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## **Linguistic Categorization**

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## ON HUMBOLDT ON THE DUAL\*

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Arbeiten der gegenwärtigen Art können  
und müssen daher immer Zuwächse  
erhalten (W. v. Humboldt, *Über den  
Dualis*, 1827)

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### 1. Humboldt's gift

On 26 April 1827, seven months before his brother Alexander was to embark on his course of lectures on the cosmos, which filled the largest auditorium of the University of Berlin beyond capacity, and at the rerun in more popular form even the *Singakademie* concert hall, Wilhelm von Humboldt (1767-1835), with his eyesight failing, read one of his usual papers to the worthies of the Royal Prussian Academy of Sciences, and in all likelihood did not hold those who had cared to attend spellbound. The ageing gentleman scholar's vision of the world of languages was no less global than his brother's of the physical world, but Wilhelm's subject, grammar, was no match for Alexander's cosmos in terms of public attraction. Moreover, his topic this time seemed particularly arid and of pathetic marginality as he confined himself to a single grammatical category, and one ostensibly as insignificant as the dual.<sup>1</sup> Even so, he once more failed to execute his plan, completing only the introduction and one chapter, 'Of the Nature of the Dual in General', and, perhaps to the relief of his select audience, breaking off before he came to treat of the various kinds of dual in particular languages. His more purposive brother's *Kosmos*, eventually published in five volumes (one posthumous) between 1845 and 1862, scored a spectacular success (selling no less than 80,000 copies by 1851), but, despite its continu-

ing influence on one or the other of the sciences embraced in this comprehensive 'view of nature', was soon recognized as having brought an era of natural history to a close, however grandiose. The sales figures are not known to have soared when Wilhelm's fragment on the dual appeared, in 1830, in the proceedings of the Berlin Academy, nor were the off-prints he distributed among his acquaintances received with more than the customary politeness. On the face of it a mere by-product of what, posthumously, was to become Wilhelm von Humboldt's crowning achievement in three quarto tomes (whose first was hailed as 'the first great book on general linguistics' by a renowned 20th-century American confrère competent to judge also the widely unread two others), this minor opus did not sink into oblivion, though. It shared the fate of the chef-d'oeuvre of this Prussian *grammairien-philosophe*, and owed its subsequent popular appeal to its philosophy rather than its grammar. It should have been the other way round.

With *Über den Dualis* comparative grammar arguably entered, or could have entered, a new era. It was not that the aim of this discipline, by now well-established, was redefined: recording 'how human language in general manifests itself in the particular languages of different nations', and trying to discover the structural patterns behind this diversity of manifestations was what collectors and systematizers in the realm of language had been doing before. Inspired by an appreciation of the daunting complexity of the realm to be charted, Humboldt's innovation rather was one of methodology, of reversing priorities in the quest for system. Previously the prime objects of typology had been entire languages, even though one obviously had to rely on individual grammatical properties, or in fact on sets of them (more or less standardized in the wake of mid-18th century French and Scottish comparatists; cf. Plank 1987a), as parameters along which to reduce their variety to order. Natural though they seemed, especially to their proponents, the resulting classificational systems were open to charges of arbitrariness, like their analogues in natural history, as long as the parameters chosen had not really been demonstrated to be of such fundamental import that hosts of further traits, and indeed the entire physiognomy of the languages thus classified, would be predictable from them. With the superficial attention that many potentially significant parts themselves had so far received, especially as they appeared in the more exotic specimens, holistic language typologies could not but be premature. If this kind of ambitious enterprise was to have a realistic chance of succeeding,

first things had to come first. The parts themselves had to be made the object of typologies before there was any way of telling to what extent the range of variation among the wholes was limited. Organic (or earlier also mechanical) wholeness had always been prized by typologists as well as by their colleagues in comparative anatomy and other fields of natural history; but Humboldt's awareness that the attribution of this supreme systemic quality to languages was in need of empirical justification, rather than mere affirmation, was more acute than that of his linguistic predecessors. Hopeful that the eventual answer to the question of whether *tout se tient* would not be in the negative, Humboldt was, thus, prepared to dissect the 'organisms' under investigation and to compare their constituent parts, no matter how insignificant they might appear, across the entire realm before trying anew to systematize the wholes. The dual was the first category to be subjected to such treatment after the manner of the anatomist (even though it was the physiologist who was avowedly the grammarian's model) and to be microscopically observed across the languages of the world beyond all genealogical and areal boundaries.

Shifting from a natural-historical to an 'intellectual-teleological' view of linguistic diversity and giving methodological priority to the global impression of individual languages, Humboldt himself made few other efforts along the same lines, none equally whole-hearted. Preferences for particular combinatory techniques at word- and clause-level (flexion, agglutination, incorporation, isolation) now seemed to him a better indicator of a language's character than its categorial anatomy. Over the next 150 years a modest number of further grammatical categories were studied in a similar vein, but the research programme first formulated and put into practice in Humboldt's lecture on the dual never gained enough momentum to ride high on the various waves of Humboldtianism (where the preoccupations rarely were with the nitty-gritty of comparative grammar, anyhow). The viability of a holistic typology of languages is still a live issue. Its resolution would be less distant if the plan for an encyclopedia of categories, devised by Humboldt and aborted for no compelling reasons except perhaps its vast proportions, had been executed with greater collective determination.

Humboldt's conspectus of the dual itself has remained unsuperseded. Whatever additional knowledge has meanwhile been amassed about language-specific manifestations of the dual, no similarly comprehensive effort



has been made since to revise his conclusions or establish a new order for this domain. It is, therefore, as a fellow comparative grammarian rather than as a historian of linguistic wisdom long obsolete that I propose to enter into debate with the speaker of 26 April 1827 on the details of his account. Perhaps my distinguished interlocutor himself would have perceived historiographic qualities in my contribution all the same. As he defined it, if to little contemporary acclaim, the task of the historian is 'the presentation of the struggle of an idea to realize itself in actuality', and I would not take exception to some such characterization of my present task, with the struggle of course continuing unabated.

My principal aim here is to review, on an empirical basis broader than Humboldt's although still not as comprehensive as would ultimately be desirable, all of his descriptive generalizations about the dual: about its selective occurrence with nouns and pronouns, agreed-with and agreeing forms, pronouns of different person, and nouns of different semantic classes; and about its relationship to the plural and other categories of number. Although often compatible with cross-linguistic majority patterns, virtually none of them prove unexceptionable. Moreover, the regularities observed are only in part peculiar to the dual; some further peculiarities escaped Humboldt's observation. Seeking to found his generalizations on theory as well as on facts, Humboldt had also set himself the task of motivating a grammatical category seemingly so inessential as the dual. This he did so successfully, however, that it now seemed more remarkable for a language to lack a dual than to be equipped with one.

## 2. Extensions

Humboldt's fundamental insight is that the dual is not a universally uniform category, and to this conclusion he is led by a priori reasoning as well as by empirical analysis. Of course this category cannot be regarded as strongly universal because numerous languages lack it. And languages having a dual obviously differ in the phonetics and, presumably not without limit, the morphosyntax of its expression. But the cross-linguistic differences which above all occupy Humboldt are those of the 'extension' (*Umfang*), the 'notion' (*Begriff*), and, more marginally, also the 'conception' (*Vorstellung*) of the dual.

2.1 To begin with extension, Humboldt divides the languages with dual (as a productive or also merely residual category) into three classes: (a) languages limiting the dual to personal pronouns, (b) languages limiting it to nouns, and (c) languages not limiting their dual to only one of these two word-classes. A fourth 'pure' class should be added for the sake of completeness: (d) languages without dual. This scheme does not recognize any interdependency between a pronominal and a nominal dual. More restrictive than Humboldt on this point, several later authors (including Cuny 1906:2, Gray 1939:181, Jensen 1952:9) have denied the empirical reality of a dual limited to nouns, i.e., of Humboldt's class (b), effectively postulating his implicational universal:

- (1) If the dual extends to nouns, it also extends to personal pronouns.<sup>2</sup>

This implication does not seem implausible, because distinctions between singular and plural, and in Melanesia, Australia, and America sometimes also a trial and even a quadral, are likewise confined to personal pronouns if not extending to both nominal and pronominal lexemes.<sup>3</sup> And what apparently strengthens the case for (1) is that the candidates for membership in class (b), no more than two, proposed by Humboldt himself on admittedly flimsy credentials, do not really qualify for admission. The closest thing to a dual sometimes recognized in modern descriptions of Penutian Totonac is a verbal duplicative (on which see 2.2 below); and in Quechua it appears to have been the inclusive-collective suffix *-tin* which Humboldt mistook for 'very weak traces' of a dual.<sup>4</sup>

Upon closer inspection, however, the facts turn out to vindicate Humboldt, though without inflicting fatal harm on the implicationalists. In the Semitic family, summarily included in class (c) by Humboldt, several languages and dialects indeed limit the dual to nouns, or at least have done so at one point, with this pattern representing a transitional stage between the unlimited use of the dual, as in Proto-Semitic, and its eventual loss (cf. Fontinoy 1969). Analogous intermediate stages with a purely nominal dual are also attested in Indo-European, viz. in Irish (Dillon & Ó Cróinín 1961:72-73) and possibly Polish and elsewhere in earlier phases of Slavonic (Tessnière 1925). In some northern Uto-Aztecan languages, by contrast, a dual has been innovated, and in one of them, Hopi, appears only with nouns but not pronouns (cf. Langacker 1977:80, and Whorf 1946:169-70, who even recognizes a four-way nominal number opposition, with a paucal further

differentiated from a multiple plural). Currently I am aware of no further representatives of Humboldt's class (b), whose membership, thus, is much less numerous than that of all other extensional classes. Since the limitation of the dual to nouns in addition is comparatively unstable diachronically, liable soon to be given up again as the extension of the dual is being reduced or, less commonly, expanded, this class (b) does have an air of exceptionality — which on Humboldt's account is inexplicable, but would follow from (1), on the added assumption that offences against universals call for swift therapeutic action. Taking into account the possible extensions of plural, trial, and quadral as well, it would seem natural to generalize (1) to all number distinctions:

- (1') The differentiation of number with nouns implies that with pronouns.

The question that remains, then, is why it is only with the dual that this general law admits of exceptions. It is here that one of Humboldt's *raison d'être* of the dual (see 5.1 below) may come into its own.

2.2 What was discussed so far was a rather simplified version of Humboldt's extensional taxonomy. In his class (a) the dual is actually said to extend to the entire sphere of influence of personal pronouns. Thus, in addition to independent personal pronouns, bound pronominal elements in agreement or cross-reference with nouns or independent pronouns too should have a dual in languages of this class. In class (c) the dual need not in fact be limited to nouns and (the sphere of influence of) personal pronouns, but is supposed to pervade the entire language: all parts of speech agreeing with nouns and pronouns in number (verbs, adjectives, demonstratives, etc.) should also exhibit a dual.<sup>6</sup> Another complication that has so far been disregarded arises from Humboldt's willingness to grant the possibility of mixtures or combinations of his three 'pure' dual extensions in one and the same language. This, however, may only result in a new pattern, with an extension of the dual that is not identical to that of the all-pervasive class (c), if the nominal extension is combined with the pronominal one. The fifth class, labelled (ab), that must be reckoned with, thus, are languages limiting the dual to nouns and personal pronouns (as well as their sphere of influence) and not extending it to non-pronominal agreement forms. If languages with nominal and pronominal dual lack number agreement in the first place, there is no way of deciding whether they are members of this mixed class (ab) or of the pure class (c).

The five extensional classes thus recognized by Humboldt do not exhaust the full spectrum of theoretical possibilities. Since there are three classes of elements (the last possibly heterogeneous) that may receive dual marking — personal pronouns (including bound pronominal elements), nouns, words showing non-pronominal agreement with nouns and pronouns —, the theoretical maximum of combinatorial patterns is eight. Three of them — (e), (f), and (g), as tabulated in (2) — are implicitly excluded by Humboldt.<sup>7</sup>

(2)	Personal pronouns	+	—	+	+	—	—	+	—
	Nouns	—	+	+	+	—	+	—	—
	Non-pronominal agreement forms	—	—	—	+	—	+	+	+
		(a)	(b)	(ab)	(c)	(d)	(e)	(f)	(g)

The implicational universal (3) succeeds to exclude precisely this subset of extensional classes of which Humboldt had encountered no members.

- (3) If the dual extends to non-pronominal agreement forms, it also extends to both personal pronouns and nouns.

Or, slightly rephrased, the dual cannot encroach on non-pronominal agreement of verbs, adjectives, etc., unless it has gained a foothold in both personal pronouns and nouns. This implication is not supposed to hold in reverse as well, since the mixed class (ab) has Humboldt's approval. It should be noted that for present purposes the recognition of a dual does not require its presence with *all* parts of speech agreeing in number in *all* their paradigmatic forms; nor is it necessary for *all* nouns and personal pronouns to have a distinct dual under *all* inflectional circumstances.

In line with (3), classes (a), (b), (ab), (c), and (d) indeed are attested, examples of (b) and also (ab), however, being quite rare. In view of the scarcity of (ab)-languages the statistical probability also of the inverse of (3) would seem relatively high. But, contrary to (3), class (f) is also attested. A pronominal dual is combined with a dual in non-pronominal verb agreement in Gothic (confined to 1st and 2nd person), in some non-Austronesian Papuan languages including Siroi (Wells 1979) and Kewa (Franklin 1971), and perhaps in West Omotic Dizi (confined to 2nd person), provided its verb inflections really are non-pronominal (Allan 1976).<sup>8</sup> And there are, in my current sample, one or two examples also of class (e): North Semitic Akkadian, whose verbal conjugation, not uncontroversially,<sup>9</sup> has been attributed a dual for the 2nd and 3rd person, and Eastern Libyan Arabic,

where demonstratives agree with nouns in all numbers including the dual, whereas verbal number agreement is limited to singular and plural (Owens 1984). Only class (g) appears to lack members entirely, unless languages such as Chamorro and Hupa are included here. In Chamorro, a North-west Austronesian language of Melanesia, neither nouns nor pronouns nor verb agreement as such have a dual, but duality is expressed by means of singular verbs accompanying plural nominal or pronominal subjects (Topping 1973). In Athapascan Hupa, likewise lacking special dual forms, a 3rd person dual is expressible with certain intransitive verbs by means of using their root alternant which indicates a plural subject without adding the plural prefix *-ya-* to this root (Goddard 1911). Even if cases of this last type are disregarded, we still have to be more liberal than Humboldt and tone down universal (3) accordingly, by changing the conjunction of the *implicatum* to a disjunction:

- (4) If the dual extends to non-pronominal agreement forms, it also extends to personal pronouns or nouns.

But, considering the scarcity of (e)-languages, one of my two examples, Akkadian, in fact being controversial as well as extinct, an implication is at least statistically valid which is more specific in its *implicatum*:

- (4') If the dual extends to non-pronominal agreement forms, it also, with more than chance frequency, extends to personal pronouns.

Irrespective of the choice between (3), (4), and (4'), however, the question once more is whether the regularity at issue is specifically one of the dual. Very likely the implicational relationship between agreeing and agreed-with forms in fact generalizes to any differentiation of number, and perhaps to other agreement categories as well.

Interestingly, our revision of (3), the implication subscribed to by Humboldt, was partly occasioned by languages already taken into consideration by Humboldt himself. However, he summarily subsumed the Indo-European and Semitic families under class (c), on the historical grounds that the dual there had originally been pervasive. Since he aimed at a taxonomy of dual extensions as complete as was feasible, it was of course inconsistent for him to classify certain languages by particular stages of their development, viz. the earliest ones reconstructible. The possibility of diachronic class changes, moreover, was not ignored by him. But his outlook on such developments was again too narrow, in so far as he would only con-

sider transfers from class (c) to classes (a) or (b) and eventually perhaps (d), but not the stop-over at classes (f) and (e).

From the way Humboldt characterizes his class (c) — the dual appears with all parts of speech which may possibly accommodate it — one might expect in this class also a genuine dual of verbs, not conditioned by number agreement but indicating that the event denoted by the verb occurs twice. Although the languages are numerous where iterative aspects, or rather *Aktionsarten*, such as a discontinuative, repetitive, or frequentative are grammaticized as verbal categories, genuine duplicatives, specifically expressing a single repetition, seem rare. The few languages I am aware of which purportedly have duplicatives are all American Indian: Cherokee, Kutenai, Zoque, Totonac (Dressler 1968:63-64; according to Aschmann & Wonderly 1952:134-35, the Totonac repetitive seems not specifically duplicative), and Cherente (Wiesemann 1986:360-61). A kind of 'cooperative' verbal dual perhaps are the partial reduplications of verbs in Polynesian languages such as Tahitian and Tuamotuan, which express an action carried out by the subject in cooperation with one other person (Krupa 1982:100), with not specifically dual cooperatives again being more common (cf. Jensen 1952:17). As to possible interdependencies between nominal or pronominal duals and at least some varieties of such verbal duality, there may well be a tendency for elaborate verbal quantification to be mutually exclusive with full-blown nominal number marking.

2.3 Nominal as well as pronominal duals in turn are not necessarily cross-linguistically uniform, but may show extensional variety. It is in fact only with his classes (a) and (b) that Humboldt contemplates subclasses, but evidently languages other than those with a purely nominal and a purely pronominal dual subclassify in the same manner.

In the case of the pronominal dual Humboldt concedes that it need not always extend to all persons. Sometimes, he contends, it is only the pronoun of the 1st person which differentiates the dual from the plural and the singular. If in pronominal paradigms with three persons the occurrence of a dual could freely vary from person to person, eight different patterns would be theoretically possible:<sup>10</sup>

(5)	1st Person	+	+	+	+	-	-	-	-
	2nd Person	+	-	+	-	+	+	-	-
	3rd Person	+	-	-	+	+	-	+	-
		(a1)	(a2)	(a3)	(a4)	(a5)	(a6)	(a7)	(b/d/e/g)

The corresponding seven subclasses of classes (ab), (c), and (f), where the dual in addition extends to nouns, non-pronominal agreement, or both, have been omitted from Table (5). Only two subclasses, (a1) and (a2), are considered empirically real by Humboldt, apart from class (b) without pronominal dual (which for present purposes may be conflated with classes (d), (e), and (g)). Thus, two universals are postulated, one a correlation, the other an implication:

- (6) If the 3rd person differentiates a dual, so does the 2nd, and vice versa.
- (7) If the 2nd and 3rd persons differentiate a dual, so does the 1st (but not vice versa).

However, there is more variety than Humboldt realized.

Probably the majority of the world's languages lack a pronominal dual with all persons, and most of these have no dual anywhere else, either. There are also plenty of languages boasting a dual at least with pronouns of all three (and perhaps more) persons, including Polynesian and virtually all Australian languages (with a few exceptions such as Banjalang, Jabugay, and Maung, all lacking a dual entirely; Dixon 1980:275), many Papuan languages (with 2nd and 3rd person, however, being typically conflated in the dual or non-singular in general in the highland languages of New Guinea; Foley 1986:72), the Munda family, Ob-Ugric, Lappic, and Samoyedic languages, Koryak (a Chukotko-Kamchatkan language), many American Indian languages, Indo-European Sanskrit, Ancient Greek, Old Church Slavonic, Kashubian, and Lithuanian, Nama Hottentot, Naron Bushman and further Khoisan languages, and in the Afroasiatic phylum Old Egyptian, possibly Ugaritic, and Soqotri (a South Arabian dialect where the dual has been (re-)extended from nouns to all persons of the pronoun). Less numerous are languages which limit the pronominal dual to the 1st person. They include two Penutian languages, Zuni and Maidu (in Maidu this limitation only applies to pronominal suffixes, independent pronouns having a dual with all three persons; Dixon 1911), Dakota (a Siouan language poor in pronouns, but possessing a 1st person inclusive supposedly functioning as a dual; Boas & Swanton 1911), Southern Paiute (a Uto-Aztecan language with a separate dual form only for 1st person inclusive<sup>11</sup>), Yidiny (of Pama-Nyungan affiliation; Dixon 1980: 354), Philippine languages such as Tagalog and Pangasinan (Schachter & Otnes 1972, Benton 1971), various Papuan languages (Foley 1986:71), East Chadic languages such as Gude and Margi (Hoskison 1983, Burquest 1986), and Duru (of the Adamawa

group of Niger-Congo; Bohnhoff 1986). Yet what also turns up on closer examination are representatives of no fewer than three or even four of the five subclasses not envisaged by Humboldt.

Restrictions of the dual to the 1st and 2nd person are attested in Gothic (belonging to subclass (f3) since there are 1st and 2nd person duals also in verb agreement), in the other older Germanic languages (which unlike Gothic lack verbal dual inflections, hence are of subclass (a3)), in Slovenian at one point of its history (where the dual further extended to nouns and agreement, which puts it in subclass (c3); Tesnière 1925), in Huave (a language of Penutian or Oto-Manguean affiliation which limits its 1st person dual to the inclusive variant and has no non-pronominal duals, hence is of subclass (a3); Suarez 1983:81-82), and in Chiricahua Apache (an Athapaskan language, also of subclass (a3), where the singular forms of object, subject, and usually also possessive pronominal prefixes of 3rd, 4th, and indefinite person do duty for duals, while independent pronouns and possibly also possessives have a distinct dual also for 3rd person, composed of 3rd and 4th person singulars; Hoijer 1946). Also, in Hopi, where the dual is limited to nouns, possessed nouns have distinct dual forms only with 1st and 2nd person possessors, the paucal being used with 3rd person possessors (Whorf 1946). Some Australian languages, such as Western Desert, could seem to restrict the dual to 1st and 2nd person as well, but these arguably lack 3rd person pronouns in the strict sense, to begin with (Dixon 1980:357).

Restrictions of the pronominal dual to the 2nd and the 3rd person, a comparatively rare pattern, are in effect in Classical Arabic (where the dual has been extended from nouns to pronouns except that of 1st person), in Aleut (where paradigms in fact may include a dual form for 1st person, which is, however, identical to the plural), and possibly at some stage of the development of Ancient Greek (where the 1st person apparently was the first victim, followed by the 2nd, as the dual was lost). All three languages have nominal as well as agreement duals, the latter unrestricted in Aleut and restricted again to 2nd and 3rd person in Arabic and Greek, which puts them all in subclass (c5) (cf. Fontinoy 1969, Forchheimer 1953:17ff.; Jensen 1952:4, Cuny 1906:506-507).

There is one language in my sample which possibly restricts the pronominal dual to the 2nd person: in West Omotic Dizi independent pronouns and prefixal possessives have been claimed to have no dual except in the 2nd person, and this pattern — if correctly analyzed — is reflected in

the person-number suffixes on verbs, which are formally similar but not identical to pronouns, while nouns and adjectives agreeing with them in number lack a dual (Allan 1976, but recall my note 8). Depending on whether or not verbal agreement forms are considered pronominal, Dizi would thus exemplify subclass (a6) or (f6). Perhaps Germanic languages, originally equipped with 1st and 2nd person pronominal and verbal duals, are also pertinent here at certain stages of their development: as the duals were being lost, those of the 1st person appear to have gone first (Grimm 1866 [1855]:238ff.).

Restrictions of the pronominal dual to the 3rd person, finally, are less dubious, but certainly not very frequent. They are found in varieties of South Arabic, exemplifying subclass (c7) because there is also a dual with nouns and in verb agreement, here also restricted to 3rd person (Fontinoy 1969). In Tunica (an isolate remotely related to Algonquian) the 3rd person pronominal dual is even further limited to the masculine gender: in the 1st, 2nd masculine and feminine, and 3rd person feminine, pronominal prefixes and independent pronouns have only one form for dual and plural, in fact consisting of the corresponding singular forms plus the dual infix (Haas 1946). Tunica is of subclass (c7) since there is also a dual with (determinative masculine) nouns and in verb inflection, where the dual is usually distinct from the plural in all persons, but sometimes coincides with it in 1st and 2nd and rarely also 3rd person feminine. Although it entirely lacks special dual forms, Hupa could perhaps also be mentioned here, since its indirect way of expressing duality, by means of simultaneously marking verbs as plural and non-plural (see 2.2 above), is restricted to 3rd person subjects.

The 1st-2nd person combinations, presumably no less numerous than the 1st-person-only duals, contradict the 'vice versa' part of Humboldt's correlation (6). It therefore has to be weakened to an implication, but even as such does not hold absolutely. As a statistical universal, however, (6') should be impeccable since the 3rd-person-only pattern, as found in South Arabic and Tunica, seems exceedingly rare.<sup>12</sup>

- (6') If the 3rd person differentiates a dual, so with more than chance frequency does the 2nd.

Moravcsik (1978:352) has suggested a universal, also only implicational albeit purportedly absolute, which, apart from being consistent with my own data, would seem to tie in with (6'):

- (8) If the 1st person exclusive differentiates a dual, so does the 1st person inclusive.

The exclusive, like the 3rd person, excludes the reference to the addressee, which is the reference that is included by both the inclusive and the 2nd person. Humboldt's implication (7) has to be dropped in light of the 2nd-3rd-person combinations. But since it is not really falsified profusely, in the present sample in fact only twice or thrice (Classical Arabic, Aleut, temporarily Ancient Greek), it should perhaps be retained as another statistical universal.

With (7) thus watered down, if not relinquished, it might look as if pronouns whose reference includes the addressee, i.e., those of 2nd person and 1st person inclusive, were the only ones to enjoy any privileges with regard to dual marking. A further implication, consistent with all the data examined by Humboldt and myself, acknowledges the addressee's pride of place:

- (9) If only one person does *not* differentiate a dual, it will *not* be the 2nd.

Or, in other words, if 1st and 3rd person differentiate a dual, so must the 2nd. The subclasses which would violate (9), viz. (a4), (ab4), (c4), and (f4), are the only ones still on the look-out for members. But, since the 2nd-person-only and 3rd-person-only patterns, each so far attested at most twice (the first possibly in Dizi and Germanic, the second in South Arabic and Tunica), are much less popular than restrictions of the pronominal dual to the 1st person, and since the 1st person is much likelier than the 3rd to join the 2nd whenever the pronominal dual is restricted to two persons, the 2nd-3rd person combination being so far attested only twice or thrice (in Classical Arabic, Aleut, briefly in Ancient Greek), two further statistical generalizations can be induced from our data:

- (10) If only one person differentiates a dual, it will very likely be the 1st rather than the 2nd or 3rd.  
(11) If only two persons differentiate a dual, the 1st is much likelier to be one of them than the 3rd.

It is only in this rather weak sense, and not in Humboldt's, that the 1st person retains priority over the 2nd and 3rd.

Implications (10) and (11) are both very likely to generalize to other number differentiations, where their validity, however, seems absolute rather than merely statistical. Similarly, implication (7), at best statistically true of the dual, seems to hold absolutely for all other number differentiations, those of singular, plural, trial, and perhaps quadral being apparently



never restricted to 2nd and 3rd person. By contrast, implication (6'), valid absolutely for the dual, does not, presumably not even as a statistical universal, generalize to singular, plural, and further numbers, probably owing to the widespread inclination to recruit singular forms of (at least initially polite) address from plurals, which causes singular and plural to coincide in the 2nd person. Inclusive and exclusive 1st person appear to be on an equal footing as far as non-singular numbers other than the dual are concerned, prohibiting implication (8) from being generalized. Implication (9) likewise holds only for the dual: *pluralis majestatis* forms notwithstanding, the 1st person is the least likely to yield to neutralization if singular and plural are non-distinct with only one person. Thus, in spite of some overlap, the correspondence between dual and other number regularities is far from perfect in the domain of personal pronouns. What distinguishes the differentiation of the dual is its relatively high regard for the 2nd person: the person of the addressee is more privileged *vis-à-vis* the 3rd and less underprivileged *vis-à-vis* the 1st (especially its exclusive variant) than with other number differentiations.

What Humboldt has not examined are personal restrictions of the dual in the domain of non-pronominal agreement forms, specifically of verbs. The classes of languages which have such non-pronominal agreement, especially (c) and (f), in fact can be further subclassified on this criterion. Even more liberally than in the pronominal domain, however, not a single combinatorial pattern can be categorically excluded here. There are languages, such as the Old Germanic ones except Gothic, without a dual for any person in their non-pronominal agreement, although pronouns themselves differentiate a dual in some or all persons. There are languages, such as Vedic Sanskrit, Old Church Slavonic, Ugaritic, Aleut, Tunica, Siroi, or Kewa, where all persons in non-pronominal agreement paradigms differentiate a dual from the singular and plural. Restrictions to the 1st and 2nd person are attested in the verb inflections of Tothic and Lithuanian, to the 1st and 3rd person in some verb paradigms of Siroi and Avestan, and to the 2nd and 3rd person occasionally in Siroi and generally in Arabic, Ancient Greek, and, temporarily, Slovenian. The non-pronominal agreement dual is restricted to the 3rd person in varieties of South Arabic and in some verb paradigms of Avestan and Tunica,<sup>13</sup> to the 1st person — surprisingly infrequently — in some verb paradigms of Siroi and in the Aszen dialect of Lithuanian (representing the last stage before the total loss of the dual; Fontinoy 1969: 32), and to the 2nd person possibly in Dizi (if its verb inflec-

tion is non-pronominal, and its dual is not a mirage) and in varieties of Kashubian (where all three persons once had a dual, but the 2nd, formally most distinctive, seems to have resisted neutralization with the plural longest; Lorentz 1925:167). Since number marking shows a tendency to be less differentiated with (non-pronominal) agreeing than with agreed-with forms, one might hope that at least this generalization also pertains to the dual:

- (12) If a dual, or any other number, is differentiated for a particular person of non-pronominal agreement forms, there will also be a dual, or other number, for this person in pronouns.

However, this implication does admit of exceptions for the dual: Tunica and Aleut restrict their pronominal duals to the 3rd and to the 2nd and 3rd persons respectively while agreement forms distinguish a dual for all persons.

2.4 There is yet another possibility, unrelated to person, of subclassifying the languages where the dual extends to non-pronominal agreement, also unexploited by Humboldt. Supposing that verbs as well as nominal modifiers (such as adjectives and demonstratives) show number agreement with nouns and personal pronouns, the dual may in principle extend to both noun-phrase-external (i.e., verbal) and noun-phrase-internal (i.e., adjective, demonstrative, etc.) agreement, to only one of these two kinds of agreement, or to neither of them.

All four patterns are in fact attested, which indicates that there are no regular interdependencies here. Verbs as well as adjectives and/or demonstratives inflect for the dual for example in Sanskrit, Ancient Greek, Lithuanian, and Classical Arabic. Verbs are the only agreeing words to inflect for the dual in Gothic and possibly Dizi, with nominal modifiers inflecting only for singular and plural. Demonstratives and adjectives or demonstratives alone are the only agreeing words to inflect for the dual in Gugu-Yalanji (Pama-Maric; Herschberger 1964) and Eastern Libyan Arabic, with singular and plural being the only numbers differentiated by verbs (Gugu-Yalanji) or verbs and adjectives (Eastern Libyan Arabic). No agreeing words inflect for the dual for example in Irish and the Old Germanic languages other than Gothic.

That there might be an asymmetry in noun-phrase-internal agreement, along the lines of (13), is suggested by Eastern Libyan Arabic and perhaps other Semitic languages and dialects and also by Slovenian.

- (13) In noun-phrase-internal agreement, if adjectives inflect for the dual, so do demonstratives.

But the life expectancy for patterns where only one kind of nominal modifier, viz. demonstratives, shows a dual seems very low.

A further implication can be induced from the present sample if the selective occurrence of the dual with nouns or pronouns is also taken into account:

- (14) The dual does not extend to non-pronominal noun-phrase-internal agreement unless it extends to nouns.

The absence of dual inflections with nominal modifiers in Gothic and Dizi would thus be no language-particular accidents. One might contemplate an analogous implication for the other domain of agreement:

- (15) The dual does not extend to non-pronominal noun-phrase-external agreement unless it extends to personal pronouns.

This in fact is a more specific version of implication (4'), shown earlier to have a high probability. The generalization in (15) does not attain to absolute validity, either. While predicting the pattern found in Eastern Libyan Arabic, it is inconsistent with the other member of class (e), Akkadian, provided the verbs in this language with a nominal but no pronominal dual have been analyzed correctly as inflecting for dual.

2.5 In the nominal domain the dual may also be choosy. In addition to languages where either all nouns or no nouns have a dual, there are those where only some nouns have, or are most likely to avail themselves of, this category. According to Humboldt, if only some nouns have a dual, it will always be those denoting 'objects which in nature occur in pairs'. Such natural pairs are for example the twin body-parts and sense-organs, the two great heavenly bodies taking turns at illuminating the earth, couples of beings of opposite sex (animals, humans, deities), opposites in terms of kin relations, the partners in commercial transactions, the twin constituent parts of various artifacts. What Humboldt, thus, had in mind was this universal:

- (16) If there is a dual with nouns other than those denoting natural pairs, there will be one with natural-pair nouns as well.

In accordance with this implication, there are numerous languages with an unlimited nominal dual or with a nominal dual confined to nouns for natu-

ral pairs,<sup>14</sup> and of course with no nominal dual at all. Often the unlimited and the natural-pairs-only dual are attested in the same family, for instance in Semitic and Indo-European, and the diachronic tendency then is for the sphere of the dual to shrink from all nouns to natural-pair nouns.

However, contrary to (16), there are also languages which limit their nominal dual precisely to the opposite class, viz. to nouns other than those denoting natural pairs, among them Greenlandic Eskimo (before the dual became obsolete; cf. Kleinschmidt 1851:13, Swadesh 1946:40) and Nama Hottentot (Hagman 1977:25-26). Since the singular forms of a number of natural-pair nouns in various varieties of Eskimo in fact seem to be fossilized duals (Hammerich 1959), and since the nominal dual applies to all nouns in Yup'ik (Reed et al. 1977), Eskimo appears to be another (sub-) family where the sphere of the nominal dual has shrunk, with the distinction between natural-pair and other nouns serving as the demarcation line. In Ancient Greek, like Greenlandic and Nama of extensional class (c), the dual, precariously holding out against the plural, found significantly less favor with the class of natural-pair nouns than with other nouns (Cuny 1906:362,496,507, Meillet 1922, Diver 1987). Here the nouns denoting that prototypical dyad, parents (τοκεῖς, γονεῖς), shun the dual completely;<sup>15</sup> and the only natural-pair noun consistently preferring the dual over the plural, ὄσσε, virtually a *duale tantum*, refers to the eyes not as mere sense-organs but as 'windows of the soul', which invests this noun with the thematic prominence that entitles it to be highlighted by maximally precise number marking (as has been argued by Diver 1987 for Homer's *Iliad*).

For all languages where the dual-worthiness of nouns is lexically predetermined, directly or indirectly,<sup>16</sup> one might, therefore, propose an implication that is much weaker than (16) while still retaining Humboldt's semantic classification:

- (17) If in any language some nouns are eligible for dual marking while others are not (or less readily), the criterion is whether or not they denote natural pairs.

This would in fact be a regularity that is peculiar to the dual, since this semantic noun classification is presumably irrelevant for all other differentiations of number. Even (17), however, is still too strong. In languages such as Maidu (Dixon 1911), Kâte (Huon-Finisterre; Pilhofer 1933), and Ngiyambaa (Pama-Nyungan; Donaldson 1980), nouns do differ in their susceptibility to dual marking, but the boundary here is a different one, coinciding with that for other number differentiations in these languages: nouns

denoting animates or more specifically humans or even only kin relatives have a dual as well as the singular-plural opposition, while others have neither.<sup>17</sup> In Tunica inanimate count nouns and all animate nouns participate in number oppositions, while inanimate mass nouns (or 'continuants', as they are called by Haas 1946:359) are neither pluralized nor dualized. To bring implication (17) in line with such additional patterns, an appropriate condition needs to be appended:

- (17) ..., unless the criterion is the same as that determining the eligibility of nouns for other number differentiations.

These alternative noun classifications are not semantically arbitrary either, since it is generally in terms of animacy or individuality distinctions that nouns are divided into two classes if not all of them are equally eligible for number marking.<sup>18</sup> In Tunica, where dual and plural, distinct for masculines, coincide for feminine nouns, we find a somewhat different variation on this theme. Here the dual, distinct from the plural, is in complementary distribution with the neutralized dual-plural, and the class membership of nouns seems semantically arbitrary for inanimate count nouns ('integrals') and contingent on sex for animates, with females in particular ending up in the gender class that does not differentiate the dual from the plural.

2.6 Since Humboldt saw nothing wrong with extensional classes (ab) and (c), a pronominal and a nominal dual were not in his view mutually exclusive. If both kinds of dual can be subject to limitations within their domains, it is conceivable that the patterns of limitations are interdependent across the two domains. But this possibility did not attract Humboldt's attention; and there indeed was not much to be expected in the way of generalizations, considering that the patterns he recognized in the pronominal and the nominal domain were rather few. With the range of admissible patterns expanded, however, the search for such generalizations becomes more promising.

If the pronominal dual extends to all persons, nothing follows for the nominal dual: it may be unlimited, limited to any subset of nouns permissible, or non-existent. The limited patterns of the pronominal dual prove more predictive:

- (18) If the pronominal dual does not extend to the 3rd person, there very likely is no nominal dual at all, or, if there is one, it is restricted.

- (19) If the extension of the pronominal dual is limited and includes the 3rd person, all nouns or at least some of them (from the permissible classes) have a dual.

None of the not too numerous languages in my sample which restrict the pronominal dual to the 3rd person or to the 2nd and 3rd person contradicts implication (19), with restrictions of the nominal dual to natural pairs being conspicuously rare (found only in South Arabic, if at all). The great majority of the languages which restrict the pronominal dual to the 1st, to the 2nd, or to the 1st and 2nd person indeed lack a nominal dual, but implication (18), nevertheless, needs to be qualified because a few of these languages have a nominal dual restricted to animates (Maidu) or natural pairs (Slovenian), or apparently even unrestricted (Zuni). What is jointly revealed by (18) and (19) is that the 3rd person plays a key role in linking the nominal and the pronominal domains of dual marking. It is as if the 3rd person provides the foothold that enables the nominal dual to enter the pronominal domain, and, if not dual-worthy itself, acts as a barrier preventing the pronominal dual from spreading to the nominal domain. Formally, of course, the 3rd person is also transitional between genuine personal pronouns and nouns, being represented by demonstratives in what could well be the majority of languages. With other number differentiations, however, the role of the 3rd person as a mediator between the paradigms of personal pronouns and nouns seems less prominent.

The relative insignificance of nominal restrictions to natural pairs when the pronominal dual is restricted to persons including the 3rd in fact seems to generalize to all pronominal restrictions:

- (20) The nominal dual is likelier to be restricted to natural pairs if the pronominal dual is unrestricted than if it is restricted to whatever person(s).

What one might expect is an affinity between the natural-pair nominal dual and the 1st and perhaps 2nd person pronominal dual, speaker and addressee after all being a prototypical natural dyad (see 3 below). But the animate nominal dual should have similar affinities, since pronouns of the 1st and 2nd person rank highest on the animacy hierarchy. Nevertheless, both implications (21) and (22) are not unproblematic.

- (21) If the nominal dual is restricted to natural pairs, the likeliest pronominal dual is that of the 1st and perhaps 2nd person.

- (22) If the nominal dual is restricted in terms of animacy, the likeliest pronominal duals are those of 1st and 2nd person.

Natural-pair restrictions co-occur with pronominal restrictions to the 3rd person in Semitic; and the likeliest kind of pronominal dual to co-occur with nominal animacy restrictions is the unrestricted one, with Tunica restricting its pronominal dual, but to the 3rd person. What is not contradicted by the few pertinent languages currently at my disposal is this further implication, whose rationale is less obvious:

- (23) If the nominal dual is restricted to nouns other than those denoting natural pairs, the pronominal dual is unrestricted.

Since a purely nominal dual is exceptional anyway, it would not be surprising if it were always limited even further within this domain:

- (24) If the dual does not extend beyond nouns, it will be restricted to a semantic subclass of them.

However, of the few languages exemplifying extensional class (b), at least two, Hopi and Daragözü (a Southeast Anatolian Arabic dialect; Jastrow 1973), show no categorical limitations of the nominal dual.<sup>19</sup>

### 3. Notions

To Humboldt it was self-evident that the different extensions of the dual brought to light by empirical observation were not arbitrary formal patterns. To him the crucial differences between languages were a matter of different *Auffassungen der grammatischen Formen nach ihrem Begriff* (i.e., comprehensions of the grammatical forms according to their notion): it was these different 'notions' of the grammatical categories which, so he thought, determine the 'organism' of a language and are the chief influence on the world-view of its speakers. What really counted, thus, were the notions of the dual, and these he clearly believed to be as accessible to empirical investigation as the extensional patterns. Taking for granted a parallelism of extension and notion, the different extensions of the dual merely reflected, and could thus be used to identify,<sup>20</sup> its different notions. It follows that where Humboldt is empirically wrong about extensions, he on his own premise must also be wrong about notions, provided the correspondence between them is really so close as he proclaims it to be.

In terms of dual notions, Humboldt divides the languages which know this category into three classes: (A) languages whose notion of the dual derives from the opposition between speaker and person spoken to, between the *I* and the *You*; (B) languages which obtain this grammatical form from the perception of objects naturally occurring in pairs; and (C) languages whose dual is not inspired by any particular kind of dyad but is based on the abstract and general notion of duality as such. Evidently these three notional classes are intended as counterparts to the extensional classes (a), (b), and (c), and if we take their correspondence for granted, their empirical reality is equally unassailable. The counterpart of the mixed extensional class (ab), also empirically real if rare, would be the combination of the two dual notions of classes (A) and (B).

What cannot be accounted for in notional terms, however, is the existence of yet further classes, documented above. The extension of the dual to non-pronominal agreement would, on Humboldt's assumptions about grammatical and in particular inflectional forms, presuppose a very abstract and general notion of duality. By virtue of this very abstractness and generality the dual should certainly extend also to nouns (which it does not in extensional class (f), whose membership includes Gothic, Siroi, and Kewa), and in fact to all nouns (which it does not in several languages of extensional classes (c) and (e), including pertinent Indo-European and Semitic ones, Greenlandic, and Tunica), as well as to pronouns (which it does not in extensional class (e), represented by Eastern Libyan Arabic and possibly Akkadian), and in fact to pronouns of all persons (which it does not in many languages of extensional classes (c) and (f), including Gothic, Slovenian, Aleut, Classical Arabic, perhaps Dizi, South Arabic, and Tunica). What is also difficult to understand in terms of the notion supposedly underlying the pronominal dual are different limitations with different subsets of pronominal forms, such as pronouns of different gender, as for example in Tunica, or, more commonly, independent and bound pronouns, as attested for example in Maidu, Apache, Kuman, and Middle Egyptian (the last two languages equipping only bound forms with duals; Foley 1968:70, Gardiner 1957:39, 45, 53). Equally odd, from this perspective, are languages such as Gothic, Eastern Libyan Arabic and possibly Dizi, where the dual, although purportedly abstract and general since it is not limited to nouns or pronouns, only extends to a subset of the words which show number agreement and thus could potentially accommodate a dual.

Humboldt's own identification of extensional and notional classes,

however, has to be taken with a pinch of salt. What his first two notions of the dual correspond to really are only particular extensional subclasses, viz. those restricting the pronominal dual to the persons of speaker and addressee, i.e., strictly speaking only to pronouns of the 1st person and, if there is an inclusive-exclusive contrast, in addition to the inclusive, and those restricting the nominal dual to natural-pair nouns. The notional motivation of the unrestricted pronominal as well as nominal dual, thus, is incomplete. To account for these, one would have to assume some kind of analogical extension of the original dual notions based on the speaker-addressee dyad and natural pairs to *all* pronominally and to *all* nominally identified pairs of referents respectively, with these notions inevitably losing the more of their specificity the further they are extended. If we grant that this extension is gradual in the pronominal domain, proceeding from 1st to 2nd to 3rd person, this would help us understand why the dual here may be restricted to the 1st and 2nd but not to the 1st and 3rd person (recall implication (9)). But what would remain unaccounted for notionally are other attested patterns of restrictions of the pronominal dual (to 2nd person, to 3rd person, and to 2nd and 3rd person), as well as all restrictions of the nominal dual to classes of nouns other than those denoting natural pairs. What likewise remains without notional rationale are the various interdependencies between restrictions in the pronominal and nominal domains investigated above (see 2.6, implications (18-23)).

Finally, several patterns of limited dual extensions mirror those of all other number differentiations. To seek to understand these by drawing on the notional diversity specifically of the dual would seem to be misguided. It is the regularities that are peculiar to the dual alone which stand a hope of benefitting from an appeal to dual notions. But if we seek to understand why it is that 2nd person or addressee-inclusive pronouns are so conspicuously dual-worthy, as suggested by implications (6'), (8), and (9), not much is gained really if we appeal to the dyad of speaker and addressee, the notion highlighted by Humboldt as one source of the dual. And the relevance of the distinction between natural-pair and other nouns, as suggested by implication (17), is only partly elucidated by invoking a notion of the dual inspired by natural pairs: recall that natural-pair nouns may be a class specially inclined as well as *disinclined* to take duals.

In sum, although the notions of the dual distinguished by Humboldt are not without intuitive appeal, their consonance with extensional patterns is not as perfect as was intended. If all attested extensional patterns (and no

non-attested ones) are to have non-formal correlates, the identification of some of these remains a desideratum.

#### 4. Conceptions

Humboldt in fact does invoke a further non-formal distinction, but does not lay special emphasis on how it correlates with extensions and notions. This distinction of two 'conceptions' (*Vorstellungen*) of the dual is introduced as one suggested by a priori reasoning, and its empirical documentation certainly is much less thorough than that of extensional patterns. Nevertheless, speculation is not, at this stage, entirely divorced from factual knowledge.

4.1 Observing that some languages (such as Abipon, Tahitian, and Arabic) have more than one plural at their disposal, one for small numbers, the other for larger ones (around ten and beyond), Humboldt warns of the danger of mistaking limited plurals (or paucals) for genuine duals. But whereas paucals, used to refer to two individuals as well as other small sets, are in opposition only with singulars and unlimited plurals (or multitudinals) in Abipon and Tahitian, Arabic is mentioned as drawing a further distinction within the range of small numbers, employing a separate form whenever the referents happen to be as few as two — i.e., the dual. The conception of the dual here, according to Humboldt, is one of a plural, or rather paucal, 'arbitrarily' limited to two referents. The alternative, and in his view 'correct', conception of the dual is that of a 'collective singular' for ensembles of two members, partaking of the nature of the plural (or also paucal) in so far as reference is made to more than a single individual, but also of that of the singular in so far as the two referents are apprehended as a single unit.<sup>21</sup> Semantically the 'ambal' (later so called because of the equivalence of this species of dual with collectivizing quantifiers such as *both*) is clearly more specific than what might be termed the duo-paucal (equivalent to the plain numeral *two*), owing to the condition that the two individuals referred to, in addition to being identifiable by a single noun or pronoun, must in some conceptual sense belong together, with polarity or complementarity in particular being a sufficiently intimate bond.<sup>22</sup>

Humboldt is inclined to believe that these two conceptions of the dual are fused in all actual languages, with this form being used to express ensembles as well as arbitrary sets of two members. This seems exaggerated



since languages can be adduced where genuine ensembles alone are considered dual-worthy. The possible monopoly of the more specific conception is in fact acknowledged by Humboldt, if only within an evolutionary perspective: historically the 'correct' collectivizing conception is supposed everywhere to have been the basis of the dual.<sup>23</sup> The implication is that diachronically the duo-paucal is superimposed on the ambal, the basic conception which is, however, destined to be retained, if not in altogether pure form. But since no actual developments have been traced by Humboldt, this scenario is mere conjectural history. It has recently been challenged in the careful study of Fontinoy (1969), who concludes, not uncontroversially, though, that in Semitic the more specific ambal conception has evolved from more general duo-paucal origins.

4.2 The duo-paucal may have struck Humboldt as an erroneous, historically non-basic conception because it fails to square with any of his dual notions. Even the most abstract and general one, (C), is supposed to be one of duality, hence is not so comprehensive as to subsume all sets of two referents, however unrelated their members. Within both the nominal and the pronominal domains, at any rate, the extension of a dual based on this not specifically collective conception should be completely unrestricted; at least there are no principled restrictions which would naturally follow from this conception as such. The ambal conception, on the other hand, ties in well with dual notions. As is plausibly assumed by Humboldt, it is natural pairs and the speaker-addressee dyad (in a sense also a natural pair) which are particularly prone to give rise to it. The class of natural-pair nouns and pronouns of the 1st person, or 1st person inclusive where in contrast with an exclusive, accordingly should be most dual-worthy whenever the extension of such a dual is restricted. Extensional patterns of the dual, thus, have to be seen as relative to its two possible conceptions, even though this is not explicitly recognized in Humboldt's own survey of admissible extensions.

These three implications are the most obvious ones to follow from this further differentiation at the conceptual level:

- (25) If the dual is conceived of as a paucal limited to two referents, it will extend to all persons of the pronoun and all classes of nouns inflecting for number.
- (7') If the 2nd and 3rd (and perhaps 1st exclusive) persons differentiate a dual conceived of as a collective-singular for ensembles of two, so does the 1st (inclusive).

- (16') If there is a dual conceived of as a collective-singular for ensembles of two with nouns other than those denoting natural pairs, there will be one with natural-pair nouns as well.

As far as I can see, in the languages in my sample which were incompatible with the original implications (7) and (16), where constraints had been formulated for all dual conceptions rather than only for ambals, the dual can indeed be used for sets of two individuals which do not form an ensemble, i.e., is not strictly an ambal. Tending towards the mere paucal conception of the dual, languages which restrict their pronominal dual in particular to 2nd and 3rd person (such as Classical Arabic, Aleut, temporarily Ancient Greek, cf. 2.3 above) or their nominal dual to nouns other than those denoting natural pairs (such as Greenlandic Eskimo, Nama Hottentot, less categorically also Ancient Greek, cf. 2.5 above), thus, can be ignored as far as laws are concerned which specifically pertain to the ambal. On the evidence presently available to me, law (25), intended specifically for the duo-paucal, seems more dubious. The languages just mentioned as irrelevant to ambal laws suffice to show that the duo-paucal conception is no guarantee of an unrestricted pronominal and nominal extension. There, nevertheless, seems to be a tendency for extensions to be greater with duo-paucal than with ambal conceptions, which can be accounted for if the *implicans* and the *implicatum* of (25) are reversed:

- (26) If the dual extends to all number-inflecting personal pronouns and nouns, its conception will be that of a duo-paucal rather than of an ambal.

Correspondingly, if dual extensions are restricted in the nominal or pronominal domain, especially to natural pairs or 1st persons, the conception seems likelier to be that of an ambal than of a duo-paucal.

4.3 As to the relationship between the various potentially grammaticized numbers, it has become commonplace to assume that it is hierarchical, as spelled out in this implication (see e.g. Greenberg 1963, Universal 34), to which the quadral could be added as a term even more marked, hence more limited in its occurrence, than the trial:

- (27) No language has a trial number unless it has a dual. No language has a dual unless it has a plural.

Languages with a dual but no plural (and a trial but no dual, etc.) in fact

seem unattested, even though sometimes (e.g. in Maidu, according to Dixon 1911:709) it is the dual rather than the plural which meets unmarkedness criteria such as that of greater frequency of occurrence. If the dual could only be conceived of as a specialized plural ('several; to be precise, two'), it would imply this category, in terms of which it is defined, as a matter of theoretical necessity. It has been variously argued (e.g. by Schmidt 1926, Gray 1939:182, Gonda 1953, Fontinoy 1969:25ff.), however, that the dual is not contingent on the plural in this trivial sense, and there may be some evidence which points to the cognitive (hence ontogenetic) priority of the concept of pair *vis-à-vis* that of individual. It is, thus, not entirely self-evident why the grammaticization of a dual should universally imply that of a plural. And in the more radical version (28), which could seem merely to alter the letter but not the spirit of the second part of (27), this implication indeed no longer holds.

- (28) No word, in any language, differentiates a dual unless it differentiates a plural.

The relevance of dual conceptions as distinguished by Humboldt is suggested by the words, and languages, which are inconsistent with (28): where the ambal conception is reigning, natural-pair nouns in particular may inflect for the dual as the only number apart from the singular (if there is a regular number contrast at all). As a statement about the incidence of duo-paucals, (28) seems unexceptionable.

Humboldt can be read as at least implicitly subscribing to implication (27), in so far as the dual in both its conceptions, the paucal and the collective, is said to partake of the nature of the plural. However, at least in the case of the 'erroneous' paucal conception, its backdrop is strictly speaking provided by the paucal rather than the plural. The primary quantificational contrast here seems to be between the reference to many (multitudinal) and to few (paucal), with individuals (singular) as the extreme of fewness or as a class of their own. The next step, then, would be to subdivide the sets with few members into those containing two (duo-paucal), the present minimum, and more than two (general paucal). (And so on for the trial and quadral, the other possible specializations of the paucal.) Unless this scheme of the gradual singling out of particular small numbers is seriously at odds with what Humboldt had in mind here, he would have had to subscribe to the following:

- (29) If a language knows a duo-paucal, it will also contrast a general paucal with a multitudinal.

On the above reasoning, this implication should hold for words as well as for languages. In actual fact, it fails even for the latter. Having made no systematic survey of paucals, I have found no indications of them in several languages with a duo-paucal that happen to be in my present sample (Lithuanian; Australian, Austronesian, and Papuan languages otherwise rich in numbers). My impression, nevertheless, is that languages with a duo-paucal are likelier than those without to have a general paucal.<sup>24</sup>

## 5. Dual motivation

Collecting facts about the dual from all corners of the world and getting them into order, in terms of extensions, notions, and conceptions, were only the first phases of Humboldt's project; the next was explication. What had been found inductively, through strictly 'historical investigation', and had turned out to be amenable to systematization, now needed to be made sense of by 'pure reasoning'. The nature of the dual, in all its historical manifestations, had to be deduced from 'general ideas'. Motivating this grammatical category indeed was an urgent task because of its reputation of uselessness. Few would have agreed with August Ferdinand Bernhardt (1769-1820), more *philosophe* than *grammairien* but much esteemed by Humboldt, who had concluded, from pure reasoning rather than strictly historical cross-linguistic investigation, that the dual is not a luxury but a form essential to language (1801: 101, 168). Not only did Humboldt fully agree with Bernhardt on this point, he also appropriated his vindication of the dual more or less wholesale.<sup>25</sup>

5.1 The supposed *raison d'être* of the dual is functional. It is the general representational function of language which stands sponsor to this much slighted category. What is omnipresent in the external world and the mental interior of man cannot be left unrepresented by language, the 'imprint of the mind and the world-view of speakers'.<sup>26</sup> According to Humboldt (and Bernhardt), duality indeed is a fundamental category of human experience, cognition, and feeling. Relevant sensory stimuli, all primarily visual, are groups of any two concrete objects (more easily perceived as units than larger groups), the difference between the sexes (with its attendant notional and emotional contrasts), the bilateral symmetry of the body of man and of animals with its twin body-parts and sense-organs, great natural phenomena coming, or perceived as coming, in pairs (such as sun and

moon, day and night, heaven and earth, land and sea). Even more importantly, according to Humboldt (who on this point improves on Bernhardt), duality prevails in the invisible organism of the mind, with reason and sentiment operating in terms of dichotomies, such as thesis and antithesis, supposition and suspension, being and nothingness, self and others, separation and reunion. But it is to language itself that duality is most fundamental: speech being by its very nature dialogic, it involves the complementary roles of the speaker (*ego*) and, elevated from the rank of a third party, the addressee and responder (*tu*). Going beyond Bernhardt, Humboldt derives from this constitutive speech-act duality also the division of mankind into natives (speaking like self) and strangers, purportedly at the origin of all communal association, as well as the elective emotional affinities of friendship, love, and spiritual companionship and their opposites.<sup>27</sup>

Humboldt concludes from these observations that to provide for the representation of a category that is so salient in several spheres, thus, clearly can be no mere linguistic luxury. Nevertheless, more sophisticated than Bernhardt, Humboldt does not jump to the conclusion that there must perforce exist a *grammatical* category for this purpose.<sup>28</sup> Although he does not elaborate on this division of labour in his paper on the dual, he is well aware that the task of representation is shared between two systems, grammar and lexicon. And it indeed is the rule for duality to be given lexical expression, with ordinary numerals for 'two' typically taking care of the duo-paucal conception, and quantifiers such as *both* or also nouns, adjectives, and verbs (such as *pair*, *double*) of the ambal conception. Its additional expression in the grammatical system, according to Humboldt, depends on the capacity of a speech community for symbolization, viz. on its 'creative linguistic sense' and its 'power of imagination'. Given a reasonably acute *sensus linguisticus*, however, duality is so conspicuous an ontological and psychological category that one expects it readily to be turned into a grammatical category — of the noun, if the linguistic sense of a community is particularly responsive to external sensory stimulation by the abundance of natural pairs, or of the pronoun and its sphere of influence, if the crucial impression is that of the attraction and repulsion of people in general and of the speaker-addressee interaction in particular. It is only the second faculty, the power of imagination, which is capable of genuinely transforming world into language, categories of things into categories of words, especially such as are obligatorily specified by rules of agreement. As Humboldt recognizes himself, duality is a category that

should lend itself to such transformation more readily than many others (e.g., sex or animacy), because, belonging to the mathematical realm of numbers, it shares with language an abstract, mental form of existence. Moreover, its structural ground may already be prepared by agreement in terms of singular and plural, number as such being (in Humboldt's opinion) an indispensable grammatical category.

What Humboldt thus achieves — to the extent that the two symbolizing faculties so central to his philosophy can command assent — is to motivate more or less precisely those extensions and notions of the grammatical category of the dual which he had found attested. Differently tuned linguistic senses account for the dual extensions/notions of types (a/A) and (b/B), i.e., pronominal (especially 1st person) and nominal (especially natural-pair) duals. And if imagination is sufficiently powerful, the all-pervasive type (c/C), with duality blended into the very form of language, finds its explanation, too. Only the dualities prevailing in the invisible mental organism itself (thesis and antithesis, etc.) apparently lack direct structural representation. The different inclinations and powers of the symbolizing agencies, on which Humboldt's explanatory sketch rests, are themselves in need of higher-level explanation. Paying closer attention than Humboldt to the various manifestations of duality as a cultural category might lead to deeper understanding here.<sup>29</sup> More basically, what remains unaccounted for after all is how the linguistic sense and the power of imagination in any culture can be so deficient as to give no structural recognition whatsoever to a category so deserving of, and easily amenable to, grammaticization as duality. And there are of course the additional patterns of extension uncovered in section 2, and commented on from the notional side in section 3 which benefit but little from Humboldt's rationalization. An explanatory perspective complementary to Humboldt's is suggested by one of these.

5.2 Language is not only used to represent thoughts and feelings but also to communicate these to others. Even though this social function is considered secondary by Humboldt, he realizes that it is at least partly because they must serve as instruments of communication that languages are structurally designed the way they are. Thus, comprehension is aided by rules of agreement, which enable the addressee to unravel the relations between words, and of course by accuracy of expression. The use of the dual for precise quantification and for improving syntagmatic cohesion is therefore apt to be welcomed on the receiving end. It is in the sender's interest, on the

other hand, if what needs to be represented and communicated can be done so with the least effort. To him, having to give the same piece of information twice may be an encumbrance, useful though all redundancy may be to the addressee. Grammatical categories requiring obligatory specification may, thus, be a drawback; and it is understandable that in many languages speakers are systematically saved the effort of employing, for example, plural markers with nouns if their plurality is obvious from the context (e.g., from accompanying numerals or other quantifiers, from agreement, or from the meaning of the verb or the noun itself).

Such patterns of economical, context-sensitive plural marking are in fact noted in the course of Humboldt's depreciation of languages as 'mere' instruments of communication. It did not occur to him, however, that the dual could be motivated analogously. Natural-pair nouns, destined to be the first to receive dual marking if the salience of an experiential and cognitive category has the casting vote, should be the class offering most resistance to the grammaticization of the dual if the prime objective is to avoid redundancy. With such nouns the likelihood is that they will actually be used to refer to pairs, rather than to one member of them or sets of individual members greater than two ('one eye', 'three eyes', etc.). Dual reference is, thus, highly predictable from their lexical meaning, rendering special dual marking largely superfluous — more superfluous, at any rate, than singular (or singulative, if the basic form has dual meaning, such as for instance in 'pair of eyes') and plural marking. As we have seen above (2.5), there indeed are languages — Greenlandic Eskimo, Nama Hottentot, and, if less categorically, Ancient Greek — which distribute their nominal dual along these lines, in flat contradiction of Humboldt's implication (16). Since the selective non-employment of the dual if a noun, natural-pair and other, is accompanied by a numeral 'two', a quantifier 'both', or another indicator of duality is only a variation on the same theme of formal parsimony, one might expect these various patterns of the avoidance of redundant duals to correlate. However, it is cross-linguistically more common to economize on duals if contextually redundant than if lexically implied, and the implication, therefore, can only be one-way:

- (30) If the nominal dual is restricted to nouns other than those denoting natural pairs, dual marking is avoided with these nouns if contextually redundant.

While Greenlandic and Hottentot comply with (30), employing plurals in

the company of 'two' and 'both', Ancient Greek is problematic. Whether *δύο* 'two' and *ἄμφω* 'both' are particularly conducive to the dual, as is often claimed, or not, they certainly do not preempt its use. (But then, its avoidance with natural pairs, too, is only a tendency here.) What seems to hold absolutely is this implication between two uneconomical uses of the dual:

- (31) If a nominal dual is used even if contextually redundant, its extension includes natural-pair nouns.

It was Otto Jespersen (1924:205) who proposed to distinguish two 'conceptions' of the dual depending on whether it is preferred where non-redundant (as in Greenlandic) or where duality is already suggested lexically (as with natural-pair nouns in Indo-European). Implications (30) and (31) draw a similar distinction, which, even if not as clear-cut as might have been hoped, confirms the relevance of both the representational and the communicative function of language to the design of its categorial outfit. What one would like to know next, of course, is why it is that in Greenlandic, Hottentot, and their kind the urge to economize on the expression of duality could prove more irresistible than elsewhere.<sup>30</sup>

## 6. Humboldt's dilemma

The 36 folio pages of the manuscript read to the Academy were published unaltered. Humboldt's original intention had been to complete the paper and, in light of what was to be included in additional chapters on the dual in particular languages, to revise the general part that had been the subject of his lecture. On 4 May 1827, he announced this plan in a letter to August Wilhelm Schlegel (Leitzmann 1908:218), but apparently abandoned it soon after, deeming other pursuits more worthwhile. That *Über den Dualis* was left unfinished (like so many of Humboldt's pieces), however, need not necessarily betray a lack of direction or perseverance. Humboldt may have come to believe that what further particulars he could add to his general view of the dual would after all be mere ornamentation, shedding no further light on the essence of this category. Alternatively, the dual project may have been discontinued because Humboldt realized that, far from being already attained, the ultimate aim he had set himself was actually beyond reach, not only because it was exceedingly ambitious but also because he was proceeding on contradictory instructions.

Humboldt had carefully chosen the dual to pioneer his microscopic approach to typology. Of all grammatical categories the dual seemed to him to have the weakest ties to the grammatical system in its entirety; not deeply rooted, this part of the organism, therefore, was the most convenient one to remove and study in isolation. What further facilitated the task of the anatomist was that many organisms lacked this part (vital though it may have seemed), hence did not have to be dissected. Those which possessed it, however, hailed from uncultivated and the most civilized surroundings alike (such as Greenland or New Zealand on the one hand and Attica on the other). Thus, the category selected essentially was the one where the least practical difficulties could be expected if its description was to aspire to comprehensiveness. On the other hand, for Humboldt an account of the dual, however desirable in view of its popular neglect, was no end in itself. Typologies of individual categories were part of a much larger enterprise: they were intended as the steps, small enough to be manageable individually, towards a systemic typology of languages and indeed cultures. What had been dissected to permit close observation of course was to be reassembled, and only then would one be able to determine how well the parts of linguistic organisms were harmonizing with one another. What was sought were regular interrelations between the ways different grammatical categories are adapted to the functional needs of particular languages. From the treatment individual categories receive it would then be possible to draw inferences about the entire structural character of languages, and ideally also about the cultural state of their speakers.<sup>31</sup>

Now, if the dual is a category very much lacking in systemic cohesion, all knowledge about it was bound to reveal but little about the interdependencies defining true systems. The property which had recommended the dual for separate examination, thus, rendered it irrelevant for the very purpose inspiring this kind of investigation. This could have seemed a genuine dilemma, enough to discourage Humboldt from devoting any more time to a category that was rather peripheral, in spite of everything that could be said in its vindication. But was it really an established fact that *'tout se tient'* holds least of all for the dual? It clearly was not, because no attention at all had been paid to categories other than the dual to begin with. On this score Humboldt's scope had been so narrow that not even the patterning of the plural and further numbers was systematically compared with that of the dual, impeding the recognition of their common denominators and specific differences (as shown above). Notwithstanding the isolationist working hypothesis which had enabled the dual to be chosen as a promising point of

departure, Humboldt's project, thus, could only be continued if the outlook was broadened. Some had already speculated that the dual was not a loner, among them Friedrich Gottlieb Klopstock (1724-1803), in whose *Grammatische Gespräche* (1857 [1794]:52) Euphonia remarks *en passant* that languages sharing even such peculiarities as the dual must have in common much else, and Humboldt's correspondent on the dual, August Wilhelm Schlegel (1767-1845), who for once took no exception to this view of Klopstock's, elaborating on it in his *Wettstreit der Sprachen* (1846 [1798]:203-204).<sup>32</sup> But by Humboldt's empirical standards this was pure guesswork. To be sure, it eventually needed to be substantiated or disconfirmed, but evidently this could not be accomplished in one short paper. As it turned out, despite occasional efforts, it has not been accomplished until today.

## Notes

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1. Numbers were one of the interests shared by the brothers Humboldt. In fact, Alexander read a paper on numeral systems to the Prussian Academy only a couple of years later (A. v. Humboldt 1829).
2. Humboldt was prepared to recognize a dual where it was merely a residual category, retained possibly with only a few lexical items. This palaeontological stance is not adopted here; of present interest are only limitations of the dual as a 'living' category, however precariously.
3. Useful surveys, though less detailed than would ultimately be desirable, are Jensen (1952) and Smith-Stark (1974).
4. Humboldt's example, not only in this particular, was followed by August Friedrich Pott (1862:15), who also recognized in Quechua 'a kind of dual'. As emerges from the list of books already consulted which Humboldt sent to John Pickering (1777-1846) on 24 February 1821 (Müller-Vollmer 1976:278-79), his source for Totonac presumably was *Arte des lengua Totonaca* by Lic. D. Francisco Dominguez (Puebla de Los Angeles, 1752). Since he is quite categorical about Totonac having a dual with natural-pair nouns such as 'eyes', 'ears', 'hands' in his letter to Pickering of 12 March 1822 (Müller-Vollmer 1976:284), there must have been information available to him which he could regard as reliable.
5. Paucals, or limited plurals, too may contradict (1'): they seem commoner with nouns than with personal pronouns.



6. There are languages, especially American Indian ones, where number markers are associated with the verbal rather than with nominal constituents; these are not instances of agreement. The distinction drawn here between pronominal and nominal number marking is inapplicable in these cases, if verbs carry the same dual, plural, etc. markers regardless of whether they are accompanied by a noun or a pronoun.
7. Classes (a) and (f), (b) and (e), and (d) and (g) cannot be distinguished for languages which lack non-pronominal number agreement. But the coincidence of these classes is immaterial here. What is also disregarded is the very real possibility of dual extensions being different with different kinds of personal pronouns, especially with bound and independent forms (cf. section 3). This would enrich the extensional taxonomy in (2).
8. As was pointed out to me by Dick Hayward (SOAS, London), Allan (1976) may be unreliable regarding the dual; his own informant work appears to suggest that Dizi is without dual, like the other Omotic languages. All further mentions of Dizi are subject to this proviso.
9. Bergsträsser (1928:27), for instance, notices no dual; Fontinoy (1969:202) does.
10. This taxonomy is incomplete in so far as there may be more than three persons. It seems, however, that 4th and further persons usually side with the 3rd.
11. With other persons a dual is expressed indirectly, with pronominal subjects being marked plural and verbs showing singular agreement (Givón 1980).
12. In Tunica there may even be further mitigating circumstances, in so far as the 1st and 2nd person forms showing no contrast of dual and plural are actually duals, the paradigm simply lacking separate plurals.
13. The indirect manner of expressing a dual in Hupa (cf. section 2.2), with certain verbs simultaneously marked singular and plural, is also limited to 3rd person (Goddard 1911:117).
14. In Bantu languages which, without having a genuine dual, distribute their nouns among various classes differing in the singular and plural markers they require, there may be an analogue to this limitation, in so far as natural-pair nouns tend to be grouped in a class of their own.
15. For this reason Wackernagel (1926:83) postulated a different original meaning of these nouns, 'ancestors', which does not imply duality. But his premise was wrong: natural pairs were no particular favorites of the dual in Greek.
16. There is an indirect link between eligibility for number marking and the inherent lexical properties of nouns if number differentiation is limited to positions of relational, referential, or thematic prominence (e.g. to subjects or objects), and particular classes of nouns are privileged to attain these positions.
17. In Kâte inanimate nouns indeed are also pluralizable, but have to resort to verbal number marking.
18. Smith-Stark (1974) suggests that the relevant parameter instead is the likelihood of participation in the speech event; but evidently this likelihood is greatest with animates and especially individuals.

19. Fontinoy (1969:18-19, 201-202) suggests some further interdependencies between pronominal and nominal duals which I find dubious. According to him, a pronominal (and verb-agreement) dual limited to 3rd person "se concilierait parfaitement" with a nominal dual limited to natural pairs; a pronominal (and verb-agreement) dual with 2nd person, perhaps among others, "rend tres vraisemblable, mais pas certaine" an unlimited nominal dual, while a 1st person pronominal (and verb-agreement) dual "suppose presque necessairement" an unlimited nominal dual; and an unlimited nominal dual correlates with a dual of both pronouns and verb agreement.
20. On another page, however, Humboldt appears less convinced of this parallelism, cautioning against rash inferences about notions from unlimited dual extensions alone.
21. Thus, nothing follows from this collective-singular conception of the dual about agreement when agreeing forms themselves lack a dual. What one might have expected is that such agreeing forms are likelier to be in the singular when 'agreeing' with collective-singular duals, and to be in the plural when 'agreeing' with paucal duals.
22. Duals a potiori (also known as elliptic duals) and sylleptic duals, two species not in Humboldt's collection, are particularly clear manifestations of the ambal conception. The dual a potiori is a dual on nouns which, even though only one member of a pair, denote the pair as such (as, e.g., in Fijian *veitukani*, dual of *tuka* 'grandfather', meaning 'grandfather-pair', i.e., 'grandfather and grandson'); the second, subordinate member of the pair may be added as well, in the singular or also in the dual (as, e.g., in Sanskrit *mirā vārunaḥ* / *vārunau* 'Mitra (Du.) and Varuna (Sg./Du.)'). Pronouns in the sylleptic dual refer to a pair, and are accompanied by a noun denoting the subordinate member of the pair and already included in the pronominal reference (as, e.g., in Old English *wit Scilling* 'both Scilling and I', lit. 'we-two Scilling').
23. In his letter to John Pickering of 12 March 1822 (Müller-Vollmer 1976:284), Humboldt had already speculated on which kind of dual is universally basic. Characterizing this supposedly basic dual here as "un Pluriel particulier pour les objets doubles", he seems not yet to have disentangled dual conceptions and notions. In his paper of 1827 I interpret him as claiming that the dual notion arising from natural pairs, in spite of affinities to the ambal conception, is not to be identified with it and is in principle also compatible with the paucal conception.
24. What also needs to be investigated is the possibility of implicational relationships between the collective ambal conception and further categories such as a general collective, a general singulative, or also special singulatives to form nouns denoting a single member of a pair.
25. In letters Humboldt admits that he in fact did so customarily, on all points of universal grammar. See the admirable biography of Sweet (1980:396, 497).
26. The dual fragment illustrates well how Humboldt thought about the relationship between world-view and grammatical structure. Only a few pages apart he explicitly states that the influence is in one direction as well as the other.
27. For his lecture of 2 October 1805 to the ladies of the *Mittwochsgesellschaft* meeting in his house at Weimar, Goethe, the comparative anatomist who had discovered a part of the human skeleton as inconspicuous as the dual was in the grammatical organism (viz. the *Os intermaxillare*), had drawn up a list (or was it a poem?) which it is instructive to compare with the dual motives of his close acquaintance Humboldt (Goethe 1893):

## Dualität der Erscheinung als Gegensatz:

Wir und die Gegenstände,  
Licht und Finsternis,  
Leib und Seele,  
Zwei Seelen,  
Geist und Materie,  
Gott und die Welt,  
Gedanke und Ausdehnung,  
Ideales und Reales,  
Sinnlichkeit und Vernunft,  
Phantasie und Verstand,  
Sein und Sehnsucht.

Zwei Körperhälften,  
Rechts und links,  
Atemholen.

Physische Erfahrung:  
Magnet.

28. Of course Bernhardt was also aware that the dual is not universal. His emphasis (especially in Bernhardt 1805) was on its presence in particular in 'original' languages, implicitly opposing the then popular view of the dual as a recently invented mere refinement. But this supposed limitation (which Humboldt did not accept) was left unexplained.
29. Among the numerous attempts to prove the dual a hallmark of primitive mentality, Leenhardt's (1947) work on Melanesia stands out as an illuminating ethnological study of its cultural context.
30. Elsewhere (Plank 1987b) I have argued that the use of number markers only where not redundant is a peculiarity of languages of a particular morphological type, viz. languages (agglutinative and analytic) where number is not cumulatively expressed with other categories. But this does not seem to be a distinction that is relevant here: in Greenlandic, Hottentot, and Ancient Greek number in fact is cumulated with other categories, viz. gender or case. On the other hand, what is at issue here is not the use or non-use of a distinctive number marker; economy here is a matter of using a (less marked) plural form where duality is lexically or contextually obvious.
31. A third benefit to be reaped from such comparative category studies, according to Humboldt, was an improved understanding of genealogical affinities between languages.
32. In a work of considerable influence, in France and abroad, President de Brosse (1765:II, 49) had also included the dual in a list of grammatical properties which he thought were systemically related.

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