：惘
　　5766惘憎=2425愁闷

60 啬 5160吝啬

61尤 2)5455怨恨

62 慨1)63ap 愤激 2)aq62 感慨3)6252
慨慷

63愤？；ar53发怒
　　6353愤怒=asat 生气
　　6355愤恨～asat 生气
　　6362？愤慨
　　6372愤懑=4735-4625抑郁烦闷
　　63ap愤激=6353+ 愤怒

64恼 1) asat生气，6355愤恨 2)4625烦
闷，7364懊恼
　　#6453恼怒=6372恼懑
　　6455恼恨=asat +5455 生气而怨恨

*6481恼丧=7364懊恼，7381懊丧

65仇　2)6555仇恨
　　#6554　仇怨
　　6555仇恨~5455怨恨
　　*6571仇冤=7165冤仇
　　6586仇隙=6555仇恨

66憎　7776厌恶，55恨
　　6655憎恨=7776-1255厌恶痛恨
　　*6675憎嫌=6676憎恶，7776　厌恶
　　6676憎恶=6655憎恨，7776厌恶
　　*6677憎厌=7776厌恶

67　厌auav失意

70　妒9170忌妒
　　7055妒恨=9170　忌妒
　　7080妒嫉=7091妒忌
　　7090妒羡=9170　+90ax忌妒而羡慕
　　70aw妒忌=9170忌妒

71冤　2)7165冤仇，6555仇恨
　　7102冤苦=71ax+1202　冤屈而痛苦
　　*7147冤抑=~71ax　冤屈
　　*7163冤愤~6355愤恨
　　7165冤仇~6555　仇恨

72:懑

　　73懊　4664烦恼，7455悔恨
　　*7355懊恨=7455悔恨
　　7364懊恼=4664烦恼
　　7374?　懊悔
　　7381?　懊丧
　　7382懊烧=4664烦恼，1274痛悔

74　悔7374懊悔，ay74麻悔
　　*7412悔痛=7374-1202　懊悔痛苦
　　7455悔恨=7374懊悔

75嫌　2)7554嫌怨　3)7776厌恶
　　*7546嫌烦=7746厌烦
　　7554嫌怨=5455　怨恨
　　#7566嫌憎
　　7576嫌恶=7776厌恶

*7577嫌厌=7776　厌恶
7586?　嫌隙
7596嫌弃=7776+厌恶

76　恶　9777虑厌，6655仇恨
77　厌2)7746厌烦，7576嫌恶　3)6676憎
恶，7776厌恶
　　7746厌烦=75ba46+9777　虑厌
　　*7755厌恨=7776-1255厌恶痛恨
　　7776?　厌恶
　　*7787厌腻=8746腻烦，7776　厌恶
　　7796厌弃=7776厌恶+7596嫌弃

80　嫉1)7091妒忌　2)6655憎恨
　　#8055嫉恨
　　8070嫉妒=9170忌妒
　　*8090嫉羡=8070+90aw嫉妒而羡慕

82:烧

83　忏1)8374忏悔
　　8374?　忏悔

84　愧8584惭愧
　　#8412愧痛
　　8455?　愧恨
　　*8474愧悔=9184-7455痒愧悔恨
　　*8494愧恶=8584惭愧
　　8495愧怍=8584惭愧

85　惭8584惭愧
　　8584?　惭愧
　　*8594惭恶=8584惭愧
　　*8595惭怍=8584惭愧

86　隙4)?

87　腻2)8746腻烦，7746厌烦
　　8746腻烦~7746厌烦，9777虑厌

93:艾5493怨艾

94恶　8584惭愧

95　怍8584惭愧

This field is built on the basis of the data from five sources: 现代汉语词典 Xiandai hanyu cidian (XHC) [I], 现代汉语词典补编 Xiandai hanyu cidian bubian (XHCb) [II], 常用构词字典 Changyong gouci zidian (CGZ) [III], 同义词词林 Tongyici cilin [IV] and the Shanghai Chinese-Russian Dictionary (CRD) [V].

Hieroglyphs highlighted in bold on the diagram have more than one meaning related to this field. Angle brackets indicate that the first meanings of the corresponding signs belong to this field, square brackets indicate that these meanings are not first. The curly brackets contain hieroglyphs that formally are undoubtedly related to this field, but for which the corresponding meaning is not indicated in any of the sources involved. Finally, in parentheses are hieroglyphs participating in some typical combinations, but obviously not directly related to this field (going out to a neighboring field or representing a "not quite copulative" connection).

Combinations appearing in XHC [I] are indicated by black solid arrows, in XHCb [II] — by black dashed arrows, in CGZ [III] — by gray (red) solid arrows. Arrow direction indicate the order of following. Thick bold arrows are indicative of indecomposable combinations: the arrow points to the hieroglyph, instead of the meaning, of which a reference to this combination is provided.

Let us show the algorithm for constructing the field unfolding from the main signs with the meaning of "sorrow" — 23 and 33. In all dictionaries, these signs also have the meaning of "mercy", transmitted through 42–43. This meaning sets the "pity" area located in the middle left. The main meaning of these signs is transmitted through 23–22 or 23–12. The meanings "injury" (or "damage") and "pain" lead to the periphery of the field, but only the first leads to the outside, since for the meaning "pain" the connections are strong enough. The periphery also includes the area of figurative language in regard to flavors (upper left corner). The meaning of "grief" is associated (but not directly related) with the meanings of "depression" in the literal sense (47) and "harshness / severity" (27).

An important part of the field of negative emotions is the "discontent" area, the center of which is represented by hieroglyphs 54 and 55. The connections between the areas are weaker than the connections within the areas. The strength of these connections could be evidenced not only by the arrows on the diagram, but also by explanations (paradigmatic connections of the next level), represented by arrows connecting arrows or signs and arrows. However, to include them is to render the diagram unreadable.

These semantic connections can be examined through the appendix, containing the main material, on which the diagram was built. It has an = sign in front of the explanations. The hieroglyphs included in the diagram are designated by their numbers and are ordered in ascending order of the latter, and those not included are given "as is". In the appendix, binomials and meanings that are considered to be outside of this field are marked with asterisks, and idiomatic combinations used for explanations are preceded by a sign. Instead of "both A and B" or descriptive explanations, the @ sign is affixed, and if this combination was found in the CGZ [III] or CRD [V] only, the & sign appears instead of an explanation. Characters before the first "–": "*" — XHCb [II]; "#" — CGZ [III] or CRD [V]; signs between pairs in place of "–": "+" — meaning "and"; "#" — attributive connection; signs after the address of the second character: "!" — another field; "?" — descriptive; "~" means only the main part of the explanation. The hierarchy of sources is reflected by brackets — angle brackets for XHCb [II], square brackets for

CGZ [III], and curly brackets for CRD [V]. When only part of the explanation is given, it is enclosed in parentheses.

The semantic ratio of the constituent binomials ranges from identity to adjacency, but the field boundary remains fairly definite. It is partially confirmed by the antonymic field (Graph 2), connected with the diagram also through the sign 30, mainly correlated with the field "positive emotions". The "worship" area, represented by sign 90, is adjacent to the same field. The "positive emotions" field is similarly divided into four areas — "love" (left), "joy" (top right), "pleasure" (middle right) and "admiration" (bottom left). At the bottom of the Graph are hieroglyphs that appear sporadically in combinations. These hieroglyphs are referred to in the appendix by the two-letter combinations placed in front of them.

Let us note that some hieroglyphs of the negative emotions field participate in the interpretation of the hieroglyphs of the positive emotions field and vice versa. This will be further described in the paraGraph below.

Since the hieroglyph 爱 occurs in both fields, it appears in the explanations of the hieroglyphs 疼 (Graph 1: *see* 04 — 0430, 3041, aa30), 惜 (Graph 1: *see* 41 — 3041), 怜 (Graph 1: *see* 42 — 30, 4230, 0430, 30am), 吝 (Graph 1: *see* 51 — 3041), belonging to the field of negative emotions, and in the explanations of the hieroglyphs 恋 (Graph 2: *see* 52), 好 (Graph 2: *see* 54), 欢喜 (Graph 2: *see* 55), 宠 (Graph 2: *see* 63), 嬖幸 (Graph 2: *see* 62), 喜 (Graph 2: *see* 65), belonging to the field of positive emotions. The hieroglyph 羡 also occurs in both fields, and it can be found in the explanations of the hieroglyphs 歆 (Graph 2: *see* 86 — 8685), 慕 (Graph 2: *see* 84 — 8584), 欣 (Graph 2: *see* 64 — 6485), related to the field of positive emotions, and in the explanations of the hieroglyphs 妒 (Graph 1: *see* 70 — 7090), 嫉 (Graph 1: *see* 80 — 8090), related to the field of negative emotions. Some hieroglyphs of the negative emotions field take part in the explanations of the hieroglyphs of the positive emotions field. Hieroglyph 痛 occurs in the explanations of such hieroglyphs as 快 (Graph 2: *see* 34), 畅 (Graph 2: *see* 35), and 欢 (Graph 2: *see* 55). Using the hieroglyph 惜 such hieroglyphs as 爱 (Graph 2: *see* 53), 爱护 (Graph 2: *see* 53), 爱怜 (Graph 2: *see* 53) are explained. In the explanation of the hieroglyph 爱 (Graph 2: *see* 53), there are hieroglyphs 憎, 恨, and 恶, and the hieroglyph 恶 also occurs in the explanation of 好 (Graph 2: *see* 54). The hieroglyphs 怜 and 悯 are used to explain the hieroglyph 爱怜 (Graph 2: *see* 115), and the hieroglyph 疼 — in the explanation of 爱抚 (Graph 2: *see* 115).

The aforementioned data clearly shows that there are a number of hieroglyphs included in both fields or participating in explaining the hieroglyphs in the field with the opposite meaning. Therefore, we can conclude that the fields of negative and positive emotions communicate with each other.

A similar method of constructing semantic fields is applicable to the lexemes with concrete meanings. An example of this is the verbs of sales and purchase. They were successfully organized into the 12×9 matrix form, containing 105 hieroglyphs, forming 275 verbs.

The hieroglyphs located at the nodes of the upper part of the Graph gravitate towards the "purchase" area, the characters located at the bottom of the Graph gravitate to the "sales" area. The sixth line provides hieroglyphs for both fields, the so-called ambivalent verbs, which have both meanings: buy and sell. Black arrows indicate the data from the corpus 百度 Baidu, black dotted line — the data from the normative dictionary 现代汉语词典 Xiandai hanyu cidian, gray (red) arrows — the data from the dictionary 同义词词林 Tongyici cilin [V]. Bold arrows point to palindromes (words that read the same from
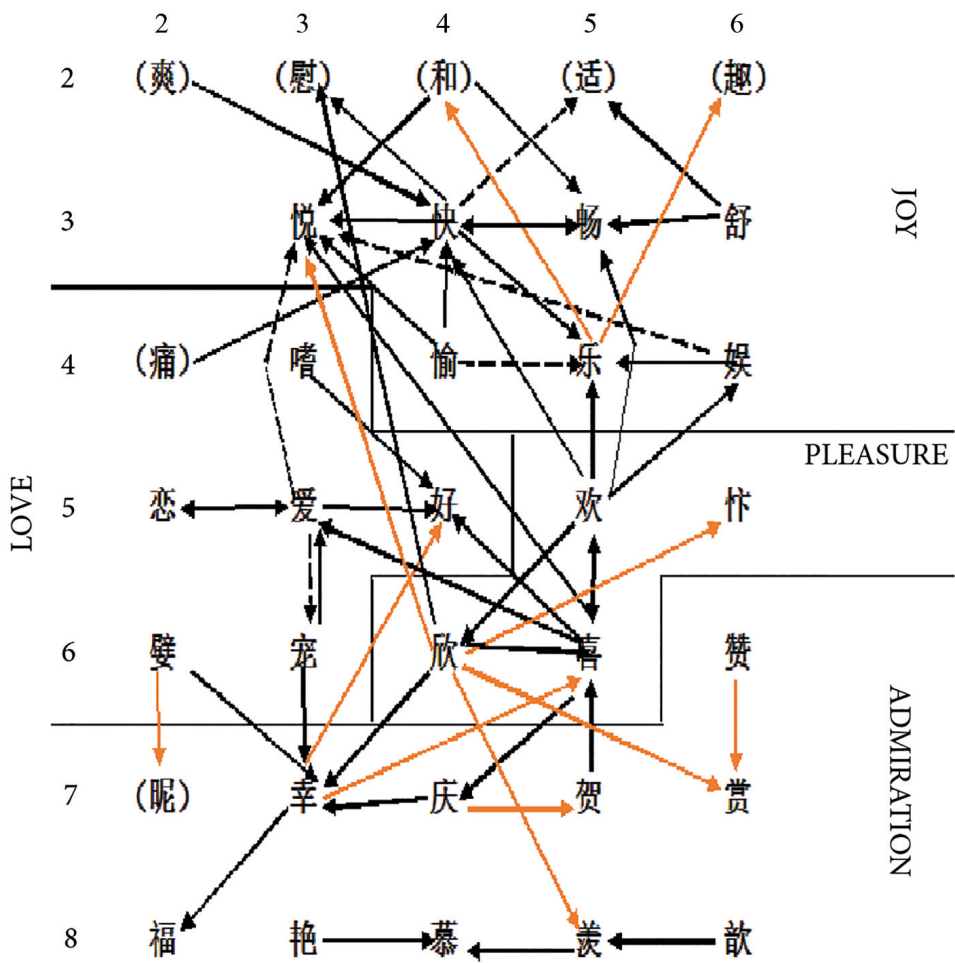
Graph 2. The field of positive emotions

22 爽快 1舒适痛快

　　*33 悦 和悦， 和蔼
　　喜悦 高典，愉快
　　欣悦 快乐，欢喜
　　愉悦 喜悦

34 快 7） 爽快；痛快
　　8） 愉快；高兴；舒服
　　*快畅 畅快；欢欣快畅
　　快活 快乐
　　快乐 感到幸福或满意
　　快慰 痛快而心里感到安慰；欣慰
　　*快适 愉快舒适
　　*快悦 愉快；喜悦

35畅1)〈无阻碍；不停滞：畅达：畅通〉
　　2） 痛快 舒畅
　　畅达 流畅通达
　　畅快 舒畅

36 舒 1） 伸展；宽解
　　2） 缓慢；从容：舒徐
　　舒畅 开朗愉快；舒服痛快
　　舒适 舒服安逸

43 嗜 特别爱好：嗜好
　　嗜好 特别深的爱好

44 愉 愉快：愉悦（高兴）
　　愉快 快意；舒畅
　　*愉乐 欢乐；愉快
　　愉悦 喜快

45乐 1） 快乐，（喜悦）
　　2） 乐于，（乐意；喜爱） ？
　　乐和（方）快乐
　　乐趣 使人感到快乐的意味
　　安居乐业 喜闻乐见 幸灾乐祸 乐极
生悲

46 娱　　　　快乐
　　娱乐　　1） 使人快乐
　　　　　　2） 快乐有趣的生活
　　愉悦 使快乐

　　*欢娱（书）欢乐

52 恋 1） 恋爱
　　　2） 想念不忘：留恋

53 爱 1） 对人惑事物有深挚的感情
　　　2） 喜欢
　　　3） 爱惜 #?
　*爱宠　　宠爱
　爱戴　　敬爱并且拥护
　爱抚　　疼爱抚慰
　爱好　　1） 对某种事物具有浓厚
的兴趣…
　　　　　2） 喜爱
　爱护　　爱惜并保护
　爱怜　　爱惜并怜悯
　爱恋　　爱 1
　爱慕　　由于喜欢惑敬重而愿意
接近
　爱惜　　因重视而不糟蹋
　*爱悦　　爱慕喜悦
　*爱憎　　喜爱和憎恶，爱和恨
　*爱重　　喜爱和重视

54 好 1） 喜爱 （恶之反） ？
　　　　好大喜功 好逸恶劳 急公好义

55 欢 1） 快乐；高兴；欢喜：欢乐#?
　　欢畅　　高兴，痛快
　　欢快　　欢乐轻快
　　欢乐　　快乐
　　欢喜　　1） 快乐；高兴
　　　　　　2） 喜欢，喜爱
　　欢欣　　快乐而兴奋
　　欢娱　　（书）欢乐
　　　欢天喜地 悲欢离合

62 嬖 （书）1） 宠爱：嬖爱，嬖昵
　　　　　2） 得宠
　　　　　3） 得宠的人
　*嬖幸　宠爱

63 宠　　　宠爱
　　宠爱　　喜爱
　　宠信　　宠爱信任
　　宠幸　　宠爱

*宠荣　（书）容

64　欣　喜悦；欢欣；欣喜；欣慰
　　　欣忭　　　喜悦
　　　欣慰　　　喜欢而心安
　　　欣喜　　　欢喜，快乐
　　　欣羡　　　（书）喜爱而羡慕
　　　欣幸　　　欢喜而庆幸
　　　欣赏　　　认为好；喜欢
　　*欣快　　　欣慰快乐，愉快
　　*欣慕　　　欣羡
　　*欣庆　　　欣幸
　　*欣愉　　　欢悦，欢乐
　　*欣悦　　　高典，喜悦

65　喜 1）快乐；高兴 （跟悲，哀相对）
　　　　悲喜剧 悲喜交集 喜怒哀乐
　　　　喜闻乐见 喜新厌旧
　　　　〈2）可庆贺的
　　　　4）爱好〉？
　　　喜爱　　　对人惑事物有好感或感
　　到兴趣；
　　　　　　　喜欢1
　　　喜好　　　喜欢；爱好
　　　喜欢　　　1）对人惑事物有好感或
　　感到兴趣
　　　　　　　2）愉快；高兴
　　　喜庆　　　1）值得喜欢和庆贺的
　　　　　　　2）值得喜欢和庆贺的事
　　　喜悦　　　愉快，高兴

65　忭　（书）欢喜；快乐

73　幸 1）幸福：荣幸
　　　　2）认为幸福而高兴：
　　　　欣幸：庆幸：幸灾乐锅
　　　　〈3）高兴
　　　　5）宠爱〉？

　　　幸福 1）使人心情舒畅的境遇和生
活
　　　　　2）（生活，境遇）称心如意
　　　　　　幸灾乐锅

74　庆 1）庆祝；庆贺
　　　　2）值得庆祝的周年纪念日
　　　庆贺　　　为共同的喜事表示庆祝
　　　　　　　或向有喜事的人道喜
　　　庆幸　　　为好事情感到高兴
　　　庆祝　　　共同的喜事进行
　　　　　　　一些活动表示快乐或纪
念

75　贺 1）庆祝；庆贺：祝贺 #
　　　贺喜　　　道喜

83　艳　　　　1）色彩光泽鲜明好看
　　　　　　　2）指关于情爱方面的
　　　　　　　3）（书）羡慕：艳慕
　　　艳情　　　爱情 （艳情小说）

84慕　　　　　1）羡慕，仰慕
　　　　　　　2）依恋，思念：爱慕|
思慕

85　羡　　　　羡慕：歆羡|艳羡
　　　　　　　羡慕：看见别人有某种
长处、
　　　　　　　好处或有利条件而希望
自己也有。
　　　　　　　艳羡：十分羡慕

86歆　（书）羡慕：欣慕|歆慕　（书）
羡慕
Переход через *羡妒　又羡慕又妒忌
　　　　　　　　　*妒羡　又羡慕又妒忌

left to right and right to left). The hieroglyphs, the first meanings of which relate to this semantic field, are given in square brackets, the other meanings are provided in parentheses, in curly brackets there are hieroglyphs that are indirectly related to this field. Hieroglyphs given without brackets just formally belong to this field — they participate in some typical combinations, but do not have a direct relation to this field.

When constructing this graph, we first used the data from 同义词词林 Tongyici-cilin [IV] (CRD) [V] — gray (red) arrow, since it contains fewer binomials we need, then the data from 现代汉语词典 Xiandai hanyu cidian (XHC) [I] — black dotted line, and finally — the data from 百度 Baidu — black arrow.

To construct the semantic field of "sales and purchase" we used the following procedure: starting from one component, we depicted all its compatible connections. In this case, the compatibility of components is understood as the number of other components, that this component can form a complex with. For this purpose, a list of components was compiled, and their compatibility was identified (List). As a result of applying this procedure, a diagram of the internal structure of the semantic field of "sales and purchase" in Chinese was obtained.

Any lexical-semantic field has a core, which contains the name of the field, a closely related specific name, synonyms, and generic name, as well as antonyms. The choice of a token (hieroglyph) or group of tokens for the field name role is very important. Any lexeme of interest to the researcher can be taken as a core one, but the results of the analysis can be scarce if the token is chosen unsuccessfully, if it does not have the properties of attracting a large number of lexemes. A. M. Kuznecov indicates the main methods of finding lexemes that are promising for revealing a large lexical-semantic field. These lexemes are characterized by the following features:

— they are quite simple in morphological composition;
— possess a wide compatibility;
— are of psychological importance;
— are not recent borrowings;
— the sememe of such a lexeme has a large number of features, it is not narrower than any other word in the field, except for the name of the field topic [3].

Based on the table above, we can identify the core of the field, which is adjacent to a vast periphery, in which the near, far, and extreme peripheries, as well as fragments of the field, can be distinguished.

The core of the field is made up of lexemes with a high frequency, the most general in meaning, used in the literal sense, stylistically neutral, without emotionally expressive and temporal restrictions, minimally dependent on the context. In this case, these are lexemes such as 买 mǎi, 购 gòu — for the "purchase" field and 卖 mài, 售 shòu — for the "sales" field. Lexeme 销 xiāo has a very high frequency of use, therefore we believe that it can also be attributed to the core of this field, despite the fact that it belongs to the field not in its first meaning.

The main features of lexemes attributed to the near periphery are: less frequency than the core, stylistic neutrality, no restrictions in use, minimal dependence on the context. These are lexemes 贩 fàn, 批 pī related to both fields; lexemes 赎 shú, 盘 pán, 置 zhì, 赊 shē, 趸 dǔn, related to the field "purchase"; lexemes 倒 dǎo, 贸 mào, 出 chū related to the field "sales".

List of field components taking into account their activity

№	Component (coordinates in the graph)	Meaning	Number of complexes
1	购 gòu (33)	purchase	38
2	卖 mài (93)	sell, trade	36
3	售 shòu (87)	sell	33
4	买 mǎi (25)	buy	29
5	销 xiāo (75)	sell	28
6	贩 fàn (66)	outbid, profiteer, speculate, buy up, buy for resale; trade, resell, profiteer, profit	22
7	货 huò (64)	bribe; give a bribe; sell	19
8	市 shì (65)	buy, acquire, trade (*literary sources*), sell, put on sale	18
9	出 chū (97)	supply; export	12
10	鬻 yù (11,2)	sell smth	11
11	赎 shú (67)	buy; redeem, buy off	9
12	贾 gǔ (61)	buy; trade	9
13	收 shōu (31)	collect, levy	8
14	倒 dǎo (96)	sell on the go	7
15	盘 pán (63)	buy whole (wholesale)	7
16	酤 gū (69)	buy (wine) (for smb); sell (wine), trade (wine)	7
17	置 zhì (34)	acquire (especially real estate), acquire smth, buy smth	7
18	粜 tiào (11,1)	sell, export grain	6
19	赊 shē (45)	buy on credit (installments)	6
20	趸 dǔn (51)	buy (in bulk)	6
21	贸 mào (68)	trade	6
22	批 pī (71)	buy in bulk (in large quantities); wholesale	6
23	籴 dí (13)	purchase (limited to the purchase of grain, rice)	5
24	商 shāng (11,6)	trade, commerce	5
25	营 yíng (28)	manage (smth), conduct (e. g., an enterprise)	5
26	兜 dōu (72)	arrange a deal	4
27	开 kāi (10,8)	pay money, pay salary	4
28	贿 huì (54)	bribe	4

№	Component (coordinates in the graph)	Meaning	Number of complexes
29	定 dìng (53)	order	4
30	沽 gū (62)	buy; sell smth	4
31	办 bàn (24)	purchase (get) goods	4
32	订 dìng (52)	order	4
33	进 jìn (35)	purchase, import	3
34	交 jiāo (94)	exchange, change (smth)	3
35	变 biàn (92)	cash, sell	3
36	易 yì (95)	exchange (for…); make an exchange	3
37	榷 què (11,9)	sell monopolistically	3
38	揽 lǎn (17)	to take over, buy up (for the purpose of speculation), monopolize	3
39	汇 huì (12,2)	transfer (money)	3
40	包 bāo (48)	take (hire) the whole, book, charter; reserve; buy up	2
41	让 ràng (77)	concede (make a discount) in price	2
42	抛 pāo (11,4)	put on the market (for sale)	2
43	把 bǎ (12,1)	monopolize	2
44	炒 chǎo (12,6)	trade, profiteer, speculate	2
45	套 tào (16)	incur losses (*in economics*)	2
46	叫 jiào (10,1)	purchase	1
47	打 dǎ (11)	buy	1
48	请 qǐng (15)	purchase, buy (about cult objects)	1

The far periphery includes lexical units with low frequency, both unambiguous and polysemous, such as 办 bàn, 进 jìn, belonging to the "purchase" field. This group of words, in contrast to the previous one, includes mainly lexemes with stylistic and emotionally expressive restrictions. In this case, these are tokens 榷 què, 沽 gū, 贾 gǔ, 酤 gǔ, as they all have stylistic limitations. Lexemes 货 huò and 市 shì, although they have a relatively high frequency of use, also have stylistic limitations — they are used in literary sources. Use of the tokens 粜 tiào and 籴 dí is limited to the sale and purchase of grain.

Units of the extreme periphery are characterized by low frequency; most polysemous lexemes are included in the field in a non-basic meaning. These are lexemes like 请 qǐng, 打 dǎ, 叫 jiào, 把 bǎ, 抛 pāo, 包 bāo, 揽 lǎn, 定 dìng, 订 dìng. Lexeme 收 shōu, although it is characterized by a relatively high frequency of use, does not belong to this field in its basic meaning. Most words have vivid stylistic and emotionally expressive semes, for example, 兜 dōu is used only in dialects, 炒 chǎ is used only in economic lexicon, associated
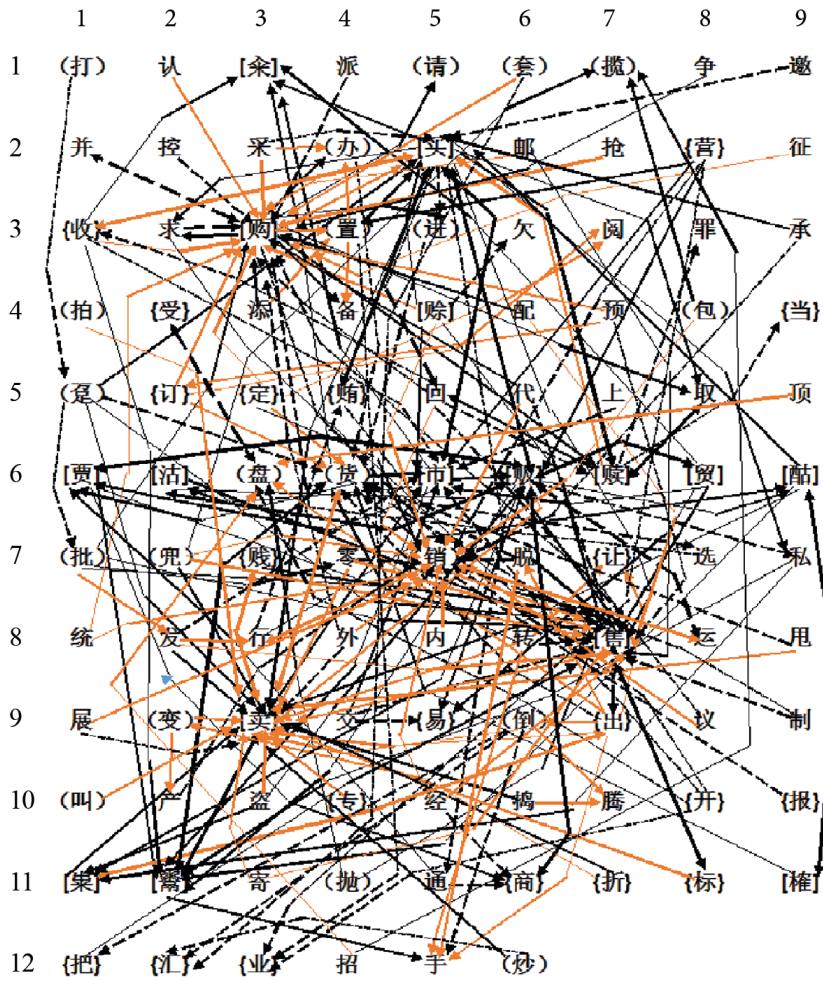
Graph 3. Sales-purchase verbs field

with currency speculation. Obsolete words also belong to the extreme periphery since they are rarely used or are not used in their main meaning. These are 鬻 yù and 贿 huì.

This area of the field also contains tokens, that in the main meaning are included in another lexical-semantic group, and the meaning relevant to the field in question is peripheral in their semantic structure. These are lexemes like 开 kāi, 变 biàn, 让 ràng, 交 jiāo, 易 yì, 套 tào, and 汇 huì.

We hope that the data we discussed in this article convincingly demonstrates the possibility and productivity of the proposed formal approach to the construction of semantic fields and the representation of semantic connections between lexemes of the same field in the form of graphs with the necessary appendixes. It works well with tokens with abstract meanings. In regard to lexemes with concrete meanings, paradigmatic connections work worse, therefore, for Graph 3 it is impractical to provide an appendix that the first two

Graphs have. At the same time, it is this simpler case of a specific meaning that we have described in more detail.

Sources

I. *Modern Chinese Dictionary.* 7th ed. [Xiandai hanyu cidian (XHC)]. Beijing, Commercial Publ., 2017.

II. *Modern Chinese Dictionary (addition)* [Xiandai hanyu cidian [bubian] (XHCb)]. Beijing, Commercial Publ., 1989.

III. *Dictionary of Frequently Used Word Constructions.* [Changyong gouci zidian (CGZ)]. Beijing, Chinese People's University Press, 2014.

IV. *Dictionary of Synonims* [Tongyici cilin]. Shanghai, Lexicographic Publ., 1983.

V. *Shanghai Chinese-Russian Dictionary* [Shanghai hane cidian (CRD)]. Shanghai, Commercial Publ., 2000.

References

1. Kobozeva I. M. *Linguistic Semantics: A textbook.* Moscow, Editorial URSS Publ., 2000. (In Russian)

2. Karapet'janc A. M. Formal construction of the semantic fields of the normative Chinese language. *Aktual'nye voprosy kitajskogo jazykoznanija: mat-ly Vos'moj Mezhdunar. konf.* Moscow, 1996. (In Russian)

3. Kuznecov A. M. *From component analysis to component synthesis.* Moscow, Nauka Publ., 1986. (In Russian)

Authors' information:

Artemii M. Karapetyants — Dr. Sci. in Philology, Professor; amkar43@gmail.com

Elena A. Timchishena — Timchishena.EA@rea.ru

Принципы формального построения лексико-семантического поля в современном китайском языке

А. М. Карапетьянц[1], Е. А. Тимчишена[2]

[1] Московский государственный университет им. М. В. Ломоносова,
   Российская Федерация, 119991, Москва, Ленинские горы, 1
[2] Российский экономический университет им. Г. В. Плеханова,
   Российская Федерация, 117997, Москва, Стремянный пер., 36

Представлена попытка формального построения лексико-семантического поля для китайского языка с учетом того, что понятие о подобном поле предполагает определенную классификационную систему словарного состава, который расчленяется на упорядоченные по отношению друг к другу большие и малые группы. Благодаря наличию в китайском языке большого количества копулятивных комплексов парадигматические отношения семантической близости выражаются в синтагматических отноше-

ниях соположенности, что позволило авторам построить семантические поля на основании данных нормативных словарей и словников. В статье обозначены формальные методы построения семантического поля для современного китайского языка, семантический метод фиксации языка. Он основан на графическом представлении комбинаций символов (синографических изображений) и их пояснений в словарях и списках слов современного китайского языка. В качестве типичных примеров выбраны сфера обозначений эмоций и глаголы с семантикой купли-продажи. Определены особенности структуры лексико-семантического поля глаголов купли-продажи, выявлены лексические единицы, входящие в ядро, ближнюю и дальнюю периферии. Материал свидетельствует о том, что в случае китайского языка подобный метод построения лексико-семантического поля возможно применить как к лексемам с абстрактным значением, так и к лексемам с конкретным значением.

Ключевые слова: лексико-семантическое поле, бином, копулятивные связи, ядро, ближняя, дальняя и крайняя периферии, лексема.

Контактная информация:

Карапетьянц Артемий Михайлович — д-р филол. наук, проф.; amkar43@gmail.com
Тимчишена Елена Александровна — Timchishena.EA@rea.ru