The genesis and progression of language through cognitive expansion and creolization

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Abstract

This paper contains a scenario for the genesis, and part of the progression of language. It consists of a concise interdisciplinary explanation on how modern speech began, by tracing back to language's first appearance through the attainment of physical aptitude for speech, and cognitive expansion of hominans. This is preceded by a short discourse on the linguistic record of archaic language users Homo sapiens and Homo neanderthalensis: a partially common record that can be outlined genetically as well as linguistically. Subsequent focus will be laid on how the current great extent of linguistic diversity may for a substantial part have developed through pidginization and creolization. It will be concluded that that since the utilitarian bond between Homo sapiens and Homo neanderthalensis that existed between 95-30 kya, the creolization process has been a common cause for language progression and a main reason for present language diversity.

Keywords: Creolization, creolization continuum, grammaticalization, labeling, language morphosis, language progression and language diversity

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ต้นกำเนิดและความก้าวหน้าของภาษาผ่านการพัฒนาทางสติปัญญาและกระบวนการเปลี่ยนแปลงมาสู่ภาษาครีโอล

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บทคัดย่อ

บทความเรื่องนี้มีเนื้อหาเกี่ยวกับต้นกำเนิดและเส้นทางของพัฒนาการทางภาษา ประกอบด้วยคำอธิบายในทางสหวิทยาการเกี่ยวกับจุดเริ่มต้นของภาษายุคปัจจุบัน ย้อนกลับไปยังต้นกำเนิดของภาษาซึ่งมีที่มาจากการที่สิ่งมีชีวิตในวงศ์โฮมินันมีอวัยวะที่ใช้ในการออกเสียง และเริ่มมีพัฒนาการทางด้านสติปัญญาโดยมีการวิเคราะห์จากหลักฐาน บันทึกทางภาษาศาสตร์เกี่ยวกับภาษาโบราณของมนุษย์โฮโมเซเปียนส์ และมนุษย์โฮโมนีแอนเดอร์ทัลเลนซิส ซึ่งแสดงถึงโครงร่างคร่าวๆ ของภาษาในเชิงพันธุศาสตร์และภาษาศาสตร์ ประเด็นศึกษาสำคัญ เน้นที่ความหลากหลายทางด้านภาษาในปัจจุบันซึ่งอาจมีสาเหตุมาจากพัฒนาการของภาษาที่เปลี่ยนแปลงจากภาษาผสม (พิดจิ้น) มาสู่ภาษาครีโอล อาจกล่าวโดยสรุปได้ว่าอาศัยความเกี่ยวโยงระหว่างมนุษย์โฮโมเซเปียนส์และมนุษย์โฮโมนีแอนเดอร์ทัลเลนซิสซึ่งพบปรากฏอยู่ในระหว่าง 95,000-30,000 ปีก่อน อาจสามารถใช้อธิบายได้ว่ากระบวนการเปลี่ยนแปลงจากภาษาผสมมาสู่ภาษาครีโอลเป็นสาเหตุสำคัญที่นำไปสู่ความก้าวหน้าในการใช้ภาษาของมนุษย์และยังเป็นเหตุผลหลักของความหลากหลายของภาษาในยุคปัจจุบันอีกด้วย

คำสำคัญ: กระบวนการเปลี่ยนแปลงสู่ภาษาครีโอล ความต่อเนื่องของกระบวนการเปลี่ยนแปลงสู่ภาษาครีโอล พัฒนาการโครงสร้างไวยากรณ์ การจำแนกภาษา ขั้นตอนการสร้างภาษา วิวัฒนาการและความหลากหลายทางภาษา

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Introduction

There are around 7000 languages in the world today[3] . Modern Homo sapiens left Africa around 62-95 kya (Fu et al. 2013), this leaves us in a linguogenetic logjam. Only a fraction of all African languages could have migrated with the wandering Homo sapiens (Amos & Hoff-man, 2010; Dediu & Levinson, 2013). If all languages in existence had descended from those at most few dozen (plus those which never left Africa), the design space offered by these languages could never have been wide enough to procreate the language diversity attained today. This raises questions on Homo sapiens' cultural and biological evolution; here in particular during the period needed for the development of conspicuous language diversity.

Human evolution is a symbiotic cognitive and cultural progress, of which language development is an important factor. In the evolution of language both temporal and spatial processes have contributed. When considering the latter, the wide-ranging linguistic development of Homo sapiens is better explicated when Homo neanderthalensis' contributions are considered alongside the input of Homo sapiens alone.

Not long after Homo sapiens had left Africa they came into contact with Homo neanderthalensis, whose southernmost habitat was the Middle East (Pääbo, 2014). Recent research (Dediu and Levinson, 2013; Pääbo 2014; Hershkovitz et al., 2015) shows that cultural, and even genetical, exchange between the two groups must have been intensive enough to cause sapiens-neanderthalensis pidgin languages to come into existence, which, through creolization in following generations, would contribute to language diversity in Homo sapiens. After Homo neanderthalensis'

[3] 7.106, excluding 138 deaf sign languages (SIL ethnologue 2015, http://www.ethnologue.com/statistics)

extinction this process of pidginization and creolization continued in Homo sapiens, causing several pidgin-creole continua that further added to present language diversity.

An explanation of language genesis

If knowledge of language is not inborn, it is so advantageous to possess that methods of acquiring this knowledge must be available genetically. Still the supposition that nature endowed man with linguistic capacity doesn't offer any clue about the mechanisms at their dis-posal to learn and use language. Natural selection might account for the creation of a language faculty - innate knowledge of universal grammar (UG), but how could that be when the practical application of the capability to speak would not be required until language's genesis?

Pinker and Bloom (1990) and Jackendoff (1999) hold the view that UG was built fraction by fraction, which suggests adaptive roles of grammatical devices. Chomsky (1995) asserts that explanation of this fragmented construction of knowledge on language universals is unnecessary, as according to his analysis of minimalist conception of syntax all rules of syntax are the consequence of one fundamental syntactic process which, once in place, would lead the rest of UG to follow automatically.

It is however far more likely that our capacity to use language is founded on existing proficiencies, none of which was originally intended for language learning. Tomasello (2000) claims that the critical skills by means of which linguistic aptitude developed are skills origi-nally cultivated to regulate and imitate social behavior. Learning by imi-tation allows fast transfer of skills from generation to generation. The ability to form beliefs about mental states of others allows man to han-dle himself in a socially complex environment. Their social living condi-tions stimulate the development of semiotic

capacity: the brain's ability to handle complicated systems of symbolic signals. Profiting of man's cognitive capacities, the aptitude for language rode along.

Natural selection is able to generate chances in man both directly - via changes in their genome coding, and indirectly - by placing their minds in a specific environment. The indirect way is named 'niche construction' (Clark, 1997: 213, Tomasello, 2000: 73)[4] : In addition to creating language learning mechanisms in individuals, natural selection generated propensities to create special language learning environments in the parents of those individuals. 'Cumulative downstream niche construction' (Sterelny 2003: 149) happens when a new generation 're-adapts' an environment that was adapted previously by earlier generations. Humans are major niche constructors, and many of the modifications they make to their environments accumulate over time - into a language, a culture, a country, science, engineering etc. These Accumulative alterations cause a 'ratchet effect' (Tomasello 2000: 5): an improvement, once made, becomes standard for the group, then forms the basis for further innovation. Cumulative downstream niche construction evidently applies to language. If man creates the linguistic environment of their offspring, and if all of mankind shapes the linguistic environments of their conspecifics, the opportunity for the emergence of a linguistic ratchet effect is clearly open. So, in a way that suited our preexisting cognitive processing capacities, language evolved.

Cognition and the processing of language

Through linguistics alone we cannot determine how long language has been spoken. It is possible to study written language

[4] The term was first used by Odling-Smee, Laland and Feldman (1996).

from literary sources up to around 5,300 years ago[5]. Spoken language emerged far earlier. The cognitive foundation for language originates in complex social behavior, not in semiotic aptitude itself.

The capability to speak started with what man already had in his brain: ganglion, limbic system and neocortex. The neocortex is an exclusive mammalian feature, and humans use it for functions as sensory perception and conscious thought. It also forms the foundation of analytical and logical thinking, and of man's capacity for language. Broca's and Wernicke's areas are also regions with functions connected to speech production. As speech conveys emotion and thought, there are relations between linguistic and other brain functions. The functions of cognition, perception, conceptualization and language are connected with the faculty of speech.

Restricting linguistic capacity to Homo sapiens based on archaeologic evidence of cultural activity is denying that other hominans did speak fully developed languages without adapting material culture. Presence of a certain cultural phenomenon may indicate a level of cognitive and intellectual capacity, but doesn't mean that this same level cannot be achieved when this phenomenon is absent. Neanderthal man populated Europe, Western Asia and Southern Siberia between 400 kya and 35 kya. Their culture eventually proved less progressive than that of Homo sapiens, and it was claimed that Homo neanderthalensis' anatomy indicated that they were intellectually the lesser of Homo sapiens (McBrearty & Brooks, 2000; Stringer, 2002; Henshilwood & Mareau, 2002). A controversy about the descent of the larynx and the presence of a hyoid bone has long

[5] The oldest still existing written texts date from around 5,300 years ago: Sumerian proto-literature dates from the 33rd-31st century BC, the proto-hieroglyphic Narmer palette from the 31st century BCE. Older script-like signs as the Indus-script of Harappa and Proto Elamitic cannot be claimed as written language (Coulmas, 2000).

impeded the acceptance of Homo neanderthalensis' propensity for speech (Lieberman & Cretin, 1971; Boë et al., 2002; Fitch, 2009). This controversy has now been lifted by recent excavations of a Homo neanderthalensis skeleton with a hyoid bone. This find indicates a capacity for speech, and suggests that Homo neanderthalensis already had a modern larynx. Therefore Homo neanderthalensis was biologically and intellectually equal to Homo sapiens and his capacity for language was similar to that of our own (Dediu and Levinstone 2014).

Consequently the genesis of modern language could be reassessed from 50-100 kya to more than 500 kya, the age of Homo heidelbergensis, who was the common ancestor of both Homo sapiens and Homo neanderthalensis (Fu et al., 2013). The assumption that modern language did not emerge before 50-100 kya (Bickerton, 1990; Mithen, 2005; Chomsky, 2007) was not only based on the belief that neither Homo heidelbergensis nor Homo neanderthalensis possessed specialized organs for speech, but also on the conviction that none of them had recursive thought, nor any other form of cognitive flexibility that would enable them to use language. It was also thought that Homo sapiens' capacity for language had shaped suddenly, with an abrupt 'rewiring of the brain' (Chomsky 2007), instead of having been formed through evolution. Data now suggest that propensity for language gradually developed through a steady accumulation of small improvements (Dediu and Levinson, 2013). In Homo heidelbergensis, a large game hunting tool- and fire user who used pigments for symbolic purposes, this process must have already culminated in a type of language similar to modern speech. In Homo sapiens the accreted improvements caused modern language to develop even further, and in Homo neanderthalensis something similar happened. Homo neanderthalensis knew how to handle syntax, pragmatics and word-meaning mapping, just as Homo sapiens

did (Dediu & Levinson 2013).

The use of articulate speech indicates that the parameters carrying speech information are adjusted for production as well as reception. Homo heidelbergensis's external and middle ear enabled clear sound discernment, hereby supporting modern speech perception. Homo neanderthalensis' ear anatomy was modern, showing that modern auditory organs predate the Homo sapiens - Homo neanderthalensis split (Martínez et al. 2004). Also, for modern speech production the regulation of breathing is indispensable: Sharp inbreath and slow release, as well as control over the volume of voice are necessary for speaking. Automatic respiratory control (situated in the brain stem) is taken over by cortical control when talking. Evidence of breathing control in hominans can be concluded from fossils by an enlarged vertebral canal. Both Homo heidelbergensis and Homo neanderthalensis show this characteristic (McLarnon & Hewitt 1999).

The split from Homo heidelbergensis left Homo sapiens dominant in Africa, Homo neanderthalensis in Eurasia. There was sparse contact until the exodus of modern man from Africa. Homo sapiens fossils of just over 100 kya have been discovered in the Middle East, and eventually around 70 kya further dispersal of Homo sapiens started. Eventually Homo sapiens reached glacial Europe 40 kya. In short, while lineages had split 500 kya, there was recurring contact between Homo sapiens and Homo neanderthalensis from at least 100 kya (Sangkakaraman et al., 2012; Pääbo 2014).

Culture and language

Although hardly encountered at all in the Upper Paleolithic and infrequently in any pre-Neolithic culture, Homo neanderthalensis was formerly seen as undeveloped because of the absence in their culture of art and projectile weapons, and their lack of large-scale

exchange networks, camp sites and fishing (Schrenk & Müller, 2008). This biased impression has been invalidated by recent excavations of Neanderthal sites, where artefacts have been found that were produced before first contact with Homo sapiens. Homo neanderthalensis had a complex stone tool making technology that could have only reached its level of perfection through the teaching of skills over generations. Homo neanderthalensis used fire, consumed cooked game and cereals, wore foot gear and sew their clothing. They hunted small animals with spears, and used collective driving to catch buffalo and mammoth. Homo neanderthalensis attended to their wounded and buried their dead. They decorated their body with pigments. They made beads, and lived in small bands. Homo neanderthalensis probably built huts (Lalueza-Fox et al.). The skills Homo neanderthalensis had implicate consecutive planning. The sequence of action and motor control used for tool making needs the same high level cognition and fine motor skills as language use does.

Contact with Homo sapiens caused cultural borrowing by Homo neanderthalensis (Dediu & Levinson, 2014). While invention shows cultural advance, borrowing technology is also an indicator of cognitive capacity. Neanderthal culture wasn't 'intellectually simpler' than ancient Homo sapiens'. Indeed several modern human cultures are simpler than Neanderthal culture. The Tasmanians and the Yaghans of Tierra del Fuego lived in almost complete absence of material culture until recent times, the Andaman Islanders still do. The main cause for Homo neanderthalensis' relative material underdevelopment was formed by their low population densities (Mellars & French, 2011). Small, dispersed populations don't develop quickly, as division of labor and specialization is difficult to implement, and transmission fidelity is low.

Large societies have a tendency of reducing complexity in language. This is caused because analogous language characteristics are needed to interconnect with people further away, who communicate through the same language, but whom one doesn't know personally. Small communities with little material culture don't mind and even covet linguistic complexity, as it sets identity. Even today highly complex languages are spoken by small ethnic groups. We may expect that Neanderthal languages were complex and comprised many typical features of modern languages spoken by traditional tribal societies. Typical for these languages are a great number of phonemes, large vocabularies, complex morphology and syntax, and a high level of irregularity. Keeping to the analogy there must also have been many Neanderthal languages, often unrelated to each other because of the isolation in which their speakers lived.

The dissemination and re-formation of language

When Homo sapiens arrived out of Africa, Homo neanderthalensis was the natural keeper of the land wherever he came. Homo sapiens needed Homo neanderthalensis' advice and survival skills in natural environments that were different from Africa. In exchange, technological and material advancement went the other way. There was contact, communication, cultural exchange and trade. According to Pääbo (2014) ancient DNA (aDNA) confirms that Homo sapiens split with Homo neanderthalensis[6] from Homo heidelbergensis, but that, after the split, the human groups still interbreeded: this happened infrequently, but not rarely. Traces of

[6] And Denisovans, a Paleolithic-era subspecies of Homo neanderthalensis. Within the scope of the discussion in this paper Denisovans are considered in tandem with Homo neanderthalensis and won't be mentioned apart, again.

the Neanderthal genome have been found in modern humans (Sangkakaraman et al., 2012; Pääbo 2014; Dediu & Levinston 2014; Hershkovitz et al., 2015). This indicates that there is factually no single species lineage of modern Homo sapiens. Indeed, suggestions have been made that we shouldn't think of Homo sapiens and Homo neanderthalensis as separate species. The genome of Homo sapiens and Homo neanderthalensis is not only very similar to Homo sapiens, both lineages also share the FOXP2 gene, a gene linked to the capability to use language. Other evidence apart, the presence of the gene suggests that Homo neanderthalensis was a language user (Dediu & Levinston, 2014). Next indication is the actual result of the cause: The existing language diversity has likely been caused at least in part through pidginization and creolization of Neanderthal languages by Homo sapiens. Only if modern man did interact and interbreed with Homo neanderthalensis, and only if he appropriated Neanderthal phonology, morphology and syntax, the design space needed for the development of modern language diversity can be explained.

Dediu and Levinson (2014) suggest that one opportunity by which modern language could have developed into present day diversity was by contact and interbreeding between Homo sapiens and Homo neanderthalensis. They doubt, however, that this scenario is consistent with the low level of contact between the hunter-gatherer groups. Fu et al. (2014) on the other hand determine that Neanderthal-Homo sapiens admixture had already begun 50-60 kya, and that Neanderthal DNA fragments in humans at that time are substantially longer than those in modern humans. Sangkararaman et al. (2012) put the date of first interbreeding even earlier, at 86 kya. These data suggest that more than just casual contact between the groups existed at an early stage, and further support a scenario of regular interaction between both human subspecies.

The proven social contact between Homo sapiens and Homo

neanderthalensis is more than needed for successful linguistic admixture: Even if the level of contact between the two groups were lower than claimed above, it would not have prohibited linguistic admixture to take place: Language admixture happens in situations in which the superstrate language is spoken by a minority, even if there is no direct contact between that minority and the majority of substrate speakers. An often encountered development in such cases is that early mixed-language speakers with extensive bilingual contact acquire a standard language - not rarely within a single generation - which then provides a further basis for the language of following generations and new immigrants (Chaudenson, 2001).

Progression of proto-language into language; analogous to pidgin into creole?

Language pidginization is a natural process that frequently takes place when cultures meet. It appears with sudden colonization by set-tlers and fast expansion of trade- or social networks. Superstrate and substrate language are disassembled and through regrammati-calization and relexification a new language is built up: This process generally initiates in frontier areas where there is frequent contact between speakers of dissimilar languages. In analogy with what happens with material borrowings between cultures, the resulting trade language is then used with growing constancy by larger groups of people. Once the trade language has a sufficient impact on society, it may change into a creole language: a language with native speakers.

Bickerton (1984) proposes in his Language Bio-program Hypothesis (LBH) that pidgins are created by adults and have no native speakers. Their use is limited to certain aspects of communication only. They are not proper languages but restricted codes. Pidgins are formed by ‘stripping’: reducing a language to its lexical categories. This causes the

loss of some phonological structures, inflectional and derivational morphology, grammatical distinction of gender, number, tense, mood, aspect, and subordination. Many lexical items are forfeited, as are semantic and syntactic exactness, causing multifunctional words to develop. 'Stripping' concerns superstrate and substrate language alike; it means loss of features in all languages involved in building the pidgin.

In his LBH Bickerton also proposes that Creoles are 'largely in-vented by children' (Bickerton, 1984: 173)' and, hence, do have native speakers. Creole languages are formed in one, are fully operational in two generations, and are fit to be used in all fields of communication. Consequently they are wholly developed languages that carry all features of natural languages: a large lexicon, fixed syntax, semantic precision, grammatical and functional categories, and subordinate clauses. Creoles are nativized pidgins, caused into existence because children experience the pidgin of their parents as depleted; they fill in the perceptive gap by nativizing the creole via grammaticalization and expansion of its lexicon. In Bickerton's LBH pidgins and creoles are distinct entities.

Lefebvre (2013) argues evidence shows that pidgins and creoles should not be considered as separate entities forged by different processes. Both are variations on a single process: relabeling. Relabeling is not only important in the first phase of pidgin/creole creation, but also in the further developing process of retagging lexicon. The more relabeling is done, the more extended the pidgin or creole will become. The process of relabeling requires speakers who have cognitive awareness of the lexicon. Therefore, though children might be the initial creators of a language, the role of adults in its further development should not be underestimated.

Some suppositions have already been made about parallels between the transition from pidgin to creole and that from protolanguage

to language. Bickerton (1990, 2000) suggests that protolanguage is analogue to pidgin, while developed language is equivalent to creole. Heine and Kuteva (2007) also claim that pidgins show attributes that may explain early forms of human language. Protolanguage is believed to have no grammatical categories and no recursion, and a small lexicon consisting of words with multifunctional meaning, which are connected without any fixed pattern. Circumstantial context is supposed to aid semantic interpretation. These properties resemble those of restricted pidgins. The changes from protolanguage to language would correspond to those occurring in the transformation from pidgin to creole.

Lefebvre (2013) states however that even restricted pidgins have syntax, grammatical categories and recursion, and that no extralinguistic context is needed for interpretation. The correspondences left (small lexicon and multifunctional words) don't count as sufficient similarity between protolanguage and restricted pidgins. Apart from this, Lefebvre argues, pidgins are formed by relabeling, in which the relabeled lexicon takes over the original lexicon's semantic and syntactic requirements. However protolanguage arose, it was obviously not by relabeling.

In the discussion about the morphosis from protolanguage into language Bickerton (1990) remarks that unlike in protolanguage, syntax has meaning in language, arguments are linked to verbs through subcategorization, there are rules for recursion and grammatical items feature plentifully. Unlike protolanguage, language is fluent, and language speakers can interpret information without extralinguistic context. Lefebvre (2013) argues that between pidgins and creoles there are no such differences. Both pidgins and creoles have fixed word order, functional and grammatical categories and recursion. Outside context is not needed for interpretation. Only in the criteria for fluency and lexicon size pidgins correspond with protolanguages.

Although it has been claimed that during the change from proto-language to language grammatical categories appeared through grammaticalization (e.g. Heine & Kuteva 2007; Smith 2008), even restricted pidgins already contain at least a few functional/ grammatical categories. Indeed most grammaticalization is accomplished in pidgins before creolization. This is owed to the fact that pidgin/creole creators use the syntax of (one or more of) their own native languages as an instrument for the building of a pidgin. The syntax of a pidgin is thus quite similar to that of its creator's native language. In the matter of a protolanguage-language succession there is no earlier language to construct from, and necessarily syntax appears from thin air. In pidgins other grammatical categories also have a tendency to follow the form of that of the substrate-, and contrast it with the superstrate language (Lefebvre & Loranger 2006). This cannot be case in the relationship between proto-language and language.

Lefebvre finally proposes that Bickerton's (1990) statement about the transformation from protolanguage to language being abrupt is probably right, but for another reason than he suggests. In his interpretation, there are two varieties of language: modern language and modern forms of protolanguage (baby talk, foreigner talk), and nothing in between. This is Bickerton's argument in favor of a two - stage evolution scenario – protolanguage then language – with syntax as the distinguishing feature. The argument Bickerton makes cannot be right, though, as his comparison material doesn't prove much: Pidgins and creoles are not separate entities, and grammaticalization already occurs pre-creolization. In fact pidgins and creoles can be created in such a short time because they reproduce the properties of their creator's native language by relabeling. Relabeling could never be an issue in the morphosis between protolanguage to language, so the shift from pidgin to creole doesn't help us understand the protolanguage-language sequence

(Lefebvre 2013).

Something out of nothing: cognitive expansion, development of social skills and labeling

"Language involves attaching meaning to symbols" (Samovar, Porter & McDaniel, 2011). Cognition is apparent in young humans and even primates. The number of generations between the beginnings of sound as meaning attached to a symbol until the development of a protolanguage can impossibly be aeons for a cognitive creature with developed speech organs. Once the tools for creating language developed, it became advantageous for man to possess it completely. With his cognitive abilities and social skills he would have no difficulty labeling: coining lexemes within this hugely useful device by using the speech organs he had to his disposition. Speakers of creole languages relabel and become comfortable with new coinages within less than a generation. Also, first generations creole speakers routinely regrammaticalize using the same method. There is but a technical difference between the relabeling and the labeling of a lexical item: relabeling implies pre - existing, already labeled sources and labeling does not.

Spontaneous lexeme coinages have occurred throughout language's recorded history. Linguistic symbols arise and evolve through a sociogenetic process, even in established languages where they are less needed (Štekauer, 2005; Tuggy, 2005). In protolanguage lexemes, and in its slipstream tools as syntax and morphology, would from their very genesis on have been outfits which – if not readily identified, named and put in working order – would be required by a cognitive being, in very much the same way as a certain tool would be needed and therefore designed. Language features would be looked for and created with the same expanded cognitive skills that allowed man to discover how to strike a blade from a core of flint. Even if not at once in all places: Just one troupe

of Homo heidelbergensis using their cognitive capacities to refine proto - language into language would be enough to teach the rest of the human race how to do such a thing.[7] In this scenario only during the very start of the rise of language the morphosis from pidgin to creole would not mirror exactly the sequence from proto-language to language. For cognitive men and women - owners of finely-tuned sound producing and reception systems as the native speakers of proto - language - labeling and grammaticalization, the main techniques needed to effect morphosis from proto-language into language, would have gone nearly as smoothly as the morphosis from pidgin into creole.

Creolization as one of languages' prime ways of progression

Apart from the cultural necessity for proto-language to develop into language, the need for any language to develop periodically - as an adaption to an altered historical or social situation - is provided with by the same technique of lexical and grammatical labeling that the road towards language progression employs. Cultural amendment or historical reform can split up and modify a language into several new ones. Well-known cases include Low Frankonian, which split into Dutch, Flemish and Afrikaans, and Malay, which split into among others Minangkabau, Kelantan Malay, Musi, Negeri Sembilan and Bajau. An alternative road employs the process of pidginization and creolization, which happened in hundreds, maybe even thousands of instances during historic times.

There is agreement on the following criteria in defining creole languages: 1. Creoles emerge as pidgins first; 2. Creoles have native speakers; and 3. Though in level of grammaticalization the dividing

[7] Writing, another achievement that characterizes humans as inventors of linguistic systems, has also only been invented once (Coulmas 2002)

line between pidgin and creole is hard to pinpoint, Creoles become grammatically more complex than pidgins eventually. Creoles differ because of the alternate ways in which creolization is realized, and we must acknowledge that creoles do not develop exclusively from pidgins. Manner of creolization depends on size of and language variation within the community, intensity and type of contact with other communities speaking the same pidgin/creole, and on proximity and availability of the lexifier language. In many cases there are incognizable factors defining creole languages' development. Although it is often assumed that all creole languages are simpler than 'historically developed', 'single-source' languages, most are not. Many creoles have grammatical features not found in their superstrate languages. Haitian Creole has extensive derivational morphology, where French has not (Valdman, 1988); Tok Pisin has markers for singular/dual/multiple, as well as for inclusive and exclusive in pronouns, where English has not (Verhaar, 1988). The claim that creoles are always simpler than their lexifiers in verbal inflection has been refuted by Luís (2009).

Relexification and regrammaticalization already living processes within the language in her pidgin-state - cause a creole to lose its simplicity. Before a creole emerges from a pidgin, the pidgin variants used for communication consist of a blend of features, morphologically extending from the basic to the complicated. Later independent grammaticalization and lexification by the native speakers of the creolized pidgin causes further morphological and lexical expansion.

The fact that creolization is accomplished (or not accomplished) in contrastive and volatile ways may be illustrated by the following cases:

Non pidgin-based: Creoles with a close proximity to their superstrate language tend to restructure by rapprochement. Chaudenson (1992), studying creoles with French as their lexifier,

assumes that creoles progressively develop from their lexifiers without an intermediate pidgin phase. The lexifier language is deliberately rearranged and restructured to fit into a creole typology. Creolization is then the final result of the rapprochement toward the lexifier through a steady transmission of data. The point that there is no indication of pidgins actually predating many creoles is an argument for this view.

Non-creolization: Some types of pidgin rarely result in a creole. Speakers who wish to keep their own language a secret for outsiders communicate to strangers in a reduced register, so that those will never hear real language. The Motu of New Guinea adapted their register to the language of their trade partners. They used a partly degrammaticalized variety of Motu with other Austronesian language speaking peoples, and a pidginized form called Hiri Motu, with trade partners speaking Papuan languages. Neither Motu nor Hiri Motu ever creolized. (Versteegh 2008).

Multiple super-and substrates: The substrate and even the superstrate of a creole does not always consist of derivations from a single or just two languages. Tok Pisin consists of English, Malay, German and Portuguese superstrate acquisitions, as well as substrate inference from different Austronesian and Papuan languages. Haitian Creole is a creole based mainly on 18th-century French as a superstrate, but with added superstrate influences from Portuguese and Spanish, as well as substrate corollary from Caribbean (Taíno) and African languages. Papiamento is in fact an originally Upper Guinea Portuguese creole, which has been partly relexified with Spanish and Dutch words.

Reversed substrate and superstrate: Since 1826 a creole language with an Aleut superstrate and Russian inference has developed on Mednyy Island near Kamchatka, which in that year was inhabited with natives from the Aleut Archipelago. The vocabulary

is, unlike in other pidgins and creoles, largely indigenous. There are two strata in the language, one Aleut, the other Russian. The Aleut stratum includes the major part of the vocabulary and all nominal and verbal morphology, most of syntax, nominal inflexion and some other structural features. The Russian stratum consist of the verbal tense and person marking, negation, infinitive forms, and part of syntax. Phonetically, the language has compromised between Aleut and Russian (Wurm, 1992).

The creolization continuum

The fact that pidginization and creolization are continuously used in language development may be exemplified by the fact that the superstrates of many present-day pidgins and creoles were once creole languages, themselves. Manglish, Singlish, Taglish, Jamaican Patois, Mískito Coast Creole, Sranan Tongo, Krio, Kreyol, Bislama, Tok Pisin, Torres Straits Creole, Hawaiian Creole and Pitkern are creole languages with (Modern) English as their superstrate. Modern English itself originated from the creole language Middle English (Bailey & Maroldt 1977)[8]. French, Italian, Spanish, Portuguese and other Romance languages developed from Vulgar Latin through pidginization and creolization, but are themselves superstrates of modern creoles: Haitian Creole, Louisiana Creole, Antillean Creole, French Guiana Creole, Karipúna, Lanc-Patuá, Tây Bồi, Réunion Creole, Seychellois Creole and Tayo are creoles with French as superstrate language. Caló, Chavacano and Palanquero are creoles with a Spanish superstrate. Portuguese-based creoles include

[8] The argument of considering Middle English a creole comes from the great reduction in inflected forms in Middle English. The declension of nouns was drastically simplified, the verb structure lost the old patterns of conjugation, with many strong verbs analogized as weak, and syntax was simplified with word order becoming more rigid.

Guinea-Bissau Creole, Cape Verdean Creole, Angolar, Forro, and Papiamento. In Italy, the Romani speak an Italian-based para-Romani creole (Goyette 2000).

Malay, the language from which both Indonesian and Malaysian have been designed, is a language that has often been pidginized and creolized. In the 15th century Malaccan and Johor Malay became important trade and court languages in maritime Southeast Asia. Classical Malay was pidginized into the commonly used vernacular Melayu Pasar (Bazar Malay). This Malay pidgin creolized into a dozen Malay-based creoles; e.g Malaccan Creole Malay, Ambonese Malay, Manado Malay, Balinese Malay, Papuan Malay and Betawi. A recently (since around 1960) formed creole that has a Malay creole as a superstrate is Colloquial Jakartanese Indonesian (CJI) or Bahasa Gaul (Sneddon, 2006). CJI mainly originated from Betawi, a Malay creole with Portuguese, Dutch, Chinese, Javanese and Sundanese substrates. CJI has since a few decennia become a popular high-status sociolect, and has now caused diglossia in Indonesian, especially in its spoken form; the other valid sociolect being standard official Indonesian. CJI is now rapidly relexifying and to a certain extend even regrammaticalizing Indonesian.

Tok Pisin is a creole language spoken as a mother tongue and as a lingua franca in – especially the northern half of – Papua New Guinea. In regions where familiarity with Tok Pisin is widespread and has been for more than a generation, the language has wielded substantial influence on the lexicon and grammar of other languages. In the most extreme cases it either replaces the local language totally, or extensive borrowing from Tok Pisin takes place, even replacing basis vocabulary. Tok Pisin numerals and other basic vocabulary items have replaced the native ones in a number of Papuan languages. Many Papuan languages borrow Tok Pisin verbs, but use them in combination with native affixes. Grammatical

constructions from Tok Pisin are borrowed by many Papuan languages, as well, leading to creolization of the superstrate language (Foley 1986).

Assammese, Bengali and other eastern Indo-Arian languages developed from Maghadi Prakrit by language simplification reminiscent of creolization. Diphthongs were monophtongized, consonant clusters were reduced to single consonants, the dual was lost, vowel inflection was merged, the dative was eliminated, case endings were synchronized, new instrumentals and a genitive started to be used, the middle voice disappeared, and vocabulary of uncertain origin was inserted. Now, Asammese has been creolized, itself: Nagamese, the creolized Assammese spoken in Nagaland has standardized since the 1930ies, and is the common vernacular for all citizens of Nagaland (Reinecke et al., 1975).

Afrikaans is a daughter of several Dutch dialects spoken mainly by the Dutch settlers of South Africa, where it gradually began to develop independently in the course of the 18th century. Although it is often considered a daughter language of Dutch, it has several characteristics of a creole language, such as simplified verb conjugation and a reduced case system[9]. Eventually, a pidginized variety of Afrikaans (Fly Taal) has emerged among speakers of Bantu languages (Holm 2004).

The range of variation found across languages is quite narrow: Many logically available possibilities for syntax, phonology or morphology exist in no single language. In comparison with the possibilities that exist for language diversity, languages behave extremely restrained. Along these lines languages are easily formed, either through labeling and grammaticalization by cognition and the faculty of speech alone, or by shredding other languages - and using

[9] Through language planning the case system has now also been reduced in Dutch.

already existing grammar and lexicon as a basis to reconstitute.

In the course of time a natural chain of causation, here called the creolization continuum, has been responsible for the rise of many creole languages, which in several cases subsequently became creolized, themselves.

Conclusion

Pidginization and creolization are basic, primeval, but still ongoing processes of language change that have existed almost as long as language itself. Within historic times there is evidence of hundreds of cases of pidginization and creolization taking, or having taken place. There is ample indication that the same process took place on a grand scale in prehistory, and accounted for the great language diversity of which the present state of affairs is only a snapshot in time. The fact that now an outline can be given on how and when the creolization continuum first began gives us further insight into one of the main ways in which languages have been created almost since their genesis. In principle, the capacity to use language had to originate only once in order for it to progress and reach its current diversity. For a cognitive being as Homo sapiens-and Homo neanderthalensis - neither lexifying and grammaticalization, nor relexifying and regrammaticaliation are particularly arcane or difficult tasks. The human aptitude to further adapt language to need and circumstance culminated among others in an instrument as the creolization continuum described above. The creolization continuum doesn't stop. Languages formed through it regularly become superstrates of new pidgins themselves. Next to historical language change within language, the creolization continuum must be considered as a major factor in the manner in which language progressed and expanded, and as a key reason for past and present language diversity.

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