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UNIVERSAL TENDENCIES IN THE SEMANTICS OF THE DIMINUTIVE*

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Despite the crucial dependence of synchronic meaning on both historical and cognitive context, we have traditionally used different tools for expressing synchronic and diachronic generalizations in modeling a complex semantic category like the diminutive. This is due in part to the extraordinary, often contradictory range of its senses synchronically (small size, affection, approximation, intensification, imitation, female gender), and the difficulty of proposing a coherent historical reconstruction for these senses.

I propose to model the synchronic and diachronic semantics of the diminutive category with a RADIAL CATEGORY (George Lakoff 1987), a type of structured polysemy that explicitly models the different senses of the diminutive and the metaphorical and inferential relations which bind them. Synchronically, this model explains the varied and contradictory senses of the diminutive. Diachronically, the radial category acts as a kind of ARCHAEOLOGY OF MEANING, expressing the generalizations of the classic mechanisms of semantic change (metaphor, abstraction and inference) as well as a new one: LAMBDA-ABSTRACTION, which accounts for the rise of quantificational meaning and second-order predicates in the diminutive. The model also predicts that the origins of the diminutive cross-linguistically lie in words semantically or pragmatically linked to children. I test the model by considering the semantics of the diminutive in over 60 languages, examining the origins of the diminutive in many of these, particularly in Indo-European where the theory suggests a new reconstruction of the proto-semantics of the PIE suffix **-ko-*.

1. INTRODUCTION. For much of this century, the tools by which we have conducted linguistic inquiry into semantic universals have distinguished between the investigation of a state of a language at a particular point in time, and the investigation of the historical antecedents and future realizations of this state. Universal statements about the former are often taken as psychological claims about the mind of the speaker. Universal statements about the latter tend to be cultural or sociological claims, or claims about language as a structural object.

In recent years, however, many scholars have begun to treat the synchronic state of the semantics of a language as profoundly bound up with its diachronic nature. Sweetser (1990), for example, has argued that generalizations about the diachronic semantics of modality and verbs of perception are rooted in the human conceptual system, and grounded in everyday experience. Bybee et al. (1994) and Traugott (1989) argue that diachronic universals in semantic description are due to the embeddedness of language in the inferential process of

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interpretation. Heine et al. (1991) have shown that metaphor and inference are complementary models of semantic change and can be successfully merged in a single theory.

In this article I show that by considering the dependence of synchronic meaning on both historical and human cognitive context it is possible to tease apart the seemingly paradoxical and unmotivated components of a particular semantic category: the DIMINUTIVE. The diminutive function (for the purposes of this paper defined as any morphological device which means at least 'small') is among the grammatical primitives which seem to occur universally or near-universally. Its realization may take any of the forms in the wide universal repertoire of morphological devices: affixes, shift in consonant, vowel, or lexical tone, and changes in noun-class or gender. Despite this variety of realizations, grammarians presumably call a morpheme diminutive in a particular language based on some set of shared universal linguistic features or family resemblances which make up a universal category. In its formal realization the diminutive is commonly realized by nasals (Jakobson & Waugh 1979), by reduplication (Moravcsik 1978), and especially by the use of higher tonality, including high tones, high front vowels, and fronted consonants (Jespersen 1922; Sapir 1915; Ultan 1978; Nichols 1971; Ohala 1984). But of course more significant in defining the category are cross-linguistic tendencies in the semantics of the diminutive; Table 1 shows some examples.

Characterizing the semantics of the diminutive synchronically or diachronically has proved difficult. Synchronically, as Table 1 suggests, the diminutive can express a bewildering variety of meanings. In Cantonese, for example, besides affection and contempt, the changed-tone diminutive (Jurafsky 1988) has at least the senses in 1.

- (1) a. as an individuating or partitive marker (*tong*²¹ 'sugar' → *tong*³⁵ 'piece of candy')
- b. for a small object which resembles some larger object (*toi*²¹ 'stage' → *toi*³⁵ 'table')
- c. as a marker of approximation (*hong*²¹ 'red' → *hong*²¹ *hong*³⁵ 'reddish')
- d. to mark socially marginalized women (*nui*²⁵ 'woman' → *sek*²² *nui*³⁵ 'frigid woman')
- e. for pragmatic hedges (*ma:n*²¹ *ma:n*³⁵ *ha:ŋ*²¹ ['slow' 'slow-DIM' 'walk'] 'take care, walk safely')
- f. to mark female gender

Indeed, these different senses of the diminutive often seem contradictory. For example in Mexican Spanish the diminutivized form *ahorita* has an intensifying force:

- (2) Mexican Spanish *ahorita* ('now-DIM') 'immediately, right now'

Yet in Cuban or Dominican Spanish the same diminutive morpheme in the same lexical item has an attenuating force.

- (3) Dominican Spanish *ahorita* 'soon, in a little while'.

How can we express a meaning for the diminutive that can nontrivially cover

LANGUAGE	UNMARKED FORM		DIMINUTIVE	
OJIBWA (Algonquian)	<i>mkizin</i>	'shoe'	<i>mkiznens</i>	'little shoe'
YIDDISH	<i>di mil</i>	'the mill'	<i>dos milexl</i>	'the little mill'
EWE (Niger-Congo)	<i>kpé</i>	'stone'	<i>kpé-ví</i>	'small stone'
LONDO (Bantu)	<i>mòkòrí</i>	'hill'	<i>nwáná-mòkòrí</i>	'small hill'
HUNGARIAN	<i>felhö</i>	'cloud'	<i>felhöcske</i>	'little cloud, cloudlet'
BORO (Tib.Burm.)	² <i>no</i>	'house'	² <i>no¹sa</i>	'hut, small house'
NAHUATL	<i>(tō tō)-tl</i>	'bird'	<i>(tōtōpīl)</i>	'(dear) little bird'
E. KAYAH (Tib.Burm.)	<i>dō</i>	'village'	<i>dōphú</i>	'small village'
KHASI (Mon-Khmer)	<i>ka khnaay</i>	'the mouse'	<i>?i khnaay</i>	'little mouse'
TBOLI (Austrones.)	<i>benwu</i>	'country'	<i>ngá benwu</i>	'a little country'

TABLE 1. The core sense of the diminutive cross-linguistically

both intensification and attenuation? To make matters worse, this intensifying force must be distinguished from the intensifying force more commonly associated with the augmentative function:

- (4) Spanish *guapo* 'handsome' *guapeton*, ('handsome-AUGM') 'really handsome'

In another paradoxical combination of senses, both the diminutive and augmentative are closely associated with female gender.

We cannot model these various quirks of the diminutive as language-specific idiosyncracies, because these varied senses of the diminutive occur with astonishing regularity across languages. Table 2 summarizes the major senses of the diminutive whose cross-linguistic extent is validated by a number of examples across genetic and areal boundaries, including among others imitation, exactness, approximation, individuation, and female gender.

In addition to the semantic senses listed in Table 2, the diminutive is associated with a number of pragmatic senses cross-linguistically. It can mark affection, contempt, playfulness, pragmatic contexts involving children or pets, as well as metalinguistic hedges. Each of the semantic senses can appear with pragmatic connotations drawn from this list. Thus, for example the Nahuatl diminutive of *(tō tō)-tl* 'bird' is *(tōtōpīl)* '(dear) little bird', with an affectionate connotation. We need to capture the cross-linguistic regularity in these pragmatic senses and also need to model the fact that these pragmatic senses co-occur with the semantic ones.

Diachronically, the semantics of the diminutive pose problems as well. First, no consistent proposal has been made for a semantic reconstruction of the diminutive. Proposed reconstructions of diminutive protosemantics for individual languages range from small/child (Matisoff 1991; Heine et al. 1991) to approximation (Hasselrot 1972) to resemblance (Brugmann 1891) to various emotional connotations, but cross-linguistic reconciliation of these different reconstructions has not been attempted. Second, even assuming a reconstruction was possible, how can we explain its development into the widely varying senses of the diminutive? Previously proposed mechanisms of semantic change (metaphor, conventionalized implicature, generalization) can explain the development of some of the senses, as I show in §4. But for some senses, such as 'approximation' or 'exactness', previous methods are insufficient.

	UNMARKED FORM		DIMINUTIVE	
Small				
YIDDISH	<i>di mil</i>	'the mill'	<i>dos milexl</i>	'the little mill'
BORO (Tibeto-Burman)	<i>ʔno</i>	'house'	<i>ʔno'sa</i>	'hut, small house'
KHASI (Mon-Khmer)	<i>ka khnaay</i>	'the mouse'	<i>ʔii khnaay</i>	'little mouse'
Child/Offspring				
MIAO (Sino-Tibetan)	<i>qɔ³⁵mp⁴⁴ha</i>	'woman'	<i>te³⁵mp⁴⁴ha</i>	'girl'
OJIBWA (Algonquian)	<i>kwe</i>	'woman'	<i>kwezens</i>	'girl'
TIBETAN	<i>dom</i>	'bear'	<i>dom-bu</i>	'bear cub'
NEZ PERCE (Penutian)	<i>'iceyé.ye</i>	'coyote'	<i>'iceyé.ye-qen</i>	'young coyote'
Female Gender				
HEBREW	<i>mapa(masc)</i>	'tablecloth'	<i>mapit(fem)</i>	'napkin'
HINDI	<i>ghantā(masc)</i>	'bell'	<i>ghantī(fem)</i>	'small bell'
BERBER	<i>ixzr(masc)</i>	'stream'	<i>tivzrt(fem)</i>	'little stream'
Small-Type				
CANTONESE	<i>toi²¹</i>	'stage'	<i>toi³⁵</i>	'table'
OJIBWA	<i>waasgonechgan</i>	'lamp'	<i>waasgonechgaans</i>	'flashlight'
EWE (Niger-Congo)	<i>hē</i>	'knife'	<i>hē-vi</i>	'razor'
Imitation				
DOM. SPANISH	<i>boca</i>	'mouth'	<i>boquete</i>	'hole'
MANDARIN	<i>zhu</i>	'pearl'	<i>fo zhur</i>	'monk's beads'
HUNGARIAN	<i>csillag</i>	'star'	<i>csillagocska</i>	'asterisk'
Intensity/Exactness				
LATIN	<i>parvus</i>	'small'	<i>parvulus</i>	'very small'
KAROK (Hokan)	<i>ʔáfiva</i>	'bottom'	<i>ʔáfiva-i:č</i>	'the very bottom'
MEX. SPANISH	<i>ahora</i>	'now'	<i>ahorita</i>	'just now, right now'
Approximation				
KAROK	<i>-impuka</i>	'warm'	<i>-impú.k-ač</i>	'warmish'
GREEK	<i>ksinos</i>	'sour'	<i>ksinutsikos</i>	'sourish'
NAHUATL	<i>(huitz)-tli</i>	'it is a pointed thing'	<i>huitzpīl</i>	'it is a little pointed'
Individuation/Partitive				
YIDDISH	<i>der zamd</i>	'sand'	<i>dos zemdl</i>	'grain of sand'
BERBER	<i>azMur</i>	'olive trees'	<i>tazMurt</i>	'an olive tree'
NAHUATL	<i>(ā)-tl</i>	'water'	<i>(ā-tzin)-tli</i>	'water in well/tank'

TABLE 2. Cross-linguistic regularities in diminutive semantics

In order to resolve these problems, I propose a STRUCTURED POLYSEMY model which explicitly models the different senses of the diminutive and the metaphorical and inferential relations which bind them. Based on the RADIAL CATEGORY (George Lakoff 1987), the model represents both the diachronic growth of the category and its synchronic extent by acting as a kind of ARCHAEOLOGY OF MEANING. From a synchronic perspective, the radial category explains the varied and contradictory senses of the diminutive, such as its simultaneous use as

an approximating and intensifying device. From a diachronic perspective, the radial category model captures the generalizations of the classic mechanisms of semantic change (metaphor, abstraction and inference) as well as a new one: LAMBDA-ABSTRACTION, which accounts for the rise of quantificational meaning and second-order predicates in the diminutive. In addition, the model allows us to propose that the origins of the diminutive cross-linguistically lie in words semantically or pragmatically linked to children.

Section 2 summarizes previous research on diachronic semantics and polysemy. Section 3 introduces the radial category and describes the proposed universal diminutive category. Section 4 discusses the radial category's semantic links, testing the synchronic aspects of the model by considering the semantics of the diminutive in over 60 languages, and shows how the category resolves putative paradoxes in diminutive semantics. Sections 5 and 6 test the diachronic predictions of the model by examining the origins of the diminutive in many languages, particularly in Indo-European where the theory suggests a new reconstruction of the protosemantics for the PIE suffix **-ko-*.

2. PREVIOUS SOLUTIONS. When faced with the seemingly unlimited range in meaning of the diminutive, previous attempts to characterize its semantics synchronically or diachronically have often retreated to vague abstractions. Chao (1947:35) characterized the meaning of the Cantonese tone-shift diminutive as 'that familiar thing one often speaks of'. Shetter suggested that the very productive Dutch diminutive when not marking affection, contempt, or literal smallness 'merely represents the minimal distinction between two words of different meaning' (1959:84). Representations at this high level of abstraction are not very useful and are so vague as to be unfalsifiable. In addition, diminutives are used productively in many languages without the almost infinite ambiguity that such underspecified meanings would cause.

More specific proposals for an abstractionist characterization of the diminutive often account in a natural way for a significant number of its uses. Grimm (1967), for example, characterized the general meaning of the diminutive as 'taking away something of the force of a word'.¹ There is much in Grimm's abstraction that seems correct, particularly in modeling the approximation, resemblance, and hedging senses. More difficult is accounting for the individuating and deictic exactness cases in a general way, for example, the use of the diminutive on words meaning 'now' or 'here' to mean 'exactly now' or 'exactly here'. It is more difficult still to imagine how to use his model to account for another intensification sense where the diminutive modifies words meaning 'small' to produce words meaning 'very small' (e.g., Latin *parvulus* 'small-DIM' 'very small'). Most problematic for his model is its failure to cover any of the more pragmatic senses of the diminutive, such as the common affectionate or pejorative uses.

Another abstractionist hypothesis relies on the single abstract concept 'small' or 'child' to characterize the diminutive. For example, Wierzbicka (1984) argues

¹ Deminution oder Verkleinerung findet statt, wenn durch eine in dem Wort selbst vorgehende Veränderung dem Begriff an seiner Kraft etwas benommen wird.

that metaphors from 'small/child' are the basis of the affection and contempt senses of Polish diminutives. As I show later, I agree with Wierzbicka's intuition that the concepts 'small' and 'child' lie at the heart of the correct analysis of the diminutive. This analysis, however cannot rely on a single abstract concept based on 'small'. Without metaphorical, inferential, or abstractive extensions, 'small' cannot model the individuating or exactness sense, or the use of the diminutive to mark an 'imitation' of a natural object. It is hard to imagine a definition which referred to 'small' in an abstract enough way to cover, for example, Spanish *boca* 'mouth'/'*boquete* 'hole'; indeed a *boquete* can be larger than a *boca*. Finally, as Dressler and Merlini Barbaresi (1994) point out, it cannot be the case that the diminutive is simply listed in the lexicon/grammar with the single abstract meaning 'small', and that other senses are derived by contextually based inferences when the diminutive is used. If this were the case, we would expect these same inferences for the word for small in each language (i.e. Italian *piccolo* should behave like the diminutive *-ino*); this does not occur. Thus there must be some additional, complex, lexicalized meanings specific to the diminutive.

Quite apart from the difficulty of obtaining satisfactory coverage with the abstractionist paradigm are its problems as a diachronic model. Scholars as early as Petersen (1916) and Meillet (1937) have argued that reconstructions formed by abstracting over the meaning of all modern reflexes are improbably general. Not only are such vague, overabstracted meanings rarely attested in any modern language, but since it is basic-level vocabulary items that are the most likely to survive in daughter languages, a very abstract form is less likely to leave a wide swath of modern realizations (Sweetser 1990 and others). In §6 I will summarize problems with such an abstractionist reconstruction of the PIE suffix **-ko-*, which appears with diminutive semantics in the IE daughter languages, but whose PIE meaning is reconstructed by Brugmann (1891:262) as 'something "tantamount to" or something which is merely "like" the original.'

At the other end of the theoretical spectrum from the abstractionist paradigm is the HOMONYMY approach. Here rather than building a single abstract meaning which generalizes over each sense of a diminutive morpheme, each sense is modeled as a separate morpheme. Thus from a synchronic perspective each lexeme is 'coincidentally' composed of the same phonological material.

The homonymy approach has the advantage of avoiding vague and insupportable generalizations. From a diachronic perspective, however, it is simply the wrong model of the diminutive. There are many cases (for example in Romance) where we have direct evidence of the extension of the meaning of diminutives over time, and thus of a direct relation between senses. In addition, the same varied and complex senses of the diminutive occur again and again across languages. If the different senses of the diminutive were unrelated, there would be no reason to expect similar groupings of senses in different languages.

Even as a purely synchronic account, the homonymy approach fails to model the complex overlapping between senses that often occurs. For example, the affectionate, contemptuous, and child-related senses of the diminutive are often present in words with the approximative, small, or individuating/partitive mean-

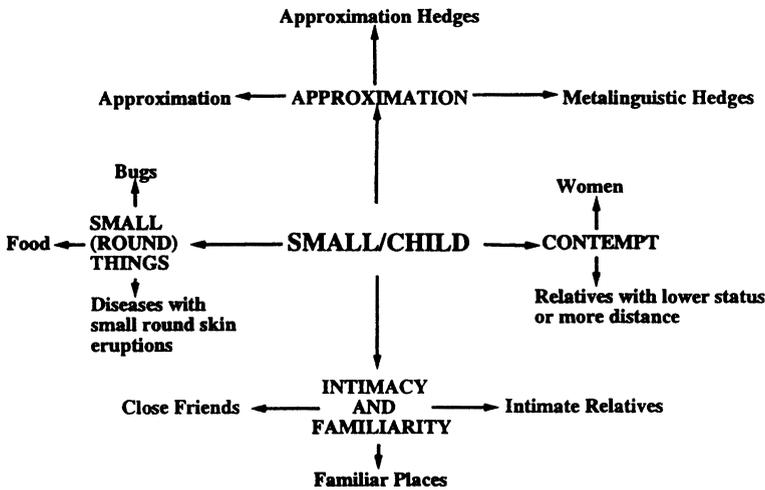


FIGURE 1. Cantonese raised-tone diminutive (from Jurafsky 1988).

ings. Finally, from a metatheoretical position the homonymy approach is the null hypothesis, and as such should be reserved as a theoretical last resort; it tells us nothing whatever about what can be or could have been a sense of the diminutive.

Both the strict abstractionist and strict homonymy positions are really straw men; but lacking the theoretical machinery for defining a polysemous semantic category, previous studies of the diminutive were forced to stake out some arbitrary position between abstraction and homonymy, pointing out some generalizations and avoiding others.

Recent work has responded to this lack in two ways. Some studies have proposed polysemy-based accounts of the diminutive in individual languages. These include a number of diachronically motivated studies like my own work on Cantonese (Jurafsky 1988) shown in Figure 1, Heine et al.'s (1991) analysis of Ewe diminutives in Figure 2, and Matisoff's (1991) summary of the Thai diminutive in Figure 3. Figure 4 shows Contini-Morava's (1995) account of the Swahili noun class which includes diminutives. More recently, Dressler and Merlini Barbaresi (1994) have proposed a synchronic account of the diminutive

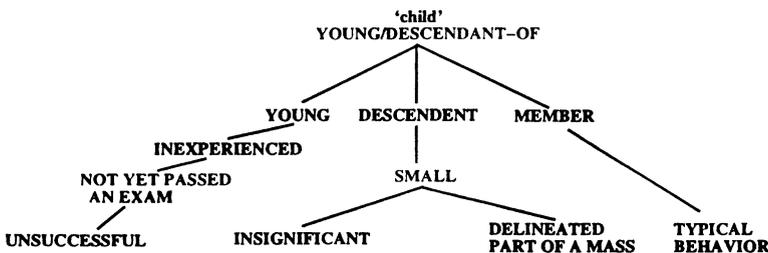


FIGURE 2. Ewe diminutive *vi* (from Heine et al. 1991).

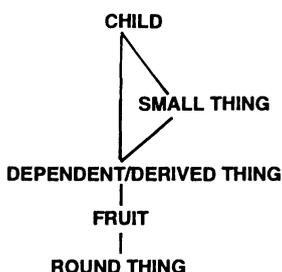


FIGURE 3. Thai diminutive *lâuk* (from Matisoff 1991).

in Italian, German, and English in terms of a semantic component ‘small’ and a pragmatic component ‘nonserious’, where each of these components is augmented by contextually based inferences. I will draw on Dressler and Merlini Barbaresi’s intuitions in §4 and §5.2.

The second trend which has enabled this move toward nonabstractionist models of lexical semantics is work on universal tendencies of semantic change. Work on universals in change goes back at least as far as Bréal (1897), but recent years have seen an explosion of proposals for universals, especially for change leading to grammaticalization. In most cases these claims are framed as UNIDIRECTIONALITY universals, hypothesizing that predictions can be made about the direction of semantic change along different axes.

Probably the oldest and most commonly proposed unidirectionality hypothesis, for example, claims that meaning changes from the more informative and specific to the more abstract and vague. This process is known variously as BLEACHING (Givón 1975), GENERALIZATION (Bybee et al. 1994), or DESEMANTICIZATION (Heine & Reh 1984), and Heine et al. (1991) trace its origin back at least to the eighteenth-century philosophers Condillac and Horne Tooke. Recent

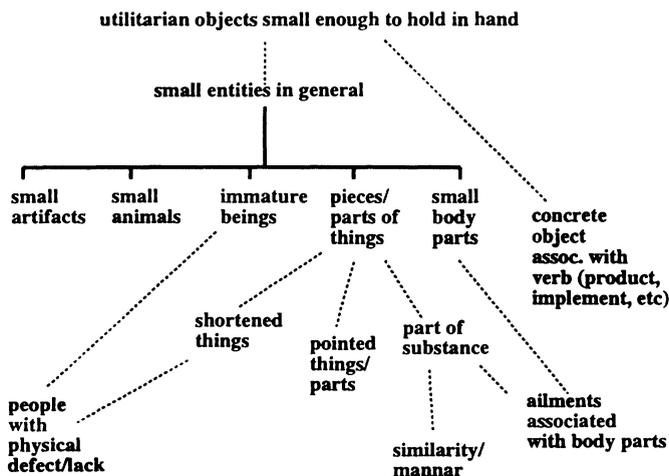


FIGURE 4. Swahili noun class 7 (from Contini-Morava 1995).

studies (including Sweetser 1990, Traugott 1988 and Bybee et al. 1994) have questioned how much of a causal role this kind of generalization plays in semantic change; I will return to this question in §4.3.

Another common group of unidirectionality hypotheses focuses on the tendency of semantic change to proceed from the 'real' physical or spatial world or the ideational domain to create more qualitative, evaluative, and textual meanings (Anderson 1971; Greenberg 1978; Traugott 1982; Sweetser 1990; Frajzyngier 1991; Heine et al. 1991). Heine et al. for example, note that metaphorical change proceeds from real-world people and objects to more abstract notions of space, time, and qualities, expressed as 5.

(5) PERSON → OBJECT → ACTIVITY → SPACE → TIME → QUALITY

Thus Heine et al. reconstruct a shift in meaning of the Ewe noun *megbé* along this spectrum from the body part noun meaning 'back' (PERSON) to a spatial preposition meaning 'behind, back' (SPACE) to the temporal preposition 'after' (TIME), and finally to mean 'mentally retarded, backwards' (QUALITY).

Traugott and König (1991), similarly, propose three tendencies for meaning to become more removed from the external world, and more subjective or evaluative. These can be summarized as follows:

- I. External situation → Internal (evaluative/perceptual/cognitive) situation
- II. External/Internal situation → Textual/Metalinguistic situation
- III. External/Internal/Textual situation → Speaker's subjective belief state

They note the common development from spatial adverbs or prepositions to clausal connectives, such as Old English prepositional *æfter* 'following behind, later', to Middle English subordinating *after*. Here meanings have shifted from talking about the relationship between objects in the world (Object/Event A follows Object/Event B) to objects in a text (Proposition A follows Proposition B).

Drawing on the change in the semantics of modals from a root meaning (possibility or necessity in the physical world) to an epistemic meaning (logical possibility or necessity), Sweetser (1990) offers a similar unidirectionality hypothesis, proposing that change tends to proceed from the sociophysical domain to the epistemic domain. In the case of modals the shift is from force dynamics in the real world (Event A must happen) to force dynamics in the epistemic world (Proposition A must be true).

3. THE RADIAL CATEGORY. The recent literature, then, supports two research paradigms: descriptions of the polysemy of diminutives in particular languages and studies of the direction of meaning change. What do these two research strands have to say about the astonishing cross-linguistic regularity in the semantics of the diminutive as it extends beyond the meaning 'small', and the lack of coherent explanation for the development of these senses? The various unidirectionality hypotheses emphasize the diachronic relation between the senses, focusing in particular on ordering constraints specifying what types of

senses are derived from which others. In contrast, models of polysemy emphasize the synchronic relation between senses, particularly focusing on the kind of metaphoric and other mappings that link senses.

I suggest that these two research paradigms may be combined by proposing a single universal radial category (Lakoff 1987) for the diminutive. The radial category is a graphic representation of a polysemous category; like other theory-based models of categorization (Murphy & Medin 1985) it extends the classic Aristotelian model of categories by giving them complex internal structure. A radial category consists of a central sense of prototype together with conceptual extensions, represented by a network of nodes and links. Nodes represent prototypes of senses, while links represent metaphorical extensions, image-schematic transfer, transfers to different domains, or inferences. Thus when interpreted as a synchronic object, the radial category describes the motivated relations between senses of a polysemous category. When interpreted as a historical object, the radial category captures the generalizations of various mechanisms of semantic change. Figure 5 shows my proposal for a universal radial category for the diminutive. Nodes in Figure 5 are labeled with names of senses, and arcs with mechanisms of semantic change; inference (I), metaphor (M), generalization (G), and lambda-abstraction (L).

Structured polysemy, and in particular the radial category in Figure 5, provides a motivated and elegant solution to the four problems outlined in §1. First, by considering the kinds of metaphors and inferences which relate the senses of the diminutive, we motivate the senses themselves, while avoiding the vagueness of the abstractionist position. We can resolve the seeming paradox between intensifying and attenuating forces, drawing a clear distinction between the kind of intensification and category centrality we expect from a diminutive and the kind we expect from an augmentative.

Turning to the diachronic problem, I argue that the radial category offers a new paradigm for semantic reconstruction, by acting as a kind of archaeology of meaning. That is, with the center of the radial category as the historical prior sense, the category shows in frozen form the semantic paths the diminutive has taken over its development. I demonstrate this point by using the category

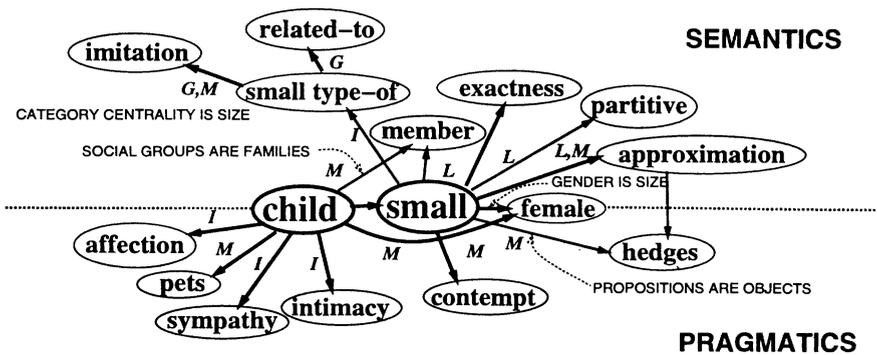


FIGURE 5. Proposed universal structure for the semantics of the diminutive.

structure in Figure 5 to argue for a new reconstruction for the PIE diminutive **-ko-*.

The radial category also makes a claim about unidirectionality: the meanings of the diminutive in a particular language will develop diachronically from central senses toward senses on the edge of the category. I show that the links in the radial category for the diminutive, extending the central physical domain of 'size' to the domains of 'gender', 'social power', and 'conceptual centrality', provide further evidence for the universal statements about the unidirectionality of semantic change from the physical to the social and conceptual domains discussed above (Traugott 1988; Sweetser 1990; Heine et al. 1991), and allow us to make two new unidirectionality predictions, one more general (6) and one more specific (7).

- (6) UNIDIRECTIONAL TENDENCY: First order predicates give rise to second order predicates
- (7) UNIDIRECTIONAL TENDENCY: 'child' gives rise to 'diminutive': Diminutives arise from semantic or pragmatic links with children.

Finally, by extending the idea of a language-specific radial category to a UNIVERSAL RADIAL CATEGORY (Pederson 1991), the theory allows us to make specific predictions about cross-linguistic regularities in senses of the diminutive as well as about their distribution. In some sense all radial categories have a universal aspect, in the presumably universal cognitive mechanisms that underlie the inferences and metaphors that shape each category. But the universal radial category goes further in also abstracting over particular categories in specific languages. Thus the diminutive category in Figure 5 is a kind of skeletal category; the diminutive in particular languages can be described as instantiating coherent portions of it, and perhaps extending it. In a universal radial category

all languages which share the common prototype will have a set of extensions from that prototype which is a coherent subset of the universally-sanctioned potential existensional structure (Pederson 1991:2).

A coherent subset is a connected graph that includes the prototype. Thus, although the graph for a category may be unique for each language, each such graph must consist (at least) of nodes which are adjacent in the universal category. Pederson's definition thus allows him to form an implicational universal, which I formalize as follows:

- (8) PEDERSON'S LAW: If a grammatical marker γ has function ϕ in language \mathcal{L} , and all paths in the universal radial category for γ from the prototype of γ to ϕ pass through ϕ' , then γ has or had function ϕ' in \mathcal{L} .

The structure of the category in Figure 5, together with 6, 7, and 8, allow us to claim first, that the central category of the diminutive, 'child', is historically prior and metaphorically and inferentially motivates the other senses, and second, that if the diminutive in a particular language has a sense, it will have (or have had [Croft et al. 1987]) each prior sense on some path to the root. Thus any language with a diminutive with a 'member' sense will have a 'child' sense.

In every language where diminutives mark 'imitation', they will also mark 'small-type-of' (or will have marked it in the past).

4. MECHANISMS OF SEMANTIC CHANGE: SENSES AND LINKS IN THE DIMINUTIVE RADIAL CATEGORY. The core intuition of the radial category is its ability to represent multiple mechanisms for relating senses in a polysemous morpheme. From a diachronic perspective, each of these relations in its archaeology of meaning realizes a particular mechanism for semantic change. Mechanisms proposed in the literature include:

METAPHOR: A meaning shifts to a new domain, based on a general metaphor which maps between the old and new domains. The mapping will preserve certain features of the old domain (Sweetser 1990; Heine et al. 1991).

INFERENCE OR CONTEXT-INDUCED REINTERPRETATION: A morpheme acquires a new meaning which had been an inference or implicature of its old meaning. The historically earlier meaning of a morpheme causes the listener to naturally draw some inference; this inference gradually becomes conventionalized as the literal meaning of the morpheme (Traugott & König 1991; Heine et al. 1991; Bybee et al. 1994).

GENERALIZATION OF BLEACHING: A new sense is created from an old one by abstracting away specific features of meaning. The new meaning is more general and less informative than the old one.

Each of these mechanisms is associated with a class of unidirectionality hypotheses, summarized in §2. In short, meaning changes from the more physical, specific, and real-world toward the more abstract, general, and qualitative.

I show that each of these mechanisms of change occurs in the diminutive, and that considering the different metaphors and mechanisms which motivate diminutive senses allows us to propose solutions to the descriptive paradoxes from §1, such as the presence of both intensifying and attenuating senses of the diminutive, and the close relationship of female gender to both diminutive and augmentative functions.

However, I also show that some very common senses (such as approximation and exactness) cannot be accounted for by any of them. To deal with these senses I will propose a new mechanism, called **LAMBDA-ABSTRACTION**, which gives rise to quantificational and second-order meanings from propositional ones.

4.1. METAPHORS. I begin by considering how metaphor plays a role in linking senses within a radial category, and by doing so, resolving some apparent paradoxes.

4.1.1. METAPHORS FOR GENDER. As highly salient natural classes, sex and gender occur throughout the category system of natural languages. Thus metaphors whose source or target are gender or sex are extremely common cross-linguistically. One resulting paradox is the dual linking of female gender with both the diminutive and the augmentative cross-linguistically; another is an asymmetric use of diminutive and female augmentatives for body parts. The radial category allows us to resolve this paradox by explicitly representing the

GREEN HMONG	<i>nā</i>	'mother'	<i>ŋgáo</i>	'boat'	<i>nā-ŋgáo</i>	'big boat'
MALAY	<i>ibu</i>	'mother'	<i>rumah</i>	'house'	<i>rumah-ibu</i>	'main part of house'
THAI	<i>mĕe</i>	'mother'	<i>tháp</i>	'army'	<i>mĕetháp</i>	'general, commander-in-chief'

TABLE 3. Female/augmentative link.

different metaphors which motivate the diminutive and augmentative realizations of female gender.

Consider first the link of female gender with both augmentatives and diminutives. The high cross-linguistic frequency of the female/augmentative link has been noted by many scholars. Hasselrot (1972), for example, summarizes the very common augmentative use of feminine gender throughout Romance and the long history of its analysis. Historically, however, the Romance feminine augmentative derives not from an equation of female gender with large size, but from a conflation of the Latin collective suffix with the feminine suffix, based on similar realization. A link in which female semantics plays more of a causal role occurs throughout Southeast Asia. There, as Matisoff (1991) shows, a morpheme originally meaning 'mother' has grammaticalized to the augmentative throughout the region as shown in Table 3.

In contrast to these augmentative uses is a strong connection between women and diminutives, which can be both pragmatic and semantic. Many scholars have offered anecdotal evidence that women have a propensity to use diminutives; Shetter (1959:80), for example, comments that the use of the diminutive to express endearment in Dutch 'is especially common in the language of women'; similar anecdotal evidence is often offered for many other languages. A number of languages, mostly but not exclusively Indo-European and Afro-Asiatic, draw a more grammatical link, employing the same morpheme for diminutives and as a female marker as shown in Table 4.

Titov (1976) notes that in Amharic, although the traditional Semitic gender agreement has considerably eroded, feminine gender in articles and verbal agreement is still used to mark diminution, ridicule, and scorn: The feminine form of the article in 9 is used for diminution in 10:

- (9) a. *yəh astemari* 'this man-teacher',
- b. *yəhəč astemari* 'this woman-teacher'
- (10) a. *yəh məshaf mənd ənnəw* 'What kind of book is it?'
- b. *yəheč məshaf mənd ən nat* 'What kind of booklet is it?'

	FEMININE		DIMINUTIVE			
ENGLISH	<i>major</i>	<i>majorette</i>	<i>diner</i>		<i>dinette</i>	
HEBREW	<i>axyan</i> 'nephew'	<i>axyanit</i> 'niece'	<i>mapa</i> 'tablecloth'		<i>mapit</i>	'napkin'
HINDI	<i>ladkā</i> 'boy'	<i>ladkī</i> 'girl'	<i>ghantā</i> 'bell'		<i>ghantī</i>	'small bell'
DIZI(Omotic)	<i>dad</i> 'boy'	<i>dade</i> 'girl'	<i>kiemu</i> 'pot'		<i>kieme</i>	'small pot'
BERBER	<i>aqšiš</i> 'boy'	<i>taqšīst</i> 'girl'	<i>ixzr</i> 'stream'		<i>tixzrt</i>	'little stream'
MONGOLIAN	<i>noyan</i> 'prince'	<i>noyiqan</i> 'princess'	<i>ulavn</i> 'red'		<i>uluxaqan</i>	'red (of nice little objects)'

TABLE 4. Female/diminutive link.

	UNMARKED FORM		DIMINUTIVE	
GERMAN	<i>Junge</i>	'boy'	<i>Mädchen</i>	'girl'
CANTONESE	<i>dzai</i> ³⁵	'son'	<i>nui</i> ³⁵	'daughter' (cf. <i>nui</i> ²⁵ 'woman')
ENGLISH	<i>boy</i>		<i>girl</i>	

TABLE 5. Diminutive marking on words for young females.

In addition, David Zubin (p.c.) has pointed out examples like Table 5 where there is an asymmetry in the vocabulary for young people, in which the word for 'girl' incorporates a diminutive form (as the English *girl* does, from the Germanic *-l* diminutive), but the word for 'boy' does not.

I turn to the individual metaphors for reconciliation of the female diminutive and augmentative. By examining evidence outside of the diminutive/augmentative system, Matisoff shows that the semantic development of the female augmentative proceeds from 'mother' through 'origin/source/matrix' and finally to 'big/main/most important' (cf. 'mother of all battles'). Thus the fundamental metaphors here are based on the mother as the central person in family.

(11) ORIGINS ARE MOTHERS

(12) IMPORTANT THINGS ARE MOTHERS

In contrast, the link between women and the diminutive rests on a metaphor conceptualizing women as children (13).

(13) WOMEN ARE CHILDREN/SMALL THINGS

In languages in which it is female gender that is the original meaning of what also became the diminutive marker (as perhaps is the case with Semitic) the source and target of the metaphor are reversed, as in 14.

(14) SMALL THINGS ARE WOMEN

Thus there is no paradox in the linking of female gender with both augmentatives and diminutives. The relation between women and the augmentative in Table 3 relies on the opposition mother/child. Mothers are viewed as bigger, more salient, members of the family than children. In the relation between female gender and diminutives, however, the relevant distinction is the opposition female/male. Women are physically smaller and less powerful than men, and in the folk categorization of these languages, these characteristics link them with children in a quite different way than as mothers.

The ability of the radial category to represent distinct senses and hence distinct metaphorical relations can help resolve another paradox in augmentative-diminutive semantics. The diminutive of words meaning 'hand' or 'foot' are often used to mean 'finger' or 'toe', as in Table 6.

If the diminutive had some abstract meaning like 'small', and the augmentative an abstract meaning like 'big', then, given that augmentatives often produce

	UNMARKED FORM		DIMINUTIVE	
OJIBWA	<i>zid</i>	'foot'	<i>zidens</i>	'toe'
EWE	<i>aft</i>	'foot, leg'	<i>aft-vi</i>	'toe'
BAULE	<i>sa</i>	'hand'	<i>sa-mma</i>	'finger'
TZELTAL	<i>ak'ab</i>	'your hand'	<i>yalak'ab</i>	'your finger' (<i>yal</i> 'its child')

TABLE 6. Diminutive to designate body parts.

	UNMARKED FORM		MOTHER		AUGMENTATIVE	
MALAY	<i>tangan</i>	'hand'	<i>ibu</i>	'mother'	<i>ibu tangan</i>	'thumb'
MALAY	<i>kaki</i>	'foot'	<i>ibu</i>	'mother'	<i>ibu kaki</i>	'big toe'
CHAM	<i>taŋin</i>	'hand'	<i>inō</i>	'mother'	<i>inō taŋin</i>	'thumb'
CHAM	<i>takai</i>	'foot'	<i>inō</i>	'mother'	<i>inō takai</i>	'big toe'
NEPALI (IE)	<i>aū laa</i>	'finger'	<i>buRi</i>	'elderly woman'	<i>buRi aūlaa</i>	'thumb'
THAI	<i>myy</i>	'hand'	<i>mêe</i>	'mother'	<i>hūa- mêe- myy</i>	'thumb'
					head-mother-hand	
MIEN (Yao)	<i>puad</i>	'hand'	<i>Eeid</i>	'female'	<i>puad-Do'q- Eeid</i>	'thumb'
					hand-finger-female	

TABLE 7. Augmentative to designate body parts.

opposites of diminutives we would expect augmentatives of 'finger' or 'toe' to derive words meaning 'hand' or 'foot'. This seems not to be the case; in a Southeast Asian areal phenomenon in Table 7 presented by Matisoff, the augmentative, derived in each case from the words for 'mother', is used to mark words meaning 'thumb' and 'toe' rather than 'hand' and 'foot'.

Again, investigating the metaphors which underlie these senses can resolve this paradox. Underlying the usages in both Table 6 and Table 7 is the metaphor 15.

(15) GROUPS ARE FAMILIES

Through this metaphor, the hand is viewed as composed of a group of fingers, and each finger as a member of this group. The largest, distinguished member of the group is viewed as a mother, and the remaining members as children. Thus the relation between women and the augmentative in Table 6 relies on the fundamental opposition mother/child, just as it did in Table 3.

4.1.2. METAPHORS OF CENTRALITY AND MARGINALITY. Just as the ability of the radial category to represent different metaphorical links between senses resolves the apparent paradox in the augmentative/diminutive link to female gender, its ability to represent different metaphors as well as inferential links will help us resolve a second paradox. This is the use of the diminutive to mark intensification (Mex. Spanish *ahorita* 'immediately'), but also approximation (Dom. Spanish, *ahorita* 'soon', Karok *-impú.k-ač* 'warmish'), to mark the center or prototype of a social category (Japanese *edo* 'Tokyo', *edokko* 'Tokyoite'), as well as marking the socially marginal (Fuzhou Chinese *huan-ŋian* 'foreigner').

Tables 8 and 9 show various uses of the diminutive to mark social marginality. In Table 8, the diminutive marks words for foreigners, usually derogatory. The root may be the name of a country or region, or simply the word for 'foreigner'.

NEZ PERCE	<i>?ickí:cu?mix</i>	'Coeur d'Alene (derog)' (cf. unmarked <i>?iskí:cu?mix</i> 'Coeur d'Alene')
FUZHOU	<i>huan-ŋian</i>	'foreigner'
ENGLISH	<i>limey</i>	'Englishman (derog), prob. < <i>lime juicer</i> '
ENGLISH	<i>Okie</i>	
LATIN	<i>Graeculus</i>	'miserable Greek'

TABLE 8. Diminutive to mark words for foreigners.

	UNMARKED FORM		DIMINUTIVE	
CANTONESE	<i>nui</i> ²⁵	'woman'	<i>sek</i> ²² <i>nui</i> ³⁵	'frigid woman'
CANTONESE	<i>nui</i> ²⁵	'woman'	<i>sau</i> ⁵⁵ <i>nui</i> ³⁵	'nun'
CANTONESE	<i>nui</i> ²⁵	'woman'	<i>mo</i> ²⁵ <i>nui</i> ³⁵	'dance hostess'

TABLE 9. Derogatory use of diminutive.

In each case, the derived word has a derogatory connotation. Table 9 shows the use of the diminutive marker in Cantonese to refer to women in a derogative and marginalized way.

In contrast, Table 10 shows the use of the diminutive to mark a central or prototypical member of some social group; these include citizens of a particular country, inhabitants of a place or members of a specific socially defined group.

How can the diminutive be used for this sort of social prototypicality but also the social marginality exemplified in Table 8 and Table 9? Once again, an abstractionist model has no mechanism for drawing distinctions among these senses. But the radial category does, again by deriving the examples in Table 10 from a quite distinct metaphor. This metaphor 16 is an extension of the core 'child' sense.

(16) SOCIAL GROUPS ARE FAMILIES

The social-group metaphor models membership in some group as membership in a family. The group member in the source domain corresponds to the child in the target domain. Further evidence for this analysis is the fact that in each of the examples in Table 10, the diminutive is a morpheme which still has the analyzable meaning 'child' in the modern language.

By contrast, the epithets for the socially marginalized in Tables 8 and 9 are derived from the sense 'small' via a single metaphor relating size to category membership.

(17) CATEGORY CENTRALITY IS SIZE

The metaphor CATEGORY CENTRALITY IS SIZE links central or prototypical members of a category to large size, and peripheral or marginal members of a category to small size. Foreigners in Table 8 are viewed as marginal members of the category of people. In the Cantonese examples in Table 9, the three derived words all describe women whose social standing is marginalized by a nonstandard sexual role. Thus dance hostesses are viewed as marginal members of the category of women, by reference to a traditional model of the role of women in society.

	UNMARKED FORM		DIMINUTIVE	
E. KAYAH	<i>klā</i>	'army'	<i>klāphú</i>	'soldier'
E. KAYAH	<i>kajē</i>	'person, kayak', <i>li</i> 'red'	<i>kajēli phú</i>	'the red kayak'
JAPANESE	<i>edo</i>	'Tokyo'	<i>edokko</i>	'Tokyoite'
EWE	<i>du(me)</i>	'village'	<i>dume-ví</i>	'a native of a village'
EWE	<i>Tógó</i>	'Togo'	<i>Tógó-ví</i>	'a native of Togo'
THAI	<i>thiim</i>	'team'	<i>lúuk-thiim</i>	'member of a team'

TABLE 10. Diminutive to mark prototypical member of social group.

	UNMARKED FORM		AUGMENTATIVE	
SPANISH	<i>guapo</i>	'handsome'	<i>guapeton</i>	'really handsome'
SPANISH	<i>español</i>	'Spanish'	<i>españolon</i>	'typically Spanish'
NAVAHO	<i>-tsoh</i>	'be yellow'	<i>-tsxoh</i>	'be very yellow'
NAHUATL	<i>(toma-c)-tli</i>	'it is fat'	<i>tomacpōl</i>	'it is very fat'
CANELA-KRAHŌ	<i>pej</i>	'good'	<i>pej-ti</i>	'very good'

TABLE 11. Augmentative to mark prototypical members of categories.

Why do I chose to model the metaphor at the level of category centrality rather than proposing the more specific metaphor 18?

(18) MARGINAL IS SMALL

In Jurafsky 1993 I proposed CATEGORY CENTRALITY IS SIZE and suggested that it made a prediction that MARGINAL IS SMALL did not: that if the diminutive marked marginality the augmentative should be used to represent category centrality. Examining the semantics of the augmentatives in Table 11 seems to bear out this prediction; the augmentatives are used to mark intensified or prototypical members of categories.

This intensive use of the augmentative, although it supports our category centrality prediction, offers a new paradox, relating to the approximative and intensive uses of the diminutive. Table 12 shows the use of the diminutive to mark an approximation, or semantic hedge.

These approximatives, or 'semantic hedges', are words or constructions which are commonly assumed to draw distinctions of degree of category membership, or to mark that some sort of criterion for category membership is weak or lacking. For example, George Lakoff (1972) argues that English hedges like *sort of* alter the category membership properties of their argument by making central members of the category less central, and making peripheral members of the category somewhat more central. Thus in Table 12, gradable adjectives or verbs are marked with the diminutive to indicate just such an emphasis on the marginality of a category member. In other words a 'reddish' object is a marginal member of the category of red objects. Thus Table 12 once again relies on the metaphor CATEGORY CENTRALITY IS SIZE (as well as the process of lambda-abstraction, to be discussed in §4.4). If this metaphor explains the use of the diminutive for approximation, how can we explain the fact that the diminutive is also used for intensification? Furthermore, how can we distinguish this diminutive intensification from the augmentative intensification in Table 11?

If we examine the uses of the augmentative for intensification, it is clear that it functions as a direct opposite to the approximation sense of the diminutive

	UNMARKED FORM		DIMINUTIVE	
CANTONESE	<i>hong</i> ²¹	'red'	<i>hong</i> ²¹ <i>hong</i> ³⁵	'reddish'
KAROK	<i>-impuka</i>	'warm'	<i>-impú.k-ač</i>	'warmish'
HUNGARIAN	<i>nagy</i>	'big'	<i>nagyocska</i>	'fairly large'
NAHUATL	<i>(huitz)-tli</i>	'it is a pointed thing'	<i>huitzpil</i>	'it is a little pointed'
MID. BRETON	<i>moel</i>	'bald'	<i>moelic</i>	'rather bald'
DOM. SPANISH	<i>ahora</i>	'now'	<i>ahorita</i>	'soon'
GREEK	<i>ksinos</i>	'sour'	<i>ksinutsikos</i>	'sourish'

TABLE 12. Diminutive to mark approximation.

in Table 12 above. It can apply to any gradable adjective or gradable stative verb with semantics 'x' to produce a meaning something like 'very x'. But if we look at the intensifying uses of the diminutive, we see a much more restricted set of possible meanings, falling into two very clear classes. Ex. 19 shows the first class.

(19) French	<i>jeunet</i>	'very young'
Latin	<i>parvulus</i>	'very small'
Hungarian	<i>kicsike</i>	'very little, tiny'
Spanish	<i>blanquita</i>	'very white'
Dom. Spanish	<i>bajito</i>	'very low'

A comparison of the kind of predicates that can be intensified by the augmentative in Table 11 with the diminutive intensification examples in 19 shows that the predicates in 19 are quite limited in their number and specific in their semantics. The diminutive in 19 is used to intensify just in cases where the predicate being intensified means 'small' or 'young'. In such cases, the suffix seems to mark not simple intensification, but rather marks the central diminutive sense of 'small' or 'child'. Spanish *blanquita* 'very white' is probably parallel; note that white can be viewed as the presence of a color or the absence of any color or dirt. This construction seems to emphasize this latter sense of absence; significantly, note that the data with 'white' do not generalize to other colors.

(20) Spanish *azulito* 'a little blue', but *'very blue'.

If the diminutive was marking a general intensifying process, there is no reason why it should apply only to 'white' and not to other colors.

Table 13 shows the other intensifying use of the diminutive.

The intensification sense of the diminutive in Table 13 is once again quite specific; here it marks an exact point in some space. In the prototypical case, this is a point in location space as in examples like 'right here', 'right over', or 'the heart of the city'. Deictic physical location is viewed as a region in a line or a plane; diminutivization of this region converts it to a point. In addition, via the metaphor TIME IS SPACE, time can be viewed as a physical location; extent in time is thus viewed as spatial extent along a line. Diminutivizing a temporal expression again converts these extended regions to points, producing

	UNMARKED FORM		DIMINUTIVE	
TURKISH	<i>şurada</i>	'there'	<i>şuracıkta</i>	'just over there'
TURKISH	<i>şimki</i>	'now'	<i>şimdıcik</i>	'just now, right away'
MANDARIN			<i>zhe huir</i>	'right now'
MID. BRETON			<i>in craisic en tan</i>	'quite in the middle of the fire'
HAKKA (Chinese)			<i>li³³ xa³³ ts³³</i>	'right now'
DUTCH	<i>hart</i>	'heart'	<i>in het hartje</i>	'in the very heart of the city'
			<i>van de stad</i>	
KOASATI	<i>pá:na</i>	'over'	<i>pá:na-si</i>	'right over'
KAROK (Hokan)	<i>?áfiva</i>	'bottom'	<i>?áfiva-îč</i>	'the very bottom'
MEX. SPANISH	<i>ahora</i>	'now'	<i>ahorita</i>	'just now, right now'
MEX. SPANISH			<i>llegandito</i>	'immediately after we arrive'

TABLE 13. Intensifying use of the diminutive.

expressions like 'right now' and 'immediately after we arrive'. In §4.4 I will show that the mechanism for this change is lambda-abstraction; the sense 'small(x)', which has the meaning 'smaller than the prototypical exemplar x on the scale of size', becomes 'lambda(y)(smaller than the prototypical small distance x from a point y)'.

Thus, where the augmentative is used as a general intensifier, the diminutive is used for intensification only via particular metaphors motivated directly on the sense 'small'. The intensifications of words meaning 'small', 'young', or 'low' derive from the sense 'small', while the 'exactness' sense derives via lambda-abstraction from the diminution of temporal or spatial locative deixis.

An abstractionist theory of the diminutive would be unable to explain the individual senses and metaphors by which the diminutive can represent both approximation and intensification, both social group prototypicality and marginality. Once again, by its ability to represent the true polysemy and the relations between senses, the radial category proves the more powerful model for semantic analysis.

4.2. CONVENTIONALIZATION OF INFERENCE. In semantic change via inference, a morpheme acquires a new meaning that had been an inference or implicature of its old meaning. This mechanism for semantic change was first proposed by Grice (1975) in his discussion of conversational implicature. He noted that the literal meaning of a construction often develops through the conventionalizing of a conversational implicature commonly drawn by the hearer. This implication gradually becomes more and more conventionalized as part of the meaning of the construction.

Bybee, Traugott, and others have shown that this process applies not just to conversational implicature, but to any kind of inference that the hearer may draw. For example, Bybee and Pagliuca (1987) point out that the development of the future meaning of English *will* from its original meaning of desire or willingness goes through an intermediate stage in which *will* is used for intention with first-person subjects. They suggest that this arises from the natural implication of the 'desire' sense; if a speaker desires to perform an action, it is a natural implication that the speaker intends to perform the action in the future.

Thus inferential change occurs because a frequent, natural inference becomes frozen into the explicit meaning of a form. The process of this change implies that at some point there is a form that is ambiguous between the old meaning and the new one, and the hearer mistakes a common implication for a literal meaning.

One such case of inferential change in the diminutive occurs in the development of the 'affection' sense. I argue in §5 that the origin of the diminutive is very often a morpheme meaning 'child' or signifying 'child' in some way. Given this core sense, then, and given the natural tendency to feel affection towards children, a hearer hearing a core diminutive referring to children, will draw the natural inference that the speaker feels affection toward the diminutivized object (child). A sentence with such a child-diminutive becomes ambiguous, and over time, this inference becomes conventionalized. The diminutive morpheme

	UNMARKED FORM		DIMINUTIVE	
CANTONESE	<i>toi</i> ²¹	'stage'	<i>toi</i> ³⁵	'table'
OJIBWA	<i>waasgonechgan</i>	'lamp'	<i>waasgonechgaans</i>	'flashlight'
HEBREW	<i>mapa</i>	'tablecloth'	<i>mapit</i>	'napkin'
HEBREW	<i>pax</i>	'garbage can'	<i>paxit</i>	'can'
FRENCH	<i>ciboule</i>	'onion'	<i>ciboulette</i>	'scallion'
EWE	<i>hē</i>	'knife'	<i>hē-ví</i>	'razor'
DUTCH	<i>koek</i>	'cake'	<i>koekie</i>	'biscuit'
POTAWATOMI	<i>mUṭ-UkwE</i>	'tree, stick'	<i>mUṭ-Ukos.</i>	'twig'

TABLE 14. Lexicalized classificatory diminutives.

then acquires affection as one of its literal, lexicalized meanings. See Dressler & Merlini Barbaresi 1994, Volek 1987, and Wierzbicka 1984 for detailed explorations of the role of affection in diminutive semantics.

A different kind of conventionalization occurs in the development of what I have been calling the 'small-type' sense. Consider the diminutivized and undiminutivized nouns in Table 14. In each case, the diminutivized noun resembles the root noun in form and/or function, but is smaller.

Rhodes (1990) has called these CLASSIFICATORY DIMINUTIVES, because the diminutive object is a small object classified in the same ontological hierarchy as the larger object. But note that these are not just cases where a language marks two objects as being identical except for variation in size; in other words these are not concepts which are '-emically' the same. In each case, the language distinguishes between a smaller version of an object, marked with an adjective meaning 'small', and the diminutive, which marks a separate concept. Note this Ewe example from Heine et al. 1991:

- (21) Ewe
- | | | |
|----------------|----------------|------------------------------|
| bare form | <i>hē</i> | 'knife' |
| diminutive | <i>hē-ví</i> | 'razor' |
| with adjective | <i>hē sue'</i> | 'shorter-than-average knife' |

The diminutives in Table 14, then, are lexicalized. The marker may begin by purely marking size, but eventually the diminutive form becomes frequent enough that it becomes susceptible to lexical drift. Because of nonlinguistic factors, a 'small lamp' becomes used more and more to designate a particularly common type of small lamp (a flashlight), and the word lexicalizes with that sense. Is there historical evidence for such a transition; diminutivized words, for example, that show an intermediate stage between a pure, productive, size-modifier, and the completely lexicalized small-types? Modern Hong Kong Cantonese may provide just such an example. The old tone-change diminutive, originally derived from the Middle Chinese child suffix *-ŋi* and active across Cantonese dialects in the last century, has died out as a productive morpheme. A new diminutive suffix is just in the process of grammaticalizing. On some nouns, this suffix exhibits exactly this intermediate stage. In 22a below, the suffix is applied to a noun stem to produce a noun which is beginning to conventionalize.

- | | |
|---|---|
| (22) a. <i>woon-dzai</i>
bowl-DIM
'small bowl, rice bowl' | b. <i>saai woon</i>
small bowl
'small bowl' |
|---|---|

In the current stage of the language, *woon-dzai* can be applied to any small bowl. However, a rice bowl is a salient, prototypical example of a small bowl; this salience licenses an inference that the diminutivized form is referring to a rice bowl rather than any other kind of bowl. Thus it is natural that the diminutivized form would begin to conventionalize to this meaning.

In both the 'affection' and 'small type' examples, then, a diminutivized form is naturally associated with certain inferences; affection for children and prototype exemplars of small objects. These become conventionalized and/or lexicalized as the diminutive progresses to grammaticalization.

4.3. GENERALIZATION. In generalization or BLEACHING, a morpheme loses some particular features of its meaning, becoming more abstract. The resulting concept subsumes the original and being less specific can apply in a wider range of contexts.

This sort of generalization of the diminutive has led in some languages to extremely abstract, vague semantics for the formerly diminutive morpheme, resulting in an abstract sense I call 'related to'. In Mandarin, for example, the retroflex diminutive *-er*, whose original meaning was 'son', has developed one broad sense used for nominalizing any verb. The resulting nominalization can express any argument of the verb, including agent, theme, result, and instrument (e.g. *zhuan* 'to turn' *zhuar* 'a circle'). This sense of the Mandarin diminutive might be glossed as 'a noun which has some relation with the verb'.

A similar process of abstraction toward a 'related to' sense occurred in Germanic. I argue below (§6) that the PIE suffix **-ko-* originally had a diminutive meaning. But English *-ish* and German *-isch*, which are among the modern reflexes of this suffix, have a much more abstract meaning: Webster's seventh defines one sense of English *-ish* as 'characteristic of' or 'of, relating to, or being' (*Finnish, boyish, childish*). This vague 'related to' sense of the diminutive arises as the semantic features of the morpheme are systematically abstracted away. The resulting sense has completely left the original source domain of size. Thus in the chain 'small' → 'small type' → 'related to', the domain begins with the physical domain of size, proceeds with 'small type' to a mixture of physical and evaluative functions (small in size, but also resembling in some way) and finally leaves the domain of size altogether for the domain of categories with 'related to'.

The 'small type' sense is extended in another way in a number of languages. In this 'imitation' sense, the diminutive marks nouns which are viewed as imitations or copies of natural objects, often body parts. The verbs, similarly, mark an imitation or pretense of an action. Unlike the 'small type' examples, the diminutive objects in Table 15 are not necessarily smaller than the unmarked nouns. The diminutivized forms may in fact denote larger objects, as is the case with the Mandarin and Spanish examples.

	UNMARKED FORM			DIMINUTIVE
DOM. SPANISH	<i>boca</i>	'mouth'	<i>boquete</i>	'hole'
DOM. SPANISH	<i>caballo</i>	'horse'	<i>caballete</i>	'trestle'
NEZ PERCE	<i>?ini-t</i>	'house'	<i>?ili-t</i>	'doll house'
MANDARIN	<i>zhu</i>	'pearl'	<i>fo zhur</i>	'monk's beads'
RUSSIAN	<i>noga</i>	'leg'	<i>nožka</i>	'chair leg'
AFRIKAANS	<i>bokstert</i>	'goat's tail'	<i>bokstertjie</i>	'way of doing one's hair'
ENGLISH	<i>leather</i>		<i>leatherette</i>	
HEBREW	<i>yad</i>	'hand'	<i>yadit</i>	'handle'
HUNGARIAN	<i>csillag</i>	'star'	<i>csillagocska</i>	'asterisk'

TABLE 15. Imitative diminutives.

Like the 'related to' sense, the imitation sense has, through abstraction, completely left the original source domain of size. In addition, an imitation of an object is a marginal or poor exemplar of a category. Thus again making use of the MARGINAL IS SMALL metaphor, the diminutive here marks an object even more strongly as a non-central member of a category.

4.4. LAMBDA-ABSTRACTION-SPECIFICATION. I have discussed three kinds of semantic shift in the development of the diminutive: metaphor, generalization, and conventionalization of inference. In this section I present another class of senses of the diminutive and propose a new mechanism for semantic change: LAMBDA-ABSTRACTION-SPECIFICATION. I show how it applies to the diminutive to derive second-order predicates.

I begin by returning to the very common use of the diminutive summarized in Table 12, in which gradable adjectives or verbs are marked with the diminutive to indicate an approximation or weakening of adjectival or verbal force. What exactly is the meaning of the diminutive in this sense? First, note that the approximation sense is a second-order predicate, quantifying over predicates. Thus where 'small(*x*)' applies to objects, 'approx(*p*(*x*))' applies to predicates like 'red(*x*)'. Next, many scholars have noted that this approximative diminutive can only be applied to gradable predicates (relatively independent of syntactic category, including at least adjectives, verbs, and numbers).

One hypothesis, then, would be to represent the meaning of this diminutive as 'low on some scale'. Thus one meaning of, for example, 'red-DIM' would be 'low on the scale of redness'; the diminutive would act as a quantifier like 'few' or 'little'. This, however, does not seem to be the correct interpretation of 'reddish'. First, as Stefănescu (1992) argues, the diminutive semantics in a diminutivized adjective is not modifiable with intensifiers like *very*. That is, where 'very little red' is acceptable, 'very reddish' does not intensify the diminution. Second, as Dressler and Merlini Barbaresi show, diminutives seem to make use of a referent point on a scale in a particular way (1994:117). When the Italian diminutive *-etto* is applied to the musical tempo *allegro*, the resultant *allegretto* means 'slower than *allegro*'. When it is applied to *largo*, the resultant *larghetto* means 'faster than *largo*'. The direction in which the diminutive modifies the predicate depends on the direction of the relevant scale. The correct semantics of the approximation sense is something like 23.

(23) 'dim (*point x, scale y*) = lower than *x* on *y*'.

In the Cantonese 'reddish' example this point is the prototype or central exemplar of red.

How might this approximation concept have developed from the sense 'small'? It cannot be by inference; there is no obvious implicational link between e.g. 'x is a small red object' and 'x is a reddish object'. Neither can it be by generalization; ('x approximates y' is not an abstraction of 'x is smaller than y'). However, there is clearly a shift of domain, and perhaps some sort of metaphor, but is this what plays the causal role in the shift? To produce a sense like 'approximation', I propose lambda abstraction, a new mechanism related to the generalization mechanism. Lambda-abstracting takes one predicate in a form and replaces it with a variable. The resulting expression is now a second-order predicate, since its domain includes a variable which ranges over predicates. For the diminutive, this process takes the original concept 'small(x)', which has the meaning 'smaller than the prototypical exemplar *x* on the scale of size', and lambda-abstracting it to 'lambda(y)(smaller than the prototypical exemplar *x* on the scale *y*)'.

Consider the application of this process to other domains to produce other second-order predicates. Table 16 illustrates the INDIVIDUATING or PARTITIVE sense of the diminutive. Talmy (1978) speaks about this function—deriving Yiddish 'grain of sand' from 'sand', for example, or Ewe 'piece of sugar' from 'sugar'—as UNIT-EXCERPTING; Heine et al. 1991 called the category picked out by this sense of the diminutive 'a delineated part of a mass'. Here the function of the diminutive is a standard adnominal quantifier, selecting a unit from a larger, more articulated mass. In some cases the diminutivized form turns a mass noun into a count noun; in others it marks a mass or plural subpart of a mass quantity; note the examples in Table 16 from Zulu, Nahuatl, and Shona. In each case, however, whether the derived word designates a singular or a mass/plural category, it picks out an individuated, bounded form. Thus 'water in a well' is a bounded, individuated derivation from 'water'. This partitive diminutive can also act as an ad-verbal quantifier. Modifying verbs, it indicates the formation of a bounded part or subevent of the verb, for example by diminu-

	UNMARKED FORM		DIMINUTIVE	
YIDDISH	<i>der zamd</i>	'sand'	<i>dos zemdl</i>	'grain of sand'
DUTCH	<i>tarwe</i>	'wheat'	<i>een tarwetje</i>	'wheat loaf'
DUTCH	<i>bier</i>	'beer'	<i>een biertje</i>	'glass of beer'
OJIBWA	<i>goon</i>	'snow'	<i>goonens</i>	'snowflake'
EWE	<i>sukli</i>	'sugar'	<i>sukli-vi</i>	'piece of sugar'
BAULE (Niger-Congo)	<i>ajwe</i>	'rice'	<i>ajweba</i>	'rice kernel'
CANTONESE	<i>tong</i> ²¹	'sugar'	<i>tong</i> ³⁵	'piece of candy'
ZULU	<i>amazwi</i>	'words'	<i>amazwana</i>	'a few words'
SHONA (Bantu)	<i>mvura</i>	'water'	<i>tumvura</i>	'a little water'
BERBER	<i>azMur</i>	'olive trees'	<i>tazMurt</i>	'an olive tree'
NAHUATL	<i>(ā)-tl</i>	'water'	<i>(ā-tzin)-tli</i>	'water in well/tank'

TABLE 16. Individuated diminutives.

tion of temporal extent ('to do x briefly').² In 24, taken from Munro's (1988) analysis of Creek, a diminutive marker changes 'see' to 'glance':

- (24) a. Iilan istoci hiic-too-s b. Iilan istoci hiic-os-too-s
 Aaron baby see-AUX-DEC Aaron baby see-DIM-AUX-DEC
 'Aaron saw the baby.' 'Aaron glanced at the baby.'

The derivation of the adnominal and adverbial individuating/partitive quantifier-diminutive and the ad-adjectival and ad-verbal approximation second-order predicate from the core sense 'small', then, shows two examples of this evolution of second-order predicates from predicates via lambda-abstraction.³

Finally, consider the 'exactness' sense of the diminutive in Table 13 above. Here again, the diminutive has lambda-abstracted into a second-order predicate. In this exactness sense, the predicates are required to be of type 'deictic-location'. The second-order predicate 'exactly ($p(x)$)' modifies predicates like 'at-time(x)' or 'at-place(x)'.

The use of lambda-abstraction to build second-order predicates extends also into the pragmatic domain, in an extension of the approximative diminutive. Where the approximative diminutive hedges the propositional content of an utterance, one common pragmatic use hedges the metalinguistic content of an utterance; I refer to this usage as a metalinguistic hedge. For example Kay, in studying the semantics of hedges like *loosely speaking* and *technically*, noted that these hedges don't merely modify the extent to which an argument is a member of a category; a hedge involves the performance of an extra speech act (1987:71):

For any sentence S of the form *loosely speaking P*, where P is a declarative sentence, an utterance of S constitutes two acts:

- (i) an act of asserting P
- (ii) an act of warning that (i) is in some way a deviant (loose) act of assertion.

Kay's intuition is that hedges of this sort often contain a second speech act that comments on the sentence or its content. In addition to their realization by constructions like *loosely speaking*, these metalinguistic hedges are commonly represented by the diminutive. See Dressler & Merlini Barbaresi 1994 for a very thorough model of these. See also Volek 1987. I will give a short data summary here before turning to the diachronic ramifications.

In the simplest case, the diminutive is used to mean something like English *only*, as in Table 17.

In all of these examples, the diminutive is used not to modify the number or demonstrative itself, but to express a metalinguistic comment. So *just five fish* includes the two speech acts:

² In a number of languages the partitive marker itself, used to denote subamounts of mass nouns, and subevents of durative verbs, is marked with the diminutive morpheme. Thus Levantine Arabic *šwayye*, Mandarin *yi dianr*, and English *a little* all mean 'a little (bit of)', and all are marked with the diminutive.

³ The development of quantifiers from the diminutive is paralleled in the augmentative, which has a 'collective' sense, deriving a quantified group or collection from an individual. For example, the augmentative form of Shona *misha* 'villages' is *mamisha* 'groups of villages'. Similarly the augmentative extends SdE Quechua *kuru* 'worm' to *kuruša* 'full of worms'.

	UNMARKED FORM		DIMINUTIVE	
DAKOTA		'those'	<i>hena'la</i>	'only those'
DAKOTA		'some'	<i>to'nala</i>	'only some'
KAROK	<i>yíθA</i>	'one'	<i>yáče-č</i>	'only one'
DUTCH	<i>dag</i>	'day'	<i>dagje</i>	'only a day'
KOASATI			<i>hokkíta:isi- t</i>	'merely one half'
			be.half- DIM-connective	
MONGOLIAN	<i>nigen</i>	'one'	<i>nigeken</i>	'only one'

TABLE 17. Diminutives meaning 'only'.

- (i) an act of asserting 'five fish'.
- (ii) an act of asserting that five is a small or insignificant number.

Other examples of this 'merely' use of the diminutive include the speaker's downplaying his or her own possessions to avoid bragging, as in Sifianou's (1992) example from Greek:

- (25) *ayorasame ke mis ena spit-aki*
 we bought and we one house-DIM
 'We've bought a little house, too.'

This pragmatic type of hedge is often used in an extended way to soften or weaken the illocutionary force of the entire utterance. Robin Lakoff (1980) has argued that this kind of metalinguistic hedge is used when the speaker either cannot, or does not wish to explicitly put the addressee under the conventional obligations of belief, response, or compliance that are consequent on the speaker's utterance of an unqualified declarative, question, or imperative.

Matsumoto (1985) gives an example of this sort of pragmatic diminutive in Japanese. The word *chotto*, whose central (and historically prior) meaning is something like 'a little', functions like a diminutive in Japanese. It can be used as a partitive, and as an approximative. We can show the distinction between the approximative and pragmatic hedges by considering the following ambiguous use of *chotto*:

- (26) *Taroo wa chotto iji ga warui.*
 Taroo TP character SB bad (nasty).
 'Taroo is *chotto* nasty.'

Matsumoto shows that this sentence is ambiguous, depending on whether *chotto* functions as an approximative hedge or a pragmatic hedge. In the approximative sense, the sentence means something like 'Taroo is somewhat/kinda nasty.' In the pragmatic hedge sense, the speaker is not doubting Taroo's nastiness. Instead, the sentence is used to perform something like the following speech acts:

- (i) Taroo is nasty.
- (ii) The speaker does not wish to appear rude in advancing this less than flattering estimation.

This pragmatic use of the diminutive is extremely common; the literature includes Tzeltal (Brown & Levinson 1978), Cantonese (Jurafsky 1988), Greek (Sifianou 1992), Dutch (Shetter 1959), Mexican Spanish (Catalina, p.c.), and

Awtuw (Feldman 1986). In addition, Brown and Levinson (1978:177) note that in a number of languages, including Tamil and Malagasy, this use of diminutives for politeness is even more grammaticalized, and the word for 'a little' functions generally like English *please*.

As Robin Lakoff noted, the pragmatic diminutive can be used in many situations in which the speaker desires to minimize the impact of a statement. One common use is to soften a command, as in the following examples:

(27) Japanese Chotto shizuka ni site kudasai.
'Please *chotto* be quiet.'

(28) Cantonese ma:n²¹ ma:n³⁵ ha:ŋ²¹
slow slow-DIM walk
'Take care, walk safely.'

The pragmatic diminutive is also used in requests; Brown and Levinson (1978) explain this by a need to minimize the imposition on the hearer. Using the diminutive minimizes the object of the request, making it seem easy. For example, Catalina (p.c.) reports that in Mexican Spanish 'a very common use of middle-class housewives with maids, is to ask [the maid] everything in diminutive, so it looks that the task is small and easy.' Shetter (1959:81) notes this use of the diminutive in Dutch: 'a person asks one to pay a visit for an *uurtje* 'hour or so,' says that he will be ready in an *ogenblikje* 'jiffy'.' The usage occurs also in the Tzeltal example below:

(29) Tzeltal ya niwan šba ka?y ?ala kurso ta hobel
'I'm maybe going to take a little course in San Cristóbal.'

Besides making the request appear smaller and simpler, imposition can be minimized by making the request appear less important or obligatory, as in the following:

(30) Japanese Chotto hasami aru?
'*Chotto* are there scissors?'

Here *chotto* is used to apologize for the imposition in making the implicit request for the scissors. Sifianou (1992) argues that it is not imposition-minimization, but rather the need to mark friendly or close relations among interlocutors which explains the use of the diminutive in Greek requests, like the following:

(31) Greek δoste mu psaraki tote.
give me fish-DIM then
'Could you give me some fish then?' [establish friendly context]

Finally, the diminutive can be used as a way of eliciting sympathy. Personal pronouns in Awtuw (Feldman 1986) take the diminutive suffix when the speaker wants to elicit sympathy for the referent of the suffixed pronoun.

(32) wan-yæn im kokot d- ik- al e
1SG-DIM night all FA- set- until.dawn P
'Poor me had to sit up all night.'

Consider these second-order senses of the diminutive as a group. Is there a single sense which abstracts over them? If so, is the development of these

second-order predicates a case of meaning-change via generalization? Note that in each case, 'small(*x*)' is lambda-abstracted to 'lambda(*y*)(smaller than the prototypical exemplar *x* on the scale *y*)' But in each case there are additional constraints on the scale. In the approximation case, this scale is required to be part of the description of a scalar predicate (verb, adjective, adverb, number). In the partitive sense, this scale is required to be a scale of amount in a mass noun. In the durative verb case, the scale is length of temporal extent. In the exactness case, the scale is the extent on a spatial or temporal line or plane of a deictic locative. In the hedging case, the scale is the amount of illocutionary force. Notice that there is a complementary distribution of the types across these predicates; 'related to' applies only to nongradable concrete objects, 'approximation' applies only to gradable verbal, adjectival, and adverbial concepts, 'briefness' applies to durative verbs, 'partitive' applies to gradable (mass) nouns, 'exactness' applies to deictics, while 'hedging' applies to propositions. Table 18 summarizes these facts.

Thus while the expression 'lambda(*y*)(smaller than the prototypical exemplar *x* on the scale *y*)' is part of the semantics of each of these predicates, it is not the entire semantics. If it were the entire semantics, it would be possible to apply the scale-lowering ability to just any scalar predicate; this is not the case. Rather, each diminutive sense adds specific additional constraints on the type of the scale *y*. This means that no language has a single synchronic 'abstract category' that accounts for the different senses of the scale-lowering diminutive. Instead, the proper locus of the generalization is a diachronic one; each of these senses is produced by the same diachronic mechanism: lambda-abstractation followed by respecification of the type of the predicate.

Despite the fact that lambda-abstractation/respecification involves a shift in domain type, these data are not best modeled as caused by a metaphorical transfer. With a metaphorical analysis, for example, the transition from 'small' to 'approximation' would be modeled as a transfer from the domain of 'size' to the domain of 'scalar-predicate applicability'. The transition from 'small' to 'partitive' would be modeled as a transfer from 'size' to 'amount'. The transition from 'small' to 'briefness' would be modeled as a transfer from 'size' to 'duration'. Although each of these is a perfectly acceptable metaphorical shift, the metaphorical account requires a separate metaphor for each transfer; there is no motivated explanation of why this particular set of metaphors is employed. With the lambda-abstractation account, on the other hand, a single process accounts for each sense. The different contexts of each domain impose type constraints on the lambda-abstracted expression as it respecifies.

ARGUMENT	EXAMPLE	IMPLICIT SCALE	SENSE
MASS NOUNS/PLURALS	<i>snow</i>	Scale of amount	partitive
GRADABLE PREDICATES	<i>red</i>	Scale of redness	approximation
COUNT NOUNS	<i>horse</i>	Scale of size	resemblance
DEICTICS	<i>here</i>	Scale of deictic extent	exactness
DURATIVE VERBS	<i>see</i>	Scale of temporal extent	briefness
PROPOSITIONS		Scale of illocutionary force	hedging

TABLE 18. Second-order senses of the diminutive.

Lambda-abstraction/respecification thus shares some features with generalization, some with inference, and some with metaphor. Like generalization, it involves abstracting away specific information about the source form. Like metaphor, it involves a transfer of domains. Like inference, it is the context which determines how the domain gets expressed.

If lambda-abstraction is a general mechanism of semantic change, not just confined to the diminutive, its properties allow us to make a new hypothesis about the direction of semantic change:

- (33) UNIDIRECTIONAL TENDENCY: First order predicates give rise to second order predicates

This tendency is closely related to Traugott and König's (1991) Tendency II discussed in §2. For the purposes of the diminutive, I will view Traugott's Tendency II as two separate tendencies, IIa and IIb.

- (34) TENDENCY IIa: Meanings shift from the external domain to the textual/epistemic domain.

- (35) TENDENCY IIb: Meanings shift from the external or textual domains to the metalinguistic or speech-act domains.

Traugott and König's (1991) tendencies correspond to Sweetser's (1990) three levels in the polysemy of modals like *may*:

sociophysical: John may go. 'John is not barred by (my or some other) authority from going.'

epistemic: John may be there. 'I am not barred by my premises from the conclusion that John is there.'

speech act: He may be a university professor, but he sure is dumb. 'I do not bar from our (joint) conversational world the statement that he is a university professor, but he is dumb.'

The shift from sociophysical/deontic *may* to epistemic *may* is an instance of Tendency IIa, while the shift to the speech-act *may* is an instance of Tendency IIb.

How do the diminutive shifts fit into this paradigm? The tendency for propositions or first-order predicates to turn into second-order predicates via lambda-abstraction may be seen as a special case of this Tendency IIa. The diminutive exhibits Tendency IIb in its shift from 'small' to 'approximative hedges' to 'metalinguistic hedges'; here we see an exceptionally clear example of the shift from the real-world domain ('*x* is small') to the linguistic or textual domain ('weaken the locutionary force of the predicate *p*') to the metalinguistic domain ('weaken the illocutionary force of *p(x)*').

5. DETERMINING THE STRUCTURE OF THE RADIAL CATEGORY: THE ORIGIN OF THE DIMINUTIVE. Determining the structure of a radial category requires both synchronic and diachronic evidence. One sort of evidence uses an extension of the comparative method. If we find that a grammatical function has sense A in twenty languages, and then in two other languages we find the function also with sense B, and if sense B never occurs with this function without sense A, this may be evidence that A gave rise to B historically.

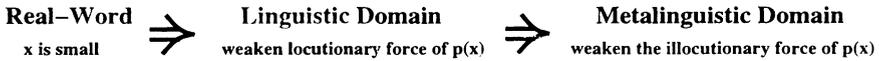


FIGURE 6. Unidirectionality: from the real-world to the metalinguistic domain.

More generally, we look for a subsumption relation between the set of languages exhibiting sense A and the set of languages exhibiting sense B. This is true for the central senses ‘child’ and ‘small’. Every diminutive in our database has either the ‘child’ or ‘small’ sense (except some reduplicatives, but their relationship with diminutives is complicated; see §7). As a particular example, the radial category in Figure 5 assumes that the ‘member’ sense derives from the ‘child’ one. Table 19 shows the subsumption relation between languages with the ‘child’ and ‘member’ senses.

It is also necessary to check for subsumption relations that might falsify the hypothesis: for example morphemes that exhibit many of the senses of the diminutive, but can be shown not to have or have had either the sense ‘child’ or ‘small’. Although many morphemes have a minor overlap with diminutive semantics (approximation markers used as hedges, etc.), I have found no such falsifying examples (however since the data collection often depended on each grammar’s definition of diminutive, the sample may be skewed).

A second kind of evidence comes from an analysis of the semantics of the category itself. Our examination of the pragmatics of the diminutive in §5.2 below, for example, suggests that ‘child’ is the core pragmatic sense.

Perhaps the most secure evidence for the radial category structure is direct historical evidence of the timing of different senses. The partitive sense, for example, seems to have developed late in the Indo-European *-lo-* diminutive; the Latin *-ellus* reflex had no partitive sense, but after being borrowed into Germanic, the *-l* diminutive developed the partitive sense in Yiddish.

But by far the largest body of evidence for the radial category structure is data indicating the origin of the diminutive in the concept ‘child’. Previous scholars, in contrast, have not agreed on a single historical origin of the diminutive construction cross-linguistically. The issue is particularly complicated by the tendency of diminutives to be borrowed; well-known examples of extensive borrowing include consonant symbolism in western North America, the Yiddish

LANGUAGES WITH ‘child’ SENSE	LANGUAGES WITH ‘member’ SENSE
E. KAYAH	E. KAYAH
JAPANESE	JAPANESE
EWE	EWE
THAI	THAI
OHG	OHG
LATVIAN	LATVIAN
OJIBWA	
TIBETAN	
MONGOLIAN	
<i>etc.</i>	

TABLE 19. Determining the structure of the radial category

borrowing of Slavic diminutives, and the Germanic borrowing of the Latin *-ellus* diminutive. Another complication is the relationship between the diminutive and reduplication, which will be discussed in §7.

My tentative conclusion is that the origin of the morphological diminutive is the sense 'child'. I do this by considering the semantics and pragmatic origin of diminutive morphemes. I show that in almost every case in which a historical origin can be determined for a diminutive morpheme, the source was either semantically related to 'child' (e.g. a word meaning 'child' or 'son'), or pragmatically related to 'child' (e.g. a hypocoristic suffix on names).⁴

5.1. DIMINUTIVE AFFIXES: SEMANTIC CHILD AS THE SOURCE OF THE DIMINUTIVE. A large number of diminutive morphemes developed historically from a word meaning 'child' or 'son'. This is especially true in Niger-Congo (36) and in many language families throughout east Asia (37), but 38 also shows other languages:

(36) Ewe	<i>vi</i> << <i>vi</i> 'child'
Gbeya (Niger-Congo)	<i>bé</i> << <i>béem</i> 'child'
Londo (Bantu)i-Luyana (Bantu)	<i>nwáná-</i> << <i>nwáná</i> 'child'
	<i>-ana</i> << <i>ana</i> 'child'
(37) Mandarin (Chinese)	<i>-er</i> << <i>er</i> 'son'
	(only bound, cf. <i>erzi</i> 'son')
Cantonese (Chinese)	<i>-dzai</i> << <i>dzai</i> 'son'
Fuzhou (Chinese)	<i>-kiay</i> << <i>kiay</i> 'child'
Miao	<i>te</i> ³⁵ << <i>te</i> ³⁵ 'son, child'
Boro	<i>-¹sa</i> << <i>-¹sa</i> 'child'
	(cf. <i>²bi¹sa</i> 'his son, child')
Classical Tibetan (Tibeto-Burman)	<i>-bu</i> ~ <i>-U</i> << <i>bu</i> 'child'
Eastern Kayah (Tibeto-Burman)	<i>-phú</i> << <i>phú</i> 'child'
	(only bound, cf. <i>vēphú</i> 'my child')
Ainu (Isolate)	<i>-po</i> << <i>po</i> 'child/son'
Thai (Kam-Tai)	<i>lûuk-</i> << <i>lûuk</i> 'child'
(38) Nahuatl	<i>-pīl</i> << <i>pīl</i> 'child'
Awtuw (North New Guinea)	<i>-yæn</i> << <i>yæn</i> 'child'
Tboli (Austronesian)	<i>ngá</i> << <i>ngá</i> 'child'

Other examples cited in the literature include Korean, Tungus, Arawak, Newari (Hasselrot 1957) and Creek (Jack Martin, p.c.).

5.2. DIMINUTIVE AFFIXES: PRAGMATIC CHILD AS THE SOURCE OF THE DIMINUTIVE. A second child-based origin of diminutives comes from morphemes which are pragmatically rather than semantically associated with children. Consider the pragmatic senses of the diminutive listed in Figure 5, including 'affection',

⁴ The origin of the diminutive in two languages of our sample is unclear but unusual, and needs to be investigated further. In Khasi, a Mon-Khmer language of northwest India, there is a diminutive article whose origin is opaque. In Berber, diminutive is marked by feminine gender; it is not clear whether gender or diminution is the older sense of the affix.

'pets', 'sympathy', and 'intimacy'. I argue that each of these is a natural extension of the diminutive as a marker of speech by, about, to, or with some relation to children.

The diminutive is certainly used very commonly cross-linguistically to mark a discourse participant, the topic of discussion, or even simply one argument of the verb as a child; Munro (1988) provides the following example from Lakota in which the trigger of the diminutive does not even occur overtly in the sentence:

- (39) Mní a-wá-kaskape (la)
 water at-1SG.I-splash DIM
 'I splashed water at (the baby).'

Volek (1987) and Dressler and Merlini Barbaresi (1994) provide extensive examples of this pragmatic-child-diminutive, which has been documented at least in Siouan, Muskogean, and Yuman (Munro 1988), Nootka (Sapir 1915), Greek (Sifianou 1992), Polish (Wierzbicka 1984), and Dutch (Shetter 1959). In addition, in many if not most languages (see Casagrande 1948 for a representative example), there is a greater tendency for children to use diminutives.

The use of the diminutive to mark affection and sympathy has been well documented; this includes the common affectionate use of diminutives on kinship terms shown in 40.

- | | | |
|--------------|----------------------|-------------------------|
| (40) Russian | <i>sistritsa</i> | 'sister (affectionate)' |
| Afrikaans | <i>oor grootjies</i> | 'great-grandparents' |
| Hungarian | <i>apika</i> | 'father' |

Diminutives are frequently used when speaking to pets, or as pet-name markers (Dressler & Merlini Barbaresi 1994). This is very natural if we assume the PETS ARE CHILDREN metaphor in which pets are viewed as children. Furthermore, in many languages the diminutive is a marker of extremely informal, oral language (Volek 1987; Dressler & Merlini Barbaresi 1994; Jurafsky 1988). Again, if the diminutive is based on a pragmatic situation involving speech with, by, or concerning children, this fact about the intimate, informal register of diminutives follows naturally.

This idea that 'child' lies at the heart of many pragmatic uses of the diminutive was suggested by Wierzbicka (1984), and can also be seen as a modification of Dressler and Merlini Barbaresi's (1994) proposal that the diminutive is marked by a semantic sense 'small' and a pragmatic sense 'nonserious'. While Dressler and Merlini Barbaresi are quite right in arguing that a polysemous category is required for the diminutive, and many of the details of their analysis of the many pragmatic senses are extremely convincing, choosing 'nonserious' rather than 'child' as the core pragmatic sense of the diminutive leads them into problems. As we have seen, each of these pragmatic senses of the diminutive (affection, informal register, intimacy, sympathy) derives naturally from conventionalized implicatures about children. By contrast, Dressler and Merlini Barbaresi's account has difficulty explaining why so many uses of the diminutive involve children; 'nonserious' could just as easily refer to nonchild recreation; this is not commonly the case. In addition, it is not clear why 'affection', obviously linked with children, should be a necessary extension to 'nonserious'.

	UNMARKED FORM	DIMINUTIVE
ENGLISH	<i>Rebecca</i>	<i>Becky</i>
OJIBWA	<i>mBil</i>	<i>mBiliins</i>
CANTONESE	<i>wong</i> ²¹	<i>wong</i> ³⁵
MID. BRETON	<i>Alan</i>	<i>Alanic</i>
HUNGARIAN	<i>Istvan</i>	<i>istvánka</i>
SdE QUECHUA	<i>isidoro</i>	<i>išiku</i>
NAHUATL	<i>Pedro</i>	<i>Pedroh-pil</i>
TURKISH	<i>Ayeshka</i>	<i>Aysecik</i>

TABLE 20. Hypocoristic diminutives.

Further evidence comes from data showing that a diminutive morpheme derives from an earlier hypocoristic suffix on names, presumably used originally for children. The diminutive is certainly correlated with hypocoristic suffixes in modern languages; Table 20 shows uses of the diminutive on proper names for children or to indicate affection.

A number of scholars have shown historical evidence that an earlier hypocoristic suffix gave way to a later diminutive sense. Petersen (1916) argues that the Latin *-ello/a* diminutive derived from the suffix *-lo-* which was originally used mainly on proper names. He notes the wide usage on proper names in Sanskrit such as *Bhānula-s* (against *Bhānu-datta-s*), and in Greek a number of pet names like *ēdulos* (cf. *ēdu-charēs*). Similar large number of names occur in Gothic (*Wulfila*, *Attila*, *Totila*, *Tulgila*). Finally he notes *-lo-* on names in Gaulish, (*Teutalis: Teuto-matus*), Old Irish (*Tuathal*), and Prussian (*Butil*). In these latter languages *-lo-* only occurs on proper names; in Gothic, Sanskrit and Greek there is only very minimal use of *-lo-* on nonproper names. This suggests that the original proto-ethnic meaning of the suffix was an onomastic or hypocoristic one. Of course this suffix is the ancestor of a very productive diminutive in Germanic and Romance.

A second onomastic origin for a diminutive suffix comes from Indo-European. Hasselrot (1957) argues from an extensive body of evidence that the Romance diminutive suffix *-ittus* derives from a Celtic onomastic suffix. Hasselrot gives a wide variety of names of people with *-tt-*, noting that the majority of them are or could be Celtic (e.g. *Atitta*, *Vepitta*, *Casitto*). He notes a variety of toponyms, and points out their concentration in the Celtic-speaking regions. Hasselrot also cites similar arguments for onomastic and hypocoristic origins for German *-chen* and *-lein*.

5.3. ORIGINS OF THE DIMINUTIVE: A PRELIMINARY CONCLUSION. The search for both the pragmatic and semantic sources of the diminutive has led to the origin 'child', suggesting the following universal tendency:

- (41) UNIDIRECTIONAL TENDENCY: 'child' gives rise to 'diminutive': Diminutives arise from semantic or pragmatic links with children.

Section 7 discusses some outstanding issues with regard to diminutive origins, such as reduplicative and sound-symbolic diminutives.

6. RADIAL CATEGORIES FOR RECONSTRUCTION. The radial category has increasingly been interpreted as a historical object, for example by Sweetser

(1990), Nikiforidou (1991), Pederson (1991) and Niepokuj (1994), linking it with the kinds of metaphorical and context-induced shifts studied by Heine et al. (1991). Under this interpretation, the radial category represents the process of semantic change, where the central sense represents a historically and semantically prior sense, and extensions represent historical expansions of the category by specific extensions to this core sense. For example, Nikiforidou (1991) provides a radial category which models the extension of the Indo-European genitive from a central meaning 'possession' through metaphorical mappings to partitives, attributes, causes, and comparatives. Niepokuj (1994) proposes radial categories for fifteen PIE roots whose semantics involve bending, curving, leaning, and folding, tracing the development of modern IE realizations through the radial extensions.

As Nikiforidou (1991) and Niepokuj (1994) suggest, this diachronic view of the radial category embodies a new paradigm for semantic reconstruction. In this paradigm, we use the structure of the synchronic and/or universal radial category to suggest the reconstruction. This allows us to draw on universal directional tendencies and metaphorical tendencies. Directional evidence can come from metaphorical mechanisms (concrete → abstract, real-world → textual/metalinguistic/subjective world), generalization (more specified → less specified), or conventionalization of implicature (inference → lexicalized meaning). We can draw on metaphors that are common cross-linguistically as well as those that are present synchronically in the daughter language(s).

I contrast this method of reconstruction with an abstractionist method; choosing several synchronic manifestations in sister languages and reconstructing an ancestor which has as many of those traits as possible. Consider, for example the PIE suffix **-ko-*.⁵ This appears in modern IE languages with a great number of senses, including diminutives, hypocorism, patronymics, names of tribes, countries, and languages, various kinds of nominalizations and assorted metaphorical formations, words of approximation, and often as a general method of producing new adjectives or nouns. Because the relationship between the original stem and the derived word can vary enormously, Brugmann (1891:262) reconstructs the protosemantics of this suffix as an abstraction over each of these relations, as 'something "tantamount to" or something which is merely "like" the original.' Brugmann argues that from this abstract 'related to' or 'approximation' sense 'a diminutive sense was often developed.'

Armed with the radial category model and unidirectionality hypotheses (Heine et al. 1991; Sweetser 1990; Traugott and König 1991) our examination of the IE data suggests a completely different reconstruction, in which 'child' and not 'related to' is the protosemantics of **-ko-*, and the various approximation and related-to senses are extensions of this core small/child sense. In this section I compare my reconstruction of **-ko-* with Brugmann's by examining the status and development of **-ko-* senses in a number of ancient and modern IE languages.

⁵ Ignoring for our purposes whether or not the *k* here was originally velar (Brugmann's *-qo*).

Table 21 shows a sampling of the data Brugmann cites as evidence for his reconstruction, (including compounded forms of *-ko-).

We can see from Table 21 that the semantics of *-ko- and related suffixes in the daughter languages include most of the senses seen in the diminutive cross-linguistically and in Figure 5. The realizations of *-ko-, however, included a very large proportion of derivations with meanings like 'characteristic of' or 'related to' the meaning of the root (usually a noun or adjective). The high frequency of this sense in the modern languages (particularly throughout Germanic) presumably was a factor in Brugmann's choice to reconstruct the proto-

SMALL/CHILD	SANSKRIT	<i>ásva-s</i>	'horse'	<i>aśva-ká-s</i>	'little horse'	
	SANSKRIT	<i>śísu-s</i>	'child'	<i>śísu-ká-s</i>	'little child'	
	O.C.SL.	<i>synū</i>	'son'	<i>synūkū</i>	'little son'	
	LITH.	<i>paršá-s</i>	'pig'	<i>paršūka-s</i>	'little suckling pig'	
	A.S.	<i>Hrēdēl</i>	(proper name)	<i>Hrēdlinz</i>	'son of Hrēdēl'	
	O.FRIS.			<i>susterling</i>	'sisters' child'	
	LATIN	<i>homō</i>	'man'	<i>homunciō</i>	'mannikin, little man'	
	GREEK			<i>meiraks</i>	'girl, maiden'	
	GREEK			<i>paidiskos</i>	'little boy'	
	O.FRIS.			<i>litik</i>	'small'	
	O.H.G.			<i>snurihha</i>	'little daughter-in-law'	
	NAMES	SANSKRIT	<i>vásu-s</i>	'good'	<i>vásu-ka-s</i>	(pet name)
		GREEK	<i>hippo-s</i>	'horse'	<i>hippiko-s</i>	'pertaining to horses, pet name'
GAUL		<i>Dīvō</i>	(proper name)	<i>Divīco</i>	(proper name)	
O.H.G.		<i>Sino,</i> <i>Sin-hart</i>	(proper names)	<i>Sinigus</i>	(Latinized)	
CZECH		<i>Vlad</i>	(proper name)	<i>Vladik</i>	(pet name)	
APPROX		LATIN	<i>albi-</i>	'white'	<i>*albi-co-</i>	'whitish'
	SANSKRIT			<i>babhru-ká-s</i>	'brownish'	
	O.H.G.	<i>alt</i>	'old'	<i>altisc</i>	'rather old'	
	LITH.	<i>silpna-s</i>	'weak'	<i>silpnóka-s'</i>	'weakish, rather weak'	
	LATV.			<i>Rīgafīnik-s</i>	'man of Riga'	
	O.FRIS.			<i>hūsing</i>	'member of the household'	
	O.H.G.			<i>hofiling</i>	'courtier'	
	O.H.G.			<i>frencisc</i>	'Frankish'	
	MEMBER	LITH.	<i>Riga</i>	'Riga'	<i>prūsiška-s</i>	'Prussian'
		O.H.G.	<i>sedal</i>	'seat'	<i>sidil-ing</i>	'settler'
SANSKRIT		<i>sūcī-</i>	'needle'	<i>sūcī-ka-s</i>	'stinging (adj)'	
LITH.		<i>dárba-s</i>	'work'	<i>darb-iniñka-s</i>	'worker'	
GOTh.		<i>mahts</i>	'might'	<i>mahteig-s</i>	'mighty'	
RELATED-TO	O.H.G.			<i>irdisc</i>	'earthly'	
	O.C.SL.			<i>dětiskū</i>	'childish'	
	SANSKRIT	<i>ārbha-s</i>	'small, young'	<i>ārbha-ga-s</i>	'youthful'	

TABLE 21. Brugmann IE data: selections from -qo, -īqo, -āqo-, -en-qo, -isqó and -gó forms

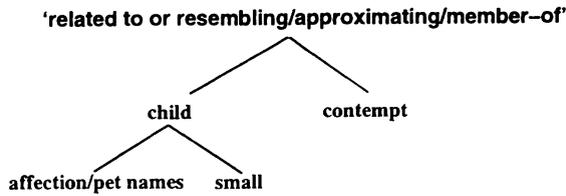


FIGURE 7. Abstractionist semantic development of *-ko-*.

ethnic semantics of **-ko-* as something akin to this ‘related to’ or ‘approximation’ sense.

Brugmann (1891:262) suggests that this abstract ‘related to’ protosense shifts first to ‘child’ and hence ‘small’:

the meaning of the new word. . .denotes something ‘tantamount to’ or something which is merely ‘like’ the original. From this a diminutival sense was often developed, and hence *-qo-* was used in forming familiar and pet names.

Later scholars (Petersen 1910; Edgerton 1910; Buck & Petersen 1945) also assumed that the diminutive develops historically from an earlier ‘related to’ sense. Figure 7 shows the semantic shifts suggested by this abstractionist reconstruction. I have assumed that some fundamentally diminutive senses like ‘affection’, ‘hypocorism’, ‘contempt’ and ‘small’ derive from ‘related to’ via the concept ‘child’. The mapping from ‘related to/approximation’ to ‘child’ is presumably based on the idea that a child is modeled on or approximates its parents. The mechanism for change here is specification of meaning, the parent-child relation being a subtype, perhaps even a prototype of the related-to/resembling relation.

In contrast, our nonabstractionist proposal for ‘child’ as the protosemantics of **-ko-* draws on the universal radial category in Figure 5 to suggest a semantic development along the lines sketched broadly in Figure 8.

Evidence for our reconstruction comes from unidirectionality. The abstractionist reconstruction implies an unnatural semantic shift from an abstract quality (‘related to’) to a concrete, real-world natural kind (‘child’). This violates the unidirectionality hypotheses of Heine et al. (1991), Sweetser (1990), and Traugott and König (1991) discussed in §2, and is a shift unparalleled in other languages. By contrast, the shift implied by our reconstruction in Figure 8, from ‘child/small’ to ‘approximation’, ‘related to’, and ‘member of’ occurs quite commonly cross-linguistically, as is discussed in detail in §§ 4.4 and 5.

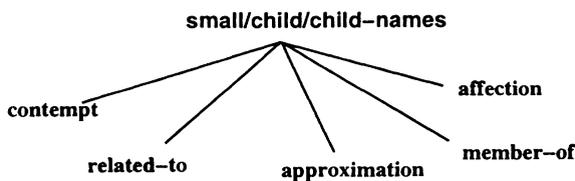


FIGURE 8. Predicted semantic development for *-ko-*.

But the abstractionist reconstruction for **-ko-* is nonetheless the accepted one, and so to gather further evidence for the radial category model's prediction that the original sense was 'child', I examined the senses of **-ko-* in the earliest IE data. I first considered Brugmann's list of forms that are attested across multiple IE languages; these presumably proto-ethnic forms included senses like child (Sanskrit *marya-ká-s* 'mannikin' (cf. *márya-s* 'man, young man'), Greek *meiraks* 'girl, maiden'), animal names (Sanskrit *sū kará-s* 'pig, boar', Latin *su-culu-s*), and words meaning 'dust', 'narrow', 'oldish', among others. Each of these bears a strong resemblance to senses we have seen for the diminutive cross-linguistically; animal names, for example, are quite commonly marked, as Table 22 shows.

I then examined the historical background of forms with **-ko-* suffixes in Greek (Chantraine 1933; Petersen 1910), Indo-Iranian (Edgerton 1910), and Celtic (Russell 1988, 1990), finding that most of the earliest realizations of **-ko-* in these languages appear with a diminutive sense. The earliest Greek examples show the senses small/child (e.g. Homeric *parthenikē* 'young girl', *orphanikos* 'orphan') pejoratives, small type, member of and patronymics, nouns of imitation and resemblance, with adjectives of characteristic or resemblance appearing perhaps later. Edgerton's (1910) reconstructed Indo-Iranian forms show an early and very productive diminutive sense; of the 62 Rig Veda *-ka* forms he lists 42 are diminutive and 10 more are possibly historically diminutive, including among others the senses: small (V Skt *avikā* 'little sheep, ewe-lamb' from *āvi*, *arbhakā* 'tiny' from *ārbha*, Avestan *kasvikā* 'very tiny' from *kasu* 'tiny'), child (Avestan *kainikā* 'girl', dim of *kainī*), and approximation (V Skt *ṣyāvaka* 'brownish' from *ṣyāva* 'brown'). Russell (1988 and 1990) shows that the earliest Celtic realizations of PIE **-ko-* are diminutive/hypocoristic **-āko*, diminutive **-iko*, and adjectival **-īko*.

Thus the earliest and most common uses of the suffix in Greek, Celtic, Sanskrit, and Avestan, as well as Lithuanian (Leskien 1891), are to form diminutives, with the meaning 'small', 'children', 'small-type', 'affection', 'resemblance', and 'approximation'. The suffix applied mainly to nouns, but also some of the adjectival uses of the suffix are clearly diminutive in origin; for example color approximation (e.g. 'brown' → 'brownish', a type of formation which occurs in Latin, Sanskrit, Avestan, and Lithuanian). Since the vast majority of the earliest forms of PIE **-ko-* are nominal and diminutive/hypoco-

	UNMARKED FORM		DIMINUTIVE	
EWE	<i>koklō</i>	'chicken'	<i>koklō-vi</i>	'chick'
OJIBWA	<i>mkwa</i>	'bear'	<i>mkoons</i>	'bear cub'
POTAWATOMI (Algonquian)	<i>UnUmoš</i>	'dog'	<i>UnUmOš.es.</i>	'puppy'
HUNGARIAN	<i>öz</i>	'deer'	<i>özike</i>	'fawn'
TIBETAN	<i>dom</i>	'bear'	<i>dom-bu</i>	'bear cub'
KOASATI (Muskogean)	<i>nitá</i>	'bear'	<i>nitasi</i>	'bear cub'
AWTUW	<i>piyren</i>	'dog'	<i>piyren-yæn</i>	'puppy'
THAI	<i>müu</i>	'pig'	<i>lüuk-müu</i>	'piglet'
NEZ PERCE	<i>'iceyé.ye</i>	'coyote'	<i>'iceyé.ye-qen</i>	'young coyote'

TABLE 22. Diminutives for animal offspring.

ristic in nature, it seems clear that a nominal diminutive must have been the core and most common sense of the PIE suffix. Early examples in which the semantic relation between words is of Brugmann's 'related to/characteristic of' type are rare, and in each case (like Sanskrit 'brown/brownish', or the adjectival patronymics in Celtic and Sanskrit, and ethnica in Greek, Celtic, Germanic) are cases which very commonly arise from diminutives crosslinguistically.

The universal radial category, through its unidirectionality assumptions, provides a new paradigm for semantic reconstruction that compares favorably with the abstractionist method exemplified by Brugmann's PIE reconstruction. Rather than abstracting over the myriad realizations of *-ko- (child, small, related to, characteristic of, affection, contempt, approximation), I used cross-linguistic evidence for the semantic relation between these senses, and for particular assumptions of unidirectionality, to suggest a totally different reconstruction than the traditional one, and supported this prediction with examinations of the early history of the suffix in daughter languages.

7. OUTSTANDING ISSUES.

7.1. OTHER ORIGINS. One of the most surprising facts in this study of the diminutive has been the lack of evidence for any morphological diminutives whose origin is a word meaning 'small'. A number of languages, however, have what might be called periphrastic or analytic diminutives. For example English *little*, French *petit*, and Japanese *chotto*, all words meaning 'little', function very much like diminutives. English usages include contempt ('you little so-and-so'), female ('the little woman'), partitive/individuating ('a little water', 'rest a little'), small type ('little finger' to mean specifically the pinkie), approximation ('a little tired'), and children ('my little ones'). Note the distinction between 'little', which can occur in any of these senses, and 'small', which usually occurs only in the central sense.

Evidence that these words may fill the functional role of diminutives in these languages comes from Hasselrot (1972), who showed that *petit* in French is grammaticalizing as a diminutive, just as the former diminutive suffix *-ette* is disappearing. In Spanish and Italian, whose morphological diminutives are still completely productive, the counterparts of *petit* (Spanish *pequeño* or Italian *piccolo*), are quite rare. In French *petit* is 13 times more common than *-et(te)*, *-ot(te)*, etc., while Spanish *pequeño* is 8 times less common than the Spanish morphological diminutives. For at least these periphrastic diminutives, then, the original sense of the diminutive seems to be 'small', and not 'child'. Further study is needed to examine the origins and development of these periphrastics.

In considering origins of the diminutive, I have not considered the very common realizations of the diminutive via sound-symbolism and via reduplication. Consonant shift—change in place or manner of articulation of a consonant in verb or noun roots—is used as a diminutivizing device in Santiago del Estero Quechua (de Reuse 1986), in Georgian, Basque, Chukchee (Paleo-Siberian), and across western North America (Nichols 1971). Vowel tonality shifts mark the diminutives in the Mon-Khmer languages Rengao (Gregerson 1984) and

Bahnar (Diffloth 1994). Many scholars have noted that the direction of diminutive sound shifts is not arbitrary: these shifts usually mark the diminutive by higher tonality, including high tones, high front vowels (with higher second formants), and fronted consonants (Sapir 1915; Jespersen 1922; Nichols 1971; Ultan 1978; Bolinger 1978; Trigo 1991). Recently, a number of scholars have suggested that this link between high frequency and diminutives is caused by the association of high frequency with child language. Based on infant language data which linked certain requests with rising intonation, Menn (1976) suggests that the association of high pitch with 'weakness' and low pitch with 'power' may be innate. Brown and Levinson (1978:268) suggest that high pitch and tentativeness are universally related, and suggest this deferential use of high pitch derives from its association with the voice quality of children. Ohala (1984, 1994) has proposed a related ethological explanation for this association, suggesting that since fundamental frequency can convey an impression of the size of the signaler (Morton 1977), signalers use a high F_0 so as to appear small and nonthreatening. Further investigation of these cases (and others in which, for example, it is low vowels rather than high ones that mark the diminutive [Diffloth 1994]) is needed to determine to what extent sound-symbolic diminutives are semantically derived from an association with children.

Reduplication is also a common mechanism for coding the diminutive, and as Table 23 shows, marks the same sense we have seen with other realizations of the diminutive. However, because reduplication is used to mark many other meanings as well, including at least plural, habitual, augmentative, iterative, frequentative and distributional meanings (Moravcsik 1978; Regier 1994), it acts as a confound in investigating diminutive meaning. Regier (1994) suggests that the diminutive uses of reduplication may derive from the common use of reduplication by young children (Leopold 1939). Certainly there is significant evidence that children use reduplication as a general strategy in learning multisyllabic words (Moskowitz 1973; Schwartz et al. 1980; Fee & Ingram 1982; Ferguson 1983). But this aspect of the origin of diminutive meaning must remain mere speculation without further work on the diachronic and synchronic semantics of reduplication.

7.2. OTHER SENSES. I have concentrated here on senses of the diminutive that occur in a broad variety of languages. Another aspect that makes them so

		UNMARKED FORM		DIMINUTIVE	
HALKOMELEM	Offspring	<i>təláqsəl</i>	'duck'	<i>təliləqsəl</i>	'ducklings'
SUNDANESE	Imitation	<i>wani</i>	'to dare'	<i>wawanian</i>	'pretend to be brave'
TAGALOG	Imitation	<i>bahay</i>	'house'	<i>bahay-bahayan</i>	'doll-house/game of house'
N. KANKANAY	Imitation	<i>manok</i>	'chicken'	<i>manmanok</i>	'toy chicken'
HAUSA	Approximation	<i>jā</i>	'red'	<i>jā-jā</i>	'reddish'
HALKOMELEM	Approximation	<i>sxwáxwθ'</i>	'be insane'	<i>sxwíxwáxwθ</i>	'be a little crazy'
SELAYARESE	Small	<i>luŋaŋ</i>	'pillow'	<i>luŋalluŋaŋ</i>	'small pillow'
SELAYARESE	Related-To	<i>gintaŋ</i>	'chili'	<i>gintangintaŋ</i>	'chili-like object'

TABLE 23. Reduplicative diminutives.

interesting, however, is the profusion of very specific senses that abound in each language. For example, Figure 2 (from Heine et al. 1991) shows a number of senses of the diminutive specific to Ewe, such as ‘not yet having passed an exam’. Cantonese (Fig. 1) and Thai (Fig. 3) diminutives mark small round objects, including diseases with small round skin eruptions. Nootka diminutives mark the speech of certain mythological creatures (Sapir 1915).

I have not discussed senses that may turn out to have cross-linguistic scope: Cantonese, Russian, Polish, and Greek, for example, all use the diminutive very commonly on names of foods. In a few languages the diminutive is the honorific or ‘respect’ sense.

- | | | | |
|------|--------------|-------------------|--------------------|
| (42) | Mex. Spanish | <i>virgencita</i> | ‘Virgin Mary’ |
| | Mex. Spanish | <i>Diosito</i> | ‘God’ |
| | Nahuatl | see below | |
| | Khasi | <i>?ii babuu</i> | ‘the schoolmaster’ |

It isn’t clear how widespread such usages are. Dávila Garibi (1959) suggests that the Mexican Spanish forms may be due to a Nahuatl substratum. Hill and Hill’s (1986) study of Mexicano (Nahuatl) speakers lends support to this hypothesis: they found honorific or polite diminutives in Spanish (such as 43) among bilingual speakers.

- (43) *sus personitas de ustedes* ‘your respected persons’

They suggested that *sus personitas* is a loan translation from something like 44:

- (44) *namomāhuizotzitzin* ‘your reverences’

In Khasi, a Mon-Khmer language of Assam, the special definite article *?ii* is used for diminutive nouns and to mark affection or respect for ‘members of one’s family or to persons of superior social position such as teachers or employers’ (Ravel 1961:95). The diminutive in Chinese is also connected with respect. The Mandarin diminutive suffix *-zi* ‘child’, also has the sense ‘Count, Earl’, which later marked names of scholars, whence, presumably it entered Japanese as a suffix (*-ko*) on aristocratic women’s names.

These cases of food and respect (presumably derived through the ‘affection’ or ‘child’ senses) may not be broad enough to posit universal tendencies, but further investigation may show them in a greater range of languages.⁶ Other areas to be explored include the relationship between the diminutive and the augmentative and pejorative morphemes common in Algonquian, Romance, Slavic, Bantu, and Quechua, and the semantics of the diminutive in noun-class languages like those of the Bantu family.

7.3. REANALYSIS. I have not addressed the problem of how reanalysis may change the nature of the category in a particular language; Croft et al. (1987) and Pederson (1991) show that the original function of the central sense of a category may be taken over by new forms, leaving the original category with

⁶ As an interesting contrast, the ‘imitation’ sense of the reduplicative diminutive in Visayan (Northwest Austronesian) changes *Diós* ‘god’ to *diósdíós* ‘an imitation of God, a false god, an idol, etc.’ (Kaufmann 1939).

a different 'doughnut-shaped' (centerless) structure. Michaelis (1993) argues that modern English *still* has a coherent, abstractionist semantics unrelated to the semantic history of the category. Speakers have extracted this abstraction by reanalyzing accidental semantic commonalities of various senses. Zubin (1995) suggests that a similar reanalysis may allow speakers to simultaneously maintain the historical, concrete prototype for a diminutive (child) as well as an abstractionist reinterpretation (e.g. the abstract sense 'minor-counterpart relation' he proposes for Swahili noun class 7).

8. CONCLUSIONS. I have argued from a number of perspectives that the radial category offers a foundation for reconciling the tools and methods of diachronic and synchronic semantics. For historical reconstruction, it lends itself as a tool for the nonabstractionist paradigm that is the norm in phonological reconstruction and is becoming more common in historical semantics. Rather than reconstructing a meaning which shares the maximal number of features with the modern reflexes, we reconstruct a meaning via triangulation, based on our understanding of principles of the direction of semantic change. Because so much of the semantic history of a morpheme is present in various forms in the modern language, building a radial category for modern languages, based on metaphors and inferences that are present in the modern language, can aid greatly in this reconstruction. I showed that this model suggests a new reconstruction for PIE **-ko-*. The ability of the radial category to represent various mechanisms of semantic change (metaphor, generalization, abstraction) also allows it to serve as a tool for modeling individual semantic shifts in the history of the morpheme, and for predicting and modeling hypotheses about unidirectionality.

From a synchronic perspective, the radial category represents the archaeology of a morpheme's meaning, modeling the historical relations that may act as associative links in the modern language. This allowed us to resolve such paradoxes as the intensification/approximation senses of the diminutive, and the seemingly contradictory augmentative and diminutive links with female gender. By offering a theory of polysemy that includes pragmatics as well as semantics the radial category provides an explanation for the prevalence of pragmatic connotations of affection, sympathy, and hedges on forms with other diminutive meanings, like approximation and quantification. Previous theories have been unable to model the common double coding of diminutive forms.

Finally, the new mechanism of lambda-abstraction allows us to model the rise of second-order predicates from diminutives, and in particular to capture the generalization across the various kinds of predicates that were created. Although each of these predicates is present in the synchronic states of particular diminutives, the correct locus of the generalization across them is a historical one, a further demonstration of the close link between diachrony and synchrony in semantic investigation.

APPENDIX: LANGUAGES IN SAMPLE

Languages used in this study, classified according to Voegelin and Voegelin (1977): **Unaffiliated:** Japanese (Matsumoto 1985), Ainu (Refsing 1986); **Afro-Asiatic:** *Semitic:* Modern Hebrew, Le-

vantine Colloquial Arabic (informants), Biblical Hebrew (Gesenius and Kautzsch 1983), Amharic (Titov 1976); *Berber*: Berber (Chaker 1983); *Chadic*: Hausa (Taylor 1959); *Omotic*: Dizi (Maji) (Allan 1976); **Macro-Algonquian**: *Algonquian*: Potawatomi (Hockett 1948), Ojibwa (Rhodes 1990); *Muskogean*: Koasati (Kimball 1991); **Andean-Equatorial**: Santiago del Estero Quechua (de Reuse 1986); **Austroasiatic**: *Mon-Khmer*: Khasi (Ravel 1961), Vietnamese (Matisoff 1991), Rengao (Greger-son 1984); **Austronesian**: *Malayo-Polynesian*: HESPERONESIAN: Sundanese (Robins 1959), Tagalog (Schachter and Otones 1972), Selayarese (Mithun and Basri 1986), Tboli (Forsberg 1992), Imonda (Seiler 1985), Northern Kankanay (Porter 1979); **Aztec-Tanoan**: UTO-AZTECAN: Classical Nahuatl (Andrews 1975, Olmos 1875, Bierhorst 1985), Mexicano (Hill & Hill 1986); **Ge-Pano-Carib**: Canela-Krahô (Popjes and Popjes 1982); **Hokan**: Karok (Bright 1957); **Indo-European**: Spanish (Gooch 1967, informants), Russian (Bratus 1969, Forbes 1964), Yiddish (Birnbaum 1979), Hindi (McGregor 1977, informants), Greek (Sifianou 1992), Polish (Wierzbicka 1984), Dutch and Afrikaans (Shetter 1959, Dirven 1987), Middle Breton (Hemon 1976), Ancient Greek (Chantraine 1933, Buck and Peterson 1945), Sanskrit and Avestan (Edgerton 1910), Welsh and Irish (Russell 1988, 1990); **Indo-Pacific**: *North New Guinea*: Awtuw (Feldman 1986); **Na-Dene**: *Athabaskan*: Navaho (Reichard 1948); **Niger-Kordofanian**: *Niger-Congo*: KWA: Ewe (Heine et al. 1991), Baule (Timyan 1976); ADAMAWA-EASTERN: Gbeya (Samarin 1966); BANTU: Shona (Fortune 1957), Londo (Kuperus 1985), Si-Luyana (Givón 1970); **Penutian**: Nez Perce (Nichols 1971, Aoki 1970), Tzeltal (Brown and Levinson 1978); **Salish**: Halkomelem (Galloway 1977); **Sino-Tibetan**: *Kam-Tai*: Thai (Matisoff 1991); *Chinese*: Cantonese (Jurafsky 1988; Zhou 1987; Cheung 1972; He 1987; Gao 1980, Hirata 1983, Zhang 1969, informants), Mandarin (Chao 1968, informants), Fuzhou (Ling 1989), Xinyi (Ye & Zhidong 1982), Hakka (Huang 1982); *Miao-Yao*: Miao (Shi 1985); *Tibeto-Burman*: Boro (Bhattacharya 1977), Tibetan (Beyer 1992), Eastern Kayah (Red Karen) (Solnit 1986); **Ural-Altai**: *Uralic*: Hungarian (Bánhidi et al. 1965); *Altai*: Written Mongolian (Pope 1954), Turkish (Lewis 1967).

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